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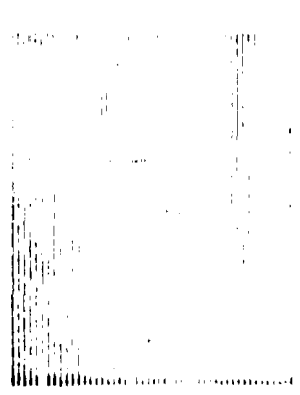
SPECIAL TEXT

ST 9-152

# ORDNANCE TECHNICAL TERMINOLOGY

JUNE 1962

U. S. ARMY



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# PREFACE

The purpose of this volume is to make available for resident instruction a convenient and ready reference of definitions and other pertinent information concerning terms and abbreviations frequently encountered in publications and activities connected with Ordnance. It should also serve to promote uniformity in the use and understanding of Ordnance terminology. Definitions which are not of Ordnance interest have generally been omitted.

This volume is a compilation of Ordnance technical terms, definitions, abbreviations, and associated information of particular application and significance to Ordnance military, civilian, and contractor personnel. It was prepared by the Ordnance Engineering Handbook Office, Duke University, as a part of the Ordnance Engineering Design Handbook series and replaces the June 1959 Preliminary Edition, Glossary of Ordnance Terms, from which this publication developed.

The publication consists of a single alphabetical listing of approximately 10,500 entries, including 8,200 defined terms, 1,500 entries for cross-reference, and 800 commonly encountered abbreviations. The technical terms are not adequately defined as to Ordnance application in standard dictionaries and other readily available sources.

This publication should not be used for establishing item names. A Department of Defense publication aimed at establishing uniform names for end items is Cataloging Handbook H6-1, prepared and published periodically by the Armed Forces Supply Support Center, Washington 25, D. C. Frequent cumulative supplements are issued between publications. That publication prescribes Federal names for items and, in numerous cases, prescribes identifying definitions.

The Ordnance terms listed herein which occur also as item names in Cataloging Handbook H6-1 are in all capital letters and cataloging word order, as in the Federal publication. Definitions of such terms, where prescribed by the Federal publication, are also included herein for convenience. An asterisk (*) placed within or after a definition indicates that the term and the definition, up to the asterisk, are as prescribed by Cataloging Handbook H6-1.

Important abbreviations are included in this publication as regular entries. They are also given in parentheses following term entries where appropriate. Additional information concerning this subject will be found under the entry abbreviation. Liberal cross-references have been included to assist in locating defined terms or additional information. Standard dictionary practice has been followed in this respect, including use of the abbreviation cf for compare.

Many publications were studied or consulted in obtaining material for this publication. Some of the principal sources of information were: Cataloging Handbook H6-1; Military Standards; Joint Chiefs of Staff, Dictionary of United States Military Terms for Joint Usage; Department of the Army technical manuals, supply manuals, and supply bulletins; Army Regulations 320-5, Dictionary of United States Army Terms, 1961; Ordnance Engineering design handbooks and other Ordnance Corps pamphlets; Ordnance Corps manuals; Ordnance Corps orders; Ordnance Corps technical instructions; Ordnance proof manuals; United States Air Force Dictionary; Department of the Navy Ordnance pamphlets; and U. S. Army Ordnance Guided Missile Glossary.

The material presented herein is applicable without modification to both nuclear and nonnuclear warfare.

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# A

**A** *(abbr)*. 1. In such usage as M18A3, designates an accepted modification of standardized item. See also: **B**; **E**; **M**; **T**; **X**. 2. 'Army.'

**a** *(abbr)*. 'Acceleration.'

**A-4**. The German official name for the **V-2** missile.

**AA** *(abbr)*. 1. 'Antiaircraft.' 2. 'Antiaircraft artillery.' 3. 'Absolute altitude.' 4. 'Air-to-air.'

**AAA** *(abbr)*. 'Antiaircraft artillery.'

**AAC** *(abbr)*. 'Antiaircraft common.' In ammunition nomenclature, indicates a common projectile, intended for antiaircraft purposes.

**AAE** *(abbr)*. 'American Association of Engineers.'

**AAM** *(abbr)*. 1. 'Air-to-air missile.' 2. 'Antiaircraft missile.'

**AASM** *(abbr)*. 'Association of American Steel Manufacturers.'

**AB** *(abbr)*. 'Air base.'

**Abbe prism erecting system.** A prism erecting system in which there are four reflections to completely erect the image. It is composed of two double right-angle prisms which bend the path of light 360 degrees, displacing but not deviating the path of light. Not extensively used because of difficulty of manufacture. Cf: **Porro prism erecting system.**

**abbr** *(abbr)*. 'Abbreviation.'

**abbreviation** *(abbr)*. A short form of a word or phrase. Abbreviated 'abbr' in this publication.

Use of both lowercase letters and uppercase letters is common practice, the particular choice being determined by the following rules:

1. If the abbreviation is to be used in telegraphic or other electronic transmission, it is uppercased throughout, since the equipment used in such transmission is not adapted to showing the lowercase.

2. The letters are usually uppercased throughout if they represent the several initial letters of key words in a phrase, as in 'SAM' for 'surface-to-air missile,' but there are exceptions, as in 'rpm.'

3. The letters are, or may be, lowercased if they are contractions of letters in a single word, in which case the initial letter may be capitalized if it is a proper noun, or if it is used at the beginning of a sentence or in a title.

4. The letters are, or may be, lowercased if two or more abbreviations of common words are joined together, as in 'amtrac' for 'amphibious tractor.'

5. The letters may also be mixed between lowercase and uppercase, as in 'OrdC' for Ordnance Corps.

Two other rules should be mentioned:

6. A period at the end of an abbreviation, or periods between letters, are not commonly shown in practice within the services, but for a publication outside the services they may be used, depending upon the standards of the publication involved.

7. An abbreviation shown may, unless otherwise indicated, stand for any derived form of the word, as with *abbr* for abbreviation, abbreviate, abbreviated, etc. These derived forms are not necessarily shown in this publication.

**ABC** *(abbr)*. 1. 'Atomic, biological, and chemical.' 2. 'American-British-Canadian.'

**Abel equation of state.** An equation expressing in a form adaptable to the equations of interior ballistics the relationship among the pressure, the density, and the temperature of the gaseous products of combustion of the propellant. It is not an exact equation, but is sufficiently accurate for the interior ballistics calculations. It is expressed as

$$P\left(\frac{1}{\Delta} - \eta\right) = nRT$$

where $\Delta$ = average gas density
$\eta$ = co-volume of the gas
$P$ = space-average pressure
$T$ = absolute temperature
$n$ = number of moles of gas per unit weight
$R$ = gas constant.

**Aberdeen chronograph.** See: **chronograph.**

**Aberdeen Proving Ground.** (APG) Field installation of the Ordnance Corps located near Aberdeen, Maryland. Conducts engineering (proof) tests of Ordnance materiel and equipment, conducts ballistic research and development, and performs human engineering studies. The Ordnance Board and the Ordnance Training Command are located at the Proving Ground. Official symbol: ORDBG.

**Aberdeen screen.** See: **chronograph.**

**aberration.** Any defect of a lens or optical system which causes the image to be imperfect. See: **astigmatism; chromatic aberration; coma; distortion; spherical aberration.**

**ablation.** The wearing away of surface material due to the action of a fluid moving past it at high speed and/or high temperature. Ablation is used as a method of removing the aerodynamic heating effects on missile nose cones during reentry. In this method nose cone material is subjected to thermal degradation involving pyrolysis, depolymerization, melting, vaporization, and combustion. Material is continuously removed by the ablation process.

**abn** *(abbr)*. 'Airborne.'

**A-bomb.** See: **bomb, atomic.**

**aborted firing.** A firing which is cut off either manually or automatically after the firing command has been given, but before ignition has been initiated.

**abortion.** An unplanned termination of an action, operation, or mission, usually because of faulty equipment. An example, the destruction of a guided missile shortly after takeoff because of its erratic behavior.

**absolute altitude.** (AA) See: **altitude, absolute.**

**absolute angle of attack.** See: **angle of attack, absolute.**

**absolute ceiling.** See: **ceiling, absolute.**

**absolute deviation.** The shortest distance between the center of the target and the point where a projectile hits or bursts.

**absolute error.** 1. Shortest distance between the center of impact or the center of burst of a group of shots and the point of impact or burst of a single shot within the group. 2. Error of a sight consisting of its error in relation to a master service sight with which it is tested, including the known error of the master service sight. Relative error, which is a part of absolute error, includes only the error of a sight in relation to a master service sight.

**absolute pressure.** Sum of **gage pressure** (which see) and atmospheric pressure.

**absolute shrinkage.** See: **shrinkage.**

**absorption.** The act or process by which an object or substance 'takes up' or 'soaks up' all the colors contained in a beam of white light except those colors which it reflects or transmits. Because of absorption, objects appear to have different colors; white objects have little absorption; other objects having varying powers of absorption appear to have different colors. For example, an object which appears red has absorbed all the colors of the spectrum except the color red.

**AC** *(abbr).* Chemical agent, 'hydrogen cyanide' (Prussic acid, war gas).

**acceleration.** (a) 1. *Mechanical.* The action or process of velocity increase; the rate of velocity increase, often measured in g's. 2. In physics, any change, or rate of change, of velocity, either increase or decrease.

Acceleration (sense 1) of a projectile, missile or aircraft may be linear or angular. Linear acceleration may be lateral, longitudinal, or normal (i.e., vertical); angular acceleration in a projectile, missile or aircraft is around one of its axes and may be pitch, roll, or yaw acceleration. Any increase in speed or any change in direction involves acceleration. See: **angular acceleration; linear acceleration.** Cf: **deceleration.**

**acceleration feedback.** The use of accelerometers strategically located within the body of a missile which sense body accelerations during flight. The information is fed back into the control system for correction of the motion of the missile body.

**acceleration, lateral.** The component of the linear acceleration of an aircraft or missile along its 'lateral' or 'Y' axis.

**acceleration, longitudinal.** The component of linear acceleration of an aircraft or missile parallel to its 'longitudinal' or 'X' axis.

**acceleration, normal.** 1. The component of the linear acceleration of an aircraft or missile along its 'normal' or 'Z' axis. 2. The usual or typical acceleration.

**acceleration, pitch.** The angular acceleration of an aircraft or missile about its 'lateral' or 'Y' axis.

**acceleration, rate of change of.** Time rate of change of acceleration. A factor important in the design of some items. See: **stapp.**

**acceleration, roll.** The angular acceleration of an aircraft or missile about its 'longitudinal' or 'X' axis.

**acceleration tolerance.** The degree to which personnel or equipment withstand acceleration.

**acceleration, yaw.** The angular acceleration of an aircraft or missile about its 'normal' or 'Z' axis.

**accelerometer.** An instrument that measures acceleration.

This instrument can be variously designed to measure different components of acceleration.

**ACCELEROMETER, GUIDED MISSILE.** An instrument designed to measure one or more acceleration components.* Designed for use with guided missiles.

**accelerometer, integrating.** A device whose output signals are proportional to the velocity of the vehicle or to the distance traveled (depending on the number of integrations) instead of acceleration. When installed in a rocket or missile, the integrating accelerometer may be preset to switch off the fuel flow (thrust) when the required speed is reached.

**acceptable quality level.** (AQL) That degree of deviation from perfection which practical considerations of cost of manufacturing and cost of inspection and testing make it necessary to accept establishes the acceptable quality level. The AQL is expressed as the percentage of defective material which the methods of sampling and inspection risk accepting. Standard tables for sampling based on various AQL's are available.

**acceptable reliability level.** (ARL) The required level of reliability for a part, system, device, etc. It may be expressed in a variety of terms, e.g., number of failures allowable in 1000 hours of operating life.

**acceptance criteria.** Standards of judging the acceptability of manufactured (Ordnance) items. These standards consist of inspection plans and sampling plans, to be followed in the inspection process.

**acceptance sampling.** The sampling plan, based on an assumed **acceptable quality level** (which see) which will give the degree of risk of accepting defective material or rejecting acceptable material, which the inspecting agency judges to be necessary.

**accessory.** A part, subassembly, or assembly designed for use in conjunction with or to supplement another assembly, or a unit or set, contributing to the effectiveness thereof without extending or varying the basic function of the assembly or set. An accessory may be used for testing, adjusting, or calibrating purposes. Cf: **assembly; attachment; subassembly.**

**access, random.** *Electronic computers.* Access to storage under conditions in which the next position from which information is to be obtained is in no way dependent on the previous one.

**access time.** *Electronic computers.* 1. The time interval between the instant at which information is: (a) called for from storage and the instant at which delivery is completed, i.e., the read time; or (b) ready for storage and the instant at which storage is completed, i.e., the write time. 2. The latency plus the word-time.

**accidental error.** Unpredictable or chance error in the performance of any apparatus. Accidental error occurs particularly in gunfire or bombing, and is caused by mechanical, personal, or atmospheric variations. Accidental errors change from one time to the next; systematic errors are those which remain

the same since they are due to faulty adjustment of an instrument or to some defect in it. See: **dispersion error.**

**accommodation.** Automatic adjustment of the lenses of the human eye for seeing objects at different distances. The process whereby the crystalline lens is adjusted to focus sharp successive images of objects located at various distances from the eye.

**ACCOUNTING MACHINE.** A machine designed to maintain bookkeeping records, such as fiscal accounting, budgetary accounting, payroll records, and billing, by printing the figures directly upon a prepared form, such as a ledger sheet or a bank book page, automatically spacing the figures in their proper columns. See also: **ADDING MACHINE; ADDING AND SUBTRACTING MACHINE** and **CALCULATING MACHINE.***

**accumulator.** 1. A device that stores fluid under pressure for momentary use at a time when additional energy is required.* In this sense sometimes termed 'pressure accumulator.' 2. *Electronic computers.* A device which stores a number and, upon reception of a new number, adds it to the previous contents and stores the sum. An accumulator may have properties such as shifting, sensing signs, clearing, complementing, and so forth.

**ACCUMULATOR, HYDRAULIC.** An accumulator that stores liquid under pressure.*

**ACCUMULATOR, PNEUMATIC.** An accumulator that stores air under pressure.*

**accuracy.** The quality of correctness or freedom from error. Distinguished from 'precision' as in the examples: (a) '. . . this procedure measures the precision (reproducibility) of the test, not its accuracy (closeness to the true value).' (b) A four-place table correctly computed is more accurate but less precise than a six-place table containing errors. See also: **accuracy of fire** and **precision.**

**accuracy life.** The estimated average number of rounds that a particular weapon can fire before its tube becomes so worn that its accuracy tolerance is exceeded. Cf: **barrel life.**

**accuracy of fire.** The measurement of the precision of fire expressed as the distance of the center of impact from the center of the target.

**acft** *(abbr).* 'Aircraft.'

**achromatic.** *Optics.* Without color. See also: **achromatic lens.**

**achromatic lens.** A lens consisting of two or more elements, usually made of crown and flint glass, which has been corrected for chromatic aberration with respect to two selected colors or wave lengths of light. See: **compound lens.**

**acidproof coating.** Material in liquid form suitable for application (by spraying) to the wall of projectile or bomb cavities to protect the metal from attack by explosives or other shell fillers. Generally consists of acid resistant materials, such as high-melting-point asphalt, in solution in volatile, nontoxic solvent. Also called 'acidproof paint.' See: **ASPHALTUM COMPOUND, EXPLOSIVE CASE LINING.**

**acid wash.** A wash applied to steel parts (Ordnance) after machining and treatment for removal of grease. The acid wash, using a solution of phosphoric acid, removes and neutralizes the alkaline solutions used for grease removal. It also leaves a metallic phosphate coating, which accepts paint well, and of itself provides a degree of protection against rust.

**ack-ack.** [Orig. among British signalmen, a word used for the letters 'AA.'] Antiaircraft; antiaircraft artillery; antiaircraft fire.

**Ackerman steering.** The steering-system design that permits the front wheels to round a turn without side-slip by turning the inner wheel in more than the outer wheel.

**acoustic mine.** See: **mine, acoustic.**

**acoustics.** The science of sound, including its production, transmission, and effects.

**ACOUSTIC SYSTEM, UNDERWATER MINE.** A group of electrical items specifically designed to give audible and graphic signals of underwater sound. It is used as a signaling system to detect a ship approaching a harbor.*

**acoustic velocity.** The velocity of sound waves, or similar waves, in a given medium.

In dry air at 0° C, the velocity of sound is about 1,087 feet a second; in water at 8° C, about 4,708 feet; in steel, about 16,400 feet.

**acoustic wind.** A fictitious wind constant in velocity and direction which is assumed to have the same effect on a sound wave as the winds actually encountered.

**acquisition.** See: **target acquisition.**

**acquisition and tracking radar.** A radar set which locks onto a strong signal and tracks the object emitting the signal.

An acquisition and tracking radar may be airborne or on the ground.

**acquisition radar, guided missile.** See: **ANTENNA-RECEIVER-TRANSMITTER GROUP, ACQUISITION.**

**ACS** *(abbr).* 'American Chemical Society.'

**activated mine.** See: **mine, activated.**

**ACTIVATOR, ANTITANK MINE.** A nonmetallic item designed to adapt a firing device to an antitank mine. It may be empty, inert filled, or explosive filled.*

**active air defense.** See: **air defense.**

**active homing.** Homing in which the homing device reveals its presence. See: **homing.**

**active material.** Fissionable material, such as plutonium, uranium enriched in the isotope 233 or 235, and any other material capable of releasing substantial quantities of atomic energy. In the military field of atomic energy, the term refers to the nuclear components of nuclear weapons exclusive of the natural uranium parts; or, in the field of nuclear power, it refers to the nuclear fuel in atomic reactors.

**activity.** *Army.* A function or a group of related functions or the facility at which the function or functions are carried on. An activity may be located at an installation, a subinstallation, or a separate location which has not been designated as an installation or subinstallation. The two main categories of activities are:

*major activity.* One of considerable size or im-

portance, such as a general hospital or depot, and which is located at an installation with other activities.

*minor activity*. One which by comparison with a major activity is minor in scope, such as a quartermaster sales commissary or ordnance shop, and which may be located on or off an installation.

Activities may be classified as follows:

*class I activity*. One which is under the command of the Commanding General of a Zone of Interior army, or under the direct command of the Commanding General of the United States Continental Army Command.

*class II activity*. One which is under the command of the head of a Headquarters, Department of the Army agency, or under the command of the Commanding General, United States Army Air Defense Command. See also: **command installation; industrial installation; installation; subinstallation.**

**actual exhaust velocity.** The real velocity of the exhaust gas leaving a nozzle as determined by making an accurate measurement at a specified point in the nozzle exit plane; the velocity that is obtained when the kinetic energy of the gas flow produces actual thrust. See: **exhaust velocity.** Cf: **effective exhaust velocity; ideal exhaust velocity.**

**actuated mine.** See: **mine, actuated.**

**actuator.** 1. Part of the receiver mechanism in certain types of automatic weapons; *trigger actuator*. The actuator slides forward and back in preparing each round to be fired. 2. A self-contained power transmitting device designed to convert electrical, chemical, or fluid dynamic energy into a controlled mechanical force.

**ACTUATOR, ELECTRO-MECHANICAL, LINEAR.** A self-contained power transmitting device designed to convert electrical energy into controlled mechanical force, in the form of linear (straight line) mechanical movement. Comprised of an electric motor(s), gear box(es), screwjack(s), limit switch(es) and such accessories as required for the specific moving and positioning of other components. Excludes hydraulic and pneumatic cylinders and screwjacks.*

**ACTUATOR, ELECTRO-MECHANICAL, ROTARY.** A self-contained power transmitting device designed to convert electrical energy into controlled mechanical force, in the form of torque (rotational mechanical movement). Comprised of an electric motor(s), gear box(es), limit switch(es), and such accessories as required for the specific moving and positioning of other components. Excludes hydraulic and pneumatic cylinders and screwjacks.*

**ACTUATOR, EXPLOSIVE, LINEAR.** A self-contained power transmitting device designed to convert chemical energy into controlled mechanical force in the form of linear mechanical movement. It is comprised essentially of a piston, powder charge, electrical bridge wire and contacts inclosed in a housing.*

**A damage.** See: **damage categories.**

**adamsite.** (DM) See: **CHEMICAL AGENT, DIPHENYLAMINECHLOROARSINE** (DM).

**adaptability test.** Test conducted to ascertain the adaptability of a standardized item of equipment to a particular unit or organization. An adaptability test differs from a user test in that the latter is conducted prior to standardization and tests the suitability of the equipment for service.

**adaptation kit.** See: **adaption kit.**

**adapted for VT fuze.** Indicates that the munition has a cavity for the fuze, usually with a liner, with dimensions such that it will receive a FUZE, PROXIMITY.

**adapter.** 1. *Mechanical.* Any modifying part, piece, or device, designed to facilitate connection, provide accommodation, enable application, and to broaden or permit the use of a given item with an unlike item of mechanical equipment when the two items are not designed for direct mating to each other.

2. *Electrical.* An item which provides the necessary accommodations to electrically connect two or more items whose design or function will not normally permit their connection. It may also provide mechanical connection.*

**ADAPTER, ADJUSTABLE, TRAILER TO GUIDED MISSILE COMPONENT.** An adjustable item specifically designed to establish the necessary accommodations, and secure a guided missile, or guided missile rocket motor to a flat bed trailer. May include necessary adjusting tool(s).*

**adapter, ammunition chute box.** For aircraft guns, a unit rigidly attached to the ammunition box serving as a connector between the flexible or fixed feed chute and the box.

**adapter, ammunition chute gun.** For aircraft guns, a unit rigidly attached to the gun, serving as a connector between the flexible feed and the gun.

**ADAPTER-BOOSTER AND ADAPTER-BOOSTER HOLDER ASSEMBLY.** A device consisting of an ADAPTER-BOOSTER, BOMB, and a circular threaded metal housing. It is designed to hold and position an ADAPTER-BOOSTER, BOMB in a bomb body.*

**ADAPTER-BOOSTER, BOMB.** An item consisting of an adapter and an auxiliary explosive charge used in an explosive train to detonate a bomb. The adapter may be a nonmetallic item designed to house and position the auxiliary explosive charge within a bomb fuze well and has provisions for attachment of a CORD, DETONATING. The adapter may be an adapter threaded on the outside for the assembly of the auxiliary explosive charge and for assembly in the bomb body and/or HOLDER, ADAPTER-BOOSTER, BOMB and threaded on the inside for receiving an ADAPTER, FUZE and/or a fuze.*

**adapter, cluster, aimable.** An ADAPTER, CLUSTER, BOMB used to hold the bombs together in an outer case so as to enable aiming and dropping the bombs by ordinary bombing methods. Its ballistic characteristics are such as to permit application of normal aiming and dropping techniques and to confine the dispersion of contained bombs to a smaller target area than is experienced in the case of nonaimable adapters. See also: **cluster, aimable.**

**ADAPTER, CLUSTER, BOMB.** A mechanical device by means of which several bombs are suspended in the bomb station for one bomb.*

**adapter, cluster, rocket.** See: **LAUNCHER, ROCKET, AIRCRAFT.**

**ADAPTER, COAXIAL TO WAVEGUIDE.** An item constructed to establish the necessary accommodations to connect a coaxial line to a waveguide.*

**ADAPTER, DOPPLER DATA.** An adapter that processes signals derived from a radar set into component drift angle and surface speed Doppler output voltages for application to equipment such as a bombing navigational system, missile guidance systems, and the like. See also: **CONVERTER, DRIFT ANGLE-GROUND SPEED.***

**ADAPTER, FIRING MECHANISM.** An adapter designed to facilitate the mounting of a firing mechanism in an underwater mine.*

**ADAPTER, FUZE.** An adapter designed to connect a fuze to a bomb. It may or may not provide connection for a parachute unit.*

**ADAPTER, FUZE SETTER.** An item designed to provide facilities to accommodate a FUZE SETTER in the time setting of various types of fuzes.*

**ADAPTER, GRENADE PROJECTION.** An adapter designed for attachment to a hand grenade to facilitate firing from a rifle and to stabilize the grenade in flight.*

**ADAPTER, GUN MOUNTING, AIRCRAFT.** An adapter of various designs with provisions to facilitate connection of a gun or guns to a mounting in an aircraft to obtain a desired result. It may incorporate gun-firing, recoil-shock absorbing, or vibration dampener mechanisms.*

**ADAPTER, HOISTING, AIRCRAFT GUN.** An item usually rigid in construction designed to be attached to a gun, cannon or the like to adapt it to an eye, ring or loop for hoisting.*

**ADAPTER, HOISTING, BOMB.** An item usually rigid in construction designed to be attached to a bomb to adapt it to an eye, ring or loop for hoisting.*

**ADAPTER, HOISTING, GUIDED MISSILE GROUND SUPPORT EQUIPMENT.** An adapter usually rigid in construction designed to be attached to guided missile ground support equipment to adapt it to an eye, ring, or loop for hoisting.*

**ADAPTER, HOISTING, RADAR FUZE.** An adapter usually rigid in construction designed to be attached to a FUZE, RADAR to adapt it to an eye, ring, [illegible] and/or other like attachments for hoisting.*

**ADAPTER, HOISTING, WARHEAD.** An adapter used to facilitate hoisting of a warhead.*

**ADAPTER KIT, BOMB DISPENSER.** An item consisting of two or more unlike items, such as suspension lugs, sway brace pods and mounting hardware. It may include pullout cables. It is used to adapt a DISPENSER, BOMB to different models of fighter aircraft.*

**ADAPTER KIT, ROCKET, EJECTION LAUNCHING.** A collection of items used to adapt a basic rocket configuration for rocket ejection type launching.*

**ADAPTER KIT, ROCKET, RAIL LAUNCHING.** A collection of items used to adapt a basic rocket configuration for rocket rail launching.*

**adapter, launcher.** A device that fits rigidly to a rocket launcher to adapt it to the firing of rockets of a different caliber than that for which the launcher was originally designed.

**ADAPTER, MECHANICAL PULLER.** An item having a threaded hole to engage the forcing screw and an external or internal thread to engage the thread of the object to be pulled. Used with mechanical pullers not designed for direct mating to objects to be pulled.*

**adapter, mount.** Device to make a gun fit properly into a mount.

**ADAPTER, PRIMING.** An adapter designed to secure an electric or nonelectric blasting cap, a detonating cord, or a time blasting fuse in the activator well of a demolition charge.*

**ADAPTER, THEODOLITE MOUNTING, ANTENNA DRIVE.** An adapter of various designs with provisions to facilitate connection of a theodolite to an antenna drive unit.*

**ADAPTER, VEHICLE STORAGE VENTILATOR.** An adapter constructed of sheet metal and designed to fit a ventilator of one size or shape to an aperture of another size or shape in a combat or special purpose vehicle which requires ventilation while in storage.*

**ADAPTER, WAVEGUIDE.** An item constructed to establish the necessary accommodations to connect two or more terminated waveguides whose physical design does not normally warrant their connection. See also: **ADAPTER, COAXIAL TO WAVEGUIDE.***

**adaption kit.** *Nuclear.* Those items which must be associated with a warhead to produce a warhead installation, thereby permitting the mating of the warhead and its carrier. The adaption kit normally consists of the arming and fuzing systems, and the hardware, adapters, etc., required by the particular installation. The power supply is frequently a part of the adaption kit but may be a part of the warhead proper or the missile system. Adaption kit components (armament provisions in Navy missiles) are normally grouped into: a complement; radars (if required); and power supply (if required). See also: **warhead; warhead installation.**

**ADC** *(abbr).* 'Air Defense Command.'

**Adcock antenna.** A vertical antenna, transmitting only vertically polarized waves with low-angle radiation. Five Adcock antennas are utilized in an Adcock radio-range station, four for transmission of radio-range signals, and one for voice transmission or for signal transmission to a radio compass.

**add.** A fire correction term used by observers in adjusting fires to indicate that an increase in range (so many yards) will follow and is desired.

**adder.** *Electronic computers.* A device which can form the sum of two or more numbers, or quantities, impressed upon it.

**adder, algebraic.** *Electronic computers.* See: **algebraic adder.**

**ADDING AND SUBTRACTING MACHINE.** A machine designed to add a number of figures and subtract any figure automatically. It will not divide

automatically. It may print the numbers on a tape, or indicate the figures in a single row of openings (dial) or multiple row of openings (dials) at top or bottom of the machine. See also: **ACCOUNTING MACHINE; ADDING MACHINE** and **CALCULATING MACHINE.***

**ADDING MACHINE.** A machine designed to add a number of figures. It will not subtract, multiply, or divide automatically. It prints the numbers on a tape. See also: **ACCOUNTING MACHINE; ADDING AND SUBTRACTING MACHINE** and **CALCULATING MACHINE.***

**additive, propellant.** Any material added to the basic formulation of a propellant composition, to accomplish some special purpose. Additives are used to improve stability, to reduce flash or smoke, to reduce erosion or coppering, and the like. In general, additives are present in small proportions, and do not affect the heat of explosion to an appreciable degree.

**address.** *Electronic computers.* Information (usually a number) which designates a particular location in a memory or storage device.

**ADF** *(abbr).* 'Auxiliary detonating fuze.'

**ADHESIVE.** A substance compounded for binding materials together by surface attachment. It is not used primarily to fill voids or pores for sealing purposes.*

**adiabatic.** Occurring without gain or loss of heat; a change of the properties, such as volume and pressure of the contents of an enclosure, without exchange of heat between the enclosure and its surroundings. *Adv. adiabatically.*

**adiabatic flame temperature.** As applied to interior ballistics calculation, the temperature which the gaseous products of combustion of the propellant would attain if maintained at constant volume and without loss of energy to the surrounding medium.

**adjacent-channel interference (receivers).** Interference (which see) in which the extraneous power originates from a signal of assigned (authorized) type in an adjacent channel.

**adjust.** To correct the elevation and deflection of a weapon to place the center of impact on the target. See also: **adjustment.**

**adjusted elevation.** Elevation based on firing and computed to place the center of impact on the target.

**adjusted range.** 1. Range corresponding to adjusted elevation. 2. Range setting, based on firing, computed to place the center of impact on the target.

**ADJUSTER, SLACK, BRAKE.** A device used in an air or vacuum brake system of a vehicle, incorporating means for manual adjustments to eliminate the looseness in the linkage when brake lining-wear occurs.*

**adjusting point.** A distinctive terrain feature or some portion of the target at or near the center of the area upon which the observer wishes to place fire.

**adjusting ring.** Part of a fuze setter which engages and adjusts the setting element on the fuze of explosive projectiles. The whole projectile is turned by the setting ring.

**ADJUSTING TOOL, BRAKE SHOE.** A bar of steel having flat, angled, blade ends designed to insert through the slot in a brake back plate to turn the brake shoe adjusting nut by a prying action.*

**ADJUSTING TOOL, VALVE TAPPET.** A hand device for adjusting overhead valve tappets of internal combustion engines. It consists of a handle, and at one end a wrench opening or a drive for a replaceable wrench socket, and a knob operated screwdriver tip. The wrench opening (or socket) engages the tappet adjusting screw lock nut and the screwdriver engages the screw.*

**adjustment.** 1. Placing parts, subassemblies or electrical circuits in proper working relation to each other. 2. **Adjustment of fire** (which see)

**adjustment chart.** Record of data in correcting or regulating gunfire; chart used in adjustment of gunfire.

**adjustment correction.** See: **arbitrary correction;** see also: **spot.**

**adjustment of fire.** The process of determining and applying corrections to firing data to bring the center of impact or of burst, or the cone of fire of automatic weapons, to the adjusting point and to keep it there.

**ADM** *(abbr).* 'Air defense missile.'

**administrative lead time.** The time interval in days from the initiation of a purchase request to the date of contract.

**adobe shooting.** See: **mud capping.**

**adopted category.** See: **type classification.**

**ADT** *(abbr).* 'Atomic damage template.'

**Advanced Research Projects Agency.** (ARPA) An agency acting under the Secretary of Defense in coordinating and directing such research projects as may be specially assigned.

**advancement of forcing cone.** 1. Wearing away of the metal of a gun tube at the **forcing cone** (which see) due to erosion by the hot gases which escape around the projectile. This results in the forcing cone advancing down the barrel. 2. The distance by which the forcing cone is advanced.

**advancing fire.** See: **assault fire.**

**ADW** *(abbr).* 'Air Defense Warning.'

**AEC** *(abbr).* 'Atomic Energy Commission.'

**AEDC** *(abbr).* 'Arnold Engineering Development Center.'

**aerial.** (aerl) 1. Of or pertaining to operations in the air or to aircraft. 2. Of weapons or missiles: Used in aircraft; launched, dropped or shot from aircraft. 3. An **ANTENNA.**

**aerial bomb.** See: **bomb, aerial.**

**aerial burst.** See: **air burst.**

**aerial cannon.** See: **aircraft cannon.**

**aerial dart.** A metal dart designed to be dropped from an aircraft. Also called **flechette.**

**aerial delivery cargo bag.** See: **BAG, CARGO, AERIAL DELIVERY.**

**aerial delivery cargo box.** See: **BOX, CARGO, AERIAL DELIVERY.**

**aerial delivery containers.** Special containers, slings and packages for the delivery of supplies and equipment from aircraft in flight. See: **BAG, CARGO,**

**AERIAL DELIVERY; LOX, CARGO, AERIAL DELIVERY; SLING, CARGO, AERIAL DELIVERY.**

**aerial flare.** See: **FLARE, PARACHUTE, HAND FIRED.**

**aerial mine.** See: **mine, aerial.**

**aerial observation.** Observation of fire from aircraft.

**aerial sound ranging.** The process of locating aircraft by means of the sounds emitted.

**aerial torpedo.** See: **torpedo, aerial.**

**aeroballistics.** The ballistics of projectiles fired, dropped, or launched from air vehicles.

**Aerobee.** Name given to a series of high altitude atmospheric research rockets. *(Historical)*

**aerodynamic.** Pertaining to **aerodynamics** (which see). Hence, aerodynamical, aerodynamically.

Depending upon the noun modified, this adjective has many denotations, e.g.: 1. When applied to objects or surfaces that move through the air it means: Designed or built to react to the surrounding air as intended, as in *aerodynamic airfoil, brake, hull,* or *propeller.* 2. When applied to effects, qualities, or characteristics, it means: That result from the reaction of the moving object to the forces in the surrounding air, as in *aerodynamic drag, efficiency,* or *performance.* 3. When applied to ideas it means: Conceived in terms of the interplay of forces arising from an object moving through the air, as in *aerodynamic design, problem,* or *study.*

**aerodynamic balanced surface.** See: **balanced surface, aerodynamic.**

**aerodynamic center.** A point on a cross section of a wing or rotor blade, through which the forces of drag and lift are acting, and about which the pitching moment coefficient is practically constant.

**aerodynamic chord, mean.** See: **chord, mean aerodynamic.**

**aerodynamic control.** A control surface. So called because of the local aerodynamic forces created by its use.

**aerodynamic force.** A force acting on a body in motion through air or other gas, or in relative motion with respect to air or other gas, and arising from this motion.

**aerodynamic heating.** The heating of an aircraft or missile due to the friction of air, significant chiefly at high speeds.

**aerodynamic lift.** See: **lift (sense 1).**

**aerodynamic missile.** A missile provided with surfaces which produce lift during flight.

**aerodynamic moment.** A missile or projectile moving through the atmosphere is subject to aerodynamic forces. Any one of these forces which does not act through the center of gravity produces an aerodynamic moment or torque about the center of gravity. See: **aerodynamic force.**

**aerodynamics.** That field of dynamics concerned with the motion of air and other gaseous fluids, or of the forces acting on bodies in motion relative to such fluids.

**aerodynamic trajectory.** A trajectory or part of a trajectory in which the missile or vehicle encounters sufficient air resistance to stabilize its flight or to modify its course significantly. Cf: **ballistic trajectory.**

**aerodyne.** Any aircraft that derives its lift in flight chiefly from aerodynamic forces, as the conventional airplane, glider, or helicopter. Cf: **aerostat.**

**AEROGRAPH.** A self-contained item which is carried aloft and while aloft senses, measures, and records all information for complete evaluation of one or more meteorological parameters.*

**aerometeorograph.** Instrument that records the pressure and temperature of the air, the amount of moisture in the air, and the rate of motion of the wind. An aerometeorograph designed to transmit its record by radio from a balloon is called a radio meteorograph.

**aeropulse.** A pulsejet; a device producing thrust intermittently, from intake of air, as distinct from hydropulse. See: **ENGINE, PULSE-JET.**

**aerosol.** A mixture of fine liquid or solid particles and the gas or air in which the particles are suspended, as smoke, fog, or dust.

**aerospace terms.** See: **orbits of planets.**

**aerostat.** Any aircraft that derives its buoyancy or lift from a lighter-than-air gas contained within its envelope or one of its compartments. Airships and balloons are examples of aerostats. Cf: **aerodyne.**

**aerostatics.** The science that treats of the equilibrium of gaseous fluids and of bodies immersed in them.

**AES** *(abbr).* 'American Electrochemical Society.'

**AEW** *(abbr).* 'Airborne early warning.'

**AF** *(abbr).* 1. 'Air Force' with specific reference to the United States Air Force. 2. 'Audio frequency.'

**AFA** *(abbr).* 'American Foundrymen's Association.'

**A-FA-H** *(abbr).* 'Aniline-furfuryl alcohol-hydrazine.'

**AFB** *(abbr).* 'Air Force base.'

**AFC** *(abbr).* 'Automatic frequency control.'

**AFFTC** *(abbr).* 'Air Force Flight Test Center.'

**AFM** *(abbr).* 'Air Force Manual.'

**AFMTC** *(abbr).* 'Air Force Missile Test Center.'

**AFOSR** *(abbr).* 'Air Force Office of Scientific Research.'

**A-frame.** An A-shaped or V-shaped support for lifting engines or other equipment.

**A-FRAME, VEHICLE MOUNTING.** An A-shaped item designed to be mounted on a vehicle to act as a support and/or extension for lifting objects with a hoist or winch.*

**AFSSC** *(abbr).* 'Armed Forces Supply Support Center.'

**AFSWP** *(abbr).* 'Armed Forces Special Weapons Project.' *(Historical)*

**aft.** At, near, or toward the rear of an aircraft, vehicle or vessel.

**AFTERBODY AND TAIL, TORPEDO.** A conical shaped item which includes the propulsion unit, starting mechanism, and control mechanism of a torpedo.*

**afterburner.** An auxiliary combustion chamber within, or attached to, the tailpipe of certain jet engines, in which hot unused oxygen of exhaust gases from fuel already burned is used to burn a second fuel and thus augment the temperature and density of the exhaust gases as they leave the tailpipe, with consequent increase in thrust.

**afterburning.** Normal combustion that takes place in an afterburner. Cf: **afterflaming.**

**after burnt.** As applied to interior ballistics, descriptive of the condition following the complete transformation of the solid propellant to gaseous form. As burning of the propellant usually is completed well before emergence of the projectile from the muzzle, the after burnt phase consists of the transformation of energy from the hot propellant gases at high pressure to the projectile, without the further addition of energy to the gases. See: **all burnt.**

**afterflaming.** With liquid propellant or solid propellant rocket thrust chambers, a characteristic low-grade combustion that takes place in the thrust chamber assembly and around its nozzle exit after the main propellant flow has been stopped. Cf: **afterburning.**

**after jet effect.** Pertaining to functioning of shaped charge ammunition. Postulated issuing of the jet from the slug long after collapse of the liner is complete. Also called extrusion effect, toothpaste tube effect.

**after splintering.** As applied to interior ballistics, the time following the combustion of multiperforated grains to the point where the web-thickness has been burned through. At this point slivers of an approximately triangular shape are formed, which then burn. Because of the change in geometry, the change in the burning surface area at this point passes from increasing (progressive burning) to decreasing (degressive burning), making necessary corresponding change in the interior ballistics calculation method.

**AFV** *(abbr).* '*A*rmored *f*ighting *v*ehicle.' *British.*

**A/G** *(abbr).* 'Air-to-ground.'

**AGC** *(abbr).* 'Automatic gain control.' See: **gain control, automatic.**

**age burden.** A term having various applications. In metallurgy, it is applied to the gradual hardening of an alloy when maintained at a suitable temperature, which may vary from ordinary ambient temperature to a considerably elevated temperature. Its distinguishing feature is that the hardening occurs during the time at temperature, not as a result of sudden cooling, as is the case in quench hardening.

The term is also used to indicate many different types of gradual hardenings, as, for instance, a lacquer or varnish may be said to age harden when it changes with time from a pliable coating to one which cracks when the base metal to which it is applied is deformed.

**agonic line.** Line passing through points having no magnetic declination.

**ahead.** The sensing of a tracer or burst which passes in front of a moving target, with reference to its course line.

**AIA** *(abbr).* 'Aircraft Industries Association.'

**AICE** *(abbr).* 'American Institute of Chemical Engineers.'

**aided matching.** Mechanical system for transferring firing or other data from a data transmission line to a gun data computer or other device. In aided matching, the power to position the receiving device to match the transmitted data is supplied wholly, or in part, by motor drives whose speed may be adjusted by means of matching handwheels.

**aided tracking.** A system, or the action, of tracking a moving object in bearing, elevation, or range (or any combination of these) by means of a semiautomatic radar tracking mechanism.

The tracking mechanism requires some manual control.

**aided tracking mechanism.** A device consisting of a motor and variable speed drive which provides a means of setting a desired tracking rate into a director, or other fire control instrument, so that the process of tracking is carried out automatically at the set rate until it is changed manually.

**aided tracking ratio.** The ratio between the constant velocity of the aided tracking mechanism and the velocity of the moving target.

**AIEE** *(abbr).* 'American Institute of Electrical Engineers.'

**AILERON.** A hinged or pivoted item forming a horizontal control surface, usually a portion of the trailing edge of a wing. Its primary function is to control the roll movement of an airplane or glider about its longitudinal axis.*

**aileron angle.** The acute angle between the chord of an aileron moved from its neutral position and its chord in neutral position.

The angle is positive when the trailing edge of the aileron is down, negative when up.

**aim.** 1. The pointing of a weapon at, or so as to bear upon, the object intended to be struck. 2. To point or direct a gun or other weapon so that its missile is expected to strike a target; to drop a bomb or mine at a target or place. Often construed with *at.*

**aimable cluster.** See: **cluster, aimable.**

**AIMING CIRCLE.** An instrument for measuring angles in azimuth and elevation in connection with artillery firing and general topographic work. It is equipped with fine and coarse azimuth micrometers and a magnetic needle. The reticles and scales may be illuminated for night operation. Excludes AZIMUTH CIRCLE and BEARING CIRCLE.*

**aiming group.** Pattern made on a surface by a series of pencil marks that test the ability of a soldier to sight a gun properly; shot group. The soldier directs a small disk target to be moved until it is aligned with the sights of a gun in a fixed position. The position of the disk is marked by a pencil dot made through the hole in the disk. Three such dots make up an aiming group.

**aiming light.** See: **LIGHT, AIMING POINT.**

**aiming point.** 1. An object or point on which the sight of a weapon is laid for direction, or on which an observer orients his observing instrument. 2. The point used by an aerial bombardier or pilot to determine the point of release of bombs, rockets, mines, torpedoes, etc.

**aiming post.** See: **POST, AIMING.**

**aiming post light.** See: **LIGHT, AIMING POST.**

**aiming post sleeve.** Striped, tubelike bag that fits over a lifting bar so that the bar has the appearance of, and may be used as, an aiming post.

**aiming silhouette.** Form of field target, usually the outline of a man, lying, kneeling, or standing. An aiming silhouette is usually used for small-arms practice.

**aiming stake.** See: **POST, AIMING.**

**AIMME** *(abbr).* 'American Institute of Mining and Metallurgical Engineers.'

**AIR** *(abbr).* 'Air arming impact rocket.'

**air.** In artillery, the sensing by an observer to indicate a burst above the level of the base of the target; airburst.

**air barrage.** 1. A barrage of exploding bombs dropped from aircraft. 2. An antiaircraft barrage.

**air base** (AB) 1. In the AF, an establishment, comprising an airfield, its installations, facilities, personnel, and activities, for the flight operation, maintenance, and supply of aircraft and air organizations. 2. A similar establishment belonging to any other air force. 3. In a restricted sense, only the physical installation.

**air bearing.** See: **bearing, air.**

**airborne.** (abn) 1. a. Of equipment and other materiel: Carried or transported, by aircraft. b. Of a force or organization: Transported, or designed to be transported, by aircraft, as an *airborne infantry battalion.* See: **airborne infantry; airborne troops.** 2. Of an action or operation: Carried out with transport aricraft, as an *airborne drop, airborne exercise,* or *airborne landing.*

In sense 1.a, 'airborne equipment' often refers to equipment transported, or designed to be transported, by an aircraft, as distinguished from equipment installed in an aircraft as a part of its normal operating equipment, e.g., an airborne field artillery piece would be thus distinguished from an aircraft cannon. The latter is mounted in an aircraft.

**airborne infantry.** Infantry organized and trained to be carried by air to a battle area and landed by transport aircraft, as distinguished esp. from parachute infantry or troops. Also called 'air infantry.' Cf: **airborne troops.**

**airborne rocket.** See: **rocket, aircraft.**

**airborne troops.** Ground troops especially organized, trained, and equipped for airborne assault, landing by parachute or aircraft.

In some contexts, 'airborne troops' refers specifically to troops landed by aircraft, as distinguished from parachute troops; some other special contexts restrict the term to include only those troops landed by parachute or glider, as distinguished from those landed in powered aircraft.

**air brake.** Loose usage for drag brake (which see).

**air-breathing engine.** An engine that uses or takes in air from the outside to oxidize its fuel, as distinguished esp. from a rocket motor or rocket engine.

**air-breathing jet.** A propulsion device which operates by taking in air and then ejecting it as a high-speed jet.

**air burst.** Any burst in the air, but usually having reference to the bursting of a projectile or bomb above the ground with resulting spray of fragments.

**air-burst ranging.** See: **high-burst ranging.**

**AIR CLEANER, INTAKE.** A device designed to prevent foreign particles from entering the air intake system of an internal combustion engine or air compressor. Excludes mufflers.*

**air-cooled.** Cooled by air. Said esp. of engines or machine guns.

**air coordinates.** A system of coordinates used in determining the forces acting on a missile. In this system the origin moves with the velocity relative to the ground that the air has in the vicinity of the missile. The air is then motionless with respect to the origin of air coordinates.

**air cover.** 1. The protection against attack, esp. air attack, given by airplanes to surface or airborne forces. 2. The airplanes giving, or designated to give, this protection.

**aircraft.** (acft) A generic term applied to all airborne vehicles and without regard to the method by which lift in flight is secured, i.e., any weight-carrying device or structure designed to be supported by the air, either by buoyancy or by dynamic action. Cf: **airplane.**

**aircraft ammunition.** Ammunition specially designed to be shot, launched, or dropped from aircraft.

Ammunition such as small arms or artillery ammunition, torpedoes, etc., adapted to, but not specifically designed for, aircraft use, is not designated 'aircraft ammunition.'

**aircraft axes.** See: **axes of an aircraft.**

**aircraft cannon.** A **cannon** (which see) designed or modified for use in an aircraft.

**aircraft canopy remover cartridge.** See: **CARTRIDGE, AIRCRAFT CANOPY REMOVER.**

**aircraft carrier.** A ship that carries aircraft, has a takeoff and landing deck, and is otherwise designed and equipped to serve as a base of operations for the aircraft. Often called a 'carrier.'

**aircraft damage.** See: **damage categories.**

**aircraft ejection seat catapult.** See: **CATAPULT, AIRCRAFT EJECTION SEAT.**

**aircraft ejection seat catapult cartridge.** See: **CARTRIDGE, AIRCRAFT EJECTION SEAT CATAPULT.**

**aircraft engine.** Any engine (which see) designed or modified for use in an aircraft.

**aircraft flare.** See: **FLARE, AIRCRAFT.**

**aircraft machine gun.** Any machine gun designed or adapted for use on, or by, an aircraft.

**aircraft, pilotless.** See: **pilotless aircraft.**

**aircraft rocket.** (AR) See: **rocket, aircraft.**

**aircraft rocket launcher.** See: **LAUNCHER, ROCKET, AIRCRAFT.**

**aircraft safety lap belt release cartridge.** See: **CARTRIDGE, RELEASE, AIRCRAFT SAFETY LAP BELT.**

**aircraft weapon.** A weapon used on, or by, an aircraft, esp. an aircraft cannon or machine gun.

**air defense.** All measures designed to destroy, nullify, or reduce the effectiveness of enemy attack by aircraft or missiles after they are airborne

Active measures include the use of fighter aircraft, air defense artillery, electronic countermeasures, surface (ship) to air, air to air missiles, and balloon barrages.

Passive measures include the use of cover, concealment, camouflage, dispersion, deception, and protective construction or the control of movement, illumination, and electromagnetic radiations.

**air defense artillery.** (ADA) Weapons and equipment for actively combating air targets from the ground.

**air delivery.** A method of air movement wherein personnel, supplies, and equipment are unloaded from aircraft in flight. Synonymous with *air drop*.

**air drop.** See: **air delivery.**

**AIR FLASK, TORPEDO.** A cylindrical item having various compartments for housing compressed air, fuel, water and/or chemicals, which when combined form the propelling charge of aerial and underwater torpedoes.*

**airfoil.** A surface or body, as a wing, propeller, blade, rudder, or the like, especially designed to obtain a reaction, as lift or thrust, from the air through which it moves.

In giving lift or thrust to aircraft, airfoils are adapted to **Bernoulli's principle** (which see).

**airfoil center of pressure.** See: **center of pressure.**

**airfoil profile.** An outline or silhouette of an airfoil seen from the side.

**airfoil section.** A cross section of an airfoil, taken at right angles to its longitudinal axis at any given point.

**Air Force base.** (AFB) A geographical location that provides space for carrying out an operation, including facilities for offices, warehousing, accommodation of personnel, and usually for the takeoff and landing of aircraft, such location being under the jurisdictional control of the United States Air Force.

An Air Force base is so designated by Hq USAF. 'Base' is capitalized in specific names, as in 'Craig Air Force Base.'

**Air Force Flight Test Center.** (AFFTC) Air Force center concerned with flight testing and evaluation. Located at Edwards AFB, California.

**Air Force Missile Test Center.** (AFMTC) Air Force center for test and evaluation of missiles. Range instrumentation and facilities available for long range test firing. Located at Patrick AFB, Cocoa, Florida.

**Air Force Office of Scientific Research.** (AFOSR) USAF office with responsibility for basic research and fundamental investigations. It is located in Baltimore, Maryland.

**Air Force Special Weapons Center.** Air Force center concerned with research, test and evaluation of Air Force components of equipment related to atomic weapons. Located at Kirtland AFB, New Mexico.

**airframe.** The structural components of an airplane or missile including the frame work and skin of such parts as the fuselage, empennage, wings, landing gear (minus tires), and engine mounts.

**airhead.** A designated geographical area in an area of operations used as a base of supply and evacuation by air.

**air inlet.** An entrance for air; *specif.*, the open front part of a jet engine for taking in air.

**air intake.** A scoop, duct, or the like for taking in air; an air inlet.

**air-launched.** Of a rocket, guided missile, or the like: Launched, or designed to be launched, from an aircraft in flight.

**airlift.** 1. To transport passengers and cargo by the use of aircraft. 2. The total weight of personnel and/or cargo carried by air.

**air log.** A distance-measuring device used esp. in certain guided missiles to control range.

**air mile.** A nautical mile by air.

**air movable supplies.** Supplies of all classes transported by air from one secured airport or airstrip to another or to designated drop or landing zones, except accompanying supplies of airborne and air transported units. Delivery may be accomplished by landing of powered aircraft and freedrop and/or paradrop from powered aircraft.

**air nose fuse.** See: **fuse, air nose.**

**airplane.** A mechanically driven fixed-wing aircraft, heavier than air, which is supported by the dynamic reaction of the air.

**air plot.** A continuous plot of the position of an airborne object represented graphically to show true headings steered and distances flown.

**airportable.** Denotes equipment which can be carried in an aircraft with not more than such minor dismantling and reassembling as would be within the capabilities of user units. This term must be qualified to show the extent of air portability.

**air position.** In air navigation, the theoretical position of an aircraft or missile at a given moment, assuming it to have been unaffected in flight by wind. Also called 'no-wind position.'

**air position indicator.** A flight instrument that continuously indicates the air position of an aircraft in latitude and longitude or other coordinates.

The air position indicator utilizes pitot-static pressures and an electrical compass system, as the gyro flux-gate system, in its operation. The instrument also indicates true heading and the air mileage flown.

**air pressure fuse.** See: **fuse, air pressure.**

**Air Proving Ground Center.** Air Force center concerned with test, evaluation and development of aircraft weapons, ammunition and fire control components and systems. Located at Eglin AFB, Florida.

**air, refractive index of.** See: **refractive index of air.**

**Air Research and Development Command.** (ARDC) A major air command in the USAF that carries out the research and development activities required for the accomplishment of AF missions. Located at Andrews Air Force Base, Maryland.

**air resistance.** The resistance of air against any body moving through it, as an airplane, bomb, or bullet.

**air scoop.** A device or part mounted on an aircraft or missile and open toward the front for taking in air during flight.

**AIR SERVICER, GUIDED MISSILE, TRAILER MOUNTED.** A trailer mounted air servicer unit consisting of high pressure air tanks, valves, gages, manifolds, tubing, and other necessary equipment, specifically designed for supplying high-pressure air to guided missiles. Does not include an integral air compressor. See also: **AIR SERVICER, GUIDED MISSILE, TRUCK MOUNTED.***

**AIR SERVICER, GUIDED MISSILE, TRUCK MOUNTED.** A truck mounted air servicer unit consisting of high-pressure air tanks, valves, gages, manifolds, hoses, reels and other necessary equipment specifically designed for supplying high-pressure air to guided missiles. Does not include an integral air compressor.*

**airship.** An aerostat provided with a propelling system and with means of controlling the direction of motion. The term airship is sometimes incorrectly applied to a heavier-than-air craft (airplane). Cf: **airplane.**

**air space.** 1. See: **standoff.** 2. The space between the top of the propellant and the base of the projectile in the vertically positioned assembled cartridge.

**airspeed.** (a/s) The speed of an aircraft or missile measured along its longitudinal axis, relative to the air through which it moves either on the ground or in the air, or in the case of a wind tunnel, relative to the stream of air in which it is immersed, esp. as indicated or determined by instruments, correction, or calibrations, and expressed in statute miles per hour or in knots.

**airspeed, calibrated.** The airspeed as read from a differential-pressure airspeed indicator which has been corrected for instrument and installation errors. Equal to true airspeed for standard sea level conditions.

**airspeed, equivalent.** The product of the true airspeed and the square root of the density ratio $\rho/\rho_o$. Used in structural design work to designate various design conditions.

**airspeed head.** Any instrument or device, usually a pitot-static tube, mounted on an aircraft for receiving the static and dynamic pressures of the air used by the airspeed indicator.

**airspeed, indicated.** The airspeed as indicated by a differential-pressure airspeed indicator, uncorrected for instrument and installation errors.

**airspeed, true.** Calibrated airspeed corrected for altitude effects, i.e., pressure and temperature, and for compressibility effects where high speeds are concerned. Not to be confused with **groundspeed** (which see).

**air spot.** The correcting adjustment of gunfire based on air observation.

**airstream.** A stream or flow of air, esp. the relative stream of air set up around or against an aircraft in flight, or the stream caused by the revolving propellers of an aircraft.

**airstream engine.** An engine that develops thrust from a rearward ejection of air. Now *rare*.

**air supremacy.** That degree of air superiority wherein the opposing air force is incapable of effective interference.

**air-to-air.** Used or occurring between or among aircraft in the air, as *air-to-air bomb, air-to-air communication, air-to-air firing, air-to-air missile* (*AAM*), *air-to-air gunnery, air-to-air rocket*, etc.

**air-to-ground.** (A/G) Used or occurring between aircraft and the ground, as *air-to-ground communication, air-to-ground gunnery, air-to-ground interdiction, air-to-ground rocket*, etc.

**air-to-surface.** Used or occurring between aircraft and the surface, as *air-to-surface communication, air-to-surface missile*, etc. Cf: **air-to-ground.**

**air-to-underwater.** Used or occurring between aircraft and the underwater, as *air-to-underwater missile* (*AUM*).

**air vane.** A vane that works in a flow of air, as distinguished from a jet vane.

**air vehicle.** Any object that by virtue of lift obtained by its own buoyancy in air, or by the dynamic reaction of air over and around its surfaces, or by its reaction to a jet stream, goes through the air as a carrier of something. This term covers aircraft of all types when considered as vehicles, but emphasizes the inclusion of rockets or ballistic missiles in the category when they are considered as the carriers of a warhead or other payload.

**AISI** *(abbr)*. 'American Iron and Steel Institute.'

**Al** *(abbr)*. 'Aluminum.'

**Alabama Ordnance Works.** Ordnance Corps field installation for manufacture of explosives during an emergency. Located at Childersburg, Alabama.

**Alamogordo bomb.** The first atomic bomb detonated 16 July 1945 at Alamogordo, New Mexico.

**ALARM, GAS ATTACK.** A U-shaped tubular metal device equipped with carrying strap and a hand-operated striker. When struck it produces a ringing sound. It is usually carried and used by military personnel to sound an alarm when a gas attack is anticipated.*

**ALARM, OVER RADIATION.** An electrical warning unit which either contains the sensitive elements or accepts information from an external source and a warning device, such as a bell, buzzer, horn, siren or light, specifically designed to give an aural and/or visual indication when a predetermined level of radioactivity has been reached.*

**ALBM** *(abbr)*. 'Air launched ballistic missile.'

**alert.** A state of readiness against impending danger, or for going into action. Hence, 'to be, or stand, *on alert*,' or 'to be *at the alert*.'

**algebraic adder.** *Electronic computers.* An adder which can form an algebraic sum.

**ALIDADE, BINOCULAR, MARINE.** An instrument for navigational or ordnance use, used in conjunction with, but does not include, a pair of binoculars to indicate the relative bearing of a target or object. It is usually fastened to a solid mounting with the zero degree position parallel to the center line of the ship on which it is mounted.*

**ALIDADE, SURVEYING.** An instrument consisting of a sighting device mounted on a graduated base, used for plotting the lines of a survey directly from observation.*

**ALIDADE, TELESCOPIC, MARINE.** A navigational instrument for mounting on a magnetic or gyro repeater compass. It incorporates a telescope containing a vertical reticle line enabling the operator to view a target and its relative bearing at the same time.*

**align.** In radio or electronics, to adjust circuit values in two or more resonant circuits or circuit fractions, so as to obtain optimum design performance.

**aligned.** Of an explosive train: Arranged in such order that the detonation wave can propagate as required for functioning. As pertains to shaped charge ammunition, the coincidence of charge axis and liner axis in order to give optimum performance.

**ALIGNMENT CLIP, LEAF SPRING.** A metal item designed to maintain alignment and to prevent lateral shifting of spring leaves. May be bolt or clinch type.*

**ALIGNMENT-COUNTDOWN SET, MISSILE GUIDANCE.** A complete set with the dual function of inserting target trajectory data, and programming test and calibration functions of a missile guidance set immediately prior to the release of a guided missile from a launch complex.*

**ALIGNMENT FIXTURE, WARHEAD TO ROCKET.** An item having some of the external physical characteristics of a warhead. It is normally used in lieu of the warhead while making adjustment to various handling devices required to mate the warhead to a rocket.*

**ALIGNMENT GROUP, LONG RANGE.** A group that integrates the position of a celestial body with the position of a terrestrial target to effect the guidance of the missile to the selected target by electro-optically driving the missile-borne gyro stabilized platform so as to develop the required launch-to-target trajectory.*

**ALIGNMENT GROUP, SHORT RANGE.** A group that integrates the terrestrial position of a launch complex with the position of a terrestrial target to effect azimuth adjustment of a gyro stablized platform in relation to a logically established bench mark.*

**ALIGNMENT SERVICE UNIT, MOTOR VEHICLE.** A group of related components primarily designed for and used in the detection and correction of distortion of chassis for automotive rolling equipment. Consists of STRAIGHTENER, MOTOR VEHICLE FRAME, and at least one of the following: wheel balancer, front end alignment equipment, and/or axle housing straightening equipment.*

**ALIGNMENT SET, MISSILE GUIDANCE.** A complete set that provides facilities for the preflight orientation-to-target by the insertion of flight coefficients into a missile guidance set.*

**all-around fire.** Capable of firing in any direction. Said of a weapon or mount when it has such capability.

**all-around traverse.** Turning in a complete circle in a horizontal plane. A weapon has all-around traverse when it can be turned 360° by its traversing mechanism.

**all burnt.** As applied to interior ballistics, denotes the time at which the propellant has been completely burnt. Prior to this event, the burning propellant is furnishing additional energy in the form of gas and heat. After this event, the **after burnt** condition exists, which see.

**all-burnt velocity.** See: **burnout velocity.**

**alligator.** See: **LANDING VEHICLE, TRACKED.**

**allowance.** A prescribed difference in dimensions of mating parts. It is a minimum clearance (positive allowance) or maximum interference (negative allowance) which is intended between mating parts.

**all way fuse.** See: **fuse, all way.**

**alpha particle.** A particle, with a positive charge of 2, ejected at high speed from certain radioactive elements or isotopes, and identical with the nucleus of helium.

Alpha particles produce harmful physiological effects.

**alpha radiation.** The radiation of alpha particles.

**alternate traversing fire.** Method of covering a target that has both width and depth by firing a succession of traversing groups whose normal range dispersion will provide for distribution in depth.

**altimeter.** *Specif.* An instrument that measures altitude above a given reference level, as above the sea or ground.

Altimeters, for all practical purposes, are of two kinds. One uses an aneroid barometer; the other uses radio or radar waves.

**ALTIMETER BAROMETER, ANEROID.** A barometric type instrument consisting of a pressure-sensitive element which contracts or expands in proportion to atmospheric pressure, connected through a linkage to a pointer. Its dial is graduated in units of linear measurement (feet, meters, etc.) and units of pressure measurement (pounds per square inch, inches of mercury, millibars, etc.) to indicate both atmospheric pressure and differences of elevation.*

**ALTIMETER, PRESSURE.** A barometric type instrument which measures altitude above a given datum plane when adjusted to the correct altimeter setting number. Excludes ALTIMETER, SURVEYING.*

**altimeter, radar.** An absolute altimeter that by measuring the time lapse between transmission and return of a pulse of radio energy establishes distance from the surface. Also called a 'radio altimeter.'

**ALTIMETER SET, ELECTRONIC.** A complete electronic set which measures and indicates the vertical distance between the craft in which installed and the ground. May include provisions for sea-level corrections. See also: **ALTIMETER, PRESSURE; ALTIMETER, SURVEYING.***

**ALTIMETER, SURVEYING.** A barometric type instrument consisting of a pressure-sensitive element which contracts or expands in proportion to atmospheric pressure, connected through a linkage to a pointer. Its dial is graduated in units of linear

measurement (feet, meters, etc.), to indicate differences of elevation only. Excludes ALTIMETER, PRESSURE.*

**altitude.** (alt) 1. The elevation of an object above a given level, as above the sea or ground, esp. as indicated or determined by instruments, corrections, or calibrations, and expressed in linear measure. 2. The vertical distance between any point in the atmosphere or air and a reference point on the earth's surface.

**altitude, absolute.** (AA) Altitude with respect to the surface of the earth as differentiated from altitude with respect to sea level. Sometimes referred to as radar or radio altitude.

**altitude, critical.** 1. In guided missile practice, the maximum altitude at which the propulsion system performs satisfactorily. 2. In aircraft terminology, the maximum altitude at which a supercharger can maintain a pressure in the intake manifold of an engine equal to that existing during normal operation at rated power and speed at sea level without the supercharger.

**altitude, high.** Altitude of over 15,000 feet. (For bombing.)

**altitude indicator.** Any device for indicating altitude.

**altitude, low.** Altitude between 900 and 8,000 feet. (For bombing.)

**altitude, medium.** Altitude between 8,000 and 15,000 feet. (For bombing.)

**altitude, minimum.** Altitude below 900 feet. (For bombing.)

**altitude signal.** The radio signals returned to an airborne electronics device by the ground or sea surface directly beneath the aircraft.

**aluminized explosive.** An explosive to which aluminum has been added. The aluminum, in flaked or powdered form, is incorporated into the explosive to increase the blast effect. Examples of aluminized explosives include ammonal, HBX's, and tritonal.

**AM** *(abbr).* 'Amplitude modulation.'

**AMA** *(abbr).* 'Automobile Manufacturers Association.'

**amatol.** (am.) A high explosive made of a mixture of ammonium nitrate and trinitrotoluene (TNT). There are two main types, classified according to the percentage ratio of ammonium nitrate to TNT: 50/50 amatol, which is capable of being melt loaded (cast), and 80/20 amatol, which must be consolidated by pressing or extruding. This explosive has approximately the same explosive force as TNT and has been used as the bursting charge for projectiles and bombs when toluene, used in the manufacture of TNT, was in short supply.

**amber star, cluster.** Indicates, in the case of a SIGNAL, ILLUMINATION, GROUND, a cluster of several freely falling amber stars (lights).

**amber star, parachute.** Indicates, in the case of a SIGNAL, ILLUMINATION, GROUND, a single amber star (light), parachute supported.

**ambient.** Surrounding, encompassing, as in ambient air, ambient temperature, etc.

**ambient fuse.** See: **fuse, ambient.**

**AMC** *(abbr).* 'Air Materiel Command.'

**American Ordnance Association.** (AOA) A civilian association dedicated to scientific and industrial preparedness for the United States and especially concerned with the ordnance field.

**American Table of Distances.** Published data concerning the safe storage of explosives and ammunition. The pertinent regulations are given in the Ordnance Safety Manual, ORDM 7-224, and are known as **quantity-distance tables** (which also see).

**ametropia.** Any abnormal condition of the seeing power of the eyes, such as farsightedness (hypermetropia), nearsightedness (myopia), or astigmatism. An *emetropic* eye is one which, in a state of rest, does not form distinct images of objects on its retina.

**Amici prism.** Also called 'roof prism' and 'right-angle prism with roof.' A form of roof prism designed by G. B. Amici, consisting of a roof edge formed upon the long reflecting face of a right-angle prism. Used as an erecting system in elbow and panoramic telescopes. It erects the image and bends the line of sight through a 90-degree angle.

**ammo** *(abbr).* 'Ammunition.'

**ammonal.** A high explosive mixture, made of ammonium nitrate, trinitrotoluene (TNT), and flaked or powdered aluminum. When used as a bursting charge in projectiles, it produces high temperature and bright flash on detonation.

**ammonium nitrate.** (am nit) One of the most insensitive and stable high explosives. Because of the difficulty of initiating detonation it is not used alone as an explosive, but has found use as an ingredient of binary explosives, dynamites and cratering explosives. **Amatol** (which see) is an example of the use of ammonium nitrate in a binary explosive.

**ammonium perchlorate explosive.** Any of several compositions consisting of ammonium perchlorate in combination with a high explosive and powdered metal. These produce good blast effect.

**ammonium picrate.** See: **Explosive D.**

**ammunition.** (ammo) [From *munition* by taking French *la munition* as *l'ammunition.*] 1. A generic term which includes all manner of missiles to be thrown against an enemy, such as bullets, projectiles, rockets, grenades, torpedoes, bombs and guided missiles with their necessary propellants, primers, fuses, detonators and charges of conventional explosive, nuclear explosive, chemical or other materials. 2. In the broadest sense the term is not limited to those materials to be thrown, nor to use against an enemy, but includes, in addition to the items and materials given in sense 1, all explosives, explosive devices, pyrotechnics and pyrotechnic devices. The purpose is not limited and includes, in addition to direct use against an enemy, such uses as illumination, signaling, saluting, mining, digging, cutting, accelerating, decelerating, separating, catapulting personnel or materiel, operating or stopping mechanisms, demolition, decoying, practice, training, guarding, game hunting and pure sport. 3. In the most restricted sense the term includes a complete round and all its components, that is, the material required for firing a weapon such as a pistol, rifle, or cannon, from which a projectile is thrown for inflicting damage upon an enemy. Generally the term is used or taken in its

broadest sense (sense 2) unless a more restricted sense is indicated or is implied by the context.

**ammunition, artillery.** See: **artillery ammunition.**

**ammunition available supply rate.** That quantity of ammunition expressed in rounds per weapon per day for ammunition items fired from weapons, and in terms of units of measure per organization or unit per day for bulk allotment items, that can be sustained within available supplies. It is applied only to the weapons of divisions and separate units of armored, cavalry, infantry, combat engineers, artillery, and chemical mortar battalions. The weapons of nondivisional service support units are excluded unless unusual circumstances necessitate their employment in a combat role. See also: **ammunition required supply rate.**

**ammunition belt.** See: **belt, ammunition.**

**ammunition booster.** An electrically driven sprocket which conveys linked ammunition to a machine gun in a confined tract.

**ammunition box.** A box in which linked ammunition is folded and from which it can be fed into a machine gun.

**ammunition carrier.** 1. Vehicle that accompanies guns and carries ammunition for them. 2. Member of a gun or mortar squad who carries ammunition and helps load in actual firing.

**ammunition cart.** See: **CART, MORTAR AND AMMUNITION; CART, PROJECTILE.**

**ammunition chest.** A receptacle, as on a caisson or gun-carriage, to contain ammunition.

**ammunition color code.** See: **color code.**

**ammunition, complete round.** See: **complete round.**

**ammunition credit.** Authority given an organization to draw a specified quantity of ammunition during a given period for a particular use. Ammunition credits are not used in combat zone below the army level.

**ammunition data card.** Identification card prepared for each individual lot manufactured, giving the type and composition of the ammunition and identifying its components by lot number and manufacturer. When necessary, may also include instructions for handling the ammunition.

**ammunition day of supply.** The estimated quantity of ammunition required per day to sustain operations in an active theater. It is expressed in terms of rounds per weapon per day for ammunition items fired by weapons, and in terms of other units of measure for bulk allotment ammunition items. Formerly termed 'day of fire.'

**ammunition depot.** A storage and supply depot for projectiles, bombs, or other ammunition.

**ammunition dump.** An ammunition storage point, usually established in the field for temporary use.

**ammunition expenditures.** 1. Within the zone of interior and communications zone, quantities of ammunition fired or destroyed, or amounts expended in training. 2. In active operations within the combat zone, all ammunition issued to troops from ammunition depots and ammunition supply points.

**ammunition handler.** 1. One whose primary duty is the handling and servicing of ammunition. 2. A soldier who prepares ammunition for firing and who, as a member of a weapons crew, assists in the final delivery of ammunition to the loader.

**ammunition identification.** Identification of ammunition by type, size, and manufacturer's symbol, lot number, and grade.

**Ammunition Identification Code.** (AIC) Superseded code symbol formerly assigned to each item of Army ammunition for identification and supply purposes, e.g., P5HBA. First two characters referred to the pertinent ordnance catalog, and the remaining three characters to the weapon group, type and model, and packaging. The **Department of Defense Ammunition Code** (which see) is now normally employed for the purposes indicated.

**ammunition link.** See: **LINK, CARTRIDGE.**

**ammunition loading line.** Group of facilities at an installation, comprising a series of buildings, equipment and necessary utilities to form a complete operating establishment for the assembly of the component parts of any one of a group of similar items of ammunition.

**ammunition lot.** A quantity of rounds or components, each of which is manufactured by one manufacturer under uniform conditions, and which is expected to function in a uniform manner. The lot is designated and identified by assignment of an ammunition lot number and preparation of an ammunition data card. See also: **ammunition data card; ammunition lot number; lot.**

**ammunition lot number.** Code number that identifies a particular ammunition lot. The number is assigned to each lot when it is manufactured. See also: **ammunition lot.**

**ammunition pit.** Hole or trench dug in the ground where ammunition is stored temporarily. An ammunition pit is usually near the gun from which the ammunition is to be fired.

**ammunition point.** See: **ammunition supply point.**

**Ammunition Reliability Evaluation Program.** (AREP) Observation, inspection, investigation, test, study, and classification of ammunition, ammunition components, and explosives in movement, storage, and use with respect to degree of serviceability and rate of deterioration.

**ammunition required supply rate.** The amount of ammunition expressed in terms of rounds per weapon per day for ammunition items fired by weapons, and in terms of other units of measure per day for bulk allotment ammunition items estimated to be required to sustain operations of any designated force without restriction for a specified time. Tactical commanders use this rate to state their requirements for ammunition to support planned tactical operations at specific intervals. It is submitted through command channels and is consolidated at each echelon. It is considered by each commander in determining the available supply rate within his command. See also: **ammunition available supply rate.**

**ammunition sling.** A pack consisting of a container and a parachute, by means of which ammunition is dropped from aircraft for the supply of troops.

**ammunition, small arms.** See: **small arms ammunition.**

**ammunition, subcaliber.** See: **subcaliber ammunition.**

**ammunition supply installation.** Any organized locality maintaining stock records and operating for the reception, classification, storage, and issue of ammunition. It is a general term used to include depots, ammunition supply points, railheads, truckheads, dumps, distributing points, and all other installations where ammunition is received, stored, classified, or issued.

**ammunition supply point.** Advance point at which ammunition is available for distribution to using units or for distribution by a using unit to individuals or subordinate units.

**ammunition, target practice.** Ammunition used for target practice. It may or may not have a fuze and a spotting charge.

**ammunition trailer.** See: **TRAILER, AMMUNITION.**

**am nit** *(abbr).* 'Ammonium nitrate.'

**amphibious.** (amph) Of vehicles or equipment: Designed to be operated or used on either land or water.

**amphibious mine.** See: **mine, amphibious.**

**amphibious pack.** Oversea pack that will stand temporary immersion, extended open storage, and unusually rough handling.

**amphibious tank.** See: **tank, amphibious.**

**amphibious tractor.** (amtrac) Vehicle used for the movement of troops and cargo from ship to shore in the assault phase of amphibious operations, or for limited movement of troops and cargo over land or water. See: **LANDING VEHICLE, TRACKED.**

**amphibious vehicle.** A wheeled or track laying vehicle capable of operating on both land and water.

**amplidyne.** A generator used as a power amplifier in servosystems.

**amplifier.** A device which by means of electron tube(s), transistor(s), or similar items in conjunction with associated circuits, controls a local source of power. Its output characteristics are uniformly regulated to the input signal, but of a greater amplitude with respect to current and/or voltage.*

**AMPLIFIER, ACCELLEROMETER SIGNAL.** An item which amplifies the input and/or output signal voltage(s) of an accelerometer. Excludes AMPLIFIER, ELECTRONIC CONTROL; AMPLIFIER, SYNCHRO SIGNAL.*

**AMPLIFIER, AUDIO FREQUENCY.** An amplifier for frequencies of 20 kilocycles and below.*

**AMPLIFIER, AUDIO FREQUENCY-RADIO FREQUENCY.** An amplifier for frequencies above and below 20 kilocycles.*

**AMPLIFIER-COMPUTER.** A component having the dual functions of an amplifier and a computer. Do not use for items in which the amplifier and computer circuits are cascaded.*

**AMPLIFIER-CONVERTER.** A component that provides amplifying and frequency converting facilities.*

**amplifier, crystal.** See: **TRANSISTOR.**

**AMPLIFIER-DETECTOR.** A component which has the dual function of amplification and detection. Do not use for items in which the amplifier and detector circuits are cascaded.*

**AMPLIFIER, DIRECT CURRENT.** An amplifier for small variations of direct current. It generally employs direct coupling between stages through resistors.*

**AMPLIFIER, ELECTRONIC CONTROL.** A device, which by means of an electron tube(s) and/or transistor(s) enables an input signal or signals to control a local source of power. Its output signal is of greater amplitude than the input signal and has characteristics which are suitable for controlling or supplying power for the excitation of electric motors or similar devices. Includes devices commonly referred to as servo amplifiers, torque amplifiers and similar equipment only if these devices do not employ synchros and do not incorporate servomechanisms. Does not include items that can be classified properly as audio frequency, radio frequency, direct current or video amplifiers. For amplifiers that incorporate servomechanisms and employ synchros, see: **AMPLIFIER, SYNCHRO SIGNAL.***

**AMPLIFIER-FREQUENCY MULTIPLIER.** An item having the dual function of an amplifier and of deriving an output signal which is some multiple frequency of an input signal. May utilize electron tubes, transistors, or similar devices.*

**AMPLIFIER-INTEGRATOR.** An item having the dual functions of an amplifier and an item which accepts two or more independent variable signals such as distance and time, and electronically processes their incremental components to obtain a resultant term such as velocity. The amplifier and integrator are used with associated components and may be used with each other.*

**AMPLIFIER, INTERMEDIATE FREQUENCY.** An amplifier which is tuned to a single fixed frequency resulting from heterodyne action between a local oscillator frequency and a signal frequency introduced from an external source.*

**AMPLIFIER, MAGNETIC.** An item consisting of a SATURABLE REACTOR and rectifier(s) which is used for amplification purposes. May include resistors, capacitors and/or other components.*

**AMPLIFIER, MAGNETIC DRUM STORAGE DATA.** An amplifier for electronic computer data being stored on or removed from a magnetic drum.*

**AMPLIFIER-MIXER.** A single component with the dual function of an amplifier and of combining two or more signals into a composite output signal.*

**AMPLIFIER-MODULATOR.** A component consisting of two circuits which performs the combined function of amplifying and modulating a signal. There are no parts that are common to both circuits. The source of power may be common to both circuits.*

**AMPLIFIER-MONITOR.** An item having the dual function of an amplifier and of presenting operational information. The amplifier and monitor are each used with associated components and may be used with each other.*

**AMPLIFIER, RADIO FREQUENCY.** An amplifier for frequencies above 20 kilocycles.*

**amplifier, servo.** See **AMPLIFIER, ELECTRONIC CONTROL.**

**AMPLIFIER-STORER, COMPUTER.** A single component with the dual function of an amplifier and of retaining information in an electrical form for on-demand retrieval by other components.*

**AMPLIFIER, SYNCHRO SIGNAL.** A device designed to increase the capacity of a synchro transmission system and to isolate reflected oscillations from the input synchro signal. It includes a control transformer, an electronic or magnetic amplifier, a servomechanism and one or more synchro transmitters. May include synchro receiver(s). For amplifiers that do not include synchros and do not incorporate servomechanisms, see: **AMPLIFIER, ELECTRONIC CONTROL.***

**amplifier, torque.** See: **AMPLIFIER, ELECTRONIC CONTROL.**

**AMPLIFIER, TRIGGER PULSE.** An amplifier which is controlled by a triggering pulse of electrical energy.*

**AMPLIFIER, TRIGGER PULSE-VIDEO.** An amplifier which provides separate channels for amplifying pulse signals and also visual frequency signals (picture) in electronic equipments using cathode ray tubes, or other items developing or utilizing a visual representation. Includes one or more channels for each function.*

**AMPLIFIER, VIDEO.** An amplifier for video frequencies. It is generally used in equipments in which the electrical impulses are converted into visual presentations by means of cathode ray tubes or other items. See also: **AMPLIFIER, AUDIO FREQUENCY-RADIO FREQUENCY.***

**amplitude.** 1. *Physics.* The extent of a vibration. 2. a. *Electricity.* The maximum variation or departure from the average of an alternating current. b. *Electronics.* The greatest value of an alternating radio wave or the like in one direction, measured from *zero.*

**amplitude modulation.** (AM) A method of radio transmission in which the amplitude of the carrier wave is varied or changed.

**AMSO** *(abbr).* 'Ammunition Shipment Order.'

**amtk** *(abbr).* 'Amphibious tank.'

**amtrac** *(abbr).* 'Amphibious tractor.'

**AN** *(abbr).* In such usage as AN-M43A2, designates Air Force-Navy standard item.

**ANAF** *(abbr).* 'Army-Navy-Air Force.'

**analog.** A physical system on which the performance of measurements yields information concerning a class of mathematical problems.

**analog computer.** See: **computer, analog.**

**analysis by statistical method.** Treatment of data resulting from a limited number of observations, by which attempt is made to predict the results which would be obtained from a very large, or infinite, number of similar observations.

**analysis of fire.** The study of previous antiaircraft preparatory firings for the purpose of determining corrections which will improve fire for effect.

**ANALYZER, GASOLINE ENGINE EXHAUST.** An instrument designed to indicate the efficiency of gasoline engine carburetion by determining the air-fuel ratio and/or the completeness of combustion.*

**ANALYZER, PARTICLE SIZE.** A device designed to determine the size distribution of powdered materials below the 200 mesh sieve range. The method employed is an oscillating U-shaped tube and encased air jet to furnish the air required for separation. It is regulated in accordance with Stokes' law of fall for microscopic size particles.*

**ANALYZER SET, ENGINE.** A group of items used in the testing of exhaust, ignition, voltage, revolutions per minute, etc., of a gasoline or diesel engine.*

**ANALYZER, SPECTRUM.** An instrument specifically designed to measure the amplitude and frequency of the constituents of a complex electrical wave form. May include transducer mechanism for converting sound pressure into electrical energy.*

**ANALYZER, TELEMETRIC DATA.** A single component designed to amplify and separate into individual signals, meter and/or instrument data, into the form of electrical pulses which may be recorded by a telemetric data recorder.*

**ANALYZER, VIDEO INTEGRATING.** An item which analyzes and displays all the important characteristics of any type of electro-magnetic energy, and retains such information over a period of time for study.*

**anastigmat.** A compound lens corrected for **astigmatism.**

**ANCHOR, UNDERWATER MINE.** An item designed in various shapes to moor an underwater mine at a predetermined depth. It may contain various releasing and securing devices which can be manually fixed for use in any given depth of water.*

**'and' circuit.** *Electronic computers.* See: **gate, sense 2.**

**ANEMOMETER.** A self-contained item which senses, measures, and indicates the speed of the wind and/or total air movement. Excludes transmitting devices.*

**aneroid.** A disc-shaped metallic capsule from which all the air has been evacuated, which expresses its sensitivity to changes in atmospheric pressure by expanding and contracting.

The aneroid is the activating element in manifold-pressure gages and certain altimeters and barometers.

**angle, aileron.** The angular displacement of an aileron from its neutral position. It is positive when the trailing edge of the aileron is below the neutral position, negative when above.

**angle, crab.** The angle between the direction in which an aircraft is heading and its true course.

**angle, depression.** The angle measured downward from the horizontal to the axis of an airborne radar beam directed at a target. This is the complement of the incidence angle of the beam at the target plane.

**ANGLEDOZER, EARTH MOVING.** A broad, horizontal, metal, pushing blade with framework and equipment for mounting on the front of a motorized vehicle; used for moving earth and other materials to either side of the vehicle when the blade is set at a selected angle, or straight forward when the blade is set parallel to the front of the vehicle.*

**angle, drift.** The horizontal angle between the longitudinal axis of an aircraft and its path relative to the ground.

**angle, elevator.** The angular displacement of the elevator from its neutral position. It is positive when the trailing edge of the elevator is below the neutral position and negative when it is above.

**angle, flight path.** The angle between the flight path (which see) of an aircraft and the horizontal. Sometimes called 'flight path slope.'

**angle, gliding.** The angle between the flight path during a glide and a horizontal axis fixed relative to the earth.

**angle of approach.** 1. Angle between the line along which a moving target is traveling and the line along which the gun is pointed. The angle of approach is never greater than 90°. 2. The maximum angle of an incline onto which a vehicle can move from a horizontal plane without interference; as, for instance, from front bumpers.

**angle of attack.** 1. *Specif.* The acute angle between the chord of an airfoil, and a line representing the undisturbed relative airflow. In British terminology also called 'angle of incidence.' 2. Any other acute angle between two reference lines designating the cant of an airfoil relative to oncoming air.

In sense 1, esp. in regard to a wing, this angle consists of the effective angle of attack plus the induced angle of attack, the two together imparting a given lift to an airfoil. See: **angle of attack, absolute; angle of attack, critical; angle, zero-lift.** In sense 2, see: **angle of attack, effective; angle of attack, induced.**

**angle of attack, absolute.** The acute angle between the chord of an airfoil at any instant in flight and the chord of that airfoil at zero lift.

**angle of attack, critical.** The angle of attack of an airfoil at which the flow of air about the airfoil changes abruptly in such a manner that lift is sharply reduced and drag is sharply increased. Also called the 'stalling angle of attack.'

**angle of attack, effective.** That part of a given angle of attack that lies between the chord of an airfoil and a line representing the resultant velocity of the disturbed airflow.

This angle is measured on a finite wing, but it has the same effective magnitude as that of an angle of attack for infinite aspect ratio measured on a theoretical airfoil between the chord and the direction of the undisturbed airflow. See: **angle of attack for infinite aspect ratio.**

**angle of attack for infinite aspect ratio.** In aerodynamic theory, an assumed angle of attack at which a given airfoil would produce a specified amount of lift if the airfoil were of infinite span, the angle being formed by the chord of the airfoil and a line representing the relative direction of the undisturbed airflow.

This angle is assumed to have a magnitude equal to that of the effective angle of attack for a finite airfoil; the latter, however, is real and forms its angle between the chord and the resultant velocity of disturbed airflow. The line representing the resultant velocity divides the angle between the chord and the line representing the undisturbed airflow. To produce the same amount of lift, an airfoil of finite span must be set at a greater angle of attack than would be necessary if the airfoil were of infinite span (or of infinite aspect ratio), since the downwash velocity produced by the airfoil-tip vertexes of the finite airfoil tend to reduce the lifting effectiveness of its angle of attack.

**angle of attack, induced.** That part of any given angle of attack over and above the effective angle of attack.

**angle of attack, zero-lift.** See: **angle, zero-lift.**

**angle of cant.** 1. In a spin stabilized rocket, the angle formed by the axis of a venturi and a line parallel to the longitudinal axis of the rocket. 2. Angle due to cant, which see.

**angle of clearance.** Angle between the line along which a gun or launcher is pointed at the target and the line along which the weapon must be pointed for a projectile or missile fired from it to clear any obstruction between the weapon and the target.

**angle of convergence.** 1. Angle through which any gun laid parallel to the base gun in a battery must be turned toward it in order to point at the target. 2. Angle formed by the intersection of the lines of sight from the two eyes or from the two eyepieces of an optical instrument or from two points of observation. In both meanings, also called **angle of parallax.** 3. See also: **angular parallax.**

**angle of deflection.** The horizontal clockwise angle between the axis of the bore of a gun and the line of sighting when a gun is laid for direction.

**angle of departure.** 1. The vertical angle, at the origin, between the line of site and the line of departure. 2. The maximum angle of an incline from which a vehicle can move onto a horizontal plane without interference; as, for instance, from rear bumpers.

**angle of depression.** See: **depression angle.**

**angle of deviation.** The angle through which a ray of light is bent by a refracting surface; the angle between the subtended path of an *incident ray* and the *refracted ray.*

**angle of divergence.** Angle through which any gun in a battery, laid parallel to the base gun, must be turned away from the latter in order to be properly aimed for direction. It is used especially by a machine gun battery, when fire is to be distributed over a target having width.

**angle of drop.** The vertical angle between the bore axis and the plane which contains the projectile, and perpendicular to the vertical plane through the bore axis. Use of the term 'vertical ballistic deflection' is preferred.

**angle of elevation.** 1. Vertical angle between the line of site and the axis of the bore. Thus the angle of elevation is the vertical angle above the line of site through which the axis of the bore must be raised so that the bullet (or projectile) will carry to the target. See: **angle of departure** and **quadrant angle of departure.** 2. In aerial gunnery, an acute angle between the bore axis of a gun and the horizontal. Called 'quadrant elevation' in ground gunnery.

**angle of entry.** Acute angle between the tangent to the trajectory at the point of impact of a bomb or projectile and the perpendicular to the surface of the ground or target at the point of impact. It is the

complement of the **angle of impact** (which see). Also called angle of obliquity and angle of incidence.

**angle of fall.** The vertical angle at the level point, between the line of fall and the base of the trajectory.

**angle of flap (and flaperons).** The acute angle between two planes defined as follows: one plane including the spanwise and chordwise reference lines of the flap or flaperon; the other plane including the spanwise and chordwise reference lines of the supporting wing.

**angle of glide.** The acute angle between the horizontal and the flight path of an airplane or missile as it descends in a glide.

**angle of impact.** The acute angle between the tangent to the trajectory at the point of impact of a projectile and the plane tangent to the surface of the ground or target at the point of impact. The complement of the **angle of entry** (which see).

**angle of incidence.** 1. **Angle of entry,** which see. 2. *Optics.* The angle between the normal to a reflecting or refracting surface and the incident ray. 3. *Electronics.* The angle between the direction of an electromagnetic wave and a line perpendicular to a reflecting surface struck by the wave. 4. In guided missile usage, same as **angle of wing setting.** 5. In British terminology the angle of incidence is equivalent to the American term **angle of attack.**

**angle of inclination.** The angle between the horizontal and the tangent to the trajectory at any point.

**angle of jump.** Also called **jump.** Angle between the **line of elevation** and the **line of departure.** See also: **vertical jump** and **lateral jump.**

**angle of obliquity.** See: **angle of entry.**

**angle of orientation.** Applied to a projectile in flight, with the projectile axis at an angle, called the *angle of yaw,* to the direction of projectile motion. The angle between the plane determined by the axis of the projectile and the tangent to the trajectory (direction of motion) and the vertical plane including the tangent to the trajectory is called the *angle of orientation.*

**angle of parallax.** See: **angle of convergence; parallax.**

**angle of pitch.** The acute angle between the longitudinal axis of an aircraft or missile and its line of travel, looked at from the side.

**angle of reflection.** The angle between the normal to a reflecting surface and the **reflected ray.**

**angle of refraction.** The angle between the normal to the refracting surface at the point of contact and the refracted ray.

**angle of roll.** The acute angle between the lateral axis of an airplane or missile and the horizontal. The angle is positive when the port tip is higher than the starboard tip.

**angle of safety.** Minimum permissible angular clearance, at the weapon, of the path of a projectile or missile above friendly troops. The angle of safety is the angle of clearance increased enough to insure the safety of the troops. Also called *safety angle.*

**angle of shift.** Horizontal angle between the line joining the gun and the first target and the line joining the gun and another target. The angle of shift is the angle through which the gun must be turned to shift fire from the first target to another one.

**angle of site.** The angle of site is the vertical angle formed by the line of site and the base of the trajectory. The angle of site is plus when the line of site is above the base of the trajectory and minus when the line of site is below the base of the trajectory.

**angle of stability.** The minimum angle of elevation at which a gun carriage is stable when fired.

**angle of stabilizer setting.** The acute angle between the longitudinal axis of an airplane or missile and the chord of the stabilizer looked at from the side. The angle is positive when the leading edge of the stabilizer is higher than the trailing edge.

**angle of train.** Azimuth element of firing data furnished by a remote control system.

**angle of traverse.** 1. Horizontal angle through which a gun or launcher can be turned on its mount. 2. Angle between the lines from a gun or launcher to the right and left limits of the front that is covered by its fire, that is, the angle through which it is traversed.

**angle of wing setting.** The acute angle between the longitudinal axis of an airplane or missile and the root chord of wing looked at from the side.

**angle of yaw.** 1. The varying angle between the direction of motion of a projectile or missile and its axis. 2. The acute angle between the longitudinal axis of an aircraft and its line of travel, looked at from above. See: **yaw.**

**angle, zero-lift.** The angle of attack of an airfoil when its lift is zero.

**angstrom unit.** (Å) A unit of length equal to one ten-thousandth of a micron, or one hundred-millionth of a centimeter. Used to express the length of extremely short waves.

**angular acceleration.** Acceleration around an axis, esp. around one of the axes of a projectile, missile or aircraft. See: **acceleration.**

**angular height.** The vertical angle between the **line of site** and the horizontal.

**angular parallax.** The angle between grid north and true north. This angle increases the farther the grid departs from the standard meridian.

**angular speed.** See: **angular velocity.**

**angular tracker, guided missile.** See: **TRACKER, ANGULAR, GUIDED MISSILE.**

**angular travel.** Angular distance covered by a moving target in a given time. It is equal to the angular velocity multiplied by the time of travel. Angular travel is measured in terms of the change of angle at the observing point during the time of travel.

**angular travel error.** The error which is introduced into a predicted angle obtained by multiplying an instantaneous angular velocity by a time of flight.

**angular travel method.** Method of calculating firing data based on the rate of angular travel of the target in direction and elevation. Angular travel method and linear speed method are two methods of computing firing data.

**angular unit method.** A method of adjusting antiaircraft artillery gunfire, in which range deviations

in mils obtained by a distant observer are converted into altitude corrections in yards, for application at the data computer.

**angular velocity.** Speed of a moving target, measured at the observing point in terms of the rate of change of the angular position of the target in direction and elevation. angular speed.

**angulator.** Mechanical device used to convert an angle measured in an oblique plane to its projection on the horizontal plane.

**anisotropic.** Exhibiting different physical properties when tested in different directions.

**annealing.** Originally a term used in connection with heat treatment of metals, to mean heating to a rather high temperature followed by a slow cooling. This definition still applies in the heat treatment of steel, as a method of softening the steel.

In connection with heat treatment of nonferrous, age-hardenable alloys, the term annealing is frequently used, either with or without qualifying adjectives, to indicate heating to a high temperature, regardless of the subsequent cooling cycle or the final effect on the physical properties of the material.

**Anniston Ordnance Depot.** Field installation of the Ordnance Corps, located near Anniston, Alabama.

**ANNUNCIATOR.** A signaling apparatus which operates electromagnetically and serves to indicate visually, or visually and audibly, whether a current is flowing, has flowed, or has changed direction of flow in one or more circuits. It is usually employed in connection with alarms, electric bells, or buzzers. See also: **ALARM** (as modified).*

**anode.** The positive electrode, used in the electroplating process, by which the electric current enters the plating bath on way to opposite pole. When made of the plating material, it maintains constant metallic content in the electrolyte through corrosion. Anode is the opposite to cathode.*

**anodized coating.** A process used for coating aluminum and aluminum alloys. Used for corrosion resistance provided by the aluminum hydroxide surface. The surface is soft and must be treated with a coat of primer before handling. Anodizing is *not* a plating process. The coating is applied by a chromic acid oxidation process.

**A-N radio range.** A navigational aid that establishes four radial equisignal zones, a deviation from the zones being indicated by the audible Morse Code letters A or N and the on-course indication being a continuous tone.

**ANTENNA.** An item consisting of a conductor or system of conductors specifically designed to radiate and/or receive electromagnetic waves in free space. May include beam-forming devices, drive motors, synchros, and associated mechanical structure.*

**antenna array.** An antenna system consisting of a number of separate antenna wires either separately fed from the transmitter or acting as reflectors and directors.

**antenna, artificial.** A device which has the necessary impedance characteristics of an antenna and the necessary power-handling capabilities, but which does not radiate or receive radio waves. Sometimes called *dummy antenna.*

**ANTENNA ASSEMBLY.** An item consisting of two or more separately excited antennas on a common mounting or mounted on each other. Do not use for a single antenna which is merely complex or unusual in construction.*

**antenna, corner reflector.** An antenna consisting of a primary radiating element and a dihedral corner reflector.

**antenna crosstalk.** A measure of undesired power transfer through space from one antenna to another. Numerically, antenna crosstalk is the ratio of the power received by one antenna to the power transmitted by the other, usually expressed in decibels.

**antenna, dipole.** A special antenna with two poles, each approximately one-quarter wave length long. Used chiefly in radar conical scanning.

**antenna, dish.** See **dish, radar.**

**ANTENNA ELEMENT.** An item which is a single conductor and is designed as a replaceable part of an antenna dipole or antenna.*

**ANTENNA GROUP.** A group that provides antenna facilities for the reception and/or transmission of electromagnetic energy.*

**antenna, horn.** The flared end of radar wave guide, which has been matched to the surrounding space for efficient radiation of energy from within the guide to space.

**ANTENNA-MAST GROUP, COLLIMATION.** Two or more components, not capable of operation as a set but when used with an electronic set, permits visual and electronic alignment of the tracking radars of a guided missile remote control system. May include tools and installation equipment. Excludes SIMULATOR, ANTENNA POSITION.*

**antenna pattern.** A figure representing the intensity in space, in every direction, of the signal transmitted by the antenna.

**ANTENNA-RADOME.** An item consisting of one or more ANTENNA inclosed in a RADOME. It may also include associated components.*

**ANTENNA-RECEIVER-TRANSMITTER GROUP, ACQUISITION.** A search type radar capable of providing continuous surveillance for a DIRECTOR STATION GROUP, GUIDED MISSILE with the prime function of detecting, interrogating and designating targets. Automatically provides range and azimuth data to the ANTENNA-RECEIVER-TRANSMITTER GROUP, TARGET TRACKING for rapid transfer of target acquisition.*

**ANTENNA-RECEIVER-TRANSMITTER GROUP, MISSILE TRACKING.** A collection of items, two or more being major electronic components, which are not capable of performing a complete operational function by itself, but which when used in a guided missile remote control system, will provide facilities for receiving and transmitting radar signals, including appropriate corrective guidance command signals to a missile in flight, and furnishing continuous missile position data to a computer and/or other sets of a RADAR MISSILE TRACKING CENTRAL. May include facilities for local control and/or monitoring, aligning, or leveling during installation.*

**ANTENNA-RECEIVER-TRANSMITTER GROUP, TARGET TRACKING.** A collection of items, two

or more being major electronic components, which is not capable of performing a complete operational function by itself, but which when used in a guided missile remote control system, will provide facilities for receiving and transmitting radar signals, and furnishing continuous target position data to a computer and/or other sets of a RADAR MISSILE TRACKING CENTRAL. May include facilities for local control and/or monitoring, aligning or leveling during installation.*

**antenna resistance.** The quotient of the power supplied to the entire antenna circuit divided by the square of the effective antenna current referred to a specified point. Antenna resistance is made up of such components as radiation resistance, ground resistance, radio-frequency resistance of conductors in the antenna circuit, and equivalent resistance due to corona, eddy currents, insulator leakage, and dielectric power loss.

**anthropometric data.** Data, esp. measurements, concerning the human body. This type of data is prepared by the Human Engineering Laboratory and made available for consideration by design agencies in Ordnance design projects.

**antiaircraft.** (AA) Used, or designed to be used, against airborne aircraft.

**antiaircraft artillery.** (AAA) Projectile weapons with their related equipment such as searchlights, radar, etc., employed on the ground or on ships to strike at airborne aircraft (including ballistic and guided missiles).

'Antiaircraft artillery' is an inclusive term for cannon, small caliber automatic weapons, rockets, surface-to-air guided missiles, etc., together with the equipment used or required in connection with antiaircraft operations.

**antiaircraft artillery analysis.** See: **flak analysis.**

**antiaircraft barrage.** 1. A barrage of antiaircraft fire through which enemy aircraft are expected to fly. Sometimes called a 'predicted barrage.' 2. Less precisely, any concentration of antiaircraft fire. See also: **barrage.**

**antiaircraft defense.** The total defense on the ground or on ship employed against aircraft (including ballistic and guided missiles).

This defense includes AAA, barrage balloons, and AAA intelligence service.

**antiaircraft defense system.** See: **DEFENSE SYSTEM, ANTIAIRCRAFT.**

**antiaircraft director.** See: **DIRECTOR, ANTIAIRCRAFT WEAPONS.**

**antiaircraft missile.** (AAM) See: **missile, antiaircraft.**

**antiaircraft searchlight set.** See: **SEARCHLIGHT SET.**

**antiarmor.** Of ammunition, bombs, bullets, projectiles, or the like: Designed to defeat armor and other resistant targets.

**antidetonant.** A substance added to gasoline to prevent detonation. Cf: **antiknock.**

**antidisturbance fuse.** See: **fuse, antidisturbance.**

**antidrag.** 1. Of structural members in an aircraft or missile: Designed or built to resist the effects of drag. 2. Of a force: Acting against the force of drag.

**ANTIFOGGING COMPOUND.** A compound of one or more basic chemicals with filler(s) and/or extenders, intended for the express purpose of preventing condensation of moisture on glass and other transparent material such as lenses or windshields. When of specific chemical, *see specific chemical name.**

**ANTIFOGGING KIT.** A group of items specifically designed for the application of a substance to glass surfaces, such as gas mask lenses, diver's helmet lenses, automobile windshields, and the like, to prevent fogging.*

**ANTIFREEZE.** Antifreeze is a chemical substance, compound or mixture which, when in aqueous solutions of prescribed proportion, will prevent freezing of watercooled cooling systems.*

**antifriction device.** Mechanism which reduces friction in pointing a gun. It operates by lifting the gun off the main bearings and supporting it, while it is being moved, on light, free-turning bearings.

**antifriction mechanism.** See: **antifriction device.**

**antihandling fuse.** See: **fuse, antidisturbance.**

**antijamming.** Of a device, method, system, or technique: That reduces or eliminates jamming.

**antiknock.** A substance, such as iso-octane, which may be added to gasoline, or used as a fuel itself, to prevent detonation in an engine cylinder. Cf: **antidetonant.**

**antilift device.** A device arranged to detonate the land mine to which it is attached, or to detonate another mine or charge nearby, if the mine is disturbed. The device causes detonation through a secondary fuze called an ACTIVATOR, ANTITANK MINE.

**antimechanized defense.** All means used for defense against armored combat vehicles. It may include such means as armored units, antitank weapons and grenades, field artillery, antiaircraft artillery, ditches, traps, mine fields, and any other means available; antitank defense.

**antimissile missile.** An explosive missile designed to intercept and destroy another missile in flight. Popularly termed 'auntie.'

**antipersonnel.** (apers) Of projectiles, bombs, mines, grenades, or the like: Designed to kill, wound, or obstruct personnel.

**antipersonnel mine.** See: **MINE, ANTIPERSONNEL.**

**antiremoval device.** A device attached to a land mine to protect it against removal. Usually attached to the mine either on the bottom or on the side, designed to function when a pull is exerted on the mine at the time of removal, or when pressure is released from the device when the mine is lifted from its position. Detonation is by a secondary fuze called an ACTIVATOR, ANTITANK MINE.

**antiricochet device.** Device intended for attachment to bombs to prevent ricochet, with consequent loss of effectiveness and possible danger to the dropping plane. The device usually consists of a parachute unit, fuze adapter and fuze, and is attached to the tail end of the bomb. The bomb is slowed by the parachute, enabling the dropping plane to pass beyond the danger area before the bomb is detonated.

**ANTISETTING COMPOUND, DECONTAMINATING SLURRY.** A mixture of chemicals, used to reduce the setting and settling of a decontaminating

agent in slurry form. The item includes a measuring cup for small quantities of slurry.*

**antisubmarine.** Of equipment, mines or missiles: Designed to attack or destroy submarines.

**antisubmarine warfare.** (ASW) Operations conducted against submarines, their supporting forces and operating bases.

**antitank.** (AT) Used, or designed to be used, against tanks.

**antitank bomb.** See: **bomb, antitank.**

**antitank ditch.** Deep ditch prepared as an obstacle to enemy tanks. It is also called 'tank ditch.'

**antitank grenade.** See: **grenade, antitank.**

**antitank mine.** See: **MINE, ANTITANK.**

**antitank mine field.** 1. Area in which antitank mines are planted to stop or slow down enemy tanks or other armored vehicles. 2. Pattern of antitank mines so placed as to stop or slow down the progress of enemy tanks or other armored vehicles.

**antitank obstacle.** Natural or manmade obstruction or barrier which will stop, slow down, or cause tanks or other armored vehicles to maneuver or change direction; tank obstacle. Antitank obstacles include ditches, wire rolls, concrete pillars, and blocks, etc.

**antitank rifle grenade.** See: **grenade, antitank.**

**antitank rocket.** See: **rocket, antitank.**

**antitank weapon.** Any weapon designed or suitable for use against tanks or other armored vehicles. Antitank rockets, antitank grenades, and antitank guns are examples of antitank weapons.

**antitorpedo.** (atorp) Of equipment, missiles and the like: Designed to combat or destroy torpedoes.

**antiwithdrawal device.** A device intended to function an item of ammunition if attempt is made to remove a fuze from the ammunition. May be an integral part of the fuze, or a separate unit. See also: **fuze, antiwithdrawal.**

**anvil.** The rigid metal part against which the explosive charge in a PRIMER, PERCUSSION is compressed by the blow of the firing pin.

**AOA** *(abbr).* 'American Ordnance Association.'

**AOMC** *(abbr).* 'Army Ordnance Missile Command,' short for 'U. S. Army Ordnance Missile Command.'

**AOQ** *(abbr).* 'Average outgoing quality.'

**AOQL** *(abbr).* 'Average outgoing quality limit.'

**AP** *(abbr).* 1. 'Armor-piercing.' 2. 'Ammunition point.'

**APC** *(abbr).* 1. 'Armor-piercing capped.' 2. 'Armored personnel carrier.'

**APCBC** *(abbr).* 'Armor-piercing capped, ballistic capped.'

**APC-T** *(abbr).* 'Armor-piercing with cap and tracer.'

**apers** *(abbr).* 'Antipersonnel.'

**aperture.** An opening or hole through which light or matter may pass. In an optical system, it is equal to the diameter of the largest entering beam of light which can travel completely through the system. This may or may not be equal to the aperture of the objective.

**aperture of objective.** *Optics.* The diameter of that part of the objective which is not covered by the mounting.

**APERTURE, SIGHT.** An irregularly shaped adjustable mechanical item usually integral to a SIGHT, REAR. It functions as a peephole through which the sight at the opposite end of a gun is brought into view in aiming at a target or object.*

**aperture sight.** Sight without optics (lens) by which the target is viewed through a hole or aperture.

**APF** *(abbr).* 'Aircraft parachute flare.'

**APG** *(abbr).* 'Aberdeen Proving Ground.'

**aphelion.** See: **orbits of planets.**

**aphesperian.** See: **orbits of planets.**

**API** *(abbr).* 1. 'Armor-piercing incendiary.' 2. 'Air position indicator.' 3. 'American Petroleum Institute.'

**apical angle.** In general the angle formed at the apex or tip of anything. As applied to projectiles, the angle between the tangents to the curve outlining the contour of the projectile at its tip, or for semiapical angle, the angle between the axis and one of the tangents. For a projectile having a conical tip, the cone apex angle.

**APIT** *(abbr).* 'Armor-piercing incendiary tracer.'

**aplanatic lens.** A lens which has been corrected for **spherical aberration** and **coma.** It usually is also corrected for color.

**apoares.** See: **orbits of planets.**

**apochromatic lens.** A lens, usually consisting of three components of different kinds of glass (two crown glass elements, one flint glass element), which has been corrected for chromatic aberration with respect to three selected colors or wave lengths of light.

**apocronus.** See: **orbits of planets.**

**apogee.** See: **orbits of planets.**

**apojove.** See: **orbits of planets.**

**apolunar.** See: **orbits of planets.**

**apomercurian.** See: **orbits of planets.**

**apoplutonian.** See: **orbits of planets.**

**apoposeidon.** See: **orbits of planets.**

**apouranian.** See: **orbits of planets.**

**APP** *(abbr).* 'Army Procurement Procedures.'

**apparent field.** The apparent angular size of the field of view of an optical instrument, as seen through the instrument. See: **field of view.**

**applied research.** Research directed toward using knowledge gained by basic research to make things or to create situations that will serve a practical or utilitarian purpose.

Basic research discovered Bernoulli's principle; applied research adapted an airfoil so that lift is imparted in accordance with the implications of Bernoulli's principle. See: **basic research.**

**applique armor.** Material or attachment which can be installed on a tank to give it additional protection against kinetic or nonkinetic energy ammunition.

**approximate lateral deflection angle.** See: **lateral deflection angle.**

**approximate vertical deflection angle.** See: **vertical deflection angle.**

**apron.** 1. That portion of a superior slope of a parapet or the interior slope of a pit designed to protect the slopes against blast. 2. The hinged portion of a shield. 3. A removal screen of camouflage material

placed over, or in front of, artillery guns. 4. A hard surfaced area, usually paved, adjacent to a shop or the like, used to park, load, unload, or service vehicles. Often erroneously called a **ramp** (which see).

**APRON, FUELING, GUIDED MISSILE.** An item specifically designed to cover an area surrounding a fuel inlet on a guided missile for the purpose of shielding the operator and protecting the missile during fueling operations.*

**apron shield.** See: **shield.**

**APS** *(abbr).* 'Armor-piercing sabot.'

**AP-T; APT** *(abbr).* 'Armor-piercing with tracer.'

**AQL** *(abbr).* 'Acceptable quality level.'

**AR** *(abbr).* 1. 'Aircraft rocket.' 2. 'Army Regulations.' 3. 'Acid resisting.'

**arbitrary correction.** The correction of firing data or sound-locator data, applied to correct for observed errors after allowance has been made for all known causes of deviation; adjustment correction.

**ARBOR, DEPTH CHARGE.** An item designed to provide a means of launching and supporting of a depth charge in a depth charge gun.*

**arbor press.** See: **PRESS, ARBOR, HAND OPERATED.**

**arc welder.** See: **WELDING MACHINE, ARC.**

**ARDC** *(abbr).* 'Air Research and Development Command.'

**area bombing.** Bombing a general area. Area bombing differs from precision bombing, which is bombing at a specific target, and from pattern bombing, which is systematic covering of a target according to a plan.

**area defense.** A defense against air attack organized to protect an area, as distinguished from a point defense or line defense.

**area, drag.** *Aerodynamics.* 1. The quotient of drag over incompressible dynamic pressure or over dynamic head. 2. The area of a flat plate producing an equivalent drag at a drag coefficient of 1.

**area, effective.** 1. *Aerodynamics.* The area of the wing (or tail) of an aircraft plus that portion of the area of the fuselage which is effective in producing lift. 2. The area within which a particular explosive munition is expected to do effective damage.

**area, equivalent flat plate.** *Obsolescent.* See: **area, drag.**

**area, exposed.** The area of the wing (or tail) outside the fuselage.

**area fire.** Fire delivered on a prescribed area. The term is applicable regardless of the tactical purpose of the fire, but area fire is generally neutralization fire.

**area ratio of diffuser.** See: **diffuser, area ratio of.**

**area target.** A target consisting of an area such as an entire munitions factory, rather than a single building or similar point target.

**AREP** *(abbr).* 'Ammunition Reliability Evaluation Program.'

**ARGMA** *(abbr).* 'Army Rocket and Guided Missile Agency.'

**arithmetic element.** *Electronic computers.* That part of a computer which performs arithmetic operations. Sometimes called **arithmetic organ** or **arithmetic unit.**

**arithmetic organ.** *Electronic computers.* See: **arithmetic element.**

**arithmetic unit.** See: **arithmetic element.**

**ARL** *(abbr).* 'Acceptable reliability level.'

**arm.** 1. A combat branch of a military force. *Specif.* a branch of the Army, such as the Infantry, Armored Cavalry, or Artillery, the primary function of which is combat. 2. Weapon for use in war, usually in *pl.* 3. To supply with arms. 4. To make ammunition ready for detonation, as by removal of safety devices or alignment of the explosive elements in the explosive train of the fuze.

**armament.** (armt) 1. The weapons of an airplane, tank, ship, or the like; the weapons of a unit or organized force. 2. *pl.* War equipment, weapons, and supplies.

In sense 1, 'armament' denotes guns or rockets, but not aerial bombs or mines. In sense 2, the term is very broad and includes atomic, radiological, and bacteriological weapons, bombs, launching systems, etc., together with handling, training, testing and other equipment.

**armament error.** Dispersion of shots from a particular gun; the deviation of any shot from the center of impact of a series of shots from a gun after all errors of personnel and adjustment have been accounted for.

**armament kit.** A collection of items, not all having the same basic name, employed for the operation of a machine gun(s), recoilless rifle(s), rocket launcher(s) and the like, installed on an aircraft. It includes in addition to the machine gun(s), recoilless rifle(s), or rocket launcher(s), an ammunition storage facility, feed chuting, firing solenoid(s), gun charger(s), and the like. It also includes actuation devices and/or linkage to provide flexible remote control from the aircraft cockpit.*

**ARM, BIPOD, RECOILLESS RIFLE.** A device designed for mounting on the breech end of a recoilless rifle. It is used singly as a shoulder support during firing or, in conjunction with a similar item, as a bipod ground rest.*

**armd** *(abbr).* 'Armored.'

**Armed Forces of the United States.** Collectively, all components of the Army, Navy, Air Force, Coast Guard. Sometimes restricted to the first three.

**Armed Forces Special Weapons Project.** (AFSWP) An Armed Forces project organized to carry out certain functions connected with the military use of atomic energy not delegated to the Atomic Energy Commission. In 1959 redesignated **Defense Atomic Support Agency** (DASA).

**Armed Forces Supply Support Center.** (AFSSC) Agency of the Department of Defense. Responsibilities include standardization and cataloging activities. Located in Washington, D. C.

**armed mine.** See: **mine, armed.**

**armed service.** 1. One of the three branches of the Department of Defense. 2. Usually *plural* and *capitalized:* The Armed Forces of the United States.

**Armed Services Procurement Regulation.** (ASPR) Uniform policies for the Departments of the Army, Navy, and Air Force relating to the procurement of supplies and services under the authority of Public

Law 415, 80th Congress, or under other statutory authorization.

**Armed Services Technical Information Agency.** (ASTIA) See: **ASTIA.**

**arming.** As applied to fuzes, the changing from a safe condition to a state of readiness for functioning. Generally a fuze is caused to arm by such means as acceleration, rotation, clock mechanism, chemical action, electrical action, or air travel, or by a combination of these.

**ARMING ASSEMBLY, BOMB FUZE.** An item incorporating a wind driven vane and a speed regulating governor to arm mechanical bomb tail fuzes.*

**arming delay.** See: **ARMING DELAY, BOMB FUZE; also delay.**

**ARMING DELAY, BOMB FUZE.** A mechanical, pyrotechnic or electrical device designed for attachment to a fuze to delay the start of fuze arming.*

**arming device.** Device for **arming** (which see) of a fuze under controlled conditions.

**ARMING DEVICE, GUIDED MISSILE WARHEAD.** An item designed to perform the electrical and/or mechanical alignment necessary to permit the initiation of the explosive train of a guided missile warhead.*

**ARMING DEVICE, ROCKET WARHEAD.** An item designed to perform the electrical and/or mechanical alignment necessary to permit the initiation of the explosive train of the warhead of a ROCKET, HIGH EXPLOSIVE (as modified). It may or may not contain a detonator.*

**ARMING DEVICE, TORPEDO.** An item designed to perform the electrical switching and mechanical alignment necessary to detonate a WARHEAD, TORPEDO after the warhead has been actuated by the exploder mechanism.*

**ARMING DEVICE, UNDERWATER MINE.** A hydrostatically operated device designed to arm an underwater mine at a predetermined time.*

**arming distance.** See: **arming range.**

**arming pin.** See: **pin, arming.**

**ARMING PLUG, ANTITANK MINE.** A device assembled to a MINE, ANTITANK after fuzing which can be set to either a 'safe' position or an 'armed' position. In the latter position, sufficient pressure will cause the fuze to function.

**arming range.** The distance from a weapon or launching point at which a fuze is expected to become armed.

**arming resistance.** The resistance to the displacement of certain fuze components which must be overcome in order to arm a fuze. Arming resistance may be produced by the action of an elastic machine element, such as one or more arming springs, a split resistance ring, a spring plate, etc., or by the resistance to permanent deformation of a member, such as a shear pin. Arming resistance should be as great as possible to promote safe handling of fuzes and fuzed ammunition, yet should also be appreciably less than the force of setback or centrifugal action on the involved fuze components, to insure positive arming of the fuze during or after firing. See: **setback force; shear pin.**

**ARMING WIRE ASSEMBLY.** An item consisting of one or more lengths of wire attached to a swivel loop to prevent accidental arming of a fuze.*

**ARM, MOORING.** An arm designed to properly position an underwater mine in relation to the underwater mine anchor.*

**arm of the normal force.** Distance between the center of gravity and the center of pressure of a projectile in flight.

**armor.** 1. Any physical protective covering, such as metal, used on tanks, airplanes, etc., or on persons, against projectiles or fragments. See: **ARMOR, BODY, FRAGMENTATION PROTECTIVE; STEEL ARMOR PLATE.** 2. Armored units or forces. 3. In a weapon system, that component that gives protection to the vehicle or the weapon on its way to the target.

In sense 1, conventional steel armor is classified according to its physical and metallurgical structure as *face hardened* or *homogeneous*. It is also classified according to its method of fabrication as *cast* or *rolled*. In sense 3, the armor may consist of armor (sense 1) or any other protective device or technique, such as window, diversionary attack, speed, etc. See: **weapon system.**

**armor backing.** A support for armor plate set up in front of a gun for a ballistic test. It usually consists of a heavy timber framework, or a concrete and steel structure, or an arrangement of armor plates generally expended ballistically but still useful as supports. This supporting armor is usually imbedded in a concrete foundation.

**ARMOR, BODY, FRAGMENTATION PROTECTIVE.** Armor, especially designed to provide fragmentation protection to vital areas of the body. Usually provided in the form of garments which may contain steel, nylon or other resistant materials. See also: **INSERT, BODY ARMOR.**

**armor butt.** A combination of an **armor backing** with a sand butt.

**armor castings.** Type of armor frequently used when complicated shapes are involved. Such castings are made of high alloy steel and so heat treated as to have the properties of armor plate, and may be either the homogeneous or face-hardened type. See also: **armor.**

**armor, composite.** Protective covering consisting of two or more materials as distinguished from a single plate or piece or laminated structure with all laminae of the same material. A composite armor structure may consist of laminae of different materials or of a matrix of one material in which are embedded pieces or particles of one or more different materials. See also: **armor, laminated; spaced armor.**

**armor, crotch.** See: **ARMOR, BODY, FRAGMENTATION PROTECTIVE.**

**armor defeating.** A term, similar to **antiarmor,** sometimes applied to any of several types of ammunition, having for its principal purpose the defeat of armor protection of armored vehicles or ships. Types of such ammunition are *armor-piercing, HEAT, high explosive plastic,* etc.

**armored.** (armd) 1. Of vehicles or other **equipment:** Equipped with armor. 2. Of a military **force:** Provided with tanks and other armored equipment.

**armored artillery.** Self propelled artillery, with some armor, organic to the armored division or organized as separate battalions.

**armored car.** See: **CAR, ARMORED.**

**armored cavalry.** Units organized and equipped to perform missions requiring great mobility, fire power, and shock action. The combat personnel are mounted in organic armed and armored vehicles (tanks, self-propelled weapons, and personnel carriers).

**armored clothing.** Clothing provided with or comprising protective armor. Cf: **ARMOR, BODY, FRAGMENTATION PROTECTIVE.**

**armored infantry.** A field army unit designed to close and destroy the enemy by fire and maneuver, to repel hostile assault in close combat, and to provide support for tanks.

**armored personnel carrier.** An armored vehicle which provides protection from small arms fire and shell fragments; used to transport personnel both on and off the battlefield. See: **CARRIER, PERSONNEL, FULL TRACKED; CARRIER, PERSONNEL, HALF TRACKED.**

**armored vehicle.** A wheeled or track laying vehicle mounting armor plate, used for combat security or cargo. Armored vehicles include tanks, personnel carriers, armored cars, self-propelled artillery and various special purpose vehicles.

**armored vehicle damage.** See: **damage categories.**

**armorer.** One who services and makes repairs on small arms, fills ammunition belts, and performs similar duties necessary to keep small arms ready for use.

**armor, eye.** See: **ARMOR, BODY, FRAGMENTATION PROTECTIVE.**

**armor, laminated.** Protective covering consisting of two or more plates or pieces of the same material in continuous contact, i.e., parallel and without spacing. See: **armor, composite.** Cf: **spaced armor.**

**armor-piercing.** (AP) Of ammunition, bombs, bullets, projectiles, or the like: Designed to penetrate armor and other resistant targets.

**armor-piercing capped.** (APC) Of armor-piercing projectiles: Having an armor-piercing cap over the nose. See: **cap, armor-piercing.**

**armor-piercing projectile test.** A test of armor-piercing projectiles by firing against armor plate of proved quality, usually at a range of 300 feet, the criterion being penetration of the plate at a prescribed velocity and angle of impact, without any substantial breaking up of the projectile.

**armor-piercing sabot.** (APS) Term used to designate a type of projectile which is armor-piercing and which incorporates a sabot. See separate entries.

**armor plate.** A plate of armor, which see, sense 1. See also: **STEEL ARMOR PLATE.**

**armor, spaced.** See: **spaced armor.**

**armor, vest, flyer's** See: **ARMOR, BODY, FRAGMENTATION PROTECTIVE.**

**arm rack.** See: **arms rack.**

**arms.** Weapons for use in war. Usually in *pl.*

**arms chest.** Box or base used as a portable locker for holding or transporting small firearms; arm chest.

**arms locker.** Chest, cupboard, or the like used for the safe keeping of small arms.

**arms rack.** Frame with shelves, niches, hooks, or similar devices, used to store small arms, to protect them, and to prevent unauthorized handling; gun rack.

**ARM, STEERING GEAR.** The portion of a steering mechanism that connects the sector shaft to the tie rod(s) or drag link.*

**armt** *(abbr).* 'Armament.'

**army.** 1. The land military forces of a nation. 2. A unit of the U. S. Army made up of two or more army corps. 3. *Capitalized.* Short for 'United States Army.'

**Army-Air Force.** Pertaining to both the Army and the Air Force.

**army artillery.** Artillery assigned or attached to an army and retained under direct army command.

**Army Ballistic Missile Agency.** (ABMA) Ordnance Corps agency under the U. S. Army Ordnance Missile Command, engaged in the development, procurement and necessary accompanying activities for Army ballistic missiles. Located at Redstone Arsenal, Alabama.

**Army complete penetration.** Penetration in which it is possible to see light through the hole made by the projectile or in which it is possible to see a portion of the projectile in the plate when viewed from the rear.

**army depot.** Depot located within the area of an army and designated by the army commander, where supplies from the communications zone or from local sources are received, classified, stored, and distributed.

**Army Field Stock Control System.** A system for reducing the quantity and variety of items stocked below depot level. No stockage is authorized below depot level unless supported by a specified number of demands in a given period of time. See: **Selective Stockage Plan.**

**Army Ordnance Missile Command.** (AOMC) See: **U. S. Army Ordnance Missile Command.**

**Army Procurement Procedures.** (APP) Implementation of the Armed Services Procurement Regulations and detailed procurement procedures for the Department of the Army.

**Army Research Office (Durham).** (AROD) Field activity of the Office, Chief of Research and Development, Department of the Army, for the purpose of carrying out the Army's basic research program. Located at Durham, North Carolina. Formerly the Office of Ordnance Research.

**Army Rocket and Guided Missile Agency.** (ARGMA) An agency operating under the U. S. Army Ordnance Missile Command. Responsible to that command for control and coordination of free rocket and guided missile activities of the Army. Located at Redstone Arsenal, Alabama.

**Arnold Engineering Development Center.** (AEDC) Air Force center concerned with engineering development. Located at Tullahoma, Tennessee.

**aromatic fuel.** A fuel in which the chief chemical compound has a benzene ring structure.

**ARPA** *(abbr)*. 'Advanced Research Projects Agency.'

**arrow projectile.** See: **projectile, arrow.**

**arrow stability.** See: **stability, arrow.**

**arsenal.** 1. Installation whose primary mission is research, development and manufacture pertaining to assigned items or components. It may also conduct storage and issue operations incident to production activity. 2. Installation having co-equal missions of maintenance and supply for assigned items or components.

**arsine.** (SA) One of the blood gases. A war gas. Arsenic trihydride.

**artificial horizon.** 1. A device that indicates the attitude of an aircraft with respect to the true horizon. 2. A substitute for a natural horizon, such as a liquid level, pendulum, or gyroscope, incorporated in a navigating instrument.

**artillery.** (arty) 1. *Artillery piece.* Gun or rocket launcher, with mounting, too large or too heavy to be classed as a **small arm** (which see). The lower limit of size or caliber varies somewhat within the Armed Services, but within the Ordnance Corps the term is presently applied to any gun or launcher which uses ammunition of a caliber greater than one inch and which is not designed for hand or shoulder use. 2. *Artillery Corps.* One of the organic corps or arms of the U. S. Army, so called because artillery weapons normally compose its principal armament.

Artillery is classified according to size as **light artillery; medium artillery;** and **heavy artillery.** See separate entries. See also: **cannon; gun; howitzer; mortar.**

**artillery ammunition.** Ammunition for cannon above 30 millimeters (1.181 inches) in caliber. Cf: **small arms ammunition.**

**artillery cart.** A trailer that carries equipment used by artillery units for fire control, communication, and mapping. It is attached to field gun for traveling.

**artillery gun book.** Record book of a gun. It is used for keeping data on the performance, maintenance and inspection of a gun.

**artillery mil.** See: **mil.**

**artillery of position.** See: **fixed artillery.**

**artillery preparation.** Heavy artillery fire delivered before an attack to disrupt communications and disorganize the enemy's defense.

**artillery survey.** The process of determining, with sufficient exactness, the relative horizontal and vertical locations of the pieces and targets so that they may be plotted on the firing chart, and of providing accurate data for the pieces.

**ARTILLERY TOWING ATTACHMENT, TRACTOR MOUNTING.** An item constructed of a steel framework and consisting of parts such as nuts, bolts, shims, and brackets for the mounting on the rear of a tractor. It is equipped with a coupler and is designed for the towing of wheel mounted artillery equipment.*

**arty** *(abbr)*. 'Artillery.'

**ARV** *(abbr)*. 'Armored recovery vehicle.'

**a/s** *(abbr)*. 'Airspeed.'

**ASA** *(abbr)*. 'American Standards Association.'

**ASA (LOG)** *(abbr)*. 'Assistant Secretary of the Army (Logistics).'

**ASCE** *(abbr)*. 'American Society of Civil Engineers.'

**ascending branch.** That portion of the trajectory between the origin and the summit. On this branch, the projectile climbs and its altitude constantly increases.

**A-scope.** A radarscope that presents the target range by a vertical deflection of the time base, or, in certain modified versions, by a horizontal deflection.

**ASEA** *(abbr)*. 'American Society of Engineers and Architects.'

**ASFA** *(abbr)*. 'American Steel Foundrymen's Association.'

**ASG** *(abbr)*. 'Aeronautical Standards Group.'

**ashcan.** A depth charge. *Slang.* See: **CHARGE, DEPTH.**

**Askania.** The name of a German company which manufactured theodolites and other precision instruments. The term is used to designate such instruments.

**ASM** *(abbr)*. 'Air-to-surface missile.'

**ASME** *(abbr)*. 'American Society of Mechanical Engineers.'

**ASP** *(abbr)*. 'Ammunition supply point.'

**Asp.** [Coined: **atmosphere sounding** *p*rojectile.] A Navy high-speed rocket especially designed for studies of the upper atmosphere.

**aspect angle.** The angle formed between the longitudinal axis of a projectile in flight and the axis of a radar beam.

**aspect ratio.** The ratio between the square of the span of an airfoil and its area.

**aspect ratio, chamber.** The ratio between the length of a combustion chamber and its diameter.

**ASPHALT, PETROLEUM.** A brown to black bituminous residue, obtained artificially from certain petroleums, which is insoluble in water, but soluble in lighter petroleum fractions. It may be further processed by fluxing or emulsifying or by addition of flux and filler to form end products, such as cutback, emulsion, waterproofing and damp-proofing, and the like.*

**ASPHALTUM COMPOUND, EXPLOSIVES CASE LINING.** An asphalt base compound, completely compatible with high explosives, with a maximum acidity and a maximum alkalinity of 0.01%, formulated for use as a protective lining for fabricated metal cases into which charges of TNT, HBX-1, or HBX-2 are poured, particularly where crevices exist in wall cases. See also: **ASPHALT, PETROLEUM.***

**ASPR** *(abbr)*. 'Armed Services Procurement Regulation.'

**ASR** *(abbr)*. 'Available supply rate.'

**ASRE** *(abbr)*. 'American Society of Refrigerating Engineers.'

**Asroc.** Navy solid propellant rocket-driven torpedo. Surface-launched antisubmarine weapon with final track underwater.

**assault.** 1. Final phase of an attack; closing with the enemy in hand-to-hand fighting. 2. In an amphibious operation, the landing of troops for attack on the enemy's beach defenses. 3. In airborne operations,

the landing of parachute and glider elements on unsecured and unprepared drop zones and landing zones to attack and seize an airhead. 4. A short, violent, but well-ordered attack against a local objective, such as a gun emplacement, a fort, or a machine gun nest.

**assault fire.** 1. Fire delivered by attacking troops as they close with an enemy to engage him at close range or in hand-to-hand fighting, usually delivered from the hip or the standing position at a sustained rate. 2. In artillery, extremely accurate, short range destruction fire at point targets.

**assault gun.** Any of various sizes and types of guns that are self-propelled or mounted on tanks and are used for direct fire from close range against point targets.

**assemblage.** A collection of items designed to accomplish one general function and identified and issued as a single item. An assemblage may be made up of items included in more than one class of supplies and may include items for which logistic responsiblities are assigned to more than one technical service; e.g., Ponton Bridge, Baking Outfit, Fire Control Equipment, Tank, Tool Set and Tool Kit.

**assemble.** Put together the parts of a gun or other mechanism.

**assembly.** 1. A part or mechanism consisting of two or more separate component parts. An assembly is either separable or inseparable and may be either a subassembly or a principal assembly. 2. *Maintenance and supply.* A group of two or more physically connected or related parts which is capable of disassembly (carburetor, power pack, I.F. circuit, amplifier).

**assembly drawing.** A drawing upon which parts comprising an assembly are shown in proper position and relationship, or a drawing merely representing an assembly.

**assignment.** *Patent law.* The transfer of the entire interest in a patented invention or of an undivided portion of such entire interest. Cf: **grant; license; and exclusive license.**

**assist.** An act of providing **takeoff assist** (which see) to an airplane or missile.

**ASST** *(abbr).* 'American Society for Steel Treating.'

**ASTE** *(abbr).* 'American Society of Tool Engineers.'

**astern.** To the rear of an aircraft, vehicle or vessel; behind; from the back.

**ASTIA** *(abbr).* 'Armed Services Technical Information Agency.' A Defense Department agency, under administrative control of the Air Force, for collection and dissemination of technical information. The agency is best known by the abbreviation which is pronounced as a word.

**astigmatism.** 1. An aberration or defect of a lens which causes a point on the object to be imaged as a short line or pair of short lines. When two lines are formed, each is at a different distance from the lens and is at right angles to the other, and the lens has two points of principal focus. A sharp image cannot be secured at either focal point, and must be obtained at a point between the two focal points in a plane known as the **circle of least confusion.** This defect is caused by unsymmetrical curvature of the lens surfaces. 2. A defect of the human eye causing straight lines in a certain direction to appear blurred and distorted while lines in another direction may be well defined. This defect results when rays from a point at a certain angle are not brought to a single focal point on the image on the retina. It is caused by unsymmetrical surfaces of the cornea of the eye.

**astigmatizer.** Device attached to a range finder for observing small lights at night. An astigmatizer distorts a point of light into a band.

**ASTM** *(abbr)* 'American Society for Testing Materials.'

**astronaut.** One who travels between planets or other heavenly bodies; a space traveler.

**astronautics.** The art and science of flying through space, or sending vehicles or missiles through space.

**ASW** *(abbr).* 'Antisubmarine warfare.'

**AWG** *(abbr).* 'American Steel and Wire Gage.'

**AT** *(abbr).* 'Antitank.'

**at.** *(abbr)* 'Atomic.'

**ATAR** *(abbr).* 'Antitank Aircraft Rocket.'

**athodyd.** [Coined from *aero thermo dynamic duct.*] *Generic.* A ramjet or pulsejet engine.

**Atlas.** A long-range ballistic missile, developed for the AF. Utilizes liquid fuel with two boosters. Has inertial guidance.

**atmosphere.** 1. The body of air which surrounds the earth. 2. *Physics.* The pressure of air at sea level, about 14.69 pounds per square inch. See: **atmospheric shells; Standard Atmosphere.**

**atmosphere, standard.** See: **Standard Atmosphere.**

**atmospheric control.** Any device or system designed to operate movable aerodynamic control surfaces to direct a guided missile in atmosphere dense enough for such controls to be effective; the control provided by such devices. Cf: **nonatmospheric control.**

**atmospheric pressure.** The static force of pressure exerted by the atmosphere in any direction in any part of the atmospheric envelope.

Atmospheric pressure is expressed in different ways, as at sea level, it is 76.0 centimeters of mercury, 29.92 inches of mercury, 33.9 feet of water, 14.66 pounds per square inch, 1,013.25 millibars, etc.

**atmospheric shells.** The several differentiated layers of atmosphere between the earth's surface and the outer reaches of atmosphere. Nomenclature recommended by the International Union of Geodesy and Geophysics in 1951 provides terms used in five fields: temperature, composition, ionization, chemical reactions, and molecular escape from the earth. The recommended fields, terms, and definitions are stated here from *Handbook of Geophysics for Air Force Designers*, First Edition, 1957, published by the Geophysics Research Directorate, U. S. Air Force Cambridge Research Center.

I. TEMPERATURE.

*troposphere.* The region nearest the surface, having a more or less uniform decrease of temperature with altitude. The nominal rate of temperature decrease is 6.5° Kelvin per kilometer, but inversions are common. The troposphere, the domain of weather, is in convective equilibrium with the sun-warmed

surface of the earth. The *tropopause*, which occurs at altitudes between 6 and 18 kilometers (1 km = 3,280.8 feet or 0.6214 miles), higher and colder over the Equator, is the domain of high winds and highest cirrus clouds.

*stratosphere*. The region next above the troposphere. Has a nominally constant temperature. The stratosphere is thicker over the poles, thinner or even nonexistent over the Equator. Maximum of atmospheric ozone is found near stratopause. Rare nacreous clouds also are found near the stratopause. *Stratopause* is about 25 kilometers in middle latitudes. Stratospheric temperatures are in the order of arctic winter temperatures.

*mesosphere*. The region of first temperature maximum. Lies above the stratosphere and below the major temperature minimum which is found near 80 kilometers altitude and constitutes the mesopause. A relatively warm region between two cold regions; the region of disappearance of most meteors. The *mesopause* is found at altitudes of from 70 to 85 kilometers. Mesosphere is in radiative equilibrium between ultraviolet ozone heating by the upper fringe of ozone region and the infrared ozone and carbon dioxide cooling by radiation to space.

*thermosphere*. The region of rising temperature above the major temperature minimum around 80 kilometers altitude. No upper altitude limit. The domain of the aurorae. Temperature rise at base of thermosphere is attributed to too infrequent collisions among molecules to maintain thermodynamic equilibrium. The potentially enormous infrared radiative cooling by carbon dioxide is not actually realized owing to inadequate collisions.

II. Composition.

*homosphere*. The region of substantially uniform composition from the surface upwards. The *homopause* is found at altitudes between 80 and 100 kilometers. The composition changes here primarily because of dissociation of oxygen. Mean molecular weight decreases accordingly.

*heterosphere*. The region of significantly varying composition above the homosphere and extending indefinitely outwards. The "molecular weight" of air diminishes from 29 at about 90 kilometers to 16 at about 500 kilometers. Well above the level of oxygen dissociation, nitrogen begins to dissociate, and diffusive separation (lighter atoms and molecules rising to the top) sets in.

III. Ionization.

*ionosphere*. The region of sufficiently large electron density to affect radio communication. However, only one molecule in 100 to 1000 in the topmost, $F_2$ region, to one in 100,000,000 (one hundred million) in the bottommost, D-region, is ionized. The bottom of the ionosphere, the D-region, is found at about 80 kilometers during the day. At night the D-region disappears, and the bottom of the ionosphere rises to 100 kilometers. The $E_1$ region begins about 100 km, the $E_2$ region about 140 km. The bottom of the $F_1$ region is about 200 km. The $F_2$ region bottom is about 240 km, and it extends to about 400 km, the top of the ionosphere, which is not well defined.

IV. Chemical Reactions.

*chemosphere*. The region where chemical activity (primarily photochemical) is predominant. The chemosphere is found within the altitude limits of about 29 to 110 kilometers.

V. Molecular Escape.

*exosphere*. The region wherein molecular escape from the earth's atmosphere is significant. The base of the exosphere, the critical level, is thought to be at an altitude above 300 kilometers, possibly as high as 1000 kilometers. Lighter atoms and molecules can escape at lower altitudes than heavier ones. The earth's magnetic field effectively prevents the escape of charged particles, however.

**atmospheric stability.** Term which describes air conditions. When there are many rising and falling air currents, the atmosphere is said to be unstable; when there are few or no currents, it is said to be stable.

**atmospheric structure.** Atmospheric characteristics including wind, direction, velocity, altitude, air density, velocity of sound. See also: **atmospheric shells.**

**ATO** *(abbr)*. 'Assist takeoff,' or 'assisted takeoff.'

**atom.** 1. The smallest particle of an element that enters into composition of molecules, or in which a balance exists between protons and electrons. 2. Short for 'atomic ammunition.'

**atom bomb.** See: **bomb, atomic.**

**atomic.** 1. Of a substance: That supplies energy, through nuclear reaction, as in *atomic pellet*. 2. Of energy: That is supplied through nuclear reaction, as in *atomic energy, atomic power*. 3. Of equipment: That utilizes atomic weapons or is used in the employment of atomic weapons, as in *atomic artillery, atomic bomber, atomic missile, atomic rocket, atomic warhead*. 4. Of vehicles or equipment: That utilize power delivered from atomic fission as in *atomic engine, atomic-powered plane, atomic vehicle*.

**atomic air burst.** The explosion of an atomic weapon in the air, at a height greater than the maximum radius of the fireball. Cf: **atomic surface burst; atomic underground burst; atomic underwater burst.**

**atomic ammunition.** Meaning formerly limited to ammunition deriving its explosive force from nuclear fission. Now generally accepted as including all ammunition which derives its explosive force from a chain reaction of active nuclear material.

**atomic artillery.** Artillery which is capable of firing **atomic ammunition,** which see.

**ATOMIC BEAM FREQUENCY STANDARD.** An item which provides one or more precise frequencies derived from an element such as cesium. Frequency determination is accomplished by measuring the nuclear magnetic moment of the element by resonant absorption techniques. When the element is acted on by an applied frequency at its atomic spectrum line frequency, the element will absorb a quantum of energy, indicating coincidence between the two frequencies. The applied frequency thus becomes a standardized frequency, and may be utilized at its fundamental, or at harmonics thereof, for precise test and measurement of other equipment.*

**atomic bomb.** See: **bomb, atomic.**

**atomic damage template.** (ADT) A graphical representation for a given yield, height of burst, and map

scale ...sing a ground zero point surrounded by concentric circles or arcs depicting damage radii, including arcs for consideration of troop safety.

**atomic defense.** The methods, plans, and procedures involved in establishing and exercising defensive measures against the effects of an attack by atomic weapons or radiological warfare agents. It encompasses both the training for, and the implementation of, these methods, plans and procedures.

**atomic device.** Any explosive device that makes use of active nuclear material to cause a chain reaction upon detonation.

**atomic energy.** The energy generated by nuclear fission or nuclear fusion.

**Atomic Energy Commission.** (AEC) The civilian governmental agency, established by the Atomic Energy Act of 1946, to take over the organization and property of the Manhattan Project, and to supervise and control the production of nuclear-fissionable, radioactive materials in the United States.

**atomic surface burst.** Atomic missile burst at an elevation such that the fireball touches the ground. Cf: **atomic air burst; atomic underground burst; atomic underwater burst.**

**atomic underground burst.** The explosion of an atomic weapon with its center beneath the surface of the ground. Cf: **atomic air burst; atomic surface burst; atomic underwater burst.**

**atomic underwater burst.** The explosion of an atomic weapon with its center beneath the surface of the water. Cf: **atomic air burst; atomic surface burst; atomic underground burst.**

**atomic weapon.** Any bomb, warhead or projectile using active nuclear material to cause a chain reaction upon detonation. The term is synonymous with nuclear weapon, and includes fission and thermonuclear weapons.

**atomisation.** *Specif.* The breaking down of fuel into minute particles as it is forced into the cylinder or combustion chamber of an engine under extreme pressure.

**atorp** *(abbr).* 'Antitorpedo.'

**attachment.** A part, subassembly, or assembly designed for use in conjunction with another assembly or a unit or set, contributing to the effectiveness thereof by extending or varying the basic function of the assembly, unit or set. Cf: **accessory; assembly; subassembly.**

**attained bandwidth.** See: **bandwidth, attained.**

**attenuate.** *Electronic computers.* To obtain a fractional part or reduce in amplitude an action or signal. Measurement may be made as percentage, per unit, or in decibels, which is 10 times $\log_{10}$ of power ratio; contrasted with amplify.

**attenuator.** A device for reducing the amplitude of a signal current.

**ATTENUATOR, FIXED.** A device for reducing the strength of an alternating current signal by a fixed or predetermined amount, without causing appreciable signal distortion, by maintaining correct impedance match.*

**ATTENUATOR, VARIABLE.** A device for reducing the strength of an alternating current signal either continuously or in steps, without causing appreciable signal distortion, by maintaining substantially constant output and/or input impedance match. Continuously variable resistive devices must consist of at least two sections or one section with at least two rotating contacts. An ATTENUATOR, VARIABLE must have an overall attenuation rating. Includes tandem mounted variable resistors designed to function as an attenuator but whose terminals are not connected.*

**attitude.** The aspect that an aircraft or missile presents at any given moment, as determined by its inclinations about its three axes.

**attitude control.** *Specif.* A control system or mechanism, as an automatic pilot, that puts or keeps an aircraft or missile in a desired attitude.

**attitude gyro.** A gyro used in **attitude control.**

**attitude of projectile.** See: **attitude.**

**attrition rate.** A factor, normally expressed as a percentage, reflecting the degree of losses of personnel or nonconsumable supplies due to various causes within a specified period of time.

**ATUM** *(abbr).* 'Antitank nonmetallic.'

**audio.** Pertaining to frequencies of audible sound waves between about 15 and 20,000 cycles per second.

**audio frequency.** (AF) *Electroacoustics.* Any frequency corresponding to a normally audible sound wave.

Audio frequencies range roughly from 15 to 20,000 cycles per second.

The word 'audio' may be used as a modifier to indicate a device or system intended to operate at audio frequencies, e.g., 'audio amplifier.'

**auger, earth.** A power operated machine designed to bore holes in the earth by imparting rotary motion to an earth auger bit which is forced downward either manually or mechanically. The machine may be designed to bore holes at an angle (other than vertical). It is not capable of boring and removing the earth simultaneously.*

**augmentor.** A duct usually enclosing the exhaust jet behind the nozzle exit section to provide increased thrust.

**AUM** *(abbr).* 'Air-to-underwater missile.'

**auntie.** Popular term for 'antimissile missile.'

**AURAL PROTECTOR, SOUND.** An item consisting of two ear muffs constructed of plastic with a soft rubber hairline seal, connected by means of stirrups to each end of an adjustable metal spring headboard. It may be combined with a soft helmet and is designed to prevent damage to the ear by attenuating sound to a comfortable and harmless level.*

**aural radio range.** A radio range, such as the loop-type radio range, in which the on-course signal is an aural signal only.

**autmv** *(abbr).* 'Automotive.'

**auto** *(abbr).* 'Automatic.'

**auto-frettage.** A French term meaning 'self-hooping.' A method of gun manufacture by **radial expansion,** which see.

**auto-loading.** Self-loading. An auto-loading gun fires, extracts, ejects, and reloads once with each action of the firing mechanism.

**automatic.** (auto) *General.* Self-acting; moving or acting by itself. *Specif.* Of a weapon: After the first round is fired, an automatic weapon fires, extracts, ejects, and reloads without application of power from an outside source, repeating the cycle as long as the firing mechanism is held in the proper position. Automatic action involves repeating the cycle of operation, as distinguished from semiautomatic, which is restricted to one complete cycle at a time. Examples of use: automatic firearm; —gun; —pistol; —rifle; —rocket launcher.

**automatic breech mechanism.** A device that utilizes the energy of recoil, or the pressure of the powder gases, to open the breech, withdraw the fired cartridge case, insert a new cartridge, and close the breech. After firing the first round, the only hand operation necessary for the firing of succeeding rounds is that of continuing to pull the trigger. Present usage of the automatic mechanism is restricted to guns of small caliber that use the small arms cartridge, or fire a projectile weighing not more than a pound. Machine guns have a breech mechanism of the full automatic type.

**automatic check-out system.** System utilizing test equipment capable of automatically and simultaneously providing actions and information which will ultimately result in the efficient operation of tested equipment while keeping down time to a minimum.

**automatic feed mechanism.** See: **FEEDER, AUTOMATIC GUN.**

**automatic fire.** Continuous fire from an automatic gun until the pressure on the trigger is released. Automatic fire differs from semiautomatic fire of automatic weapons and from single shot fire of hand-loaded weapons in both of which a separate trigger pull is required for each shot fired.

**automatic firearm.** See: **automatic.**

**automatic frequency control.** A mechanism for providing continuous automatic adjustment to the tuning of the local oscillator of a radar receiver in order to maintain a constant beat frequency between the local oscillator and the transmitting tube. See: **CONTROL, ELECTRICAL FREQUENCY.**

**automatic gain control.** (AGC) See: **gain control, automatic.**

**automatic gun.** See: **automatic.**

**automatic gun charger.** A gun charger that includes a mechanism for the clearance of gun stoppages and the retention of the breech mechanism to the rear of the gun receiver.

**automatic pilot.** A control mechanism incorporating a gyroscope, which initiates corrections on the control surfaces of an aircraft to maintain a steady and preset course and attitude, without assistance from the human pilot.

Also called a 'copilot,' 'autopilot,' 'robot pilot,' and 'mechanical pilot.'

**automatic pistol.** See: **automatic.**

**automatic rifle.** See: **automatic.**

**automatic rocket launcher.** See: **automatic.**

**automatic supply.** System by which certain supply requirements are automatically shipped or issued for a predetermined period of time, based upon estimated or experience-usage factors, without requisition by the using unit. See: **semiautomatic supply.**

**automatic tracking.** Tracking in which a servomechanism keeps the radar beam trained on the target, by locking the servomechanism to the echo signal from the target.

**automatic volume control.** See: **gain control, automatic.**

**automation.** The entire field of investigation, design, development, application and methods of rendering or making processes or machines self-acting or self-moving; rendering automatic; theory, art or technique of making a device, machine process or procedure more fully automatic; the implementation of a self-acting or self-moving, hence, automatic process or machine.

**automobile.** A self-propelled, wheeled vehicle, generally commercially designed, for transporting less than ten (10) passengers on highways and/or roads. Excludes bicycles, motorcycles, and motor scooters.*

**AUTOMOBILE, AMBULANCE.** A self-propelled wheeled vehicle with a sedan type body designed and equipped for rendering first aid, and transporting wounded, injured or sick persons. Excludes TRUCK, AMBULANCE.*

**AUTOMOBILE, HEARSE.** A self-propelled wheeled vehicle designed and equipped to convey the deceased for burial.*

**AUTOMOBILE, SEDAN.** An automobile with a sedan type body having full width front and rear seats. May have auxiliary seat(s).*

**AUTOMOBILE, STATION WAGON.** An automobile with a sedan type body primarily designed to carry personnel. It has horizontally hinged door and tail gate at rear to facilitate loading supplies and/or equipment into the passenger compartment. Excludes TRUCK, CARRYALL.*

**autopilot.** Short for 'automatic pilot.'

**auto service support.** See: **TRESTLE, MOTOR VEHICLE MAINTENANCE.**

**Autosyn.** A Bendix Marine trade name for a **synchro** (which see), derived from the words '*auto*matically *syn*chronous.'

**Autosyn motor.** See: **SYNCHRO, RECEIVER.**

**Autosyn transmitter.** See: **SYNCHRO, TRANSMITTER.**

**aux** *(abbr).* 'Auxiliary.'

**auxiliary booster.** See: **booster, auxiliary.**

**auxiliary detonating fuse.** See: **fuse, auxiliary detonating.**

**auxiliary power unit.** A power unit that can be used in addition to, or in place of, other sources of power.

**AUXILIARY SET, ENGINE DRIVEN.** An item consisting of a prime mover driving two or more different types of items, such as generator(s), compressor(s) or pump(s). The components must be mounted as a single unit and may be used singly or simultaneously.*

**available conversion power gain (of a conversion transducer).** The ratio of the available output-frequency power from the output terminals of the transducer to the available input-frequency power

from the driving generator with terminating conditions specified for all frequencies which may affect the result.

This applies to outputs of such magnitude that the conversion transducer is operating in a substantially linear condition.

The maximum available conversion power gain of a conversion transducer is obtained when the input termination admittance, at input frequency, is the conjugate of the input-frequency driving-point admittance of the conversion transducer.

**available supply rate.** (ASR) See: **ammunition available supply rate.**

**average absolute pulse amplitude.** *Electroacoustics.* The average of the absolute value of the instantaneous amplitude taken over the pulse duration.

By 'absolute value' is meant the arithmetic value regardless of the algebraic sign.

**average outgoing quality.** (AOQ) As applied to inspection procedures, the average quality of a succession of lots which have been accepted.

**average outgoing quality limit.** (AOQL) As applied to inspection procedures, the poorest average quality that the sampling plan and inspection methods being used will accept.

**average pulse amplitude.** *Electroacoustics.* The average of the instantaneous amplitude taken over the pulse duration.

**average thrust.** *Missile testing.* The average of the thrust values recorded during the web-burning time. It is computed as the quotient of thrust-time integral during the web-burning time, divided by the web-burning time.

**aviation gasoline.** See: **GASOLINE, AVIATION.**

**Avogadro's law.** Equal volumes of all gases contain the same number of molecules under the same conditions of temperature and pressure. From this law it follows that molecular volume of one gas is exactly equal to the molecular volume of any other gas.

**AW** *(abbr).* 1. 'Automatic weapons.' 2. 'Air warning.' 3. 'Above water.'

**AWG** *(abbr).* 'American Wire Gage'

**AWS** *(abbr)* 1. 'American Welding Society.' 2. 'American War Standard.'

**axes of an aircraft.** Three fixed lines of reference, usually centroidal and mutually perpendicular. The horizontal axis in the plane of symmetry, usually parallel to the axis of the propeller shaft or the thrust line of the jet (motor) engine, is called the longitudinal axis; the axis perpendicular to this, in the plane of symmetry, is called the normal or yaw axis; and the third axis perpendicular to the other two is called the lateral or pitch axis. In mathematical discussion, the first of these axes, drawn from rear to front, is generally designated the 'X' axis; the second, drawn downward, the 'Z' axis; and the third, running from left to right, the 'Y' axis.

**axial flow.** *Specif.* In a jet aircraft, the flow of air along the longitudinal axis of the engine.

**axial-flow compressor.** A centrifugal compressor used esp. in a jet engine that forces the air or other fluid in a straight line parallel to the axis of its rotating impeller.

**axial-flow jet engine.** A jet engine in which the flow of air is along the longitudinal axis of the engine. *specif.* a turbojet engine that utilizes the axial-flow compressor.

**axial mining.** Continuous or intermittent nuisance mining in great depth along the axes of enemy advance.

**axial moment of inertia.** One of the factors determining the stability of a spinning projectile.

**axial observation.** Observation of gun fire from a point on or near the line joining the gun and target; the angle at the target between the gun and observer is less than 5°. See: **flank observation.**

**axis, elastic.** *Stress analysis.* The locus of all points through which a force may be applied to a structure without causing torsional deflection.

**axis of an aircraft.** See: **axes of an aircraft.**

**axis of precession.** In a gyroscope or gyroscopic body, any axis perpendicular to the spinning axis, about which precession may take place.

The axis of precession follows a line between the point at which force is applied and the spinning axis. See: **precession.**

**axis of scan.** See: **scan, axis of.**

**axis of sighting.** Line taken through the sights of a gun, or through the optical center and centers of curvature of lenses in any telescopic instrument.

**axis of the bore.** Imaginary central line of the bore of a gun.

**axis of trunnions.** Axis about which a gun is rotated in elevation to increase or decrease the range of fire.

**axis, wing.** The locus of the aerodynamic centers of all the wing sections of an airplane.

**axle.** *Artillery.* That part of a carriage that supports the weight of the weapon and has on its ends, directly or indirectly, spindles upon which the wheels are mounted. In towed two-wheeled artillery, in addition to supporting the weapon in travel, the axle also provides the support for firing the weapon. It may carry connections for the trails, brakes, firing segments, etc. The three main types of axles are—axle for axle traverse; axle for pintle traverse (bottom carriage); axle for bogies and transport wagons.

**AXLE ASSEMBLY, AUTOMOTIVE, DRIVING.** A device suspended between and connecting opposite wheels, which consists of the housing and driving differential mechanism, and supports the weight of a vehicle.*

**AXLE ASSEMBLY, VEHICULAR, NONDRIVING.** An item consisting of two AXLE, VEHICULAR, NONDRIVING connected together by means of rocker arms, torque rods, walking beams, suspension springs, or the like.*

**axle, steering.** See: **AXLE, VEHICULAR, NONDRIVING.**

**axle traverse.** Traverse in which the carriage of an artillery weapon slides laterally along the axle, pivoting about the trail spade; applicable only to carriages with box trails; traverse is limited to a few degrees so that the trail must be moved in changing targets, or in following a rapidly moving target.

**AXLE, VEHICULAR, NONDRIVING.** An item designed for connecting the opposite wheels and sup-

porting the weight of a vehicle without provisions for driving the wheels. It may have pivoting wheel spindles for steering.*

**az** *(abbr.)*. 'Azimuth'

**azimuth.** (az) A direction expressed as a horizontal angle usually in degrees or mils and measured clockwise from north. Thus azimuth will be either true azimuth, grid azimuth, or magnetic azimuth depending upon which north is used.

**azimuth adjustment slide rule.** Circular slide rule by which a known angular correction for fire at one elevation can be changed to the proper correction for any other elevation. An azimuth adjustment slide rule is used to find corrections for high-angle guns, such as the mortar or howitzer.

**azimuth and elevation indicator.** See: **INDICATOR, AZIMUTH-ELEVATION.**

**azimuth and range indicator.** See: **INDICATOR, AZIMUTH-RANGE.**

**azimuth angle.** 1. The angle used to express azimuth. 2. In celestial navigation, the interior angle of the astronomical triangle at the zenith, measured from the observer's meridian to the vertical circle through the body.

A certain star or aircraft may be said to have an azimuth angle of 35°, meaning that the star or aircraft on a horizontal plane is bearing 35° clockwise from true north as seen by the observer.

**azimuth ballistic correction.** A ballistic correction made in azimuth.

**AZIMUTH BAR.** A navigational instrument for use with a compass to determine bearing of objects or azimuth of celestial bodies. Consists of a frame on which is mounted sighting vanes, reflecting mirrors and/or prisms. Excludes BEARING BAR. See also: **AZIMUTH CIRCLE** and **BEARING CIRCLE.***

**AZIMUTH CIRCLE.** A navigational instrument used for the determination of the azimuths of celestial objects and the bearings of terrestrial objects by means of sighting vanes, prisms, and mirrors mounted on a ring formed to fit and rotate about the bezel of a marine compass, permitting simultaneous viewing of a target and the compass card reading. Excludes BEARING CIRCLE. See also: **AZIMUTH BAR** and **BEARING BAR.***

**azimuth computer.** See **COMPUTER, AZIMUTH.**

**azimuth control.** See **CONTROL, ANTENNA; CONTROL, DIRECTION FINDER; CONTROL, SEARCHLIGHT.**

**azimuth deviation.** Angular difference in azimuth between the lines from the gun to the target and from the gun to the point where a projectile strikes or bursts

**azimuth difference.** Apparent difference in the position of an object viewed from two different points, especially from a gun position and a directing point. Also called parallax.

**azimuth indicator.** See: **INDICATOR, AZIMUTH.**

**azimuth instrument.** Telescopic instrument used for measuring horizontal angles, usually azimuths.

**AZIMUTH LAYING SET, GUIDED MISSILE.** A complete set that integrates the terrestrial position of a launch complex with the position of a terrestrial target by utilizing an automatic theodolite and a north seeking gyro to effect adjustment of a gyro stabilized platform in relation to true north.*

**azimuth micrometer.** Instrument for measuring azimuths with which very exact readings are made.

**azimuth rate.** *Gunnery.* The rate of change in azimuth measured in mils or degrees per second.

**azimuth recorder.** See: **RECORDER, AZIMUTH.**

**azimuth scale.** Graduated angle-measuring device on instruments, gun carriages, etc., that indicates azimuth.

**azimuth-stabilised PPI.** A plan position indicator which is stabilized by a connection with the gyro compass so that the presentation is oriented towards true or magnetic north at the top of the scope. Also called a 'north-stabilized PPI.'

**azimuth telescope.** See: **TELESCOPE, AZIMUTH.**

**azon.** [azimuth *only*.] A glide bomb used in World War II, having movable control surfaces in the tail adjusted by radio signals to control the bomb in azimuth only. Hence, azon bomb, azon missile. See: **bomb, glide; razon.** *(Historical)*

# B

**B** *(abbr.)*. 1. 'Belted' when applied to ammunition. 2. In such usage as M56B1, designates a modification of standardized item, using an alternate material or method of manufacture. See also **A**; **E**; **M**; **T**; **X**.

**babble.** The resultant interference, or cross-talk, from a large number of interfering channels.

**back azimuth.** A reciprocal azimuth determined by adding or subtracting 180° to or from the degrees expressing the azimuth of an object.

**back-azimuth method.** Method of locating an observer's position on a map or chart with a very accurate angle-measuring instrument. It is done by measuring the azimuth of three visible points that are located on the map or chart, and drawing through each point a line or ray with its calculated back azimuth. The point where the lines or rays intersect is the location of the observer's position. The back-azimuth method is one kind of resection.

**backblast.** Rearward blast of gases to the rear of recoilless weapons, rocket launchers and rocket assisted takeoff units.

**backblast area.** Cone shaped area in rear of a recoilless weapon, rocket launcher or rocket assisted takeoff unit which is dangerous to personnel.

**backfire.** *Specif.* 1. A rearward escapement of gases or cartridge fragments upon firing a firearm or gun. See: **flareback.** 2. A premature explosion in the cylinder of an internal combustion engine during the exhaust stroke, tending to drive the crankshaft in a direction counter to its normal one; any explosion in the intake or exhaust passages of such an engine.

**background.** *Radar.* An object or objects, esp. on the earth's surface, that produce signals on a radar screen but are of no particular interest; background returns. See also **radar clutter.**

**background count.** The evidence or effect on a detector of radiation, other than that which it is desired to detect, caused by any agency. In connection with health protection, the background count usually includes the radiations produced by naturally occurring radioactivity and cosmic rays.

**background noise.** 1. *Electroacoustics.* In recording and reproducing, the total system noise independent of whether or not a signal is present. The signal is not to be included as part of the noise. 2. *Receivers.* The noise on the carrier in the absence of signal modulation.

**background research.** An aspect of basic research considered to provide a foundation for subsequent research.

Background research is usually considered to involve systematic observation, collection, and organization of facts to provide adequate data upon which to project the analysis and experimentation required for the discovery or testing of new facts, principles, or hypotheses.

**background return.** *Electronics.* An echo from an object other than the target, appearing on a radar screen. Cf: **radar clutter.**

**backhaul.** 1. The return trip of a vehicle, when carrying cargo. 2. Excessive and unnecessary rerouting and double-handling of cargo.

**backlash.** *Specif.* The backward striking motion of a badly fitted machine part that results from changes in velocity, as between the teeth of engaging gears.

**back plate.** Plate at the rear of the breech mechanism of certain automatic guns. In small arms, it is the plate which closes the rear of the receiver group.

**back-scattering.** The scattering of energy of the radar-reflected signal.

**back-scattering coefficient B (echoing area).** *Antennas.* For large objects, the back-scattering coefficient of an object is approximately the product of its interception area by its scattering gain in the direction of the source, where the interception area is the projected geometrical area and the scattering gain is the reradiated power gain relative to an isotropic radiator.

**backsight method.** Sighting two pieces of equipment directly at each other in order to orient and synchronize one with the other in azimuth and elevation.

**backswept wing.** 1. A **sweptback wing.** 2. An airplane or missile wing in which the leading edge tapers backward from root to tip. Now *rare.*

**bacteriological warfare.** Warfare conducted with bacteriological weapons, as by bombs filled with bacteria.

This is a species of **biological warfare.**

**Badger Ordnance Works.** Ordnance Corps field installation for production of ammunition during an emergency. Located near Baraboo, Wisconsin.

**baffle.** A plate or wall, as around an engine or in a fuel tank, the purpose of which is to deflect, direct, or retard the flow of a liquid or gas.

**BAG, CARGO, AERIAL DELIVERY.** An item of flexible material, with fittings and fasteners used for the delivery of cargo. It is dropped from an aircraft by parachute. Excludes ROLL, CARGO, AERIAL DELIVERY.*

**bag, cartridge.** See: **bag, propellant.**

**bagloading.** The loading of propellant into bags to form propelling charges for semifixed or separate loading ammunition.

**bag, powder.** See: **bag, propellant.**

**bag, propellant.** Fabric container that holds the propelling charge for separate loading or semifixed ammunition. Usually made of cartridge cloth, a special fabric that is consumed without leaving a burning residue.

**baka bomb.** [Fr. Japanese 'foolish.'] A WW II Japanese rocket airplane bearing explosives, guided onto its target by its pilot, called 'jinrai Butai' (divine thunderbolt) by the Japanese.

This craft was carried by a large airplane to a point near the target and released.

**balance.** 1. The stability achieved by an aircraft or missile when the forces of drag, thrust, lift and gravity are acting so as to produce steady flight without roll, yaw, or pitch. 2. To bring an aircraft or missile into balance.

**balanced modulator.** See: **modulator, balanced.**

**balanced stock(s).** 1. That condition in supply when availability and requirements are in equilibrium for specific items. 2. Accumulation of supplies in quantities determined necessary to meet requirements for a fixed period of time.

**balanced supply.** Status as of a date when the total supply and the total demand cumulative through that date are equal.

**balanced surface, aerodynamic.** A control surface that extends on both sides of the axis of the hinge or pivot, or that has auxiliary devices or extensions connected with it in such a manner as to effect a small or zero resultant moment of the air forces about the hinge axis.

**balanced surface, static.** A control surface whose center of mass is in the hinge axis.

**ball.** Used in ammunition nomenclature to: 1. Indicate a bullet for general use as distinguished from bullets for special uses such as armor-piercing, incendiary, high explosive, etc. 2. Indicate a small arms propellant which is oblate spheroidal in shape, generally double base propellant.

**ball ammunition.** Non-armor-piercing small arms ammunition in which the projectile is solid. It is intended for use against personnel, light material targets or for training purposes.

**BALL, BEARING.** A spherical body, a series of which provide the rolling elements in a BEARING, BALL (as modified). It may have other uses such as the checking components in a ball check valve.*

**ball, cellulose-nitrate.** An item to simulate gunfire, for training purposes.

**ball gunner.** Short for 'ball-turret gunner.' See: **turret, ball.**

**ballistic.** Pertaining to **ballistics** (which see) or the motion of missiles.

**ballistic area.** Space lying between the centers of impact of two groups of shots, one consisting entirely of shots over the target, the other entirely of shots short of the target.

**ballistic case.** Any shell or casing given efficient ballistic characteristics, used to inclose elements for delivery on a target; any bomb, projectile, or rocket case. Cf: **adapter, cluster, aimable.**

**ballistic coefficient.** The numerical measure of the ability of a missile to overcome air resistance. It is dependent upon the mass, the diameter, and the form factor (which see).

**ballistic conditions.** Conditions which affect the motion of a projectile in the bore and through the atmosphere, including muzzle velocity, weight of projectile, size and shape of projectile, rotation of the earth, density of the air, elasticity of the air, and the wind.

**ballistic correction.** Adjustment in firing data that is based on conditions affecting the flight of a projectile. It allows for such factors as wind, temperature, etc. It does not include adjustment based on observation of fire.

**ballistic curve.** The curve described by the actual path of a bullet, bomb, or other projectile as determined by the ballistic conditions, i.e., by the velocity due to the propulsive force, by gravity, wind, temperature, etc.

This term is not applied to the path of a rocket until its fuel is cut off. See: **trajectory.**

**ballistic cycle.** *Propellant actuated devices.* Elapsed time from ignition of propellant to time that functioning of device is complete.

**ballistic deflection.** The **deflection** (which see) of a missile due to its ballistic characteristics.

With regard to projectiles fired from guns, ballistic deflection is considered to be either lateral or vertical. Lateral ballistic deflection is positive if to the right, negative if to the left; vertical ballistic deflection is positive if upward, negative if downward.

**ballistic density.** A theoretical constant density of the atmosphere that would have the same effect on a missile in flight as the varying densities actually encountered.

**ballistic director.** Combined observing and predicting instrument that computes firing data for the future position of a moving target. A ballistic director makes corrections for actual conditions of wind, atmospheric density, temperature, muzzle velocity, etc.

**ballistic efficiency.** 1. Ability of a projectile to overcome the resistance of the air. Ballistic efficiency depends chiefly on the weight, diameter, and shape of the projectile. 2. The external efficiency of a rocket or other jet engine of a missile.

**ballistic equivalence.** Substitution of a single perforated grain with web of 1.23 to 1.28 times the web of a seven-perforated grain for preliminary interior ballistic calculations is sometimes desirable. Since the assumed grain gives about the same calculated results as the multiperforated grain, they are said to have ballistic equivalence.

**ballistic integrator.** A four wheeled planimeter, which enables determination of the geometric properties of solids of revolution by following the scaled cross section outline. Volumes and moments of inertia are computed from the recorded movements of the integrator wheels.

**ballistic lead.** The correction or allowance for wind effects and gravity made when computing a lead angle. Cf: **kinetic lead.**

**ballistic limit.** The minimum velocity at which a particular armor-piercing projectile is expected to consistently completely penetrate armor plate of given thickness and physical properties at a specified angle of obliquity. Because of the expense of firing tests and the impossibility of controlling striking velocity precisely, plus the existence of a zone of mixed results in which a projectile may completely penetrate or only partially penetrate under apparently identical conditions, statistical approaches are necessary, based upon limited firings. Certain approaches lead to approximation of the $V_{50}$ Point, that is, the velocity at which complete penetration and incomplete penetration are equally likely to occur. Other methods attempt to approximate the $V_0$ Point, that is, the maximum velocity at which no complete penetration

will occur. Other methods attempt to approximate the $V_{im}$ Point, that is, the minimum velocity at which all projectiles will completely penetrate.

**ballistic missile.** Specifically, any missile guided especially in the upward part of its trajectory, but becoming a free falling body in the latter stages of its flight through the atmosphere. This missile contains guiding devices, such as preset mechanisms, but it is distinguished from a guided missile in that it becomes a free falling body, subject to ballistic reactions as it descends through the atmosphere. Currently the term has a strong connotation of a missile designed to travel outside, or in the outer reaches of, the atmosphere before plunging toward its target. The German V-2 is considered a ballistic missile.

**ballistic mortar.** A heavy, short barrelled mortar, pendulum mounted, for determining the relative power of explosives. A small sample of a test explosive is placed in the detonation chamber and a projectile is located forward of the charge. Upon detonation the projectile is driven into a sand bank and the mortar swings through an arc. A marker records the maximum height to which the mortar rises on its arc. The weight of the test explosive required to produce the same rise as 10 grams of TNT is determined, and the rating is the percentage resulting from dividing 10 by the determined weight and multiplying by 100. This figure is called the TNT value.

**ballistic pendulum.** First reasonably accurate ballistic measuring instrument for determining projectile velocity; described by Benjamin Robins before the Royal Society of England in 1743. A bullet was fired into a wood pendulum, and its velocity determined by equating the expressions for the momentum of the bullet before striking the pendulum and the momentum of the pendulum after receiving the bullet.

**ballistics.** Branch of applied mechanics which deals with the motion and behavior characteristics of missiles, that is, projectiles, bombs, rockets, guided missiles, etc., and of accompanying phenomena. It can be conveniently divided into three branches: *interior ballistics*, which deals with the motion of the projectile in the bore of the weapon; *exterior ballistics*, which deals with the motion of the projectile while in flight; and *terminal ballistics*, which is concerned with the effect and action of the projectile when it impacts or bursts.

**ballistic shock test.** See: **shock test.**

**ballistics of penetration.** That part of terminal ballistics which treats of the motion of a projectile as it forces its way into targets of solid or semisolid substances such as earth, concrete, or steel. See also: **ballistics.**

**ballistic table.** Compilation of ballistic data from which trajectory elements such as angle of fall, range to summit, time of flight, ordinate at any time, etc., can be obtained. See also: **firing table.**

**ballistic temperature.** A theoretical constant temperature that would have the same effect on a missile in flight as the varying temperatures actually encountered.

**ballistic test.** Proof test of weapons or ammunition to determine suitability.

**ballistic trajectory.** That part of the trajectory of a bomb, projectile, rocket, or other missile which is traced after the cutoff of propulsive force.

The ballistic trajectory of a projectile is its entire trajectory, beginning at the muzzle of the gun; that of a bomb is from the point at which it separates from the bomber; that of a ballistic missile from the point at which its fuel is exhausted or cut off. See: **trajectory.**

**ballistic tube.** Gun tube kept or used for ballistic tests. Usually selected because of certain demonstrated characteristics.

**ballistic uniformity.** The capability of a propellant, when fired under identical conditions from round to round, to impart uniform muzzle velocity, and to produce similar interior ballistic results.

**ballistic wave.** An audible disturbance caused by the compression of air ahead of a missile in flight.

**ballistic weapon.** Any missile weapon, as a bomb, rocket, projectile, or bullet, affected by ballistic conditions.

**ballistic wind.** (ballwin) A theoretical or assumed constant wind that would have the same effect on a missile, or on a bomb, from the point of its departure to its target as the varying winds actually encountered.

**ballistite.** Often capitalized. A smokeless propellant containing nitrocellulose and nitroglycerin, used in some rocket, mortar, and small arms ammunition.

**ball mount.** See: **MOUNT, GUN.**

**ball of fire.** A **fireball**, which see.

**balloon.** (bln) A contrivance that incorporates a nonporous bag filled with heated air or gas lighter than air so that it rises and floats in the atmosphere, esp. a nonrigid airship without a propelling system.

**balloon apron.** An antiaircraft device consisting of cables hanging perpendicularly from other cables extending between two or more balloons.

The term 'balloon apron' is sometimes used in the sense of **balloon barrage** (which see).

**balloon barrage.** An antiaircraft defense normally consisting of a number of balloons, usually together and equipped with balloon aprons, held captive by steel cables and strategically moored near vital areas or installations.

The cables or aprons force attacking planes to fly at higher altitudes, thus impeding attack. Sometimes called 'balloon curtain' or 'balloon apron.' See also: **barrage.**

**BALLOON, BARRAGE.** A balloon restrained from free flight by means of a cable attaching it to the earth. It is used to support wires or nets as protection against air attacks.*

**balloon curtain.** A balloon barrage.

**balloon fabric.** A fabric, usually rubberized, for balloon or airship envelopes.

Balloon fabric is also sometimes used as a finish covering over the wood covering of certain airplanes.

**balloon gun.** An early antiaircraft gun for use against balloons.

**BALLOON, METEOROLOGICAL.** A balloon designed to have a predetermined rate of free ascent when

inflated with a specific volume of a lighter-than-air gas.*

**BALLOON, TARGET.** A free floating balloon used for gunnery practice.*

**balloting.** A tossing or bounding movement of a projectile within the limits of the bore diameter, while moving through the bore under the influence of the propellant gases. The projectile normally contacts the bore at the rotating band and the bourrelet. Balloting results in change in the element of the bourrelet surface which contacts the bore.

**ballwin** *(abbr).* 'Ballistic wind(s).'

**band.** Term sometimes used for rotating band. See: **band, rotating.**

**band** *(abbr).* 'Bandoleer.'

**band, copper.** Term sometimes used for rotating band. See: **band, rotating.**

**BAND, DUMMY PROJECTILE.** A replaceable band of bronze or other nonferrous metal provided at the front (bourrelet) and rear of a dummy separate loading projectile. The bands provide bearing surfaces contacting the cannon chamber, preventing wear and damage to the chamber. The bands are replaced when they become worn or damaged. Dummy projectiles are used in training personnel in the operations of loading and firing artillery.

**band, frequency.** In communications and electronics, a continuous range of frequencies extending between two limiting frequencies.

**band gap.** Clearance between rotating band and band seat after seating of the band on the projectile. See: **band, rotating; band seat.**

**band groove.** One of the channels cut into the rotating band of a projectile during the process of engraving. It is produced by the corresponding land in the rifling of the gun tube. See: **band land; rifling.**

**band land.** The raised portion on the rotating band of a projectile after engraving has taken place. It is produced by the rifling groove of the gun tube. See: **band groove; engraving.**

**band, lug.** Any of the bands on an aircraft rocket, which, with the appropriate fittings, attach the rocket to a rail type or post-type aircraft rocket launcher. See also: **BAND, SUSPENSION, ROCKET.**

**BANDOLEER.** A closed loop of fabric, provided with pockets designed to accommodate small arms ammunition. Used by individual soldier for carrying ammunition, by suspending one or more bandoleers over the shoulders.

**BAND, RETAINING, ROCKET MOTOR CLUSTER.** A single or multisection item with fastening devices, specifically designed to surround and hold in position two or more rocket motors to form a rocket motor cluster. It may include provisions for mounting fins.*

**band, rotating.** Soft metal band around projectile near its base. The rotating band centers the projectile and makes it fit tightly in the bore, thus preventing the escape of gas, and by engaging the rifling, gives projectile its spin.

**band, rotating, preengraved.** A rotating band fitted to a projectile and containing grooves to fit the rifling of the weapon. The grooves are formed as part of the manufacture of the projectile. This practice is followed in the manufacture of ammunition for recoilless weapons. See also: **band, rotating.**

**band, rotating, welded overlay.** A rotating band formed on a projectile by depositing molten metal by welding techniques followed by machining to the required contour. This avoids weakening the projectile wall as would occur in machining the band seat deep enough to maintain a swaged band, and also reduces the possibility of band loss. See also: **band, rotating.**

**B&S** *(abbr).* 'Brown and Sharpe' (gage).

**band seat.** Machined groove around circumference of a projectile, into which the rotating band is seated.

**BAND SET, 280 MILLIMETER DUMMY PROJECTILE.** The required segmental parts of dummy projectile bands required to replace the front and rear bands of the PROJECTILE, 280 MILLIMETER DUMMY.

**band, shipping.** A cylindrical band designed to protect the suspension lugs during shipment of bombs.

**BAND, SUSPENSION, PARACHUTE FLARE.** An adjustable ring, usually of steel, of size suitable for applying to a specified type of parachute flare. Provided with lugs for attachment to a standard bomb rack, to enable carrying and release in the same manner as a bomb.

**BAND, SUSPENSION, ROCKET.** A metallic item designed for mounting on a rocket to provide suspension from a rocket launcher.*

**bandwidth.** The width of a band of frequencies; *specif.*, the width of a resonance curve, in cycles per second, taken at a specified point along the curve.

The bandwidth is usually measured between the frequencies at which the power obtained in a circuit is one-half of the maximum.

**bandwidth, attained.** That portion of the band covered by the total frequency deviation of a subcarrier oscillator or pick-up with full range applied stimulus.

**bandwidth, design.** The frequency any device is intended to achieve with full range stimulus.

**Bangalore torpedo.** Metal tube or pipe that is packed with a high explosive charge. A Bangalore torpedo is chiefly used to clear a path through barbed wire or mine fields. See: **DEMOLITION KIT, BANGALORE TORPEDO.**

**bang-bang control.** Control system used in guidance, wherein the corrective control applied to the missile is always applied to the full extent of servo motion.

**bank indicator.** A flight instrument which shows, with respect to the horizon, an aircraft's angle of roll about its longitudinal axis.

**BAR** *(abbr).* 'Browning automatic rifle.'

**baratol.** An explosive composed of barium nitrate and TNT. Less brisant than TNT, used as burster charge for colored marker projectiles.

**barbette.** Mound of earth, platform, support, or carriage upon which guns are mounted to fire over a wall or parapet, not through a port or opening.

**BARC** *(abbr).* ['Barge, *A*mphibious, *R*esupply, *C*argo.'] A large version of the **LARC,** which see.

**bare fuse.** See: **fuse, bare.**

**barium titanate gage.** See: **gage, piezoelectric.**

**barometer.** *Meteorological* An item which senses, measures, and indicates atmospheric pressure. (For modifier use physical design characteristic, such as aneroid.)*

**BAROMETER, ANEROID.** A barometer consisting of a pressure-sensitive element which contracts or expands in proportion to atmospheric pressure, connected through a linkage to a pointer. Its dial is graduated in units of pressure measurement (pounds per square inch, inches or mercury, millibars, etc.) to indicate atmospheric pressure only.*

**BAROMETER, MERCURIAL.** A barometer consisting of a column of mercury which rises and falls within a tube due to variations of atmospheric pressure.*

**barometric altimeter.** An altimeter that uses a barometer for measuring height.

**barometric fuel control.** A device that maintains the correct flow of fuel to an engine by adjusting to atmospheric pressure at different altitudes, as well as to impact pressure.

**barometric fuse.** See: **fuse, barometric.**

**barometric switch.** A switch activated by an aneroid reacting to barometric pressure.

**barometric tendency.** The tendency of barometric change as indicated by readings within the preceding few hours, usually three, recorded in tenths of millibars.

**BARORESISTOR.** An item in which electrical resistance values are varied as a function of atmospheric pressure. Generally consists of a barometric element mechanically linked to a resistance element which may be composed of fixed and/or variable resistors.*

**BAROSWITCH.** An item which performs electrical switching functions by mechanical actuation resulting from changes in atmospheric pressure. It generally consists of an aneroid diaphragm mechanically linked to either a contact point which opens and/or closes electrical circuits, or a contact arm which slides over a commutator whose separate segments are connected to signal circuits used in radio signal modulations. See also: **BARORESISTOR.***

**barrage.** 1. Prearranged barrier of fire designed to protect friendly troops and installations by impeding enemy movement across defensive lines or areas; barrage fire. 2. Method of fire employed against a fast-opening or closing target, whereby a gun range or fuze setting is used which will place the initial shots ahead of the target in the direction of the target's anticipated advance. 3. Protective screen of balloons that are moored to the ground and kept at given heights to prevent or hinder operations by enemy aircraft at low levels. The steel cable or wire from which each balloon flies and the lethal devices attached to such flying cable or wire constitute hazards to any aircraft flying beneath the balloon. In this meaning also called balloon barrage. See also: **antiaircraft barrage; balloon barrage; rolling barrage.**

**barrage fire.** See: **barrage.**

**barrel.** (bbl) A cylindrical metallic item which is that part of a gun which controls the initial direction of a projectile. The bore may be rifled and must have a diameter of 40 millimeters or less.* The term **tube** (which see) is preferred for designating the larger diameters.

**barrel assembly.** Gun barrel together with the other parts necessary to attach it to the rest of the gun.

**BARREL, CARBINE.** See: **barrel; carbine.** Cf: **tube.**

**barrel erosion.** Wearing away of the interface of the bore due to the combined effects of gas washing, scoring and mechanical abrasion. Barrel erosion causes a reduction in muzzle velocity.

**barrel extension.** Metal projection fixed to the rear of the barrel in certain automatic guns. The barrel extension extends backward and holds the breech locked against the gas pressure in the chamber when the gun is fired.

**BARREL, GUN.** See: **barrel; gun,** senses 1 and 2. See also: **TUBE, CANNON.**

**barrel, howitzer.** See: **TUBE, CANNON.**

**barreling.** Expansion of the body of a cartridge case when the gun chamber recovers longitudinally following firing, and the mouth of the case is not free to move in the chamber. A cause of difficult case extraction. *Slang.*

**barrel life.** As applied to small arms and automatic weapons, the number of rounds which may be fired through a barrel at a particular firing schedule before the barrel becomes unserviceable. Barrel life will vary with the firing schedule. Cf: **accuracy life.**

**BARREL, METAL.** A uniformly bulging cylindrical container, of greater length than breadth, having two flat ends or heads, one of which may be removable. For storage or shipment of liquids and/or semiliquids. Excludes DRUM, METAL.*

**barrel, mortar.** See: **TUBE, CANNON.**

**BARREL, PISTOL.** See: **barrel; pistol.**

**barrel pressure.** See: **pressures, gun.**

**barrel reflector.** See: **REFLECTOR, GUN BARREL.**

**BARREL, REVOLVER.** See: **barrel; revolver.**

**BARREL, RIFLE.** See: **barrel; rifle,** sense 1.

**BARREL, SHOTGUN.** See: **barrel; shotgun.**

**barrel whip.** The movement of a gun barrel in a plane normal to the longitudinal axis of the gun bore, as the gun operates through a complete firing cycle.

**BARREL, WOOD, SLACK.** A uniformly bulging, cylindrical container of greater length than breadth, made of wooden staves, either tongued and grooved or straight sided, bound together with hoops and having two flat heads or one flat head and one open head of equal diameter, designed for the storage and shipment of products other than liquids.*

**BARREL, WOOD TIGHT.** A uniformly bulging, cylindrical container of greater length than breadth, made of wooden staves, bound together with hoops and having two flat ends or heads of equal diameter, designed for the storage and shipment of liquids and/or semisolids.*

**barricade.** Structure composed essentially of concrete, earth, metal, or wood, or any combination thereof, and so constructed as to reduce or confine the blast effect and fragmentation of an explosion.

**barrier material.** 1. An inert material placed in an explosive charge to shape the detonation wave. See

also **lens; wave shaper.** 2. Packing material impervious to moisture-vapor or other liquids and gases.

**BARRIER MATERIAL, GREASEPROOFED, FLEXIBLE.** A greaseproofed, acid-free noncorrosive material, either single ply or laminated to a backing sheet, intended for wrapping metal parts and equipment which will usually be coated with a corrosion-preventive compound. This material prevents the grease from penetrating the rest of the package or damaging other material stored near.*

**BARRIER MATERIAL, GREASEPROOFED-WATERPROOFED, FLEXIBLE.** A greaseproofed, waterproofed, acid-free, noncorrosive material constructed of one or more components or plies. It is suitable for fabrication into bags, sleeves, and pouches for packaging.*

**BARRIER MATERIAL, WATERPROOFED, FLEXIBLE.** A material used to package items in order to protect them against water. Excludes BARRIER MATERIAL, WATER VAPORPROOFED, FLEXIBLE.*

**BARRIER MATERIAL, WATER VAPORPROOFED, FLEXIBLE.** A material used to package items in order to prevent water vapor damage. Excludes BARRIER MATERIAL, WATERPROOFED, FLEXIBLE.*

**bar sight.** Rear sight of a firearm, consisting of a movable bar, usually with an open notch.

**BAR, SINE.** A device consisting of a precision ground straight edge at the extremities of which buttons are attached, so that their centers are equidistant from the straight edge, or working edge of the tool. It is used for convenience in laying out or machining to locate work at given angles on angle plates.*

**base.** 1. Foundation or part upon which an object or instrument rests, such as a gun base. 2. Station or installation from which a military force operates and from which supplies are obtained. 3. Part of a projectile below the rotating band. 4. Line used in mapping, surveying, or fire control as a reference from which distance and angles are measured; **base line.** 5. *Electronic computers.* A number base; a quantity used implicitly to define some system of representing numbers by positional notation; radix.

**base angle.** The angle between the line joining a gun and its first or principal target and the line joining the gun and a visible reference point, from which angles to targets that cannot be seen at the gun are measured. The gun is first pointed at the reference point (initial aiming point) and its dials are set at zero. The gun is then pointed at its primary target; the angle through which the gun has been turned is the base angle.

**base cover.** A metal plate, caulked, crimped or welded to the base of a projectile to prevent leakage of propellant gases into the charge. Also called 'baseplate.'

**base detonating fuse.** See: **FUZE, BASE DETONATING.**

**base drag.** See: **drag, base.**

**BASE, DUMMY CARTRIDGE.** The portion of a dummy cartridge which simulates the base and flange of a service type cartridge case. It is usually designed for easy replacement when required, because of damage sustained by repeated insertions in the cannon chamber.

**base ejection.** (BE) A descriptive term applied to projectiles in which provision is made for ejecting the contents through the base by internal force adequate to remove the base plug and contents simultaneously. Usually the force is applied by an expelling charge, which is functioned by a fuze. Various types of special purpose projectiles such as illuminating, leaflet and some smoke projectiles, are of the base ejection type.

**base fuse.** See: **fuse, base.**

**base ignition.** (BI) A descriptive term applied to a signal or other munition which ignites from the base with subsequent emission of smoke or chemical.

**base length.** In range finders, the actual optical length of the instrument. It is approximately equal to the distance between the centers of the end windows. It is the base of the range triangle by means of which the range is computed.

**base line.** (BL) 1. Line of known length and direction between two points whose locations are known. A base line is used in fire control, mapping, and surveying. 2. Horizontal, vertical or circular trace formed by the movement of the sweep on the screen of the cathode-ray tube of a radar set. In this meaning, it is also called time base.

**base loading plug.** See: **plug, base.**

**base mortar.** Mortar in a platoon for which initial firing data are computed and with reference to which data for other mortars in the unit are computed.

**base of projectile.** The rearmost section of a projectile. For projectiles having a rotating band it is the section located to the rear thereof.

**base of trajectory.** Straight horizontal line from the center of the muzzle of a weapon to the point in the downward curve of the path of the projectile that is level with the muzzle.

**base piece.** The gun selected after calibration fire, the center of burst or impact of which is taken as the reference point in determining calibration corrections for the remaining guns of the battery. No calibration corrections are applied to the base piece.

**baseplate.** 1. Plate or support used to distribute the weight of a heavy structure or apparatus so as to prevent sinking or collapse under direct thrust. 2. A metal plate forming a base cover on projectiles. See: **base cover.**

**BASEPLATE, MORTAR.** A circular or rectangular metal plate, with or without integral feet, designed to receive the spherical projection of the base cap of the cannon of an artillery or infantry mortar. It is used to absorb and spread the recoil force and to stabilize a mortar during firing.*

**base plug.** See: **plug, base.**

**base point.** A well-defined point in the target area used as a point of reference from which range and direction adjustments of artillery fire are made. The location of the base point relative to the weapons is accurately known.

**base point line.** The line connecting the **battery center** and the **base point.**

**base ring.** 1. A metal ring which is bolted to the concrete of the emplacement and which supports the weight of a gun or mortar carriage. 2. A ring on the breech of a cannon dividing the base from the first reinforcing ring.

**base shop.** See: **depot maintenance shop.**

**base spray.** Fragments of a bursting projectile that are thrown to the rear in the line of flight, in contrast with **nose spray,** the fragments thrown to the front, and **side spray,** the fragments thrown to the side.

**base surge.** A cloud which rolls out from the bottom of the column produced by a subsurface burst of an atomic weapon. For underwater bursts the surge is, in effect, a cloud of liquid droplets which has the property of flowing almost as if it were homogeneous fluid. For subsurface land bursts the surge is made up of small solid particles but still behaves like a fluid.

**basic data.** *Gunnery.* Essential facts needed to place fire on a target. The location of the target relative to the battery in terms of direction, or deflection; distance, or range; and difference in altitude, or site.

**basic frequency.** *Electroacoustics.* Of an oscillatory quantity having sinusoidal components with different frequencies, the frequency of the component considered to be the most important.

In a driven system, the basic frequency would, in general, be the driving frequency, and in a periodic oscillatory system, it would be the fundamental frequency.

**basic hole system.** System of dimensioning in which the minimum limit of each hole size is basic. The fit desired is obtained by varying the allowance of the shaft and the tolerance of the mating parts. Cf: **basic shaft system.**

**basic load.** That quantity of ammunition and/or supplies authorized to be carried by individuals and on the vehicles of a unit.

**basic load of ammunition.** See: **basic load.**

**basic name.** In ordnance terminology, a single word or minimum number of words which establishes the basic concept of an item. Example: *TRUCK.* Cf: **item name.** See also: **nomenclature.**

**basic research.** Research carried out by the use of those techniques and disciplines relevant or appropriate to the discovery, testing, or illustrating of a fact, relationship, or principle; research concerned with adding to man's knowledge.

Basic research deals with primary evidence or raw materials, and because of this the use of primary evidence may be taken as a sign of basic research. Such research is applicable to anything—phenomena, the facts upon which a science is developed, the principles or laws of science, the biography of a man, the facts related to an historical event, the logic of mathematics or reasoning, the criteria of the disciplines, or the manifestations of philosophy, religion, or aesthetics. It may be conducted in a laboratory by experimentation, or in a library by relating hitherto unrelated facts. This research is often done in phases or by different people, each working on a part of the total effort, in which case any part of the activity is considered basic research. This activity includes **background research** (which see), which is not so much a phase of basic research as it is an aspect, for basic research involves continuous reappraisal of fact and hypothesis. See: **applied research; research.**

**basic shaft system.** System of dimensioning in which the maximum limit of each shaft size is basic. The fit desired is obtained by varying the allowance of the hole and the tolerances of the mating parts. Cf: **basic hole system.**

**basic size.** In dimensioning and tolerancing, the theoretical size from which the limits are derived by the application of the allowance and the tolerances. There is only one basic size for any pair of mating surfaces. A dimension which has been labeled basic on a drawing (indicated by the word 'BASIC' after the dimension) does not have a specifically stated individual tolerance but varies within limits established by the tolerances on other dimensions.

**basin, fording.** Test facility at proving ground to check fording ability of vehicles.

**basket.** Structure within a tank turret that carries the men who operate the turret. The basket in a tank turret rotates as the turret rotates.

**BASKET, DELIVERY, ROCKET EQUIPMENT.** A specifically designed collapsible item of metal framework, with perforated sheet metal sides and bottom. It may be equipped with cradles, straps, skids and slings for transporting rocket equipment by helicopter.*

**BAT** *(abbr).* 'Battalion antitank.' (Usually pronounced as a word.)

**batch.** A quantity of material which has been subjected to some unit chemical process or physical mixing process which is intended to make the final product substantially uniform. For example, the quantity of explosive melted in a melt kettle at one time.

**BAT rifle.** Term commonly applied to the 106-mm battalion antitank (BAT) rifle. Also called **BAT weapon.**

**BAT spotting cartridge.** Term commonly applied to spotter-tracer cartridge for use in the caliber .50 spotting rifle, on the 106-mm battalion antitank (BAT) rifle mount.

**BAT spotting rifle.** Term commonly applied to caliber .50 spotting rifle, mounted on the 106-mm battalion antitank (BAT) rifle mount.

**battery.** (btry) 1. Tactical and administrative artillery unit corresponding to a company or similar unit in other branches of the Army. 2. Group of guns or other weapons, such as mortars, machine guns, artillery pieces, or searchlights, set up under one tactical commander in a certain area. 3. A tube (barrel) *in battery* is a gun tube fully returned from recoil upon its cradle. A tube *out of battery* is a tube not fully returned from recoil. 4. An apparatus containing an arrangement of one or more cells for chemical generation of electric current.

**battery acquisition radar.** An Army air defense radar of shorter range and requiring greater accuracy than that of defense acquisition radars. Its normal function is to acquire targets for an Army air defense battery, usually from information furnished by a defense acquisition radar or other radars, either

directly or through its associated Army air defense command post, or on occasion by independent search. When acquired, such targets are transferred to the battery target tracking radar. See: **ANTENNA-RECEIVER-TRANSMITTER GROUP, ACQUISITION**; **combat surveillance radar**; **defense acquisition radar.**

**battery commander's telescope.** See: **PERISCOPE, BATTERY COMMAND.**

**BATTERY COMPARTMENT, TORPEDO.** A hollow cylindrical item designed to house the propulsion battery of a torpedo.*

**battlefield recovery.** Removal of disabled or abandoned materiel, either enemy or friendly, from the battlefield and its movement to a recovery collecting point or to a maintenance or supply establishment.

**battle sight.** A predetermined sight setting that, carried on a weapon, will enable the firer to engage targets effectively at battle ranges when conditions do not permit exact sight settings.

**BAT weapon.** Battalion antitank weapon. An organic defense weapon issued at the battalion level, provided with antitank and antipersonnel ammunition.

**BAYONET.** An edged steel item with a tapered point and a formed handle with an underhand grip designed to be attached to the muzzle end of a rifle, shotgun, or the like. The blade is more than twice the length of the handle and it is usually provided with a blood groove. See also: **BAYONET-KNIFE.***

**BAYONET-KNIFE.** An edged steel item with a tapered point and a formed handle for overhand or underhand gripping. It is designed for use as a hand weapon, for general purpose use in the field, or as a bayonet when attached to the muzzle end of a carbine, rifle or the like. The blade is less than twice the length of the handle and it is usually without a blood groove. See also: **BAYONET.***

**bazooka.** Popular name applied to the 2.36-inch rocket launcher. The later model 3.5-inch rocket launcher was termed the *super bazooka.*

**BBC** *(abbr).* 'Bromobenzylcyanide' (tear gas).

**bbl** *(abbr).* 'Barrel.'

**BC** *(abbr).* 1. 'Battery commander; battery commander's.' 2. 'Between centers.'

**BC telescope.** See: **PERISCOPE, BATTERY COMMAND.**

**BD** *(abbr).* 1. 'Base detonating.' 2. 'Bomb disposal.'

**BDA** *(abbr).* 'Bomb damage assessment.'

**B damage.** See: **damage categories.**

**BDF** *(abbr).* 'Base detonating fuze.'

**BE** *(abbr).* 'Base ejection.'

**beach obstacle.** Artificial obstacle placed on possible landing beaches between the high water line and the vegetation, intended for use against personnel or vehicles. See: **underwater obstacle.**

**beacon, airborne.** An infrared light transmitter used to assist in the reorganization of forces at night, also used to mark drop and landing zones. See: **TRANSMITTER, INFRARED.**

**beacon presentation.** The radarscope presentation resulting from radio-frequency waves sent out by a radar beacon.

**beacon, radar.** Generally, a nondirectional radiating device, containing an automatic radar receiver and transmitter, that receives pulses ('interrogation') from a radar, and returns a similar pulse or set of pulses ('response'). The beacon response may be on the same frequency as the radar, or may be on a different frequency.

**BEACON SET, INFRARED.** A complete electronic set required to provide a source of infrared radiation for the purpose of establishing geographical reference points, the bearing of which may be determined. Consists of manual and/or automatic keying devices, and power sources. See also: **TRANSMITTING SET, INFRARED.***

**bead.** In flexible gunnery, the center of an optical ring sight.

**beam.** 1. A stream of radio or radar impulses; the steady hum in an equisignal zone; a light beam. 2. The breadth at its maximum width of an airplane fuselage, hull, or vessel.

In sense 1, *on the beam,* following a radio beam; hence, acting or performing satisfactorily and efficiently.

**beam attack.** An attack directed against the side of an aircraft, tank, or ship.

**beam direction.** In stress analysis, the direction parallel to the plane of the spar web and the plane of symmetry of an airplane. See: **chord force or component; drag force or component; lift force or component.**

**BEAM, HOISTING, GUIDED MISSILE.** A lifting device specifically designed for handling complete guided missile and/or guided missile sections, rocket motors, and warheads. Designed to be used in conjunction with a guided missile hoisting unit, crane, winch or other hoisting device. May include attachments such as eye bolts, chain links, safety hooks or the like.*

**BEAM, HOISTING, ROCKET.** An item of I-beam configuration with brackets for attaching to rocket and an eye for lifting by crane or hoist.*

**beam jitter.** The small, oscillatory, angular movement induced into the radar antenna array, and consequently into the radar beam. This movement is caused by: (a) the necessity of having to develop an error signal, when in automatic tracking, before the antenna will change its position; (b) the circuitry intentionally made 'tight' to obtain plus and minus tracking errors rather than only lagging errors, and (c) gear play in the radar tracking head.

**beam rider.** A missile for which the guidance system consists of standard reference signals transmitted in a radar beam which enable the missile to sense its location relative to the beam, correct its course, and thereby stay on the beam.

**beam-rider guidance.** A system for guiding missiles in which the guided missile rides along a beam, usually a radar beam, to its target.

The beam along which the missile travels may be either fixed or movable; in the latter case control is exercised over the missile in flight by moving the beam.

**beam-riding missile.** See **beam rider.**

**BEAM SPLITTER, OPTICAL.** An item consisting of light reflecting and transmitting elements, the combined function of which is to superimpose on another item such as a plotting board, a combined presentation of two or more information sources, such as a radar scope presentation and plotting marker.*

**beam width.** The angular width of the central effective part of a radar beam, measured in azimuth between points of half-power intensity.

**bearing** 1. The angle measured clockwise from a meridian true, magnetic or compass, to the line adjoining two points. The kind of meridian from which the angle is measured determines whether the bearing is true, magnetic, or compass. 2. That on which something rests, or in which a shaft or axle turns.

**bearing, air.** A system of lubrication of precision bearings using low pressure air continuously flowing around the bearing surfaces as the lubricating fluid. When the air is flowing it is so free that friction is almost negligible. Other gases may also be used.

**BEARING, BALL AND ROLLER, RADIAL AND THRUST.** A bearing consisting of a ball or roller radial unit and a ball or roller thrust unit. The inner ring of the radial unit is integrally one ring of the thrust unit. See also: **BEARING, BALL, ANNULAR.***

**BEARING, BALL, ANNULAR.** A cylindrical device in which the inner or outer ring turns upon a single or double row of hardened balls which roll easily in a race, thus minimizing friction.*

**BEARING, BALL, BELL CRANK.** A special double row ball bearing, retainer type, with integral flange.*

**BEARING, BALL, GUIDE ROLLER.** A special bearing, intended primarily for low-speed oscillating service due to its full (retainerless) type construction, either concave or crowned outside diameter.*

**BEARING, BALL, PIVOT.** A bearing specifically designed internally to carry the combination radial and axial thrust produced at the end of a tapered or cylindrical flanged shaft in motion. See also: **BEARING, BALL, THRUST.***

**BEARING, BALL, THRUST.** An antifriction bearing having a ball rolling element, designed to resist axial thrust, or to support an axial load. Excludes BEARING, BALL, PIVOT.*

**BEARING BAR.** A navigational instrument for use with a compass to determine bearing of objects. Consists of a frame on which is mounted sighting vanes and reflecting mirrors. See also: **AZIMUTH BAR; BEARING CIRCLE** and **AZIMUTH CIRCLE.***

**BEARING CIRCLE.** A navigational instrument used for the determination of the bearings of terrestrial objects by means of sighting vanes, prism, and mirror mounted on a ring formed to fit and rotate about the bezel of a marine compass, permitting simultaneous viewing of a target and the compass card reading. See also: **AZIMUTH BAR; BEARING BAR; AZIMUTH CIRCLE.**

**BEARING HALF, SLEEVE.** A half of a two piece split type BEARING, SLEEVE.*

**bearing, jewel.** A synthetic sapphire or ruby jewel (corundum) shaped and mounted to present a strong, low-friction, wear-resistant surface to a pivot.

**BEARING, PLAIN, ROD END.** A detachable assembly in or on which a journal, gudgeon, pivot, or the like moves. It is used to carry a load and to reduce sliding friction. It does not employ rolling elements. The outer member of the assembly is modified to provide a shank. The inner member may be either a plain spherical bearing or a sleeve bearing. Excludes BEARING, PLAIN, SPHERICAL and BEARING, PLAIN, SELF-ALIGNING.*

**BEARING, PLAIN, SELF-ALIGNING.** A detachable assembly in or on which a journal, gudgeon, pivot, or the like moves. It is used to carry a load and to reduce sliding friction. It does not employ rolling elements. The item consists of a bored precision ground ball (or spherical plain bearing) around which an outer ring is fitted. The assembly may be either separable or nonseparable. Excludes BEARING, PLAIN, ROD END and BEARING, PLAIN, SPHERICAL.*

**BEARING, PLAIN, SPHERICAL.** A detachable part in or on which a journal, gudgeon, pivot, or the like moves. It is used to carry a load and to reduce sliding friction. It does not employ rolling elements. It may be divided into two or more segments of 180 degrees or less. The item has a cylindrical bore and is basically spherical in its exterior design to allow for shaft misalignment. Excludes BEARING, PLAIN, SELF-ALIGNING.*

**BEARING, ROLLER, CYLINDRICAL.** A cylindrical device in which the inner or outer ring turns upon a single or double row of hardened rollers which roll easily in a race, thus minimizing friction.*

**BEARING, ROLLER, JOURNAL.** A bearing in which the journal or revolving part turns upon hardened rollers usually contained in a cage. The inner or outer race may be an integral part of the structure.*

**BEARING, ROLLER, NEEDLE.** A bearing in which the journal or revolving part turns upon straight hardened rollers of small diameter, the roller diameter not exceeding ⅛ of roller length.*

**BEARING, ROLLER, RADIAL AND THRUST.** A bearing consisting of a roller radial unit and a roller thrust unit. The inner ring of the radial unit is integrally one ring of the thrust unit. Excludes items in which the same row of rollers accommodates both radial and end thrust.*

**BEARING, ROLLER, ROD END.** A special single or multiple roller bearing, self-aligning and constructed with either inside threaded, plain hollow, or male threaded shank.*

**BEARING, ROLLER, TAPERED.** A cylindrical device in which the inner cone or outer cup turns upon a single or double row of tapered hardened rollers which roll easily in a race, thus minimizing friction and designed to carry a radial load and capable of sustaining axial thrust.*

**bearing, self-aligning, plain.** See: **BEARING, PLAIN, SELF-ALIGNING.***

**BEARING, SLEEVE.** A tubular shaped item with or without flange(s) designed to reduce friction and carry a kinetic load on the surface(s) parallel to the

axis of the bore. The length must exceed 25 percent of the outside diameter or the shortest diameter between peripheral flats, except for straight tubular (without flange or shoulder) items having a bearing surface(s) parallel to the axis of the bore only. Includes items which are divided into two or more segments which include 180 degrees or less of the bearing periphery.*

**BEARING, V.** A cylindrical device, primarily designed to furnish a bearing surface for a low-speed oscillating shaft. The item consists of a precision machined or inclosed V or modified V groove and may include a drilled hole for spring loading.*

**beat note.** *Receivers.* The wave of difference frequency created when two sinusoidal waves of different frequencies are supplied to a nonlinear device.

**beats.** Periodic variations in amplitude, which may be described as a superposition of disturbances having different frequencies.

**Beaufort's scale.** A scale from 0 through 12 for showing the strength of wind, devised by Sir Francis Beaufort (1774-1857).

This scale uses 0 for 0 mph, 1 for 1-3 mph, 2 for 4-7 mph, 3 for 8-12 mph, 4 for 13-18 mph, 5 for 19-24 mph, 6 for 25-31 mph, 7 for 32-38 mph, 8 for 39-46 mph, 9 for 47-54 mph, 10 for 55-63 mph, 11 for 64-75 mph, and 12 for above 75 mph.

**beehive-shaped charge.** See: **charge, shaped.**

**behind.** The sensing of a tracer or burst which passes to the rear of a moving target, with reference to the course line.

**BELL CRANK.** An item usually in the form of two arms at an angle, having its fulcrum at the apex of the angle, and used to provide a means of changing the direction or varying the intensity of a pushing or pulling force.*

**Belleville spring.** See: **WASHER, SPRING TENSION.**

**belt, ammunition.** 1. Fabric or metal band with loops for carrying cartridges that are fed from it into a machine gun or other automatic weapon. 2. Belt with loops or pockets for carrying cartridges or clips of cartridges. In this meaning, usually called 'cartridge belt.'

**belt, cartridge.** Ammunition belt with loops or pockets for carrying cartridges or clips of cartridges.

**BELT, CARTRIDGE, DISMOUNTED.** See: **belt, cartridge.**

**BELT, CARTRIDGE, MOUNTED.** See: **belt, cartridge.**

**belted ammunition.** Ammunition assembled in metal links or fabric belts.

**belt-fed.** Of automatic weapons: Supplied with cartridges from an ammunition belt.

**belt, feed.** See: **belt, ammunition (sense 1).**

**belt, link.** Ammunition feed belt for an automatic weapon in which metal links connect the cartridges and with them form the belt. See also: **LINK, CARTRIDGE.**

**belt-loading.** Arranging ammunition for an automatic, belt-fed gun in an ammunition belt.

**BELT, POSITIVE DRIVE.** A flat internally toothed belt whose teeth are designed to engage with corresponding teeth on the pulleys over which they run. Excludes cog-type V-belts.*

**belt pull, critical.** The maximum force in pounds which may be applied to the ammunition belt, at a predetermined point, and still permit satisfactory gun operation.

**bench test.** A test of an engine or motor made with the engine or motor fastened to a bench or stand prior to installation into a missile or a vehicle.

**Benicia Arsenal.** Ordnance Corps field installation, located at Benicia, California.

**Bergmann-Junk test.** See: **heat tests.**

**Bernoulli's principle.** A law of physics stating that as the velocity of a fluid increases, its internal pressure decreases.

An important application of this principle is made in giving lift to an aircraft by means of airfoils, which can be so designed as to increase the velocity of the airflow over their surfaces, and thus decrease its internal pressure. This decreased pressure of the airflow gives lift to the wings (or airfoils) over which it flows.

**beta activity.** A form of radioactivity in which beta particles are emitted from the radioactive body.

**beta particle.** An electron originating within and emitting from a radioactive substance, often producing harmful physiological effects.

**beta radiation.** The radiation of beta particles.

**betatron.** A device that magnetically accelerates electrons, used chiefly to produce very hard X-rays.

**bevatron.** [*Billion electron volts* + *tron.*] An apparatus designed to bombard atomic nuclei with protons, i.e., with the nuclei of hydrogen, at such speeds as to shatter the nuclei and to charge positively the subatomic particles.

The bevatron, developed at the Berkeley Radiation Laboratory, hurls the protons at speeds of 300,000 miles in 1.85 seconds. Cf: **cosmotron; cyclotron.**

**beyond armor damage.** Any damage beyond or behind the armor, caused by antiarmor ammunition; for example, obscuration, fragmentation, lethality.

**BF** *(abbr).* 'Base fuze.'

**BH** *(abbr).* 'Brinell hardness.'

**BHN** *(abbr).* 'Brinell hardness number.'

**BHP** *(abbr).* 'Brake horsepower.'

**BI** *(abbr).* 'Base ignition.'

**bias.** *Specif.* The direct-current voltage between two elements of a vacuum tube; grid bias.

**biconical antenna.** An antenna formed by two conical conductors, having a common axis and vertex, and excited at the vertex. When the vertex angle of one of the cones is 180°, the antenna is called a discone.

**bidirectional microphone.** *Electroacoustics.* A microphone in which the response predominates for sound indices of 0° and 180°.

**bifuel propulsion.** Propulsion system which obtains its power from two fuels, one fuel being the oxygen carrier while the other supplies the hydrocarbon. Cf: **monofuel propulsion.**

**bifurcation.** See: **jet breakup.**

**bilateral-area track.** *Electroacoustics.* A photographic sound track having the two edges of the central area modulated according to the signal.

**bilateral observation.** System for determining deviation of impacts or bursts from the target by the use of two instruments and observers located at a distance from each other.

**bilateral tolerance method.** Method of dimensioning and tolerancing wherein the dimension indicates the preferred or desired size or location and the tolerance indicates the permissible variations therefrom, which are not necessarily required to be equal in both directions. Cf: **unilateral tolerance method.**

**bilateral transducer.** A transducer capable of transmission simultaneously in both directions between at least two terminations.

**binary cell.** *Electronic computers.* An information-storing element which can have one or the other of two stable states.

**binary-coded decimal system.** *Electronic computers.* A system of number representation in which the decimal digits of a number are expressed by binary numbers.

**binary digit.** *Electronic computers.* A digit of a binary number.

**binary explosive.** High explosive composed of a mixture of two high explosives. Purpose of the mixture is to secure an explosive which is superior to its components in regard to sensitivity, fragmentation, blast or loadability.

**binary number system.** *Electronic computers.* A number system which uses two symbols (usually denoted by '0' and '1') and has two as its base, just as the decimal system uses ten symbols ('0, 1—9') and the base ten. See also: **radix.**

**binary point.** *Electronic computers.* The radix point in the binary system.

**BINNACLE.** A housing for a magnetic compass and related equipment.*

**BINOCULAR.** A hand held optical instrument consisting of two telescopes on a common mounting adapted for stereoscopic use of both eyes of the user. The item may be designed for accommodation of prismatic devices.*

**bin storage.** Storage of unpackaged parts, subassemblies, assemblies or end items in bins so that an item may be withdrawn without breaking open a package containing a number of such items.

**biodef** *(abbr).* 'Biological defense.'

**biological agent.** Viruses, any of certain classifications of microorganisms and toxic substances derived from living organisms used to produce death or disease in man, animals and growing plants.

**biological defense.** (biodef) Defense against **biological warfare** (which see).

**biological halflife.** The halflife of a radioactive isotope in an animal body.

**biological warfare** (BW) Employment of living organisms, toxic biological products and plant growth regulators to produce death or casualties in man, animals, or plants; or defense against such action.

**bionics.** The science of applying biological systems to engineering systems.

**bipod assembly (of mortars).** Consists essentially of two supporting legs, elevating and traversing mechanisms, and a shock absorbing mechanism. The assembly supports the mortar tube assembly by means of a clamp which, in turn, is attached to the traversing mechanism by means of shock absorber plugs.

**BIPOD, MACHINE GUN.** An adjustable two-legged device attached to the muzzle end of a machine gun to serve as a support for the weapon during firing. Excludes MOUNT, GUN.*

**bipod mount.** A mount consisting essentially of two supporting legs. May have other parts, such as described under **bipod assembly (of mortars),** which see.

**BIPOD, RIFLE.** An adjustable two-legged device attached to the muzzle end of a rifle to serve as a support for the weapon during firing. Excludes MOUNT, RIFLE.*

**bipropellant.** A rocket propellant consisting of two unmixed chemicals fed to the combustion chamber separately. Cf: **monopropellant; multipropellant.**

**bird.** Guided missile. *Slang.*

**birdcage.** A metal framework in the form of a rectangular parallelepiped semipermanently attached to the active material container. The container may hold the complete nuclear component for one atomic weapon or a part of that component.

**Birmingham Ordnance District.** One of the eleven districts into which the United States is divided for purposes of industrial mobilization, procurement, contract negotiation and administration, etc., by the Ordnance Corps. Embraces the States of Florida, Georgia, Alabama, Mississippi, Louisiana, North Carolina and South Carolina. The main office is located in Birmingham, Alabama. Official symbol: ORDEA.

**biting angle.** Smallest angle of impact at which a projectile will penetrate or pierce armor.

**BL** *(abbr).* 1. 'Bomb line.' 2. 'Base line.' 3. Breech loading.'

**Black Hills Ordnance Depot.** Ordnance Corps field installation, located at Igloo, South Dakota.

**blackout light.** Lamp put on vehicles for use during blackouts; blackout lamp. It is used because it can be seen from the air only at very close range.

**black powder.** (BP) A low explosive consisting of an intimate mixture of potassium or sodium nitrate, charcoal and sulfur. It is easily ignited and is friction sensitive, but not of the same sensitivity as primer mixes and is not intended to be initiated by friction in ammunition items. Formerly extensively used as a military propellant, but now its military use is almost exclusively in propellant igniters and primers, in fuzes to give short delay, in powder train time fuzes, in blank ammunition, and as spotting charges in practice ammunition.

**BLADE, FRONT SIGHT.** A narrow metal strip mounted perpendicular to a base and integral to a SIGHT, FRONT.*

**BL&P** *(abbr).* 'Blind loaded and plugged.' (Inert loaded projectile with plugged tracer cavity.)

**BL&T** *(abbr).* 'Blind loaded with tracer.' (Inert loaded projectile with tracer.)

**blank.** (blk) Ammunition which contains no projectile but which does contain a charge of low explosive, such as black powder, to produce a noise.

**blank cartridge.** See: **cartridge, blank.**

**blast.** 1. The brief and rapid movement of air or other fluid away from a center of outward pressure, as in an explosion; the pressure accompanying this movement. This term is also commonly used as the equivalent of 'explosion,' but the two terms may be distinguished. See: **explosion.** 2. To shatter a building or other object with an explosive. 3. Specifically, to riddle an airplane or other target with a burst of gunfire.

**blast area.** 1. *General.* Area affected by the blast of an explosion. 2. Scorched area of ground in front of, and around, the muzzle of a gun, caused by repeated blasts. See: **blast mark.**

**blast bomb.** See: **bomb, light case.**

**blast chamber.** A **combustion chamber,** sense 1.

**blast contour.** A graphical representation of the results of tests of bare explosive charges against a given aircraft structure. The contour represents the maximum distance from the center of detonation at which 'A damage' (see: **damage categories**) to the structure would occur, from charges of a certain weight and in a given orientation. A given blast contour applies to only one aircraft structure.

**blast cube.** A structural cube, with corner members of angle iron, and bottom of sheet iron. The other five sides are covered with sheet aluminum of different thicknesses, scored along the diagonals. An antiaircraft projectile is exploded at the geometric center of the cube and the extent of damage to the sheet aluminum side is evaluated by a standard method to give a total damage index number. The blast effectiveness of various fillers can be evaluated in this manner.

**blast deflector.** See: **DEFLECTOR, BLAST.**

**blast effect.** Violent air movements and pressure changes and the destruction or damage resulting therefrom, generally caused by an explosion on or above the surface of the earth. Blast effect may be contrasted with the **mining effect** (which see) of an explosion beneath the surface.

**blasting cap.** See: **CAP, BLASTING.**

**blasting fuse.** See: **FUSE, BLASTING, TIME.**

**BLASTING MACHINE.** An item key- or hand-operated, which is used to generate an electrical impulse to initiate an explosive charge.*

**blasting mat.** See: **MAT, BLASTING.**

**blasting powder.** (blstg pdr) An explosive in powder form, used for blasting operations. Usually consists of **black powder,** which see.

**blast mark.** Worn area of the ground in front of a gun, caused by the force of the blast of firing. Unconcealed, it may give away the position of the gun. See: **blast area,** sense 2.

**blast-off.** A colloquial expression for the take-off of a rocket or missile.

**blast pressure.** The impact pressure of the air set in motion by an explosion.

**blast tube.** 1. A tubular device surrounding the forward end of the barrel of aircraft guns which, by extending beyond the barrel an effective distance, restrains the blast until it is beyond adjacent aircraft structures which would otherwise be damaged. The blast tube is either attached to the gun or may be supported by the aircraft structure. 2. Sometimes applied to **shock tube** (which see).

**blast wave.** The air wave set in motion by an explosion.

**blast wind.** The air set in motion by an explosion.

**bleed.** Adjust hydraulic brakes or recoil mechanisms by removing part of the fluid in order to get rid of air pockets or to compensate for expansion due to heat.

**blending.** The process of mixing explosive materials, such as propellant grains, so as to obtain charges of uniform characteristics.

**blind bombing.** The action of bombing a target that cannot be physically seen from the bombing plane. Cf: **overcast bombing.**

**blinding smoke.** Small smoke screen placed directly on enemy position to prevent observation.

**blip.** A spot of light on a radarscope, or an irregularity in the base line on a radarscope, esp. such a spot or irregularity representing the relative position of a reflecting object, as of an airplane. Also called 'pip.'

**blister gas.** Any of several war gases which produce burning, inflammation, or destruction of tissue, either externally or internally. Also called 'blistering gas.' Such gases were formerly listed as 'vesicants.' Examples: CHEMICAL AGENT, LEWISITE; CHEMICAL AGENT, MUSTARD, DISTILLED.

**blk** *(abbr).* 1. 'Black.' 2. 'Block.' 3. 'Blank.'

**bln** *(abbr).* 'Balloon.'

**block.** 1. A **demolition block,** which see. 2. A rectangular prism of wood used as a support in raising or lowering heavy cannon; called, according to thickness, *whole, half, or quarter block.* 3. Stack which is two or more pallet loads or containers wide, two or more deep, and two or more high. 4. *Electronic computers.* Group of words considered as a unit. 5. A **BREECHBLOCK.**

**blockbuster.** Any large light case bomb considered powerful enough to destroy a city block. *Colloq.*

The blockbuster, varying in weight from two to eleven tons, was widely used during WW II in Europe.

**block carrier.** See: **breechblock carrier.**

**blood gas.** War gas which, when absorbed into the body, primarily by breathing, affects body functions through action on the oxygen-carrying properties of the blood and interferes with normal transfer of oxygen from lungs via the blood to body tissues. Examples: CHEMICAL AGENT, HYDROGEN CYANIDE; arsine; CHEMICAL AGENT, CYANOGEN CHLORIDE.

**blow.** (Sometimes with *up.*) Explosion.

**blowback.** 1. The recoil of an unlocked bolt in a firearm. Used with *action, gun,* etc. 2. The forcing of exhaust gas into the intake manifold of an engine during the period when intake and exhaust valves are open at the same time. 3. Escape, to the rear and under pressure, of gases formed during the firing of a gun. Blowback may be caused by a defective

breech mechanism, a ruptured cartridge case, or a faulty primer

**blowback gun.** Automatic gun operated by the blowback principle, utilizing the pressure of the propellant gases to force the bolt to the rear, independently of the barrel which does not move relative to the receiver. The gases, produced by the propelling charge, act against the cartridge case, which in turn acts to force the bolt to the rear.

**blowby.** The escape of gases past the valves, piston rings, or head gasket of an engine during the compression and power strokes.

**blown primer.** See: **primer, blown.**

**blstg** *(abbr).* 'Blasting.'

**blstg pdr** *(abbr).* 'Blasting powder.'

**Blue Grass Ordnance Depot.** Ordnance Corps field installation, located at Richmond, Kentucky.

**blue-streak requisition.** A specially processed emergency demand for selected items of Ordnance general supplies which are essential to insure continuous operation and/or for repair of certain major items of guided missile equipment. This includes demands for items needed for test of guided missile systems and special weapons material preparatory to firing.

**blunderbuss.** 1. An obsolete short gun or firearm, with a large bore and usually a bell muzzle, capable of holding a number of balls, and intended to shoot objects at close quarters, without exact aim; hence, 2. Derisive term for any crude or awkward piece of ordnance or for a stupid, blundering fellow.

**BMEP** *(abbr).* 'Brake mean effective pressure.'

**BMEWS** *(abbr).* 'Ballistic missile early warning system.'

**BMG** *(abbr).* 'Browning machine gun.'

**BOAT, ASSAULT.** A square ended or round ended watercraft constructed of rigid materials, designed for landing troops upon a bridgehead. It is unframed except on the bottom, and has a handrail type gunwale for facility in carrying the craft. It is commonly paddled. It may be designed for attaching at the stern to another similar craft.*

**boattail.** 1. Having a tapered-in base; boat-tailed. 2. The base of a projectile when shaped like the frustum of a cone. See: **base of projectile.**

**boat-tailed.** Of projectiles: Tapering to the rear from the rotating band.

**bobbing target.** Practice target that is fully exposed to the firer for the short time that he is given to fire on the target. A bobbing target is pulled down, or turned so that only its edge faces the firer, during the time that the target is not fully exposed.

**body.** 1. Principal part of any object. 2. Tube of a built-up cannon. 3. That part of a fuze that houses the working parts. 4. The cylindrical portion of the projectile between the bourrelet and the rotating band. 5. The passenger or cargo carrying part of a vehicle. 6. Housing or enveloping component of a cartridge actuated device.

**body armor.** See: **ARMOR, BODY, FRAGMENTATION PROTECTIVE.**

**body engraving.** Scoring on the body of a projectile made by the rifling in the gun bore. Such scoring when it appears is usually on one side of the projectile only, and indicates that the projectile is bearing with excessive force against the same land or lands throughout its travel down the bore. It may signify eccentric conditions in the ammunition or other such defects.

**body, inner.** See: **inner body.**

**BODY, PRACTICE HAND GRENADE.** An inert metal part, simulating in contour and weight the body of a service hand grenade. The body is designed to accommodate an igniter type of FUZE, HAND GRENADE and a small black powder charge to give indication of functioning. Designed for repeated use in training exercises by replacing fuze and black powder charge.

**BODY SECTION, GUIDED MISSILE.** An item which comprises a portion of a guided missile, and when used in conjunction with a warhead section(s) and other guided missile body sections, forms a complete guided missile. Excludes WARHEAD SECTION (as modified).*

**Bofors.** [*Bofors* Armament Works, Sweden.] A 40-mm automatic cannon of a type developed in Sweden and adopted for manufacture and use by the US and Britain in WW II. The Bofors normally serves as an antiaircraft weapon.

**bogie.** 1. Truck or carriage consisting of an axle and two wheels, or two axles and four wheels. Bogies are used to support the weight of a heavy body, such as an artillery gun or railway car. 2. Roller or wheel that rides on the track of a track laying vehicle, and that takes up and distributes the weight of the vehicle along the track. 3. In a motor vehicle, any combination of springs, torque arms, and brackets, that enables two axles to function together, as load-carrying or driving axles.

**BOGIE, ARTILLERY.** The portion of an artillery weapon, consisting of wheels, axles, and various supporting appurtenances, which is the principal weight bearing unit when the weapon is being transported. It may have a drawbar. When the weapon is emplaced in the firing position, the bogie is either removed or so adjusted that it no longer supports the weight of the weapon. See also: **LIMBER.***

**bogie axle.** See: **bogie.**

**bogie fuel.** A special blend of gasoline fuel designed to produce a Reid vapor pressure of 8 psi at a discrete ambient temperature below 125 degrees F. See: **Reid vapor-pressure test for gasoline.**

**boiler plate.** Those articles which are included in Government contracts because regulations require their inclusion in all such contracts. They do not relate specifically to the task to be performed but to such matters as termination, disputes, convict labor, Government property, eight-hour day, nondiscrimination, etc. *Slang.*

**bolo.** Heavy, single-edged knife similar to a machete, but usually shorter.

**bolometer.** 1. A very sensitive type of metallic resistance thermometer, used for measurements of thermal radiation. See: **detector, infrared.** 2. *Electronics.* A small resistive element capable of dissipating microwave power, using the heat so developed to effect a change in its resistance, thus serving as an indicator; commonly used as a detector in low- and medium-level power measurement.

**BOLT, BREECH.** A mechanism which closes the breech in a carbine, machine gun, rifle, and the like. It is designed to push a cartridge into the chamber of a gun by sliding action. It may contain the ejector, extractor, and/or firing pin.*

**bolt, gun.** As applied to small arms, that portion of the gun which carries the firing pin, and which closes the rear of the chamber during burning of the propellant; bolt.

**bolt mechanism.** Mechanical assembly in a bolt action gun that includes the moving parts which insert, fire, and extract a round of ammunition.

**BOLT, TOGGLE.** An externally threaded fastener whose threaded portion is of one nominal diameter having a wing or wings mounted on the bolt head or on a trunnion nut. The wing or wings upset when the toggle bolt is inserted in a constricted passage in a hollow wall and when the bolt is tightened, the wing or wings assume a transverse or athwart position. It is used for securely holding fixtures or devices to hollow walls.*

**Bomarc.** Name applied to an Air Force surface-to-air interceptor type homing missile. It has long range and travels at supersonic speed. Uses a liquid fuel rocket plus two ramjet engines. Has command radar guidance. This winged missile or pilotless bomber is for antiaircraft area defense.

**bomb.** 1. In a broad sense, an explosive or other lethal agent together with its container or holder, which is planted or thrown by hand, dropped from an aircraft, or projected by some other slow-speed device (as by lobbing it from a mortar), and used to destroy, damage, injure, or kill. 2. Anything similar to this object in appearance, operation, or effect, as a leaflet bomb, smoke bomb, photoflash bomb, a bomb-like container or chamber, etc. 3. *Specif.* An aerial bomb. The various types of bombs are separately listed and defined. The term is used in the specific sense (sense 3) in this publication unless otherwise indicated. See: **bomb, aerial.** 4. To drop bombs, as on a target.

**bomb, aerial.** A bomb designed to be dropped from an aircraft, carrying either a high explosive or another agent, and normally detonated on contact or by a timing device. Usually shortened to merely "bomb." Examples: BOMB, FRAGMENTATION; BOMB, GENERAL PURPOSE.

**bomb, antipersonnel.** A small light bomb that bursts into fragments, designed for use against personnel. General term for a small **BOMB, FRAGMENTATION** (which see).

**bomb, antitank.** A bomb designed or intended to be used against tanks or other armored vehicles.

**bombard.** 1. To hit a target, as a city, fortification, or the like, with bombs, projectiles, grenades, or other explosive missiles. 2. To subject a substance or its atomic nuclei to the impingement of rays or small particles.

**bombardment.** (bom) 1. A sustained attack upon a city, fort, or the like with bombs, projectiles, rockets, or other explosive missiles; the action of bombarding. 2. The action of bombarding atomic nuclei with rays or small particles; an instance of this action.

**bombardment aircraft.** Aircraft designed or used for bombing. See: **bomber.**

**bombardment aviation.** That aviation chiefly developed for aerial bombardment.

**BOMB, ARMOR-PIERCING.** A missile, designed for dropping from aircraft, which is capable of penetrating the heaviest deck armor without breaking up. Also effective against reinforced concrete structures. Usually contains an explosive charge of Explosive D, weighing about 15 percent of the total weight of the bomb.

**bomb, atomic.** (A-bomb) Meaning formerly limited to a bomb in which the explosive consists of a nuclear-fissionable, radioactive material, as uranium 235 or plutonium 239. Now accepted as synonymous with the term **bomb, nuclear** (which see).

**bomb ballistics.** The special branch of ballistics concerned with bombs dropped from aircraft.

**bomb bay; also bombay.** The compartment or bay in the fuselage of a bomber where the bombs are carried for release.

**bomb blast.** The blast that results from the explosion of a bomb.

**bomb, blast.** See: **bomb, light case.**

**bomb, butterfly.** A small fragmentation or antipersonnel bomb equipped with two folding wings which rotate and arm the fuze as the bomb descends. Designed to be dropped in clusters, they are frequently fitted with antidisturbance or delay fuzes.

**bomb, buzz.** The V-1 robot plane of World War II, so named for the buzzlike noise of its pulsejet engine. *Colloquial.* See also: **bomb, flying.**

**bomb calorimeter.** See: **closed bomb.**

**bomb capacity.** The capacity of an aircraft for carrying bombs. Cf: **bomb load.**

**bomb carpet.** The fall of bombs or the bombfall pattern produced in **carpet-bombing** (which see); the area struck by carpet bombing.

**bomb cemetery.** An assigned area to which bombs or other explosive ordnance are taken for final disposal operations after the fuze is made safe.

**bomb, chemical agent.** A bomb having a chemical agent for its main charge. Examples: BOMB, GAS; BOMB, INCENDIARY; BOMB, SMOKE.

**bomb, cobalt.** A theoretical atomic or hydrogen bomb encased in cobalt, the cobalt of which would be transformed into deadly radioactive dust upon detonation.

This bomb is theoretical only in the sense that it is considered too dangerous to use, since the dust would attack friend, foe and neutrals. In the process of detonation, cobalt 59 would be converted into cobalt 60.

**bomb complete round.** A complete aerial bomb, including all of the components, such as arming wires, fuzes, etc., necessary to attach the bomb to a release mechanism and to make the bomb function after release. See also: **complete round.**

**bomb, conventional.** Any nonatomic bomb designed primarily for explosive effect, as distinguished from a chemical bomb, leaflet bomb, incendiary bomb, or other special purpose bomb.

**bomb crater.** An irregular depression formed by the explosion of a bomb.

**bomb damage.** 1. The physical damage resulting from the detonation of a bomb or from forces set in motion by such detonation, as blast, heat radiation, fire, and radioactivity. Sometimes called 'primary bomb damage.' 2. The effects on a nation's economic, political and social structure which develop directly from accumulated physical damage caused by bombing. Sometimes called 'secondary bomb damage.'

'Bomb damage' is sometimes used in both meanings at once.

**bomb damage assessment.** (BDA) A judgment on the extent of bomb damage, either physical or economic; the procedure invloved in making this adjustment.

This assessment may be made by aerial photography for primary bomb damage, but it may also be done on the ground.

**BOMB DAMAGE EVALUATION GROUP.** A group which provides facilities for the recording of ballistic data for **bomb damage assessment.** It does not include the recording equipment.*

**bomb damage survey.** **Bomb damage assessment** (which see) performed by ground parties.

**bomb, deep penetration.** A bomb designed for deep penetration of the target before exploding.

**bomb, delayed action.** A bomb having a delay fuze. The delay action may vary from a fraction of a second to several days after impact, depending on the type of fuzing. Bombs or other projectiles having short delay fuzes are used to penetrate targets before exploding; bombs having medium delay fuzes are used for the safety of the plane in low altitude bombing, so that the plane may move away from the point of impact before detonation; bombs having long delay fuzes are normally used to deny territory to the enemy for a period of time, or to allow successive waves of planes to drop their bombs before any of them detonate. Cf: **bomb, time.**

**bomb, demolition.** Former classification for a bomb that explodes after a short penetration, accomplishing damage and destruction by both blast and underground explosion. A demolition bomb had a charge approximately equal to 50 percent of the bomb's total weight in WW II. See: **BOMB, GENERAL PURPOSE,** the present classification.

**BOMB, DEPTH.** (DB) An explosive item designed to be dropped from an aircraft for use against underwater targets. When empty or inert loaded it may be used for training purposes.* Cf: **CHARGE, DEPTH.**

**BOMB DIRECTING SET, RADAR.** A complete set to locate a target by radar techniques, and also to provide facilities for the automatic ballistic computation to effect bomb release on a target. It may include optical sighting equipment which is auxiliary to or which may be used independently of the radar equipment.*

**bomb disposal.** (BD) See: **explosive ordnance disposal.**

**bomb disposal unit.** See: **explosive ordnance disposal unit.**

**bomb, drill.** Any uncharged aerial bomb designed or adapted to train ground crews in assembling, fuzing, or other handling of bombs.

**bomb, dynamite.** An aerial bomb or other explosive device prepared from dynamite sticks.

**bomb, earthquake.** A large bomb which, when dropped, penetrates and explodes beneath the surface of the earth, giving an effect similar to an earthquake. *Colloq.*

**bomb, electron.** A German WW II bomb having an incendiary charge and a combustible casing of magnesium. Named after a German trade name *Elektron.*

**bomber.** (bom) An airplane specifically designed to carry and drop bombs.

**bomb, explosive.** Any bomb having an explosive as its main charge, as distinguished from a chemical bomb, or the like.

**BOMB, FIRE.** An item designed to be dropped from an aircraft to destroy or reduce the utility of a target by the effects of combustion. It is designed so as to contain an incendiary mixture which spreads on impact to burn or envelope in flames personnel and material targets, such as vehicles and tents.*

**bomb, fission.** A bomb that depends upon nuclear fission for release of energy. See: **bomb, atomic.**

**bomb, flame.** See: **BOMB, FIRE.**

**bomb, flash.** See: **BOMB, PHOTOFLASH.**

**bomb, flying.** Popularly, any explosive robot plane, guided missile, or the like; specifically, the German V-1 explosive robot plane of World War II.

**BOMB, FRAGMENTATION.** An item designed to be dropped from aircraft to produce many small, high velocity fragments when detonated. Effective against personnel and light targets such as automotive materiel and aircraft on the ground.

**bomb, fusion.** A bomb that depends upon nuclear fusion for release of energy. See: **bomb, hydrogen.**

**BOMB, GAS.** An item which contains a chemical agent (war gas) and is designed to be dropped from an aircraft.*

**bomb gear.** A general term applied to the bomb rack and other devices for carrying and dropping bombs.

**BOMB, GENERAL PURPOSE.** An item designed to be dropped from an aircraft to destroy or reduce the utility of a target by explosive effect. The bomb is designed to be used against both material targets and personnel. When empty or inert loaded the bomb may be used for training purposes.*

**bomb, glide.** A bomb, fitted with airfoils to provide lift, carried and released in the direction of a target by an airplane. A glide bomb may be remotely controlled. Certain glide bombs, as the Henschel 293, are initially propelled by a rocket engine; other glide bombs depend for thrust entirely upon the force of gravity. Also called 'glider bomb.' See also: **asom; razon.**

**bomb, guided.** An aerial bomb guided, during its drop, in range or azimuth, or in both.

**bomb handling truck.** See: **TRUCK, AIRCRAFT BOMB; TRUCK, BOMB SERVICE.**

**bomb, heavy case.** Any high explosive bomb in which the weight of the container is relatively large in proportion to the weight of the bursting charge.

**bomb, high capacity.** A general purpose bomb designed to produce maximum blast, with a charge weight ratio of more than 70 percent. *British.* Also called 'blast bomb' and 'light case bomb.'

**bomb, high explosive.** Any aerial bomb charged with a high explosive; specifically, any such bomb chiefly dependent upon only its explosion, or blast effect, to create damage. 'High explosive bomb,' in its broader sense, is a generic term encompassing armor-piercing bombs, general purpose bombs, light case bombs, and semi-armor-piercing bombs. A high explosive bomb is distinguished from a chemical bomb or an atomic bomb, and in its specific sense, from a fragmentation bomb.

**bomb, hydrogen.** A fusion bomb in which an isotope of hydrogen is made to fuse under intense heat, with a resultant loss of weight and release of energy. Also called the 'H-bomb.' Cf: **bomb, atomic; bomb, nuclear.**

**BOMB, INCENDIARY.** An item designed to be dropped from an aircraft to destroy or reduce the utility of a target by the effects of combustion. It contains an incendiary mixture and is designed to penetrate and destroy relatively noncombustible targets such as buildings and fortifications. When empty or inert loaded it may be used for training purposes.*

**BOMB, INCENDIARY, INSTRUCTIONAL.** A cylindrical metallic item filled with an incendiary mixture which when ignited is used for instructing personnel in extinguishing fires.*

**bombing.** The action of dropping bombs from an aircraft with the purpose of hitting a target. See also: **area bombing; blind bombing; carpet bombing; density bombing; dive bombing; glide bombing; horizontal bombing; interdiction bombing; offset bombing; overcast bombing; pattern bombing; precision bombing; radar bombing; saturation bombing; shuttle bombing; skip bombing; toss bombing; train bombing; high-altitude bombing; low-altitude bombing; low-angle bombing; low-level bombing; medium-altitude bombing; minimum-altitude bombing.**

**bombing altitude.** The absolute altitude at which bombing is done. See: **altitude, absolute.**

**bombing run.** A **bomb run.**

**bombing table.** A table giving the bombsight settings required for dropping a particular type of bomb at various speeds and altitudes.

**BOMB, LEAFLET.** A light case bomb (made of sheet metal or laminated plastic) designed to be filled with leaflets, provided with fuze to cause opening before impact, and released from an aircraft, for distribution of the leaflets.

**bomb, light case.** A type of general purpose bomb having a thin, light, metal casing, giving a high charge weight ratio and designed to accomplish damage primarily by blast. Also called a 'blast bomb.' A light case bomb usually contains a charge of from 70 to 80 percent of the total weight. See also: **BOMB, GENERAL PURPOSE.**

**bomb line.** A line designated by ground forces, beyond which air attacks may be executed without clearances from the ground forces. This line is a precautionary measure to guard against accidental air attacks on friendly ground forces. The bomb line should be easily identifiable by terrain features from the air and the ground so as to prevent confusion. Formerly known as bomb safety line.

**bomb load.** The weight or number of bombs carried by an aircraft, the bomb or bombs carried. Cf: **bomb capacity.**

**bomb, magnesium.** 1. An incendiary bomb in which the burning agent is magnesium. 2. A magnesium flare for use from aircraft. See also: **BOMB, INCENDIARY; flare, magnesium.**

**bomb, magnesium flare.** A magnesium flare for use from aircraft. See also: **FLARE, AIRCRAFT; flare, magnesium.**

**bomb, miniature practice.** Miniature bomb, light and inexpensive, used for training of bombers. Fitted with blank cartridge to produce smoke puff upon impact. See: **BOMB, PRACTICE.**

**bomb, napalm.** A BOMB, FIRE filled with napalm, a thickened petroleum oil. The napalm bomb is primarily an antipersonnel weapon and is often distinguished from the BOMB, INCENDIARY, which is used primarily against installations or materiel.

**bomb nose.** The foremost section of a bomb.

**bomb, nuclear.** A bomb that releases explosive energy either through nuclear fission or nuclear fusion. This term is applied either to the atomic bomb or the hydrogen bomb. See: **bomb, atomic; bomb, hydrogen.**

**bomb, oil.** See: **BOMB, FIRE; bomb, napalm.**

**bomb, open.** In intelligence usage, an undisguised or unconcealed sabotage explosive device, distinguished especially from an **infernal machine,** which see.

**bomb, parachute fragmentation.** A fragmentation bomb adapted for drop by parachute. Parachute fragmentation bombs are used in low level bombing to give the bombing plane time to escape damage from the bomb explosion, and to cause a bomb attitude which produces effective fragment distribution. See also: **BOMB, FRAGMENTATION.**

**bomb, petrol.** See: **BOMB, FIRE; bomb, napalm.**

**bomb, phosphorus.** A BOMB, SMOKE filled with phosphorus, especially white phosphorus.

**BOMB, PHOTOFLASH.** A missile for dropping from aircraft, containing photoflash mixture with means for providing for functioning at a predetermined distance above the ground, to produce a brilliant light of short duration for photographic purposes.

**BOMB, PRACTICE.** An item designed to be dropped from an aircraft for target practice. It is constructed to simulate service bombs but differs from these in that it can only be used for target practice.*

**bombproof.** 1. A bombproof shelter. 2. Of a shelter, building, or other installation: Resistant or impervious to the effects of bomb explosions.

**bomb rack.** See: **PYLON, AIRCRAFT; RACK, BOMB, AIRCRAFT; SHACKLE, BOMB, AIRCRAFT.**

**bomb, radio guided.** A bomb, such as the azon, guided by radio control from outside the missile. See: **azon; bomb, glide.**

**bomb reconnaissance.** Act of reconnoitering to determine the presence of an unexploded missile, ascertaining its nature, applying all practicable protective measures for the protection of personnel, installations and equipment and finally reporting essential information to the authority directing explosive ordnance disposal operations.

**bomb-release circle.** In radar bombing, a circular track of light on the face of a plan-position indicator scope, representing the desired dropping angle of a bomb When the moving target spot on the PPI scope encounters the bomb-release circle, the proper dropping angle has been established and the bomb or bombs are dropped.

**bomb-release line.** (BRL) An imaginary line around a target area at which a bomber, traveling toward it at a constant speed and altitude, releases its first bomb so that it and others will strike the target area.

**bomb-release point.** The point in flight on a bomb run at which a bombing airplane releases its bomb load.

This point is determined by reference to the aiming point, which is on the ground.

**bomb, robot.** An explosive carrying winged missile or rocket, such as the German V-1 or flying bomb, normally launched from the surface and directed in flight toward its target by an automatic pilot and other automatic devices.

**bomb, rocket.** An aerial bomb equipped with a rocket to give it added velocity and penetrating power after being dropped from an aircraft.

**bomb run.** The flight course of a bombing airplane just before the release of bombs; bombing run.

**bomb, sabotage.** An explosive device used by a saboteur to damage, destroy, or injure property or persons.

**bomb safety line.** Former name for **bomb line** (which see).

**bomb(s) away.** A phrase used as a signal by the bombardier to indicate to the pilot and other members of an aircrew that the bombs have just been released; the instant when the bombs are released.

**BOMB, SEMI-ARMOR-PIERCING.** A missile, designed for dropping from aircraft, which is capable of penetrating lightly armored ships' hulls and reinforced concrete. Usually contains an explosive charge weighing about 30 percent of the total weight of the bomb.

**bomb, service.** Any bomb, regardless of type, for use against an enemy. Service bombs are distinguished from practice bombs and drill bombs. Cf: **bomb, drill; BOMB, PRACTICE.**

**bomb service truck.** See: **TRUCK, BOMB SERVICE.**

**bomb shelter.** A bombproof shelter.

**bombsight.** A device, which, in the more advanced types, determines, or enables a bombardier to determine, the point in space at which a bomb or bombs must be released from an aircraft in order to hit a target.

**BOMBSIGHT HEAD.** The upper part of a sighting device for aiming aerial bombs. It contains the optical aiming mechanism.*

**BOMB, SMOKE.** A missile, designed to be dropped from aircraft, which contains a filler of smoke producing material with provision for an explosive charge to disperse the filler, and a fuze for functioning.

**BOMB, TARGET IDENTIFICATION.** A missile designed to be dropped from aircraft, which, upon impact, produces a relatively prolonged and conspicuous effect, such as a bright colored light which provides a means of locating and identifying the target by other aircraft.

**bomb, time.** An aerial bomb or other explosive device that may be set to explode some time after being dropped or planted. Short delay fuzed aerial bombs are not usually classified as time bombs. See: **bomb, delayed action.**

**bomb trailer.** See: **TRAILER, BOMB.**

**bomb, trigger.** Term sometimes applied to a bomb that detonates upon impact, that is, equipped with an impact fuze.

**bomb, unexploded.** (UXB) Bomb which fails to explode on impact or immediately thereafter. It is considered to be a delayed action bomb until the contrary is proved.

**bomb, uranium.** A theoretical atomic or hydrogen bomb encased in uranium, the uranium of which would be transformed into deadly radioactive dust upon detonation.

**bomb yoke.** A lever in the belly of a dive bomber, which is fitted to a bomb and which swings it clear of the propeller upon release.

**booby mine.** Land mine used as a **booby trap** (which see).

**booby trap.** An explosive charge such as a mine, grenade, demolition block, shell or bulk explosive fitted with a detonator and a firing device, all usually concealed and set to explode when an unsuspecting person touches off its firing mechanism as by stepping upon, lifting or moving a harmless looking object. Also often used as a verb

**boom.** A projecting member or conic truss structure. It may be movable as on a crane or derrick, or fixed to support another structure as an empennage or rotary rudder of an aircraft.*

**BOOM, MINE DETECTOR.** A projecting spar or outrigger-like structure which is used to suspend, position and/or support the detecting coils of a mine detector. May be adjustable.*

**boost.** 1. Bring about a more potent explosion of the main charge of an explosive by using an additional charge to set it off. 2. Supply a machine or engine with a stronger mixture of fuel than would be supplied by normal means.

**booster.** (bstr) Assembly of metal parts and explosive charge provided to augment the explosive component of a fuze, to cause detonation of the main explosive charge of the munition. May be an integral part of the fuze. The explosive in the booster must be sufficiently sensitive to be actuated by the small explosive elements in a fuze, and powerful enough to cause detonation of the main explosive filling.

**BOOSTER, ANTITANK MINE.** An item designed to be filled with explosive material to relay and amplify the detonation wave which activates the main charge of an antitank mine. When empty it may be used for training purposes.*

**booster, auxiliary.** An additional booster used with a large bursting charge or for special applications. See: **BOOSTER, AUXILIARY, BOMB; BOOSTER, AUXILIARY, ROCKET.**

**BOOSTER, AUXILIARY, BOMB.** A cylindrical metal container designed to be filled with explosive material to relay and amplify the detonation wave and insure

proper detonation of the main charge of a bomb. When empty or inert loaded it may be used for training purposes.*

**BOOSTER, AUXILIARY, ROCKET.** A cylindrical metal container designed to be filled with explosive material to relay and amplify the detonation wave and insure proper detonation of the main charge of a rocket. When empty or inert loaded, it may be used for training purposes.*

**booster coil.** An electric coil connected to a battery that supplies high-tension current for starting an engine.

**booster coil (high voltage).** See **COIL, IGNITION.**

**booster coil (low voltage).** See: **COIL, STARTING.**

**booster, delay arming.** A booster incorporating as a safety feature a mechanism which prevents arming until a desired travel or period of time has elapsed.

**BOOSTER, DEPTH CHARGE.** A cylindrical item designed to contain an explosive to relay and amplify the detonation wave to insure proper detonation of the main explosive charge of a depth charge. When empty or inert loaded it may be used for training purposes.*

**BOOSTER KIT, LEAFLET BOMB.** A group of items, including a booster, booster adapter, and a length of detonating cord, designed to open a leaflet bomb.*

**BOOSTER, PROJECTILE.** A cylindrical metal container designed to be filled with explosive or propellant material to augment the explosive component of a fuze and to cause detonation of the main explosive charge of a projectile. When empty or inert loaded it may be used for training purposes.*

**booster rocket.** See: **rocket, booster.**

**BOOSTER, TORPEDO.** A cylindrical metal container designed to be filled with an explosive material to relay and amplify the detonation wave to insure proper detonation of the main charge of a torpedo. When empty or inert loaded it may be used for training purposes.*

**BOOSTER, UNDERWATER MINE.** A cylindrical item containing an explosive for the purpose of amplifying the detonation wave to insure proper detonation of the main explosive charge of an underwater mine. When empty or inert loaded it may be used for training purposes.*

**BOOSTER, WARHEAD, GUIDED MISSILE.** A major explosive element in the explosive train between a FUZE, GUIDED MISSILE and a WARHEAD, GUIDED MISSILE used to amplify the detonation wave.*

**booster well.** A hollow space in the main explosive charge of an item of ammunition, into which the booster fits.

**boost-glide vehicle.** An air vehicle capable of aerodynamic lift which is projected to an extreme altitude by reaction propulsion and then coasts down with little or no propulsion. When it reenters the sensible atmosphere, it glides to increase its range.

**bootstrap.** *Electronic computers.* The special coded instructions at the beginning of an input tape, together with one or two instructions inserted by switches or buttons into the computer; in circuitry, a positive feedback or regenerative circuit.

**bore.** 1. The interior of a gun barrel or tube. 2. Inside diameter of an engine cylinder.

**bore axis.** The longitudinal center line of a gunbore.

**bore brush.** See: **BRUSH, CLEANING, ARTILLERY; BRUSH, CLEANING, SMALL ARMS.**

**bore constriction.** Constriction (decrease in diameter) in the bore of a gun due to *coppering* or to pressure at bearing shoulders, between the lines and the tube.

**bore diameter.** The interior diameter or **caliber** (which see) of a gun or launching tube.

**bore erosion.** See: **erosion.**

**bore evacuation.** Clearing of the bore of propellant gases and extraneous material after firing.

**bore evacuator.** See: **EVACUATOR, BORE.**

**bore expansion.** Permanent enlargement of the bore of a gun due to interior pressure. It does not include enlargement due to bore **erosion,** which see.

This may be due to excessive interior pressure developed by the ammunition or to failure of the gun to exhibit the specified elastic strength.

**bore gage.** See: **star gage.**

**bore impression.** Impression, made with a plastic substance, of the bore of a gun in order to determine the condition of the rifling.

**bore premature.** The premature explosion of a projectile, occurring within the bore.

**bore pressure.** The gas pressure produced in the gun bore or launching tube when the propellant burns. See also: **pressures, gun.**

**bore rest.** See: **clinometer rest.**

**bore riding fuse.** See: **fuse, bore riding.**

**bore safe fuse.** See: **fuse, bore safe.**

**bore safety.** See: **fuse, bore safe; fuse safety.**

**bore scavenging.** 1. Removal of the burnt gases from the cylinder of an internal combustion engine after a working stroke. 2. Sometimes applied in the same sense to the bore of a gun. The preferred term in this sense is *bore evacuation.*

**BORESCOPE.** A viewing device used to visually inspect the cannon bore of artillery weapons for defects of manufacture and the extent of erosion caused by firing. The item is basically a straight-tube telescope using a mirror or prism. Extension tubes are provided to extend the range of the device to cover the various weapon lengths.* See also: **TUBE, EXTENSION, BORESCOPE.**

**bore sight.** See: **SIGHT, BORE, BREECH; SIGHT, BORE, MUZZLE; bore sighting.**

**bore sighting.** The process by which the axis of a gun bore and the line of sight of a gun sight are made parallel or are made to converge on a point. May be applied to any weapon and its sight. See: **SIGHT, BORE, BREECH; SIGHT, BORE, MUZZLE.**

**bore sight marks.** Vertical and horizontal engraved marks on the face of the muzzle of a cannon, for locating the axis of the bore. Used in bore sighting.

**bore telescope.** See: **telescope, bore.**

**borrow.** See: **carry.**

**Boston Ordnance District.** One of the eleven districts into which the United States is divided for purposes of industrial mobilization, procurement, contract negotiation and administration, etc., by the Ordnance

Corps. Embraces the States of Maine, New Hampshire, Vermont, Massachusetts, Connecticut, and Rhode Island. The main office is located in Boston, Mass.

**Boulengé chronograph.** See **chronograph.**

**Boulengé screen.** See: **chronograph.**

**boundary friction.** A type of friction that exists when most of the oil film covering two bearing surfaces has been wiped off or otherwise reduced.

Boundary friction is so called because it is intermediate between dry friction and fluid friction.

**boundary layer.** *Aerodynamics.* A thin layer of air next to an airfoil, distinguishable from the main airflow by distinctive flow characteristics of its own set up by friction. See: **laminar boundary layer; turbulent boundary layer; boundary layer control.**

The boundary layer is sometimes considered to end where its velocity is 99 percent of the free-stream value. The width of a boundary layer increases with the length of the surface over which it is formed.

**boundary layer control.** The design or control of airfoils and certain airfoil attachments to reduce or remove undesirable aerodynamic effects, as parasite drag, caused by the boundary layer; the science of such design or control.

**bound barrel.** Barrel that is touching parts of the stock in such a manner that expansion due to heat from firing causes the barrel to bind and bend, resulting in inaccurate fire.

**bounding mine.** See: **mine, bounding.**

**bound vortex.** *Aerodynamics.* A hypothetical vortex circulating around the center-of-pressure line of an airfoil.

The bound vortex is an idealization and simplification of the actual aerodynamic forces acting on a wing, and is used for mathematical purposes.

**bourrelet.** The cylindrical surface of a projectile on which the projectile bears while in the bore of the weapon. Conventionally the bourrelet is located between the ogive and the body of the projectile and has a slightly larger diameter than the body. In some cases the bourrelet extends the full length of the body. In some projectile designs the conventional bourrelet becomes the front bourrelet, a rear bourrelet being provided behind the rotating band. In other designs a middle bourrelet is provided just forward of the rotating band.

**bourrelet, front.** See: **bourrelet.**

**bourrelet, middle.** See: **bourrelet.**

**bourrelet, rear.** See: **bourrelet.**

**bow gun.** Gun mounted at the front of a ship or armored vehicle, especially a semifixed, forward-firing gun in tanks.

**bow-on.** Facing the firer. A bow-on-target is a target that presents its narrower dimension exactly toward the gun firing at it. When an enemy tank is headed exactly at the gun firing at it, the tank is a bow-on target.

**bow wave.** See: **ballistic wave.**

**box barrage.** In antiaircraft artillery fire, an antiaircraft barrage delivered in a box-shape pattern by guns surrounding a defended target. See: **barrage.**

**BOX, CARGO, AERIAL DELIVERY.** An item of nonflexible material having closed sides, bottom and top, may be collapsible, with fittings and fasteners used for the delivery of cargo. It is dropped from an aircraft by parachute.*

**BOX, FIBERBOARD.** A paperboard container made from either FIBERBOARD, SOLID or FIBERBOARD, CORRUGATED. It is used primarily as an outer shipping container. Excludes BOX, FOLDING and BOX, SETUP.*

**box, firing, guided missile.** See **firing box.**

**box, firing, rocket.** See **firing box.**

**BOX, FOLDING.** A container made of bending grades of paperboard or similar materials having its sides formed with ends extended, scored for folding, and in a flat or collapsed form. It is usually used as an inner container, one or more of which may be packed in an outer container for shipment. Excludes BOX, FIBERBOARD; BOX, SETUP and BOX, SELF-LOCKING.*

**box magazine.** See: **magazine (sense 2).**

**BOX, METAL, SHIPPING.** A reusable noncollapsible container equipped to be handled by overhead hoist, fork lift truck, or for skidding. It is suitable for protecting critical and sensitive items from damage and pilferage during shipping and handling. Excludes DRUM, METAL. See also: **shipping and storage container.** Do not use if a more specific item name is applicable.*

**box pallet.** A pallet with framework back and sides, so constructed that several may be stacked, one upon another, without the weight being borne by the supplies, but only by the pallets. See: **pallet.**

**BOX, SELF-LOCKING.** A flat sheet of fiberboard or similar material, having no part preformed to resemble a box, but cut and scored to permit forming into a box; the self-locking is accomplished by folding tabs over and into the ends or by inserting side tabs into slits provided; it may be composed of two sheets for telescope style or it may have a cover hinged to one end; occasionally the hinged cover style is furnished with a sleeve inclosure of same material. Excludes BOX, FOLDING and BOX, SETUP.*

**BOX, SETUP.** A container made of nonbending grades of paperboard or similar material. It is completely formed and nonfolding, and is composed of a body and cover (top). It is usually used as an inner container, one or more of which may be packed in an outer container for shipment. Excludes BOX, FOLDING and BOX, FIBERBOARD.

**box, shipping and storage.** See: **shipping and storage container.**

**box trail.** Artillery weapon trail composed of a single, rigid member. The three types of box trails are simple box, modified box and tubular. Cf: **split trail.**

**BOX, WOOD.** A container with closed sides and bottom, with open, slatted, or closed top. May be shook or assembled type. The sides, bottom and top may be reinforced. If sides and bottom are of frame and sheathing construction, see: **CRATE, WOOD.***

**BP** *(abbr).* 'Black powder' (explosive).

**bprf** *(abbr).* 'Bulletproof.'

**BR** *(abbr).* 'Barrage rocket.'

**BRACE KIT, FIN ASSEMBLY, BOMB.** A group of items designed to reinforce bomb fin assemblies.*

**BRACE KIT, FIRE BOMB.** A group of items designed to reinforce sway-brace areas of fire bombs.*

**bracket.** 1. Distance between two strikes or series of strikes, one of which is over the target and the other short of it, or one of which is to the right and the other to the left of the target. 2. Group of shots (or bombs) which fall both over and short of the target. 3. To obtain a bracket (sense 2) in firing or bombing. Cf.: **straddle.**

**bracket fuze setter.** A fuze setter bolted onto the rear end of the fuze-setter bracket; on the caisson of a gun.

**bracketing.** Sensing applied to range when both overs and shorts in any proportion result from a group of shots fired at the same range or elevation setting.

**bracketing elevation.** An elevation which gives both overs and shorts.

**bracketing method.** A method of adjusting artillery and mortar fire in which a bracket is established by obtaining an over and a short, with respect to the observer, then successively splitting the bracket in half until a target hit is obtained or the smallest practicable range change has been made.

**bracketing salvo.** Group of shots in which the number of shots going over the target equals the number falling short of it.

**brake.** A device by which the motion of any mechanism, as a vehicle, hoist, or engine is retarded or arrested.*

**brake, air.** The conventional style of mechanically applied brake set by air pressure instead of foot pressure. The pressure of the hand or foot operates an air valve, permitting a flow of air, from cylinders in which it has been stored under pressure, to set the brakes.

**BRAKE BAND ASSEMBLY.** A circular shaped device of flexible metal, having a replaceable wear lining of friction material, designed to contract upon the outer surface or expand against the inner surface of a drum to retard or stop motion.*

**BRAKE DRUM.** A circular shaped metal item designed to be connected to a machine or vehicle shaft or wheel and used to retard, stop or prevent motion by the application of pressure exerted by brake(s) or band(s).*

**BRAKE, ELECTRIC.** A device operated by electromechanical means which functions to bring to rest mechanically and/or hold at rest a load.*

**BRAKE, EXPANDER TUBE.** A brake consisting essentially of the following: a. A frame designed to fit over and be attached to the torque flange of the axle, and having provisions for housing an expander tube and brake blocks. b. An expander tube which is a flat rubber tube designed to be filled with brake fluid and thereby force brake blocks against the brake drum. c. Brake blocks which may be cemented to the expander tube or fitted into the frame above the expander tube.*

**brake fade.** A temporary failure in a braking system due to excessive temperature. Term used esp. in connection with automotive vehicles.

**BRAKE, FLOOR, WHEELED EQUIPMENT.** A jacklike device having various means for mounting on a vehicle frame on one end and a brake shoe or base for floor contact on the other end. It is designed to be used on various wheeled equipment to hold the equipment in a stationary position while being used or to prevent movement when not in use.*

**brake horsepower.** (BHP) A measure of useful work delivered by an engine or a machine. See also: **Prony brake.**

**BRAKE LINING KIT.** A collection of items consisting of brake linings of specific size(s) together with rivets and/or bolts for fastening the lining to the original brake shoes. Excludes brake shoe kits containing the assembled brake shoes complete with linings, and also brake lining packaged in sheets or rolls.*

**brake mean effective pressure.** (BMEP) That part of the **mean effective pressure** which produces the **brake horsepower** of the engine. (See separate entries.)

**BRAKE, MULTIPLE DISK.** A brake consisting essentially of the following: a. A brake anchor bracket, also called a carrier assembly, which is the basic unit of the brake. It is designed to be attached to the torque flange of the axle and is also the part upon which the other components of the brake are assembled. b. A floating hydraulically actuated annular piston, or an equivalent mechanical device, used for applying brake pressure. c. Metallic disks keyed to rotate with the wheel alternated with nonrotating disks keyed to the anchor bracket. See also: **BRAKE, SEGMENTED ROTOR.***

**BRAKE, MUZZLE.** A short, cylindrical item mounted on the muzzle of an artillery weapon to retard the force of recoil. It has a centrally bored hole, through which the projectile passes, and one or more baffles.*

**BRAKE, SEGMENTED ROTOR.** A brake consisting essentially of the following: a. A brake anchor bracket, also called a carrier assembly, which is the basic unit of the brake. It is designed to be attached to the torque flange of the axle and is also the part upon which the other components of the brake are assembled. b. A floating hydraulically actuated annular piston, or an equivalent mechanical device, used for applying brake pressure. c. Segments of brake lining attached to the nonrotating disks.*

**BRAKE SHOE, INTERNALLY ACTUATED.** A metal item in the shape of an arc, designed to accommodate a friction material lining on the peripheral surface and to be actuated by a cam, lever and/or hydraulic cylinder. It may include lining and adjusting and/or actuation parts. Excludes shoe segments for brake expander tubes.*

**BRAKE, SHOE TYPE.** A brake consisting essentially of the following: a. A torque spider which is a disklike metal part designed to fit over and be attached to the torque flange of the axle. b. One or more brake shoes with brake lining attached. c. A hydraulic cylinder(s) or mechanical linkage to provide the force by which the brake shoe is pressed against the brake drum.*

**BRAKE, SINGLE DISK.** A brake consisting essentially of the following: a. A single piece or divided cylinder housing designed to be mounted on the

torque flange of an axle. The cylinder housing has a slot or groove through which the DISK, BRAKE passes. It contains a piston(s) or push rod(s) which provides the hydraulic or mechanical force to press the LINING, FRICTION against the DISK, BRAKE. b. LINING, FRICTION. c. A DISK, BRAKE designed to be keyed or rigidly attached to a wheel or rotating shaft.*

**brazing alloy.** A nonferrous product used for joining metals by fusion at a temperature below the melting temperature of the metals being joined. It is made from a metallic alloy and melts at a temperature above 800 degrees F. Use material modifier.*

**breadboard model.** An assembly of preliminary circuits and parts to prove the feasibility of a device, circuits, equipment, system or principle, without regard to the eventual overall design or form of parts.

**breastwork.** Earthwork which gives protection for defenders in a standing position, firing over the crest. Breastworks are constructed wholly or partly above the surface of the ground. See: **parapet.**

**BREATHER.** A mechanical device designed to permit a free flow of air into and out of an inclosure, usually used on engine crankcases, vehicular differentials and transmissions, pumps, compressors, and the like. Excludes VENTILATOR (as modified).*

**breech.** The rear part of the bore of a gun, especially the opening that permits the projectile to be inserted at the rear of the bore.

**breech blast.** See: **backblast.**

**BREECHBLOCK.** A movable steel block in the mechanism of a breech-loading gun that seals the breech opening of the barrel during firing.*

**breechblock carrier.** Hinged member of one type of breech mechanism which guides and supports the rotating breechblock of cannon.

**breechblock, eccentric-screw (Nordenfeld).** This breechblock is cylindrical and is threaded on its exterior surface to screw into the breech recess, which is correspondingly threaded. The breechblock is much larger in diameter than the bore, and the axis about which it rotates does not coincide with the axis of the bore. There is a U-shaped off-center opening in the block called the loading recess, which coincides with the bore only when the block is in its open position. The ammunition is inserted into the bore through the loading recess. With ammunition inserted as far as it will go, the breechblock is rotated about its axis approximately a half revolution to close the breech and locate the loading recess away from the bore. The firing mechanism is made so that it properly lines up with the bore in closed position. To open the breech, the block is merely rotated in the opposite direction until the loading recess again comes into alignment with the bore.

**breechblock, interrupted-screw.** Also called *slotted-screw.* Breechblock consisting essentially of a threaded cylindrical block, with longitudinal sectors of the threads removed. The breech recess is likewise threaded, with longitudinal sectors of the threads removed. In both cases there are an even number of sectors and the threads are removed from alternate sectors. The breechblock is made to move longitudinally into the breech recess without turning, the threaded sector in each instance moving into the blank sector of the mating part. Then with a comparatively small turn, the threads of the breech and block are fully engaged, and the block is locked. If the threads were not cut out as indicated, several full turns of the block would be required to attain the same result.

**breechblock operating mechanism.** Mechanism which unlocks and withdraws the breechblock from the breech, swings the block clear of the breech recess, and then returns it to the firing, or closed, position after loading. There are two types: carrier-supported and tray-supported, according to whether supported by a **breechblock carrier** or a **breechblock tray.**

**BREECHBLOCK, ROCKET MOTOR.** A movable steel block mounted on a ROCKET MOTOR to seal the breech opening during firing. It is designed to permit installation or removal of an explosive primer(s).*

**breechblock, sliding wedge.** Breechblock that is rectangular in cross section and slides in a rectangular recess in the breech ring to open and close the breech. Where the motion of the breechblock is vertical, the mechanism is referred to as a *vertical sliding wedge breechblock.* Where the motion is horizontal, the block is called a *horizontal sliding wedge breechblock.*

**breechblock, stepped-thread (Welin).** A modification of the **breechblock, interrupted-screw** (which see). The breech recess and the breechblock are cut with a series of stepped threads, so that when the breechblock is inserted and turned in the breech recess, matching sections of stepped threads engage. Using the stepped type of thread, less rotation is necessary to close the breechblock, and greater threaded surface or holding area is possible. This breechblock is used on modern cannon which fire separate-loading ammunition.

**breechblock tray.** Tray-like support for the breechblock, hinged to the breech of a large cannon, which supports the breechblock when it is withdrawn and permits it to be swung clear of the breech.

**breechbore gage.** See: **gage, breechbore.**

**breech bushing.** That part of the gun breech on the interior surface of which the threaded and slotted sectors of the breech recess are formed.

**breech flash.** Flames and gas flash occurring at breech of weapon.

**breech hoop.** A steel jacket for reinforcing the breech end of a built-up cannon. It may contain the breech recess which is threaded to receive the breechblock.

**breeching space.** The linear distance between the face of the fully closed bolt and the apex of the cone formed by a prolongation of the shoulder taper. This distance, however, is sometimes measured from a datum diameter on the first shoulder.

**breech interlock.** Safety device used with weapons that are loaded or rammed automatically or in weapons in which the position of the breechblock cannot be readily seen by the loader. Functions to prevent the loading or ramming of a round when the breechblock is not fully open.

**breech loader.** A gun or other weapon that is loaded at the breech instead of at the muzzle. With the exception of mortars, nearly all modern guns are breech loading rather than muzzle loading.

**breech loading.** (BL) A method of loading a weapon in which the ammunition is inserted at the rear of the tube, hence *breech loading gun*, etc.

**breech mechanism.** The assembly at the rear of a gun which receives the round of ammunition, inserts it in the chamber, fires the round by detonating the primer, and extracts the empty case. See also: **automatic breech mechanism.**

**breech operating mechanism.** Mechanism used for opening and closing the breech. May be manual, semiautomatic, or automatic in operation. Cf: **breech mechanism.**

**breech preponderance.** Unbalance of the tipping parts of a weapon when the weight of the 'breech end' exerts a greater moment about the trunnions than does the weight of the 'muzzle end.' Modern weapons usually have a **muzzle preponderance** (which see) because of the trunnions being mounted near the breech end of the tipping parts. Unbalance may be corrected by an **equilibrator.** 2. The amount of the unbalanced moment.

**breech pressure.** In interior ballistics, the pressure from the propellant gases, acting against the inner face of the breechblock. Because of the movement of the projectile toward the muzzle, a pressure gradient develops, so that the breech pressure is somewhat greater than the pressure acting upon the projectile.

**breech recess.** Space at the rear of the *barrel assembly* of a cannon, formed in the interior of the breech ring to receive the breechblock.

**breech reinforce.** That part of a cannon in front of the breech and in the rear of the trunnion band.

**breech ring.** Breechblock housing, screwed or shrunk onto the rear of a cannon, in which the breechblock engages.

**breech tray.** See: **spanning tray.**

**breeder.** *Nuclear.* A reactor that produces the same kind of fuel (e.g., consumes Pu and produces more Pu from $U^{238}$. Cf: **converter, sense 4.**

**Bren machine gun.** A light machine gun, widely used in WW II, developed in Czechoslovakia and designed for infantry use. It was adopted as a standard weapon by Great Britain and other countries.

**brennschluss.** [German, 'combustion termination.'] Termination of combustion in a rocket motor or rocket engine, i.e., when the fuel has been expended or shut off.

**bridged-T network.** *Network topology.* A T-network with a fourth branch connected across the two series arms of the T, between an input terminal and an output terminal.

**bridge waves.** *Mach waves* caused by the interaction of two *shock waves*, resulting in the formation of a third shock wave, which bridges the volume between the two original waves.

**brightness of image.** A term used to denote the amount of light transmitted by an optical system to give definition to the image seen by the observer.

**Brinell hardness.** (BH) A measure of hardness of materials obtained by applying a load, usually 500 kilograms for soft metals, and 3000 kilograms for steels and other hard metals. The Brinell hardness number is obtained by dividing the load (kg) by the surface area (square millimeters) of the impression made in the test material by a very hard steel ball. Diameter of impression may be measured by a magnifying calibrator, and tables are available for converting this diameter directly to hardness number.

**brisance.** The ability of an explosive to shatter the medium which confines it; the shattering effect of the explosive. (Adjective: brisant.)

**BRL** *(abbr).* 1. 'Ballistic Research Laboratories.' 2. 'Bomb-release line.'

**broad beam antenna.** *Radar.* An antenna that sends out a broad search beam.

**bromobenzylcyanide.** (BBC) A tear gas, used for training and riot control.

**Browning automatic rifle.** (BAR) Weapon used by U S ground troops, developed by John M. Browning, American inventor (1855-1926), but since modified.

This rifle, in later models, is so made that its cyclic rate of fire is adjustable.

**Browning machine gun.** (BMG) Any one of certain caliber .30 and caliber .50 machine guns designed by, or modified from designs by, John M. Browning.

**Braceton staircase method.** As applied to Ordnance, a statistical approach to the problem of determining as economically as possible the behavior characteristics of explosive components, the testing of which is destructive. By increasing the initiating factor by a predetermined 'step' each time a failure is experienced, and decreasing by the same step each time a functioning occurs, a large amount of data relative to the zone of 50% functioning is obtained, with relatively low number of observations. These data enable a good approximation of the 50% value and the standard deviation to be made.

**BRUSH, CLEANING, ARTILLERY.** A brush specially designed for cleaning the bore, breech, and the like, of an artillery weapon. It usually embodies a replaceable cylindrical brushing unit with radially disposed bristles. It may be provided with a handle or staff and/or have facilities for attachment thereto.*

**BRUSH, CLEANING, SMALL ARMS.** A brush specially designed for cleaning the bore, chamber, and the like, of a small arms weapon.*

**brush guard.** A protective device, usually constructed of metal rods, placed in front headlights and radiator grilles of military vehicles.

**B-scope.** A radarscope which presents the range of a target by a vertical displacement of the target signal on the face of the scope, and the bearing by a horizontal displacement.

**bstr** *(abbr).* 'Booster.'

**btry** *(abbr).* 'Battery.'

**buffer distance.** *Atomic explosions.* In troop safety considerations, the distance between the limit of radius of safety and the nearest position of friendly troops. It may be expressed in multiples of the **circular probable error** (CEP).

**BUFFER, RECOIL MECHANISM.** A device or mechanism designed to absorb and check the recoil or counterrecoil force of a weapon when it is fired.*

**bug.** *Slang.* Usually *pl.* A defect in a vehicle, piece of equipment, organization, procedure, or the like.

**built-up gun.** Gun (tube) assembled by **shrinkage** method. Consists of two or more concentric cylinders shrunk one over another. Stronger than a simple cylinder of the same dimensions. Cf: **monobloc gun.**

**bulk material.** *Maintenance and supply.* Material issued in bulk for general fabrication of items of material (e.g., sheet metal, pipe, tubing, bar stock, gasket material).

**BULLCLAM DOZER, EARTH MOVING.** A tractor mounting apparatus consisting of a blunt, horizontal, metal blade or pusher which acts as a bulldozer, and an upper jaw which is hydraulically operated and fits over the blade, forming a bucket, for moving and lifting materials, such as earth, aggregate, timbers, poles, and the like.*

**Bulldog.** Navy air-to-surface missile powered by solid fuel. Successor to the **Bullpup.**

**BULLDOZER, EARTH MOVING.** A broad, horizontal, metal, pushing blade with framework and equipment for mounting on and parallel to the front of a motorized vehicle; used for ground clearing and earth moving.*

**BULLDOZER-SHOVEL.** A tractor-mounting piece of equipment consisting of a horizontal metal blade and a digging bucket which are interchangeable, for moving, hoisting, digging, and discharging earth, aggregate, and other materials.*

**bullet.** The projectile fired, or intended to be fired, from a small arm.

**bullet drop.** The vertical drop of a bullet. See: **vertical drop.**

**bullet group.** The bullet holes in a target made by fire from a given small arm from one position, and caused by ballistic variations or inaccurate aim. Usually shortened to 'group.'

**bullet, incendiary.** A bullet having an incendiary charge, used especially against flammable targets.

**bulletproof armor.** (BP armor) Light homogeneous hard armor plate, having a Brinell hardness of 400 to 475, resistant to small caliber armor-piercing bullets. Primarily a British service term.

**bullet pull.** The force required to pull a projectile from its cartridge case. The bullet pull is used as a measure of the uniformity and efficiency of the crimp holding the projectile in the case.

**bullet splash.** Dispersion of finely divided or melted metal produced upon impact of a projectile with armor plate or other hard objects.

In general, bullet splash runs 360° around the impact, even when the impact is a glancing blow. The harder the surface impacted by the projectile, the closer to the surface the splash will fly. In general, splash will travel three right angles before becoming ineffective. However, up until the time the third right angle has been traveled, the splash can cause considerable difficulty. Since it flows like water, it will go around curves, will go up or down due to its high pressure, and has been known to cut cables, tubing, and soft steel plate. Splash is best controlled by baffling.

**Bullpup.** Navy missile developed for air-to-surface use. Employs solid fuel and is intended for attack on small targets. See also: **Bulldog.**

**bull's eye powder.** A double base type of propellant used in certain types of small arms ammunition.

**Bumper.** Name given to an early, experimental two-stage rocket, *specif.*, one consisting of the Wac Corporal rocket mounted on the nose of a V-2-type rocket.

**bunching.** *Electronics.* Any process which introduces an rf convection current component into a velocity-modulated electron stream as a direct result of the variation in electron transit time which the velocity modulation produces.

**bundle.** 1. *Electronics.* A package of CHAFF, COUNTERMEASURES. 2. A package or group of packages dropped by parachute to friendly troops cut off from their normal source of supply.

**bunker.** A fortified structure for the protection of personnel, defended gun position, or a defensive position.

**BUOY, AUTOMATIC TIME DELAY.** A special floating device developed for use by underwater demolition teams for instantaneous and time delay employment in gap and channel marking.*

**burble.** Separation of the **boundary layer** of air about a streamlined body, resulting in divergent velocities and pressures, esp. over the upper surface of an airfoil; burbling.

Burble causes loss of lift and increase of drag.

**Bureau of Mines test.** A test for determination of the impact sensitivity of an explosive. A small sample of the explosive is placed between two hardened steel plates, and a weight is dropped upon the upper plate. The figure representing the lowest height in centimeters at which at least one of ten trials results in explosion is the sensitivity index. The highest drop provided is 100 cm, so sensitivity may be given as 100+, meaning that at 100 cm no explosion resulted. See: **Picatinny test.**

**Bureau of Naval Weapons.** (BuWeps) Branch of the U. S. Navy having responsibilities pertaining to naval weapons. Formed (1959) from former Bureau of Ordnance and Bureau of Aeronautics.

**Burgund guidance.** A **command guidance** used by the Germans in WW II for guiding subsonic ground-to-air missiles. The commands were originated by simultaneous visual tracking of the target and missile, resulting in intersection of the two flight paths. The system used a joystick control (the Knuppel), a radio transmitter (the Kohl), and a radio receiver (the Strassburg), which were components common to all of the radio command systems.

**Burlington Ordnance Plant.** Ordnance Corps ammunition plant, located at Burlington, New Jersey.

**burned velocity.** See: **burnt velocity.**

**burner.** 1. A combustion chamber, or can, in a jet engine. 2. A fuel-injection nozzle in the combustion chamber of a jet engine.

**burner basket.** An **inner liner** of a jet engine.

**burner drag.** Total drag due to the presence of a combustion system; usually includes the drag forces on the igniter, flame holders, combustion chamber walls, etc.

**burning constant.** In interior ballistics, a figure expressing the relative rate of burning of a propellant.

The symbol 'B' is applied to this constant, which has a different value for each type of propellant.

**burning (of propellant).** Each grain of propellant burns in parallel layers in directions perpendicular to all ignited surfaces. The *burning rate* under low pressure, as in the atmosphere, is quite slow but it increases under pressure until, as when confined in a gun, the entire charge is consumed in a small fraction of a second. Most forms of grains will be completely consumed when the least burning thickness (*web*) has been burned through. However, in the multiperforated cylindrical grain, pieces of triangular cross section termed *slivers* remain unburned when the web thickness has been burned through. Usually the slivers are consumed while the projectile is still in the bore, but if the weapon is quite short or if a reduced charge is used, they may be expelled unburned.

**burning rate equation.** In interior ballistics, the equation that gives the rate of regression of the burning surfaces of the propellant grain. The burning rate depends primarily upon the character of the propellant and the pressure surrounding the grain.

**burning rate, proportional, law of.** The assumption, applied to the *burning rate equation*, that the burning rate is directly proportional to the pressure on the propellant gases.

**burning train.** See: **igniter train.**

**burning type chemical grenade.** See: **grenade, chemical, burning type.**

**burnout.** 1. The rupturing of the combustion chamber walls in a jet engine due to overheating. 2. a. The termination of combustion in a rocket engine due to exhaustion of the propellant supply. b. The time at which this occurs; *burnout time.*

**burnout time.** The time at which a rocket motor exhausts its fuel supply. Usually measured from the time of ignition.

**burnout velocity.** The velocity of a rocket, rocket powered aircraft, or rocket powered missile when fuel combustion terminates. Cf: **cutoff velocity.**

**burst velocity.** See: **burnout velocity.**

**burp gun.** Slang term for **submachine gun**, which see.

**burst.** 1. Continuous fire from an automatic weapon, as from an aircraft machine gun, sometimes described as *long* or *short*. 2. The explosion of a projectile, bomb, or similar munition.

**burst center.** See: **center of burst.**

**burster.** An explosive element used in **chemical ammunition** (which see) to open the container and disperse the contents.

**BURSTER, BOMB.** A cylindrical container filled with explosive material designed to spread and/or detonate the filler of a bomb case.*

**BURSTER, PROJECTILE.** A cylindrical container filled with explosive material which upon detonation disseminates the agent in a projectile.*

**burster tube.** See: **tube, burster.**

**bursting charge.** See: **charge, bursting.**

**bursting charge explosive train.** See: **explosive train.**

**bursting layer.** Layer of hard material used in the roofs of dugouts or cave shelters. It sets off projectiles fused for short delay or immediate detonation before they can enter deeply enough to cause great destruction.

**bursting type chemical grenade.** See: **grenade, chemical, bursting type.**

**burst range.** *Gunnery.* Horizontal distance from the piece to the point of burst.

**burst wave.** Wave of compressed air caused by a bursting projectile or bomb; detonation wave. It may cause extensive local damage.

**bus.** 1. See: **BUS, MOTOR.** 2. *Electronic computers.* One or more conductors which are used as a path for transmitting information from any of several sources to any of several destinations.

**bushing.** A replaceable part, cylindrical in shape, hollow, and designed primarily to be inserted in a hole to reduce the effective inside diameter of the hole, and to protect the body structure about the hole from damage resulting from stress, strain, and vibration. Excludes BEARING, SLEEVE; GROMMET (as modified) and REDUCER (as modified).*

**BUS, MOTOR.** A self-propelled wheeled motor vehicle designed for transportation of ten or more passengers on highways and/or roads.*

**butt.** Rear end of the stock of a rifle or other small arm.

**butterfly bomb.** See: **bomb, butterfly.**

**BUTTONS, TOOLMAKERS'.** A set of highly finished cylinders, their ends ground square with the sides and containing drilled holes through their centers. They are used in precision work for locating holes where accuracy is required or from a given point as in drill jigs, die and fixture work.*

**butt plate.** See: **PLATE, BUTT, SHOULDER GUN STOCK.**

**BuWeps** *(abbr).* 'Bureau of Naval Weapons.'

**buzz bomb.** See: **bomb, buzz.**

**BW** *(abbr).* 'Biological warfare.'

**BWG** *(abbr).* 'Birmingham Wire Gage.'

**bypass port.** In a **THRUSTER, CARTRIDGE ACTUATED**, a vent opened at end of stroke to allow flow of gas to another **propellant actuated device.**

# C

**C.** The change in elevation that will cause a change of 100 yards in range.

**C** *(abbr).* 1. 'Centigrade.' 2. In jato unit nomenclature, designates a composite (picrate-nitrate) propellant.

**CAB** *(abbr).* 'Civil Aeronautics Board.'

**cab.** The driver's compartment of a self-propelled vehicle or weapon.

**cable, coaxial.** A transmission line consisting of two conductors concentric with and insulated from each other.

**cable cutter, powder actuated.** See: **CUTTER, POWDER ACTUATED.**

**cable, explosive.** See: **CORD, DETONATING.**

**Cactus Ordnance Works.** Ordnance Corps field installation, located at Dumas, Texas.

**CAD** *(abbr).* 'Cartridge actuated device.' (Often pronounced as a word.)

**caisson.** A two-wheeled vehicle used for carrying ammunition.

**cal** *(abbr).* 'Caliber.'

**CALCULATING MACHINE.** A machine designed to add, subtract and divide automatically. It multiplies automatically or semi-automatically. It may print the figures on a tape, or indicate the figures in a single row of openings (dial) or a multiple row of openings (dials) at top and/or bottom of the machine. It will not print the figures in a given space of a prepared form automatically. It may extract the square root automatically. Excludes ACCOUNTING MACHINE. See also: **ADDING AND SUBTRACTING MACHINE** and **ADDING MACHINE.***

**caliber.** (cal) 1. The diameter of a projectile or the diameter of the bore of a gun or launching tube. In rifled arms, the caliber is measured from the surface of one land to the surface of the land directly opposite. Often the caliber designation is based on a nominal diameter and represents a close approximation rather than an exact measurement. Caliber is usually expressed in millimeters or inches. Examples: A 105-millimeter howitzer and a 6-inch gun have calibers of 105 millimeters and 6 inches, respectively. When expressed as a decimal without an indication of the unit, the unit 'inches' is understood. For example, a caliber .30 cartridge has a bullet which is approximately .30 inches in diameter. 2. The bore diameter (caliber) of a weapon used as a unit for indicating the length of its bore, measured from the breech face of the tube to the muzzle. For example, a 6-inch 50-caliber gun would have a caliber (bore diameter) of 6 inches and a tube length of 50 calibers or 25 feet.

In designating the bore of a shotgun or the size of its cartridge, the **gage** (which see), rather than the caliber, is customarily used.

**calibration.** 1. Determining the corrections for a gun or launcher by firing. Calibration is used to bring the center of impact or burst of a weapon to a predetermined point which makes a definite pattern with the centers of burst or impact of the other weapons of the same battery. 2. Measurement of wear in the bore of a gun in order to correct for the difference of muzzle velocity between it and the other guns of a battery. 3. Determining of the corrections to be made in the readings of instruments used in precise measuring. 4. Intercomparison between two items, one of which is a certified standard of known accuracy, to detect and adjust or report any variation in the accuracy of the item being calibrated.

**calibration correction.** The correction to be applied as a result of **calibration**, which see.

**calibration fire.** Preparatory fire having for its purpose the determination of the separate corrections to be applied to the individual guns or launchers of a battery in order to cause all the weapons to hit the same point, or burst or impacts to assume a desired pattern.

**calibration point.** A point at which **calibration fire** is directed.

**CALIBRATOR, FREQUENCY.** An item which generates a highly accurate signal of one or more fixed frequencies for calibration of frequencies from other sources. Does not include OSCILLATOR (as modified). For devices which are designed as voltage sources, see: **GENERATOR, SIGNAL.** See also: **FREQUENCY METER.***

**CALIBRATOR, OSCILLOSCOPE.** An item by means of which the indications of an OSCILLOSCOPE may be calibrated.*

**call fire.** Fire delivered on a specific target in response to a request from the supported unit.

**call-type contract.** An instrument under which supplies or services are to be furnished by the contractor upon call by the Government.

**calorimetric test.** As applied to interior ballistics, the use of a calorimeter to determine the thermochemical characteristics of propellants and explosives. The properties normally determined are heat of combustion, heat of explosion, heat of formation and heat of reaction.

**cam.** A part mounted on a shaft and used to impart a reciprocating or alternating motion to another part by bearing against it as it rotates.

**camber.** 1. The rise of the curve of an airfoil section, usually expressed as the ratio of the departure of the curve from a straight line joining the extremities of the curve to the length of this straight line. 'Upper camber' refers to the upper surface; 'lower camber' to the lower surface; and 'mean camber' to the mean line of the section. Camber is positive when the departure is upward and negative when it is downward. 2. A setting of the front wheels of a vehicle, closer together at the bottom than at the top.

**Cambridge Research Center.** Air Force center responsible for technical developments concerning geophysics, electronics and related physical sciences, and human engineering. Located at L. G. Hanscom Field, Bedford, Massachusetts.

**camelback, tire repair.** See: **TREAD RUBBER.**

**camera chronograph.** See: **chronograph.**

**camera, Fastax.** A high speed camera, used to photograph projectiles in flight, and similar actions requiring an extremely high speed camera.

**camera obscura system.** System by which the flight of a plane is tracked accurately by means of its image being continuously shown and marked on a large drawing table.

**camera spotting.** Observation of artillery fire using two motion-picture cameras which operate at the same time at opposite ends of a surveyed baseline, and photograph both the target and the burst of the projectile.

**CAMOUFLAGE NET SET, GUIDED MISSILE ARTILLERY LAUNCHING SITE.** A collection of items consisting of camouflage nets, guy ropes, cable assemblies, and the like. Used to conceal from ground and aerial observation the equipment and personnel engaged in the erection operation of the guided missile and disturbance to the immediate terrain resulting from this operation.*

**camouflet.** An underground cavity made by an underground explosion which fails to rupture the surface of the earth; the explosive that makes this cavity.

**CAMSHAFT, ENGINE.** A shaft with eccentric lobe(s) specifically designed to raise at a predetermined time the engine poppet valve(s) from the valve seat(s) of an internal combustion engine. It may include facilities for operating accessories, such as fuel pumps, ignition distributors, oil pumps, and the like.*

**canard.** [F. 'duck'] An airplane or missile having its stabilizer and elevators forward of the wing.

**candle.** In pyrotechnics, that portion of the item which, by its progressive combustion, produces smoke or light over a comparatively long period of time.

**CAN, GASOLINE, MILITARY.** A metal container intended for storage or transportation of liquid fuels and lubricants. It has a common filling and pouring opening and a protective oil interior coating.*

**canister.** (cstr) 1. A special short range antipersonnel projectile designed to be fired from rifled guns. It consists of a casing of light sheet metal, which is loaded with preformed submissiles such as small steel balls. The casing is designed so that the rotation causes it to open at, or just beyond, the muzzle of the gun. The submissiles are then dispersed in a cone, giving effective coverage of the area immediately in front of the gun. See also: cartridge, canister. 2. In certain special type projectiles, the subassembly or inner container in which the payload is contained, such as CANISTER, SMOKE. 3. That part of a gas mask containing a filter for the removal of poisonous gases from the air being inhaled.

**CANISTER, SMOKE.** A chemical fill encased in ogival or cylindrical containers for loading into projectiles of chemical shells. When ignited a colored or white smoke is produced.*

**cannelure.** 1. A groove in a bullet for containing a lubricant, or into which the cartridge case is crimped; a groove in a cartridge case providing a purchase for the extractor; extractor groove. 2. Ringlike groove for locking the jacket of an armor-piercing bullet to the core. 3. Ringlike groove in the rotating band of a gun projectile to lessen the resistance offered to the gun rifling and to prevent fringing; fringing groove. 4. Ringlike groove cut into the outside surface of a watercooled machine gun barrel into which packing is placed to prevent the escape of water from the breech end of the water jacket; **cannelure cut.** See also: **crimping groove; extractor groove; fringing groove.**

**cannibalize.** To remove serviceable parts from one item of equipment in order to install them on another item of equipment.

**cannon.** A complete assembly, consisting of a tube and a breech mechanism, firing mechanism or base cap, which is a component of a **gun; howitzer;** or **mortar.** It may include muzzle appendages.* The term is generally limited to calibers greater than one inch. Several calibers and types of cannon are listed in subentries hereunder, with item name in each case.

**CANNON, 8 INCH GUN.**
**CANNON, 8 INCH HOWITZER.**
**CANNON, 37 MILLIMETER AUTOMATIC GUN.**
**CANNON, 75 MILLIMETER PACK HOWITZER.**
**CANNON, 81 MILLIMETER MORTAR.**
**CANNON, 240 MILLIMETER HOWITZER.**
**CANNON, 280 MILLIMETER GUN.**

**cannon, aircraft.** See: **aircraft cannon.**

**cannoneer.** Member of an artillery gun or howitzer crew whose primary duty is servicing the piece.

**cannon primer.** See: **primer, cannon.**

**cannon salute.** Firing cannon a prescribed number of times to honor a person, vessel, or flag, or to celebrate a special event. Blank ammunition is used for this purpose.

**canopy.** 1. *Parachute.* The umbrella-like part of a PARACHUTE (as modified) which acts as its main supporting surface. It is usually constructed of fabric and has a framework of suspension lines to suspend the load being carried. 2. An umbrella-like structure that provides a ceiling for simulation of outdoor conditions in the manner that outdoor conditions are simulated in planetaria. 3. *Aircraft.* The overhead transparent inclosure of an aircraft cockpit. Excludes observation domes.*

**canopy remover.** See: **REMOVER, AIRCRAFT CANOPY.**

**cant.** 1. Leaning or tilting to one side of any object; especially, the sidewise tilting of a gun. 2. To lean or tilt to the side.

**CAN, UTILITY.** An item designed for storage or transportation of various liquids, so constructed as to have separate filling and pouring openings.*

**cap.** *Mechanical.* A protecting and/or closing part, basically circular, designed with an integral means of securing itself and must partially inclose some protruding, external portion of the item to which it is attached. Excludes cover.*

**capacitor.** *Electrical & Electronic.* An item consisting of two or more electrodes, separated by a dielectric, whose primary purpose is to store electrical energy when connected to a source of potential. (Use type modifier, such as fixed).*

**CAPACITOR-RESISTOR.** An item consisting of one or more capacitors and one or more resistors molded together, housed together in a common case, or mounted on a common board. The individual capacitors and resistors are not separable and the overall item usually has various design applications, hence, cannot be considered a subassembly. Do not use if more applicable item names, such as FILTER (as modified), or NETWORK (as modified), exist.*

**capacity.** *Electronic computers.* The upper and lower limits of the numbers which may be processed in a computer register, e.g., in the accumulator, e.g., the capacity of a computer may be ten decimal digits or the capacity of a computer may be +.00000 00001 to +.99999 99999. Quantities which exceed the capacity usually interrupt the operation of the computer in some fashion; the quantity of information which may be stored in a storage unit.

**CAP, ANTIPERSONNEL MINE.** A metal item designed to close the opening of the tube which holds the projectile and spotting charge in an antipersonnel practice mine.*

**cap, armor-piercing.** A cap fitted over the nose of an armor-piercing projectile and fastened thereto. The cap is usually of forged alloy steel, decrementally hardened so as to have a very hard face and a tough and relatively soft core in contact with the ogival surface of the point of the projectile. Its function is to improve the penetrative quality of the projectile when used against face hardened armor. The use of the cap also decreases the **biting angle** (which see).

**cap, ballistic.** See: **ogive, false.**

**CAP, BLASTING.** A small tube, usually copper or aluminum, closed at one end and loaded with a charge or charges of high explosives, at least one of which is capable of detonating from the spit or sparks from the safety fuse. Electric blasting caps are blasting caps provided with a means for firing by an electric current.*

**cap, buffer.** A light cap of ductile metal, placed over, and in contact with, an armor-piercing cap in some designs of armor-piercing ammunition. The buffer cap is useful in preventing skirting (decapping) armor from prematurely removing the armor-piercing cap. See also: **cap, armor-piercing.**

**CAP, IGNITION DISTRIBUTION.** A cap, generally of phenolic composition, designed to facilitate the connection of the high tension coil and spark plug leads to the distributor or magneto of an internal combustion engine.*

**CAP, NOSE, TORPEDO.** An item designed to decrease wind resistance when a torpedo is mounted externally on an aircraft.*

**CAP, PILLOW BLOCK.** An item designed to be affixed to a base, forming a housing for a removable bearing or the bearing may be an integral part of the housing. It is used to prevent the admission of dirt and/or foreign matter, retain the lubricant and to position a shaft or the like.*

**cap-square.** That part of a gun or mortar carriage which fits over the trunnion and holds the trunnion in the trunnion-bed.

**CAPSTAN.** A mechanical device containing a revolving head or spool, vertically mounted, around which one or more turns of rope must be taken for exerting pulling power. The capstan may contain an auxiliary head or spool.*

**capture.** 1. *Missiles.* The process in which a missile is taken under control by the guidance system. 2. *Nuclear.* A process in which an atomic nucleus acquires an additional particle.

**cap, waterproof protective.** See: **cover, fuse.**

**car.** An administrative wheeled vehicle propelled by a self-contained power unit and designed primarily for the transportation of less than twelve persons.

**CAR, ARMORED.** A wheeled motor vehicle with protective armor plate designed for combat use and usually equipped with armament. See also: **TRUCK, ARMORED.***

**carbine.** (cbn) A **rifle** (which see) of short length and light weight. It was formerly used chiefly by cavalry and mounted infantry, but in recent years has been used extensively by service troops and others. For information on present service carbine see: **CARBINE, CALIBER .30.**

**CARBINE, CALIBER .30.** A small arms weapon with a comparatively short barrel, **magazine-fed, gas** operated, self-loading, automatic or **semiautomatic,** which is usually fired from the shoulder.* See also: **carbine; rifle.**

**carbon fin.** A **jet vane** (which see) made of carbon and placed directly in the jet stream of a rocket.

**carburetor.** A mechanical device for atomizing and mixing a liquid fuel with air in correct proportions for combustion.*

**CARBURETOR, FLOAT.** A carburetor utilizing one or more floats to maintain a constant liquid level.*

**Cardan-mounted.** Mounted on gimbals.

**cargo carrier.** See: **CARRIER, CARGO.**

**cargo classification.** *Combat loading.* The division of military cargo into categories for combat loading aboard ships. They are as follows:

*chemical ammunition.* Cargo such as white phosphorus smoke.

*general.* Cargo which is susceptible to loading in any place, such as boxes, bales, barrels, crates, packages, bundles, and pallets.

*heavy lift.* 1. Any single cargo lift weighing over 5 long tons and to be handled aboard ship. 2. In Marine Corps usage, individual units of cargo which exceed 800 pounds in weight or 100 cubic feet in volume.

*high explosive.* Cargo such as artillery ammunition, bombs, depth charges, demolition material, rockets, and missiles.

*inflammable.* Cargo such as drummed gasoline and oils.

*perishable.* Cargo requiring refrigeration, such as meat, fruit, and fresh vegetables, and medical department biologicals.

*special.* Cargo which requires special handling or protection, such as pyrotechnics, detonators, watches, and precision instruments.

*troop space.* Cargo such as sea or barracks bags, bedding, rolls or hammocks, locker trunks, and office equipment, which is normally stowed in an accessible place. This cargo will also include normal hand-carried combat equipment and weapons to be carried ashore by the assault troops.

*vehicle*. Wheeled or tracked equipment, including weapons, which require certain deck space, head room, and other definite clearance.

**CARGO RELEASE, CARTRIDGE ACTUATED.** A mechanical device with a self-contained, electrically-initiated cartridge to release cargo from aircraft, by means of an explosive force exerted inward on two pins, and thereby releasing them from their supports.* See: **propellant actuated device.**

**cargo tractor.** See: **tractor, cargo.**

**carpet-bomb.** To bomb an area using **carpet-bombing** techniques; to engage in carpet-bombing.

**carpet-bombing.** The laying down of bombs in a creeping pattern to cover the area as with a carpet. See also: **bomb carpet.**

**carriage.** Mobile or fixed support for a cannon. It sometimes includes the elevating and traversing mechanisms. May be called a gun carriage, howitzer carriage, or mortar carriage. Also pertains to a support such as an armored vehicle, e.g., gun motor carriage, howitzer motor carriage. See: **mount.**

**carrier.** 1. *Vehicular.* A self-propelled, tracked or half tracked vehicle, designed to transport personnel, cargo, weapons, and the like, over difficult terrain and/or water, snow, sand, and swamp. For wheeled vehicles, see: **TRUCK** (as modified).* 2. Harness bag or device for carrying small loads, such as ammunition or gas masks. 3. Part of the mechanism of some automatic guns that helps to set the projectile in its proper firing position. 4. In analysis of a weapons system, that component that brings the weapon or warhead to the target. See: **vehicle, sense 3; weapon system.** 5. As applied to projectile designs, a sheathing which holds the projectile together at the time of firing, but which does not enter materially into the terminal action. Thus the canister casing (see: **canister, sense 1**), or the sabot of HVAP shot (see: **hypervelocity armor-piercing**).

**CARRIER, CARGO.** An unarmored carrier, usually having a watertight hull, primarily designed to transport a small number of personnel or cargo. See also: **CARRIER, CARGO, AMPHIBIOUS; CARRIER, PERSONNEL, FULL TRACKED; LANDING VEHICLE, TRACKED.***

**CARRIER, CARGO, AMPHIBIOUS.** A track propelled carrier, designed to carry a small number of troops or cargo across calm waters, principally rivers and swamps. May also be used as a prime mover. See also: **CARRIER, CARGO.** Excludes LANDING VEHICLE, TRACKED.*

**CARRIER, GRENADE.** A container of flexible material specifically designed to carry hand grenades. It is designed to be attached to a belt.*

**CARRIER, GUIDED MISSILE EQUIPMENT.** A carrier which is specifically designed to transport guided missile equipment such as nose cones, power packages, and the like. It may incorporate a GENERATOR (as modified). It has mounting provisions to accommodate the installation of a fire direction hut; a communication hut and an erector-launcher.*

**carrier, light weapons, infantry.** See: **TRUCK, PLATFORM, UTILITY.**

**carrier, personnel.** Motor vehicle, sometimes armored, used for the transportation of troops and their equipment.

**CARRIER, PERSONNEL, FULL TRACKED.** An armored combat carrier which may or may not have armament.*

**CARRIER, PERSONNEL, HALF TRACKED.** An armored combination wheeled and tracklaying carrier which may or may not have armament. Excludes all half tracked vehicles mounting major guns, howitzers, mortars, multiple guns, and combination guns.*

**carrot.** Popular term for **slug** (which see) formed by the liner as a result of detonation of shaped charge ammunition.

**carry.** *Electronic computers.* 1. A signal, or expression, produced as a result of an arithmetic operation on one digit place of two or more numbers expressed in positional notation and transferred to the next higher place for processing there. 2. Usually a signal or expressed as defined in sense 1, which arises in adding, when the sum of two digits in the same digit place equals or exceeds the base of the number system in use. If a carry into a digit place will result in a carry out of the same digit place, and if the normal adding circuit is bypassed when generating this new carry, it is called a *high-speed carry*, or *standing-on-nines carry*. If the normal adding circuit is used in such a case, the carry is called a *cascaded carry*. If a carry resulting from the addition of carries is not allowed to propagate (e.g., when forming the partial product in one step of a multiplication process), the process is called a *partial carry*. If it is allowed to propagate, the process is called a *complete carry*. If a carry generated in the most significant digit place is sent directly to the least significant place (e.g., when adding two negative numbers using nine complements) that carry is called an *end-around carry*. 3. In direct subtraction, a signal or expression as defined in sense 1 which arises when the difference between the digits is less than zero. Such a carry is frequently called a *borrow*. 4. The action of forwarding a carry. 5. The command directing a carry to be forwarded.

**carryall truck.** See: **TRUCK, CARRYALL.**

**cart.** A hand propelled vehicle with two load bearing wheels for transporting small loads. It may have legs or small wheels or rollers for support when standing alone. Excludes TRUCK, HAND (as modified).*

**cart, gasoline engine starter.** A lightweight easily handled cart for carrying a STARTER, ENGINE, GASOLINE.

**CART, MORTAR AND AMMUNITION.** A hand propelled vehicle with two load bearing wheels and attachments for transporting a disassembled mortar and the equipment, ammunition and/or supplies for the mortar. It may have facilities for towing by another vehicle. Excludes CART, PROJECTILE.*

**CART, PROJECTILE.** A manually propelled two-wheeled vehicle used for transporting projectiles to a cannon. Excludes CART, MORTAR AND AMMUNITION.*

**cartridge.** (ctg) 1. An assemblage of the components required to function a weapon once; i.e., ammunition

for a gun which contains in a unit assembly all of the components required to function a gun once, and which is loaded into the gun in one operation. (The term was formerly restricted to ammunition for small arms, such as caliber .22 and caliber .30 rifles, with various terms applied to artillery weapon assemblages, such as complete round and fixed shell. However, the term 'cartridge,' with suitable modifiers, is now applied to all ammunition meeting the conditions stated.) 2. See: **CARTRIDGE, ACTUATING DEVICE.** See also: **propellant actuated device.**

**cartridge actuated device.** (CAD) See: **propellant actuated device.**

**CARTRIDGE, ACTUATING DEVICE.** An item consisting of a quantity of explosive and/or inflammable material inclosed in a container, designed to be inserted into or attached to one or more devices (such as actuators and release mechanisms) to provide the energy required to operate the device(s). It may include electrical contacts or other means for activating the explosive or inflammable material.* See: **propellant actuated device.**

**CARTRIDGE, AIRCRAFT CANOPY REMOVER.** An explosive item designed to actuate an aircraft canopy remover.*

**CARTRIDGE, AIRCRAFT EJECTION SEAT CATAPULT.** An explosive item designed to actuate a CATAPULT, AIRCRAFT EJECTION SEAT.

**CARTRIDGE, AIRCRAFT FIRE EXTINGUISHER.** An item consisting of an electric squib(s), a small caliber projectile, and a mounting device. The item is designed for insertion into a liquid fire extinguisher to provide a means for activation of the extinguisher by remote control.*

**cartridge, armor-piercing.** A cartridge in which the projectile is armor-piercing. See: **cartridge; armor-piercing.**

**CARTRIDGE ASSORTMENT, GRENADE.** A group of various sizes of CARTRIDGE, GRENADE.*

**cartridge bag.** See: **bag, propellant.**

**cartridge, ball.** A cartridge in which the projectile is of the ball type. See also: **ball; ball ammunition; cartridge (sense 1).**

**cartridge, beacon catapult.** See: **CARTRIDGE, RADIO BEACON SET CATAPULT.**

**cartridge belt.** See: **belt, cartridge.**

**cartridge, blank.** A **cartridge** (sense 1, which see), consisting of cartridge case, primer, and propellant or black powder, but no projectile. Blank ammunition is used in training, in signaling, and in firing salutes.

**CARTRIDGE, BOMB EJECTION.** An explosive item used to eject a bomb(s) from a bomb cluster or bomb station.*

**CARTRIDGE, BUTTERFLY VALVE.** A cartridge used to close the butterfly valve on a runaway shot preventer system of a steam catapult.

**CARTRIDGE, CALIBER .22.** A rimfire cartridge designed to function in caliber .22 weapons. See also: **cartridge (sense 1); rimfire.**

**CARTRIDGE, CALIBER .22 HORNET.** A center-fire cartridge suitable for use in Hornet type rifles, specifically the caliber .22 Hornet Rifle M4 and caliber .22/.410-gage Rifle-Shotgun M6. See: **cartridge** (sense 1).

**CARTRIDGE, CALIBER .30.** A **cartridge** (which see) designed to function in caliber .30 rifles and machine guns. (Names of cartridges for other small arms are formed in a similar manner where the caliber of the weapon is similarly designated, i.e., as a decimal fraction of an inch.)

**CARTRIDGE, CALIBER .30 BLANK.** A **cartridge, blank** (which see) designed for use with caliber .30 rifles and machine guns.

**CARTRIDGE, CALIBER .30 CARBINE.** Cartridge (which see) designed to function in caliber .30 carbines.

**CARTRIDGE, CALIBER .32 LINE THROWING.** A special blank cartridge designed for use in the LINE THROWING DEVICE: caliber .32, deck mounted (Lyle), in conjunction with special projectile and line canister. By its use the line can be projected from one point to another, such as from ship to shore, to establish a connection between the points.

**CARTRIDGE, CALIBER .38 SPECIAL.** Cartridge (which see) designed to function in a variety of Colt and S & W caliber .38 special revolvers. Cartridges of this type are identifiable by being longer than other caliber .38 cartridges. The special ball cartridge is 1.53 inches overall and the cartridge case is 1.16 inches long.

**CARTRIDGE, CALIBER .45 LINE THROWING.** A special blank cartridge designed for use in caliber .45 Line Throwing Device, in conjunction with special projectile and line canister. By its use the line can be projected from one point to another, such as from ship to shore, to establish a connection between the points. See also: **PROJECTILE, LINE THROWING GUN.**

**CARTRIDGE, CALIBER .45 SHOT.** A cartridge, caliber .45, loaded with small shot, duplicating the shot used in shotgun cartridges. See also: **cartridge; shot** (sense 2).

**cartridge, canister.** A cartridge assembled with a projectile consisting of a light metal case filled with steel balls, steel fragments, or steel slugs. When fired the projectile breaks upon leaving the muzzle of the weapon and the contents scatter in the manner of a shotgun cartridge. See also: **canister** (sense 1).

**cartridge case.** See: **CASE, CARTRIDGE.**

**CARTRIDGE, CATALYST, TORPEDO.** An item designed to decompose hydrogen peroxide into the form of oxygen and water by means of catalytic action to provide a portion of the means of propelling a torpedo.*

**cartridge, catapult.** See: **CARTRIDGE, AIRCRAFT EJECTION SEAT CATAPULT.**

**cartridge clip.** See: **CLIP, CARTRIDGE.**

**cartridge clip holder.** See: **BANDOLEER.**

**cartridge cloth.** See: **cloth, cartridge.**

**cartridge, cutter.** See: **CARTRIDGE, POWDER ACTUATED CUTTER.**

**CARTRIDGE, DELAY.** A pyrotechnic item which provides a predetermined time delay to actuate a release mechanism.

**CARTRIDGE, DEPTH CHARGE PROJECTOR.** An explosive item used to project a depth charge from a depth charge projector.*

**CARTRIDGE, DISCONNECTOR.** A cartridge used to generate gas pressure required to actuate a DISCONNECTOR, CARTRIDGE ACTUATED.*

**cartridge, drill.** An inert cartridge of the same weight, center of gravity and contour as the service assembled round of fixed or semifixed ammunition, designed or adapted for drill purposes.

**cartridge, dummy.** A cartridge, entirely inert, used for training purposes in the operations of loading and unloading, and in the inspection of the weapon for which intended.

**cartridge, ejector.** See: **CARTRIDGE, PILOT CHUTE EJECTOR.**

**cartridge, electric.** A cartridge containing an electric primer and therefore designed to be initiated by an electric current. See: **cartridge; PRIMER, ELECTRIC.**

**CARTRIDGE, ENGINE STARTER.** An explosive item, designed to furnish energy required to start an airplane engine.

**cartridge engine starter.** See: **STARTER, ENGINE, GAS TURBINE.**

**CARTRIDGE, EXPLOSIVE BOLT.** An item consisting of a quantity of high explosive packed in a cylindrical case which is designed to be placed inside of an explosive bolt and when ignited furnishes the shock which causes the bolt to separate. It may or may not include the igniter.*

**cartridge, full.** A cartridge (which see) containing a propelling charge intended to produce full service velocity. The term 'full cartridge' is sometimes used as an identifying designation when more than one type of propelling charge is available for a weapon.

**CARTRIDGE, 10 GAGE BLANK.** A cartridge, blank (which see) loaded in a 10-gage shotgun cartridge case, for use with appropriate adapters as blank ammunition.

**CARTRIDGE, 12 GAGE SHOTGUN.** A cartridge, shotgun (which see) designed for use in 12-gage shotguns. (Names of cartridges for other gages of shotguns are formed in a similar manner.)

**CARTRIDGE, GRENADE.** An explosive item used to propel a grenade from a launcher attached to a rifle or carbine. It differs from a standard type cartridge in that it has no projectile and the mouth of the cartridge case is closed by crimping.*

**cartridge, grenade, auxiliary.** Small auxiliary cartridge designed to increase the velocity and range of rifle grenades when fired from the rifle or carbine. It is used in addition to the CARTRIDGE, GRENADE.

**cartridge, grenade, carbine.** A CARTRIDGE, GRENADE designed to propel a grenade from a launcher attached to a carbine.

**cartridge, grenade, rifle.** A CARTRIDGE, GRENADE designed to propel a grenade from a launcher attached to a rifle.

**cartridge headspace.** See: **headspace.**

**CARTRIDGE, IGNITER, TURBOJET ENGINE.** A pyrotechnic item, designed to furnish the flame required to initiate the functioning of a turbojet engine.

**CARTRIDGE, IGNITION.** An explosive cartridge forming part of the propellant system for mortars. It serves as the inner zone charge and also provides the flame necessary for igniting additional increment charges.

**CARTRIDGE, IMPULSE, 5 INCH CATAPULT.** An explosive cartridge containing a charge of propellant powder designed to function an airplane launching catapult with 5-inch diameter piston.

**CARTRIDGE, IMPULSE, 6 INCH CATAPULT.** An explosive cartridge containing a charge of propellant powder designed to function an airplane launching catapult with 6-inch diameter piston.

**cartridge, incendiary.** Cartridge, usually of small arms ammunition, containing a projectile designed to produce an incendiary effect at the target. See also: **bullet, incendiary.**

**CARTRIDGE, 3 INCH 50 CALIBER.** A cartridge (which see) suitable for use in 3-inch 50-caliber weapons. (Names of cartridges for other Naval weapons are formed in a similar manner where the caliber of the weapon is similarly designated.)

**CARTRIDGE, 4.2 INCH.** A cartridge (which see) for use in 4.2-inch weapons.

**CARTRIDGE, INITIATOR.** An explosive item designed to activate an INITIATOR, CARTRIDGE ACTUATED.*

**CARTRIDGE KIT, 75 MILLIMETER DUMMY.** A group of items including dummy cartridges, inert fuzes, and replacement parts provided for simulating the handling of service ammunition during training of gun crews.*

**cartridge, leaflet.** Cartridge containing a projectile, leaflet (which see).

**cartridge, line throwing.** See: **CARTRIDGE, CALIBER .32 LINE THROWING; CARTRIDGE, CALIBER .45 LINE THROWING.**

**cartridge link.** See: **LINK, CARTRIDGE.**

**cartridge magazine.** See: **MAGAZINE, CARTRIDGE.**

**CARTRIDGE, 7.62 MILLIMETER.** Cartridge (which see) designed to function in 7.62-millimeter lightweight rifles and lightweight machine guns of NATO (North Atlantic Treaty Organization) type. (Although .30-inch and 7.62-millimeter are equal, ammunition items carrying designations caliber .30 and 7.62-millimeter, respectively, are not interchangeable.)

**CARTRIDGE, 9 MILLIMETER.** Cartridge (which see) designed to function in a variety of 9-millimeter submachine guns and automatic pistols of foreign manufacture. The caliber .45 submachine gun, M3, can be converted to use 9-millimeter ammunition by use of a conversion bolt and barrel. The term 'Parabellum' forming part of the item name is a part of the name of one of the pistols of Italian manufacture.

**CARTRIDGE, 20 MILLIMETER.** Cartridge (which see) designed for use in 20-millimeter weapons. (Names of cartridges for other weapons are formed in a similar manner where the caliber of the weapon is similarly designated, i.e., in millimeters.)

**CARTRIDGE, 20 MILLIMETER, FIRING CIRCUIT TEST.** A cartridge, comprising a cartridge case and electric primer, used for testing the electrical firing circuit of 20-millimeter aircraft guns.

**CARTRIDGE, PHOTOFLASH.** An explosive assembly for use in making aerial photographs from low altitudes, during reconnaissance missions. Consists of a photoflash charge and delay fuze assembled in a case which, in turn, is assembled in an electrically primed cartridge case together with a small propelling charge.

**CARTRIDGE, PHOTOFLASH, PRACTICE.** An assembly for use for practice or training purposes, to enable simulation of release and firing of photoflash cartridges. See also: **CARTRIDGE, PHOTOFLASH.**

**CARTRIDGE, PILOT CHUTE EJECTOR.** A cartridge designed to generate a gas pressure required to actuate an EJECTOR, PILOT CHUTE, CARTRIDGE ACTUATED.

**CARTRIDGE, 6 POUNDER.** A cartridge (which see), designed for use in 6-pounder weapons. (Corresponds to a caliber of 2.24 inches or 57 millimeters.) (Names of cartridges for 1-pounder and 3-pounder weapons are formed in a similar manner.)

**CARTRIDGE, POWDER ACTUATED CUTTER.** A cartridge designed to ignite the propellant of a CUTTER, POWDER ACTUATED.

**CARTRIDGE, POWDER ACTUATED TOOL.** A cylindrical, metallic case containing a charge of smokeless powder. Designed to be fired in a DRIVER, PROJECTILE UNIT, POWDER ACTUATED.*

**CARTRIDGE, QUICK RELEASE, PERSONNEL PARACHUTE HARNESS.** An explosive item designed to actuate a QUICK RELEASE, PERSONNEL PARACHUTE HARNESS.*

**CARTRIDGE, RADIO BEACON SET CATAPULT.** A cartridge designed to ignite the propellant of a CATAPULT, RADIO BEACON SET.

**cartridge, release.** See: **CARGO RELEASE, CARTRIDGE ACTUATED.**

**CARTRIDGE, RELEASE, AIRCRAFT SAFETY LAP BELT.** An explosive item designed to release a BELT, AIRCRAFT SAFETY LAP.*

**CARTRIDGE, RELEASE, CARGO PARACHUTE.** A cartridge designed to actuate the release mechanism of a PARACHUTE, CARGO.

**CARTRIDGE, RELEASE, PERSONNEL PARACHUTE, BACK.** An explosive item designed to actuate the release mechanism of a PARACHUTE, PERSONNEL, BACK.*

**CARTRIDGE SET, 4.2 INCH INERT.** A set of inert chemical projectiles for 4.2-inch guns, for use for instructional purposes. .

**cartridge, short.** (sht ctg) A blank charge in a cartridge case; used to expel a projectile from a gun tube for the purpose of clearing the tube.

**cartridge, shotgun.** A container or capsule, usually of stiff paper with a brass base, containing primer, powder, wadding, and shot for use in a shotgun. For military use the container is sometimes of 'all aluminum' or 'all brass.' Listed separately according to gage, i.e., CARTRIDGE, 12 GAGE SHOTGUN, etc. See also: **cartridge** (sense 1).

**CARTRIDGE, SIGNAL, PRACTICE BOMB.** An explosive item inserted in the nose of a practice bomb. It is detonated upon impact and produces a puff of white smoke.*

**cartridge, spotting.** Cartridge specifically designed to facilitate adjusting fire of a gun, launcher, or the like.

**cartridge, subcaliber.** See: **subcaliber ammunition.**

**cartridge, test, high pressure.** Cartridge for testing weapons. It is designed to produce a higher pressure than that obtained with a standard round. This may be accomplished by any of the following methods or combinations thereof: (1) Increasing the charge weight of standard propellant. (2) Utilizing a propellant of greater quickness. (3) Increasing the projectile weight. Usually the term applies to a round which, when fired at normal temperature, produces a peak chamber pressure equal to that produced by a standard round stabilized at +160°F.

**cartridge, test, low pressure.** Cartridge for testing weapons. It is designed to produce a lower pressure than that obtained with a standard round. This generally is accomplished by reducing the charge weight of standard propellant. Usually the term applies to a round which, when fired at normal temperature, produces a peak chamber pressure equal to that produced by a standard round stabilized at −70°F.

**CARTRIDGE, THRUSTER.** An explosive item designed to actuate a THRUSTER, CARTRIDGE ACTUATED.*

**CARTRIDGE, TORPEDO, IMPULSE.** A propelling charge, for use in launching a torpedo.

**cartridge, tracer.** A cartridge in which the projectile is equipped with tracer. See: **cartridge; tracer.**

**CARTRIDGE-VIAL, LIFE RAFT.** An item consisting of an explosive cartridge assembled to a vial of compressed carbon dioxide. It is designed so that immersion of the cartridge in sea-water initiates an electric current which activates an electric squib thereby releasing the carbon dioxide and providing a means for life raft inflation.*

**CARTRIDGE, Y GUN.** A cartridge case, containing a charge of propellant powder, designed for use in a projector for depth charges, called a 'Y gun.'

**cascaded carry.** See: **carry.**

**case.** An item designed to hold a specific item(s) in a fixed position by virtue of conforming dimensions and/or attachments. The item(s) which it contains is complete in itself for removal and use outside the container However, the container may be constructed so as to permit the use of the item(s) without removal. It does not include the item(s). It may have such carrying facilities as handle(s), hand strap(s), shoulder strap(s), belt attachment(s), or the like. Excludes shipping containers designed to be discarded after shipment of equipment. For reusable items which are specifically designed for shipping and storing, see: **shipping and storage container.** See also: **chest; BOX** (as modified). Use application modifier.* Example: CASE, BINOCULAR.

**case ammunition.** Ammunition in which the propellant is contained in a cartridge case.

**CASE, CARTRIDGE.** An item designed to hold an ammunition primer and propellant, and to which a projectile may be affixed. Its profile and size conform to that of the chamber of the weapon in which the round is fired except for recoilless rifles. For a

loaded cartridge case, see: **CARTRIDGE** (as modified).*

**case, cartridge, combustible.** A cartridge case intended to be consumed along with the propellant when fired.

**CASE, DEPTH CHARGE.** A fabricated part of a depth charge designed to hold an explosive charge and mechanisms required to fire this charge. When empty or inert loaded, it may be used for training purposes.*

**case ejection.** See: **ejection.**

**case ejection chute.** A chute or passage through which empty cases are ejected after being fired in a machine gun. See: **CHUTE, EJECTION.**

**case extraction.** See: **extraction.**

**case harden.** (CH) To harden iron or steel by carbonizing the surface, thereby forming a very hard shell, or case, to resist wear and abrasion, and leaving a tough backing, or core, to enable the case to withstand shock. Also called 'face-harden,' particularly when applied to armor plate.

**casemate.** A bombproof structure used as a powder magazine, gun emplacement, or the like.

**Case I pointing** (or **firing**). Direct pointing, laying, or fire; gun pointing, in which direction and elevation are set with sight or telescope pointed at the target.

**Case II pointing** (or **firing**). Combined direct and indirect pointing, laying, or fire; gun pointing, in which direction is set with a sight or telescope pointed at the target; the elevation is set with an elevation quadrant, range quadrant, or range disk.

**Case III pointing** (or **firing**). Indirect pointing, laying, or fire; gun pointing, in which direction is set with an azimuth circle or with a sight or telescope pointed at an aiming point other than the target; the elevation is set with an elevation quadrant, range quadrant, or range disk.

**CASE, UNDERWATER MINE.** The fabricated outer part of a MINE, UNDERWATER designed to hold an explosive charge and mechanisms required to fire this charge. When empty or inert loaded it may be used for training purposes.*

**CASE, UNDERWATER MINE, PRACTICE.** The fabricated outer part of a MINE, UNDERWATER, PRACTICE.*

**CASING, BALLISTIC FILLER ASSEMBLY, BODY ARMOR.** A component part of ARMOR, BODY, FRAGMENTATION PROTECTIVE. It is made of two or more pieces of vinyl film or other suitable material, cut in accordance with applicable patterns and having heat sealed seams. It is designed to permanently encase laminated nylon ballistic cloth filler, which is used specifically in the assembly and fabrication of the finished item.*

**casing, bomb.** Principal container, usually metal, for the main charge of a bomb.

**cast armor.** See: **armor.**

**caster.** 1. A wheel(s) or the like mounted either in a swivel or a rigid frame, having a stem, socket, angle plate or bolt plate mounting. It is designed for supporting and making equipment portable.* 2. The amount in degrees that the steering knuckle pivots are tilted forward or backward from a true vertical.

**cast loading.** See: **melt loading.**

**casualty agent.** A toxic or lethal chemical agent that can be used effectively in the field.

**casualty criteria.** Standards by means of which the ability of ammunition items or fragments therefrom to inflict disabling wounds on personnel may be classified. Three degrees of incapacitating wounds are recognized, as follows: Type A—that which will result in incapacitation within 5 minutes; Type B—that which will result in eventual incapacitation, without the limit of time; Type K—that which will result in incapacitation within 5 seconds.

**casualty gas.** War gas capable of producing serious injury or death in effective concentrations. See: **war gas.**

**catapult.** 1. A device for pushing an airplane, rocket missile, or the like into the air from a ramp, rack, or track, usually at a high initial speed. 2. A device for ejecting a person from an airplane. Cf: **launcher.** 3. To propel an airplane, rocket missile, or the like from a catapult. Cf: **launch.** 4. To eject a *person* from an airplane by means of a catapult. Usually reflexive or passive.

**CATAPULT, AIRCRAFT EJECTION SEAT.** An item designed to propel an ejection seat with personnel from an aircraft.* See: **propellant actuated device.**

**CATAPULT, RADIO BEACON SET.** A device designed to propel a radio beacon set from an aircraft.*

**caterpillar band.** Endless belt placed on the wheels of a gun carriage for travel over soft or rough ground.

**cathode ray.** The stream of electrons emitted from a cathode.

**cathode-ray indicator.** A cathode-ray tube with a calibrated screen to indicate position.

**cathode-ray oscilloscope.** An **OSCILLOSCOPE** (which see) incorporating a cathode-ray tube, used esp. as the indicator in a radar set to portray the echoes on its screen.

**cathode-ray screen.** The luminescent screen of a cathode-ray oscilloscope or tube, which receives the cathode-ray beam.

**cathode-ray tube.** See: **ELECTRON TUBE.**

**cavitation.** Existence of a cavity (which see) or cavities in an explosive charge or liquid propellants.

**cavity.** Air space or void in explosive charge of a munition. May cause a premature explosion of a projectile in the gun because of collapse of the charge under the force of acceleration under certain conditions of size and location. May also degrade the terminal ballistics.

**cavity charge.** See: **charge, shaped.**

**CBR** *(abbr).* 'Chemical, biological, and radiological.'

**CC** *(abbr).* 'Chemical Corps.'

**cc** *(abbr).* 'Cubic centimeter(s).'

**CCM** *(abbr).* 'Counter countermeasure.'

**CD** *(abbr).* 'Cold-drawn.'

**Cdr** *(abbr).* 'Commander.'

**C damage.** See: **damage categories.**

**CE.** Tetryl or 2,4,6-trinitrophenylmethylnitramine. (British term.)

**ceiling, absolute.** The maximum height above sea level at which a given air vehicle would be able to maintain horizontal flight under standard air conditions.

**celestial guidance.** The guidance of a missile or vehicle by reference to celestial bodies.

**CELL, ARMING, UNDERWATER MINE.** An electrolytic device designed to prevent arming of an underwater mine until immersed in sea water. This device contains a disk which is deteriorated by electrolysis when immersed in sea water thereby permitting operation of the clock starter and extender mechanism.*

**cell, binary.** See: **binary cell.**

**cellule.** A term used technically to designate a wing on one side of a fuselage, complete with struts, trusses, and panels, or that part of a wing between fuselages or nacelles where appropriate. Also called 'cell' or 'plane cell.'

**cellulose nitrate.** Any of several esters of nitric acid used as explosives or propellants, produced by treating cotton or some other form of cellulose with a mixture of nitric and sulphuric acids. Popularly called **nitrocellulose** (which see).

**cement, Pettman.** A mixture of iron oxide, shellac, alcohol, rosin, ethyl cellulose, and pine tar, used to seal fuzes, etc., in projectiles.

**center-fire.** 1. Of a cartridge: Having the primer in the center of the head, or base. 2. Of a firearm: Using center-fire cartridges. Center-fire cartridges and center-fire small arms are distinguished from rimfire types. Cf: **rimfire.**

**center of burst.** *Antiaircraft.* Point in the air about which the bursts of several projectiles from rounds fired under like conditions are evenly distributed.

**center of burst error.** Distance between the target and **center of burst.**

**center of dispersion.** *Gunnery.* Theoretical center of hits or bursts that would have been made if an unlimited number of shots had been fired with the same data. Actually it has to be considered the center of impact or bursts of all shots already fired.

**center of impact.** (CI) *Gunnery.* Center of the dispersion pattern. Considered from the point of view of range only, it is the range center; from the point of view of direction, the direction center.

**center of lift.** The mean of all the centers of pressure on an airfoil.

**center of pressure.** The point in the chord of an airfoil section which is at the intersection of the chord (prolonged if necessary) and the line of action of the combined air forces (resultant air force). Cf: **center of lift.**

At certain angles of attack, the center of pressure may be located to the rear of the trailing edge of an airfoil.

**center of pressure coefficient.** The ratio of the distance of a center of pressure from the leading edge of an airfoil to its chord length.

**CENTER, TARGET REPAIR.** An item used to repair the central portion of a target in order to increase the length of serviceability. It generally consists of a specified grade of paper or similar material, square or rectangular in appearance, having on its face a figure representing a bull's-eye or silhouetted image with segments of concentric ring(s) or image outline(s). It is usually applied to the target by means of paste or adhesive back surface. When placed on target, the segments are aligned with corresponding lines on target to assure proper centering. Excludes PASTER, TARGET.*

**central control.** Fire control of weapons from a central location, not by the individual gunner. It is especially used in antiaircraft batteries.

**central throttling rod.** In a recoil mechanism, a throttling device in which a tapered rod moves in a hollow piston rod to regulate the size of aperture through which the recoil oil flows.

**centrifugal casting.** The production of metal castings by the use of permanent molds which are rotated during the pouring and solidifying. A high grade steel casting of cylindrical shape may be produced by this process. The process is used in the production of many gun tubes.

**CEP** *(abbr).* 'Circular probable error.' CPE is the preferred abbreviation.

**ceramal.** See: **cermet.**

**cermet.** A product made of ceramic material bonded to metal. Also called 'ceramel.'

**cetane number.** A test indication of the suitability of a diesel fuel.

**cf** *(abbr).* 'Compare.'

**CFE** *(abbr).* 'Contractor-furnished equipment.'

**CG** *(abbr).* 1. Chemical agent, 'phosgene' (war gas). 2. 'Commanding General.' 3. 'Center of gravity.'

**CH** *(abbr).* 'Case harden.'

**CHAFF, COUNTERMEASURES.** A thin, flat piece of metal foil, plain or backed, specifically designed to act as a countermeasure against enemy radar when released into the atmosphere. For assorted sizes and types, see: **CHAFF SET, COUNTERMEASURES.*** See also: **rope; window.**

**CHAFF SET, COUNTERMEASURES.** A grouping of two or more assorted sizes or types of countermeasures chaff specifically designed to be released into the atmosphere to act as a countermeasure against enemy radar. For chaff sets consisting of identical sizes and types, see: **CHAFF, COUNTERMEASURES.***

**chaff shell.** See: **window projectile.**

**chain.** Indicates, in the case of demolition charges, a number of units of CHARGE, DEMOLITION cast on a length of detonating cord with a short section of cord between adjacent units.

**CHAIN ASSEMBLY, TIRE.** A series of interconnected metal links forming two or more parallel lengths, cross-connected, usually at right angles. Designed to be fastened over the tread or perimeter of a tire(s) of a vehicle to increase traction and/or prevent skidding.*

**chain rammer.** A **rammer** (which see, sense 1) which is power driven and consists essentially of a chain linkage capable of driving the projectile into position in the gun but 'coiling' into a compact storage position after the power stroke. Used with large caliber guns such as in turrets.

**chain-type equilibrator.** See: **equilibrator.**

**chamber.** 1. Part of a gun in which the charge is placed. In a revolver, it is a hole in the cylinder; in a cannon, it is that space between the obturator or breechblock and the forcing cone. Nominally it is the space occupied by the cartridge case. 2. To insert a *round* of ammunition in the chamber of a firearm or gun.

**CHAMBER, AIR BRAKE.** A mechanical device employing a flexible diaphragm to convert air pressure into physical force to actuate the brake shoes of a vehicle.*

**chamber capacity.** In interior ballistics, the volume of the propellant chamber. In guns employing a separate loaded propellant, it is the volume of the entire space between the seated projectile and the closed breechblock. In ammunition employing cartridge cases, it is the volume of the cartridge case behind the projectile. In both types, it includes the annular space around the projectile base.

**chamber capacity, effective.** In interior ballistics of artillery and small arms, the volume provided for the gases produced by the burning of the propellant, under the initial or starting conditions, including the volume occupied by the propellant. Thus in fixed and semifixed ammunition, it is the interior volume of the cartridge case, less the volume taken up by the projectile base below the rotating band. In separated ammunition the volume taken up by the cartridge case closing plug is deducted from, and the volume of the gun chamber around the base of the projectile is added to, the interior volume of the cartridge case.

Allowance for the volume occupied by the artillery primer, which extends into the cartridge case, is made differently in American and British practice. The British practice is to subtract the volume of the empty primer; the American practice is to subtract the volume of the filled primer.

**chambering.** That phase of small arms operation that deals with the placing of the round into the chamber after it has been fed into the weapon by the feeding device.

**chamber pressure.** See: **pressures, gun.**

**chambrage.** The increase in cross-sectional area from the barrel bore to the chamber.

**channel.** (chan) *Electricity.* An electrical path over which transmission is made from one station to another; a band of radio frequencies wide enough to allow a transmission, as a communication channel.

**channel, telemeter.** Designates the complete route for transmission of a telemetered function, including pick-up, commutator, modulator, transmitter, receiver, demodulator, decoder, and recorder.

**Chapman-Jouguet plane.** For a hypothetical, infinite, plane detonation wave: A moving reference plane, behind the initial shock front, in which it is variously assumed that (a) reaction (and energy release) has effectively been completed; (b) reaction product gases have reached thermodynamic equilibrium; (c) reaction gases, streaming backward out of the detonation, have reached such a condition that a forward-moving sound wave located at this precise plane would remain a fixed distance behind the initial shock.

**characteristic length.** See: **length, characteristic.**

**characteristics, technical.** Those characteristics of equipment which pertain primarily to the engineering principles involved in producing equipment possessing desired military characteristics. Example: For *electronic equipment*, technical characteristics include such items as circuitry, types and arrangement of components.

**characteristic velocity.** ($c^*$) *Rockets.* A theoretical velocity calculated as the product of the chamber pressure (psia), the nozzle throat area (sq in), and the gravitational conversion factor divided by the mass flow (lbm/sec). See: **exhaust velocity.**

**charge.** (chg) *Specif.* 1. A given quantity of explosive, either by itself or contained in a bomb, projectile, mine, or the like, or used as the propellant for a bullet or projectile. 2. That with which a bomb, projectile, mine, or the like is filled, as a charge of explosive, thermite, etc. Also called the 'fill,' 'filler,' or 'filling.' 3. In small arms, a cartridge or round of ammunition. 4. To fill with a charge. 5. To place a charge in a gun chamber.

**charge, aliquot part.** See: **charge, equal section.**

**CHARGE ASSEMBLY, DEMOLITION.** A group of items including explosives, assembled in a haversack designed for use in beach reconnaissance and underwater demolition missions.*

**charge, bag.** Propelling charge contained in propellant bag(s). See also: **bag, propellant.**

**charge, bare.** An explosive charge without casing prepared for use in determining explosive blast characteristics.

**charge, base.** Base section of a multisection propelling charge, where the sections are not identical.

**charge, base ejecting.** See: **charge, expelling.**

**charge, booster.** 1. The explosive charge contained in a **booster** (*which see*). 2. The amount of any particular type of explosive used to reliably detonate the bursting charge of the munition.

**charge, burster.** The explosive charge of a **burster** (which see).

**charge, bursting.** The main explosive charge in a mine, bomb, projectile, or the like that breaks the casing and produces fragmentation or demolition.

**charge, case.** 1. Propelling charge within a cartridge case. 2. Any explosive charge within a case, as opposed to a bare charge. See also: **case ammunition; charge, bare.**

**charge, cavity.** See: **charge, shaped.**

**charge, confined.** An explosive charge, loaded in a resistant container, as opposed to a bare charge. Cf: **charge, bare.**

**charge, cratering.** Demolition charge for use in blasting craters in roads and for similar demolition. See also: **CHARGE, DEMOLITION.**

**charge, cutting.** A trough-shaped charge, containing a wedge-shaped or curved metal liner. By projecting a sheet of molten metal upon detonation, it produces straight line shearing damage rather than a cylindrical hole. See also: **CHARGE, DEMOLITION; charge, line.**

**charge, delay.** A quantity of pyrotechnic composition pressed into a holder which upon burning produces a definite time delay. Used in delay type fuses.

**CHARGE, DEMOLITION.** An explosive charge used to produce a blasting, shattering or penetrating effect. It may be shaped so that the energy is concentrated in one direction.* See also: **charge, shaped.**

**CHARGE, DEMOLITION, INERT.** A CHARGE, DEMOLITION filled with inert material used for training purposes.*

**CHARGE, DEPTH.** An explosive item designed to be dropped or catapulted from a watercraft for use against underwater targets. When empty or inert loaded it may be used for training purposes. For similar items dropped from aircraft see: **BOMB, DEPTH.***

**charge, detonating.** An explosive charge consisting of **primary high explosive,** which see.

**charge, equal section.** Propelling charge made up of a number of sections equal in size. The number of sections used determines the muzzle velocity and range of the projectile. Cf: **charge, unequal section.**

**charge establishment.** Process of establishing the correct weight of propelling charge to produce the prescribed muzzle velocity with the prescribed projectile in a particular weapon. Performed at the proving ground.

**charge, expelling.** Small charge of black powder or other low explosive provided in a base ejection projectile for the purpose of ejecting the contents, such as smoke canisters.

**charge, explosive.** See: **charge** (sense 1).

**charge, flash.** A readily ignitible explosive charge used in ignition elements of electric primers and detonators. Its function is usually to ignite a subsequent charge of lesser sensitivity and greater brisance. See also: **DETONATOR, ELECTRIC; PRIMER, ELECTRIC.**

**charge, full.** Propelling charge intended to produce full service velocity. The term 'full charge' is sometimes used as an identifying designation when more than one type of propelling charge is available for a weapon.

**charge, green bag.** In certain cases, two types of propelling charge are provided for one howitzer—one for inner, the other for outer zones of fire. The cloth of the bags for the inner zones is dyed green to distinguish that charge from the other type which is assembled in undyed (white) bags. Accordingly, these two types are called 'green bag' and 'white bag' charges.

**charge, igniter.** See: **first fire.**

**CHARGE KIT, SPOTTING AND DEMOLITION, TRAINING ROCKET.** A group of items, including an explosive charge, designed to show the point at which the fuze of a rocket functions and also breaks the rocket into pieces to limit its flight. It is used with a rocket for training purposes only.*

**charge, line.** 1. A shaped charge consisting of a charge with lined cavity of elongated wedge or curved shape, so that cutting or penetration effect is produced along a line. 2. Charge of split charge blocks assembled around detonating cord and dropped with attached parachute to keep the chain elongated. See also: **charge, cutting.**

**charge, linear.** A demolition charge of extraordinary length, in relation to its other dimensions. See: **CHARGE, DEMOLITION.**

**charge, lined.** A shaped charge with a lined cavity. See also: **charge, shaped.**

**charge, multisection.** In separate loading or semifixed ammunition, propelling charge that is loaded into a number of propellant bags. Range adjustments can be made by increasing or reducing the number of bags used, as contrasted with a single section charge, in which the size of the charge cannot be changed. Three types of multisection charge are: equal section charge, base and increment charge, and unequal section charge. See also: **charge, propelling.**

**charge, normal.** Propelling charge intended to produce a normal velocity and be suitable for ordinary targets. The term 'normal charge' is sometimes used as an identifying designation when more than one type of propelling charge is available for a weapon.

**charge, pole.** Number of blocks of explosive tied together, capped, fuzed, mounted on the end of a pole, and ready to be fired. The minimum weight of charge is usually about 15 pounds. A pole charge may be placed in a position out of handreach.

**charge, powder.** See: **charge, propelling.**

**CHARGE, PRACTICE HAND GRENADE.** A bag of black powder used in a practice type hand grenade for training purposes.*

**CHARGE, PROPELLANT INCREMENT.** A propelling charge composed of increments, the number of which can be varied to produce the desired muzzle velocity. The item as issued contains the increments required to impart the maximum rated muzzle velocity. Commonly applied to charges for mortars. See also: **charge, propelling.**

**charge, propelling.** Charge of low explosive that is burned in a weapon to propel the projectile from it; propellant; propellant charge. Burning of the confined propelling charge produces gases which force the projectile out. See also: **low explosive.**

**charge, propelling, dummy.** A completely inert item, simulating a **charge, propelling** (which see), used for training purposes.

**CHARGE, PROPELLING, EARTH ROD.** An explosive item in a metal can used to drive a metal rod into earth or shale.* Cf: **charge, propelling.**

**CHARGE, PROPELLING, 4.2 INCH.** A propelling charge for use in 4.2-inch weapons. (Names of propelling charges for other weapons are formed in a similar manner where the caliber of the weapon is similarly designated, i.e., in inches.)

**CHARGE, PROPELLING, 5 INCH 50 CALIBER.** A **charge, propelling** (which see) for use in 5-inch 50-caliber weapons. (Names of propelling charges for other Naval weapons are formed in a similar manner where the caliber of the weapon is similarly designated.)

**CHARGE, PROPELLING, 155 MILLIMETER.** A **charge, propelling** (which see) for use in 155-millimeter weapons. (Names of propelling charges for other weapons are formed in a similar manner where the caliber of the weapon is similarly designated, i.e., in millimeters.)

**charger.** 1. Short for 'gun charger.' 2. Device for holding several cartridges while they are stripped from it into the magazine space in the gun. Sometimes called cartridge charger; also sometimes called a clip.

**charge, reduced.** (red chg) Propelling charge intended to produce a velocity below the normal. The term 'reduced charge' is sometimes used as an identifying designation when more than one type of propelling charge is available for a weapon.

**charger, gun.** See: **gun charger.**

**charge, satchel.** Number of blocks of explosive taped to a board fitted with a rope or wire loop for carrying and attaching. The minimum weight of the charge is usually about 15 pounds.

**charge section.** One of the component parts of a charge that is made up of two or more separate parts.

**charge, shaped.** (SC) An explosive charge with a shaped cavity. Sometimes called 'cavity charge.' Called 'hollow charge' in Great Britain. Use of the term shaped charge generally implies the presence of a lined cavity.

**CHARGE, SIGNAL, EJECTION.** An explosive item designed to eject a signal from a MINE, UNDERWATER when used for training.*

**charge, single section.** Propelling charge in separate loading ammunition that is loaded into a single propellant bag. A single section charge cannot be reduced or increased for change of range, as can a multisection charge. See also: **charge, propelling.**

**charge, special.** Propelling charge intended to produce a special (high) velocity. The term 'special charge' is sometimes used as an identifying designation when more than one type of propelling charge is available for a weapon.

**charge, spotting.** A small charge, such as black powder, in a practice bomb, practice mine, missile under test, and the like, to show the location of its point of functioning. Also, occasionally used in service ammunition.

**CHARGE, SPOTTING, BOMB.** An item used with practice bombs to mark the point of impact for training drops. It may also be used with empty bombs for training personnel.*

**CHARGE, SPOTTING, ROCKET.** An item used with practice rockets to mark the point of burst and/or impact of the weapon. It is generally used in the training of personnel.*

**CHARGE, SPOTTING, MINE.** An item designed to simulate the explosion of a bounding antipersonnel mine.* See also: **SIMULATOR, ANTIPERSONNEL MINE PROJECTILE.**

**charge, stacked.** Propelling charge in which the propellant grains lie end to end within the propellant bag.

**charge, sticky.** An explosive charge covered with an adhesive substance to make it stick against an object when thrown or planted. Also called 'sticky grenade.'

**charge, supplementary.** A small, removable explosive charge used in the fuze cavity of deep cavitized munitions. The charge must be removed if the munition is to be fitted with a proximity fuze, since a deep cavity is required for this fuze.

**charge, target.** Propelling charge intended to produce a velocity less than normal, and considered to be suitable for target practice purposes. The term 'target charge' is sometimes used as an identifying designation when more than one type of propelling charge is available for a weapon.

**charge, traveling.** A propelling charge which travels along the bore with the projectile as burning takes place; also called *Langweiler charge.*

**charge, unequal section.** A propelling charge in separate loading or semifixed ammunition, divided into a number of increments, not all of which are alike. Cf: **charge, equal section.**

**charge, wedge.** Explosive charge using a wedge shaped cavity, lined or unlined. See: **charge, cutting.**

**charge weight ratio.** The ratio of the weight of a charge, especially an explosive charge, to the total weight of the complete bomb, projectile, or the like, that contains the charge. (Not to be used in connection with propellants.) Cf: **propellant weight fraction.**

**charge, white bag.** See: **charge, green bag.**

**charging cable.** A cable attached to the bolt of an aircraft machine gun or cannon for drawing back the bolt manually in order to charge the piece.

**Charlotte Ordnance Missile Plant.** Ordnance Corps missile assembly plant, located at Charlotte, North Carolina.

**chase.** The exposed part of a gun (artillery) in front of the trunnion band or cradle.

**CHASSIS, CARGO CARRIER.** A self-propelled tracked vehicle undercarriage consisting essentially of the frame and power train, with or without cab, designed primarily to mount a suitable body for transporting supplies and/or equipment, over sand, snow, ice, swamps or difficult terrain.*

**CHASSIS, ELECTRICAL EQUIPMENT.** A structural item of electrically conductive material fabricated in such a manner so as to facilitate the assemblage and interconnection of electrical and/or electronic items for the specific purpose of providing a basis for electrical and/or electronic circuits. It must have drilled and/or stamped holes to accommodate the items but may include only the items necessary for its own mounting and support. Secondary function may include shielding.*

**CHASSIS, SEMITRAILER.** The undercarriage portion of a semitrailer, including frame, designed to accommodate an appropriate body or equipment.*

**CHASSIS, TRAILER.** The undercarriage portion of a trailer, including frame, designed to accommodate an appropriate body or equipment. See also: **DOLLY, TRAILER CONVERTER; DOLLY, TRAILER FRONT; DOLLY, TRAILER, REAR.***

**CHASSIS, TRUCK.** A self-propelled wheeled vehicle undercarriage consisting essentially of the frame and power train, with or without cab, designed primarily to mount a suitable body for transporting supplies and/or equipment.*

**CHASSIS, WEAPON, FULL TRACKED.** A self-propelled vehicle undercarriage, usually armored, consisting essentially of the frame, power train and hull. It is designed to mount and carry a weapon

weapon(s) over sand, ice, swamp, and difficult terrain.*

**chatter.** A low-speed vibration which can be heard or felt in a piece of machinery or other equipment.

**checkout.** *Missiles.* Performance of procedures to determine whether all parts of the missile are apparently capable of performing their prescribed functions. Cf: **missile test.**

**check problem.** *Electronic computers.* A problem whose incorrect solution indicates an error in the operation or programming of a computer.

**cheese antenna.** A cylindrical reflector having two plates perpendicular to it spaced so as to permit the propagation of more than one mode in the desired direction of polarization.

**chemical agent.** *Military.* A chemical item either solid, liquid or gas divided into three principal categories, war gases, smokes, and incendiaries. It is developed for the purpose of conducting defensive and/or offensive warfare. Through its chemical properties it produces lethal, injurious, or irritant effects resulting in casualties; a screening or colored smoke; or it acts as an incendiary agent.

**CHEMICAL AGENT, CHLOROACETOPHENONE.** (CN) Tear gas, causing irritation of eyes, skin, and upper respiratory passages. No permanent effects. Used for training and riot control.

**CHEMICAL AGENT, CHLOROACETOPHENONE CAPSULE.** (CN CAPSULE) Chemical Agent, Chloroacetophenone (tear gas) in prepared capsule form, used for training purposes. See also: **CHEMICAL AGENT, CHLOROACETOPHENONE.**

**CHEMICAL AGENT, CHLOROACETOPHENONE PELLET.** (CN PELLET) Chemical Agent, Chloroacetophenone (tear gas) in prepared pellet form, used for training purposes. See also: **CHEMICAL AGENT, CHLOROACETOPHENONE.**

**CHEMICAL AGENT, CHLOROACETOPHENONE SOLUTION.** (CN) (CNC) (CNS) (CNB) Solution of Chemical Agent, Chloroacetophenone (tear gas). Three solutions which have been used are chloroacetophenone in chloroform; mixture of chloroacetophenone and chloropicrin in chloroform; and chloroacetophenone in a mixture of carbon tetrachloride and benzene. These are distinguished by the abbreviations CNC, CNS and CNB, respectively. See also: **CHEMICAL AGENT, CHLOROACETOPHENONE.**

**CHEMICAL AGENT, CYANOGEN CHLORIDE.** (CK) A low persistency, quick acting, casualty gas, which interferes with utilization of oxygen by body tissues and hemoglobin. A liquid at normal temperatures; one of the 'blood gases.'

**CHEMICAL AGENT, DIPHENYLAMINECHLOROARSINE.** (DM) Popular name—adamsite. Solid, dispersed by heat to produce an aerosol causing skin and eye irritation, chest distress and nausea. Relatively nontoxic. One of the 'vomiting gases.' Used for training and riot control.

**CHEMICAL AGENT, DIPHENYLCHLOROARSINE.** (DA) Solid, dispersed by heat to produce an aerosol causing skin and eye irritation, chest distress and nausea. Relatively nontoxic. One of the 'vomiting gases.' Used for training and riot control.

**CHEMICAL AGENT, DIPHENYLCYANOARSINE.** (DC) Solid, dispersed by heat to produce an aerosol causing eye and mucous membrane irritation, chest distress and nausea. Some temporary toxic effect. One of the 'vomiting gases.' Used for training and riot control.

**CHEMICAL AGENT, GREEN SMOKE.** A chemical agent, producing a green smoke, used for a variety of tactical purposes such as identifying targets and friendly units, and for spotting purposes in ranging shots. Designated a 'signaling smoke.'

**CHEMICAL AGENT, HEXACHLOROETHANE MIXTURE.** (HC) A smoke producing agent, consisting of a mixture of grained aluminum, zinc oxide and hexachloroethane. The smoke is produced by burning of the mixture, induced by a suitable ignition charge. Used to produce a screening smoke.

**CHEMICAL AGENT, HYDROGEN CYANIDE.** (AC) A quick acting casualty gas of low persistency, which interferes with utilization of oxygen by the body tissues. A gas at temperatures only slightly above normal room temperature. One of the 'blood gases.' Popular name—prussic acid.

**CHEMICAL AGENT, INCENDIARY MIXTURE.** A mixture of certain metals, oxidizers and/or petroleum fractions to form a powder or a pasty, flammable mass. Readily ignited by fuze action.*

**CHEMICAL AGENT, INCENDIARY OIL.** An incendiary liquid or gel consisting of gasoline and fuel oil, with or without a thickening agent (necessary to produce a gel). Peptizers may also be used with thickening agent, to facilitate formation of a gel.

**CHEMICAL AGENT, ISOPROPYL METHYLPHOSPHONOFLUORIDATE.** (GB) Nontechnical name *sarin.* A quick acting casualty gas of medium persistency. Liquid at normal temperature. Very rapid lethal effect, attacking the nerve system. One of the 'nerve gases.'

**CHEMICAL AGENT, LEWISITE.** (L) A moderately delayed action casualty gas. A 'blister gas,' toxic lung irritant and systemic poison. Produces immediate and strong stinging sensation of the skin. Dichloro (2-chlorovinyl) arsine.

**CHEMICAL AGENT, MUSTARD, DISTILLED.** (HD) A delayed action casualty gas. A blister gas, acts as cell irritant and cell poison. (Distilled refers to a purifying process, which greatly reduces the odor, and therefore increases the difficulty of detection.)

**CHEMICAL AGENT, MUSTARD GAS.** (H) A delayed action casualty gas. A blister gas, acts as cell irritant and cell poison. Contains about 30 percent sulfur impurities, giving it a pronounced odor.

**CHEMICAL AGENT, MUSTARD, SIMULATED.** (SIMULATED H) Material having physical properties similar to 'mustard gas,' used for testing dispersion apparatus and munitions and for training purposes. Specifically a 25 percent solution by volume of molasses residuum, dissolved in water, with additive of cresol as stabilizing agent. See also: **CHEMICAL AGENT, MUSTARD, DISTILLED; CHEMICAL AGENT, MUSTARD GAS.**

**CHEMICAL AGENT, NITROGEN MUSTARD GAS.** (HN) Any one of a group of related compounds in which nitrogen is the central atom. Three compounds are recognized, identified by the three abbreviations

HN-1, HN-2 and HN-3. Similar in physiological effects to mustard or distilled mustard, but greater tendency to permanent damage. The agents are of the type called 'blister gases.'

**CHEMICAL AGENT, PHENYLDICHLOROARSINE.** (PD) A delayed action casualty gas of low persistency. A liquid at normal temperatures, may be dispersed by explosive action or as a spray. Classed as a 'blister gas,' also acts as a 'vomiting gas.'

**CHEMICAL AGENT, PHOSGENE.** (CG) Delayed or immediate action casualty gas. Acts on the capillaries of the lungs to produce seepage of fluid, resulting in oxygen deficiency, and death, if lethal quantity is received. One of the 'choking gases.'

**CHEMICAL AGENT, PLASTICIZED WHITE PHOSPHORUS.** (PWP) Smoke producing agent, with side incendiary effects. Based on white phosphorus, with polymer addition to retard the burning.

**CHEMICAL AGENT, Q.** (Q) A chemical agent of specialized application.

**CHEMICAL AGENT, RED SMOKE.** A chemical agent, producing a red smoke, used for a variety of tactical purposes, such as identifying targets and friendly units, and for spotting purposes in ranging shots. Designated a 'signaling smoke.'

**CHEMICAL AGENT, SULFUR TRIOXIDE-CHLOROSULFONIC ACID SOLUTION.** (FS) A liquid which causes formation of a screening smoke when it is dispersed in air. May be dispersed by explosive effect or as a mechanically produced spray. A mixture of 55 percent sulfur trioxide and 45 percent chlorosulfonic acid. Smoke causes prickling of the skin and heavy concentration produces a severe irritation. In ordinary concentrations no protection is required.

**CHEMICAL AGENT, T.** (T) A chemical agent of specialized application.

**CHEMICAL AGENT, THERMATE.** (TH) Incendiary chemical agent, composed of mixture of thermite, additional oxidizer and binder, formerly used as igniter for magnesium bombs. The abbreviation 'TH' signifies either thermite or thermate, with specific compositions of thermate designated as TH2 and TH3. See also: **CHEMICAL AGENT, THERMITE.**

**CHEMICAL AGENT, THERMITE.** (TH) A metal incendiary, composed of approximately 73 percent ferric oxide and 27 percent fine granular aluminum. Used in items of ammunition to provide a source of heat to cause fires at the target. The abbreviation 'TH' signifies either thermite or thermate, with specific composition of thermite designated as TH1. See also: **CHEMICAL AGENT, THERMATE.**

**chemical agent, thickener, incendiary oil.** See: **THICKENER, INCENDIARY OIL.**

**CHEMICAL AGENT, TITANIUM TETRACHLORIDE.** (FM) A liquid which causes formation of a screening smoke when it is dispersed in air. May be dispersed by explosive effect or as a mechanically produced spray. Smoke is corrosive and irritating to nose and throat, but not serious in effect in the concentration usually present in a smoke cloud.

**CHEMICAL AGENT, VIOLET SMOKE.** A chemical agent, producing a violet smoke, used for a variety of tactical purposes, such as identifying targets and friendly units, and for spotting purposes in ranging shots. Designated a 'signaling smoke.'

**CHEMICAL AGENT, W.** (W) A chemical agent of specialized application.

**CHEMICAL AGENT, WHITE PHOSPHORUS.** (WP) Smoke producing agent, with side incendiary effects. A solid at normal temperature, dispersed by explosive effect of a burster charge.

**CHEMICAL AGENT, YELLOW SMOKE.** A chemical agent, producing a yellow smoke, used for a variety of tactical purposes, such as identifying targets and friendly units, and for spotting purposes in ranging shots. Designated a 'signaling smoke.'

**chemical ammunition.** Any ammunition, as bombs, projectiles, bullets, flares, or the like, containing a chemical agent or agents. Such agents include war gases, smokes, and incendiaries. See also: **chemical agent.** Cf: **chemical energy ammunition.**

**chemical ammunition cargo.** See: **cargo classification.**

**chemical bomb.** See: **bomb, chemical agent.**

**Chemical Corps.** (CC) Branch of the Army having primary responsibility for chemical warfare matters.

**chemical energy ammunition.** Ammunition intended to defeat armor and other resistant targets by chemical energy rather than kinetic energy as in conventional armor-piercing ammunition. Examples are HEAT and HEP ammunition. Cf: **chemical ammunition; kinetic energy ammunition.**

**chemical grenade.** See: **grenade, chemical.**

**chemical land mine.** See: **MINE, CHEMICAL AGENT.**

**chemical mortar.** A **mortar** (which see) designed to fire projectiles containing chemical agents. Term is now obsolete since all mortars may fire explosive types of projectiles as well as chemical types.

**chemical spray.** Aerial release, or device for aerial release, of liquid war gas for casualty effect, or of liquid smokes for aerial smoke screens.

**chemical warfare.** (CW) The tactics and technique of using chemical agents in offensive action, or of employing defensive measures against such actions.

**chemosphere.** See: **atmospheric shells.**

**Cherokee Ordnance Works.** Ordnance Corps field installation, located at Danville, Pennsylvania.

**chest.** An item primarily designed to accommodate and store a specific item or group of items in compartmented sections. It has a carrying handle(s) and a hinged or separate top. It may have a locking device(s), locking facilities and internal trays. The item(s) which it accommodates is/are complete for removal and use outside the chest. It does not include the item(s) for which designed. Excludes case; shipping and storage container; and BOX (as modified).* Use application modifier. Example: CHEST, GUIDED MISSILE PROPELLANT DRAINING KIT.

**chg** *(abbr).* 'Charge.'

**Chicago Ordnance District.** One of the eleven districts into which the United States is divided for purposes of industrial mobilization, procurement, contract negotiation, and administration, etc., by the Ordnance Corps. Embraces the States of North Dakota, South Dakota, Minnesota, Iowa, and Wiscon-

sin; the upper peninsula of the State of Michigan; the counties of Hancock, McDonough, Fulton, Mason, Menard, Sangamon, Macon, Moultrie, Coles and Clark, and all counties north thereof in the State of Illinois; and the counties of Benton, White, Carroll, Cass, Miami, Wabash, Huntington, Wells, and Adams, and all counties north thereof in the State of Indiana. The main office is located in Chicago, Ill.

**Chicago Ordnance Plant.** Ordnance Corps ammunition plant, located at Chicago, Illinois.

**chisel truck.** See: **TRUCK, LIFT, FORK.**

**chlorine.** (Cl) Greenish-yellow toxic chemical, gaseous at normal temperatures and pressures, that is irritating and harmful to the eyes, nose, throat, and lungs, and may cause death.

**chloropicrin.** (PS) Trichloronitromethane, a chemical agent. A colorless liquid whose vapor is very irritating to the lungs, and causes vomiting, coughing, and crying. Has the odor of flypaper or licorice.

**chock.** A wedge, block, or piece of timber for fitting in a space or for preventing movement of an object.*

**CHOCK, WHEEL.** A chock for placing in front of, or behind, a wheel to prevent its movement.*

**choke.** A narrowing towards the muzzle in the bore of gun, hence *choked bore.* Term often applied to shotguns. Cf: **cylinder barrel.**

**choke coil.** A coil winding of small resistance and large inductance, used to impede or throttle a current.

**choked bore.** See: **choke.**

**choke ring.** Metal ring used in the reaction chambers of certain recoilless weapons to control gas escapage. The same function is carried out by the throat rings, throat blocks and restricting plugs in other types of recoilless weapons.

**choking.** The condition which prevails in compressible fluid flow when the upper limit of mass flow is reached, or when the speed of sound is reached in a duct.

**choking gas.** Casualty gas which causes irritation and inflammation of the bronchial tubes and lungs. An example of this type of gas is CHEMICAL AGENT, PHOSGENE.

**CHOPPER, ELECTRONIC.** An electromechanical device designed for converting direct current into a modified square wave of the same frequency as, and bearing a definite phase relationship to, the driving sine wave of the applied alternating current.*

**chord.** *Specif.* An assumed straight line tangent to the lower surface of an airfoil section at two points, or a straight line between the leading and trailing edges of an airfoil section, or between the ends of the mean line of an airfoil section; the distance between the leading and trailing edges of an airfoil section. See: **chord, mean aerodynamic; mean chord.**

**chord direction.** In stress analysis, the direction parallel to the intersection of the plane of the internal wing truss with the plane of symmetry of the aircraft. When a wing has two internal trusses in nonparallel planes, the plane bisecting the dihedral angle between these two planes should be used. See: **drag; lift direction.**

**chord force or component.** In stress analysis, a force, or component, in the chord direction.

**chord length.** The length of the projection of the airfoil on its chord.

**chord, mean aerodynamic.** The chord of an imaginary airfoil which would have force vectors throughout the flight range identical with those of the actual wing or wings.

**chord, mean, of a wing.** The quotient obtained by dividing the wing area by the span.

**chromatic aberration.** An aberration of a lens which causes different colors or wave lengths of light to be focused at different distances from the lens, resulting in colored fringes around the borders of objects seen through the lens.

**chronograph.** 1. *General.* An instrument for measuring time. 2. As applied to ballistics, an instrument for determining velocity by measuring the time required for a projectile to travel a known distance, thus furnishing the data for determination of the velocity. A complete chronograph usually consists of two main systems, one for detecting the projectile as it passes two (or more) points whose distance apart and distance from the muzzle are known accurately; and a second system for recording these passages on a time scale, thus supplying information that is readily converted into velocity. The velocity obtained in this manner is the *average velocity* between the recorded points. This is converted to *muzzle velocity* by adding to it the velocity lost, which is obtained from tables or charts which take into account the form factor (shape) of the projectile and the distance which it has traveled.

Special chronographs which do not consist of the two distinct systems covered above have been developed and are sometimes used for special situations. One such chronograph utilizes high speed photographs of the projectile taken at short, known intervals of time. The distance traversed by the projectile between exposures can be measured on the film and the velocity determined.

Some of the systems for detecting passage of the projectile are:

a. *Boulengé screen.* A flat frame on which is strung a continuous wire making vertical passes separated by small intervals. The ends of the wire are connected to, and are part of, the chronograph circuit. Passage of the projectile through two separated screens breaks the wire and interrupts an electrical circuit in each case.

b. *Aberdeen screen.* A flat frame on which two thin metal sheets are mounted so as to be insulated from each other, and separated by a small distance. The projectile, in passing through the screens, provides a means for completing an electrical circuit in each case.

c. *Solenoid coil.* A coil wound on a round wooden frame large enough in diameter to permit passage of the projectile through its center. The projectile is premagnetized, so that passage of the projectile through two separated coils induces an electric impulse in the coil in each case.

d. *Photoelectric screen.* This is so designed that passage of a projectile alters the amount of light falling upon it and thus produces an electrical signal or impulse. Two of the types of photoelectric screens are as follows:

(1) *Sky screen.* Utilizes natural light and is adaptable to outdoor firings.

(2) *Lumiline screen.* Utilizes artificial light and is used principally in indoor ranges.

Some of the systems used for measuring the time intervals are:

a. *Boulengé chronograph.* This was the first reasonably accurate velocity measuring instrument. Since it is less accurate and slower in operation than the instruments described below, it is no longer used. Therefore only the principle will be covered. Passage of the projectile through the first screen breaks the circuit, disengaging an electromagnet and permitting a rod to fall. Passage through the second screen permits a second rod to fall. Provision is made by action of the second rod for recording on the first rod the distance through which it fell while the projectile was traveling between the screens. By treating the falling rod as a free falling body, the recorded distance can be converted to time.

b. *Aberdeen chronograph.* Consists of a motor turning a drum at a known constant speed. Mounted close to the drum, and in circuit with it and with the Aberdeen screens, are needle points. A specially prepared strip of paper is mounted on the inside of the drum, held in place by centrifugal force when the drum is turning. When the projectile completes the circuit between the two faces of each screen, a spark passes to the drum, perforating the paper. The distance between the two perforations can then be converted into velocity.

c. *Camera chronograph.* This was formerly called *solenoid chronograph* since it was used with the solenoid coil. It consists of a photographic oscillograph utilizing a rotating drum camera about 20" in diameter and a cathode-ray tube. Timing lines corresponding to .001 second intervals are spaced on the film. Any of the detection screens described can be connected to the cathode-ray tube and passage of the projectile then produces a change in voltage which will be recorded on the film. Distance between these occurrences can be read directly in time, and computed to velocity.

d. *Counter chronograph.* A device using an oscillator producing a frequency of 100,000 cycles per second and a neon light panel for counting and recording the number of cycles during the interval it takes a projectile to pass between two detecting devices. Almost immediate results are obtained to a very high degree of accuracy. This method is well adapted to use with photoelectric screens, and can be made in portable units for use in the field.

e. *Machine gun chronograph.* This is essentially an automatic *counter chronograph* which permits recording time intervals of automatic cannon and machine gun fire. Readings are provided on electrosensitive papers, thus providing a permanent record. The instrument operates in precisely the same manner as the counter chronograph, except that it can record the times, reset itself, and be ready for the next round at rates above 1800 rounds per minute. In addition to recording velocities of each round fired, the instrument records rate of fire.

f. *Field chronograph.* A wholly self-contained detection and measuring device for field use. One type only will be described. This type uses a wave of known frequency which is transmitted along the trajectory from a point in back of the gun. The wave reflected from the moving projectile causes a Doppler effect. The resulting electronic phenomena are transmitted to an oscilloscope, giving data from which the projectile velocity can be computed.

**CHRONOMETER.** An instrument for precisely determining time, manufactured to close tolerances to assure the time-keeping qualities of dependability and consistency of rate. These qualities are accurately ascertained by comparison with more exact devices or by astronomical methods so that the accumulated error may be taken into account when determining time. Its usual uses are to indicate time for navigational purposes, and to serve as a reference for less accurate timepieces. It is usually provided with a winding indicator dial and is usually mounted in gimbals to maintain the instrument in a level position. May consist of a spring driven or other type of movement which is capable of exacting performance without regulation throughout the normal range of room temperatures. Not designed for carrying on the person.*

**chuffing.** An uneven or nonuniform burning of solid propellant, as in a rocket motor. Cf: **chugging.**

**chugging.** An irregular combustion of liquid fuels in a rocket engine, due to incorrect mixture or poor chamber design. Cf: **chuffing.**

**chute.** 1. Short for 'parachute.' 2. Any passage or slide through which objects are directed, as a **case ejection chute, feed chute,** or **link ejection chute** (which see under separate entries).

**CHUTE, AMMUNITION.** A chute through which ammunition is supplied to the gun or cannon preparatory to firing.*

**CHUTE, EJECTION.** A chute through which the link or case is expelled from the gun or cannon.*

**CI** *(abbr).* 1. 'Cast iron.' 2. 'Center of impact.'

**cigarette burning.** In rocket propellants, black powder, gasless delay elements, and pyrotechnic candles, the type of burning induced in a solid grain by permitting burning on one end only, so that the burning progresses in the direction of the longitudinal axis.

**Cincinnati Ordnance District.** One of the eleven districts into which the United States is divided for purposes of industrial mobilization, procurement, contract negotiation and administration, etc., by the Ordnance Corps. Embraces the State of Kentucky; the counties of Warren, Tippecanoe, Clinton, Howard, Grant, Blackford, and Jay, and all counties south thereof in the State of Indiana; and the counties of Darke, Miami, Clark, Greene, Fayette, Pickaway, Hocking, Morgan, Noble, Perry, and Monroe, and all counties south thereof in the State of Ohio; and the State of Tennessee, including the city of Bristol, Virginia-Tennessee. The main office is located in Cincinnati, Ohio.

**circle of confusion.** The circular image of a distant point object as formed in a focal plane by a lens.

**circle of least confusion.** *Optics.* A focal plane between the two focal points of a lens affected by astigmatism where the most clearly defined image can be obtained.

**circular error.** 1. A bombing error measured by the radial distance of a point of bomb impact, or mean

point of impact, from the center of the target, excluding gross errors. 2. With an airburst atomic bomb, the bombing error measured from the point on the ground immediately below the bomb burst to the desired ground zero. See: **ground zero.**

**circular error average.** The bombing error in a given bombing attack, expressed as the average radial distance of the bomb impacts, or mean points of impact, from the center of the target.

**circular probable error.** (CEP) 1. The probable bombing error expressed in terms of the radius of a circle centered on the desired mean point of impact (DMPI) of a bombfall and containing half of the expected bombfall, excluding gross errors; also sometimes applied to the actual bombing error. 2. With an airburst atomic bomb, the probable bombing error expressed in terms of the radius of a circle centered upon the desired ground zero (DGZ) the radius from that point being projected horizontally to the point below the bomb burst. Gross errors are also excluded in atomic bombing. 3. With reference to guided missiles, a probable error expressed in terms of the radius of a circle within which one-half of a given number of missiles can be expected to fall. Gross errors are usually excluded. See: **CEP** *(abbr).*

**circular scan.** A radar scan in which a given point on the directed beam describes a circle in space with the antenna at the center. Hence, *circular scanning.* See: **scan.**

**circular system.** A system for controlling guided missiles.

The missile automatically sends out a signal to two radio stations, and times the echoes to keep itself on course.

**circumferential stress.** See: **stress, circumferential.**

**cis-Helion.** See: **orbits of plants.**

**cis-Jovian.** See: **orbits of planets.**

**cis-Lunar.** See: **orbits of planets.**

**cis-Martian.** See: **orbits of planets.**

**cis-Mercurian.** See: **orbits of planets.**

**cis-Neptunian.** See: **orbits of planets.**

**cis-Plutonian.** See: **orbits of planets.**

**cis-Saturnian.** See: **orbits of planets.**

**cis-Uranian.** See: **orbits of planets.**

**cis-Venusian.** See: **orbits of planets.**

**CK** *(abbr).* Chemical agent, 'cyanogen chloride' (war gas).

**Cl** *(abbr).* 'Chlorine.'

**clamping circuit.** *Electricity.* 1. A circuit that maintains either of the amplitude extremes of a wave form at a certain level of potential. 2. A circuit that clamps the base of a wave form to a given potential or current value.

**class I activity.** See: **activity.**

**class II activity.** See: **activity.**

**classification.** 1. Placing of military documents, etc., in special groups for safeguarding defense information. The classifications, based on degree of restriction required, are TOP SECRET, SECRET, and CONFIDENTIAL. See: **defense classification.** 2. See: **type classification.**

**classification of cargo.** *Combat loading.* See: **cargo classification.**

**classification of defects.** In the inspection of Ordnance materiel, the enumeration of possible defects of an item, classified in accordance with the importance of the effect of each defect. The customary classifications, and their definitions, are:

*Critical defect.* One that could result in hazardous conditions, or prevent performance of the tactical function.

*Major defect.* One that could result in failure, or materially reduce the usability, of the item.

*Minor defect.* One that will not materially reduce the usability of the item.

**classified.** *Security.* Of documents, lectures, information, equipment, films, and the like: Having a security classification. See: **defense classification.**

**classified matter.** See: **defense classification.**

**classified military information.** See: **defense classification.**

**class A industrial property.** See: **Government furnished property.**

**class B industrial property.** See: **Government furnished property.**

**class C industrial property.** See: **Government furnished property.**

**class I installation.** See: **installation.**

**class II installation.** See: **installation.**

**class B status materiel.** Fixed armament, fortifications, casemates, fire control, and surveillance equipment, power plants, and artillery materiel which remain in storage in their tactical location. Class 'B' status materiel is periodically operated and inspected for combat serviceability.

**class I supplies.** See: **supplies.**

**class II supplies; class II (A) supplies.** See: **supplies.**

**class III supplies; class III (A) supplies.** See: **supplies.**

**class IV supplies; class IV (A) supplies.** See: **supplies.**

**class V supplies; class V (A) supplies.** See: **supplies.**

**Claymore.** Name given to a type of antipersonnel mine designed to produce a directionalized, fan shaped pattern of fragments.

**CLEANER, VACUUM, SELF-PROPELLED.** A machine consisting essentially of a power driven fan, pick-up nozzle and hopper(s), mounted on a modified truck chassis. The fan creates a vacuum which draws debris through the pick-up nozzle and deposits into the hopper. It is designed specifically for removing all loose debris, such as dirt, stones, small metal pieces and the like from runways, taxiways, roads and other paved surfaces.*

**cleaning brush.** See: **BRUSH, CLEANING** (as modified).

**cleaning gun.** A mechanical hand-operated device using the ejector principle to throw a spray of cleaning solvent mixed with air or steam on engines, chassis, machinery, or other equipment and parts to remove surface deposits of grease and/or foreign matter.*

**cleaning rod.** See: **ROD, CLEANING, SMALL ARMS.**

**clear.** 1. To give a person a security clearance. 2. a. To operate a gun so as to unload it or make certain no ammunition remains. b. To free a gun of stoppages. 3. To clear an engine, to open the throttle of an idling engine to free it from carbon. 4. *Electronic computers.* To restore a storage or memory device to prescribed state, usually that denoting zero.

**clearance.** 1. Space allowed between moving parts of guns and machinery. 2. Elevation of a gun at such an angle that a projectile will not strike an obstacle between the muzzle and the target. 3. Authority permitting individuals, cooperating in Department of Defense work and having a legitimate interest therein, access to classified information, materiel or equipment or admission to restricted areas or installations where such information or materiel is located. (Security clearance.)

**clearance, angle of.** See: **angle of clearance.**

**clearance fit.** See: **fit.**

**clearing block.** Wooden block placed between the bolt and the rear of the barrel of an automatic weapon to prevent closing of the action and to show that the gun is unloaded.

**Cleveland Ordnance District.** One of the eleven districts into which the United States is divided for purposes of industrial mobilization, procurement, contract negotiation and administration, etc., by the Ordnance Corps. Embraces the counties of Erie, Mercer and Crawford in the State of Pennsylvania, and the counties of Mercer, Auglaise, Shelby, Champaign, Madison, Franklin, Fairfield, Licking, Muskingum, Guernsey, Cambridge and Belmont and all counties north thereof in the State of Ohio. The main office is located in Cleveland, Ohio. Official symbol: ORDEE.

**Cleveland Ordnance Plant.** Ordnance Corps field installation, formerly called 'Cleveland Tank Plant,' located at Cleveland, Ohio.

**climatic test.** A test to determine the efficiency of personnel or materiel under any given set of actual or simulated climatic conditions.

**clinometer.** An instrument for measuring an angle of elevation, as that between a gun bore and the horizontal; accurately graduated and calibrated for use in boresighting. See also: **quadrant.**

**CLINOMETER, ELEVATION.** An optical instrument consisting of a sighting tube and a quadrant scale plate, used to ascertain the angle of elevation of an object.*

**CLINOMETER, ELEVATION AND DEPRESSION, SURVEYING.** An instrument consisting of an arc scale mounted within a circular case. It is used for measuring angles of elevation and depression. Excludes LEVEL, SURVEYING.*

**clinometer rest.** Device placed in the bore of a gun to support a clinometer; bore rest.

**clip.** See: **CLIP, CARTRIDGE.**

**clip, ammunition.** See: **CLIP, CARTRIDGE.**

**CLIP, CARTRIDGE.** A metallic device used to contain rifle or revolver cartridges for ease of loading into the receiver of a rifle or the cylinder of a revolver. See also: **MAGAZINE, CARTRIDGE.***

**clip loading machine.** Device for placing cartridges in clips.

**clipping circuit.** *Electronics.* A pulse-shaping network which removes that part of a wave form which tends to extend above (or below) a chosen voltage level.

**clip, plug, retaining.** A spring clip designed to retain the male terminal of CABLE ASSEMBLY, POWER, ELECTRICAL, in bomb fuze well.

**CLIP, SAFETY, ARMING WIRE.** A spring clip designed to pass over an arming wire and tightly grip the wire to act as security for the free end of the arming wire, to prevent premature arming of a bomb fuze.

**CLOCK, DELAY, UNDERWATER MINE.** A safety device designed to delay the arming of an underwater mine. Its purpose is to allow the planting craft time to withdraw from the mine field.*

**clock method.** Method of calling shots by reference to the figures on an imaginary clock dial assumed to have the target at its center; clock face method; clock system. Thus, a shot directly above the target is at 12 o'clock. The same method is sometimes used to name the direction of a wind; for example, a wind directly from the left is a 9 o'clock wind.

**close control radar.** Specially modified precision-type ground radar net which is used for the purpose of close positioning of aircraft over a target normally difficult to locate or invisible to the pilot.

**closed bomb.** A test device used for the evaluation of the thermochemical characteristics of combustible materials. Also called 'closed chamber.' The closed bomb is a thick-walled, alloy steel cylinder with removable threaded plug in each end. One plug contains the ignition system, and the other plug is instrumented to permit recording of pressure-time. The bomb is cooled by a water jacket. The closed bomb is used for determining the interior ballistic properties of propellants, such as the linear burning rate, relative quickness and relative force, under varying conditions of pressure and temperature.

**closed chamber.** See: **closed bomb.**

**closed pit test.** A test conducted on high explosive loaded projectiles and bombs with charges not exceeding 200 pounds, to determine the number and weight distribution of the fragments resulting from the functioning of the charge. The loaded item is detonated while buried in sand, and the sand is then sifted to recover the fragments. The test is now recognized as being somewhat unreliable because of loss of the smaller fragments, and secondary breakup of fragments by the effect of the surrounding sand. Other methods of determining fragmentation characteristics are now employed.

**cloth, cartridge.** Special fabric used to hold the propelling charge for large guns. Must not leave burning residue when gun is fired. Formerly silk was used exclusively for this purpose but other satisfactory fabrics have been developed. Used in making propellant bags. See also: **bag, propellant.**

**CLOTH, LENS.** A plain, balanced woven material having a high sley. It is chemically treated to aid in the removal of grease, soil, and grit from optical lenses, glass equipment, or other finely polished surfaces, without causing injury to them.*

**cloud attack.** Attack made by means of a toxic gas, or aerosol cloud for harassing and/or casualty effect.

**cloud switch.** Electrical switch in an antiaircraft artillery fire control data system used to facilitate changing from visual to radar fire control or vice versa.

**clstr** *(abbr).* 'Cluster.'

**cluster.** (clstr) 1. A collection of small bombs held together by an adapter for dropping. Example: CLUSTER, FRAGMENTATION BOMB. 2. A pyrotechnic signal consisting of a group of stars or fireballs. Example: amber star, cluster. 3. A grouping of rocket motors fastened together. Example: CLUSTER, ROCKET MOTOR. 4. A group of three antipersonnel mines.

**cluster adapter.** See: **ADAPTER, CLUSTER, BOMB; LAUNCHER, ROCKET, AIRCRAFT.**

**cluster, aimable.** A cluster of bombs held together so as to be aimed and dropped by ordinary bombing methods. See also: **adapter, cluster, aimable.**

**CLUSTER, FRAGMENTATION BOMB.** A cluster of fragmentation bombs, so arranged that more than one bomb can be suspended and dropped from a single station of a bomb rack on an airplane. Popularly called 'frag cluster.'

**CLUSTER, GAS BOMB.** A cluster of gas bombs, so arranged that more than one bomb can be suspended and dropped from a single station of a bomb rack on an airplane.

**CLUSTER, INCENDIARY BOMB.** A cluster of incendiary bombs, so arranged that more than one bomb can be suspended and dropped from a single station of a bomb rack of an airplane.

**cluster, rocket engine.** A grouping of rocket engines fastened together designed to function as a single propulsion unit.

**CLUSTER, ROCKET MOTOR.** A grouping of two or more rocket motors fastened together designed to function as a single propulsion unit.*

**clutch.** A mechanical device which facilitates engaging or disengaging of two shafts or rotating members by the employment of positive, magnetic, or friction type connections. It is controlled either by manually-operated lever(s) or foot-operated pedal(s) or by automatic means.*

**CLUTCH, FRICTION.** A clutch which transmits motion or power from the driving to the driven member by the frictional resistance between the engaging surfaces.*

**CLUTCH HALF, FRICTION.** That portion of a CLUTCH, FRICTION which transmits or receives motion or power by engagement with the mating member.*

**CLUTCH, MAGNETIC.** A clutch which transmits motion or power from the driving or field member to the driven or armature member, and whose friction surfaces are drawn and held together by magnetic attraction when electric current is applied.*

**CLUTCH, POSITIVE.** A clutch which transmits motion or power from the driving to the driven member by the engagement of interlocking projections and/or recesses in one member with matching recesses or projections in the other member.*

**CLUTCH, SLIDING SLEEVE.** An internally splined metallic clutch, operating on a splined shaft, designed to transmit motion or power to an abutting shaft by means of engaging the external splines on the driven shaft. Usually manually operated.*

**clutter.** See: **radar clutter.**

**clutter diagram.** A diagram which indicates areas in which fixed echoes appear at various angular heights from a particular radar site.

**CM** *(abbr)* 'Countermeasure.'

**cmbt** *(abbr).* 'Combat.'

**cml** *(abbr).* 'Chemical.'

**CmlC** *(abbr).* 'Chemical Corps.'

**CMP** *(abbr).* 'Computed maximum pressure.'

**CN** *(abbr).* Chemical agent, 'chloroacetophenone' (tear gas).

**CNB** *(abbr).* Chemical agent, 'chloroacetophenone-benzene' (tear gas solution).

**CNC** *(abbr).* Chemical agent, 'chloroacetophenone-chloroform' (tear gas solution).

**CNS** *(abbr).* Chemical agent, 'chloroacetophenone-chloropicrin-chloroform' (tear gas solution).

**CN solutions.** Tear gas fillings for munitions. See also: **CHEMICAL AGENT, CHLOROACETOPHENONE SOLUTION.**

**CO** *(abbr).* 'Commanding Officer.'

**coal powder.** An unglazed finely granulated black powder made with coal in lieu of charcoal, relatively slow burning, used normally blended with meal powder to attain a desired burning time.

**coal tar.** One of the products obtained during the destructive distillation of bituminous coal. By further distillation and by chemical processes, it can be separated into numerous compounds. Many are used in the manufacture of explosives: benzene, toluene, phenol, aniline.

**coarse setting.** Preliminary adjustment of a sight in laying a gun. A coarse setting is made first on the main scale; then the fine setting is made on the associated scale of smaller graduations.

**coarse sight.** Adjustment of the sight of a gun so that a part of the front sight is seen through the notch in the rear sight. Cf: **fine sight.**

**coated optics.** Optical lenses, prisms, etc., the surfaces of which have been treated to cut down surface reflection of light, thus resulting in greater optical efficiency.

**COATING COMPOUND, BULLET TIP.** A pigment(s) dispersed in a vehicle composed of wax, thinner(s) and/or solvents. Used for coating the tips of projectiles of small arms ammunition for scoring purposes during target practice.*

**COATING COMPOUND, PLASTISOL.** A composition of vinyl chloride base resin dispersed in a plasticizer, with or without colorants, stabilizers, and other agents, primarily used as a protective coating on various surfaces against the effects of exposure to various elements, such as weather, fuels, lubricants, acids, and other generally deleterious elements. The compound must be fused at approximately 350 degrees or more to achieve a tough flexible, and nonporous coating after application. A primer may be

used to form a base for adhesion of the compound. See also: **RESIN COATING, THERMOSETTING.***

**coaxial antenna.** An antenna comprised of a quarter wavelength extension to the inner conductor of a coaxial line and a radiating sleeve which in effect is formed by folding back the outer conductor of the coaxial line for approximately one-quarter wavelength.

**coaxial line.** A cable having concentric conductors. Used as a transmission line for audio, radio, and television signals.

**coaxial machine gun.** A machine gun mounted integrally with the primary gun of a tank. The machine gun can be separately bore sighted so that line of fire may cross that of the primary gun at any desired range.

**cobalt bomb.** See: **bomb, cobalt.**

**Cobra.** Name given to a wire-guided antitank missile carrying a shaped charge warhead.

**cock.** 1. To draw back the hammer, bolt or plunger of a firearm to make ready for firing. 2. To set a bomb-release mechanism so as to make ready to drop the bomb or bombs.

**cocking lever.** A lever for drawing back (sometimes also for lowering) the striker or hammer of an automatic firearm.

**code.** *Electronic computers.* A system of symbols and their use in representing rules for handling the flow or processing of information; to actually prepare problems for solution on a specific computer.

**code, instruction.** *Electronic computers.* An artificial language for describing or expressing the instruction which can be carried out by a digital computer. In automatically sequenced computers, the instruction code is used when describing or expressing sequences of instructions, and each instruction word usually contains a part specifying the operation to be performed and one or more addresses which identify a particular location in storage. Sometimes an address part of an instruction is not intended to specify a location in storage but is used for some other purpose.

If more than one address is used, the code is called a multiple-address code.

**CODER, AUDIO FREQUENCY.** A component which in accordance with a predetermined combination of circuit elements, supplies specific audio frequencies to other electronic equipment(s). See also: **CODER, RADIO BEACON.***

**CODER-DECODER, INTERROGATOR SET.** A component which supplies coded pulses for an interrogator set in accordance with a predetermined combination of signals and accepts and decodes the keyed pulses from a transponder set.*

**CODER-MONITOR.** A component which performs the dual function of providing signals in accordance with a predetermined combination and examining part of the output from other components or sets.*

**CODER, RADAR, GUIDED MISSILE.** A component which supplies keying pulses in accordance with a predetermined combination of signals. Designed to be used in a CODER SET, RADAR, GUIDED MISSILE and/or RADAR SET GROUP to furnish signals for triggering a transmitting system of a radar, which transmits command signals to a guided missile in flight. Excludes CODER, AUDIO FREQUENCY; CODER, TRANSPONDER SET.*

**CODER, RADIO BEACON.** A component which supplies keying pulses for radio frequency energy beacon equipment in accordance with a predetermined combination of signals.*

**CODER SET, RADAR, GUIDED MISSILE.** A set which provides coding facilities in accordance with a predetermined combination of signals for triggering a transmitting system of a radar, which transmits command signals to a guided missile in flight. See also: **CODER, RADAR, GUIDED MISSILE.***

**CODER-TRANSMITTER.** A single component with the dual function of generating impulses in accordance with a predetermined combination, and of transmitting these impulses to another component(s) or set(s).*

**CODER, TRANSPONDER SET.** A component which supplies keying pulses for a transponder set in accordance with a predetermined combination of signals. Excludes CODER, AUDIO FREQUENCY.*

**COE** *(abbr).* 'Cab over engine.'

**coefficient of form.** See: **form factor.**

**coefficients, performance.** As pertains to propellant actuated devices, indexes of performance defined as change of thrust, velocity or acceleration with respect to temperature over the range, −65°F to 160°F. See also: **propellant actuated device.**

**C of Ord** *(abbr).* 'Chief of Ordnance,' U. S. Army.

**COIL, IGNITION.** An item specifically designed to produce the high voltage necessary to provide a spark for igniting combustible mixtures, primarily in internal combustion engines.*

**COIL, STARTING.** An item designed to increase the output of induction coils, ignition coils or magnetos during engine cranking periods by being connected as an auxiliary inductive load in the primary circuit of the induction coil, ignition coil or magneto. The increase is due to an induced current surge when the current is interrupted by another item such as timer, distributor or vibrator. It does not include a vibrator but may include relays, resistors, and capacitors. Includes single and multiple units.*

**COIL, UNDERWATER MINE.** An item designed to detect changes in an underwater mine's magnetic field made by the passing of a ship.*

**coincidence.** *Optics.* Agreeing as to position; corresponding. In a coincidence-type range finder, when the two half-images of a distant object are aligned, they are said to be 'in coincidence.'

**coincidence adjustment.** Range adjustment in a coincidence range finder.

**coincidence prism.** A compound prism, consisting of a system of small prisms cemented together, used in a coincidence range finder to bring the images from the two objectives to a single eyepiece for viewing.

**coincidence range finder.** Optical instrument for determining distances. By adjustment, separate images seen through the two eyepieces can be made to coincide. A reading of the adjustment gives the distance.

**coke-bottle shape.** A popular name given to the shape of certain aircraft with an indented fuselage designed after the area-rule concept.

**cold extrusion.** A method of forming metal in which high pressure is employed to force metal through a die opening. Recent developments have extended this application to include steels as well as the softer metals. The forming may be done around a punch, in which case hollow forms, such as tubing, cartridge cases, or projectile bodies, may be produced.

**cold forming.** Synonym for **cold extrusion** (which see) as applied to projectile manufacture.

**cold pressing.** Synonym for **cold extrusion** (which see) as applied to projectile manufacture.

**cold room.** Special room in which equipment is cooled to prescribed low temperatures for testing.

**cold-worked.** Of metals: Worked to form without heating.

**cold-worked case.** Steel cartridge case produced by method of cold working. This produces high physical properties.

**cold-worked gun.** Gun produced by cold working, that is, by **radial expansion** (which see).

**cold working.** 1. The forging or working of a material without applying heat. When performed on metals such as steel, the physical properties may be considerably altered. 2. *Specif.* A method of gun manufacture by **radial expansion,** which see.

**collecting point.** A point designated for the assembly of personnel casualties, prisoners of war, stragglers, disabled materiel, salvage, etc., for further movement to collecting stations or rear installations.

**collective fire.** Combined fire of various small arms concentrated on a given target or area.

**collective lens.** A convex or positive lens used in an optical system to collect the field rays and bend them to the next optical element. It prevents the loss of light. Sometimes used to denote a convergent or convex lens.

**collimate.** 1. Bring into line; make parallel. 2. Adjust accurately the line of sight of a surveying instrument, telescope, or camera. 3. Adjust the sight of a gun so that it is parallel to the axis of the gun barrel. 4. Adjust the optical axis of an optical sight or the electrical axis of a radar beam to make the axes parallel.

**collimating sight.** Sight equipped with a collimator. The collimating sight is set parallel with the axis of the bore of the gun in horizontal direction, but adjustable in elevation, so that it can be kept focused on an aiming point while the gun is raised or lowered.

**collimator.** Optical device used to align the sights of a gun with the vertical plane through the axis of the bore. It can be moved in elevation independently of the gun, so that it can be kept sighted on an aiming point. A double collimator is used to measure the parallelism of range finders.

**COLLIMATOR, INFRARED.** An item, which includes a light or heat source and an optical system, designed to assist in the alignment of the optical system of infrared equipment.*

**COLLIMATOR, TELESCOPE.** A small, tubular item utilizing an eyepiece, cross hair reticle, and an objective lens, to align the optical axis to the mechanical axis of a telescopic instrument. It does not have the viewing power of a telescope. It may have two like items secured in a common holder for simultaneous checking of a dual optical system.*

**color code.** A system of ammunition identification by color, wherein each item of ammunition is painted with a color or combination of colors in accordance with a code to make for ready identification, particularly when out of its original container. This system also applicable to other items for ease of identification, such as electric wiring, capacitors, resistors, pipe lines, etc.

**colored marker projectile.** See: **projectile, colored marker.**

**colored smoke.** Gaseous products of a distinctive color. Smokes are a class of **chemical agent** (which see). The basis for a colored smoke is a volatile dye, which upon condensing forms a colored cloud. The dye may be volatilized by explosion of a burster charge, as in a colored marker projectile or by combustion of a fuel mixed with the dye, as in a colored smoke candle. Colored smoke munitions are made in several forms, including projectiles, bombs, grenades and candles. They may be employed as signals, target markers, zone identification markers, etc. Some of the most satisfactory smoke colors are red, green, yellow and violet.

**column.** *Electronic computers.* One of the character or digit positions in a positional notation representation of a unit of information; columns are usually numbered from right to left column, zero being the right-most column if there is no point, or the column immediately to the left of the point if there is one; a position or place in a number in which the position designates the power of the base and the digit is the coefficient, e.g., in 3876, the 8 is the coefficient of $10^2$, the position of the 8 designating the 2.

**coma.** *Optics.* An aberration of a lens which causes oblique pencils of light from an object point to be imaged as a comet-shaped blur instead of a point. This aberration is caused by unequal refraction through the different parts of the lens.

**combat analysis.** A theoretical analysis conducted to determine the probable effectiveness of an existing or projected weapons system under combat conditions.

**combatant.** 1. *International law.* Individual member of a belligerent force subject to the laws, rights, and duties of war. 2. Soldier or unit assigned to duty as an active fighter or fighting unit, as distinguished from duty in any of the services, such as administrative, supply or medical.

**combat development.** The research, development, and testing of new doctrine and organization, and their early integration with new materiel into the Army to obtain the greatest combat effectiveness.

**combat development field experiment.** A field trial usually under controlled conditions designed to collect data on operations, organizations, or materiel for use in preparing new or modified operational or organizational concepts or qualitative materiel requirements.

**combat development study project.** A study directed toward a determination of operational concepts and techniques, new organizations, or qualitative materiel

requirements for the army in the field, or a study which contributes to such determination.

**combat development test project.** A troop test directed at the determination of the feasibility and desirability of operational or organizational concepts, the suitability of materiel, or combination of these tasks. See also: **user test.**

**COMBAT ENGINEER VEHICLE, FULL TRACKED.** A self-propelled armored vehicle, utilizing a combat tank chassis, designed to accomplish essential pioneer tasks within combat areas. Includes a demolition gun in a revolving turret and attachments, such as winch(es), boom(s), bulldozer, and A-frame. It may have provisions for special attachments, such as mine exploder, mine detector, or mine laying devices. Excludes TANK, COMBAT, FULL TRACKED.*

**combat serviceable item.** An item of equipment which is complete, ready to perform immediately at its rated capacity, and will remain serviceable under severe operating conditions for a reasonable length of time.

**combat surveillance radar.** An Army radar with the normal function of maintaining continuous watch over a ground combat area. See: **battery acquisition radar; defense acquisition radar.**

**combat tire.** Pneumatic tire of heavy construction which is designed to operate without air pressure for a limited distance in an emergency.

**combat vehicle.** (CV) A land or amphibious vehicle, with or without armor or armament, designed for specific functions in combat or battle.

The installation of armor or armament on vehicles other than combat vehicles does not change their original classification.

**combat zone.** (CZ) 1. *Specif.* A region in a theater of operations where fighting takes place, or where space is designated for the operations of friendly combat forces, extending from the front line to a line or boundary designated by the theater commander. 2. A combat area. *Popular.*

In sense 1, the size of a combat zone depends upon the size of the forces assigned, the nature of the operations contemplated, the character of the lines of communication, terrain features, and enemy capabilities.

**combination fuse.** See: **fuse, combination.**

**combination microphone.** A microphone consisting of a combination of two or more dissimilar microphones.

Examples of combination microphones are: two oppositely-phased pressure microphones acting as a gradient microphone, and a pressure microphone and a velocity microphone acting as a unidirectional microphone.

**combination vehicle.** Towing vehicle (prime mover) and a towed load (trailer).

**combined engineer user test.** A test performed jointly by the interested technical service and the user on test items or systems. It is applicable to situations which involve expenditures of expensive, critical material, or where there is but one item of equipment available, only one site on which the equipment may be tested, or but one facility suitable for conducting the test.

**combined shop.** Integrated maintenance facilities at an installation under a centralized control, regardless of echelon of maintenance of technical services concerned.

**combustible cartridge case.** See: **case, cartridge, combustible.**

**combustion.** The continuous rapid combination of a substance with various elements such as oxygen or chlorine or with various oxygen bearing compounds, accompanied by the generation of light and heat.

**combustion chamber.** 1. A chamber or cylinder-like assembly in a rocket engine, jet engine, or the like where the propellant is burned. Also called a 'blast chamber,' 'burner,' or 'firing chamber.' 2. The space between a piston and the cylinder head of a reciprocating engine at the end of the compression stroke.

**combustion starter.** See: **STARTER, ENGINE, DIRECT COMBUSTION; STARTER, ENGINE, GAS TURBINE.**

**combustor.** A name generally assigned to the combination of flame holder, igniter, combustion chamber, and injection system of a ramjet.

**command.** (comd) 1. Control exercised over an airborne guided missile or other pilotless air vehicle through transmission of electronic signals. 2. *Electronic computers.* A pulse, signal, or set of signals initiating one step in the performance of a computer operation. See: **instruction.** 3. To govern the movements and reactions of an airborne guided missile or other pilotless air vehicle by electronic signals.

**command control.** See: **command guidance.**

**command destruct equipment.** See: **missile destruct system.**

**command fuse.** See: **fuse, command.**

**command guidance.** A type of electronic guidance of guided missiles or other guided aircraft wherein signals or pulses sent out by an operator cause the guided object to fly a directed path. Also called 'command control.'

The signals sent may be based on information derived from telemetering, ground-based radar, visual reference, etc. See: **command-guided missile.**

**command-guided missile.** A missile guided by a system that requires two radars, one to watch the target, the other to track the missile.

A computer combines the data from each radar to give the missile flight directions.

**command installation.** *Army.* Any installation of the Department of the Army including nonmanufacturing arsenals, primarily used or useful for activities of the Department of the Army other than for the production of material, munitions, or supplies. See also: **activity; industrial installation; installation; subinstallation.**

**commercial-type vehicle.** A motor vehicle designed to meet civilian requirements and used by the Army, without major modification, for routine purposes in connection with the transportation of supplies, personnel and equipment.

**committed.** Term descriptive of the condition of a fuze when the arming process has reached the point from which arming will continue to completion in spite of the absence of any arming forces.

**common hardware.** *Maintenance and supply.* Expendable hardware items having multiple applications (e.g., nuts, bolts, screws, washers, pins, keys, grommets).

**common item.** Piece of equipment or materiel of supply which is used or procured by more than one technical service.

**common parts.** Manufactured parts which may be used commonly on two or more major items.

**common projectile.** See: **projectile, common.**

**common supplies.** Those supplies common to two or more services.

**common tools.** Items of tools and tool equipment which are found in common usage, or which are applicable to a variety of operations or to a single operation on a variety of materiel. Screwdrivers, hammers, drill presses, lathes, welding equipment, battery chargers are examples of common tools.

**communications zone.** Rear part of theater of operations (behind but contiguous to the combat zone) which contains the lines of communications, establishments for supply and evacuation, and other agencies required for the immediate support and maintenance of the field forces.

**CommZ** *(abbr).* 'Communications zone.'

**comp** *(abbr).* 'Composition.'

**COMP A-3** *(abbr).* 'Composition A-3' (explosive).

**company.** Basic administrative and tactical unit in most arms and services of the Army. A company is on a command level below a battalion and above a platoon and is equivalent to a battery of artillery, etc.

**COMPARATOR, MEMORY ADDRESS, COMPUTER.** An item that correlates the contents of the main address counter, and auxiliary address counter, and furnishes a signal when coincidence occurs. It is a component of an electronic data processing equipment.*

**COMPARATOR, OPTICAL PROJECTION.** An instrument designed to inspect or measure, by optical projection, the wear, tolerance or distortion of an item which is difficult or impossible to inspect or measure directly.*

**COMPARATOR, TARGET PARITY CHECK.** An item that correlates the characteristics of a complex signal such as that received from an airborne transponder, with the characteristics of a pilot signal, for determining the validity of target aircraft during utilization of electronic identification techniques.*

**COMPARATOR, VISCOSITY, OIL.** An instrument that indicates by direct reading the viscosity of a sample of oil in Saybolt Seconds. The unit operates by a comparison factor with a sealed-in oil of known viscosity.*

**compass, aperiodic.** Magnetic compass in which the pointer comes to rest in the final position by one direct movement and without oscillating. See also: **compass, magnetic.**

**compass azimuth.** Angle measured clockwise from a north point determined by means of a compass reading. Because of variations of the compass, it may not agree with an azimuth measured from true magnetic north.

**compass bearing.** Direction or bearing as given by a compass reading.

**compass compensation.** Method of adjusting a compass to compensate for the magnetic forces exerted by nearby metals, parts of an aircraft or a ship's structure, etc.

**compass course.** Course of an aircraft, tank, person, etc., as indicated by the horizontal angle between the north-south line, as shown by a compass, and the direction of motion of the aircraft, tank, person, etc.

**compass error.** 1. False compass needle reading induced by deflection because of nearby metallic objects, static electricity, or improper adjustment of the compass. 2. The total difference between the reading of north on the compass and true north.

**COMPASS, GYRO.** An instrument utlizing a gyroscopic principle to determine true north.*

**compass heading.** A heading measured relative to compass north.

**compass, lensatic.** Compass equipped with a magnifying glass for reading the scale, used in making accurate measurements such as azimuths for fire control.

**compass, magnetic.** An instrument utilizing a magnetic needle or indicator and a graduated dial or card to determine direction in relation to the magnetic poles.*

**compass north.** The direction indicated by the needle or other sensing element of a magnetic compass.

Compass north and magnetic north differ in that the former may be determined by other influences than the earth's magnetic field.

**compatibility.** In connection with ammunition, refers almost exclusively to chemical compatibility; that is, the ability of a given material to exist unchanged under certain conditions of temperature and moisture, when in the presence of some other material. If this condition exists, the two materials are said to be compatible. Thus black powder is compatible with zinc plated steel, but is incompatible with bare brass. Incompatibility may result in loss of effectiveness or in extreme hazard. The term is also sometimes used in its general sense; as, for instance, a given propellant is compatible with a given projectile, if the ballistic results on firing are favorable.

**COMP B** *(abbr).* 'Composition B' (explosive).

**COMP C-4** *(abbr).* 'Composition C-4' (explosive).

**compensator.** Any device used to offset or allow for undesirable forces or motions.

For example, on some small arms, a type of compensator may be used to hold down muzzle rise and reduce recoil; on a direction finder, a compensator is that part which automatically compensates for deviation in the direction indicator.

**COMPENSATOR, DEPTH, UNDERWATER MINE.** A hydrostatically actuated item designed to increase the sensitivity of a firing mechanism when an underwater mine exceeds a predetermined depth.*

**complementary angle of site.** (comp site) A correction applied to correct for the nonrigidity of the trajectory. In theory the trajectory may be rotated up or down through small vertical angles about the origin without materially affecting its shape. When large angles of site are used, this assumption will

cause significant errors to be introduced. Therefore, in carefully prepared firing data, corrections should be determined from the complementary angle of site tables listed in the firing tables.

**complete carry.** See **carry.**

**complete penetration.** 1. In the Army, penetration obtained when the projectile in the target or light through the target can be seen from the rear of the target. 2. In the Navy, penetration obtained when the projectile passes through the target intact or a major portion of the projectile passes through.

**complete round.** (CRC) All of the components of ammunition necessary to fire a given gun or firearm once; also applied to all the components of other items of ammunition, such as aerial bombs, rockets, etc. See also: **bomb complete round.**

**complete round acceptance test.** For each lot of ammunition this is the final check on the proper assembly of the round and determination of its ability to function satisfactorily under service conditions. a. *Velocity phase:* Provides a check on the powder charge as loaded, with service components, by measuring the muzzle velocity developed and determining the uniformity thereof. The powder lot is the controlling factor. b. *Safety phase:* Stresses the round more than could be reasonably expected in service, so as to bring to light defects which might, under service conditions, produce malfunctioning (including prematures). Here, the shell lot and fuze lot are the controlling factors. c. *Functioning phase:* Tests the ability of the round as issued to function satisfactorily within prescribed tolerances and to ascertain the limit of probable malfunctions. In this test the fuze lot is the controlling factor.

**complete-round chart.** (CRC) Publication of the Chief of Ordnance setting forth pertinent information on each complete round of ammunition, including the identification of each of its components.

**component.** 1. Essential part of a whole, such as a trigger in a firing mechanism or a generator in a radio set. 2. Subassemblies or parts, which together with other subassemblies, parts or end items, when assembled, become an item of issue. 3. *Maintenance and supply.* A group of connected assemblies and parts which is capable of operation independently but may be externally controlled or derive its power from another source (computer, engine, transmission, electrical generator).

**component, time-change.** *Maintenance and supply.* A component which because of design limitations or safety is removed from an end item for rebuild or overhaul after a specified period of operation (e.g., an aircraft component).

**composite defense.** In antiaircraft artillery, a defense that employs two or more types of fire units which are integrated into a single defense.

**composite propellant.** A solid propellant consisting of an inorganic oxidizer in powder form, thoroughly mixed with an organic fuel which also serves as the binder of the oxidizer particles. May be premolded or cast directly in a rocket motor. See also: **PROPELLANT GRAIN.**

**composite rigid projectile.** See: **projectile, composite rigid.**

**composition.** (comp) *Explosives.* An explosive material that may be cast or molded. In this sense the word 'composition' is found followed by a letter, or by a letter and a numeral, designating the kind of explosive. Some of the more important compositions, with ingredients and approximate percentages, are as follows:

Composition A-3: RDX/wax, 91/9

Composition B: RDX/TNT/wax, 59.5/39.5/1.0

Composition B-2: RDX/TNT, 60/40

Composition B-3: RDX/TNT, 60/40; the RDX is of controlled granulation.

Composition C-4: RDX/Polyisobutylene binder, 91/9.

**compound engine.** A reciprocating engine utilizing its exhaust gas to rotate a turbine.

Power developed by the turbine may be conveyed back to the engine shaft, or utilized to drive accessories.

**compound lens.** A lens composed of two or more separate pieces of glass. These component pieces or elements may or may not be cemented together. A common form of compound lens is a two-element objective, one element being a converging lens of crown glass and the other being a diverging lens of flint glass. The surfaces of the two elements are ground to eliminate aberrations which would be present in a single lens.

**compound stress.** A combination of two or more stresses.

**compressibility, modulus of.** The fractional change in volume per unit change of pressure.

**compression-ignition engine.** A type of reciprocating engine using a fuel which is sprayed into the cylinder and ignited by heat resulting from the compression of the air charge in the cylinder. See also: **ENGINE, DIESEL.**

**compression-pressure ratio.** *Auto.* The ratio of the final pressure reached during compression divided by the pressure at the beginning of compression. Absolute pressures are used.

**compression ratio.** See: **compression-volume ratio.**

**compression rib.** An airfoil rib especially constructed to take the force of compression.

**compression-volume ratio.** *Auto.* The sum of the volume of the piston displacement and the clearance volume between the piston head when on top dead center and the cylinder head, divided by the clearance volume between the piston head when the piston is at top dead center and the cylinder head. The normal use of the term *compression ratio* is based on this relationship.

**compression wave.** *Aerodynamics.* A shock wave having the effect of increasing the density of air as the wave passes through it.

A compression wave is distinguished from an expansion wave.

**COMPRESSOR, GUN RECOIL SPRING.** An item specially designed to facilitate the compression and decompression of the helical spring(s) in equilibrators, recoil and counter-recoil cylinders, and recuperators on an artillery weapon.*

**COMPRESSOR, PISTON RING.** A hand held, hand operated device designed to compress one or more piston rings into piston grooves for installation into a cylinder.*

**comp site** *(abbr)*. 'Complementary angle of site.'

**computed maximum pressure.** (CMP) See: **pressure, gun.**

**computer.** A machine designed to determine the answer to a specific mathematical problem. Excludes CALCULATING MACHINE.*

**COMPUTER, ALTITUDE DIFFERENTIAL.** A computer specifically designed for determining the difference in altitude between a vehicle such as an aircraft in which it is installed, and a target such as another aircraft.*

**computer, analog.** A computer that works on the principle of measuring, as distinguished from counting, in which the measurements obtained, as voltages, resistances, etc., are translated into desired data. Cf: **computer, digital.**

Analog computers range from the relatively simple devices of the slide rule and airspeed indicator to complicated electrical machines used for solving mathematical problems. Radar and gun directors lean heavily upon this type of computer. See: **differential analyser.**

**COMPUTER ASSEMBLY, AZIMUTH-RANGE.** An item consisting of a COMPUTER, AZIMUTH and a COMPUTER, RANGE having a common mounting or mounted on each other. Excludes COMPUTER, COURSE-DISTANCE.*

**COMPUTER, AZIMUTH.** A computer for the determination of horizontal angular measurements from a base line. See also: **COMPUTER, NAVIGATIONAL.***

**COMPUTER, BALLISTICS.** A computer which utilizes a power driven mechanism and/or electronic or electrical circuits to calculate the trajectory of a projectile in relation to a target.*

**COMPUTER, DESTINATION PRESET.** A computer utilizing electronic control signals for the development of flight parameters to one or more predetermined terrestrial locations. See also: **COMPUTER, TARGET INTERCEPT.***

**computer, digital.** A computer that works on the principle of counting, as distinguished from measuring. Cf. **computer, analog.**

Digital computers make up a family of computers, ranging from the abacus to the business-office adding machine, to electrical relay computers as used in telephone exchanges, to the complex electronic calculators, such as **Eniac** (which see). Electronic computers use either a decimal or binary system of notations.

**COMPUTER, ELEVATION.** A computer which utilizes a power driven mechanism and/or electronic or electrical circuits to calculate vertical angular measurements from a reference level. May include accessories.*

**COMPUTER, ERROR, RADAR DATA.** A computer which utilizes a power driven mechanism and/or electronic or electrical circuits to make error calculations by means of information derived from radar equipment. May include accessories.*

**COMPUTER, GRIVATION.** A computer for the determination of the angle between grid north and magnetic north as a function of longitude convergency in the terrestrial polar regions.*

**COMPUTER GROUP, BALLISTICS DATA.** A collection of items, two or more being major electronic components, which is not capable of performing a complete operational function by itself, but which when added to a set provides ballistics data computing functions.*

**COMPUTER GROUP, GUIDED MISSILE.** A group specifically designed to compute intelligence data received from a guided missile for azimuth, elevation, range correction and motor shutoff commands. Contains a test system and signal simulator for testing the computing units. Excludes COMPUTER GROUP, BALLISTICS DATA. See also: **COMPUTING-TRACKING GROUP, RADAR.***

**COMPUTER, GUN DIRECTION.** A computer which utilizes a power-driven mechanism and/or electronic or electrical circuits to compute gun-laying problems based on geometric, ballistic, and meteorological data. It calculates azimuth and elevation angles and fuze settings. Excludes COMPUTER, BALLISTICS.*

**COMPUTER, HORIZONTAL DISTANCE.** A computer consisting of a base, a rotating disk, and an index arm. It is specifically designed for meteorological use to determine the horizontal distance from an observation point when the height of the object is known.*

**COMPUTER, MAGNETIC VARIATION.** A computer which provides automatic computation of magnetic variation.*

**COMPUTER, METEOROLOGICAL DATA.** A computer which utilizes a power driven mechanism and/or electronic or electrical circuits to mathematically process received information to determine meteorological data. May include a recorder.*

**COMPUTER, MISSILE GUIDANCE.** A computer utilizing electronic data for the development of control signals to establish a collision course with an airborne and/or surface target. Excludes COMPUTER, TARGET INTERCEPT; COMPUTER, DESTINATION PRESET.*

**COMPUTER, NAVIGATIONAL.** A computer for the determination of two or more navigational factors such as altitude, direction and velocity. See also: **COMPUTER, AZIMUTH; COMPUTER, RANGE.***

**COMPUTER, POSITION, BOMB DROPPING.** A computer which permits the accomplishment of precision bombing without the aid of visibility.*

**COMPUTER, RANGE.** A computer for the determination of the range between two or more points.*

**COMPUTER SET, BALLISTICS.** A complete set for the determination of the trajectory of a projectile in relation to a target, and for the solution of fire control problems.*

**COMPUTER, TARGET INTERCEPT.** A computer utilizing electronic control signals for the development of flight parameters that will establish a collision course to an airborne target. See also: **COMPUTER, DESTINATION PRESET.***

**COMPUTER, TIME INTERVAL RATIO.** A computer for determining the ratio between two or more time intervals.*

**COMPUTER, TRACK.** An item used to determine the actual path of an aircraft relative to the earth's surface.*

**COMPUTER, ZONE WIND.** A computer which utilizes a power-driven mechanism or electrical circuits in order to compute two or more wind features such as direction and velocity within various altitude zone levels. The thickness of each zone level is selected at the option of the operator and is determined by the tactical application of the computed data. May include accessories.*

**computing gunsight.** A gunsight, esp. one for aircraft machine guns, that automatically calculates for wind, range, and other variables, and enables a gunner to hit his target.

Some types of computing gunsights may be used also for rocket-firing and bombing. See: **gun-bomb-rocket sight.**

**computing sight.** Any sight which includes an electrical or mechanical means for computing the proper angle between the line of sight to the target and the line of departure of the projectile. It usually includes means for automatically establishing the angle.

**COMPUTING-TRACKING GROUP, RADAR.** A group that provides radar computing and tracking facilities.*

**CONAD** *(abbr).* 'Continental Air Defense Command.'

**CONARC** *(abbr).* 'Continental Army Command.'

**conception.** *Patent law.* The mental act in the making of a patentable invention which must precede reduction of the invention to practice, both of which elements are required to qualify for a patent.

**concrete piercing fuse.** See: **fuse, concrete piercing.**

**concrete piercing projectile.** See: **projectile, concrete piercing.**

**concurrent repair parts.** Those parts, tools and accessories procured and delivered into the Army supply system concurrently with delivery of end items. Such items are for support of maintenance during period between initial issue of end item and establishment of supply records to permit subsequent procurement and replacement by normal methods.

**concussion fuse.** See: **fuse, concussion.**

**concussion grenade.** See: **grenade, offensive.**

**CONDITIONING KIT, ROCKET.** A specifically designed item consisting of a tent shaped shelter of quilted insulated cloth, a light metal framework for support and a forced air heating unit for maintaining a rocket within its prescribed firing and/or storage temperature limits. May contain hand tools for assembling.*

**cone.** The hollow, conical shaped liner of a shaped charge. See also: **charge, shaped.**

**cone of dispersion.** 1. A term which can be applied to the pattern in space formed by any one of numerous phenomena which originate in a point source and spread out in conical form from the source. 2. Cone-shaped pattern formed by the paths of a group of shots fired from a weapon with the same sight setting; synonymous in this sense with *cone of fire* and *sheaf of fire.* 3. The pattern in space from the opening of *canister* (or *shrapnel*, now obsolete) in which the preformed pellets, under the influence of forward velocity and radial velocity, spread out to form a cone in space.

**cone of fire.** See: **cone of dispersion.**

**cone of nulls.** *Radar.* A conical surface formed by directions of negligible radiation.

**cone of sight.** General cone formed by straight lines radiating from the eye to the outer boundaries of an object.

**conf** *(abbr).* 'Confidential.'

**confidential.** (conf) Of classified material: Having such security status that its unauthorized disclosure could be prejudicial to the defense interests of the nation. See: **classification; defense classification.**

Often capitalized or written in full caps.

**confinement.** Physical restriction, or degree of such restriction, to passage of detonation wave or reaction zone as, for example, that of a resistant container which holds an explosive charge. See also: **charge, confined.**

**conical horn.** *Electroacoustics.* A horn whose cross-sectional area increases as the square of the axial length.

**conical scan.** In radar, a scan made by a beam describing a cone, the point from which the beam is radiated being at the apex of the cone. Hence, *conical scanning.*

**conjugate focal points** (also **conjugate foci**). *Optics.* Those pairs of points on the principal axis of a mirror or lens so located that light emitted from either point will be focused at the other. Related points in object and image located optically so that for every point on the object there is a corresponding point in the image.

**console.** A grouping of controls, indicators, and similar items contained in a specially designed model cabinet for floor mounting and is an operator's permanent working position. Normally includes desk facilities. It may include components of an electronic set or an electrical system. Excludes SWITCHBOARD (as modified).*

**CONSOLE, ASSAULT FIRE COMMAND, GUIDED MISSILE.** A console specifically designed to be used in assault position(s) where close tactical guided missile support is required. It is used in lieu of a GUIDED MISSILE BATTERY CONTROL CENTRAL which is less adaptable to assault phase operations. Provides facilities for audiovisual target detection, tracking and fire control of two or more guided missile launchers. May include inter-communication facilities. Excludes CONSOLE, GUIDED MISSILE BATTERY CONTROL; CONSOLE, MISSILE TRACKING; CONSOLE, TARGET TRACKING. See also: **CONSOLE, MISSILE GUIDANCE.***

**CONSOLE, GUIDED MISSILE BATTERY CONTROL.** A console specifically designed to be used in a guided missile remote control system. It provides facilities which indicate the status of each missile in a battery, prior to and including launching and firing. Also includes provisions for monitoring and adjusting circuits of an acquisition radar, cathode-ray tube presentation, and automatic plotting facilities showing target and missile data. May include intercommunications facilities. Excludes CONSOLE, RADAR SET.*

**CONSOLE, LAUNCHER CONTROL.** A console specifically designed for controlling and monitoring

two or more guided missile launching sections. It provides facilities which indicate the status of each missile in a battery, prior to and including launching, and furnishes this data to a CONSOLE, GUIDED MISSILE BATTERY CONTROL. May include intercommunications facilities. See also: **SELECTOR, LAUNCHER CONTROL.***

**CONSOLE, MISSILE GUIDANCE.** A console that is used with associated electronic sets and components for the command control of a guided missile.*

**CONSOLE, MISSILE TRACKING.** A console specifically designed for tracking a guided missile from time of launch to point of intercept with an airborne target. It is used with an ANTENNA-RECEIVER-TRANSMITTER GROUP, MISSILE TRACKING. Excludes CONSOLE, MISSILE GUIDANCE; CONSOLE, GUIDED MISSILE BATTERY CONTROL.*

**CONSOLE, TARGET TRACKING.** A console specifically designed for tracking an airborne target to point of intercept with a guided missile. It is used with an ANTENNA-RECEIVER-TRANSMITTER GROUP, TARGET TRACKING. Excludes CONSOLE, MISSILE GUIDANCE; CONSOLE, GUIDED MISSILE BATTERY CONTROL.*

**constant amplitude recording.** *Electroacoustics.* A mechanical recording characteristic wherein, for a fixed amplitude of a sinusoidal signal, the resulting recorded amplitude is independent of frequency.

**constant-pressure combustion.** Combustion of fuel in a cylinder at a rate slow enough so that there is no rise in cylinder pressure. The slow-speed air-injection diesel is a constant-pressure-combustion engine.

**constant recoil.** Of recoil systems: Having no means of variation of the length of recoil. Cf: **variable recoil.**

**constant velocity joint.** A universal joint designed to transmit rotary motion between two shafts at an angle to each other with no differential in speed.

**constant-velocity recording.** *Electroacoustics.* A mechanical recording characteristic wherein, for a fixed amplitude of a sinusoidal signal, the resulting recorded amplitude is inversely proportional to the frequency.

**constant-volume combustion.** Combustion in a cylinder while there is no change in clearance volume. All the energy of combustion goes to raise the cylinder pressure. The gasoline engine and many high speed diesels have constant-volume combustion, or operate on the Otto cycle.

**constrained shell analysis.** As applied to the design of rotating bands for artillery projectiles, an analysis that recognizes the possibility of band failure at one of three areas: the band land surface, the band land-groove fillet, or the inner surface of the band, and provides formulas for checking each of these points.

**constrictor.** The exit portion of the combustion chamber in some designs of ramjets, where there is a narrowing down of the tube at the exhaust.

**contact fire.** Method of firing a mine by which the mine is exploded immediately when touched by a vessel, vehicle or person. See: **mine, contact.**

**contact fuze.** See: **fuze, contact.**

**contact mine.** See: **mine, contact.**

**container.** See: **shipping and storage container.**

**CONTAINER, AMMUNITION, FIBER.** A cylindrical item made of spirally-wound, asphalt-impregnated paperboard. It is designed to be used for the protection of ammunition during storage, handling, and/or shipment. It may have a telescope type lid at one or both ends.*

**CONTAINER, AMMUNITION, METAL.** A cylindrical item with a detachable lid. It is designed to be used for the protection of ammunition during storage, handling and/or shipment.*

**CONTAINER, BOMB, AIRCRAFT.** A suspension device installed on, but not permanently fixed to an aircraft. It is designed for inclosing, attaching, arming and releasing of bombs. It may also be utilized to accommodate other projectiles.*

**CONTAINER, DEMOLITION CHARGE.** A metallic item of various shapes and sizes designed to be filled with an explosive charge so as to concentrate the energy of the explosive in one direction.*

**CONTAINER, PARACHUTE BOMB.** A protective cover for shipping and handling a bomb parachute and container.

**container, returnable.** Specific type of container which may be collapsed when the item enclosed is withdrawn in order that the container may be returned to point of origin in knocked down condition.

**container, shipping and storage.** See: **shipping and storage container.**

**contamination.** Presence of, or act of placing on a person, object, or area, a chemical, biological or radiological (CBR) agent.

**continuous fire.** 1. Fire conducted at a normal rate without interruption for application of adjustment corrections or for other causes. 2. In field artillery, a succession of salvos, the pieces being fired consecutively at the interval designated in the command.

**continuously pointed fire.** A system of fire control which supplies firing data to the gun continuously instead of at a fixed interval, such as predicted concentration.

**continuous-pull firing mechanism.** This type of firing mechanism is used on weapons firing fixed or semi-fixed ammunition. Aside from safety devices, the firing lock is not affected by motion of the breechblock. The complete operation of a continuous-pull firing mechanism is effected by one continuous pull of the lanyard. There are three phases in the firing cycle: (1) *Cocking phase.* The first part of a pull on the lanyard compresses the firing spring. (2) *Firing phase.* The remaining part of the lanyard's movement disengages the sear, thus allowing the spring to expand and force the firing pin against the primer, firing it. (3) *Retracting phase.* The lanyard slacks, and the firing mechanism parts return to their position at rest.

**continuous sampling plan.** An inspection and sampling plan, under which a large number of consecutive units of the product as produced are inspected, and if this inspection shows the product to be satisfactory, followed by sampling and inspection and/or test of the qualified product. This method is applied only

to production of the conveyer-line type, where formation of inspection lots for lot-by-lot acceptance would be artificial, and sampling of the product as produced furnishes better control.

**contr** *(abbr)*. 'Contract; contractor.'

**contracting officer.** Any officer or civilian employee authorized to enter into and administer contracts and to make determinations and findings with respect thereto.

**contractor vehicle.** Administrative vehicle which will not be given the appearance or marking of a military vehicle and will not be operated under a United States Army registration number because the vehicle has been turned over for operation by the contractor at a contractor-operated installation or facility. To assist in maintenance of property, the United States Army registration number is painted within the hood.

**contract termination.** Termination or cancellation, in whole or in part, of work under a prime contract for the convenience or at the option of the Government, except for default of the prime contractor, or of work under a subcontract for any reason, except the default of the subcontractor.

**contra-injection.** The injection of fuel into the air stream in a direction opposite to the flow of air.

**control.** 1. A device used to govern a machine or mechanism in operation. Excludes governor and regulator. 2. *Electrical/Electronic.* A component which governs the operation of another component or grouping of components. Excludes control, sense 1 and controller, sense 1. Do not use for such items as switches, circuit breakers, regulators, relays, rheostats and the like which are used without the addition of other parts to accomplish this function.*

**CONTROL, ALTITUDE, GUIDED MISSILE.** A specifically designed control which is manually preset to establish maximum altitude of a guided missile's flight. May include facilities for presetting final dive angle. Excludes CONTROL, ALTITUDE, AUTOMATIC PILOT; CONTROLLER, FLIGHT, AUTOMATIC PILOT.*

**CONTROL, ANTENNA.** A component which determines the mode of operation of an antenna.*

**control, bang-bang.** See: **bang-bang control.**

**CONTROL, BOMB FUZE.** A control consisting of a panel containing dials, relays, switches, or the like. It is used to determine the mode of operation of a bomb fuze.*

**control circuits.** The circuits of a digital computer which affect the carrying out of instructions in proper sequence, the interpretation of each instruction, and the application of the proper commands to the arithmetic element and other circuits in accordance with this interpretation.

**CONTROL, DIRECTION FINDER.** A component that determines the mode of operation of a direction finder.*

**CONTROL, ELECTRICAL FREQUENCY.** An item which electronically permits frequency excursions within predetermined limits from either side of the fundamental frequency of another item, such as radio frequency oscillator. Excludes DRIVE, TUNING.*

**CONTROL, GUIDED MISSILE WARHEAD ARMING DEVICE.** An item specifically designed to control the operation of an ARMING DEVICE, GUIDED MISSILE WARHEAD.*

**CONTROL, GYROSCOPE, GUIDED MISSILE TAIL.** An item designed to govern the control surfaces of the tail of a guided missile.*

**controllability.** A quality of a missile, aircraft or other vehicle that makes for effectiveness and ease of control.

**controlled-devices countermeasure.** Usually *pl.* **Any electronic countermeasure** (which see) against guided missiles, pilotless aircraft, proximity fuzes, or similar devices.

**controlled fragment.** See: **fragment, controlled.**

**controlled line.** In a computing gunsight system, an imaginary line the direction of which is directly determined by the operator or servomechanism when tracking a target and used for reference.

**controlled mine.** See: **mine, controlled.**

**controller.** A device used to control, in some predetermined manner, an output delivered to the apparatus that is to perform the required function(s).*

**control-plane.** The qualifying term which describes the transmitting antenna on an aircraft which radiates the control signal by which a guided bomb is steered.

**control, proportional.** Control in which the action to correct an error is made proportional to that error.

**CONTROL, REMOTE, LAND MINE FUZE.** A control utilized to accomplish selective arming and disarming of land mine fuzes from a position located in friendly territory.*

**CONTROL, SEARCHLIGHT.** A component which determines the mode of operation of a searchlight.*

**CONTROL, SENSITIVITY TIME, RADAR.** An item that increases the near target detection capability of a radar set, by accelerating the receiver rise time through the trailing edge of the transmitter pulse. The control may also be adjusted to provide interpulse dead time space for the transfer of signal data to other equipment.*

**control surface.** 1. In a broad sense, any movable airfoil used to guide or control an aircraft, guided missile, or the like in the air, including the rudder, elevators, ailerons, spoiler flaps, trim tabs, and the like. 2. In restricted usage, one of the main control surfaces, i.e., the rudder, an elevator, or an aileron.

**CONTROL SURFACE ASSEMBLY, GUIDED MISSILE.** An assembled item usually consisting of a fin, initial control rudder, stabilizer, and a servomechanism. May also include mounting hardware, receiving, and transmitting antennas. For items consisting of two or more control surface assemblies see: **CONTROL SURFACES KIT, GUIDED MISSILE.** See also: **FIN, GUIDED MISSILE; RUDDER, INITIAL CONTROL, GUIDED MISSILE; STABILIZER** (as modified).*

**CONTROL SURFACES KIT, GUIDED MISSILE.** Two or more CONTROL SURFACE ASSEMBLY, GUIDED MISSILE, designed to provide the stabilization and guidance control necessary to a guided missile. Electronic command circuits to guidance components may be completed through plug-in connections. May include mounting hardware, receiving, and/or transmitting antennas.*

**control system.** A coordinated group of components designed to exert a directing influence on other components. The system for properly maneuvering a missile in response to guidance intelligence furnished by the guidance system; this usually includes an autopilot, servos, and control surfaces or jets.

**CONTROL UNIT, PARACHUTE, UNDERWATER MINE.** A barometrically actuated item designed to open an underwater mine parachute at a predetermined altitude.*

**control vehicle.** 1. Vehicle in which the commander or internal control officers ride. 2. A standard vehicle of known capabilities operated alongside an experimental test vehicle for purposes of comparison.

**conventional bomb.** See: **bomb, conventional.**

**converging fire.** Fire from a number of guns directed at the same spot.

**converging lens.** Also known as convergent lens, positive lens, convex lens, collective lens. A lens that will converge parallel light. One surface of a converging lens may be convexly spherical and the other plane (planoconvex), both may be convex (double convex), or one surface may be convex and the other concave (convexoconcave, meniscus converging). A converging lens is always thicker at the center than at the edge.

**CONVERSION KIT, DEPTH CHARGE.** A group of items designed to convert a depth charge to a controlled mine or a demolition kit.* See also: **CHARGE, DEPTH; demolition kit; mine, controlled.**

**CONVERSION KIT, FIRE BOMB.** A group of items designed to convert a fire bomb from impact type of fuzing to variable time type of fuzing.*

**CONVERSION KIT, FRAGMENTATION BOMB.** A group of items designed to convert fragmentation bomb(s) from fin assembly type of stabilization to parachute type of stabilization.*

**conversion transducer.** A transducer in which the input and useful output frequencies are different.

**converter.** 1. *Electrical or Mechanical.* A machine or device that changes alternating current to direct current, or the converse 2. A machine or device that changes the frequency of periodic phenomena. 3. A machine or device that changes one type of signal to another (e.g., AM to FM). 4. *Nuclear.* A reactor that uses one kind of fuel and produces another (e.g., consumes $U^{235}$ and produces Pu from $U^{238}$). Cf: **breeder.**

**CONVERTER, DRIFT ANGLE-GROUND SPEED.** An item that processes drift angle and ground speed signals received from a computer into a form suitable for use by other components of a navigational computer set.*

**CONVERTER-OSCILLATOR.** An item having the dual functions of changing the waveform of received frequency shift signals to amplitude modulated or direct current signals and of generating a radio frequency signal to be applied to a radio transmitter.*

**CONVERTER, WAVE FORM.** A device which by means of electron tube(s) or other electronic or electrical means accepts an input signal, usually of sinusoidal wave form, and produces an output signal whose wave form is radically different from that of the input signal. Excludes items containing pulse generators requiring external triggering. See also: **NETWORK, PULSE FORMING,** and **CHOPPER, ELECTRONIC.***

**convertible vehicle.** Vehicle that can be changed from the wheeled type to the track-laying type.

**convex lens.** See: **converging lens.**

**convexo-concave lens.** A lens with one convex and one concave surface; it is mounted with the convex surface toward the object.

**cook-off.** The deflagration or detonation of ammunition caused by the absorption of heat from its environment. Usually it consists of the accidental and spontaneous discharge of, or explosion in, a gun or firearm, caused by an overheated chamber or barrel igniting a fuze, propellant charge, or bursting charge.

**cooling fin.** Any one of a number of vanes machined around a cylinder on an air-cooled engine in order to offer more surface area to the flow of cooling air.

**coordinate.** (cord) In mathematics and mapping, any of two or more distances that define the position of a point, line, or plane by reference to a fixed figure or system of lines. The reference X- and Y-lines used in common problems involving graphs are coordinates.

**copper.** Short for **gage, copper crusher** (which see).

**copper crusher gage.** See: **gage, copper crusher.**

**coppering.** Metal fouling accumulated in the bore of a weapon due to repeated firing. The metal is deposited from the rotating bands or jackets of the projectiles.

**copper pressure gage.** See: **gage, copper crusher.**

**copyright.** The right of literary property as recognized and sanctioned by positive law. An intangible, incorporeal right granted by statute to the author or originator of certain literary or artistic productions, whereby he is invested, for a limited period, with the sole and exclusive privilege of multiplying copies of the same and publishing or selling them.

**cord** *(abbr).* 'Coordinate.'

**CORD, DETONATING.** Flexible fabric tube containing a filler of high explosive intended to be initiated by a blasting cap or electric detonator. See also: **fuse.**

**cordeau.** See: **CORD, DETONATING.**

**cordite.** Traditional British propellant. Double base propellant in the form of cords, composed of guncotton, nitroglycerin, and mineral jelly, used by some foreign nations, and to some extent in the US, as a propellant. See: **propellant.**

**cord propellant.** See: **cordite.**

**CORE MEMORY UNIT.** An electronic item which accepts and systematically retains digital input data in such a manner as to facilitate rapid recovery of the stored information. The item consists of one or more three dimensional memory array frames and wired ferrite cores. Includes core selector circuitry and signal drivers. May include memory address register. See also: **MAGNETIC DRUM, DATA STORAGE.***

**Coriolis effects.** Those phenomena that deflect a projectile or missile during flight to the right in the northern hemisphere and to the left in the southern hemisphere. These effects are due to the rotation of

the earth and apply generally to all particles traveling across a rotating surface.

**corner reflector.** A combination of metallic surfaces mutually intersecting to form an inside corner, especially designed to reflect electromagnetic radiations efficiently.

A corner reflector may be used as a marker or as a component of a certain kind of antenna, or it may be used to render another object or location more conspicuous to radar search.

**Cornhusker Ordnance Plant.** Ordnance Corps field installation located at Grand Island, Nebraska.

**Corporal.** Name applied to an Army surface-to-surface ballistic missile designed for use as a tactical weapon against enemy troop concentrations or installations. It is liquid-fueled and is supersonic. It can carry either a conventional high explosive warhead or a nuclear warhead.

**corrected azimuth.** Azimuth of the axis of the bore of a gun firing on a moving target, after allowances have been made for atmospheric, materiel and other variable conditions.

**corrected compass course.** Same as **magnetic course.**

**corrected compass heading.** Same as **magnetic heading.**

**corrected deflection.** Horizontal angle between the line of sight and the axis of the bore of the gun after allowances have been made for atmospheric, materiel and other variable conditions.

**corrected elevation.** Firing table elevation corresponding to the corrected range.

**corrected lens.** A compound lens, the various surfaces of which have been so designed with respect to each other that the lens is reasonably free from one or more aberrations.

**corrected range.** Actual range with allowances made for weather conditions, variation in ammunition, wear in the gun, or any other variations from standard conditions, so that the projectile will carry to the target.

**correction.** 1. Any change in firing data to bring the center of impact of burst closer to the target. 2. *Electronic computers.* The quantity which is added to a calculated value to obtain the correct value.

**correction wedge.** In optical instruments, a rotating wedge-shaped element used to precisely divert the line of sight to correct errors in the optical system caused by temperature variations. See: **PRISM, OPTICAL INSTRUMENT.**

**correction windows.** These are optical wedges of very small angles. They admit light, seal out dirt and moisture, and are so mounted that they may be rotated to compensate for the accumulated errors in the entire system. Two are used as end windows on some range finders. See: **WINDOW, OPTICAL INSTRUMENT.**

**CORRECTOR, CANT.** A device used to correct gunnery errors when the gun trunnions are not parallel to a horizontal plane.*

**corrector setting.** The setting applied on the fuze setter in order to set the fuze at a different value from that determined by the normal operation of the data computer.

**corresponding range.** 1. Range corresponding to a given angle of elevation of a weapon. 2. *Specif.* Range corresponding to the lowest trajectory which passes safely over the heads of friendly troops.

**corrosion inhibitor.** See: **INHIBITOR, CORROSION** (as modified).

**CORROSION PREVENTIVE COMPOUND.** A coating formulated to physically exclude corrosion causing substances from metal surfaces, and which can be removed by wiping. It may contain corrosion inhibitors. Excludes lubricants.*

**CORROSION REMOVING COMPOUND.** A chemical product designed for removal of corrosion such as rust formed on metal surfaces by oxidation, hydration, and carbonation. Excludes corrosion inhibitors and SCALE REMOVING COMPOUND.*

**Corvus.** Navy air-to-surface missile with a range of about 100 miles. Powered with prepackaged liquid propellant motor. For use by carrier aircraft as stand-off weapon against heavily defended strong points.

**cosmotron.** An apparatus similar in purpose to the **bevatron** but on a smaller scale.

**cost-plus-a-fixed-fee contract.** (CPFF contract) Type of contract, limited in use, whereby the contractor is paid a fixed fee limited to a per centum of the estimated cost of the contract and providing for payment of all allowable costs as defined in the contract.

**cost-reimbursement-type contract.** Includes cost or cost-sharing contracts, and cost-plus-fixed-fee contracts.

**count down.** Period of time during which final preparation and checking is done before the firing of a missile. The term is also applied to the process of 'counting down' or indicating periodically the time remaining before 'zero' which is the firing time.

**counter.** *Electronic computers.* 1. In mechanical analog computers, a means for measuring the angular displacement of a shaft. 2. A device capable of changing from one to the next of a sequence of distinguishable states upon each receipt of a discrete input signal.

The term 'counter' is in some cases used to mean 'accumulator.'

**counterbattery fire.** Fire specifically directed against enemy artillery or control stations; counterbattery.

**counter chronograph.** See: **chronograph.**

**counterfire.** 1. Fire delivered in answer to the fire of an attacker. 2. Fire intended to destroy or neutralize enemy weapons.

**countermeasures chaff.** See: **CHAFF, COUNTERMEASURES.**

**countermeasures chaff dispenser.** See: **DISPENSER, COUNTERMEASURES CHAFF.**

**COUNTERMEASURES SET.** A complete electronic set specifically designed to provide facilities for intercepting and analyzing electromagnetic energy propagated by a transmitter(s) and to provide a source of radio frequency signals which deprive the enemy effective use of his electronic equipment.*

**countermining.** Method of destroying mines by detonating them with nearby explosions.

**countermining radius.** The least practicable distance between mines to avoid chain countermining.

**counterpoise.** 1. Mechanism that counterbalances the weight of the breechblock of a large gun, making it easier to open and close. 2. See: **COUNTERPOISE, ANTENNA.**

**COUNTERPOISE, ANTENNA.** A conductor or system of conductors, fabricated or arranged in a specific pattern, to simulate the properties of an electrical ground.*

**counterpreparation fire.** Fire delivered in anticipation of an enemy attack, designed to break up enemy formations; disorganize the enemy systems of command, communication and observation; decrease the effectiveness of his artillery preparation, and impair his offensive spirit. Cf: **covering fire; preparation fire.**

**counterrecoil.** Forward movement of a gun returning to firing position (battery) after recoil.

**counterrecoil buffer.** See: **BUFFER, RECOIL MECHANISM.**

**counterrecoil mechanism.** A hydraulic, pneumatic, or mechanical system that returns a gun into battery, or firing position, after recoil; a recuperator; a recuperator mechanism.

**counterrecoil velocity.** The speed with which a gun returns into battery after recoil.

**COUNTER, SHIP, UNDERWATER MINE.** An item designed to count the number of ships passing over an underwater mine. It is set to allow detonation after a predetermined number of ships have passed.*

**counterweight.** A weight used to counteract another weight or force; a counterpoise.

**coupling.** *Electricity.* A mutual relationship between two circuits such that a transfer of energy between them is permitted.

**COUPLING BASE, FIRING DEVICE.** A device by means of which a standard firing device may be connected to a black powder igniter or blasting cap. The item is threaded on one end to screw into a standard firing device and at the other end to screw into a cap well of demolition charge or certain types of land mines. It may or may not be assembled with a percussion primer.*

**course.** (crs) 1. The angle measured clockwise between true or magnetic north and a line connecting the point of origin and point of destination over which an aircraft, ship, or ground vehicle travels. 2. See: **compass course.**

**course error.** The angular difference between the planned course and the course made good.

**course line.** 1. A line representing the planned course of an aircraft or missile. 2. A line of position as plotted on a chart, lying parallel or almost parallel to the planned course of an aircraft or missile, and showing whether the aircraft or missile is to the right or left of the course.

**course-line computer.** An airborne electronic device that continually computes an aircraft's position in terms of its departure from course and its distance from destination. Also called an 'offset-course computer.'

The course-line computer works in conjunction with omnirange and distance-measuring-equipment transmissions.

**course-line-deviation indicator.** A cross-pointer instrument indicating deviation from a course line.

**course-line selector.** An instrument providing means to select the course to be flown.

**COVER, ACCESS, GUIDED MISSILE.** An item which is a portion of the body shell of a guided missile and which, through use of hinges, catches, or other fastening devices, permits easy access to the interior of a missile. Excludes COVER, ACCESS, GUIDED MISSILE COMPONENTS.*

**COVER, ACCESS, GUIDED MISSILE COMPONENTS.** A cover designed to provide access to a guided missile component for inspection, service, or adjustment. Do not use if a more specific name applies. Excludes COVER, ACCESS, GUIDED MISSILE.*

**COVER, ANTITANK MINE.** An item specifically designed for use with light antitank mines to prevent entry of dirt, stone, or sand in the working space between the mine body and the mine pressure plate.*

**COVER, BALLISTIC CASE NOSE SECTION.** An item, usually of fabric, designed to provide protection for the nose section of a ballistic case.*

**cover, fuse.** Metal cover which fits over nose fuze on projectile to waterproof and to prevent damage during handling and shipment. Sometimes called 'waterproof protective cap.'

**COVER, GUN SIGHT.** A removable protective item designed to fit over a SIGHT, FRONT or a SIGHT, REAR.*

**covering fire.** 1. Fire used to protect troops when they are within range of enemy small arms. 2. In amphibious usage, fire delivered prior to the landing to cover preparatory operations such as underwater demolitions or minesweeping. Cf: **counterpreparation fire; preparation fire.**

**COVER, PROTECTIVE, ROCKET WARHEAD.** A collection of items consisting of a canvas cover, framework, and the like. Used for protection of a rocket warhead and operating personnel during installation, and as a security measure against observation of installation procedure. Excludes NET, CAMOUFLAGE and CAMOUFLAGE NET SET (as modified).*

**COVER, ROCKET MOTOR, ELECTRICALLY HEATED.** An electrically heated item consisting of a shell, heating element and the like, designed to preheat a rocket motor.*

**cover, rocket nozzle.** See: **FAIRING, NOZZLE, ROCKET.**

**COVER, TANK COMMANDER'S CUPOLA.** A cover generally made of waterproof material and used to protect the contents of a CUPOLA, TANK COMMANDER'S. It may have facilities for mounting on the cupola.*

**cowling.** A covering of metal, wood, or other material for directing and regulating the flow of cooling air, for streamlining, or for protecting the part or section covered; *specif.*, an engine cowling.

**CP** *(abbr).* 1. 'Concrete piercing.' 2. 'Command post.'

3. 'Center of pressure.' 4. 'Chemically pure.' 5. 'Circular pitch.'

**CPE** *(abbr)*. 'Circular probable error.'

**CPFF** *(abbr)*. 'Cost-plus-a-fixed-fee.'

**CR** *(abbr)*. 'Complete round.'

**crab angle.** See: **angle, crab.**

**cradle.** The nonrecoiling structure of a weapon that houses the recoiling parts and rotates about the trunnions to elevate the gun.

**CRADLE, BOMB HANDLING.** A rigid wood and/or metal frame structure, designed with a concave load bearing surface to prevent movement of a bomb during handling. May be manually carried or an attachment for a vehicle. Excludes skids. See also: **TRUCK, AIRCRAFT BOMB** and **TRAILER, BOMB.***

**CRADLE, CANNON.** An item designed to support a cannon and which allows the cannon to recoil and counterrecoil. It also provides a means of securing the recuperator and recoil cylinders or the recoil piston rod(s). It has facilities for attaching to a mount or carriage of a gun or howitzer.*

**CRADLE, ROCKET MOTOR, AERIAL DELIVERY.** A framework of pipe or tubing specifically designed to conform to the contour of a ROCKET MOTOR and to support it in a predetermined position while being transported by helicopter. May include attachments, such as straps, eye bolts, safety hooks, or the like. See also: **BASKET, DELIVERY, ROCKET EQUIPMENT.***

**CRADLE, ROCKET WARHEAD, AERIAL DELIVERY.** A framework of pipe or tubing, specifically designed to conform to the contour of a rocket warhead and to support it in a predetermined position while being transported by helicopter. May include attachments, such as straps, eye bolts, safety hooks, or the like. See also: **BASKET, DELIVERY, ROCKET EQUIPMENT.***

**crane.** A machine for raising and lowering heavy weights and, while holding them suspended, transporting them through a limited lateral distance, and which may be manually or power operated and either fixed or mobile.*

**crane, ammunition.** Lifting device incorporated on the carriage of some heavy artillery for lifting the ammunition and placing it on the loading tray from which position it is loaded into the gun.

**CRANE, BRIDGE TRAVELING.** A crane in which the hoisting apparatus is supported by a trolley which runs on an overhead track, or bridge, which, in turn, is supported either by ground level end trucks running on rails or on floor level wheels.*

**CRANE, GANTRY REVOLVING.** A crane in which the hoisting apparatus is located in the crane cab with the hoisting lines running over a boom to ground level. The crane is supported by a structural gantry-type framework of variable height which may be stationary or mobile mounted. The gantry is generally constructed to provide a portal clearance for vehicles operating under the crane.*

**CRANE, OVERHEAD TRAVELING.** A crane in which the hoisting apparatus is supported by a trolley running on an overhead track, on girders which are affixed to overhead and trucks at both ends.*

**crane-shovel.** A convertible type, power operated machine designed to utilize a shovel-front, a skimmer or backhoe attachment for excavation work, or a crane boom with attachments, such as clamshell, hook, dragline or pile-driver.*

**CRANKSHAFT, ENGINE.** A rotating member of an internal combustion engine, designed to transmit the linear thrust of a piston(s) and connecting rod assembly(ies) into axial motion.*

**Crans, law of.** A statement of the supposed similarity in behavior of shaped charges if the diameter is taken as the basis of comparison, and the charges are geometrically similar.

**crash helmet.** Heavy padded helmet worn as protection against head injuries in tank or aircraft.

**crash pad.** See: **PAD, CUSHIONING.**

**crater.** Hole in the ground caused by an explosion.

**crater analysis.** Process by which the direction of hostile shelling is determined from analysis of the burst pattern of the craters. At the same time, fragments are collected and studied to determine their caliber.

**cratering charge.** See: **charge, cratering.**

**CRATE, WOOD.** A container of frame construction with sides, bottom, and top. It may be sheathed or unsheathed.*

**CRC** *(abbr)*. 'Complete-round chart.'

**creep.** 1. Forward motion of fuze parts relative to the missile that is caused by deceleration of the missile during flight. Also called 'creep action.' 2. An undesirable play or movement, or a tendency thereto, in a mechanism. 3. Slight unintentional movement of a vehicle, or turret of a tank, caused by the constant application of a small amount of power.

**creeping method of adjustment.** Method of getting the range of an enemy position close to friendly troops by firing the first set of shots too far, then gradually and carefully shortening the range.

**creep spring.** In the fuze design, a spring used to prevent creep action. See also: **creep.**

**crew-served.** Of or pertaining to anything served or operated by a crew as distinguished from an individual; e.g., a weapon operated by a crew of two or more persons.

**CRIMPER, BLASTING CAP.** A manually operated tool designed for fastening blasting caps to safety fuse.*

**crimping.** 1. Mechanical operation on metal or other material by which the material is permanently deformed, usually by small undulations, frills or wrinkles. 2. The process by which the cartridge case is secured to the projectile, either by a continuous folding in of the neck of the cartridge case into the crimping groove or by a series of deformations (crimps) at a location somewhat below the cartridge case mouth. 3. In blank small arms ammunition, the closing in of the neck of the cartridge case to secure the wadding over the charge.

**crimping groove.** Groove around a projectile base which provides a means of crimping the cartridge case to the projectile. See also: **crimping.**

**critical altitude.** The maximum altitude beyond which the propulsion system of a guided missile will not perform satisfactorily.

**critical angle.** *Optics.* That angle at which light, about to pass from a medium of greater density to one of lesser density, is refracted along the surface of the denser medium. When this angle is exceeded, the light is reflected back into the denser medium. The critical angle varies with the *index of refraction* of the substance or medium.

**critical angle of attack.** See: **angle of attack, critical.**

**critical defect.** See: **classification of defects.**

**critical item.** An essential item which is in short supply or expected to be so.

**critical mass.** The minimum mass, when related to a specific shape and environment, of a fissionable material necessary to sustain a nuclear chain reaction.

**critical material.** Any raw or partially-processed material essential in a national emergency and not expected to be available in quantity, quality, or time to meet requirements unless stockpiling action is taken. Cf: **strategic material.**

**critical pressure ratio.** In nozzle flow, that outlet-to-chamber-pressure ratio which just produces M = 1 at the throat.

**critical velocity.** A term used by the British in evaluating the performance of an AP projectile against armor plate. For each combination of projectile and plate of certain physical characteristics and thickness, there is theoretically a striking velocity at which complete penetration would just occur. This theoretical velocity, determined in a certain prescribed manner, is called the *critical velocity.* See: **ballistic limit.**

**critical zone.** Area over which a bombing plane in horizontal flight or glide bombing must maintain straight flight so that the bombsight can be operated properly and bombs dropped accurately.

**cross-drive transmission.** A transmission which changes speed and torque ratios, varies the speeds of the output shafts, and provides differential action to permit the steering of track-laying vehicles. It consists of a torque converter and a number of planetary gear trains, producing a split torque. The name is taken from the main cross shift, which is across the axis of power flow from the engine.

**crossfire.** Two or more intersecting lines of gunfire.

**cross hair.** An inscribed line or a strand of hair, wire, silk, or the like used in an optical sight, transit, or similar instrument for accurate sighting.

A cross hair may or may not cross another strand or line.

**crossing target.** Moving target that crosses the line of sight at any angle. In firing at a crossing target, the firer must aim ahead of, or lead, the target so that the paths of the target and bullet will meet.

**cross-level.** To level a weapon or instrument, such as a mortar or surveyor's transit, at right angles to the line of sight.

**cross-modulation.** *Receivers.* Modulation of a desired signal by an undesired signal.

**cross-polarization.** The component of the electric field vector normal to the desired polarization component.

**crosstalk.** The interference between nearby circuits, wherein signals in one circuit are undesirably reproduced in another, or other circuits.

**crosswind.** 1. *Ballistics.* Component of the **ballistic wind** which acts in a direction perpendicular to the direction of fire. 2. A wind blowing from such direction that its principal effect is to cause a given aircraft to drift or move laterally; a wind that blows across something.

**crosswind force.** *Ballistics.* Component of the total air resistance acting in the plane of yaw perpendicular to the direction of motion of a projectile or missile. Also known as 'lift,' esp. in connection with aircraft and winged missiles. See: **lift.**

**crown.** 1. The upper part of a parachute canopy. 2. Term often used to designate the top of an engine piston.

**crown glass.** One of the two principal types of optical glass; the other type is **flint glass.** Crown glass is harder than flint glass, has a lower index of refraction, and lower dispersion. Both types are used in the making of compound lenses.

**cruciform.** A configuration in form of a cross with equal legs, 90° apart. Shape used for certain grains of rocket propellant.

**cruise missile.** See: **pilotless aircraft.**

**crusher gage.** See: **gage, copper crusher.**

**cryogenic.** Pertaining to very low temperatures of at least −50°C and below.

**cryogenic liquid.** Liquefied gas at very low temperature, such as liquid oxygen, nitrogen, argon. Cryogenic liquids are used in missile systems for propulsion, pressurization and refrigeration.

**CRYPTOGRAPHIC EQUIPMENT DESTROYER, INCENDIARY.** An item designed to be filled with an incendiary mixture and to destroy, by burning, cryptographic equipment and associated material. It is provided with a mechanical fuze and electrical squib(s). If used for training or instructional purposes, it is either empty of incendiary mixture or sectionalized and filled with simulated incendiary mixture, and in either condition is provided with an inert fuze and inert squib(s). Excludes FILE DESTROYER, INCENDIARY.*

**CRYSTAL BLANK, QUARTZ.** An item cut from quartz and ground to an approximate size and frequency. It is designed to be later finished to an exact frequency and mounted in a holder to form a CRYSTAL UNIT, QUARTZ.*

**crystal oscillator.** An oscillator in which the frequency is controlled by a crystal.

**CRYSTAL UNIT, QUARTZ.** An item consisting of one or more quartz crystal plates processed to a specific frequency contained in a HOLDER, QUARTZ CRYSTAL. It may include integral capacitor(s) and/or facilities for temperature control.*

**CS** *(abbr).* 'Common steel' (projectile).

**C-scope.** A cathode-ray tube or screen that displays a signal with elevation indicated by a vertical displacement of the signal on the screen and azimuth by a horizontal displacement.

**cstr** *(abbr).* 'Canister.'

**ctg** *(abbr)*. 'Cartridge.'

**CUPOLA, TANK COMMANDER'S** A turret-type steel casting item which is a rotatable dome, mounted on the turret roof of a combat tank. It has facilities for mounting a gun and is designed to protect the commander or gunner from enemy fire.*

**CURTAIN, FLAK PROTECTIVE.** A curtain designed to protect air crew members from enemy missile fragments.*

**CURTAIN, GASPROOF.** A curtain designed to provide a seal for exits and/or windows of a building for protection against gas attack.*

**curved fire.** Fire with low velocity and relatively large curvature of the trajectory at normal ranges. Cf: **flat trajectory fire.**

**CUSHION, INSTRUMENT, UNDERWATER MINE.** An item fabricated from a resilient material, molded or cut into various shapes. It is designed to be fitted around a delicate instrument within an underwater mine to absorb the shock of the underwater mine entering the water when launched from an aircraft.*

**CUSHION SET, INSTRUMENT, UNDERWATER MINE.** A group of two or more CUSHION, INSTRUMENT, UNDERWATER MINE.*

**cutaway.** An object with a part of its covering or surface removed to show its interior construction or movements; a model or illustration of such an object.

**cutoff.** The cessation of burning in a rocket as a means of range control or as a safety measure. This may be accomplished by command or by fail-safe mechanism. Cf: **shutoff.**

**cutoff point.** A point on the trajectory of a ballistic missile or other airborne object at which the fuel is exhausted or cut off.

**cutoff velocity.** Missile velocity when propulsion is terminated by command or fail-safe mechanism. Cf: **burnout velocity.**

**cut paraboloidal reflector.** A paraboloidal reflector which is not symmetrical with respect to its axis.

**CUTTER, POWDER ACTUATED.** A tool designed to cut wire rope, rod, pipe, and like items by utilizing an explosive charge to actuate a cutting blade. In operation the tool is not fixed and is controlled by hand. The items are suitable for use under water as well as above water.* See: **propellant actuated device.**

**CUTTER, POWDER ACTUATED, REEFING LINE.** An explosive actuated item designed to cut the reefing line of a reefing device used to restrain the opening of high speed parachutes during initial deployment.* See: **propellant actuated device.**

**cutting charge.** See: **charge, cutting.**

**CV** *(abbr)*. 'Combat vehicle.'

**CW** *(abbr)*. 'Chemical warfare.'

**cyanogen chloride.** (CK) See: **CHEMICAL AGENT, CYANOGEN CHLORIDE.**

**cybernetics.** The comparative study of the control and intracommunication of information-handling machines and nervous systems of animals and man in order to understand and improve communications, e.g., a study of the art of the pilot or steersman.

**cycle.** 1. A complete series of recurring values or events; *specif.*, the series of actions an internal-combustion piston engine must perform to operate and deliver power. See: **four-stroke-cycle engine; two-stroke-cycle engine.** 2. a. *Electricity.* One positive alternation of current and one negative alternation. b. *Electronics.* The recurring alternation of an electromagnetic wave from one amplitude to another, beginning and ending at zero amplitude.

**cyclic change mechanism.** See: **cyclic rate mechanism.**

**cyclic rate.** The rate at which a succession of movements repeats itself, applied esp. to the rate of fire of an automatic weapon; the maximum rate of fire for a given automatic weapon.

**cyclic rate mechanism.** Device on an automatic gun, such as the Browning automatic rifle, with which the rate of fire of the gun can be controlled, either to reduce it or to increase it.

**cyclonite.** (RDX) A white crystalline explosive, $(CH_2)_3N_3(NO_2)_3$, having high sensitivity and brisance. Cyclonite is used with other explosives or substances to form explosive mixtures and compositions. See also: **composition.**

**cyclotol.** High explosive composed of RDX (cyclonite) and TNT. Mixtures containing up to 75 percent RDX can be loaded by casting.

**cyclotron.** An apparatus for imparting high speeds to atomic particles by magnetically accelerating them in spiral paths, used esp. for bombarding atoms to produce transmutation and artificial radioactivity. Cf: **betatron; bevatron; cosmotron.**

**cyl** *(abbr)*. 'Cylinder.'

**cylinder.** (cyl) 1. *Mechanical.* A chamber, circular in cross section, the length being greater than the diameter and designed to permit the reciprocating movement of a piston within.* 2. The rotating chamber of a revolver type weapon.

**CYLINDER ASSEMBLY, HYDRAULIC BRAKE, MASTER.** A device consisting of a reservoir and/or CYLINDER, HYDRAULIC BRAKE, MASTER with other components necessary to displace fluid from a central source for actuating the slave or wheel cylinders of a hydraulic brake system.*

**CYLINDER ASSEMBLY, HYDRAULIC BRAKE, WHEEL.** A device consisting of a CYLINDER, HYDRAULIC BRAKE, WHEEL with a piston(s) and other component parts which is mounted to the back plate of a wheel. It uses the flow and pressure of a fluid to create the linear motion required to operate the brake shoes of a hydraulic brake system.*

**cylinder barrel.** A type of shotgun barrel with cylindrical bore, i.e., without **choke** (which see).

**CYLINDER, COUNTERRECOIL.** A cylinder with component parts designed to compress fluid for the recuperator assembly of a gun. See also: **CYLINDER, RECUPERATOR.*** Part of the **recoil mechanism,** which see.

**CYLINDER, HYDRAULIC BRAKE, MASTER.** A cylinder, usually incorporating an integral reservoir, designed to house the necessary component parts of a hydraulic brake master cylinder assembly.*

**CYLINDER, HYDRAULIC BRAKE, WHEEL.** A cylinder designed to house the piston and other necessary component parts of a CYLINDER ASSEMBLY, HYDRAULIC BRAKE, WHEEL.*

**CYLINDER, RECOIL.** A cylinder with component parts designed to cushion the backward motion of a cannon by springs or by the flow passage of air or fluid through holes in the piston when the gun is firing.* Part of the recoil mechanism, which see.

**CYLINDER, RECUPERATOR.** A cylinder with components designed to return a cannon to proper firing position after recoil. See also: **CYLINDER, COUNTERRECOIL.*** Part of the recoil mechanism, which see.

**CYLINDER, RELEASE.** An element of the propellant control for a guided missile. See also: **RELEASE, PROPELLANT VALVE, GUIDED MISSILE.**

**cylindrical lens.** A lens ground with a cylindrical surface instead of a spherical one. Lenses ground in this manner are used in spectacles to correct astigmatism, and in range finders to cause astigmatism by stretching points of light into lines of light.

**cylindrical reflector.** A reflector which is a portion of a cylinder. This cylinder is usually parabolic, although other shapes may be used.

**CZ** *(abbr)*. 'Combat zone.'

# D

**D** *(abbr)*. In jato unit nomenclature, designates a cast double base propellant.

**DA** *(abbr)*. 1. 'Department of the Army.' 2. Chemical agent, 'diphenylchloroarsine' (war gas). 3. 'Detroit Arsenal.'

**DAF** *(abbr)*. 'Department of the Air Force.'

**daisy-cutter.** An antipersonnel fragmentation bomb fuzed to burst on impact. *Slang.*

**damage.** (dam) 1. An injury short of complete destruction inflicted upon persons, equipment, or installations. 2. To cause **damage**, sense 1.

**damage assessment.** The result of examination of combat materiel, particularly aircraft and armored vehicles, after a simulated attack, to determine the category in which the damage resulting from the attack would be placed. (See: **damage categories.**) By the assessment, the individual or team making the examination, determine as accurately as possible the probability, in percentage points, that the inflicted damage would produce a result corresponding to a certain damage category.

**damage assessment table.** A device for the graphic presentation of the results of damage assessment.

**damage categories.** Two damage category classifications applying to combat material subject to attack have been accepted, for use in evaluating damage, and damage potential of ammunition. The first classification, applied to *aircraft*, employs the following damage evaluation terms:

*K damage*—Damage such that the aircraft will fall out of control immediately after the damage occurs.

*KK damage*—Damage such that the aircraft will disintegrate immediately after the damage occurs.

*A damage*—Damage such that the aircraft will fall out of control within five minutes after damage occurs.

*B damage*—Damage such that the aircraft will be unable to return to its base.

*C damage*—Damage that will prevent the aircraft from completing its mission.

The second classification, applied to *armored vehicles*, employs the following damage evaluation terms:

*K damage*—Damage that will cause the vehicle to be destroyed.

*F damage*—Damage causing complete or partial loss of the ability of the vehicle to fire its main armament and machine guns.

*M damage*—Damage causing immobilization of the vehicle.

**damage evaluation.** See: **damage assessment.**

**damage potential.** The damage which a projectile or explosive can be expected to do to a specific target.

**damage radius.** 1. The distance at which, in terms of experience or theoretical calculations, certain types of damage can be expected from a specified type of explosive item. 2. *Atomic explosion.* The distance from ground zero at which there is a 50 percent probability that a target element susceptible to the weapon effect considered will be damaged.

**damp.** Frequently with *out*. 1. To cause an oscillating needle or other indicator to come to rest. 2. To cause an oscillating object, as an airplane or rocket, to cease oscillating. 3. To absorb shock.

**damper.** *Propellant actuated devices.* Hydraulic or pneumatic device incorporated in or attached to a PAD as a restraint to limit velocity of stroke.

**damping.** The action of reducing the oscillations of a wavering body, or bringing an oscillating instrument to rest.

**damping factor.** A measure of the tendency of a recurring phenomena, such as vibration, to reduce in intensity or amplitude. In exterior ballistics four damping factors are of importance: *yawing moment damping factor, crosswind force damping factor, spin decelerating moment damping factor,* and *Magnus moment damping factor.*

**damping force.** Any force acting on a body (or system) to progressively reduce oscillations of the body.

**DAMWO** *(abbr)*. 'Department of the Army modification work order.'

**danger space.** 1. That portion of the range within which a target of given dimensions could be hit by a projectile with a given angle of fall. Specifically, the danger space is the space in which the trajectory of rifle or machine gun bullets does not rise above the average height of a man. 2. Space around the bursting point of an antiaircraft projectile.

**DAPE** *(abbr)*. 'Developed armament probable error.'

**dark ignition.** (DI) Igniter for tracer with low luminous intensity to prevent blinding of gunner.

**Dart.** Name applied to a former Army experimental surface-to-surface missile for attack of tanks. It is command-guided by means of wires unreeled from the missile. Uses solid fuel.

**DASA** *(abbr)*. 'Defense Atomic Support Agency.'

**dashpot.** A type of buffer consisting of a rod which slides in and out of a close-fitting cylindrical cavity in a piston rod. This type of buffer is used in some recoil systems to cushion the movement of the recoiling parts as they near the end of recoil and again during return to battery; dashpot buffer.

**DASHPOT, ANCHOR, UNDERWATER MINE.** An item consisting of a cylinder and piston with a means of securing on both ends. Its purpose is to delay release of the anchor plummet by a restricted passage of fluid through an orifice or around the piston.* See also: **RELEASE, ANCHOR, UNDERWATER MINE.**

**DATA ANALYSIS CONTROL GROUP.** A group that provides facilities for the orderly acceptance and conversion of electronic data derived from other components, and directs the monitoring and evaluation of associated test equipment to provide an indication such as the state of readiness of an airborne weapons system.*

**data card.** See: **ammunition data card.**

**data computer.** Mechanical or electromechanical device that receives continuous present position data on airplane or other moving target, and continuously calculates firing data for use against such a target. One of the components of a director. Also called 'computer.'

**data receiver.** Instrument, part of a data transmission system, which receives data from another instrument. See: **data transmission system; data transmitter.**

**data-reduction.** The art or process of transforming masses of raw test or experimentally obtained data, usually gathered by instrumentation, into useful, ordered, or simplified intelligence.

**data transmission system.** System used for transmitting data; for example, one in which firing data are electrically transmitted from a data computer to dials and controls at the guns.

**data transmitter.** Instrument, part of a data transmission system, which transmits data to another instrument. See: **data receiver; data transmission system.**

**datum dimension.** In dimensioning, an untoleranced but theoretically exact dimension locating a point, line, or plane, at which the feature of a part must be within certain specified limits, or may be the exact dimension of a feature the location of which may vary within specified limits.

**datum elements.** In dimensioning and tolerancing, datum surfaces, datum planes, datum diameters, etc. Features of a part which are assumed to be exact for purposes of computation or reference, while another feature or other features of the part may vary with respect to the datum.

**Davis wing.** A narrow-chord wing having comparatively low drag and a stable center of pressure, that develops lift at relatively small angles of attack.

**Davy Crockett.** The name given to a lightweight, short-range, recoilless weapon of the spigot mortar type which has atomic as well as high explosive warhead capabilities.

**day of fire.** Term formerly used for **ammunition day of supply** (which see).

**day of supply.** The estimated average daily requirement for various supplies by a person or force. See also: **ammunition day of supply.**

**DB** *(abbr).* 'Depth bomb.'

**DBP** *(abbr).* 'Drawbar pull.'

**DBT** *(abbr).* 'Dibutylphthalate' (propellant additive).

**DBX.** A depth bomb explosive containing RDX, ammonium nitrate, TNT, and aluminum in the ratio 21/21/40/18.

**DC** *(abbr).* Chemical agent, 'diphenylcyanoarsine' (war gas).

**DCSLOG** *(abbr).* 'Deputy Chief of Staff for Logistics.'

**DD** *(abbr).* 'Department of Defense.'

**D-day.** The unnamed day on which hostilities, an operation, or an exercise commences, or is to commence; in mobilization planning, the day hostilities commence.

**DDNP** *(abbr).* 'Diazodinitrophenol' (explosive).

**deactivate.** The act of rendering an explosive device inert or harmless. See also: **defuse; disarm.**

**dead area.** See: **dead space.**

**deadline.** Remove from action, as for repairs. See: **deadlined equipment.**

**deadlined equipment.** Any major end item of authorized equipment charged to a using unit or agency which has been removed from operation or immediate operation readiness because of actual or potential mechanical, electrical or safety device failure. It does not include equipment scheduled for routine preventive maintenance or inspection.

**deadline requisition.** Emergency request for items required for the repair of a vehicle, weapon, or other item which cannot be used until the repairs are made.

**deadman.** An improvised anchor used in soft or frozen ground, as on an airstrip, consisting usually of a buried log or pole.

**dead reckoning.** (DR) Finding one's position by means of a compass and calculations based on speed, time elapsed, and direction from a known position. Dead reckoning is used for desert travel, coastwise shipping, and air navigation.

**dead space.** 1. A space within the range of a weapon but not covered by fire because of intervening obstacles, the nature of the ground, or the characteristics of the trajectory of the weapon. 2. A space or zone within range of a radio transmitter, but in which a signal is not received.

**dead storage.** Storage of vehicles, equipment, etc., for an indefinite time.

**dead time.** 1. Interval following response to one event during which an equipment or system is incapable of responding to another. It is directly related to the limitations of the equipment design. 2. Interval required from time of observation of target to instant at which gun may be fired. 3. In antiaircraft artillery, the interval between the time of setting the fuze and the time of firing the round.

**DeBange obturator.** An obturator in which the gas pressure, due to firing, acts against a mushroom head which compresses a plastic pad. This causes the pad to expand radially against split rings, which in turn expand to make a gas tight seal against the breech recess wall, thus sealing the breech. See: **obturator.**

**debooster.** To remove a booster from a munition.

**decay.** The spontaneous disintegration of radioactive nuclei to a more stable form, generally accomplished by the emission of particles and/or gamma radiation. Decay also refers to the decrease in intensity of radioactivity with passage of time.

**decay curves.** Graph lines representing the decrease of radioactivity with the passage of time.

**decay factor.** A constant which is multiplied by the value of **dose rate** at one hour to give the rate at some other time.

**Decca.** A British hyperbolic navigation system similar in geometrical principle to loran.

**deceleration.** The action or process of velocity decrease; the rate of velocity decrease, often measured in g's.

**declassify.** To cancel the security classification of an item of classified material. The notification of holders of such material is part of the process. For classifications see: **defense classification.**

**declination.** Angular difference in direction between true north and either magnetic north or **grid north.** Hence, there are two declinations, magnetic declination and grid declination or gisement. See: **military grid system.**

**decoder.** *Electronic computers.* A device capable of ascertaining the significance or meaning of a group of signals and initiating a computer event based thereon; matrix.

**DECODER-RECEIVER.** A component which performs the dual function of receiving and/or intercepting impulses transmitted in accordance with a predetermined combination and converting them into an electronic command signal.*

**decontamination.** (decon) The act of removing chemical, biological, or radiological contamination from, or neutralizing it on, a person, object or area.

**decoppering agent.** Material included in a propelling charge, or material inserted in the chamber with the propelling charge, for the purpose of removing the coppering from the surface of the bore. Finely divided tin has been used for this purpose. See also: **coppering.**

**decoy target.** A device assembled from prefabricated materials, designed to simulate miscellaneous types of field equipment.*

**dedud.** Clearing areas by neutralization of explosive missiles.

**deep fording.** The ability of a gun or vehicle, equipped with built-in waterproofing with its suspension in contact with the ground, to negotiate a water obstacle by application of a special waterproofing kit. Cf: **shallow fording.**

**deep penetration bomb.** See: **bomb, deep penetration.**

**defeat of armor.** Damage to the armor protection of armored vehicles or ships which will result in damage to personnel or materiel behind the armor. See: **armor defeating.**

**defect.** Any nonconformance of a unit or product with specified requirements. See: **classification of defects.**

**deficiency.** A defect or malfunction discovered during the life cycle of an item of equipment that constitutes a safety hazard to personnel; will result in serious damage to the equipment if operation is continued; or indicates improper design, or other cause, which seriously impairs the equipment's operational capability. A deficiency normally disables or immobilizes the equipment; and if occurring during test phases, serves as a bar to type classification action. Cf: **shortcoming.**

**defense acquisition radar.** An Army air defense radar of greater range and requiring less accuracy than that of battery acquisition radars. Its normal function is to acquire targets of primary significance to a specified air defense obtained either from other air defense agencies or by independent search, and supply target position information at sufficient range and with sufficient accuracy to enable the outermost firing elements to acquire and engage these targets at maximum range. This target information is passed to batteries either directly or through an associated Army Air Defense Command Post. See: **ANTENNA-RECEIVER-TRANSMITTER GROUP, ACQUISITION; battery acquisition radar; combat surveillance radar**

**Defense Atomic Support Agency.** (DASA) An Armed Forces agency responsible for certain functions connected with the military use of atomic energy not delegated to the Atomic Energy Commission. Formerly called Armed Forces Special Weapons Project. The field command of this agency is at Sandia Base, New Mexico.

**defense classification.** A category or grade assigned to defense information or material which denotes the grade of danger to national security that would result from its unauthorized disclosure and for which standards in handling, storage, and dissemination have been established. These categories are defined as follows:

*CONFIDENTIAL.* Defense information or material the unauthorized disclosure of which could be prejudicial to the defense interests of the Nation.

*SECRET.* Defense information or material the unauthorized disclosure of which could result in serious damage to the Nation such as by jeopardizing the international relations of the United States, endangering the effectiveness of a program or policy of vital importance to the national defense, or compromising important military or defense plans, scientific or technological developments important to national defense, or information revealing important intelligence operations.

*TOP SECRET.* Defense information or material which requires the highest degree of protection. The TOP SECRET classification shall be applied only to that information or material the defense aspect of which is paramount, and the unauthorized disclosure of which could result in exceptionally grave damage to the Nation such as leading to a definite break in diplomatic relations affecting the defense of the United States, an armed attack against the United States or its allies, a war, or the compromise of military or defense plans, or intelligence operations, or scientific or technological developments vital to the national defense. See also: **defense information; restricted data.**

**defense information.** Official information which requires protection in the interests of national defense, which is not common knowledge, and which would be of intelligence value to an enemy or potential enemy in the planning or waging of war against the United States or its allies. See also: **defense classification.**

**DEFENSE SYSTEM, ANTIAIRCRAFT.** A grouping of electronic and/or mechanical equipments for detecting the presence of aircraft within an area defended by antiaircraft guns. Receives intelligence concerning the movement of such aircraft; processes, displays, and evaluates tactical data and assigns specific gun batteries to specific hostile targets.*

**defensive grenade.** See: **grenade, fragmentation.**

**definition.** *Optics.* Sharpness of focus; distinctness of image.

**deflagration.** Very rapid combustion sometimes accompanied by flame, sparks and/or spattering of burning particles. Deflagration, although classed as an **explosion** (which see), generally implies the burning of a substance with self-contained oxygen so that the reaction zone advances into the unreacted material at less than the velocity of sound in the unreacted

material. The term is often used to refer to the action of a high explosive projectile which upon impact with a target does not produce the usual effects of a high order detonation. Strictly speaking, the term low order detonation should be used to describe such a phenomenon if it is intended to connote a detonation at lower than the stable detonation velocity of the explosive. The term deflagration should be used if it is intended to connote a burning reaction.

**deflection.** *Gunnery.* 1. Horizontal clockwise angle between the axis of the bore and the line of sighting. 2. Setting on the scale to compensate for deflection as in sense 1.

**deflection angle.** 1. An angle that measures the departure of a moving object from its directed course. 2. The angle of a deflection shot in gunnery, measured between the line of sight to the target and the line of sight to the aiming point. Cf: **lead angle.**

**deflection board.** Instrument used in artillery for figuring azimuth or deflection corrected for wind, drift, and other factors; gun deflection board.

**deflection change.** Change in azimuth setting applying to all guns in a battery when the target moves, or when a shift is made from one target to another. Deflection change does not include the deflection difference, which allows for the difference in positions of the various guns firing at the same target.

**deflection correction.** *Gunnery.* Correction that must be applied to the azimuth or shift measured on a firing chart so that the line of fire will pass through the target.

**deflection difference.** The amount that a piece in a battery is traversed toward or away from a given piece (usually the base piece) to vary the width of the sheaf.

**deflection error.** 1. In artillery, the distance to the right or left of the target between the point aimed at and the burst of the projectile, or the mean point of a salvo burst. 2. In bombing, the distance between the point of impact or the mean point of impact and the center of the target measured at right angles from the line of the aircraft's approach.

**deflection probable error.** The directional error, caused by dispersion, which will be exceeded, as often as not, in an infinite number of rounds fired at a single deflection. It is one-eighth the width of the dispersion pattern at its greatest width. This value is given in the firing tables.

**deflection scale.** Scale on a sight, marked in mils or degrees, for applying corrections in deflection or for playing the piece in direction.

**DEFLECTOR, BLAST.** A device attached to the muzzle of a gun or to the sides of a rocket launcher designed to reduce the effects of the blast and obscuration following firing. It consists of an arrangement of baffles to divert the flow of propellant gases to the sides of the weapon.*

**defoliant.** A biological agent which destroys the leaves of green plants.

**defuse.** To remove the fuze from a munition.

**DEGN** *(abbr).* 'Diethyleneglycol dinitrate' (propellant additive).

**DEGREASER.** A device designed to clean grease and foreign matter from mechanical parts and like items, usually metallic, by exposing them to vaporized or liquid solvent solutions confined in a tank or similar vessel. It usually includes a circulating pump, provisions for heating, and may include an auxiliary solvent supply tank and/or provisions for solvent spray.*

**degressive granulation.** Propellant granulation in which the surface area of a grain decreases during burning. The burning of a propellant with degressive granulation is termed degressive burning or sometimes regressive burning. Cf: **neutral granulation; progressive granulation.**

**degressive shape.** Any geometrical form of a propellant grain, such that its surface area decreases during burning. See: **degressive granulation.**

**DEHUMIDIFIER PACK.** A unit consisting of a storage case containing two or more metal containers each complete with desiccant. Each container with desiccant is suitable for the static dehumidification of small inclosed spaces and can be readily reactivated.*

**delay.** A mechanical, electronic, or explosive train component which introduces a controlled time delay in some phase of the arming or functioning of a fuze mechanism. See also: **delay, arming; delay, functioning.**

**delay action bomb.** See: **bomb, delayed action.**

**delay action fuze.** See: **fuse, delay.**

**delay, arming.** 1. The interval expressed in time or distance between the instant a piece of ammunition carrying the fuze is launched and the instant the fuze becomes armed. 2. The time interval required for the arming processes to be completed in a non-launched piece of ammunition. See also: **delay.**

**delayed action bomb.** See: **bomb, delayed action.**

**delayed contact fire.** Firing system arranged to explode a mine at a set time after it has been touched or disturbed.

**delay element.** *Propellant actuated devices.* A component which provides a specified delay between actuation of the PAD and ignition of the propellant.

**DELAY ELEMENT, CARTRIDGE.** This item is designed to be an integral part of a cartridge, and is designed to give a specific delay time.* See: **propellant actuated device.**

**DELAY ELEMENT, PROXIMITY FUZE.** An item consisting of an explosive element with zero time delay which acts as a relay to initiate a FUZE, PROXIMITY on impact.*

**delayer.** A substance mixed with the propellant of a solid fuel rocket to decrease the rate of combustion.

**delay, functioning.** The interval expressed in time or distance between initiation of the fuze and detonation of the bursting charge. See also: **delay.**

**delay fuze (delayed fuze).** See: **fuse, delay.**

**delay-line memory.** *Electronic computers.* A type of circulating memory in which a delay line is the major element in the circulating path. See: **storage, circulating.**

**delay-line register.** *Electronic computers.* An acoustic or electric delay-line, usually one or an integral number of words long, together with input, output, and circulation circuits.

**DELAY RELEASE ASSEMBLY.** An item which releases a retardant device on a bomb, to reduce the velocity of the bomb.

**delay train.** An explosive train incorporating a delay. See also: **delay; explosive train.**

**deliberate fire.** Fire which is conducted at a rate intentionally less than the normal rate of fire for the purpose of applying adjustment corrections between each round or salvo, for tactical reasons, or for conserving ammunition; slow fire.

**delivery error.** *Atomic explosions.* The dispersion of burst points around a desired burst point due to ballistic characteristics of the projectile, atmospheric conditions, and other factors.

**delivery system.** The means of delivering atomic weapons to the target.

**delta network.** *Network topology.* A set of three branches connected in series to form a mesh.

**delta wing.** An airplane or wing design in which the sweptback wings, looked at from below or above, give the appearance of an isosceles triangle, the trailing edges of the wings forming one straight line to become the base of the triangle.

The delta wing is a feature of certain transonic airplanes. The delta wing is not to be confused with the flying wing.

**De Marre formula.** A formula expressing the relationship between projectile characteristics and armor plate penetration capabilities.

**demilitarization.** 1. Taking away all military organization and installations. 2. Disassembly, destruction, or any other action which renders munitions, weapons, and other materiel which is lethal, hazardous, classified, or of a specialized nature, harmless and ineffectual for military purposes.

**demo** *(abbr).* 'Demolition'

**demodulation.** *Receivers.* The process of recovering the modulating wave from a modulated carrier.

**demolition.** (demo) (dml) Act or process of demolishing; it may be accomplished by the use of explosives, fire, hand tools, etc.

**demolition block.** An explosive charge, usually in a nonmetallic container, used for demolition purposes. See: **CHARGE, DEMOLITION.**

**demolition bomb.** See: **BOMB, GENERAL PURPOSE.**

**demolition charge.** See: **CHARGE, DEMOLITION.**

**demolition duty.** A hazardous military duty involving the demolition or disarming of explosives or the destruction of objects or obstacles by detonating planted or fixed explosives.

**demolition kit.** Any of several groups of items of an explosive nature, with the necessary nonexplosive accessories and tools, with specially designed containers and carrying attachments, to enable efficient performance of particularly designated demolition tasks. Example: DEMOLITION KIT, BLASTING

**DEMOLITION KIT, BANGALORE TORPEDO.** A group of items consisting of a number of bangalore torpedoes with connecting sleeves and a nose sleeve to facilitate assembly of an explosive unit of varying length.* See also: **Bangalore torpedo.**

**DEMOLITION KIT, BLASTING.** A collection of items of an explosive nature and the necessary nonexplosive accessories and tools, with specially designed containers and carrying attachments, to enable the accomplishment of suitable demolition assignments by personnel groups of various sizes.

**DEMOLITION KIT, PROJECTED CHARGE.** A group of items including demolition charges designed for assembly into a device to be positioned by an external force for clearing a path through a mine field.* See also: **MINE CLEARING EQUIPMENT, MECHANICALLY POSITIONED.**

**DEMOLITION KIT, PROJECTED CHARGE, INERT.** A DEMOLITION KIT, PROJECTED CHARGE with components filled with simulated explosive used for training purposes.*

**demolition squad.** *Specif.* A civil defense team responsible for the demolition of hazardous walls, etc., resulting from fire or bombing raids. Cf: **explosive ordnance disposal unit; underwater demolition team.**

**demonstration ammunition.** Ammunition authorized for use in approved exhibitions of firepower.

**DEMULTIPLEXER.** An item designed to decombine two or more simultaneous intelligence signals for recovering the intelligence received from a single signal transmission facility, the intelligence having been previously combined by a compatible multiplexer. See also: **MULTIPLEXER.***

**DENSITOMETER.** A device designed to measure the destiny of the silver deposit in the photographic image.* Used to determine the radiation dosage received by the wearer.

**density.** 1. An index of the mass of air that is displaced by a projectile in flight. It varies with altitude, decreasing as the altitude increases. In practice, the density used is the ballistic density. 2. *Explosives.* Mass per unit volume.

**density bombing.** Bombing done by dropping a given tonnage of bombs into an area, in order to make certain of striking particular targets within the area. Cf: **area bombing; precision bombing.**

**density of loading.** The weight of propelling charge per unit volume of the chamber, usually expressed in grams per cubic centimeter. It may be taken as the ratio of the weight of the propelling charge to the weight of the volume of pure water at a temperature of 39.2° F., that would fill the chamber behind the seated projectile. Cf: **loading density.**

**dep** *(abbr).* 'Depot.'

**Department of Defense.** (DOD) 1. The entire Military Establishment of the United States. 2. A main subdivision of the executive branch of the Federal Government at the seat of government in Washington, D. C., charged with the administration, management, and policy determination of the entire Military Establishment of the US.

Under the National Security Act of 1947, the Department of Defense (sense 1) was designated the 'National Military Establishment.' It was redesignated the 'Department of Defense' in 1949. The Department of Defense includes the Department of the Air Force, the Department of the Army, the Department of the Navy, and such military establishments and agencies as are provided for by law.

**Department of Defense Ammunition Code.** (DOD Ammunition Code) An eight character code number, assigned to generic descriptions applicable to ammunition and explosive items of supply. Such items are identified under the Federal Catalog System in Federal Supply Classification Group 13. The first four numbers in the code, for example, 1320, constitute the FSC code number assigned to the items covered by the generic description. The second part consists of a letter and three numerals, for example, D548, assigned to a generic description within the FSC class and is separated from the FSC code number by a hyphen. The letter and three numerals, e.g., D548, are known as the **Department of Defense Identification Code** (which see). Each different generic description, consisting of the approved item name, plus the common characteristics of one or more specific items of supply which are functionally interchangeable, is assigned a different DOD Ammunition Code number. The DOD Ammunition Code numbers are centrally assigned by the Cataloging Division, Armed Forces Supply Support Center, and are designed as an aid in supply management for worldwide stock status, requirements, and for requisitioning (except where more specific items provided by Federal Stock Numbers are required).

Examples of generic descriptions covering more than one item with the same DOD Ammunition Code number follow:

DOD Ammunition Code: 1325-E500
- BOMB, GENERAL PURPOSE: 1000 lb, amatol, M44.
- BOMB, GENERAL PURPOSE: 1000 lb, TNT, M44.
- BOMB, GENERAL PURPOSE: 1000 lb, amatol, M44, modified (w/o British lug).

DOD Ammunition Code: 1320-D540
- CHARGE, PROPELLING, 155 MILLIMETER: M3 packed 2 per fiber container, M68A1.
- CHARGE, PROPELLING, 155 MILLIMETER: M3 packed 2 per metal container, M14.

**Department of Defense Identification Code.** (DODIC) Code consisting of a letter and three digits. Used as a suffix to the Federal Stock Number as an identification code for items. Identical codes signify interchangeable items for issue and use. For requisition of ammunition items the 4-digit class code number from the Federal Supply Classification, followed by a hyphen and the DODIC is normally employed. This combination is known as the **Department of Defense Ammunition Code** (which see).

**Department of the Air Force.** (DAF) One of the three departments of the Department of Defense. It includes the Department of the Air Force at the seat of government and all field headquarters, forces, reserve components, installations, activities, and functions under the control or supervision of the Department of the Air Force.

**Department of the Army.** (DA) One of the three departments of the Department of Defense. Central executive part of the Army Establishment at the seat of government. It exercises directive and supervisory functions over the entire Army Establishment. It is not restricted to agencies and personnel located in the District of Columbia, but includes dispersed agencies and personnel performing 'departmental' or 'national headquarters' functions, as distinguished from 'field' or 'local' functions.

**Department of the Navy.** (DN) One of the three departments of the Department of Defense that includes the Department of the Navy at the seat of government; the headquarters, United States Marine Corps; the entire operating forces of the United States Navy, including naval aviation, and of the United States Marine Corps, including the Reserve components of such forces; all field activities, headquarters, forces, bases, installations, activities, and functions under the control or supervision of the Department of the Navy; and the United States Coast Guard when operating as a part of the Navy pursuant to law.

**dependent line of sighting.** A line of sighting system in which any movement of the elevating mechanism moves the cannon and the line of sighting simultaneously.

**dependent recoil system.** A **recoil mechanism** (which see) that has a recuperator mechanism which is dependent upon it, i.e., has a connecting pipe between the recoil and recuperator or counterrecoil cylinders. Cf: **independent recoil system.**

**dependent recuperator.** A counterrecoil mechanism in which there is a connection between the counterrecoil cylinder and the recoil brake cylinder. Cf: **independent recuperator.**

**depot.** (dep) 1. An establishment for storing supplies or for maintaining equipment, or for any combination of these activities. 2. The installation for this establishment.

**depot maintenance.** See: **maintenance.**

**depot maintenance shop.** Communications zone or zone of interior installation where materiel is repaired which requires a rebuild of subassemblies, assemblies, and/or end items.

**depot overhaul.** An overhaul carried out at a depot.

**depot supply.** See: **supply.**

**depress.** Decrease the angle of elevation of a gun, launcher, optical instrument, or the like.

**depression angle.** The vertical angle between the horizontal and a line or object pointed downward, as the angle formed by the depression of a gun barrel below the horizontal.

**depth bomb.** (DB) See: **BOMB, DEPTH.**

**depth charge.** See: **CHARGE, DEPTH.**

**DEPTH CHARGE PISTOL.** An item designed to properly position a detonator in relation to a booster within a depth charge.*

**derivatives, lateral resistance.** Resistance derivatives expressing the variation of moments and forces owing to small changes in the lateral, yawing, and rolling velocities of an aircraft or missile.

**derivatives, longitudinal resistance.** Resistance derivatives expressing the variation of moments and forces owing to small changes in the longitudinal, normal, and pitching velocities of an aircraft or missile.

**derivatives, rotary resistance.** Resistance derivatives expressing the variation of moments and forces owing to small changes in the rotational velocities of an aircraft or missile.

**derivatives, stability.** Quantities expressing the variation of the forces and moments on aircraft owing to disturbance of steady motion. They form the experimental basis of the theory of stability, and from them the periods and damping factors of aircraft can be calculated. In the general case there are 18 translatory and 18 rotary derivatives.

**derivatives, translatory resistance.** Resistance derivatives expressing the variations of moments and forces owing to small changes in the translational velocities of an aircraft or missile.

**derrick.** An apparatus consisting of a mast or equivalent members, held at the top by guys or braces, with or without a boom, for use with a hoisting mechanism and operating ropes or wire ropes. See also: **CRANE** (as modified).*

**descending branch.** That portion of a trajectory between the summit and a point beyond the summit where the trajectory terminates, either by impact or air burst. On this branch the projectile falls and its altitude constantly decreases. Cf: **ascending branch.**

**DESICCANT, ACTIVATED.** A chemical product specially prepared to increase the adsorption capacity of the basic chemical(s) for the removal of moisture and capable of being restored to approximately its original condition.*

**design life.** Serviceable life, in normal use, for which any item of materiel is designed.

**design study.** The initial study and layout of the system, major combination, or item. It concludes with the preparation of drawings adequate for the initiation of component design and/or the fabrication of a mockup.

**desired ground zero.** (DGZ) For a surface burst, the point on the earth's surface where atomic detonation is desired. For an air burst or underground burst, the point is on the earth's surface directly below or directly above the desired point of detonation.

**destroyed.** Of aircraft, materiel, installations, or the like: Ruined beyond repair and unfit for further military use.

An enemy aircraft is officially considered destroyed (a) when it is seen to hit the ground or sea, (b) when it is seen to break up in the air or descend in flames, (c) when it is forced to descend and is captured, or (d) when it is single-seated and abandoned by bailout.

**destruction.** The action of so damaging a person, force, or thing that, for practical purposes, it can no longer function in its normal or intended purpose, and cannot readily be restored to its condition before damage was done to it.

**destruction fire.** Artillery fire delivered for the sole purpose of destroying material objects.

**DESTRUCTOR, EXPLOSIVE.** A cylindrical metallic item containing explosive components for destruction of material by explosion.*

**DESTRUCTOR, EXPLOSIVE, DUMMY.** An item identical in configuration to a DESTRUCTOR, EXPLOSIVE except that it contains in itself no explosive material.*

**destructor holder.** See **HOLDER, DESTRUCTOR.**

**destruct system.** See **fail-safe device; missile destruct system.**

**destruct unit.** See: **fail-safe device; missile destruct system.**

**det** *(abbr.)* 'Detonator.'

**detail-strip.** To disassemble completely a machine gun, cannon, or the like. Cf: **field-strip.**

**DETECTING SET, INFRARED.** A complete set for determining the presence and/or bearing of objects by receiving their infrared radiations. Not used for communications.*

**DETECTING SET, MINE.** A complete set for the detection and indication of metallic and/or nonmetallic mines buried in the earth, submerged in water, or on the surface of land or water within the operating range of the device.*

**detection.** *Receivers.* See: **demodulation.**

**detector.** 1. Chemical, electrical, or mechanical device for detection and identification of chemical agents, biological agents, or radioactive materials. 2. In radio, the receiver stage at which demodulation takes place.

**DETECTOR, CHEMICAL AGENT.** A chemical used to detect military casualty-producing agents.*

**detector, infrared.** Thermal device for observing and measuring infrared radiation, such as the bolometer, radio-micrometer, thermopile, pneumatic cell, photocell, photographic plate, and photoconductive cell.

**DETECTOR KIT, CHEMICAL AGENT.** A collection of chemical materials and testing equipment for the purpose of determining the presence and identity of toxic chemical warfare agents.*

**detector, mine.** A device, usually electrical or magnetic, used to locate mines. See also: **DETECTING SET, MINE.**

**DETECTOR, PRESSURE, UNDERWATER MINE.** An item designed to provide a means for actuating a firing mechanism in an underwater mine from the effects of pressure changes.*

**DETECTOR, RADIAC.** A device consisting of a permanent or replaceable element which is sensitive to radioactivity or free nuclear particles, together with its associated circuits and housing, which produces a reaction that can be interpreted or measured by other components. Does not include meters and indicators.*

**detergent oils.** Lubricating oils to which has been added a compound to prevent the formation of gums, varnishes, etc., in internal combustion engines.

**deteriorating supplies.** Those items that may reasonably be expected to become unusable within one or two years, whether used or not.

**determinate error.** Error of such a kind that its cause can be found, and its effect allowed for.

**determinate error of the piece.** Distance from the center of impact to the target.

**deterrent.** A material sometimes applied as a coating on propellant grains to reduce the initial rate of burning. Distinguished from an inhibitor, which prevents burning on the coated surfaces. Cf: **inhibitor.**

**detonate.** To be changed by exothermic chemical reaction usually from a solid or liquid to a gas with

such rapidity that the rate of advance of the reaction zone into the unreacted material exceeds the velocity of sound in the unreacted material, that is, the advancing reaction zone is preceded by a shock wave. See also: **detonation.**

**detonating agent.** See: **primary high explosive.**

**detonating charge.** See: **charge, detonating.**

**detonating cord.** See: **CORD, DETONATING.**

**detonating cord assembly, guided missile.** See: **EXPLOSIVE HARNESS ASSEMBLY, MISSILE-POCKET.**

**detonating explosive.** See: **high explosive.**

**detonating fuze.** See: **fuze, detonating.**

**detonating net.** Network of detonating cord that is interlaced in a mesh design; Primacord net. Detonating nets are used for clearing paths through mine fields by exploding the mines over which the nets are placed and detonated. See also: **CORD, DETONATING.**

**detonation.** ion. 1. An exothermic chemical reaction that propagates with such rapidity that the rate of advance of the reaction zone into the unreacted material exceeds the velocity of sound in the unreacted material, that is, the advancing reaction zone is preceded by a shock wave. A detonation is classed as an **explosion,** which see. The rate of advance of the reaction zone is termed ***detonation rate*** or ***detonation velocity.*** When this rate of advance attains such a value that it will continue without diminution through the unreacted material, it is termed the ***stable detonation velocity.*** The exact value of this term is dependent upon a number of factors, principally the chemical and physical properties of the material. When the detonation rate is equal to or greater than the stable detonation velocity of the explosive, the reaction is termed a ***high-order detonation.*** When the detonation rate is lower than the stable detonation velocity of the explosive, the reaction is termed a ***low-order detonation.*** 2. The instantaneous and abnormal combustion of an unburned part of fuel mixture in the cylinder of an engine.

In sense 2, when detonation occurs the sudden abnormal pressure inside the cylinder knocks rather than thrusts the piston down.

**detonation front.** The reaction zone of a **detonation** (which see).

**detonation rate.** See: **detonation.**

**detonation suppressant.** See: **fuel dope.**

**detonation velocity.** See: **detonation.**

**detonation wave.** The shock wave which precedes the advancing reaction zone in a high-order detonation. See also: **detonation.**

**detonator.** (det) 1. An explosive train component which can be activated by either a nonexplosive impulse or the action of a primer and is capable of reliably initiating high-order detonation in a subsequent high explosive component of train. When activated by a nonexplosive impulse, a detonator includes the function of a primer. In general, detonators are classified in accordance with the method of initiation, such as percussion, stab, electric, flash, etc. 2. An explosive charge placed in certain equipment and set to destroy the equipment under certain conditions. Preferred term in this sense is DESTRUCTOR, EXPLOSIVE.

**detonator, dummy.** See **DUMMY DETONATOR.**

**DETONATOR, ELECTRIC.** An item consisting of electrical leads and explosive elements designed to detonate an explosive charge.* See also: **detonator.**

**DETONATOR, FRICTION.** An item consisting of a blasting cap, fuse and a pull type fuse lighter for detonating an explosive charge. See also: **detonator.**

**DETONATOR KIT, CONCUSSION.** A group of items including a blasting cap and a mechanical firing device designed to be actuated by the concussion wave of a nearby blast. It may be used to detonate several charges simultaneously without interconnecting the charges with wires or detonating cord.*

**DETONATOR, PERCUSSION.** An item consisting of a blasting cap and explosive elements designed to detonate an explosive charge.* See also: **detonator.**

**detonator safety.** A fuze is said to have detonator safety or to be detonator safe when functioning of the detonator cannot initiate subsequent explosive train components. See also: **fuze safety.**

**DETONATOR, STAB.** An explosive device which is designed to initiate the detonation wave in an explosive train by the stabbing action of a PIN, FIRING.*

**Detroit Arsenal.** (DA) Ordnance Corps installation, forming part of the Ordnance Tank-Automotive Command, located at Center Line, Michigan. Engaged in the development of tank-automotive materiel and supporting research with respect to armor and ground locomotion.

**Detroit Ordnance District.** One of the eleven districts into which the United States is divided for the purposes of industrial mobilization, procurement, contract negotiation and administration, etc., by the Ordnance Corps. Embraces the lower peninsula of the State of Michigan. The main office is located in Detroit, Michigan.

**deuterium.** The hydrogen isotope of mass number 2 (symbol $H^2$ or D); heavy hydrogen. Hence, ***deuterium bomb.*** See: **fusion, nuclear.**

**dev** *(abbr).* 'Develop; development.'

**develop.** (dev) *Specif.* 1. To work out and extend the theoretical, practical, and useful applications of a basic *design, idea,* or scientific *discovery.* 2. To design, build, modify, or improve the prototype of a weapon or the like as determined by a basic idea or concept.

**developed armament probable error.** (DAPE) The probable armament error as computed from a finite series of shots. It is the average armament error of a particular series of shots multiplied by 0.845.

**developed muzzle velocity.** The actual muzzle velocity produced by any gun.

**developing agency, Army.** The technical services and any other agency within the Department of the Army authorized to engage in research and development work.

**development.** (dev) *Specif.* The process or activity of developing a basic design, idea, or a piece of military equipment. The development of a piece of military equipment includes construction and testing of experimental models.

**development category.** See: **type classification.**

**development order.** Order for supplies to acquaint producer with item and method of manufacture.

**development period.** The time interval or period required to develop a new item of Ordnance materiel.

**development type.** See: **type classification.**

**deviation.** 1. In frequency modulation, the amount the carrier increases or decreases when modulated. 2. In statistics, the amount of difference between a value and the value of the standard. 3. Distance by which a point of impact or burst misses the target. 4. Any variance from the requirements of drawings, specifications, or other technical data applicable to production of items which precludes the normal acceptance of the item.

**deviation distortion.** Distortion in an FM receiver caused by inadequate bandwidth, inadequate amplitude-modulation rejection, or inadequate discriminator linearity.

**deviation, frequency.** See: **frequency deviation.**

**deviation sensitivity.** *Frequency modulation.* The least frequency deviation that produces a specified output power.

**DEW** *(abbr).* 'Distant early warning.'

**Dew line.** [From **DEW** *(abbr).*] A line of radar stations at about the 70th parallel on the North American Continent, financed by the United States Government but undertaken in cooperation with the Canadian Government.

**DF** *(abbr).* 'Direction finder.'

**DGZ** *(abbr).* 'Desired ground zero.'

**DHP** *(abbr).* 'Developed horsepower.'

**DI** *(abbr).* 'Dark ignition.'

**dialyte.** A type of compound lens in which the inner surfaces of the two elements are ground to different curvatures to correct for aberrations and the dissimilar faces cannot be cemented together.

**diam** *(abbr).* 'Diameter.'

**Diamondback.** Navy air-to-air missile. Developmental.

**Diamond Ordnance Fuze Laboratories.** (DOFL) Ordnance Corps installation located in Washington, D. C. Engaged in research and development, procurement and associated activities for proximity, electronic and electric fuzes and related items.

**diaphragm.** *Optics.* A flanged or plain ring with a limited aperture placed in an optical system at any of several points to cut off marginal rays of light not essential to the field of view. Diaphragms are used as: *field stops,* to limit the field of view to that portion which is fully illuminated; *aperture stops,* to limit the aperture of light-gathering power of the instrument; and *antiglare diaphragms,* to eliminate reflections from the sides of the tube and consequent glare in the field of view. Lens cells or the sides of the tube may act as diaphragms. The rays eliminated by diaphragms are those which would cause aberrations or glare by reflection inside the instrument.

**diazodinitrophenol.** (DDNP) A primary high explosive. Greenish-yellow to brown crystals in the form for military use. See also: **primary high explosive.**

**dibutylphthalate.** (DBT) An additive used in propellant manufacture to assist in gelatinizing the nitrocellulose. It is nonexplosive and contributes to reduction of muzzle flash.

**Dickson Gun Plant.** Ordnance Corps field installation located at Houston, Texas.

**dielectric.** A nonconducting substance or material through which, however, induction, magnetic lines of force, or electrostatic lines of force may pass. Air, celluloid, porcelain, glass, mica, and wood are dielectrics.

**dielectric antenna.** An antenna which employs a dielectric as the major component in producing the required radiation pattern.

**diesel engine.** See: **ENGINE, DIESEL.**

**diesel fuel.** See: **FUEL OIL, DIESEL.**

**diethyleneglycol dinitrate.** (DEGN) Liquid aliphatic nitrate used in propellant compositions by the Germans during World War II. Propellants based on DEGN and nitrocellulose develop relatively low temperatures and cause little erosion of guns, but are unduly volatile.

**differential analyzer.** An electric analog computer used esp. for the solution of problems in differential calculus.

**differential ballistic wind.** In bombing, a hypothetical wind equal to the difference in velocity between the ballistic wind and the actual wind at release altitude.

**differential effects.** The effects upon the elements of the trajectory due to variations from standard conditions.

**differential gain control.** (also called 'gain time control' or 'sensitivity time control.') A device for altering the gain of a radio receiver at the times when various signals are expected, in order to reduce the discrepancy in amplitude between the signals at the output of the receiver.

**differentiating circuit.** A circuit which produces an output voltage substantially in proportion to the rate of change of the input voltage or current.

**differentiator.** *Electronic computers.* A device whose output function is proportional to a derivative of its input function with respect to one or more variables.

**diffracted wave.** *Electroacoustics.* When a wave in a medium of certain propagation characteristics is incident upon a discontinuity or a second medium, the diffracted wave is the wave component that results in the first medium in addition to the incident wave and waves corresponding to the reflected rays of geometrical optics.

**diffraction.** *Electroacoustics.* That process which produces a diffracted wave.

**diffuser.** A device for diffusing a fluid; *specif.,* a duct or vane designed to convey air into a manifold or combustion chamber while reducing its velocity and increasing its static pressure. Hence, *diffuser efficiency, diffuser vane.*

**diffuser, area ratio of.** The ratio of the outlet cross-sectional area of a ramjet diffuser to the inlet cross-sectional area, commonly expressed as 2/1, 2.5/1, 3/1, etc.

**diffuser efficiency.** 1. The ratio of the actual pressure increase realized by the diffuser to the theoretical pressure increase realized in an isentropic process.

2. The ratio of the stagnation pressures after and before the diffuser. 3. The ratio of actual change in enthalpy to the ideal change in enthalpy for passage from ambient to diffuser pressure.

**diffuser, Kantrowitz-Donaldson.** A type of supersonic diffuser which first contracts to a throat and then expands. Under proper operating conditions a normal shock occurs near the throat at decreased gas-stream velocity, thereby decreasing the shock-wave strength and the pressure losses which would occur if the normal shock had occurred at the lip of the diffuser.

**diffuser, Oswatitach or Ferri.** A type of supersonic diffuser for ramjet, with an inner body projecting forward of the diffuser lip, designed to permit pressures to be raised gradually through a series of conical shocks. The pressure recovery possible to this type of diffuser operating at high mach numbers is considerably greater than could be obtained by a diffuser designed for single normal shock.

**diffusion.** *Optics.* The scattering of light by reflection or transmission. Diffuse reflection results when light strikes an irregular surface such as a frosted window or the surface of a frosted or coated light bulb. When light is diffused, no definite image is formed.

**digit.** *Electronic computers.* One of the $n$ symbols of integral value ranging from 0 to $n$-1 inclusive in a scale of numbering of base $n$, e.g., one of the ten decimal digits, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

**digital.** The quality of utilizing numbers in a given scale of notation to represent all the quantities that occur in a problem or a calculation.

**digital computer.** See: **computer, digital.**

**digit, binary.** See: **binary digit.**

**digit, sign.** See: **sign digit.**

**dihedral.** The upward or downward inclination of an airplane's wing or other supporting surface in respect to the horizontal; in some contexts, the upward inclination only; a dihedral angle.

**dihedral angle.** The angle, esp. an upward angle, between the plane of the wing or other surface and a horizontal plane at the root of the wing or other surface.

**dinitrotoluene.** (DNT) A high explosive, formed by nitration of toluene. A lower degree of nitration than that attained in producing trinitrotoluene (TNT). Used in the formulation of propellants, in which it acts as a gelatinizing and moisture-proofing agent and contributes to the ballistic potential.

**diode.** See: **SEMICONDUCTOR DEVICE, DIODE.**

**diopter.** A unit of optical measurement which expresses the refractive power of a lens or prism. In a lens or lens system, it is equivalent to the reciprocal of the focal length in meters.

**diopter movement.** A term applied to adjustment of the eyepiece of an instrument to provide accommodation for eyesight variations of individual observers.

**diopter scale.** See: **SCALE, DIOPTER.**

**diphenylamine.** (DPA) An additive used in propellants to increase the storage life by neutralizing the acid products formed upon decomposition of the nitrocellulose.

**diphosgene.** (DP) Trichloromethyl chloroformate, one of the choking gases.

**direct bombing.** Bombing by aiming at the target, as distinguished from **offset bombing.**

**direct fire.** Fire delivered on a target in which the sights of a weapon are brought directly on the target.

**direct fire sights.** 1. Sights which permit laying directly on the target as distinguished from those used to lay on an aiming point. 2. Sights used with anti aircraft guns when the director is not available.

**direct hit.** A hit directly upon the target.

**directing gun.** See: **base piece.**

**directing point.** Point of known location normally at the geometric center of the guns of an antiaircraft artillery battery for which the firing data are computed.

**directional antenna.** An antenna which radiates or receives radio waves more effectively in or from some directions than others.

**directional beam.** A stream of radio or radar impulses beamed in a given direction.

**directional homing.** The procedure of following a path such that the objective is maintain d at a constant relative bearing.

**directional microphone.** A microphone the response of which varies significantly with the direction of sound incidence.

**directional stability.** The **stability** (which see, sense 1 a) of an aircraft, projectile, or the like against yawing.

**direction finder.** (DF) See: **radio direction finder.**

**direct laying.** Laying in which the sights of the weapon are aligned directly on the target.

**director.** 1. Electromechanical equipment used to track a moving target in azimuth and angular height and which, with the addition of other necessary information from an outside source, such as a radar set or a range finder, continuously computes firing data and transmits them to the guns. 2. Parasitic antenna located in front of the radiating antenna so that radiation will add in the forward direction.

**DIRECTOR, ANTIAIRCRAFT WEAPONS.** A collection of major electronic, optical, and mechanical components and/or items specifically designed to automatically acquire, identify, and track a target. It simultaneously computes and transmits data for directing the fire of antiaircraft artillery guns and missiles.*

**DIRECTOR-COMPUTER GROUP, GUIDED MISSILE.** A group specifically designed to be used in a guided missile remote control system, which provides directing and computing facilities for a guided missile in flight. Excludes COMPUTING-TRACKING GROUP, RADAR. See also: **COMPUTER GROUP, GUIDED MISSILE; DIRECTOR STATION, GUIDED MISSILE, TRAILER MOUNTED** and **DIRECTOR STATION GROUP, GUIDED MISSILE.***

**director-sight system.** A sighting system used on airborne flexible guns in which the gunner has direct control of the tracking line (line of aim) and indirect control of the gun or guns.

**DIRECTOR STATION GROUP, GUIDED MISSILE.** A group and a subdivision of a DIRECTOR STATION, GUIDED MISSILE, TRAILER MOUNTED, which is not capable of performing a complete operating function but when used with other groups provide facilities for directing by remote control a guided missile in flight. See also: **DIRECTOR-COMPUTER GROUP, GUIDED MISSILE** and **DIRECTOR STATION, GUIDED MISSILE, TRAILER MOUNTED.***

**DIRECTOR STATION, GUIDED MISSILE, TRAILER MOUNTED.** A collection of major electronic components and/or items specifically designed to provide a guided missile battery commander and other operating personnel of a RADAR COURSE DIRECTING CENTRAL with circuits, controls, computer and radar data displays, communication facilities, plotting boards and the like, for directing by remote control azimuth, elevation and range of a guided missile in flight. May also contain facilities for furnishing burst command signals to a missile. See also: **DIRECTOR STATION GROUP, GUIDED MISSILE** and **DIRECTOR-COMPUTER GROUP, GUIDED MISSILE.***

**direct support artillery.** Artillery assigned the mission of providing the fire requested by the supported unit. Requests for artillery fires are made directly upon the **supporting artillery** by the unit being supported. See also: **general support artillery.**

**director-type computer.** A gunsight computer used in the **director-sight system** (which see), which, in response to the gunner's action of tracking, computes the angle at which the gun or guns must be fired in order to hit a target.

**director-type fire control.** The control of fire by use of a director-type computer.

**direct pointing.** Pointing a piece in a direction or in both range and direction by means of a sight directed at the target.

**director radiator loudspeaker.** A loudspeaker in which the radiating element acts directly on the air.

**disappearing carriage.** Type of fixed mount in which a balancing mechanism lifts the major caliber cannon to a position above its protective parapet for the act of firing, after which the cannon again 'disappears' behind the parapet. Formerly used in seacoast defense, now considered obsolete because of its inability to fire at high angles and the lack of advantage of the 'disappearing' feature against bombs and other missiles with high angles of fall.

**disappearing target.** Target that is exposed to the firer's view for a short time. Bobbing targets, and targets that are raised from target pits for short periods of time, are disappearing targets.

**disarm.** To remove the detonating device or fuze of a bomb, mine, or other piece of explosive ordnance, or otherwise render it incapable of exploding in its usual manner. See also: **deactivate; defuse.**

**discarding petal.** A part of a discarding sabot in which the **sabot** (which see) is composed of a base and attached pieces extending from it. These pieces, called 'petals,' surround the core. They peel back under centrifugal and aerodynamic forces and are discarded just in front of a gun muzzle.

**discarding sabot.** See **sabot.**

**disc, blowout.** A mechanism, consisting generally of a thin metal diaphragm, sometimes installed in a rocket motor as a safety measure against excess gas pressure.

**discharger, rifle grenade.** See: **LAUNCHER, GRENADE.**

**DISCHARGER, SMOKE PUFF.** A device designed to ignite a powder charge which produces a puff of smoke for artillery training purposes.*

**DISCONNECTOR, CARTRIDGE ACTUATED.** A cartridge actuated mechanical device designed to quickly disconnect an electric cable or group of electrical cables and/or structural cables.* See: **propellant actuated device.**

**discriminator.** A device used to convert input frequency changes to proportional output voltages. For example, in a radio receiver, that stage which converts the frequency-modulated signals directly to audio-frequency signals.

**DISCRIMINATOR, MAGNETIC, GUIDED MISSILE.** An item consisting of magnetic amplifier(s) and a transformer, specifically designed to sense polarity and magnitude of coded impulses for the purpose of producing output control and signal voltages, which actuates rudder movements in a guided missile for final range correction. May include components, such as resistors, capacitors, rectifiers and chokes.*

**disemplace.** Take out of position; remove a weapon, usually artillery, from a prepared firing position.

**dish, radar.** The parabolic reflector which is part of certain radar antennas.

**disintegrating belt.** See: **belt, link.**

**disk, aiming.** Circular, flat piece of cardboard, painted tin, or other material, with a bull's-eye and pinhole in the center, and a handle. An aiming disk is used for instruction in sighting and aiming.

**DISK, MASTER, STANDARD.** A precision master reference tool used as a standard for setting micrometer calipers and snap gages; also in setting up and checking comparators. It consists of a flat steel disk, or a cylinder, precision ground and lapped to size.*

**disk recorder.** *Electroacoustics.* A mechanical recorder in which the recording medium has the geometry of a disk.

**DISK, TARGET CENTER.** A circular paper item for attaching to the face of a paper or pasteboard small arms target to serve as a bull's eye. See also: **CENTER, TARGET REPAIR.***

**DISK, TARGET MARKER.** An item used in connection with target marking to indicate, by signalling, the value of a hit upon a target as determined by the location of a hit. It is also used to indicate target misses. It is usually colored on both faces, each face being of a different color and/or design. It is provided with securing holes for attaching to a hoisting and lowering staff. When assembled with staff it becomes a target marker.* See: **MARKER, TARGET.**

**DISK, TARGET SPOTTER.** An item designed to be used in connection with the spotting of the exact location of shot holes on targets. It is usually

colored on both faces, each face being of a different color. It is provided with a hole in the center for insertion of spotter spindle. When assembled with spindle it becomes a target spotter.*

**dismount.** To remove a weapon or piece of equipment from its setting, mount, or carriage.

**DISPENSER AND BOMB, AIRCRAFT.** An item consisting of a DISPENSER, BOMB containing two or more BOMB (as modified). It is designed to be externally mounted but not permanently fixed on a high speed aircraft to carry and eject small bombs. For items which do not include the bombs, see: **DISPENSER, BOMB.** Excludes RACK, BOMB EJECTOR, AIRCRAFT; SHACKLE, BOMB, AIRCRAFT.*

**DISPENSER, BOMB.** An aerodynamically shaped item designed to be externally mounted but not permanently fixed on high speed aircraft to carry and eject small bombs. Excludes RACK, BOMB EJECTOR, AIRCRAFT; SHACKLE, BOMB, AIRCRAFT.*

**DISPENSER, COUNTERMEASURES CHAFF.** An item specifically designed to eject portioned quantities of chaff from an aircraft for use as a countermeasure against enemy radar signals.*

**DISPENSING SET, COUNTERMEASURES CHAFF.** A complete set to provide facilities for ejecting portioned quantities of metallic chaff from an aircraft for use as a countermeasure against enemy radar signals.*

**dispersal.** The spreading out of equipment, supplies, or personnel, esp. for protection against enemy action; the practice of building or establishing industrial plants, government offices, or the like, in separated areas, to reduce vulnerability to enemy attack.

**dispersion.** 1. The scattering of shots fired on a target by the same gun or group of guns. 2. The scattering of bombs dropped under approximately the same conditions upon a target; the pattern of bomb impacts resulting from this. 3. Dispersal. 4. In chemical warfare, the dissemination of agents in liquid or aerosol form from bombs and spray tanks. 5. *Optics.* The separation of a beam of so-called 'white light' into its component colors, as in passing through a prism. See: **spectrum.**

**dispersion diagram.** A diagram made up by superimposing the dispersion ladder for direction on the dispersion ladder for range and indicating in each resulting rectangle the percentage of shots expected to fall therein.

**dispersion error.** Chance variation in a series of shots even though firing conditions are kept as constant as possible. For practical purposes the dispersion error of a particular shot is considered the distance from the point of impact or burst of that shot to the center of impact or burst.

**dispersion ladder.** Table that shows the probable distribution of a succession of shots made with the same firing data. A dispersion ladder consists of a diagram made up of eight zones, in each one of which is shown the percentage of shots which may be expected to fall within it. It may be made for direction (deflection) or for range. See also: **dispersion diagram.**

**dispersion pattern.** The distribution of a series of shots obtained under conditions as nearly identical as possible, the points of impact of the projectiles being dispersed about a point called the **mean point of impact,** which see.

**dispersion zone.** The area over which shots scatter when fired with the same sight setting.

**distance-measuring equipment.** (DME) Radar navigation equipment that determines the distance of an interrogator from a transponder by measuring the time of transmission to and from the transponder.

**distance piece.** Item which holds the propelling charge in place (around the primer) in the cartridge case of some types of ammunition, e.g., in separated ammunition it maintains the proper distance between the mouth plug and the wad which covers the propelling charge. It is usually made of a rectangular cardboard sheet, folded into a triangular shape and cut to length. See also: **distance wadding; wad.**

**Distances, American Table of.** See: **American Table of Distances.**

**distance wadding.** In fixed ammunition, inert material such as cardboard, placed in the cartridge case to occupy the excess volume and to keep the propellant charge back around the primer, when the capacity of the case is materially greater than the volume of the propellant charge. See also: **distance piece.**

**distortion.** *Optics.* The aberration of a lens or lens system which causes objects to appear misshapen or deformed when seen through the lens or lens system.

**distributing point.** Point at which supplies, obtained from the supply point by a division or other unit, are broken down for distribution to subordinate units. Distributing points usually carry no stocks; items drawn are issued completely as soon as possible.

**distribution.** 1. Pattern of projectiles about a point. 2. Term used to embrace the functioning of receipt, storage, transportation, and final issue of equipment and supplies to the points or places where required by the Military Establishment.

**distribution parts.** Spare parts representing the difference between the quantity procured and those eventually used in maintenance operations. They include parts lost due to enemy action and those necessary, as a safety factor, to keep the supply lines filled at all times.

**dither.** A signal of controlled amplitude and frequency applied to the servomotor operating a transfer valve, such that the transfer valve is constantly being 'quivered' and cannot stick at its null position.

**dither mechanism.** A device employed in the remote control system of certain artillery weapons, which prevents the building up of static friction in some of the components of the system by keeping them in constant vibration.

**dive.** 1. A rapid descent by an aircraft or missile, nose downward, with or without power or thrust. 2. In stress analysis, a design condition for the wings representing a steady state of flight characterized by high speed and an angle of attack approximately that of zero lift.

**dive angle.** The acute angle between the horizontal and the line of an object's dive.

**dive bombing.** The action of bombing a target from a diving airplane, esp. an airplane diving steeply. Cf: **glide bombing; low-angle bombing; toss bombing.**

**dive-bombing sight.** A bombsight for use in dive bombing attacks.

**diverging lens.** Also known as divergent lens, negative lens, concave lens, dispersive lens. A lens which causes parallel light rays to spread out. One surface of a diverging lens may be concavely spherical and the other plane (plano-concave), both may be concave (double concave) or one surface may be concave and the other convex (concave-convex, divergent-meniscus). The diverging lens is always thicker at the edge that at the center.

**diverging yaw.** In the flight of a projectile, if the angle of yaw increases from the initial yaw, the yaw is said to be diverging, and the projectile will be unstable. See: **stability factor.**

**dividing network.** *Electroacoustics.* A frequency selective network which divides the spectrum to be radiated into two or more parts.

**division artillery.** Artillery that is permanently an integral part of a division. For tactical purposes, all artillery placed under the command of a division commander is considered division artillery.

**D-layer.** The lowest layer of the ionosphere. This layer, occurring at between 25 and 50 miles above the earth's surface, absorbs some of the radio energy reflected by the higher layers.

**DM** *(abbr).* Chemical agent, 'diphenylaminechloroarsine' (adamsite, war gas).

**DME** *(abbr).* 'Distance-measuring equipment.'

**dml** *(abbr).* 'Demolition.'

**DN** *(abbr).* 'Department of the Navy.'

**DNP** *(abbr).* 'Dummy nose plug.'

**DNT** *(abbr).* 'Dinitrotoluene' (explosive).

**DOCUMENT DESTROYER, EMERGENCY, INCENDIARY.** An item designed to be used in an emergency to destroy documents, paper, or books which need not be torn up. It is intended to be used with a suitable container which is not part of the item of supply.*

**DOD** *(abbr).* 'Department of Defense.'

**DODIC** *(abbr).* 'Department of Defense Identification Code.'

**DOFL** *(abbr).* 'Diamond Ordnance Fuze Laboratories.'

**dolly.** Low platform or frame mounted on small wheels or casters used for moving heavy or awkward objects short distances.

**DOLLY, TRAILER CONVERTER.** An auxiliary wheeled vehicle equipped with drawbar, a lower fifth wheel and other necessary parts, designed to support the front end of a semitrailer and convert same to a full trailer.*

**DOLLY, TRAILER, FRONT.** An item consisting of a front axle assembly, brakes, wheels, tires, suspension, springs, drawbar, etc. to lend mobility to a trailer body when used in conjunction with a matching DOLLY, TRAILER, REAR. It is specifically designed to be detached from the trailer body, and reused, when the trailer body is set on a stationary structure. See also: **CHASSIS, TRAILER; DOLLY, TRAILER CONVERTER; DOLLY, TRAILER, REAR.***

**DOLLY, TRAILER, REAR.** An item consisting of a rear axle assembly, brakes, wheels, tires, suspension, springs, radius rods, etc. to lend mobility to a trailer body when used in conjunction with a matching DOLLY, TRAILER FRONT. It is specifically designed to be detached from the trailer body, and reused, when the trailer body is set on a stationary structure. See also: **CHASSIS, TRAILER, DOLLY, TRAILER CONVERTER; DOLLY, TRAILER, FRONT.***

**doodlebug.** The V-1, or German flying bomb. *Slang.*

**DOPPLER DRIFT GROUP.** A group which provides facilities for indicating the drift of an aircraft by utilization of the **Doppler effect.***

**Doppler effect.** Apparent change in frequency of sound, or radio wave trains reaching an observer, or a radio receiver etc., caused by a change in distance, or range, between the source and the observer, or receiver, during the interval of reception.

**Doppler shift.** Magnitude of the change in observed frequency due to Doppler effect, as in shift of a luminous body's lines in a spectrum toward the red indicating distance is increasing.

**DOPPLER VELOCITY GROUP.** A group which provides facilities for indicating the radial velocity of a guided missile by utilization of the Doppler effect.*

**dose.** The total amount of nuclear radiation received by an individual expressed in roentgens. Usually used to mean total dose.

**dose rate.** A measurement of the intensity of persistent or residual radioactivity expressed in terms of roentgens per hour.

**dosimeter.** An instrument for measuring the total dosage of nuclear radiation, in roentgens or milliroentgens, received in a given period. See: **RADIACMETER; RADIAC SET.**

**double action.** Method of fire in a revolver and in old-style rifles and shotguns in which a single pull of the trigger both cocks and fires the weapon.

**double angle cone.** See: **double angle liner.**

**double angle liner.** In shaped charge ammunition, a liner made up from two surmounted, coaxial, conical sections having different apex angles.

**double base powder.** Preferred term is 'double base propellant.' See: **propellant.**

**double base propellant.** See: **propellant.**

**double pole-piece magnetic head.** *Electroacoustics.* A magnetic head having two separate pole pieces in which pole faces of opposite polarity are on opposite sides of the medium. One or both of these pole pieces may be provided with an energizing winding.

**doubler.** In electronics, a circuit for doubling the input

frequency. This may be done by tuning the plate circuit to twice the grid frequency or in several other ways.

**double-recoil system.** A system in which the gun recoils on the top carriage and the top carriage recoils on the bottom carriage or trail.

**double sampling.** A sampling and inspection technique in which final disposal of the lot is based upon the inspection of a second, larger sample, if the inspection of the original sample results in discovery of a number of rejects which is greater than the number allowed for acceptance, but less than that requiring rejection of the lot based upon the results of inspection of the combined original and second sample. The number of rejects requiring rejection of the lot, based upon the combined sample, is always one greater than the number permitting acceptance, so that decision is always possible.

**double star.** Indicates, in the case of a SIGNAL, ILLUMINATION, AIRCRAFT, two freely falling stars (lights) of the color or colors indicated.

**double-taper.** Taper of an airfoil in planform and in cross-section thickness from root to tip.

**double vision.** 1. A malfunction of a binocular instrument causing two images to be seen separately instead of being fused. It is caused by the optical axes of the two telescopes not being parallel. In minor cases, the eyes will adjust themselves to compensate for the error of the instrument until the images are superimposed and only one object is seen. This may cause eyestrain, eye fatigue, and headaches. 2. An eye disorder known as diplopia, which results in double vision of a single object. It is usually caused by one eye failing to converge or diverge in unison with the other eye.

**Dovap.** Radio system for obtaining missile trajectory data from the **Doppler shift** of a wave doubled and retransmitted from a missile in flight. Dovap is an acronym composed from *Do*ppler, *v*elocity, *and p*osition.

**Dove.** A heat-homing bomb, developed in WW II.

**Dove prism.** Also known as rotating prism. A form of prism designed by H. W. Dove. It is used to invert the image in one plane without deviating or displacing the axis. Used as the rotating prism in the conventional type of optical system or panoramic telescopes.

**down-aileron.** The aileron in the down position that creates lift, as distinguished from the up-aileron. See: **AILERON.**

**downdraft carburetor.** A carburetor in which the air is sucked in from above.

**downgrade.** To assign a lower security classification than that previously assigned. The notification of holders of such material is a part of the process. For classifications see: **defense classification.**

**downtime.** Interval of time during which equipment is not capable of performing its function because of the need for repair, modifications, parts replacement, etc.

**downward modulation.** *Receivers.* Modulation in which the instantaneous amplitude of the modulated wave is never greater than the amplitude of the unmodulated carrier.

**downwash.** The downward deflection of air, relative to the direction of motion of an airfoil.

**DP** *(abbr).* 1. 'Diphosgene' (war gas). 2. 'Deck penetrating.' 3. 'Dual purpose.' 4. 'Distribution point.'

**DPA** *(abbr).* 'Diphenylamine' (propellant additive).

**DR** *(abbr).* 1. 'Demolition rocket.' 2. 'Dead reckoning.'

**drag.** Components of air resistance in the direction opposite to that of the motion of the center of gravity of a projectile or an airfoil.

**drag area.** See: **area, drag.**

**drag, base.** Drag component caused by the reduction of pressure across the base of a missile or projectile to below the ambient pressure.

**drag brake.** A device for slowing down a missile, aircraft or the like by increasing the drag. Cf: **spoiler.**

**drag, burner.** See: **burner drag.**

**drag coefficient.** 1. A coefficient that gives the relative air resistance of a particular airfoil. 2. A coefficient used in calculating the drag component of forces in an atomic blast wave.

**drag direction.** In stress analysis, the direction of the relative wind. See: **chord** and **lift direction.**

**drag force or component.** *Stress analysis.* A force or component, in the drag direction, i.e., parallel to the relative wind. See: **chord force or component; lift force or component; side force or component.**

**drag, induced.** The part of the total drag induced by the lift.

The airflow that causes lift causes drag in proportion to the square of the lift.

**drag, nose.** Drag due to the pressure on the nose of an airplane or missile.

**drag parachute.** A deceleration parachute.

**drag, parasite.** The portion of the total drag of an aircraft exclusive of the induced drag of the wings.

**drag, profile.** The difference between the total wing drag and the induced drag.

**drag, profile, effective.** The difference between the total wing drag and the induced drag of a wing with the same geometric aspect ratio but elliptically loaded.

**drag, skin-friction.** That component of **drag** which is tangent to the surface of a body and which is caused by **skin friction.** It is a function of the total **wetted surface** and varies with the smoothness of the surface.

**drag-weight ratio.** The ratio of the drag of a missile to its total weight.

**drawbar.** An item designed as an integral part of a vehicle and provided with a hitch for the purpose of towing or moving the vehicle. See also: **towbar.***

**drawbar pull.** The pulling ability of a vehicle which includes that effort over and above the effort required to propel the vehicle on a level road. It is that power utilized in acceleration, hill climbing or towing.

**drawing number.** An identification number assigned to a drawing.

**D-region.** See **atmospheric shells.**

**DRIER, INFRARED.** A heating device employing infrared lamps or infrared resistance elements for accelerating the drying process of chemical compounds, paints, or inclosures.*

**drift.** 1. The lateral deviation of the trajectory from the plane of departure, caused by rotation of the projectile. As a result, the horizontal trace of the trajectory is a curved, rather than a straight, line. 2. Amount of sidewise movement or displacement caused by a side wind acting on an aircraft, ship, or barrage balloon. 3. Slow spreading of a chemical cloud by gravity and wind.

**drift angle.** The angle between the projected line of an aircraft's heading and its track.

**drill ammunition.** Inert ammunition designed or adapted for use in training of the weapon's crew.

**drill bomb.** See: **bomb, drill.**

**drill cartridge.** See: **cartridge, drill.**

**drilling machine.** A stationary machine having rotating spindle(s) designed to hold cutting tools which are fed through materials supported upon an integral working surface.*.

**drill projectile.** See: **projectile, drill.**

**DRIVE, ANTENNA.** A device which rotates or positions an antenna through a predetermined orbit, or to a point, such as a target. Not designed to support an antenna.*

**DRIVE ASSEMBLY, ELECTROHYDRAULIC, ANTIAIRCRAFT GUN.** An electrohydraulic device in which an electric motor, hydraulic pump, and a hydraulic motor form a hydraulic transmission for the remote control of an antiaircraft gun.*

**DRIVE, GAS, AUTOMATIC GUN.** A weapon drive independent of aircraft power supply employing solid propellant cartridges which generate gas to operate a motor to drive the rotor of an automatic gun.* See: **propellant actuated device.**

**DRIVER, PROJECTILE UNIT, POWDER ACTUATED.** A tool which utilizes an explosive charge to drive a specially designed stud, pin, or like projectile into or through solid material, such as concrete or steel. In operation, the tool is not fixed and is controlled by hand. It may be suitable for use under water.*

**DRIVE, SECTOR SCAN.** An item which provides facilities for positioning in azimuth, and adjusting in amplitude, the sector scan display on the cathode-ray tube indicator of a RADAR SET.*

**driving band.** See: **band, rotating.**

**driving face force.** The force which is placed on the face of the *band land* on the engraved rotating band of an artillery projectile by the rotational acceleration of the projectile as its translational and rotational velocities are increased in the passage through the bore of the gun.

**drone.** A term which has been used to designate pilotless aircraft, target missiles, and the like. Not to be used in the assignment of Department of Defense item names.

**droop.** Bending of a structure due to its own weight, such as the curvature of a very long tube in a heavy artillery piece.

**drop.** *Specif.* 1. The action of dropping a bomb. 2. The vertical drop (which see) of a projectile. 3. Parachute jump, individual or en masse, or supply delivery by parachute, or the act of making such a jump or delivery. See also: **freedrop; high velocity drop; low velocity drop.**

**droppable.** 1. Of containers or equipment: That can be dropped by being pushed or tossed from an aircraft while in flight. 2. Of a pod or fuselage: That can be detached while in flight and be landed either by parachute or nonpowered glide.

**dropping angle.** See: **range angle.**

**dropping safe.** Releasing an aircraft bomb or flare so that it will not function on impact. Some flares, however, may function on impact, even when dropped safe.

**drop test.** 1. To determine ability of material (ammunition, packaging, etc.) to withstand shock by dropping through known distances on specified surfaces. 2. To determine ability of material (vehicles, equipment, packaging, etc.) to withstand shock by airdropping with parachute attached.

**drum.** 1. Adjusting device and scale for making fine settings on certain types of gunsights. The coarse setting is made on a device called a plateau. 2. Cylinder magazine, from which cartridges are fed, on certain machine guns and recoilless rifles. 3. See: **DRUM** (as modified).

**DRUM, CARGO, AERIAL DELIVERY.** A cylindrical item of nonflexible material having two flat ends or heads, one of which may be removable with a mechanical type closure, with fittings and fasteners used for the delivery of cargo. It is dropped from an aircraft by parachute.*

**DRUM, FIBER.** A fiber cylindrical container, the bottom and cover of which may be of metal, fiber with metal edge, or of plywood. The cover may be attached by a mechanical locking device. Capacities range from one gallon to seventy-five gallons by volume. It is used for the shipment and/or storage of inert dry bulk products.*

**drum magazine.** See: **magazine (sense 2).**

**DRUM, METAL.** A cylindrical item, usually of greater length than breadth, having a smooth exterior, usually with outward reinforcing or rolling hoops, having two flat ends or heads (one of which may be removable), and equipped with a mechanical type closure. Capacities range from ¼ gallon to 110 gallons or the equivalent in pounds. It is designed for compounds, liquids, bulk particulates, and the like. For items which have integral fastening and/or shock absorbing devices and which are designed specifically for shipping and storing, see: **shipping and storage container.** See also: **BOX** (as modified). Excludes BOX, METAL and TANK, LIQUID STORAGE, METAL.*

**DRUM TILTER, PROPELLANT SERVICING.** A device specifically designed to be used with a fork lift truck for servicing a guided missile propellant tank(s). Designed to hold, and automatically invert a propellant filled drum while being elevated to its proper height to provide gravity flow.*

**dry run.** 1. Any practice test or session. 2. Any simulated firing practice, particularly a dive bombing approach made without the release of a bomb.

**dry-sump lubricating system.** A system of engine lubrication in which the oil is collected and stored outside the crankcase.

**dry weight of an engine.** The weight of an engine exclusive of fuel, oil, and liquid coolant (if any).

**DS** *(abbr).* 'Discarding sabot.'

**dualgran** *(abbr).* 'Dual granulation.'

**dual granulation.** (dualgran) Pertaining to propelling charges, indicates a propelling charge composed of grains of two different webs. This is done for some howitzers in order that a higher pressure and more uniform ballistics may be obtained for the inner zones. The propellant for the inner zones has a faster rate of burning than that for the outer zone.

**dual ignition.** Ignition in which the cylinders of an engine are fired by two separate and complete ignition systems.

**dual networks.** *Network topology.* See: **structurally dual networks.**

**dual-purpose gun.** Gun so designed and constructed that effective fire may be delivered against either aerial or surface targets.

**dual wheels.** Two wheels, bolted together at the same end of an axle shaft. In counting wheels for the nomenclature of a vehicle dual wheels are considered as one wheel.

**ducted-fan jet engine.** A kind of turbojet engine in which a propeller or fan forces low-pressure air through ducts directly into the hot turbine exhaust at the turbine exhaust pressure.

**ducted propulsion.** Any propulsion system which passes the surrounding atmosphere through a channel or duct while accelerating the mass of air by a mechanical or thermal process.

**dud.** An explosive munition that has failed to explode, although such was intended.

**due in.** The quantities of material expected to be received under outstanding procuring and requisitioning instruments, and quantities from other sources such as transfer, reclamation, and recovery.

**due out.** As applied to a supplying installation, that portion of stock requisitioned which was not immediately available for issue but which is recorded as a commitment for future use. Synonymous with current unfilled demand.

**dugout.** Underground shelter built to protect troops, ammunition, and materiel from gunfire. See also: **bombproof.**

**DUKW.** See: **LANDING VEHICLE, WHEELED.**

**dumdum.** A bullet that flattens excessively on contact, or one especially designed to flatten excessively. In full, 'dumdum bullet.' The use of this type of bullet in warfare is forbidden under international law.

**dummy.** *Specif.* 1. A nonexplosive bomb, projectile, or the like, or an object made to appear as one of these. 2. An object made to appear as an airplane, gun emplacement, or the like from the air.

**dummy ammunition.** See: **drill ammunition.**

**DUMMY DETONATOR.** An inert item designed to be used in lieu of a detonator for training purposes only.* The item may be simulated electric type or simulated percussion type.

**dummy fuse.** See: **fuse, dummy.**

**dummy grenade.** See: **grenade, training.**

**DUMMY RADAR FUZE.** An item designed to occupy the space of a FUZE, RADAR without having internal functioning components of the radar fuse.*

**DUMMY TORPEDO.** An item designed to be substituted for a torpedo when proof-checking the fitment requirements of the various launching devices. It is similar to its legitimate counterpart in outside configuration.*

**DUMMY WARHEAD, ROCKET.** An item designed to be substituted for a tactical warhead. It conforms to the outside configuration of the legitimate rocket warhead, and is used for training purposes only.*

**dump.** 1. A temporary storage area, usually in the open, for bombs, ammunition, equipment, or supplies. 2. To drop bombs or throw out supplies. *Slang.*

**dunnite.** See: **Explosive D.**

**DUPLEXER.** An item which permits a transmitter and receiver to operate on a single transmission line and/or antenna. It effects a mismatch in the receiver section of the transmission line when the transmitter is operating and restores matching in this section when the transmitter is quiescent.* Sometimes called 'T-R box.'

**Duprene packing.** Type of packing used in recoil mechanisms to prevent leakage of recoil oil.

**duty cycle.** *Electronics.* The ratio of the pulse duration time to the pulse repetition time.

**dwg** *(abbr).* 'Drawing.'

**dynamic.** Of or pertaining to dynamics, esp. to aerodynamics.

**dynamic factor.** The ratio between the load carried by any part of an aircraft when accelerating and the corresponding basic load.

**dynamic pressure.** See: **pressure, dynamic.**

**dynamics.** A branch of mechanics that treats of the motion of bodies and of the forces acting upon bodies in motion or in process of changing motion.

In early usage, 'dynamics' was used where 'aerodynamics' might be used today as a more restrictive term.

**dynamic similarity.** The similarity in the fluid flows about a scale model and a full-scale model.

This is expressed by a Reynolds number, which shows a ratio between the forces due to density and the forces due to viscosity.

**dynamic stability.** The property of an aircraft or missile which, when its steady motion in flight is disturbed, causes it to damp any oscillation and gradually return the aircraft or missile to its original state of steady motion. See: **stability, sense 1 a.**

**DYNAMITE.** A high explosive consisting of nitroglycerin and/or nitroglycol and/or ammonium nitrate and other materials with or without an inert base, packed in cylindrical paper cartridges or in bags. It is set off by a detonator and is used for general blasting purposes.*

**dynamite bomb.** See: **bomb, dynamite.**

**dynamite, military.** A blasting explosive in cartridges especially suitable for use in military construction, quarrying, and service demolition work. It has good storage stability, is rifle bullet insensitive and can be detonated when wet. **See also: DYNAMITE.**

**dynamite tamping pole.** See: **TAMPING POLE, DYNAMITE.**

**dynamometer.** A device for measuring the power, thrust or torque of an engine or rocket. A field dynamometer measures drawbar pull and resistance to propulsion of a complete vehicle while operating on a road.

**DYNAMOTOR.** An item which combines both electric motor and generator action in one magnetic field, either with two armatures on one shaft or one armature having two or more windings. The input voltage is direct current. The output is direct current but may include auxiliary alternating current outputs. May include accessories such as relays, filters, and the like.*

# E

**E** *(abbr).* 1. In such usage as M53E4, designates an experimental modification of a standard item. Cf: **A; B; M; T; X.** 2. In jato unit nomenclature, designates an extruded double base solid propellant.

**Eagle.** Name given to Navy air-to-air missile system under development for defense of a task force from air attack.

**ear protector, sound.** See: **AURAL PROTECTOR, SOUND.**

**EC blank fire.** See: **EC smokeless powder.**

**eccentricity.** 1. In dimensioning and inspection procedures, the opposite of *centrality.* The offset of the axis of one geometrical form with that of another, usually an undesirable condition. For instance, a rotating band would have eccentricity with respect to, or be eccentric with, the projectile body, if it protruded further from the body at one point than it did at a point 180° removed. Must be distinguished from ovality, which is a departure from the specified cylindrical form. 2. Static eccentricity of a projectile is the distance, in calibers, of the center of mass from the axis of the projectile. Dynamic eccentricity is the angle, in radians, between the axis of form and the longitudinal principal axis of inertia.

**eccentric-screw (Nordenfeld) breechblock.** See: **breechblock, eccentric-screw (Nordenfeld).**

**echelons of maintenance.** See: **maintenance.**

**echo.** *Specif.* A radar echo. The signal received by a radar set as a result of the reflection of a transmitted pulse from objects in the field of scan.

**ECM** *(abbr).* 'Electronic countermeasures.'

**economic mobilization.** The process of preparing for and carrying out such changes in the organization and functioning of the national economy as are necessary to provide for the most effective use of resources in a national emergency.

**economic warfare.** The defensive use in peacetime, as well as during a war, of any means by military and civilian agencies to maintain or expand the economic potential for war of a nation and its (probable) allies; and, conversely, the offensive use of any measure in peace or war to diminish or neutralize the economic potential for war of the (likely) enemy and his accomplices. See also: **economic war potential.**

**economic war potential.** That segment of the economic capacity of a nation which can be used for purposes of conducting war.

**EC smokeless powder.** An explosive powder used chiefly in blank cartridges. Also called 'EC blank fire,' 'EC blank powder,' and 'EC powder.' EC powder is used in some caliber .22 and shotgun ammunition, and was formerly used in fragmentation grenades.

**ED** *(abbr).* 'Ethyldichloroarsine' (war gas).

**EDD** *(abbr).* 'Ethylenediamine dinitrate' (explosive).

**Edgewater adapter.** A kind of recoil adapter fastened to the receiver of an aircraft machine gun and surrounding the barrel. See: **recoil adapter.**

**EDNA** *(abbr).* 'Ethylenedinitramine' (Haleite, explosive).

**ednatol.** A binary explosive composed of 55 percent Haleite and 45 percent TNT. Permits melt loading into munitions and has greater brisance than TNT alone. See also: **Haleite.**

**EF** *(abbr.).* 'Extra fine' (thread).

**effective angle of attack.** See: **angle of attack, effective.**

**effective area.** See: **area, effective.**

**effective aspect ratio.** See: **ratio, effective aspect.**

**effective ceiling AA.** The maximum vertical range within which an antiaircraft gun may engage for a period of 20 seconds an aircraft approaching directly at 300 miles per hour, firing the last round at a quadrant elevation of 70°.

**effective exhaust velocity.** (c) A rocket-engine performance parameter calculated as the product of the specific impulse times the gravitational conversion factor. See: **exhaust velocity.** Cf: **actual exhaust velocity; ideal exhaust velocity.**

**effective firing time.** The period of time during which an aircraft can deliver effective fire at a moving or a stationary target.

**effective fragment.** In terminal ballistics, a fragment whose mass, velocity, and form, upon impact with the target are such as to enable the fragment to accomplish the desired effect.

**effective gun bore line.** *Aircraft.* The line which a projectile should follow when the muzzle velocity of the gun is vectorially added to the aircraft velocity. The angle between this line and gun line is the velocity jump. Cf: **effective launcher line; gun line.**

**effective height.** *Antennas.* The height of the antenna center of radiation above the effective ground level.

For an antenna with symmetrical current distribution, the center of radiation is the center of distribution. For an antenna with asymmetrical current distribution, the center of radiation is the center of current moments when viewed from directions near the direction of maximum radiation.

(Former usage) In low-frequency applications, as applied to loaded or nonloaded vertical antennas, the actual height of the vertical section multiplied by the ratio of the average current in that section to the input current.

**effective launcher line.** *Aircraft.* The line along which the aircraft rocket would go if it were not affected by gravity. This differs from the launcher line because the fired rocket is not headed exactly along the aircraft flight line. Cf: **effective gun bore line; launcher line.**

**effective mass of projectile.** In interior ballistics, the mass of the projectile plus a portion of the mass of the propellant. Accounts for the energy of translation imparted to the propellant gas concurrently with accelerating the projectile, and therefore not available for the latter purpose.

**effective profile drag.** See: **drag, profile, effective.**

**effective range.** Distance at which a weapon may be expected to fire accurately to inflict casualties or damage. See: **maximum effective range.**

**effective thrust.** In a rocket motor or engine, the theoretical thrust less the effects of incomplete combustion and friction flow in the nozzle. Cf: **net thrust; thrust.**

**effective wind.** A calculated wind equal in speed and direction to the average of any given number of varying actual winds, used esp. in sound-ranging and weather observation. Cf: **ballistic wind.**

**effects radius.** *Nuclear.* The radius of a circle having its center at the center of impact, and within which a specified dosage is equalled or exceeded within a given period of time.

**efficiency, overall.** See: **overall efficiency.**

**efficiency, piezometric.** *Propellant actuated devices.* Ratio of mean ballistic cycle pressure to peak pressure of PAD during stroke time.

**efficiency, thermal.** *Propellant actuated devices.* The ratio of the mechanical energy of an accelerated mass to the energy resulting from propellant combustion.

**EHF** *(abbr).* 'Extremely high frequency.'

**EHP** *(abbr).* 'Effective horsepower.'

**ejecta.** Jet fragments ejected essentially beyond primary target plate in the testing of shaped charges.

**ejection.** Process of completely removing (ejecting) the empty cartridge case from small arms and rapid fire guns. Performed by the **ejector**, which see. Cf: **extraction.**

**ejection cockpit capsule.** A detachable pressurized cockpit on certain airplanes which may be ejected as a unit and parachuted to the ground.

**ejection seat.** See: **SEAT, AIRCRAFT EJECTION.**

**ejector.** *Weapons.* A device in the breech mechanism of a gun, rifle, or the like, which automatically throws out an empty cartridge case or unfired cartridge from the breech or receiver.* Cf: **extractor.**

**EJECTOR, AERIAL PHOTOFLASH CARTRIDGE.** A device for firing in sequence photoflash cartridges, for use in taking night photographs from aircraft.*

**EJECTOR, ARTILLERY CARTRIDGE.** An ejector which automatically throws out an empty cartridge case or unfired cartridge from the breech or receiver of an artillery weapon.*

**ejector, bomb.** See: **RACK, BOMB EJECTOR, AIRCRAFT.**

**EJECTOR SET, FLARE.** A complete set for effecting the forced release of flares from an aircraft, ship, or ground vehicle in which it is installed. May include components incorporating memory circuits for programming flare ejection.*

**EJECTOR, SMALL ARMS CARTRIDGE.** An ejector which automatically throws out an empty cartridge case or unfired cartridge from the breech or receiver of a small arms weapon.*

**EL** *(abbr).* 1. 'Elastic limit.' 2. 'Elevation.'

**elasticity correction.** Change made in standard firing data to allow for the effect on range of changes in temperature.

**elasticity effect.** Influence on range of temperatures that vary from those upon which standard firing tables are based.

**elastic strength pressure.** (ESP) See: **pressures, gun.**

**electra.** A German continuous wave navigation system using radio beacons providing multilobe equisignal patterns.

**electrical distance.** The distance traveled by radio waves in a unit of time. A convenient unit of electrical distance is the light microsecond, or about 983 feet (300 meters). In this unit the electrical distance is numerically equal to the transmission time in microseconds.

**electrical function switch.** *Electronic computers.* See: **function switch.**

**electrical interception.** Gaining possession by electrical means of communications intended for others.

**electrical load.** See: **load (sense 6).**

**electrical scanning.** See: **scanning, electrical.**

**electrical schematic.** A drawing which shows the electrical circuit of an item with the parts indicated by symbols so placed that the circuit may be traced from part to part in the sequence of their respective functions with no attempt to indicate the actual physical location of the parts in the item.

**ELECTRICAL STANDARDS SET.** A grouping of items consisting of various standards of capacitance, inductance, resistance, voltage, and like items of known accuracy, calibrated for use as a basis for obtaining precise and reliable measurements.*

**electric cartridge.** See: **cartridge, electric.**

**electric detonator.** See: **DETONATOR, ELECTRIC.**

**electric dipole.** A pair of equal and opposite charges an infinitesimal distance apart.

In electromagnetics, the term 'dipole' is often applied to two equal and opposite oscillating charges an infinitesimal distance apart; in this sense, it is synonymous with an electric current.

**electric fuse.** See: **fuse, electric.**

**electric primer.** See: **PRIMER, ELECTRIC.**

**electric squib.** See: **SQUIB, ELECTRIC.**

**electric time fuse.** See: **fuse, electric time.**

**electric transducer.** See: **transducer, electric.**

**electroexplosive.** Term used to describe an initiator or a system in which an electrical impulse is used for initiation of detonation or deflagration of an explosive; the explosive detonated or deflagrated by the electrical impulse.

**electron.** A very light particle with a mass 1/1845 that of a proton, having a negative charge.

Electrons are constituents of the atom. See: **beta particle; cathode ray.** Cf: **positron.**

**electron beam.** A stream of electrons moving at high velocity, as in a cathode-ray tube; a cathode ray.

**electron bomb.** See: **bomb, electron.**

**electron gun.** A device used in a cathode-ray tube to form, accelerate, and focus an electron beam

**electronic.** Pertaining to the application of that branch of science which deals with the motion, emission and behavior of currents of free electrons, especially in vacuum, gas or phototubes and special conductors or semiconductors. Contrasted with *electric* which pertains to the flow of large currents in wires only.

**electronic computers.** See **computer, analog; computer, digital.**

**electronic counter countermeasures.** That major subdivision of electronic warfare involving actions taken to insure our own effective use of electromagnetic radiations in spite of the enemy's use of countermeasures. See also **electronic countermeasures; electronic warfare.**

**electronic countermeasures.** (ECM) Any of various offensive or defensive tactics using electronic and reflection devices to reduce the military effectiveness of enemy equipment or tactics employing or affected by electromagnetic radiations

**electronic deception.** Radiation or reradiation of electromagnetic waves in a manner intended to mislead the enemy in the interpretation of data received by his electronic equipment. This does not include manipulation and/or imitative communication traffic. See also **electronic jamming; radio deception.**

**electronic fuse.** See: **fuse, electric.**

**electronic intelligence.** Intelligence regarding the location, volume, direction, and type of enemy electronic devices; intelligence obtained by intercepting enemy electronic emanations.

Electronic countermeasure reconnaissance, the interception of enemy radio messages, the interrogations of prisoners of war, photo interpretation, and other activities are sources of electronic intelligence.

**electronic jamming.** An action involved in electronic countermeasures, being the radiation or reradiation of electromagnetic waves to impair the use of a specific segment of the radio spectrum. Usually shortened to 'jamming.'

**electronics.** That branch of physics which treats of the emission, transmission, behavior, and effects of electrons.

Practical application of electronics has been made through such devices as vacuum tubes, cathode-ray tubes, photo-electric cells, and the like.

**electronic security.** The protection resulting from all measures designed to deny to unauthorized persons information of value which might be derived from their intercept and study of friendly noncommunications electromagnetic radiations.

**ELECTRONIC SHOP, TRAILER MOUNTED.** A trailer permanently fitted with equipment and tools for testing and repairing electrical and electronic equipment.*

**ELECTRONIC SHOP, TRUCK MOUNTED.** A truck permanently fitted with equipment and tools for testing and repairing electrical and electronic equipment.*

**ELECTRONIC SWITCH.** An item which provides for the transfer of the electrical signal input from one component to another, or between two or more components by means of electron tube or transistor circuits. See also **GATE, ELECTRONIC.***

**electronic warfare.** That subdivision of the military use of electronics involving actions taken to prevent or reduce an enemy's effective use of radiated electromagnetic energy and actions taken to insure our own effective use of radiated electromagnetic energy.

**ELECTRON TUBE.** An inclosure, including two or more electrodes, in which a flow of electrons may take place through a vacuum or contained gas, such conduction being either by means of electrons given off from a cathode or by ionization of the contained gas. Includes photo tubes (photo emissive type only) and Geiger-Muller tubes. Excludes items whose primary purpose is to produce light energy. Excludes PHOTOELECTRIC CELL and SEMICONDUCTOR DEVICE DIODE.*

**elements of the trajectory.** The phrase applied to the various features of the trajectory such as the **angle of departure; maximum ordinate; angle of fall,** etc.

**elevate.** To increase the **angle of elevation** of a gun, launcher, optical instrument, or the like.

**elevating arc.** Upright, geared arc, attached to a weapon or carriage, by means of which the weapon is elevated and depressed.

**elevating mechanism.** Mechanism on a gun carriage or launcher by which the weapon is elevated or depressed.

**elevating tower, carriage mounted.** See: **SERVICING PLATFORM, SELF-PROPELLED.**

**elevating tower, tractor mounted.** See: **SERVICING PLATFORM, TRACTOR MOUNTED.**

**elevating tower, truck mounted.** See: **SERVICING PLATFORM, TRUCK MOUNTED.**

**elevation.** (EL) 1. Angle of elevation. 2. In antiaircraft artillery, the angular height is sometimes called elevation and dials on some equipment, which indicate angular height, are marked 'elevation.' 3. The vertical distance, usually measured in feet or meters, above mean sea level (plus elevation) or below mean sea level (minus elevation).

**elevation circle.** Circular scale showing the quadrant elevation of the gun barrel.

**elevation difference.** The change in elevation which must be applied to a particular gun when firing data are being received from a base piece or other directing point.

**elevation mechanism.** See: **elevating mechanism,** the preferred term.

**elevation plane.** The vertical plane in which the angle of elevation is measured.

The elevation plane is perpendicular to the azimuth plane.

**elevation prediction correction.** *Antiaircraft.* Equals the future elevation minus the present elevation.

**elevation quadrant.** See: **QUADRANT, FIRE CONTROL.**

**elevation rate.** Rate of change of present elevation. It is equal to minus the zenith distance rate of the present line. It may be expressed in mils per second or degrees per second.

**elevation scale.** Scale on a gun carriage that shows the quadrant elevation of the gun.

**elevation stop.** Structural unit in a gun or other equipment that prevents it from being elevated or depressed beyond certain fixed limits.

**elevation table.** Firing table giving a list of ranges, with the corresponding quadrant elevation settings to be applied to a gun.

**elevator.** A control surface, usually attached to the horizontal stabilizer, moved to make the tail of an aircraft go up or down.

**elevator angle.** The acute angle between the chord of an aircraft elevator moved from its neutral position, and its chord in neutral position.

**elevon.** A control surface combining the functions of an **elevator** and an **AILERON**.

**embrasure.** Opening in a wall or parapet, especially one through which a gun is fired. It is usually cut wider at the outside to permit the gun to swing through a greater arc.

**emissivity.** The rate at which a solid or a liquid emits electrons when additional energy is imparted to the free electrons in the material by the action of heat, light, or other radiant energy or by the impact of other electrons on the surface.

**empennage.** The assembly at the rear end of an aircraft comprised of the horizontal and vertical stabilizers and their associated control surfaces. Also called the 'tail assembly.'

**empl** *(abbr).* 'Emplacement.'

**emplace.** Put in position; fix a gun or launcher in a prepared position from which it may be fired.

**emplacement.** (empl) 1. Prepared position for one or more weapons or pieces of equipment, for protection against hostile fire or bombardment, and from which they can execute their missions. 2. Act of fixing a gun in a prepared position from which it may be fired.

**empty.** When used in ammunition nomenclature, indicates that the munition does not contain a payload, but is designed to contain one at the time of final use.

**ENAMEL.** Pigment dispersed in a varnish vehicle containing natural or synthetic resin. The varnish may be modified with drying oil to the extent that the total drying oil content of the vehicle, including the oil in the varnish, does not exceed 75 percent, by weight, of the total nonvolatile portion of the vehicle. When applied in a thin layer, it dries principally by polymerization and/or oxidation to form a hard, smooth, opaque film. Excludes LACQUER; ENAMEL, HEAT RESISTING; bituminous and ceramic coatings and GOLD SIZE.*

**ENAMEL, HEAT RESISTING.** An ENAMEL that has the quality to withstand temperatures of 400 degrees F. and higher. See also: **PAINT, HEAT RESISTING.** Excludes bituminous coatings.*

**encapsulation.** The technique of enclosing components within a body of protective material (such as resin). The purpose of encapsulation may be to give mechanical strength and/or to provide insulating properties. See: **hermetic sealing.**

**end-around carry.** See: **carry.**

**end-fire array.** A linear or cylindrical radar antenna array that emits its radiation from one end.

**end instrument.** See: **pickup** (sense 3).

**end item.** A combination of components, assemblies, and/or parts, which is ready for its intended use. Often used as a cataloging term in supply.

**end link.** See: **LINK, CARTRIDGE.**

**endothermic.** A thermodynamic term descriptive of an absorption of heat or other energy. Cf: **exothermic.**

**end play.** Movement of a shaft along its axis. A type of lost motion common to worm and wormwheel assemblies. The error lies in looseness in the bearings at the ends of the shaft or in the ball cap and socket. The result is that the worm can be rotated a small amount without causing rotation of the wormwheel.

**ENERGIZER, ENGINE STARTER.** An electrically operated auxiliary cranking device designed to energize the flywheel of inertia or combination type starters.*

**energy, radiant.** Energy consisting of electromagnetic waves, such as light, infrared, radio, and radar.

**Enfield rifle.** The popular name for the United States rifle, caliber .30, model 1917. It is a bolt-type, breech-loading magazine rifle. No longer standard for service use, but is used as a sporting weapon.

This WW I rifle was named for the British Enfield from which it was copied.

**engine.** (eng) Any of many machines that convert energy in one form, as that of heat, into a form suited to use, as that of torque applied to a crankshaft or of kinetic flow directed into a jet stream.

The unqualified word 'engine' is often restricted to an internal combustion, piston engine.

**engine analyzer.** See: **ANALYZER SET, ENGINE.**

**engine block assembly.** The engine block of an internal combustion engine with one or more of the internal functioning components such as pistons, crankshaft, camshaft, and may have oil pan(s) or cylinder head(s). For engine block assemblies with cylinder head(s) and oil pan(s), see: **ENGINE** (as modified); (use type of engine as modifier; e.g., gasoline, diesel, gas).*

**engine camshaft.** See: **CAMSHAFT, ENGINE.**

**engine crankshaft.** See: **CRANKSHAFT, ENGINE.**

**ENGINE, DIESEL.** A reciprocating internal combustion engine in which the power necessary to produce motion of the mechanism is obtained by igniting a compressed fuel and air mixture within the cylinder or cylinders by the extreme heat resulting from compression. The engine consists of a cylinder block assembly complete with cylinder head(s) and one or more of the attachments or accessories, such as oil pan(s), starter motor, radiator, transmission, clutch, oil filter, flywheel, flywheel housing or battery charging generator. Does not include fuel tank. For a complete operating power unit mounted on a base, see: **POWER UNIT, DIESEL.***

**engineering notebook.** See: **laboratory notebook.**

**engineering test.** An evaluation test of materiel under development conducted by, or under the supervision of, the technical service concerned, to determine inherent structural, electrical, or other physical and chemical qualities of the item or system tested, including those of an environmental nature, designed to provide a basis for decisions as to subsequent developmental action or the suitability of the item for user test (which see). See also: **combined engineer user test.**

**ENGINE, GASOLINE.** A reciprocating internal combustion engine in which the power necessary to produce motion of the mechanism is obtained by igniting a compressed fuel and air mixture within the cylinder or cylinders of the machine, by means of introducing an electrical spark into the compression chamber. The engine consists of a cylinder block assembly complete with cylinder head(s), oil pan(s), and one or more of the attachments or accessories, such as starter motor, radiator, transmission, clutch, oil filter, flywheel, flywheel housing, or battery charging generator. Does not include fuel tank. For a complete operating power unit, mounted on a base, see: **POWER UNIT, GASOLINE.***

**ENGINE, GAS TURBINE.** A continuous combustion type engine consisting primarily of a compression chamber, combustion chamber and turbine. Air is compressed and heated by a combustible fuel and expanded through the turbine. It is designed to furnish a source of rotary shaft and/or pneumatic power. The pneumatic power is obtained by a bleed-off of the engine compressor.*

**ENGINE, PULSE-JET.** A combination type power unit designed to exert thrust by receiving air through valves in its front and mixing this air with a continuous supply of metered fuel which is ignited. The expanding gases close the valves which causes the exhaust gases to leave through a tail pipe with the forward thrust reopening the valves and the cycle is repeated.*

**ENGINE, RAMJET** A continuous mass flow power unit designed to exert thrust by means of atmospheric air being compressed by ram compression in the inlet diffuser. The compressed air is charged with a continuous spray of pressurized fuel, ignited and ejected at high velocities through the exit nozzle.*

**engine, rocket, liquid propellant.** See: **ROCKET ENGINE.**

**engine, rocket, solid propellant.** See: **ROCKET MOTOR.**

**ENGINE, TURBOJET.** A continuous-combustion type power unit designed to exert thrust, prime physical characteristics of which include an air compressor, combustion chamber(s) and a gas turbine. The operating principle is as follows: atmospheric air is inducted into the unit at its front, compressed, heated by combustion of a fuel, expanded through the gas turbine, and ejected at high velocity at its rear.*

**engine weight efficiency.** The propellant weight divided by total weight of rocket engine. Cf: **propellant weight fraction.**

**engraving.** Process by which the rotating band of a projectile (or jacket of a bullet) is cut and formed by the rifling of the gun tube as the projectile is forced through the tube; the lands and grooves produced on the band or jacket by this process. See also: **band groove; band land.** Cf: **body engraving; rifling.**

**Eniac.** [Coined: See first letters of words in definition.] The electronic numerical integrator and computer built for the Army Ordnance Corps, and formerly housed at the Ballistic Research Laboratories, Aberdeen Proving Ground. An early model, now obsolete.

**enthalpy.** The sum of the internal and pressure energies of a substance or system; often called the total heat. Change in enthalpy is the amount of heat added to, or subtracted from, a substance or system in going from one state to another under constant pressure.

**entrance cone.** *Specif.* That segment of a wind tunnel through which the air flows into the test chamber.

**entry ballistics.** That branch of ballistics which pertains to the entry of a missile, projectile, or other object into and through a gaseous medium from a vacuum or near-vacuum. See also: **reentry.**

**envelope.** *Electronics.* 1. The glass or metal housing of a vacuum tube. 2. A curve drawn to pass through the peak of a graph showing the wave form of a modulated radio-frequency carrier signal.

**envelope drawing.** A drawing of an item giving overall and mounting dimensions, other dimensions, or other data necessary to insure that the item is functionally and physically interchangeable, regardless of the producer. All features other than those shown on the drawing or referenced on the drawing are left to the ingenuity of the manufacturers' engineers to meet the performance requirements of the item.

**ENVELOPE, PROPELLANT CHARGE.** An item manufactured from either a combustible or frangible material. It is cylindrical in shape and is designed to contain propellant powders. It is to be attached to a fin stabilized projectile.*

**environment.** The aggregate of all the conditions and influences which affect the operation of equipments and components; e.g., physical location and operating characteristics of surrounding equipments and/or components; temperatures, humidity and contaminants of surrounding air; operational procedures; acceleration, shock and vibration; radiation; method of utilization.

**environmental protection.** Research and its application designed to maintain or improve the degree of effective performance of man and equipment under various types of climatic stress.

**environmental range.** The range of environment throughout which a system or portion thereof is capable of operation at not less than the specified level of reliability. See: **environment.**

**EO** *(abbr).* 'Explosive ordnance.'

**EOD** *(abbr).* 'Explosive ordnance disposal.'

**EOR** *(abbr).* 'Explosive ordnance reconnaissance.'

**EORA** *(abbr).* 'Explosive ordnance reconnaissance agent.'

**EP** *(abbr).* 'Explosion-proof.'

**EQUALIZER MECHANISM.** A device attached to the carriage of those artillery weapons that, when emplaced, rest on two wheels and two trail ends. It is a compensating mechanism to equally transmit the weapon weight and firing shock.*

**equalising pipe.** A pipe connecting the front ends of two recoil cylinders to equalize the pressures therein.

**equalising support.** The cross-beam support of an axle-support-type equalizer, on which is mounted the trails and upper carriage. It is connected to the axle by means of a horizontal pintle, which permits a vertical angular difference between the front and rear axis.

**equation of state.** *Chem.* A formula relating the volume, temperature, and pressure of a system.

**equation solver.** A computing device, often of the analog type, which is designed to: (a) Solve systems of linear simultaneous (nondifferential) equations, or (b) Find the roots of polynomials; or both.

**equilibration system.** Mechanism for balancing weight of gun or launcher for ease in elevating. See: equilibrator.

**equilibrator.** Force-producing mechanism designed to provide a moment about the trunnions of a gun cradle or launcher which is equal and opposite to that caused by the unbalanced weight of the tipping parts, thus making it easier to elevate the weapon. The various types of equilibrators and the distinguishing features of each are given below:

**chain-type equilibrator**—Transmits its force to the tipping parts by means of a chain; it usually is fixed rigidly to the top carriage.

**hydropneumatic-type equilibrator**—Operated by hydraulic fluid which is subject to pneumatic pressure.

**pivot-type equilibrator**—Transmits its force to the tipping parts through a piston rod; it is pivoted at both ends and maintains its alignment by rotating about the pivots.

**pneumatic-type equilibrator**—Derives its force from compressed gas applied to a piston.

**pull-type equilibrator**—Force is applied in the direction which tends to draw its attachment points toward each other.

**push-type equilibrator**—Force is applied in the direction which tends to force its attachment points away from each other.

**spring-type equilibrator**—Derives its force from a coil spring.

**spring-hydraulic type equilibrator**—Operated by springs and controlled by hydraulic pressure.

**telescoping-type equilibrator**—Moving parts consist of two concentric cylinders having an action similar to the sliding tubes of a telescope.

**torsion bar equilibrator**—The tipping parts are connected through linkages to a torsion bar. As the weapon is depressed, torque is applied to the torsion bar through the linkages and the weapon is balanced by the increased torque resistance of the bar.

**EQUILIBRATOR, CANNON.** A mechanical device that compensates for the unbalanced weight of the cannon and keeps the cannon in balance at all angles of elevation so that it may be elevated or depressed by a manually operated mechanism.*

**equiphase zone.** The region in space within which the difference in phase of two radio signals is indistinguishable.

**equisignal zone.** An on-course zone lying within the overlapping zones of any two signal patterns transmitted by radio, as between the 'A' and 'N' patterns in an Adcock radio range.

**equivalence ratio.** The ratio of the stoichiometric air-to-fuel ratio to the experimental air-to-fuel ratio.

**equivalent airspeed.** See: **airspeed, equivalent.**

**erase.** *Electronic computers.* To replace all the binary digits in a storage device by binary zeros. In a binary computer, *erasing* is equivalent to clearing, while in a coded decimal computer where the pulse code for decimal zero may contain binary ones, *clearing* leaves decimal zero while *erasing* leaves all-zero pulse codes.

**ERASER, MAGNETIC.** An item which is specifically designed to disorientate the magnetic signal induced on tape or wire in preparation for the recording of another signal.*

**erasing head.** See **ERASER, MAGNETIC.**

**erecting system.** *Optics.* Lenses or prisms, the function of which is to erect the image, that is, to bring the image upright after it has been inverted by the objective. An erecting system may consist of a pair of lenses, each of which is called an erector, or of one or more prisms.

**erector.** A system for raising or lowering a complete missile, or its stages, from the horizontal to the vertical position.

**ERECTOR, GUIDED MISSILE, SELF-PROPELLED.** A self-propelled vehicle, specifically designed to transport, erect, and place a guided missile on a LAUNCHER, PLATFORM, GUIDED MISSILE.*

**E-region; $E_1$, $E_2$.** See: **atmospheric shells.**

**Erie Ordnance Depot.** Ordnance Corps field installation, located at Port Clinton, Ohio.

**erosion.** *Specif.* The enlargement or wearing away of the bore of a weapon by the movement of high-temperature gases and residues generated from the burning of the propellant, by chemical action and by friction between the projectile and the bore.

**error.** 1. *Math.* The difference between an observed or calculated value and the true value. 2. *Gunnery.* The divergence of a point of impact from the center of impact. 3. *Electronic computers.* The amount of loss of precision in a quantity; the difference between an accurate quantity and its calculated approximation; *errors* occur in numerical methods; *mistakes* occur in programming, coding, data transcription, and operating; *malfunctions* occur in computers and are due to physical limitations on the properties of materials; the differential margin by which a controlled unit deviates from its target value.

**error signal.** 1. *Servomechanisms.* The signal, frequently a voltage, applied to the control circuit that indicates the misalignment between the controlling and the controlled members. 2. *Tracking systems.* A voltage, depending upon the signal received from the target, whose sign and magnitude depend on the angle between the target and the center of the scanning beam.

**E-scan.** 1. A scan for presentation on an **E-scope.** 2. An **E-scope.** *Popular.*

**escapement.** A mechanical device that regulates the rate of transmission of energy. (For example, as used in a mechanical time fuze.)

**escape velocity.** In space flight, the speed at which an object is able to overcome the gravitational pull of the earth.

**E-scope.** A radarscope which presents the range of a target by a horizontal displacement of the target signal on the face of the scope, and the elevation by a vertical displacement. See: **E-scan.**

**ESP** *(abbr).* 'Elastic strength pressure.'

**ESP (hot)** *(abbr).* 'Elastic strength pressure (hot).'

**esp.** *(abbr)*. 'Especially.'

**establishment.** General term for an installation or a headquarters, especially in British terminology.

**estimated data.** *Specif.* Firing data which are determined by estimate rather than by exact measurement or by observation of fire.

**ethyl centralite.** Symmetrical-diethyldiphenylurea. An additive used in propellant formulation having an effect similar to diphenylamine. See: **diphenylamine.**

**ethyldichloroarsine.** (ED) A blister gas, irritating to the eyes and respiratory tract, which will produce eye and lung injury upon sufficient exposure.

**ethylenediamine dinitrate.** (EDD) High explosive, used to a limited extent by the Germans during World War II as a bursting charge. Must be loaded by pressing. Considered to be an inferior substitute for TNT because of its solubility, hygroscopicity, and acidity characteristics.

**ethylene glycol.** An **ANTIFREEZE** (which see).

**ethyl phosphorodimethylamidocyanidate.** (GA) See: **tabun.**

**EVACUATOR, BORE.** A device placed on the tube of artillery weapons to force propellant gases to flow outward through the muzzle end of the bore from a cylindrical chamber around the gun tube. The chamber incloses a series of jets around the cannon tube through which the gases flow.*

**E-vector.** The vector representing the electric field of an electromagnetic wave. In free space it is perpendicular to the direction of propagation.

**evening gun.** Firing of a gun as a signal for the lowering of the flag at retreat. The gun is fired after the sounding of the last note of the bugle call at retreat. Also called retreat gun.

**exactor, propellant actuated.** A propellant actuated device intended to release the safety mechanism of another propellant actuated device. The exactor operates by gas pressure supplied from an INITIATOR, CARTRIDGE ACTUATED. See also: **propellant actuated device.**

**excitation.** 1. Application of a signal to the input of a vacuum tube amplifier. 2. Application of signal power to a radio transmitting antenna. 3. Application of current to the transmitting and receiving elements of a synchro or self-synchronous device. In this meaning called selsyn excitation.

**EXCITER, IMPACT CRYSTAL.** A device designed to create mechanical shocks of uniform intensity. It is used to excite impact crystals, which generate electrical pulses that may be measured by a test set.*

**exclusive license.** *Patent law.* Exclusive permission to use, manufacture and sell patented article. Contract not to give leave to anyone else to do the same thing. Cf: **license.**

**EXERCISE HEAD, GUIDED MISSILE.** An item designed to simulate a WARHEAD, GUIDED MISSILE. It may or may not contain telemetering devices and/or flash signals.*

**EXERCISE HEAD, TORPEDO.** An item designed for attachment to a TORPEDO MAIN ASSEMBLAGE to complete a torpedo for a practice run. It may contain recording instruments.*

**EXERCISER, RECOIL MECHANISM.** An item specifically designed for exercising hydropneumatic recoil mechanism. It usually consists of a power unit, a hydraulic system and a control system. It may be trailer mounted.* See also: **gymnasticator.**

**exhaust manifold.** See: **manifold.**

**exhaust pipe.** See: **PIPE, EXHAUST.**

**exhaust velocity.** A loose term for the discharge velocity of an exhaust nozzle. Four common exhaust velocities are **characteristic velocity; actual exhaust velocity; effective exhaust velocity;** and **ideal exhaust velocity.** See separate entries.

**exit velocity.** See **exhaust velocity.**

**exosphere.** See **atmospheric shells.**

**exothermic.** A thermodynamic term descriptive of an evolution of heat or other energy. Cf: **endothermic.**

**exotic fuel.** Popular term for **fuel, high energy,** which see.

**expansion ratio.** 1. In jet propulsion the ratio of the nozzle exit section area to the nozzle throat area. 2. *Propellant actuated devices.* Ratio of final to initial volume.

**expansion wave.** *Aerodynamics.* A pressure wave or kind of shock wave that has the effect of decreasing the density of air as the air passes through it.

Expansion waves are often distinguished from shock waves. Cf: **compression wave.**

**expelling charge.** See: **charge, expelling.**

**expendable.** Of a supply item or piece of property: That is consumed, or loses its identity, when used; expected to be consumed or to lose its identity.

**experimental type.** See: **type classification.**

**explode.** To be changed in chemical or physical state usually from a solid or liquid to a gas (as by chemical decomposition or sudden vaporization) so as suddenly to transform considerable energy into the kinetic form. See also: **explosion.**

**exploded view.** A drawing or picture of any article or piece of equipment in which the component parts are separated but so arranged as to show their relationship to the whole.

**exploder.** See: **BLASTING MACHINE.**

**EXPLODER MECHANISM, TORPEDO.** An electrical and/or mechanical device designed to actuate the explosive train of a WARHEAD, TORPEDO by means of a physical impact or an influence signal. It may contain a disarming device.*

**exploding bridgewire.** Term used to describe an initiator or system in which a very high energy electrical impulse is passed through a bridgewire, literally exploding the bridgewire and releasing thermal and shock energy capable of initiating a relatively insensitive explosive in contact with the bridgewire.

**exploratory research.** See: **basic research.**

**Explorer.** Name given to series of earth satellites launched by the Army. Explorer I, the first US satellite, was launched and went into orbit on 1 February 1958.

**explosion.** (explo) A chemical reaction or change of state which is effected in an exceedingly short space of time with the generation of a high temperature and generally a large quantity of gas. An explosion produces a shock wave in the surrounding medium.

The term includes both deflagration and detonation. Cf: **deflagration; detonation.**

**explosion, confined.** Explosion occurring, as in a closed chamber, where the volume is constant.

**explosion, unconfined.** Explosion occurring in the open air where the (atmospheric) pressure is constant.

**explosive.** (xpl) A substance or mixture of substances which may be made to undergo a rapid chemical change, without an outside supply of oxygen, with the liberation of large quantities of energy generally accompanied by the evolution of hot gases. Explosives are divided into two classes: high explosives and low explosives, according to their rate of reaction in normal usage. Certain mixtures of fuels and oxidizers can be made to explode and these are considered to be explosives. However, a substance such as a fuel which requires an outside source of oxidizer, or an oxidizer which requires an outside source of fuel to explode, is not considered an explosive. See also: **high explosive; low explosive.**

**explosive actuated device.** A general term used to designate any of various devices which are actuated by means of explosives. The term includes devices actuated either by high explosives or low explosives, whereas the better known term **propellant actuated device** (which see) includes only the latter.

**explosive bolt.** A bolt, designed to contain an explosive charge which, upon detonation, will shear the bolt or cause it to fail otherwise. The design usually provides for remote initiation of the explosive charge. Explosive bolts are applicable to such uses as stage separation of rockets, jettison of expended fuel tanks, and ejection of parachutes.

**explosive bomb.** See: **bomb, explosive.**

**explosive bullet.** A bullet which contains an explosive.

**explosive catapult seat.** See: **SEAT, AIRCRAFT EJECTION.**

**explosive charge.** See: **charge** (senses 1 and 2).

**explosive, conventional.** A nonatomic explosive.

**Explosive D.** A high explosive, ammonium picrate or dunnite. Used in some armor-piercing projectiles because of its comparative insensitivity to shock and friction.

**explosive decompression.** A sudden loss of pressure in a pressurized cabin, cockpit, or the like, so rapid as to be explosive, as when punctured by gunfire.

**explosive filler.** Main explosive charge contained in a projectile, missile, bomb, or the like. See also: **charge** (sense 2).

**EXPLOSIVE HARNESS ASSEMBLY, MISSILE-ROCKET.** An intermediate assemblage of items in an explosive train between the safety and arming devices and the guided missile or rocket warhead(s) which transmits a detonation wave for initiation of the warhead(s).*

**EXPLOSIVE KIT, EARTH ROD.** A set of explosive and nonexplosive items, with carrying case, designed to make holes, for demolition or constructional purposes, in earth and soft shale.

**EXPLOSIVE KIT, FOXHOLE DIGGER.** A group of explosive and nonexplosive items, packaged in a water resistant, fiberboard, cylindrical carrying case, designed to produce a disruption of ground from which a foxhole can be quickly and easily prepared. It consists primarily of rocket motor section, a head section, a fuze section, and a tripod launcher leg assembly. Excludes EXPLOSIVE KIT, EARTH ROD.*

**explosive ordnance.** (EO) Term used to denote ordnance materiel which normally contains or consists of explosives. Examples: bombs, mines, torpedoes, missiles, projectiles, and the like.

**explosive ordnance disposal.** (EOD) The handling, disarming, or destroying of unexploded missiles and other explosive ordnance. See also: **explosive ordnance.**

**explosive ordnance disposal unit.** Organization or personnel with special training or equipment who render safe explosive ordnance, make intelligence reports on such ordnance, and supervise the safe removal and disposal thereof. See also: **demolition squad; underwater demolition team.**

**explosive ordnance reconnaissance.** (EOR) Act of reconnoitering to determine the presence of an unexploded missile, ascertaining its nature, applying all practicable protective measures for the protection of personnel, installations and equipment and finally reporting essential information to the authority directing explosive ordnance disposal operations.

**explosive ordnance reconnaissance agent.** (EORA) A person trained in explosive ordnance reconnaissance techniques who takes required actions and renders the needed reports so that the unexploded ordnance in question can be effectively neutralized by the military.

**EXPLOSIVE SECTION ASSEMBLY, PRACTICE DEPTH CHARGE.** A group of items assembled together to form the explosive charge compartment for a practice depth charge. It may be empty or explosive filled.*

**explosive train.** A train of combustible and explosive elements arranged in the order of decreasing sensitivity, inside a fuze, projectile, bomb, gun chamber, or the like. The function of the explosive train is to accomplish the controlled augmentation of a small impulse into one of suitable energy to cause the main charge of the munition to function. A fuze explosive train may consist of a primer, a detonator, a delay, a relay, a lead and booster charge, one or more of which may be either omitted or combined. If the bursting charge is added to the foregoing train it becomes a bursting charge explosive train. A propelling charge explosive train might consist of a primer, igniter or igniting charge, usually black powder, and finally, any of the various types of propellants.

**exponential horn.** *Electroacoustics.* A horn whose cross-sectional area increases exponentially with axial distance.

**EXTENDER, BOOSTER, DEPTH CHARGE.** A hydrostatically operated item designed to properly position a depth charge booster in relation to its detonator within a depth charge.*

**EXTENDER MECHANISM, UNDERWATER MINE.** An item designed to extend the detonator into the booster for arming an underwater mine by means of hydrostatic pressure.*

**EXTENSION, ARMING WIRE, BOMB.** A length of cable with a SWIVEL AND LOOP ASSEMBLY, ARMING WIRE on one end and a snap fastener on the other, designed to extend the length of an ARMING WIRE ASSEMBLY.*

**EXTENSION, FUZE, BOMB.** A steel tube filled with an explosive material and designed to extend a nose fuze a distance forward of the bomb.*

**EXTENSION, SEARCH COIL, UNDERWATER MINE.** A metallic item designed to extend the length of the core of a COIL, UNDERWATER MINE.*

**EXTENSION, TORPEDO WARHEAD.** A metallic cylindrical item, designed to change the center of gravity of a torpedo. It may or may not be explosive filled.*

**EXTENSION, TRIGGER.** A metallic item attached to a TRIGGER and designed to extend its length.*

**exterior ballistics.** See: **ballistics.**

**exterior ballistic table.** Table containing data on the trajectories of projectiles under various conditions. See also: **ballistic table.**

**external aileron.** An aileron offset from the wing, i.e., not forming a part of the wing.

**extract.** To pull an empty cartridge case out of the chamber of a gun.

**extraction.** Process by which the fired cartridge cases are pulled from the chamber of a gun. Cf: **ejection.**

**extractor.** *Weapons.* A device in the breech mechanism of a gun, rifle, or the like, for pulling an empty cartridge case or an unfired cartridge out of the chamber of a gun, rifle, or the like.* Cf: **ejector.**

**EXTRACTOR, ARTILLERY CARTRIDGE.** An extractor designed for pulling an empty cartridge case or unfired cartridge out of the chamber of an artillery weapon.*

**EXTRACTOR, DUMMY PROJECTILE, HAND.** A tool for use with dummy projectiles in large caliber weapons to engage with the base of the projectile and enable withdrawing the projectile from the seated position.

**EXTRACTOR, GRENADE CARTRIDGE.** An extractor designed for pulling an empty cartridge case or unfired cartridge out of the chamber of a LAUNCHER, GRENADE.*

**extractor groove.** Groove machined in the base of a cartridge case, a short distance above the head. The groove receives the extractor of the breech mechanism and permits the case to be withdrawn by the extractor. Extractor grooves are used in automatic weapons, in preference to extractor rims (flanges) formed on the cartridge case base. Cf: **extractor rim.**

**extractor pocket.** The opening through which the extractor enters the chamber. The extractor pocket may cause extraction difficulties, because of expansion of the case into it.

**extractor rim.** A rim or flange around the head of a cartridge case to provide a grip for the mechanical extractor of the weapon. Cf: **extractor groove.**

**EXTRACTOR, SMALL ARMS CARTRIDGE.** An extractor designed for pulling an empty cartridge case or an unfired cartridge out of the chamber of a small arms weapon.*

**extrapolate.** To make inferences about something that is not known nor understood, by reference to something that is known and understood, and is assumed to correspond in some way with that which is known and understood.

**extremely high frequency.** (EHF) See: **frequency, electronic.**

**extreme range.** Greatest range of a weapon; e.g., the greatest distance a gun will shoot.

**extreme spread.** In firing accuracy test, the distance between the two shots farthest from each other.

**extrusion.** *General.* The process of producing parts to a desired form by forcing material under pressure through a die of that form, also the product of this action. Many Ordnance components are produced by extrusion. Propellant grains are formed in this manner, and cut off to length required; projectile blanks are often produced by hot extrusion, and in some cases by cold extrusion. Many aluminum parts are produced as extrusions, however, the cold extrusion of steel components such as cartridge cases and projectiles has only become practicable in recent years.

**exudation.** The emission of any substance (usually oily, tarry, or gaseous) from an explosive item, generally the results of chemical reaction or pressure due to thermal changes.

**EYEPIECE ASSEMBLY, OPTICAL INSTRUMENT.** An optical system consisting of two or more lenses secured within a cylindrical sleeve. It is the component of an optical instrument nearest the eye of the observer when sighting. The distance between lenses is maintained by an optical element spacer. It usually has focusing facilities and may include a reticle, filter, and/or a diopter scale.*

**EYESHIELD, OPTICAL INSTRUMENT.** A resilient rubber item, designed to be attached to the viewing aperture of an optical instrument, to maintain proper eye distance and to protect the eye(s) of the observer from stray light, wind, and/or injury due to shock of gun fire or similar disturbances. Excludes VISOR, PERISCOPE.*

# F

**F** *(abbr).* 'Fahrenheit.'

**f/** *(abbr).* 'For' (in combinations only).

**FA** *(abbr).* 1. 'Field Artillery.' 2. 'Frankford Arsenal.'

**FAA** *(abbr).* 'Federal Aviation Agency.'

**fab lab.** Slang for 'fabrication laboratory.'

**fac** *(abbr).* 'Facility.'

**face-hardened armor.** See: **armor.**

**face of bolt.** The face of a gun bolt is that portion which abuts the base of the cartridge case.

**facility.** (fac) 1. A physical plant or installation, as a base, arsenal, or building, used to make easier the performance of a function. 2. *pl.* The buildings, shelters, roads, utilities, shops, or the like used to facilitate the performance of a function.

**facility security clearance.** An administrative determination that, from a security viewpoint, a facility is eligible for access to classified information of a certain category (and all lower categories).

**factor, load.** See: **load factor.**

**factor of safety.** A ratio which expresses the extra strength built into a structure or mechanism to give a margin of safety over normally expected loads; e.g., the ratio of the ultimate strength of a piece of material to the maximum permissible stress. See: **safety factor.**

**fail-safe device.** A device built into a potentially hazardous piece of equipment which provides that the equipment will remain safe to friendly users even though it fails in its intended purpose. This includes devices which destroy the item being operated. They may be self-destructive in the event of equipment failure or may be destroyed by command if operated by remote control. Cf: **missile destruct system.**

**fair.** 1. To streamline a *part* of an aerodynamic body, esp. for reducing wind resistance or drag. 2. Of an external part: To fit into another part so as to present a streamlined surface.

**fairing.** *Specif.* An auxiliary member or structure on an item that functions to reduce drag; an external surface that has been faired. Cf: **fillet.**

**FAIRING, AIRCRAFT ROCKET LAUNCHER.** An item designed to be mounted on a LAUNCHER, ROCKET, AIRCRAFT shaped so as to reduce the air resistance.*

**FAIRING, GUIDED MISSILE TUNNEL SECTION.** A tunnel-shaped, tapered item with supporting and/or connecting link(s) designed to close the end(s) of a TUNNEL SECTION, GUIDED MISSILE forming a streamlined surface for reducing air resistance.*

**FAIRING, NOZZLE, ROCKET.** A cylindrical shaped item, designed to cover the nozzle expansion section of a rocket motor to reduce air resistance.*

**FAIRING, ROCKET ENGINE, GUIDED MISSILE.** A cylindrical shaped item specifically designed to partially or fully inclose a rocket engine airframe section of a guided missile to reduce air resistance.*

**FAIRING, ROCKET MOTOR, GUIDED MISSILE.** A cylindrical shaped item specifically designed to partially or fully inclose a rocket motor airframe section of a guided missile to reduce air resistance.*

**FAIRING, UMBILICAL PLUG, ROCKET.** A streamlined item or covering designed to protect and produce a smooth outline to the umbilical plug of a rocket. Its primary purpose is to reduce the plug to a form having the least possible head resistance.*

**FAIRING, UNDERWATER MINE.** An item designed to be mounted on an underwater mine. It is shaped to reduce or equally distribute air resistance when suspended and launched from an aircraft. It may have collapsible fins.*

**Falcon.** Name applied to an Air Force air-to-air interceptor type homing missile, employing solid propellant. It is launched from an airplane and automatically homes on the target at supersonic speed. Some models employ radar and some infrared homing.

**fallback.** That part of the material carried into the air by an atomic explosion that ultimately drops back to the earth or water at the site of the explosion. Cf: **fallout.**

**fallout.** The process of precipitation to earth of particulate matter from an atomic cloud, also applied in a collective sense to the particulate matter itself. Although not necessarily so, such particulate matter is generally radioactive. Cf: **fallback.**

**fallout area.** The area on which radioactive materials have settled out, or the area on which it is predicted from weather conditions that radioactive materials may settle out.

**FALSE TARGET, SUBMARINE.** A pyrotechnic item designed to be ejected from a submarine to confuse and disrupt underwater echo ranging equipment and create a bubble wake which can be seen by aircraft and surface vessels.*

**Fastax camera.** See: **camera, Fastax.**

**FASTENER UNIT, POWDER ACTUATED TOOL.** An item consisting of a CARTRIDGE, POWDER ACTUATED TOOL, a fastener, and a sabot designed to be fired from a powder actuated projectile unit driver.*

**FAULT LOCATOR, MISSILE SYSTEMS CHECKOUT.** A fault locator specifically designed for use in making examinations of various systems within a missile.*

**FAULT LOCATOR, ROCKET ENGINE SYSTEMS.** A fault locator specifically designed for use in making examinations of systems within a rocket engine.*

**FC** *(abbr).* 'Fire control.'

**FCL** *(abbr).* 'Fuze cavity lined.'

**F damage.** See: **damage categories.**

**feasibility study.** The study of a proposed item or technique to determine the degree to which it is practicable, advisable, and adaptable for the intended purpose. This phase may include action of

the Ordnance Technical Committee authorizing conduct of the study; it is concluded with the delivery of a report to the Technical Assessment Group or office directing the study.

**Fed** *(abbr).* 'Federal.'

**Federal Aviation Agency.** (FAA) A U. S. Government agency with a Director responsible to the President of the United States, replacing the former Civil Aeronautics Administration. The FAA was created and the CAA expired as of midnight December 31, 1958. The FAA includes the Civil Aeronautics Board, which retains its former identity as a legal regulatory, tariff supervisory, and accident investigation organization. FAA has the former CAA functions as the operating agency at controlled airports and on controlled airways, and in fostering the development of aviation and airmen.

**Federal Catalog System.** A cataloging system established by the now superseded Munitions Board Cataloging Agency. Now handled by the Armed Forces Supply Support Center

This system provides stock numbers for all items of supply in the Armed Forces. It is designed to standardize the description of supply items, eliminate duplication in procurement, and thereby reduce costs for supply purchase and storage.

**Federal Item Identification Number.** (FIIN) A series of seven Arabic numbers as follows: three digits, hyphen, four digits (123-4567) requiring eight spaces. The FIIN differentiates concisely and permanently each individual supply item from all other supply items. It is nonsignificant in character, which means that the FIIN will fix the identity of the individual item but will not determine its position or sequence in relation to other items.

**Federal specification.** A procurement specification promulgated by the Federal Government.

**Federal Stock Number.** (FSN) An identifying number for an item of supply consisting of the applicable 4-digit class code number from the Federal Supply Classification, plus the applicable 7-digit Federal Item Identification Number. See also: **Federal Item Identification Number; Federal Supply Classification.**

**Federal Supply Classification.** (FSC) A 4-digit coding structure for use in classifying items of supply identified under the Federal Catalog System. The first two digits of the code number identify the group, and the last two digits of the code number identify the classes within each group. See also: **Federal Stock Number.**

**feedback.** 1. A transfer of energy from a point near the output of a system to a point near the input, as for purposes of automatic control. 2. In a magnetic amplifier, a circuit connection through which a part of the output force is used to influence the operating conditions.

**feed belt.** See: **belt, ammunition (sense 1).**

**feed chute.** A chute or passage through which ammunition is guided into the breech mechanism of a machine gun

The *fixed feed chute* is a rigid confining track leading to the gun; the *flexible feed chute* is a confining track made up of articulated segments.

**FEEDER, AUTOMATIC GUN.** A device designed to pull cartridges from an ammunition belt or other container and to feed them into the chamber of an automatic gun. It may include a safety device to clear the weapon without expending a complete load of an ammunition belt or container.*

**feeler gage.** See: **GAGE, THICKNESS.**

**ferret.** An aircraft, ship, or vehicle especially equipped for the detection, location, recording, and analyzing of electromagnetic radiation.

**Ferri diffuser.** See: **diffuser, Oswatitsch or Ferri.**

**ferromagnetics** *Electronic computers.* In computer technology, the science that deals with the storage of information and the logical control of pulse sequences through the utilization of the magnetic polarization properties of materials to store binary information.

**FERRULE, ARMING WIRE.** A fastener sleeve used in an ARMING WIRE ASSEMBLY to secure the loop which retains the swivel loop in its proper position on the arming wire.

**FF** *(abbr).* 1. 'Folding fin.' 2. 'Forward firing.'

**FFAR** *(abbr).* 1. 'Folding fin aircraft rocket.' 2. 'Forward firing aircraft rocket.'

**FHP** *(abbr).* 'Friction horsepower.'

**field artillery.** (FA) 1. Artillery mounted on carriages and mobile enough to accompany infantry or armored units in the field. 2. Capitalized, former branch of the Army.

**field artillery observer.** A person who watches the effects of artillery fire, adjusts the center of impact of that fire onto a target, reporting results to the firing agency. See: **spotter.**

**field artillery trainer.** Small practice gun and carriage unit used in training field artillery personnel. A field artillery trainer has a telescope and a mechanism for adjusting elevation and deflection.

**field chronograph.** See: **chronograph.**

**field emplacement.** Platform, support, or other position for artillery, machine guns, etc., in the field.

**field fortification.** Fortification constructed in the field to strengthen the natural defenses of the ground features. Field fortifications include foxholes, obstacles, trenches, gun emplacements, etc.

**field gun.** Field artillery piece; cannon mounted on a carriage for use in the field.

**field maintenance.** See: **maintenance.**

**field of fire.** (FofF) The area which a weapon or group of weapons may cover effectively with fire from a given position.

**field of search.** *Electronics.* The space that a radar set or installation can cover effectively.

**field of view.** The open or visible space commanded by the eye. It is the maximum angle of view that can be seen at one time. In an instrument, the *true field of view* is the actual angle of view of the instrument, the maximum angle subtended by any two objects which can be viewed simultaneously. The *apparent field of view* is the size of the field of view as it appears to the eye or the area in which the virtual image is formed; it is equal to the magnifying power of the instrument times the angle of the true field of view.

**field piece.** Field artillery gun or howitzer; gun mounted on a carriage, for use in the field.

**Field Service Division.** One of the principal divisions of the Office, Chief of Ordnance. Symbol: ORDF.

**field shop.** Maintenance or repair shop, established and operated in the field or facility for performing work within the scope of field maintenance. See also: **maintenance.**

**field-strip.** To disassemble the major components of a machine gun, cannon, or other firearm for cleaning, inspection, or the like. Cf: **detail-strip.**

**field supply.** See: **supply.**

**field target.** Target used in field firing practice. See: **TARGET** (as modified).

**field weapons.** Weapons designed or intended for actual use in the field.

**fifth echelon maintenance.** See: **maintenance.**

**fifth wheel.** Flat, round steel plate, swivel-mounted on the frame siderails at the rear of a tractor truck, used to couple a semitrailer to it. Part of a **FIFTH WHEEL ASSEMBLY.**

**FIFTH WHEEL ASSEMBLY.** A device designed for attaching a semitrailer to a truck tractor or dolly in such a way as to allow free rotation in a horizontal plane and yet prevent tipping.*

**fifty.** Popular term for 'caliber .50 machine gun.' Used in plural in reference to guns mounted in multiple mounts, as in 'a short burst from his twin fifties.'

**fifty-percent zone.** Area inclosing the center of dispersion or impact within which one half of all shots fired with the same setting will fall. The zone may consist of a rectangle which includes the ranges of all impacts and the deflections of half the impacts, called the fifty-percent zone for deflection. Similarly, the rectangle which includes the deflections of all impacts and the ranges for half the impacts is called the fifty-percent zone for range. In either case, the center of the rectangle is the center of dispersion. See also: **hundred-percent rectangle.**

**fighting compartment.** Portion of a fighting vehicle in which the occupants service and fire the principal armament. It occupies a portion of the hull and all of the turret, if any.

**FIIN** (*abbr*). 'Federal Item Identification Number.'

**FILE DESTROYER, INCENDIARY.** An incendiary device designed for use in destroying combustible file material. Excludes CRYPTOGRAPHIC EQUIPMENT DESTROYER, INCENDIARY.*

**fill.** See: **charge** (sense 2).

**filler.** 1. An ammunition charge. See: **charge** (sense 2). 2. *Electroacoustics.* In mechanical recording, the inert material of a record compound as distinguished from the binder.

**FILLER, HYDRAULIC SYSTEM, GUIDED MISSILE.** A specifically designed item mounted on a hand truck consisting of an ethylene oxide cylinder, a hydraulic pump and necessary gages, hoses, and valves required to pressurize the hydraulic system of a guided missile.*

**filler, link.** See: **LINK FILLER, CARTRIDGE.**

**FILLER, MAGAZINE.** An item which attaches to the rear top portion of a rifle magazine to retain and position a cartridge clip to facilitate loading.*

**fillet.** A concave junction formed where two surfaces meet, for example, a faired surface or piece that smooths the flow of air at an internal angle, as at a wing root.

**filling.** An ammunition charge. See: **charge** (sense 2).

**film badge.** A photographic film packet to be carried by personnel, in the form of a badge, for measuring and permanently recording (usually) gamma ray dosage.

**filter.** 1. An apparatus designed to purify and/or clarify fluids, such as air, oil, water, gas, gasoline, etc., by separating foreign matter. The filtering element may be of a porous material such as charcoal, cotton, paper, fibrous disks, or may be closely spaced metal disks or a series of closely-wound wire. 2. A transparent item designed to be used with a light for the sole purpose of altering the color of the light emitted and/or polarizing the light rays.* 3. An electrical device utilizing resistance, capacitance, inductance, or any combination thereof to reduce current and power at certain frequencies while allowing the comparatively free flow of other currents.

**FILTER, ACOUSTICAL.** An item specifically designed to absorb certain audio frequencies.*

**FILTER, AIR, ELECTROSTATIC.** An item designed to remove dust, soot or other small particles from an air stream, by ionization and precipitation.*

**filter center.** Central communications office of an aircraft warning service filter area that gets all reports on the movements of aircraft, sifts the information received, and sends it to information centers.

**filter element.** Active, replaceable part of a filter, especially of a lubricating or fuel oil filter.

**FILTER, LIGHT, OPTICAL INSTRUMENT.** An item having two plane-parallel surfaces and consisting of a polarizing material bonded between glass or plastic. This item transmits light in only one plane and is usually used in pairs to vary the light transmitted into or through an optical instrument. Excludes WINDOW, OPTICAL INSTRUMENT.*

**FILTER, LIGHT, TELESCOPIC INSTRUMENT.** An item having two plane-parallel surfaces and used in the telescopic system of an optical instrument to modify the density or spectral intensity of light by absorption. Several filters have varied characteristics are usually mounted in such a manner that any selected filter may be moved in or out of the optical axis as light conditions warrant. Excludes WINDOW, OPTICAL INSTRUMENT.*

**filter, oil.** On motor vehicles, a device whose primary function is to strain the engine oil of some of its contaminating substances such as dust and dirt, by passing it through a filtering element, either a cloth bag, a screen, or a metal strainer. It is generally designed with a bypass valve which permits free circulation of the lubricating oil when the filter elements become clogged and retard oil movement.

**filter, oil, automatic.** A disk-type oil filter whose cleaning plates are turned automatically when the engine is operating. The plates are turned by means of an oil motor operated by engine-oil pressure. Oil is forced through the filter and then out through the motor, causing the plates to turn.

**filter, oil, manual disk.** An oil filter in which the oil enters the filter body and is forced up through the

filter element of a cartridge. The cartridge consists of a series of fine, closely spaced, metal, slotted disks. The accumulated dirt is removed from the edges of the disks when the cartridge is turned by means of an external filter handle.

**filter, oil, military standard.** An oil filter adopted for use on automotive vehicles in which all elements, regardless of manufacturer, will fit all filter cases.

**fin.** A fixed or adjustable vane or airfoil affixed longitudinally to an aerodynamically or ballistically designed body for stabilizing purposes.

**final drive.** That part of the power train on tractors, truck-tractors, tanks, and tank-like vehicles that carries the driving power to the wheels or sprockets to produce the vehicle motion as they turn.

**fin assembly.** An assembly of a quantity of metal blades, usually mounted lengthwise on a sleeve, and used on a missile, such as bomb or rifle grenade, to give directional stability.

**FIN ASSEMBLY, BOMB.** A group of items consisting of a quantity of streamlined metal blades mounted on a sleeve with or without supporting braces or shrouds.*

**fin assembly, guided missile.** See: **CONTROL SURFACE ASSEMBLY, GUIDED MISSILE.**

**FIN ASSEMBLY, 81 MILLIMETER CARTRIDGE.** A group of vanes or airfoils mounted longitudinally on a sleeve, designed to be assembled to the rear end of an 81 millimeter projectile to provide stabilized flight. Also may provide for reception of ignition cartridge and propellant increments.

**FIN ASSEMBLY, 60 MILLIMETER PROJECTILE.** A group of vanes or airfoils mounted longitudinally on a sleeve, designed to be assembled to the rear end of a 60 millimeter projectile to provide stabilized flight. Also may provide for reception of ignition cartridge and propellant increments.

**FIN ASSEMBLY, PRACTICE BOMB.** A FIN ASSEMBLY, BOMB for use with practice bombs.

**FIN ASSEMBLY, RIFLE GRENADE.** A group of vanes or airfoils mounted longitudinally on a sleeve, designed to be assembled to the rear end of a rifle grenade to provide stabilized flight.

**FIN ASSEMBLY, ROCKET MOTOR.** A group of vanes or airfoils mounted longitudinally on a suitably designed sleeve, arranged so that the complete assembly can be securely attached to the rear end of a rocket motor to provide stabilized flight.

**fin, bomb.** A **fin** (which see) attached to a bomb in order to afford directional stability.

**fin, box-type.** A **fin assembly** (which see) designed like a box, open at both ends.

**fineness ratio.** The ratio of the length of a streamlined body, as that of a fuselage, airship hull, or the like, to its maximum diameter.

**fine sight.** Adjustment of the sight of a gun so that only the tip of the front sight can be seen through the notch of the rear sight. Cf: **coarse sight.**

**FIN, GUIDED MISSILE.** A movable airfoil, forming a part and/or all of the main directional control surfaces of a missile. It is usually perpendicular or approximately perpendicular to the longitudinal axis of the missile. Its function is to maintain uniformity of direction and to aid in the control of yaw, pitch, and roll of a guided missile in flight.*

**FIN KIT, 5 INCH ROCKET.** A group of items required to modify a 5 inch rocket originally made for use with one type of launcher to permit its use on a launcher of some other type.

**fin lock nut.** See: **NUT, FIN LOCK, BOMB.**

**FIN, 318 MILLIMETER ROCKET.** One of a group of vanes or airfoils designed to be assembled longitudinally to the rear end of a 318 millimeter rocket, to provide stabilized flight.

**FIN, 762 MILLIMETER ROCKET.** One of a group of vanes or airfoils designed to be assembled longitudinally to the rear end of a 762 millimeter rocket, to provide stabilized flight.

**FIN REINFORCING ASSEMBLY.** An assemblage of components required to reinforce a FIN ASSEMBLY, BOMB.

**fin stabilization.** Method of stabilizing a projectile, as a rocket, bomb, or missile, during flight by the aerodynamic use of protruding fins.

**FIN, UNDERWATER MINE.** An item designed to stabilize an underwater mine after its launching.*

**fire.** 1. The discharge of a gun, launching of a missile, or the like. 2. The projectiles or missiles fired. 3. To discharge a weapon.

**fire adjustment.** Correcting the elevation and direction of a weapon, or regulating the explosion time of its projectile, so that the projectile will strike or burst at the desired point. Fire adjustment for automatic weapons is an operation which is continuous from the instant the first rounds reach the vicinity of the target until command 'cease firing' is given.

**firearm.** 1. In a general sense, a **gun** (sense 1, which see). 2. *Specif.* A small arm, as a pistol or rifle, designed to be carried and used by an individual.

**fire attack.** An air attack with incendiary bombs.

**fireball.** The luminous sphere surrounding a nuclear explosion, consisting of heated air.

**fire bomb.** See: **BOMB, FIRE.**

**fire control.** (FC) Control over the direction, volume, and time of fire of guns or launchers by the use of certain electrical, electronic, optical or mechanical systems, devices or aids; a fire control system.

**fire control equipment.** Equipment required and used to directly aim guns or controlled missiles at a particular target. Fire control equipment includes all instruments used in calculating and adjusting proper elevation and deflection of guns and missiles in flight. Included are such items as radars, telescopes, range finders, predictors, directors, other computers, power plants, and communication control systems connecting these elements.

**fire control grid.** System of lines that divide a military map into squares the distance between any two parallel lines representing 1,000 yards or 1,000 meters, depending on the type map. Maps using the fire control grid are of sufficiently large scale to be useful in fire control.

**fire control instrument.** Aiming circle, range finder, compass, telescope, or other instrument used in fire control.

**fire control materiel.** Instruments and apparatus employed in the direction, adjustment, and observation of fire from weapons.

**fire control radar.** Radar equipment used in a fire control system.

**fire control system.** A group of fire control instruments and/or equipment which receives data as to position of target, calculates future position, correlates the information and controls the aiming of a weapon to bring fire upon the target. The system is composed of electronic instruments and equipment, power units, interconnecting cables, etc.

**FIRE CONTROL SYSTEM, ANTIAIRCRAFT.** A grouping of electromechanical components designed to detect, track, and compute the necessary firing data for controlling antiaircraft weapons on the basis of optical and/or radar observation of a target. Excludes RADAR SET and DEFENSE SYSTEM, ANTIAIRCRAFT.*

**FIRE CONTROL SYSTEM, FIELD ARTILLERY.** A grouping of electromechanical components which detect hostile weapons or targets. It computes and transmits firing data to a fire direction center for laying of weapons.*

**fire control system, integrated.** A system which combines target acquisition and tracking data computation, weapon laying and firing, primarily using electronic means assisted by electromechanical devices.

**FIRE CONTROL SYSTEM, LOW LIGHT LEVEL.** A grouping of electronic components designed to detect, identify, and compute necessary fire data for controlling weapons and/or missiles on the basis of television observation of a target, primarily under low light level conditions.*

**fire coordination.** The planning and execution of fire so that targets are adequately covered by a suitable weapon or groups of weapons.

**FIRECRACKER.** A cylindrical shaped item containing an explosive and a fuse. It is used to simulate the noise of an explosive charge.*

**fire direction.** Tactical employment of fire power, the exercise of tactical command of one or more units, in the selection of targets, the concentration or distribution of fire, and allocation of ammunition for each mission.

**fire direction center.** See: **DEFENSE SYSTEM, ANTIAIRCRAFT.***

**fire direction net.** Communication system linking observers, liaison officers, air observers, and the firing batteries with the fire direction center for the purposes of fire control.

**FIRE DIRECTION SET, ARTILLERY.** A collection of special purpose equipment and supplies for use by artillery fire control troop units such as observation batteries, command posts and similar units in plotting artillery fire by the flash ranging method and related operations. Includes plotting sheets, plotting scale and the like.*

**FIRE DIRECTION SET, TANK AND TANK DESTROYER WEAPONS.** A collection of specialized equipment and supplies for use by tank and tank destroyer companies in computing and plotting weapons' fire control data and related problems.*

**fire distribution.** 1. The use of weapons of a unit to cover a target most effectively. 2. The application of fire on targets, or on subdivisions of a target, in order of their importance. 3. The systematic assignment of targets to the batteries of a number of vessels by message or by doctrine.

**fire effect.** Result of firing on enemy personnel and materiel.

**fire for adjustment.** Fire delivered for the purpose of determining firing data that will place the center of impact or burst on the desired portion of the target.

**fire for effect.** Fire which is delivered after the center of impact or burst is within the desired distance of the target or adjusting point.

**fire interrupter.** For aircraft guns, a device (usually an electrical switch mechanically actuated) which interrupts firing of a weapon.

**fire point.** The temperature, as determined by testing, of a lubricating oil when it gives off a vapor that will continue to burn steadily. Cf: **flash point.**

**firepower.** 1. The capability to deliver fire. 2. The fire itself, or the quantity or effectiveness of fire delivered; any explosive or missile that wreaks damage upon the target against which directed. Said of guns or rockets, or of aircraft, units, etc., armed with guns or rockets.

**fire raid.** An air raid with incendiary or fire bombs.

**fire roe.** A powder which, when added to gasoline, gelatinizes or thickens it. See also: **napalm; THICKENER, INCENDIARY OIL.**

**fire superiority.** Fire with greater effect than that of the enemy because of its greater accuracy and volume. Fire superiority makes possible advances against the enemy without heavy losses.

**fire support.** The support or protection given forces in direct contact with the enemy by ground or naval guns or by aircraft engaging in close air support.

**fire unit analyzer.** An instrument for analyzing the effectiveness of an antiaircraft fire unit against hostile aircraft or missiles under the conditions stated on the face of the analyzer.

**FIRING AND ARMING MECHANISM, PRACTICE DEPTH CHARGE.** A hydrostatically operated mechanism designed to contain a method of arming and a detonator for firing a practice depth charge. It may or may not contain a detonator.*

**firing azimuth.** Horizontal direction in which a gun or launcher is pointed for firing, expressed as an azimuth.

**firing base.** Part of the mechanism in some cannon that supports the gun carriage when it is in position for firing.

**firing box.** A box-like item in which are mounted switches, cables, fuses, plugs, indicator lights, batteries, and the like, specifically designed for firing a rocket and/or guided missile from a remote position. Excludes permanently mounted firing panels.*

**firing button.** A button or switch for firing guns or rockets.

**firing chamber.** A combustion chamber, esp. in a rocket motor or rocket engine.

**firing circuit.** Electric circuit, by means of which a weapon, rocket, missile or the like is fired; firing control circuit.

**firing data.** All data necessary for firing a weapon at a given objective. Such data may be determined by computation and then transmitted as verbal commands, or may be applied electromechanically by one of the several types of directing devices.

**firing device.** A mechanism designed to detonate the main charge of explosives contained in booby traps, antipersonnel mines, antitank mines and demolition charges. There are several types of either metallic or nonmetallic construction: pressure, pull, release, or combination thereof. See also: **FIRING DEVICE** (as modified)

**FIRING DEVICE, ANTIPERSONNEL MINE.** An item specifically designed to detonate a MINE, ANTIPERSONNEL.*

**FIRING DEVICE, DEMOLITION.** An item designed to detonate a blasting cap(s) or a detonator by mechanical means such as release of a spring propelled striker or firing pins.*

**FIRING DEVICE, EXPLOSIVE ACTUATOR.** A semiautomatic item designed to be initiated by an external force. Its function is to detonate an explosive actuator cartridge by mechanical means, for the actuation of mechanical contrivances.*

**FIRING DEVICE FIXTURE, PRIMER.** A protective frame, with firing and punch device, used for exploding a primer in fixed ammunition. It may also be used for removing the primer after the primer has been fired.*

**FIRING DEVICE SET, DEMOLITION.** A collection of demolition firing devices, with suitable packing and carrying means, to enable preparation of demolition charges, and booby traps in the field. See also: **FIRING DEVICE, DEMOLITION.**

**firing elevation.** See: **quadrant elevation.**

**firing interval.** Period of time between firing one shot and the next.

**firing jack.** Adjustable device which stabilizes and levels certain mobile artillery weapons while the weapons are in firing position.

**FIRING KIT, DEMOLITION, ELECTRICAL.** A group of expendable items, including a firing switch, a dry battery, and electrical leads, designed to be used with a DEMOLITION KIT, PROJECTED CHARGE; DEMOLITION KIT, PROJECTED CHARGE, INERT.*

**firing lock.** A removable part of the **firing mechanism** in some weapons. Incorporates the firing pin and the mechanism which drives it against the primer.

**firing mechanism.** A mechanism for firing a primer. The primer may be for initiating the propelling charge, in which case the firing mechanism forms a part of the weapon. If the primer is for the purpose of initiating detonation of the main charge, the firing mechanism is a part of the ammunition item and performs the function of a fuze.

**FIRING MECHANISM, DEPTH CHARGE.** An electronic item designed to initiate the detonation of a depth charge.*

**firing mechanism, electric.** Firing mechanism using a firing magneto, battery or a. c. power in circuit with an electric primer. One side of the line is connected by an insulated wire to the primer, and the other side is grounded to the frame of the weapon.

**firing mechanism, electric percussion.** Firing mechanism which fires the primer electrically or by a percussion blow.

**firing mechanism, inertia.** This type of firing mechanism, like the continuous-pull type, is used on weapons firing fixed and semifixed ammunition. This mechanism is characterized by a heavy firing pin and guide assembly which move forward by inertia to strike the primer after the action of the firing pin spring has stopped. The firing pin and guide assembly are retracted by a separate retracting spring. The mechanism cocks when the breechblock is opened and remains cocked during loading and closing of the breechblock. It is fired by pulling a lanyard, striking a lever, or by other mechanical means.

**firing mechanism, percussion.** Any firing mechanism which fires the primer by percussion.

**firing mechanism, percussion hammer.** Firing mechanism in which a hammer, actuated by a pull of a lanyard, strikes the firing pin and fires the weapon.

**FIRING MECHANISM, ROCKET.** An item designed to initiate the detonation of a rocket.*

**FIRING MECHANISM, UNDERWATER MINE.** An item designed to initiate the detonation of an underwater mine. It may be actuated by an acoustic signal, physical impact, hydrostatic pressure and/or magnetic influence. It may contain explosive components.*

**firing order.** The sequence in which the power strokes take place in the cylinders of an engine.

**firing pin.** See: **PIN, FIRING.**

**firing platform.** See: **launching platform.**

**firing point.** Location from which fire is delivered in target practice.

**firing position.** Position of a weapon ready for firing, as opposed to **traveling position.**

**firing range.** 1. An area or site designated for firing practice. 2. The range or distance from a target at which a gun can be fired with effective results, as in 'he was within firing range'; this range considered as a capability of the gun.

**FIRING STATION, GUIDED MISSILE.** A self-contained electronic item which provides remote control of guided missile functions prior to and including firing. It may include an emergency propellant shutoff system.*

**firing table.** (FT) Table or chart giving the data needed for firing a gun accurately on a target under standard conditions and also the corrections that must be made for special conditions, such as winds or variations of temperature. See also: **ballistic table.**

**firing table elevation.** The angle between the axis of the bore and the horizontal when the piece is laid to fire at a given range under conditions that are accepted as standard.

**firing time.** The period of time during which a weapon is fired. See: **effective firing time.**

**first echelon maintenance.** See: **maintenance.**

**first echelon supply.** See: **supply.**

**first fire.** The igniter used with pyrotechnic devices. Consists of first fire composition, loaded in direct

contact with the main pyrotechnic charge. The ignition of the igniter or first fire is generally accomplished by fuze action. See also: **first fire composition.**

**first fire composition.** A pyrotechnic composition, compounded to produce a high temperature, preferably with creation of slag to give heat capacity. The composition is required to be readily ignitible, and capable of being pressed into a strong, solid mass. See also: **first fire.**

**fission.** Of radioactive material: To split apart within the atomic nucleus, as in 'cobalt would neither fission nor fuse.'

**fissionable.** Having the property of certain atomic nuclei, such as some isotopes of uranium and plutonium, of capturing neutrons and thereupon splitting into two particles with great kinetic energy. The term properly is applicable to nuclei that undergo fission by neutrons of thermal energies; but it sometimes is applied loosely to cases where the neutron must be of high energy, as in saying that $U^{238}$ is fissionable by fast neutrons. Cf: **fission, nuclear.**

**fission bomb.** A bomb intended to derive its explosive force from nuclear fission. See: **bomb, atomic.**

**fission, nuclear.** The division of a heavy nucleus into two approximately equal parts. For the heaviest nuclei the reaction is highly exothermic, the release of energy being about 170 MEV (million electron volts) per fission. The approximate equality of the fission fragments distinguishes fission from such processes as spallation, in which relatively small fragments are ejected, leaving only one large residual nucleus. Fission has been induced by neutrons, charged particles, and photons.

**fissuring.** An undesired cracking or splitting of solid propellants, resulting in increased burning areas and increased rate of gas evolution.

**fit.** The relationship existing between two mating parts with respect to the amount of *clearance* or *interference* which is present when they are assembled.

A *clearance fit* is a fit between mating parts having limits of size so prescribed that a clearance always results upon assembly.

An *interference fit* is a fit between mating parts having limits of size so prescribed that an interference always results upon assembly.

A *transition fit* is a fit between mating parts having limits of size so prescribed as to partially or wholly overlap, so that either clearance or interference may result upon assembly.

**fix.** An accurate determination of a position relative to the earth's surface. See: **radio fix.**

**fixed.** (fxd) With reference to armament signifies a permanent emplacement. Not designed to be moved. Not mobile.

**fixed ammunition.** Ammunition with primer and propellant contained in a cartridge case permanently crimped or attached to a projectile. Loaded into the weapon as a unit. Usually termed a 'cartridge.'

**fixed artillery.** Artillery weapons permanently installed on land and sea frontiers for the protection of important areas; artillery of position.

**fixed echo.** A radar echo that is caused by reflection from a fixed object such as a terrain form or building visible to the radar set. See: **radar clutter.**

**fixed emplacement.** Fixed setting for a gun. A fixed emplacement is usually made of reinforced concrete, with the base plate and base ring set in the concrete and bolted down. Also called **permament emplacement.**

**fixed fin.** A nonadjustable vane or airfoil affixed longitudinally to an aerodynamically or ballistically designed body for stabilizing purposes.

**fixed focus.** The term applied to instruments which are not provided with means for focusing. Such instruments, generally, have a wide range of accommodation which permits them to be used by the majority of observers.

**fixed gun.** *Specif.* An aircraft machine gun mounted rigidly to the aircraft, and aimed by moving the aircraft, as distinguished from a flexible gun.

**fixed mount.** See: **fixed emplacement.**

**fixed price contract.** Type of contract whereby the contractor is paid a stated price which is determined at the time the contract is executed and in advance of performance. Special clauses are often inserted in Department of the Army fixed price contracts to provide for the adjustment of price during the life of the contract.

**fixed sight.** A nonadjustable gunsight.

**fixed target.** A target incapable of being moved or of moving, like a city, factory, or surrounded troops.

**fixture.** *Mechanical.* A device securely held, either by its own weight or by a clamping device(s), to a machine, bench or piece of work to hold part(s) during machining, test, or assembly operations. It may be provided with gages, stops, pressure connections, etc., but must not contain devices which guide, cut, grind or perform a production operation.*

**FIXTURE, TRACK CONNECTING, FULL TRACKED VEHICLE.** A fixture used to pull together two track ends, of a full tracked vehicle, for the purpose of connection. May also be used for holding the tension of a track while replacing a link.*

**flail tank.** Specially constructed tank equipped with a flailing device, consisting of chain flails attached to a roller powered by the tank engine, employed to detonate antitank mines.

**flak.** [German *Flieger Abwehr Kanone* (antiaircraft cannon).] 1. Explosive or exploding missiles fired from antiaircraft cannon. 2. Antiaircraft cannon, esp. when used as an adjective, as in *flak battery, flak installation.*

**flak analysis.** The examination and study of flak intelligence to determine the nature, effectiveness, or probable effectiveness of enemy antiaircraft defenses.

**flak computer.** Device for determining flak effectiveness.

**flak curtain.** See: **CURTAIN, FLAK PROTECTIVE.**

**flak intelligence.** Intelligence on enemy ground defenses against aircraft.

**flak jacket.** A jacket or vest of heavy fabric containing metal plates, designed esp. for protection against flak. The usual type of flak jacket covers the chest, abdomen, back, and genitals, leaving the arms and legs free. Also called 'flak vest.' See: **ARMOR, BODY, FRAGMENTATION PROTECTIVE.**

**flame bomb.** See: **BOMB, FIRE.**

**flame holder.** See: **inner liner.**

**flameout.** The extinguishment of the flame in a reaction engine esp. in a jet engine. See: **brennschluss; burnout** (sense 2).

**flame thrower.** An offensive weapon used to project ignited fuel, equally capable of causing casualties to personnel and/or destruction of material.*

**FLAME THROWER, MECHANIZED, AUXILIARY ARMAMENT.** A flame thrower designed to serve as auxiliary armament on a combat vehicle. Excludes FLAME THROWER, MECHANIZED, MAIN ARMAMENT.*

**FLAME THROWER, MECHANIZED, MAIN ARMAMENT.** A flame thrower which serves as the principal offensive armament on a combat vehicle with which it is integrally designed. It usually approximates the silhouette of the unmodified vehicle by adapting the flame gun to fire through a specially designed dummy tube resembling the vehicle's standard armament. Excludes FLAME THROWER, MECHANIZED, AUXILIARY ARMAMENT.*

**flame tube.** See: **inner liner.**

**flammable.** Combustible; easily ignited.

In usage, 'flammable' is preferred to 'inflammable.' In the latter, the 'in-' prefix may be mistaken for the meaning 'not.' See: **nonflammable.**

**flank observation.** Observation of fire from a place on, or near, the flank of the target. The angle at the target between the gun and the observer is between 75° and 105°.

**flap.** 1. Any control surface, such as a speed brake, dive brake, dive-recovery brake, or the like, used primarily to increase the lift or drag on an airplane, or to aid in recovery from a dive. 2. Any rudder attached to a rocket, and acting either in the air or within the jet stream. See: **carbon fin.**

**flap angle.** See: **angle of flap (and flaperons).**

**flaperon.** A kind of control surface used both as a flap and as an aileron.

**flaperon angle.** See: **angle of flap (and flaperons).**

**flap, split.** A hinged plate forming the rear upper or lower portion of an airfoil. The lower portion may be deflected downward to give increased lift and drag; the upper portion may be raised over a portion of the wing for the purpose of lateral control.

**flare.** 1. A pyrotechnic item designed to produce a single source of intense light for purposes such as target and/or airfield illumination.* 2. *Electronics.* An overly-bright return on a radarscope, which loses definite shape because of its excessive brightness. 3. *Rocketry.* The flared inside curve of some types of rocket nozzles.

**FLARE, AIRCRAFT.** A pyrotechnic item, for use from aircraft, designed to produce a single source of intense light for purposes such as target and/or airfield illumination.

**FLARE, AIRCRAFT, INERT.** A FLARE, AIRCRAFT without a pyrotechnic component.*

**flare, airport.** A surface flare consisting of an illuminant candle fitted with a means of ignition, designed to identify and illuminate an airport in the absense of other illumination. See also: **candle; FLARE, SURFACE.**

**flareback.** A rearward escapement of flame or gas from a gun. See: **backfire** (sense 1).

**flare chute.** Popular name for parachute attached to a flare.

**flare, float.** A signal launched from aircraft, to mark a location at sea. It floats on the surface and emits smoke and flame for up to one hour. See also: **FLARE, SURFACE.**

**flare, guide.** An electrically ignited FLARE, AIRCRAFT for attachment to an aerial bomb, which produces very bright light, either white or colored, to mark the position of the bomb and permit its guidance to the target.

**FLARE, GUIDED MISSILE.** A pyrotechnic item designed to produce a single source of intense light for the purpose of visually tracing a guided missile during its flight to a target.*

**flare, illuminating.** A general term, indicating a pyrotechnic device which produces a brilliant, single source light.

**flare, magnesium.** A general term indicating a flare using magnesium as the illuminating agent.

**FLARE MIXTURE.** A pyrotechnic composition, compounded to produce a brilliant light either white or colored.

**flare, parachute.** Pyrotechnic device attached to a parachute and designed to provide intense illumination for a short period. May be discharged from aircraft or from the surface.

**FLARE, PARACHUTE, HAND FIRED.** A complete, self-contained device which is fired from the hand, and which provides a rocket projected, parachute borne, pyrotechnic light.*

**flare pistol.** See: **PISTOL, PYROTECHNIC.**

**flare, reconnaissance.** Former terminology for a FLARE, AIRCRAFT used in air reconnaissance to light up the ground.

**FLARE, SURFACE.** A pyrotechnic item for use in surface positions, ground or water, designed to produce a single source of intense light for purposes such as illumination of airport runways and warning of infiltrating enemy troops.

**flare, trip.** A FLARE, SURFACE which is actuated by, and thus serves as a warning of the approach of, infiltrating enemy troops. It is boobytrapped and, in one type, is attached to a parachute which is projected into the air.

**flash.** Indicates, in the case of simulators and other pyrotechnic items, that item is intended to produce a flash. See also: **SIMULATOR, FLASH, ARTILLERY.**

**flashback fuse.** See: **fuse, spitback.**

**flashback tube.** See: **spitback tube.**

**flash-bang.** The time interval between visual observation of the flash of a weapon being fired and the auditory perception of the sound of the discharge proceeding from the same weapon.

**flash bomb.** See: **BOMB, PHOTOFLASH.**

**flash depressor.** A substance used to reduce the flash from a rocket motor.

**flash fuse.** See: **squib** (sense 2).

**FLASH HIDER.** A metallic cone and/or flat disks which are attached to the muzzle of the gun to conceal the flash when the gun is fired and to prevent temporary blindness of the gun crew while firing.*

**flashless.** (flhls) Said of a propellant or a propelling charge that does not produce a muzzle flash in the weapon for which intended.

**flashless nonhygroscopic.** (FNH) Said of a propellant that does not readily absorb or hold moisture and does not produce a flash in the weapon for which intended.

**flash point.** The temperature, as determined by testing, of a fuel or oil when it gives off a vapor that will flash or ignite momentarily. Cf: **fire point.**

**flash radiography.** Method of high-speed X-ray photography. Used in analysis of ammunition functioning.

**flash ranging.** Finding the position of the burst of a projectile or of an enemy gun by observing its flash. See also: **sound ranging; sound and flash ranging.**

**flash ranging adjustment.** Correcting friendly artillery fire on the basis of observation and location of the flash of friendly shell bursts.

**flash reconnaissance.** Observation from groundposts or from aircraft to locate enemy gun positions by the flashes of enemy guns.

**flash reducer.** See: **REDUCER, FLASH, PROPELLING CHARGE.**

**flash suppressor.** Material incorporated into a propellant to suppress flash. Differs from a flash reducer which is issued separately for use with the propelling charge. See also: **SUPPRESSOR, FLASH.**

**flat base.** Indicates projectile of flat base type, i.e., base is cylindrical. Sometimes called 'square base.' Cf: **boattail.**

**flat nose.** (FN) Popular term for missiles used against submarines, designed to prevent ricocheting on water impact.

**flat spin.** Term used to describe the motion of a projectile which has a slow spin and a very large angle of yaw. It happens most frequently in fin stabilized projectiles with some spin-producing moment, when the period of revolution of the projectile coincides with the period of its oscillation. It is sometimes observed also in bombs and in unstable spinning projectiles.

**flat trajectory.** A trajectory which is relatively flat, that is, described by a projectile of relatively high velocity. Often used to describe the trajectory of a rifle or **gun** (sense 2) as opposed to that of howitzers and mortars.

**flat trajectory fire.** Gunfire delivered at such a range, or with such velocity and elevation setting, that the path of the projectile in flight is almost flat, rather than curved; flat fire. Cf: **curved fire.**

**flat trajectory weapon.** Gun that fires projectiles at such velocity that they travel in an almost straight path with little curve above the ground. A machine gun or a rifle is a flat trajectory weapon at common battle ranges.

**flechette.** [French, 'a small arrow.'] 1. An aerial dart. 2. A small fin stabilized missile, a large number of which can be loaded in artillery canister or in a warhead. See also: **canister** (sense 1).

**fleeting target.** Moving target that remains within observing or firing distance for such a short period that it affords little time for deliberate adjustment and fire against it; transient target. Fleeting targets may be aircraft, vehicles, marching troops, etc.

**flexible gun.** A gun, esp. a machine gun, mounted in an aircraft turret or on a post, tripod, or other mount in such a manner that the gun may be swung in both a vertical and horizontal plane. Distinguished esp. from a fixed gun.

**flhls** *(abbr).* 'Flashless.'

**flight path.** The path described or followed by an aircraft, guided missile, or the like in the air.

**flight path angle.** See: **angle, flight path.**

**flight path computer.** A computer including all of the functions of a course line computer and in addition providing means for controlling the altitude of the aircraft in accordance with any desired plan of flight.

**flight path deviation indicator.** An instrument providing an indication of deviation from flight path.

**flight path slope.** See: **angle, flight path.**

**flight test.** A performance test of aeronautical equipment, including aircraft or any equipment used on aircraft, or of a person in flight.

The flight test is a regular part of a periodic inspection of aircraft, but is also a normal procedure in testing new equipment, esp. on test flights.

**flight track.** The track made by a flying aircraft or missile.

**flint glass.** *Optics.* One of the two principal types of optical glass, the other being **crown glass.** Flint glass is softer than crown glass, has a higher index of refraction, and higher dispersion. See: **compound lens.**

**flip-flop.** *Electronic computers.* An electronic circuit having two stable states and ordinarily two input terminals (or types of input signals) each of which corresponds with one of the two states. The circuit remains in either state until caused to change to the other state by application of the corresponding signal.

**floating piston.** *Specif.* Piston, without piston rod, which separates the oil from the gas in a recuperator cylinder.

**floating reticle.** A reticle the image of which is movable within the field of view.

**FLOAT, UNDERWATER MINE.** A buoyant item of various shapes and sizes designed to contain and properly position a component of an underwater mine. It is secured to the underwater mine by means of a desired length of cable or chain.*

**FLOODER ASSEMBLY, UNDERWATER MINE.** A group of items assembled as one unit designed to actuate a detonator within a PLUG, FLOODER, UNDERWATER MINE.*

**flotation.** The capacity of a vehicle, gun or trailer to negotiate water obstacles without being in contact with the bottom.

**flow, mass.** See: **mass flow.**

**flow, one-dimensional.** Flow in which it is assumed that static pressure, Mach number, and other characteristics are uniform over any cross section per-

pendicular to the direction of **fluid flow**. Interpretations based on this assumption, although not exact, work out remarkably well in problems of duct flow.

**flow, three-dimensional.** A flow in which three Cartesian coordinates are necessary to specify conditions. Examples are flow around a finite wing or around an inclined body of revolution. See: **flow, two-dimensional.**

**flow, two-dimensional.** A flow in which two Cartesian coordinates are sufficient to specify conditions. The fluid undergoes a change of direction in one plane only, at right angles to the direction of flow, such as in the case of flow over a wing of indefinite span, and wind tunnel tests are facilitated by observations with uniform conditions along any line perpendicular to the windows of the tunnel.

**fluid.** A state of matter such that it adjusts itself to its container. Fluids may be either liquids or gases.

**fluid dynamics.** See: **fluid mechanics.**

**fluid electromagnetics.** See: **magneto fluid dynamics.**

**fluid friction.** The type of friction that exists when two bearing surfaces are well covered with a lubricating fluid. Cf: **boundary friction.**

**fluid mechanics.** The study of the motion and forces acting upon fluids in motion and in equilibrium and including the forces exerted by such fluids on solids immersed in them. Hydrodynamics and aerodynamics are branches of fluid mechanics.

**fluted liner.** In shaped charge ammunition, a **liner** (which see) with grooves (flutes) on one or both of the surfaces.

**flutter.** 1. A vibrating and oscillating movement of a wing, control surface, or the like, caused by aerodynamic forces acting upon an airfoil or surface having elastic and inertial qualities. 2. *Electroacoustics.* a. Distortion due to variations in loss resulting from the simultaneous transmission of a signal at another frequency. b. A similar effect due to phase distortion. c. Distortion which occurs in sound reproduction as a result of undesired speed variations during the recording, duplicating, or reproducing.

**flutter echo.** *Electroacoustics.* A rapid succession of reflected pulses resulting from a single initial pulse.

**flying angle.** The acute angle between the longitudinal axis of an aircraft and the horizontal in normal level flight, or the angle of attack of a wing in normal level flight.

**flying bomb.** See: **bomb, flying.**

**flying missile.** A self-propelled or robot missile, as a guided missile or ballistic missile. *Popular.*

**flying range.** The capability of an aircraft or guided missile that indicates how far it can fly under given operating conditions.

**flying saucer.** A popular name given any of several saucer-shaped, **unidentified flying objects** reported as having been seen.

**FM** *(abbr).* 1. Chemical agent, 'titanium tetrachloride' (smoke). 2. 'Field Manual.' 3. 'Frequency modulation.'

**FMS** *(abbr).* 'Free-machining steel.'

**FM smoke.** See: **CHEMICAL AGENT, TITANIUM TETRACHLORIDE.**

**FN** *(abbr).* 'Flat nose' (projectile).

**FNH** *(abbr).* 'Flashless nonhygroscopic.'

**focus.** *Optics.* 1. To adjust the eyepiece of a telescope so that the image is clearly seen by the eye, or to adjust the lens of a camera so that a sharp, distinct image is seen on the ground glass. 2. The process of adjusting the distances between optical elements.

**focusing nut.** *Optics.* A threaded nut to which the eyepiece of a telescope is attached to permit the eyepiece to be moved in or out to accommodate the instrument to eyesight variations. It usually carries a **SCALE, DIOPTER** to permit presetting of the instrument.

**focusing sleeve.** *Optics.* A knurled sleeve which is rotated to shift the positions of the erectors with relation to the objective and eyepiece to focus the instrument or to change its magnification.

**FofF** *(abbr).* 'Field of fire.'

**FOG OIL.** A refined mineral oil specifically prepared for use in smoke generators, characterized by its ability to be dispersed into the air as extremely small particles in the form of a smoke.*

**folding fin.** (FF) A fin on a rocket, missile, or the like, hinged to permit outward extension when the missile is in flight.

**follow-the-pointer indicator.** Scale, on the mount of some types of artillery, that receives and registers firing data transmitted over a remote control system. The gun is kept properly aimed when its adjustment dials are matched with the readings on the indicator.

**follow through.** Material which follows the jet of a shaped charge through the hole formed in the target. Used as noun or adjective.

**force.** 1. *Interior ballistics.* The product of: the isochoric adiabatic flame temperature, the number of mols produced on combustion of a unit weight of propellant, and the universal gas constant. Used in connection with rocket propellants. Usually expressed in foot pounds per pound. See also: **relative force.** 2. *Explosives.* Sometimes used interchangeably with **power,** which see, sense 5.

**forcing cone.** Tapered beginning of the lands at the origin of the rifling of a gun tube. The forcing cone allows the rotating band of the projectile to be gradually engaged by the rifling thereby centering the projectile in the bore.

**fording depth.** Maximum depth at which a particular vehicle can operate in water.

**fore-and-aft axis.** The longitudinal axis of a plane or missile.

**forearm.** See: **GUARD, HAND, GUN.**

**FORE END, GUN.** An item made of wood or plastic usually designed with a semicircular groove to fit under the barrel of a gun and attached by metal fastening devices. It is shaped to fit the hand and is used to steady the weapon during firing. Excludes GUARD, HAND, GUN.*

**fork.** Change in elevation of artillery required to shift the center of impact in range by four probable errors.

**FORK LIFT, TRACTOR MOUNTING.** A power-driven fork-type elevating unit designed to be mounted on a tractor. May be cable- or hydraulical-

ly-operated. . Used for lifting, transporting, and stacking material.*

**FORK, LIFT TRUCK.** A one piece, steel arm or prong formed at approximately 90 degree angle, the vertical portion of which attaches to the lifting and lowering mechanism of a TRUCK, FORK LIFT and the horizontal portion acts as a finger to hold the material being handled.*

**fork lift truck.** See: **TRUCK, LIFT, FORK.**

**formal advertising.** The formal solicitation of competitive sealed bids through advertisement and the award of contracts to the lowest responsible bidder; price, and other factors considered.

**formal contract.** Contract which is contained in a written contractual instrument executed by both the Government and a contractor, or by a contractor and a subcontractor.

**formation bombing.** Bombing by aircraft in formation; pattern bombing.

**form coefficient.** See: **form factor.**

**form dimension.** A dimension which specifies a feature of an object which cannot be properly defined by dimensions of size or location. Examples of form dimensions are the angle of the frustrum of a cone, the involute angle of a gear, and the angle of a thread.

**form drag.** 1. The drag from all causes resulting from the particular shape of a body relative to its direction of motion, as of fuselage, wing, or nacelle. 2. *Restrictive.* At supersonic speed, the drag caused by losses due to shock waves. This drag is exclusive of losses due to skin friction.

**form factor.** Factor introduced into the ballistic coefficient of a projectile, based on the shape of the projectile. Sometimes called 'coefficient of form.' See also: **ballistic coefficient.**

**form function.** The mathematical expression for the relationship between the fraction of the propellant burned and the distance that each burning surface has regressed.

**form, streamline.** The form of a body so shaped that the flow about it tends to be a streamline flow.

**fort.** (ft) 1. Permanent post as opposed to a camp, which is a temporary installation. 2. Land area within which harbor defense units are located. 3. Strong, fortified building or place that can be defended against an enemy.

**fortification.** (ftn) 1. A structure or earthworks, usually heavily armed, constructed as a defense; a fortified place or position. 2. The act or art of fortifying.

**Fort Wingate Ordnance Depot.** Ordnance Corps field installation, located at Gallup, New Mexico. Official symbol: ORDKA.

**fougasse.** A mine constructed so that upon explosion of the charge, pieces of metal, rock, gasoline, or other substances are blown in a predetermined direction.

**fouling.** Deposit that remains in the bore of a gun after it is fired.

**four-by-four.** In regard to motor vehicles, four wheels, of which four are driving wheels, dual wheels being considered as one wheel. It is usually written 4 × 4.

**four-by-two.** In regard to motor vehicles, four wheels, of which two are driving wheels, dual wheels being considered as one wheel. It is usually written 4 × 2.

**four-cycle engine.** A **four-stroke-cycle engine** (which see).

**four-stroke-cycle engine.** An internal combustion, piston engine requiring four strokes of each piston to complete a cycle. Cf: **two-stroke-cycle engine.**

This type of engine is often called a 'four-cycle engine'; consequently a misunderstanding of the word 'cycle' has arisen, some users of the term confusing 'cycle' with 'stroke.' The four piston strokes necessary to complete a cycle in the four-stroke-cycle engine are the intake stroke, compression stroke, power stroke, and exhaust stroke.

**fourth echelon maintenance.** See: **maintenance.**

**fourth echelon supply.** See: **supply.**

**four-wheeled planimeter.** See: **ballistic integrator.**

**foxhole.** Small pit used for cover, usually for one or two men, and so constructed that an occupant can fire effectively from it.

**FP** *(abbr).* 'Flashless propellant.'

**fps** *(abbr).* 'Feet per second.' See: **ft/sec.**

**frag** *(abbr).* 'Fragment; fragmentation.'

**frag bomb.** Short for 'BOMB, FRAGMENTATION.'

**frag cluster.** Short for 'CLUSTER, FRAGMENTATION BOMB.'

**fragment.** (frag) 1. A piece of an exploding or exploded bomb, projectile or the like. 2. To break into fragments.

**fragmentation.** (frag) Term applied to ammunition, indicates that item is primarily intended to produce a fragmentation effect.

**fragmentation bomb.** See: **BOMB, FRAGMENTATION.**

**fragmentation grenade.** See: **grenade, fragmentation.**

**fragmentation test.** Test conducted to determine the number and weight distribution, and where the method used permits, the velocity and spatial distribution of the fragments produced by a projectile or other munition upon detonation. Recovery of fragments, without determination of velocity or spatial distribution can be accomplished by fragmenting in sand or sawdust, or over water. Determination of velocity and spatial distribution requires elaborate recovery means and instrumentation.

**fragment, controlled.** Controlled fragments are produced from warhead casings that have been designed to break up in specific patterns. The fragment takes on its final individual shape during the detonation of the explosive charge. For this reason, the controlled fragment is often referred to as a fire formed fragment. Some of the methods employed to achieve various degrees of control include the use of multiple wall casings, casings made up of a series of rings or helically wrapped wire where the rings or wire may or may not be notched, casings that are scored in one or two directions, and fluted liners inserted between the charge and the casing.

**fragment emission.** In terminal ballistics, the pattern of the fragments upon leaving the exploded projectile or other munition including the number and direction, weight and velocity of each.

**fragment, preformed.** The most complete control of fragment size and shape is achieved by the use of preformed or precut fragments. Preformed fragments are formed into their final shape before detonation of the explosive charge. They are mechanically held in their proper orientation around the charge. When preformed fragments are used in a properly designed warhead, breakage of fragments upon expulsion and adhesion of fragments to each other may be considered negligible. Typical shapes used for preformed fragments are cubes, rods, spheres, and flechettes (fin-stabilized darts or needles).

**fragment, secondary.** Secondary fragmentation results from either breakup of controlled or uncontrolled fragments upon impact or from the creation of fragments from the target material when it is impacted by a projectile. One example of secondary fragmentation is the spalling of armor plate when it is pierced by armor-piercing shot. The fragments or spalls are broken off the back of the plate and become significant kill mechanisms within the armored enclosure.

**fragment, uncontrolled.** When the casing of a bomb, projectile, warhead or grenade is ruptured by the detonation of its high explosive filler, portions of the casing are propelled outward at high velocity. These segments of the casing are known as fragments and when no provision is made in the design of the bomb, etc., to control the size and shape of the segments they are termed uncontrolled fragments.

**frame.** 1. *Firearms.* A **receiver** (sense 2). 2. An airframe. 3. Any structural piece, other than a **bulkhead**, designed chiefly to support the **longitudinal** members or skin of a fuselage, float, or **hull.**

**frangible bullet.** A brittle plastic or other nonmetallic bullet for firing practice which, upon striking a target, breaks into powder or small fragments without penetrating. Frangible bullets are usually designed to leave a mark at the point of impact.

**frangible grenade.** See: **grenade, frangible.**

**Frankford Arsenal.** (FA) Field installation of the Ordnance Corps located at Philadelphia, Pennsylvania. Army's center for the development, procurement and associated activities for off-carriage fire control systems and on-carriage fire control components; also is engaged in the development of small arms ammunition, artillery cartridge cases, projectiles and mechanical time fuzes, standard inspection gages and measuring equipment and metallurgical research and engineering. Also responsible for the development of recoilless rifles and ammunition therefor.

**freedrop.** 1. To airdrop supplies or equipment without parachute. 2. An act or instance of freedropping. Cf: **high velocity drop; low velocity drop.**

**free field.** *Electroacoustics.* A field (wave or potential) in a homogeneous, isotropic medium free from boundaries. In practice, a field in which the effects of the boundaries are negligible over the region of interest.

The actual pressure impinging on an object (e.g., electroacoustic transducer) placed in an otherwise free sound field will differ from the pressure which would exist at that point with the object removed, unless the acoustic impedance of the object matches the acoustic impedance of the medium.

**free-field current response.** *Electroacoustics.* Of an electroacoustic transducer used for sound reception, the ratio of the current in the output circuit of the transducer when the output terminals are short-circuited to the free-field sound pressure existing at the transducer location prior to the introduction of the transducer in the sound field. The free-field current response is usually expressed in decibels, viz., 20 times the logarithm to the base 10 of the quotient of the observed ratio divided by the reference ratio, usually 1 ampere per microbar. The free-field response is defined for a plane progressive sound wave whose direction of propagation has a specified orientation with respect to the principal axis of the transducer.

**free-field voltage response.** *Electroacoustics.* Of an electroacoustic transducer used for sound reception, the ratio of the voltage appearing at the output terminals of the transducer when the output terminals are open-circuited to the free-field sound pressure existing at the transducer location prior to the introduction of the transducer in the sound field. The free-field voltage response is usually expressed in decibels, viz., 20 times the logarithm to the base of 10 to the quotient of the observed ratio divided by the reference ratio, usually 1 volt per microbar. The free-field sound wave whose direction of propagation has a specified orientation with respect to the principal axis of the transducer.

**free impedance.** *Electroacoustics.* Of a **transducer:** The impedance at the input of the transducer when the impedance of its load is made zero.

The approximation is often made that the free electric impedance of an electroacoustic transducer designed for use in water is that measured with the transducer in air.

**free motional impedance.** *Electroacoustics.* Of a transducer: The complex remainder after the blocked impedance has been subtracted from the free impedance.

**free-recoil.** The movement in recoil of the recoiling parts of a gun, if unimpeded by resistances such as springs or pneumatic pressure. It is a theoretical term used in recoil mechanism design.

**free-recoil mount.** A proving ground gun mount designed to closely approximate 'free-recoil' conditions. Used for determining design information.

**free rocket.** A rocket having fixed fins but no control surface, that is, no provision for guidance.

**free run.** As applied to guns, the travel of a projectile from its original position in the gun chamber until it engages with the rifling in the gun bore.

**free space.** See: **standoff.**

**free stream.** The relative flow of air or other fluid undisturbed by the presence of a moving body; *specif.*, the relative flow of air ahead of a **shock wave.**

**F-region; $F_1$, $F_2$.** See: **atmospheric shells.**

**frequency band.** See: **band, frequency.**

**frequency, carrier.** The frequency of the unmodulated radio wave emanated from a radar, radio, or other type transmitter.

**frequency conversion transducer.** See: **conversion transducer.**

**frequency departure.** *Receivers.* The amount of variation of a carrier frequency or center frequency from its assigned value.

The term 'frequency deviation' which has been used for this meaning is in conflict with this essential term as applied to phase and frequency modulation, and is therefore deprecated for future use in the above sense.

**frequency deviation.** *Receivers.* In frequency modulation, the peak difference between the instantaneous frequency of the modulated wave and the carrier frequency.

**FREQUENCY DIVIDER.** An item which by means of electron tubes, transistors, or similar devices in conjunction with associated components derives an output signal which is a submultiple frequency of an input signal. May also provide incidental signal amplification.*

**frequency, electronic.** The number of recurrences of a periodic phenomenon in a unit of time. In specifying electrical frequency, the customary unit of time is the second, for example, 15 kc per second.

*Frequency Designation Table*

| *Designation of Frequency* | *Authorized Abbreviation* | *Frequency in kilocycles/second* |
|---|---|---|
| Very low | VLF | Below 30 |
| Low | LF | 30 to 300 |
| Medium | MF | 300 to 3,000 |
| High | HF | 3,000 to 30,000 |
| Very high | VHF | 30,000 to 300,000 |
| Ultrahigh | UHF | 300,000 to 3,000,000 |
| Superhigh | SHF | 3,000,000 to 30,000,000 |
| Extremely high | EHF | 30,000,000 to 300,000,000 |

**FREQUENCY METER.** An item which generates a signal over one or more continuously variable ranges and which is intended to check or measure frequencies from other sources. May include crystal control for checking calibration at specific frequencies. Does not include OSCILLATOR (as modified). For devices which are designed as voltage sources, see: **GENERATOR, SIGNAL.** May include calibration output.*

**frequency modulation.** (FM) A method or system of radio transmission in which the frequency of the carrier wave is varied or modulated.

**frequency, pulling.** The tendency of any load to change the frequency of an oscillator.

**frequency-response equalization.** *Electroacoustics.* The effect of all frequency discriminative means employed in a transmission system to obtain a desired overall frequency response.

**frequency, subcarrier.** In telemetering, an intermediate frequency that is modulated by intelligence signals and, in turn, is used to modulate the radio carrier either alone or in conjunction with subcarriers on other channels.

**frequency, video.** A very wide range of frequencies, including and exceeding the audio band of frequencies.

**friction horsepower.** The difference between indicated horsepower and brake horsepower, i.e., the horsepower used by an engine in overcoming the friction of moving parts, drawing in fuel, expelling exhaust, driving oil and fuel pumps, and the like.

**friction layer.** 1. *Meteorology.* The lower layer of the troposphere, in which the friction of the air against the earth's surface affects the movement of the air. 2. The boundary layer in an airflow.

The friction layer (sense 1) is considered to be anywhere from 1,500 to 3,000 feet thick.

**friction primer.** See: **primer, friction.**

**fringe item.** A supply item which is not included in the authorized stockage list, nor authorized for stockage, at a technical service supply activity because of insufficient demands for the item. Fringe items may, however, be requisitioned and issued to using organizations when legitimate demands are placed for them.

**fringing groove.** A groove cut into a rotating band to collect metal from the band while it travels through the bore. Excess metal so collected is prevented from forming a fringe in rear of the rotating band. Fringe formation has been a cause of excess dispersion and short range.

**Frise aileron.** A type of aileron having its leading edge projecting well ahead of the hinge axis.

When the trailing edge of the Frise aileron is raised, its leading edge protrudes below the wing's lower surface, thereby producing drag and tending to prevent any yawing motion of the airplane.

**frontal fire.** Fire delivered at right angles to the front of the target.

**front sight.** See: **SIGHT, FRONT.**

**frustrated freight.** Any shipment of supplies and/or equipment which, while en route to the requisitioning agency, is stopped for any reason prior to receipt by the requisitioning agency and returned to the custody of the supplying agency.

**FS** *(abbr).* 1. Chemical agent, 'sulfur trioxide-chlorosulfonic acid solution' (smoke). 2. 'Fin stabilized.'

**FSC** *(abbr).* 'Federal Supply Classification.'

**F-scan.** 1. A scan for presentation of an F-scope. 2. An F-scope. *Irregular.*

**F-scope.** A radarscope which presents the azimuth angle of a target by a horizontal displacement of the target spot on the face of the scope and the elevation of the target by a vertical displacement.

**FSMWO** *(abbr).* 'Field service modification work order.'

**FSN** *(abbr).* 'Federal Stock Number.'

**FS smoke mix.** See: **CHEMICAL AGENT, SULFUR TRIOXIDE-CHLOROSULFONIC ACID SOLUTION.**

**FT** *(abbr).* 'Firing table.'

**ft** *(abbr).* 1. 'Feet; foot.' 2. 'Fort.'

**fta** *(abbr).* 'Fortification.'

**ft/sec; fps** *(abbr).* 'Feet per second.'

**fuel.** A substance which yields thermal or nuclear energy by undergoing any one of a number of reactions. Thus, nuclear fuels undergo nuclear reactions which derive their energy from changes in the mass of nuclei of atoms, while chemical fuels undergo reactions of rearrangement of atoms to form different molecules. In the latter case, the term

'fuel' is restricted to the reactant which undergoes oxidation. A liquid fuel for rocket use is termed a **propellant**, which see. A solid fuel for rocket use is designated **PROPELLANT GRAIN**, which see. See also **GASOLINE** (as modified); **JET FUEL**.

**fuel-air mixture.** The mixture of fuel and air in the combustion chamber of an engine at any given fuel-air ratio.

**fuel-air ratio.** The ratio of fuel to air as supplied to the combustion chamber of an engine.

**fuel analyser.** An exhaust-gas analyzer.

**fuel booster pump.** A booster pump in a fuel system.

**fuel cell.** 1. A unit which produces electric current directly from chemical energy, that is, without the necessity of boilers, generators and the like. 2. A unit which is capable of continuous production of electric current from a continuous supply of chemical fuel. Such a unit does not require recharging by reversed electrical flow, as does a battery.

**fuel consumption rate.** The rate at which an engine uses fuel, calculated in gallons per mile, gallons per flying hour, etc.

**fuel dope.** Any antiknock substance added to a fuel. Also called a 'detonation suppressant.'

**fuel, exotic.** Popular term for **fuel, high energy**, which see.

**fuel flowmeter.** An instrument that measures and indicates the rate of fuel flow to an aircraft's engine or engines, usually graduated in pounds per hour.

**fuel gage.** See: **gage, fuel.**

**fuel, high energy.** Fuel with higher heat content than the hydrocarbon fuels (usually in the range of 25,000 Btu/lb). Boron compounds are frequently the basic ingredients. Also called 'exotic fuel' and 'zip fuel.'

**fuel induction.** The introduction of fuel and air into the intake passages or cylinders of an internal combustion, piston engine by means of suction.

As a piston moves through its intake or induction stroke, it creates a space of low pressure above it, thereby 'inducing' the fuel and air to enter. Cf: **fuel injection.**

**fuel injection.** The forced spraying or introduction of fuel or fuel and air under pressure into the intake passages of an aircraft engine or into a combustion chamber. Distinguished esp. from 'fuel induction.'

**fuel injection pump.** A pump for injecting fuel under pressure into an engine.

**FUEL OIL, DIESEL.** A distillate obtained from crude petroleum or shale oil for general use in compression-ignition engines.*

**fuel pump.** 1. A pump for delivering fuel from a tank to the carburetor. 2. A fuel injection pump.

**fuel specific impulse.** See: **specific impul**

**fuel structure ratio.** See: **fuel weight ratio.**

**fuel system.** Any complete system of lines, gages, injectors, pumps, tank, etc., for holding, conveying, and mixing fuel and air or any other oxidizer.

**fuel tank.** See: **TANK, FUEL, ENGINE; TANK, LIQUID PROPELLANT, GUIDED MISSILE.**

**fuel tank vent.** A vent or tube for overflow in a fuel tank and for equalizing the atmospheric pressure inside the tank with that outside.

**fuel thickener.** A substance, such as napalm, for gelatinizing gasoline. See also: **fire roe; THICKENER, INCENDIARY OIL.**

**fuel weight ratio.** *Rocketry.* The ratio of the weight of a rocket's fuel to the weight of the unfueled rocket. Also called the 'fuel structure ratio.'

**fuel, zip.** Popular term for **fuel, high energy**, which see.

**full-automatic.** Term sometimes used for **automatic** to distinguish from **semiautomatic.** (See separate entries.)

**full cartridge.** See: **cartridge, full.**

**full charge.** See: **charge, full.**

**full rich.** A setting of a mixture-control mechanism so that the maximum possible amount of fuel in relation to air can be supplied to an engine and still maintain combustion.

**full-scale.** Of an attack or other operation: All-out; maximum.

**full throttle.** Full power. *Colloq.* Also used adverbially in elliptical contexts, as in 'he turned full throttle toward his enemy.'

**full-track vehicle.** Vehicle entirely supported, driven and steered by an endless belt, or track, on each side. Tanks are full-track vehicles.

**fulminate.** See: **mercury fulminate.**

**fulminate of mercury.** See: **mercury fulminate.**

**functional bombing.** The bombing of a specially-selected class of key targets, such as dams or marshaling yards, that function within an industrial complex or transportation system, as opposed to the bombing of the entire system.

**functioning delay.** See: **delay, functioning.**

**function switch.** *Electronic computers.* A network or system having a number of inputs and outputs and so connected that signals representing information expressed in a certain code, when applied to the inputs, cause output signals to appear which are a representation of the input information in a different code.

**function switch, many-one.** *Electronic computers.* A function switch, in which a combination of the inputs is excited at one time to produce a corresponding single output.

**function switch, one-many.** *Electronic computers.* A function switch, in which only one input is excited at a time and each input produces a combination of outputs.

**function time.** *Propellant actuated devices.* In a stroking type PAD, interval of time from initiation of operation to completion of stroke.

**function unit.** *Electronic computers.* A device which can store a functional relationship and release it continuously or in increments.

**fundamental frequency.** *Physics.* The lowest frequency of a complex tone, wave, motion, electrical signal, or the like. Sometimes called the 'first harmonic.'

**fundamental research.** See: **basic research.**

**fundamental tone.** *Electroacoustics.* 1. The component in a periodic wave corresponding to the fundamental frequency. See: **fundamental frequency.** 2. The component tone of lowest pitch in a complex tone.

**fuse.** (Not to be confused with the term fuze.) 1. An igniting or explosive device in the form of a cord, consisting of a flexible fabric tube and a core of low or high explosive. Used in blasting and demolition work, and in certain munitions. Fuse with black powder or other low explosive core is called FUSE, BLASTING, TIME. Fuse with PETN or other high explosive core is called CORD, DETONATING. Cf: fuze. 2. Safety device for use in electric circuits. 3. *Optics.* In stereoscopic vision, the action of seeing as one image the images seen by the two eyes. 4. Of thermonuclear material: To combine by the process of fusion. See: **fusion, nuclear.**

**fuse, Bickford.** A safety fuse, having a core of black powder enclosed within a tube of woven threads surrounded by various layers of textile, waterproof material, sheathing, etc. Burns at specific rates. See also: **fuse; FUSE, BLASTING, TIME.**

**fuse, blasting.** Short for 'FUSE, BLASTING, TIME.

**FUSE, BLASTING, TIME.** A flexible water resistant fabric covered cord containing a black powder core, which burns at a known rate from one end to the other, providing a time delay proportional to the length of fuse. Used for igniting a blasting cap or an explosive charge.*

**fusee.** (Pronounced 'fu-zee.') An igniter squib for a rocket motor. See: **FUSEE, WARNING, RAILROAD.**

**FUSEE, WARNING, RAILROAD.** A pyrotechnic device used as a safety signal on railroads, normally consisting of a tube or cartridge with a spike point base. When placed in an erect position and ignited, the cartridge burns with a white or colored light for a definite period of time.*

**FUSELAGE.** A basic, load-carrying body of heavier than air aircraft, of approximately streamlined form to which may be attached the wings and the empennage. The fuselage provides space for the crew passengers, cargo and in some cases contains the power plant.*

**fusion.** 1. *Atomic energy.* **Fusion, nuclear** (which see). 2. *Optics.* The mental blending of the right and left eye images into a single, clear image by stereoscopic action.

**fusion bomb.** See: **bomb, fusion.**

**fusion, nuclear.** The fusing or uniting of the atomic nuclei of an isotope, as those of deuterium, to form other nuclei under the influence of intense heat. See also: **bomb, hydrogen.** Cf: **fission, nuclear.**

**future elevation.** *Antiaircraft.* **Elevation** (see, sense 2) corresponding to the **future position** of the target.

**future position.** The calculated position that a moving object will occupy at any given instant in the future, based upon its course and speed.
Used esp. in reference to moving targets.

**fuze.** (fz) 1. A device with explosive components designed to initiate a train of fire or detonation in an item of ammunition by an action such as hydrostatic pressure, electrical energy, chemical, impact, mechanical time, or a combination of these. Excludes FUSE (as modified). 2. A nonexplosive device designed to initiate an explosion in an item of ammunition by an action such as continuous or pulsating electromagnetic waves, acceleration or deceleration forces, or piezoelectric action. Excludes SWITCH (as modified). (Use a functional modifier, such as radar or impact).* *Note:* For uniformity the Department of Defense has prescribed the spelling *fuze* for the above senses; however, the spelling *fuse* is preferred in all senses by the British and by some nonmilitary authorities in the United States. Cf: **fuse.** 3. To equip an item of ammunition with a fuze.

**fuze, air nose.** A point detonating rocket fuze which uses vanes in the air stream to arm itself.

**fuze, air pressure.** A concussion fuze or a barometric fuze. See: **fuze, barometric; fuze, concussion.**

**fuze, all way.** An impact fuze designed to function regardless of the direction of target impact. Also called 'allways' fuze.

**fuze, ambient.** A type of proximity fuze which is not activated as a consequence of actual determination of target presence but by the measurement of a parameter associated with the environment in which the target is normally found. See also: **FUZE, PROXIMITY.**

**FUZE AND BURSTER, BOMB.** A combination of fuze and burster, for use in a bomb, such as a liquid filled incendiary bomb, which may be filled in the field.

**fuze, antidisturbance.** Fuze designed to become armed after impact, or after being emplaced, so that any further movement or disturbance will result in detonation. Cf: **fuze, antiwithdrawal.**

**fuze, antihandling.** See: **fuze, antidisturbance.**

**fuze, antiwithdrawal.** A fuze incorporating an **antiwithdrawal device** (which see).

**fuze, auxiliary detonating.** (ADF) An additional fuze used to augment the output of a fuze explosive train or to increase the overall safety features of the ammunition. Cf: **booster.**

**fuze, bare.** An unprotected and unpackaged fuze separated from its intended piece of ammunition.

**fuze, barometric.** A fuze that functions as a result of change in the pressure exerted by the surrounding air. Usually the change in pressure occurs by reason of travel from a region of one ambient pressure to a region of different ambient pressure. Also called 'air pressure fuze.'

**fuze, base.** Any fuze installed in the base of a projectile. Cf: **FUZE, BASE DETONATING.**

**FUZE, BASE DETONATING.** (BDF) A fuze, located in the base of a projectile, designed to be activated as a result of impact. Excludes FUZE, BOMB; FUZE, MINE; FUZE, HAND GRENADE and FUZE, ROCKET.*

**FUZE, BASE DETONATING, SELF-DESTROYING.** A FUZE, BASE DETONATING containing a device which causes the projectile bursting charge to detonate if prior functioning has not been caused by impact. Excludes FUZE, BOMB; FUZE, MINE; FUZE, HAND GRENADE and FUZE, ROCKET.*

**fuze body.** That part of a fuze contributing the major portion of the total weight, and which houses the majority of the functioning parts, and to which smaller parts are attached.

**FUZE, BOMB.** A fuze for use with bombs to be dropped from aircraft.

**FUZE, BOMB, INERT.** A FUZE, BOMB without explosive components used for training purposes.*

**fuse, bore riding.** Name sometimes given to a fuze which incorporates as a safety device a bore riding pin. See also: **pin, bore riding.**

**fuse, bore safe.** A fuze that has a means for preventing the detonator from initiating an explosion of the bursting charge while the missile is within its launching tube. See also: **fuze safety.**

**FUZE, BULLET IMPACT.** A fuze designed to set off a demolition charge by the impact of a bullet.*

**fuse cavity.** A socket or hole in a bomb, projectile, or the like for receiving a fuze, or a portion of the fuze.

**fuse cavity liner.** See: **liner, fuse cavity.**

**fuse chronograph.** Proving ground instrument for measuring accurately the time of flight of a time fuzed projectile from the gun or launcher to the point of air burst. The instrument uses a photoelectric impulse tube which is pointed towards the expected point of burst. The light from the burst is picked up by the photoelectric cell and serves to stop the operation of the recording instrument which has been started by the passage of the magnetized projectile through a coil mounted on the muzzle of the weapon. The instrument may be used with any of several recording or time measuring systems discussed under **chronograph,** which see.

**fuse, combination.** A fuze combining two different types of fuze mechanisms, especially one combining impact and time mechanisms. See: **FUZE, TIME AND SUPERQUICK.**

**fuse, command.** A fuze that functions as a result of intelligence transmitted to it from a remote location by means not directly associated with its environment.

**fuse, concrete piercing.** Fuze especially designed for piercing concrete before detonating its projectile.

**fuse, concussion.** A bomb fuze designed to function in the air in response to the concussion produced by the explosion of a preceding bomb. Also called 'airburst fuze' or 'air pressure fuze.'

**fuse, contact.** A fuze wherein primary initiation results from actual contact with the target to include such phenomena as impact, crush, tilt, electrical contact. See also: **fuse, impact.**

**fused.** Of a bomb, projectile, etc.: Equipped with one or more fuzes, as required.

**fuse, delay.** Any impact fuze incorporating a means of delaying its action after contact with the target. Cf: **fuse, time.** Delay fuzes are classified according to the length of time of the delay. See: **fuse, long delay; fuse, medium delay; fuse, short delay.**

**fuse, delay action.** See: **fuse, delay.**

**fuse, delayed.** See: **fuse, delay.**

**fuse, detonating.** Fuze designed to initiate its main munition by a detonating action, as compared to the igniting action of a **fuse, igniting** (which see). This type of fuze is required for adequate initiation of a high explosive main charge.

**fuse, dummy.** An imitation of a fuze which has the same shape, weight, and center of gravity as the fuze but has no explosives or moving parts.

**fuse, electric.** A fuze which depends for its arming and functioning upon events of an electronic nature. Such a fuze does not necessarily have to be entirely electric but may contain mechanical components. Cf: **fuse, mechanical.**

**fuse, electric time.** A fuze in which the time from initiation of action to the functioning can be controlled by 'setting' and is determined by electronic events.

**fuse, electromechanical.** See: **fuse, mechanical.**

**fuse, electronic.** See: **fuse, electric.**

**fuse error.** The variation in fuse range from standard as determined for a particular lot of ammunition.

**fuse explosive train.** See: **explosive train.**

**FUZE, FLARE.** A fuse for use with a **flare** (which see), to initiate ignition of the charge.

**FUZE, FLARE, INERT.** A FUZE, FLARE without explosive components used for training purposes.*

**fuse, flashback.** See: **fuse, spitback.**

**FUZE, GUIDED MISSILE.** A fuze for use with a guided missile, to initiate functioning at the desired time.

**FUZE, GUIDED MISSILE, INERT.** A FUZE, GUIDED MISSILE which has no ability to initiate a train of fire and which contains in itself no explosive items.*

**FUZE, HAND GRENADE.** A pyrotechnic delay fuze initiated by the release of a lever which in turn releases a spring propelled striker to impinge on a primer. The function of the fuze is to initiate detonation and/or ignition of the main charge of a hand grenade.*

**fuse, hydrostatic.** Fuze employed with depth bombs or charges to cause underwater detonation at a predetermined depth. Initiation is caused by the ambient fluid pressure.

**fuse, igniting.** Fuze designed to initiate its main munition by an igniting action, as compared to the detonating action of a **fuse, detonating** (which see). This type of fuze is suitable only for munitions using a main charge of low explosive or other readily ignitible material.

**fuse, impact.** A fuze in which the action is initiated by the force of impact. Sometimes called a 'contact fuze' or 'percussion fuze.'

**fuse, inert.** A fuze containing no explosive, pyrotechnic or chemical agent.

**fuse, inertia.** See: **fuse, nondelay.**

**FUZE, INERTIAL.** A fuze utilizing acceleration and/or deceleration forces to establish location in trajectory. It senses rate of changes in velocity due to thrust and/or drag forces and transforms this data to a distance measurement by an integrating device and/or other methods.*

**fuse, influence.** See: **FUZE, PROXIMITY.**

**fuse, instantaneous.** See: **fuse, superquick.**

**FUZE KIT, BOMB.** A group of FUZE, BOMB, INERT used for training purposes.*

**fuse liner.** See: **liner, fuse cavity.**

**fuse, live.** A fuse containing explosives or active chemicals.

**fuse, long delay.** A type of delay fuse, especially for bombs, in which the fuze action is delayed for a

relatively long period of time, depending upon the type, from minutes to days. See also: **fuse, delay.**

**fuse, mechanical.** Any fuze which depends for its arming and functioning on events primarily of a mechanical nature. Fuzes may consist of a combination of mechanical and electronic features. Proximity fuzes may contain a mechanical delayed arming device; mechanical fuzes may be functioned by electrical energy from a piezoelectric element. The classification is dependent upon which features are predominant. Fuzes combining mechanical and electronic features are sometimes referred to as electromechanical fuzes.

**FUZE, MECHANICAL TIME.** (MTF) A fuze which is actuated by a clocklike mechanism preset to the desired time. Excludes FUZE, BOMB; FUZE, MINE and FUZE, HAND GRENADE.*

**FUZE, MECHANICAL TIME AND SUPERQUICK.** A FUZE, MECHANICAL TIME containing an additional device designed to cause instantaneous activiation as a result of impact. Excludes FUZE, BOMB; FUZE, MINE and FUZE, HAND GRENADE.*

**FUZE, MECHANICAL TIME AND SUPERQUICK, INERT.** A FUZE, MECHANICAL TIME AND SUPERQUICK, without explosive elements.

**FUZE, MECHANICAL TIME, DUMMY.** An imitation of a mechanical time fuze having the same shape, weight and center of gravity as the fuze, but without explosive components.

**FUZE, MECHANICAL TIME, INERT.** A FUZE, MECHANICAL TIME without explosive components. Excludes FUZE, BOMB, INERT.*

**FUZE, MECHANICAL TIME, TRAINING.** An item identical in configuration to a FUZE, MECHANICAL TIME. It is designed for use in training procedures associated with assembly and/or disassembly of a weapon.*

**fuse, medium delay.** A type of delay fuze, especially for bombs, in which the fuze action is delayed for a period of time between that of short delay and long delay fuzes, normally four to fifteen seconds. See also: **fuse, delay.**

**FUZE, MINE.** A fuze designed to initiate a train of fire in a land mine.* (For underwater mine initiating device see: **FIRING MECHANISM, UNDERWATER MINE.**)

**fuse, nondelay.** Fuze that functions as a result of inertia of firing pin (or primer) as missile is retarded during penetration of target. The inertia causes the firing pin to strike the primer (or primer the firing pin), initiating fuze action. This type of fuze is inherently slower in action than the superquick or instantaneous fuze, since its action depends upon deceleration (retardation) of the missile during impact with the target. Also called 'inertia fuze.'

**fuse, nose.** A fuze for use in the forward end (nose) of a bomb or other missile. Term not generally applied to fuzes for use in artillery projectiles, where the term 'point fuze' is more commonly used. See also: **fuse, point.**

**fuse, percussion.** See: **fuse, impact.**

**fuse, point.** A fuze for use in the forward end of a projectile or rocket warhead.

**FUZE, POINT DETONATING.** (PDF) A fuze which is located in the nose of a projectile and is designed to be actuated as a result of impact. Excludes FUZE, POINT DETONATING, SELF-DESTROYING; FUZE, BOMB; FUZE, MINE and FUZE, HAND GRENADE.*

**FUZE, POINT DETONATING, DUMMY.** An imitation of a point detonating fuze, having the same shape, weight and center of gravity as the fuze, but without explosive components.

**FUZE, POINT DETONATING, INERT.** A FUZE, POINT DETONATING without explosive components. Excludes FUZE, BOMB, INERT.*

**FUZE, POINT DETONATING, SELF-DESTROYING.** A FUZE, POINT DETONATING containing a device which causes the bursting charge to detonate if prior functioning has not been caused by impact. Excludes FUZE, BOMB; FUZE, MINE and FUZE, HAND GRENADE.* See also: **fuse, self-destroying.**

**FUZE, POINT DETONATING, TRAINING.** An item simulating a FUZE, POINT DETONATING used for training purposes. It is provided with manual safety and/or setting devices simulating those of a standard or proposed standard FUZE, POINT DETONATING. It may or may not be a ballistic match with the fuze it represents and/or contains an explosive charge for realism or spotting purposes. Excludes FUZE, POINT DETONATING, DUMMY.*

**fuse, point initiating.** A fuze which has the target sensing element in the nose of the missile. (Usually refers to PIBD fuzes.) See also: **FUZE, POINT INITIATING, BASE DETONATING.**

**FUZE, POINT INITIATING AND BASE DETONATING, DUMMY.** An imitation of a point detonating fuze, having the same shape, weight and center of gravity as the fuze, but without explosive components.*

**FUZE, POINT INITIATING, BASE DETONATING.** A fuze, with initiating components located in the nose of a projectile and detonating components located in the base of a projectile, designed to be activated as a result of impact.*

**FUZE, PROXIMITY.** A fuze wherein primary initiation occurs by sensing the presence, distance, and/or direction of the target through the characteristics of the target itself or its environment.* This name is preferred over synonymous terms.

**FUZE, PROXIMITY, PRACTICE.** A FUZE, PROXIMITY, restricted to practice use because of minor imperfections or other features tending toward malfunction and/or unreliability.*

**FUZE, RADAR.** A fuze operating on radar principles, either pulse or continuous wave. It is normally employed for function at a precise predetermined altitude above surface targets.*

**FUZE, RADAR, TRAINING.** An item identical in configuration to a FUZE, RADAR. It is designed for use in training procedures associated with assembly and/or disassembly of a weapon.*

**fuse, radio.** See: **FUZE, PROXIMITY.**

**fuse, radio proximity.** See: **FUZE, PROXIMITY.**

**fuse range.** 1. Range at which a projectile will burst when the fuze is set at a given time value. 2. The

fuze setting necessary to produce a burst at a given point in space.

**fuze range disk.** A disk, part of several early model antiaircraft gunsights, containing curves graduated in terms of fuze range, by means of which the amount of superelevation for a given set of conditions is automatically determined and applied to the sighting system of the gun.

**FUZE, ROCKET.** A fuze for use with a rocket. (In some cases rocket detonation is initiated by a FIRING MECHANISM, ROCKET.)

**FUZE, ROCKET, INERT.** A FUZE, ROCKET without explosive components.

**fuze safe arming distance.** The distance from the launcher within which a warhead burst could result in a high probability of death to personnel or serious damage to material on the launching platform.

**fuze safety.** Two terms have been commonly used to describe the safety built into a fuze to prevent premature functionings at the time of employment, and to provide the required safety in transportation. One term, bore safety, is a term which is strictly applicable only to fuzes used in artillery or mortar projectiles or rockets, and refers to the provision of means to prevent functioning while in the bore of the gun, or in the launching tube. Such fuzes are said to be 'bore safe.' Detonator safety is the second term, and may relate to fuzes for any application. It refers to the provision of means to prevent functioning of the succeeding element(s) of the explosive train if the detonator functions while the fuze parts are in the safe position. Such a fuze is said to be 'detonator safe.' In general the terms are interchangeable with respect to artillery, mortar and rocket fuzes, but bore safety applies only to those types of fuzes. See also: **detonator safety; fuze, bore safe; interrupter; nonboresafe.**

**fuze, selective delay.** A delay fuze which permits a selection from two or more functioning delay times.

**fuze, self-destroying.** Fuze designed to destroy itself (and the associated munition) after flight to a range greater than that to any probable target. Employed in antiaircraft ammunition, to avoid impact in friendly territory.

**FUZE SETTER.** A device designed for manual and/or automatic setting of time fuzes. It may have scales and indicia for setting fuze time, range and corrector values independently.*

**fuze setter-rammer.** *AA Artillery.* The combination fuze setter and rammer is an automatic electrically motivated mechanism. It is utilized to feed single rounds of ammunition, set the fuzes, and ram the rounds into the chamber of the weapon. It automatically sets fuzes according to electrical fuze data transmitted from a remote director to the motor drive, which, in conjunction with an amplifier, converts the electrical data to mechanical data in the transmission assembly. When operating automatically, all that is required of the operators is the selection of the type of round, the loading, and the firing.

**fuze, short delay.** A type of delay fuze used both in bombs and artillery projectiles, in which the fuze action is delayed for a short period of time, less than 1 second.

**FUZE, SMOKE POT.** A fuze designed to initiate combustion in a smoke pot.

**fuze, spitback.** A fuze located in the nose of a shaped charge munition. When initiated by impact it produces a detonation which is directed toward the base element which detonates the main explosive charge. The combination of point impact fuze and base element is referred to as a point initiating base detonating (PIBD) fuzing system. See also: **FUZE, POINT INITIATING, BASE DETONATING.**

**fuze, standard contour.** Point fuze having a standard shape, size and weight agreed upon for use with a certain group of artillery projectiles. Such fuzes may be interchanged without affecting the flight of the projectile.

**fuze, superquick.** A fuze designed to function with the least possible delay after impact. The delay is of the order of microseconds.

**fuze, supersensitive.** Fuze that will set off a projectile dependably when it strikes a very light target, such as a fabric airplane wing.

**fuze, tail.** A fuze designed to be inserted in the after end of a bomb.

**fuze, time.** A fuze that can be preset to function after the lapse of a specified time.

**FUZE, TIME AND SUPERQUICK.** A fuze which is activated by the burning of a powder train preset to the desired time and which contains an additional device designed to cause instantaneous activation as a result of impact. Excludes FUZE, BOMB; FUZE, MINE and FUZE, HAND GRENADE.*

**FUZE, TIME AND SUPERQUICK, INERT.** A FUZE, TIME AND SUPERQUICK without explosive components. Excludes FUZE, BOMB, INERT.*

**FUZE, TORPEDO.** A fuze designed for use in the warhead of a torpedo, to initiate its functioning.

**FUZE, TORPEDO, INERT.** A FUZE, TORPEDO without explosive components.*

**fuze, variable time.** See: **FUZE, PROXIMITY.**

**fuze, VT.** See: **FUZE, PROXIMITY.**

**fuze well.** See: **fuze cavity.**

**FUZING SECTION, GUIDED MISSILE WARHEAD.** A group of items, such as safing and arming devices, baroswitches, timers, power supplies, controls, relays, and switches, necessary to perform and control the fuzing of a guided missile warhead.*

**fxd** *(abbr).* 'Fixed.'

**FY** *(abbr).* 'Fiscal year.'

**fz** *(abbr).* 'Fuze.'

# G

**G** *(abbr)*. 'Gravity.'

**g** *(abbr)*. 1. 'Acceleration due to gravity.' 2. 'Gram.'

**G1** *(abbr)*. 'Assistant Chief of Staff, G-1, Personnel.'

**G2** *(abbr)*. 'Assistant Chief of Staff, G-2, Intelligence.'

**G3** *(abbr)*. 'Assistant Chief of Staff, G-3, Operations.'

**G4** *(abbr)*. 'Assistant Chief of Staff, G-4, Logistics.'

**GA** *(abbr)*. 1. 'Ethyl phosphorodimethylamidocyanidate' (tabun, war gas). 2. 'Ground-to-air.'

**ga** *(abbr)*. 'Gage.'

**gage.** (ga) 1. A measure, as 'wire gage' or 'sheet metal gage.' 2. An instrument for or means of measuring or testing, e.g., GAGE, CENTER; GAGE, THICKNESS; star gage. 3. *Firearms.* The interior diameter of the barrel of a shotgun expressed by the number of spherical lead bullets fitting it required to make a pound;—chiefly in combination, as, a twelve-gage shotgun. The measurements of shotguns of popular sizes are standardized on the above basis as follows:

| *size of gun* | *diam. inches* | *size of gun* | *diam. inches* |
|---|---|---|---|
| 8 gage | .835 | 14 gage | .693 |
| 10 gage | .775 | 16 gage | .662 |
| 12 gage | .729 | 20 gage | .615 |

Also used as part of the nomenclature of shotgun cartridges, for example, CARTRIDGE, 12 GAGE SHOTGUN. 4. *Mach.* A device for determining whether a specified dimension is within specified limits. A **definite gage** is one that establishes a particular dimension. A **limit, or difference, gage** consists of a series of two or more gages that represent the limits within which the work will be acceptable, as a **go gage**, which must go on or in, and a **not-go gage**, which must not go on or in, or must not screw on more than a specified number of turns. Limit gages, used in interchangeable manufacturing, are usually subdivided into (1) the **inspection gage**, embracing the entire tolerance permissible, and used by the manufacturer or purchaser when testing parts for acceptability, and (2) the **working gage**, used to test the work in the process of manufacture and having a tolerance less than the maximum. A **check, or setting, gage** is a definite gage used as a standard for testing a limit gage for wear or when setting an adjustable limit gage to size. A **wear limit gage** shows when a limit gage has worn the maximum permitted. An **indicating gage** indicates visually variations in contour or dimension, as a lever on a graduated scale. Gages are designated according to form and use as: **plug**, having an outside measuring surface made to test the size and contour of a hole; **receiving**, having an inside measuring surface made to test the size and contour of a male part; **ring**, for testing a cylindrical or conical part; **snap**, or **caliper**, having inside measuring surfaces arranged for calipering diameters, lengths, etc.; **angular**, or **taper**, having measuring surfaces at an angle to each other; **end-measuring**, for making end measurements. A gage made with extreme accuracy and used only for reference in the manufacture or working on inspection gages is called a **master**, or **reference, gage**. A **mechanical gage** employs physical contact in order to secure measurement or comparison with a standard, but in an **optical gage** measurement is made through an optical system such as a microscope, projector, or interferometer. Master gages are often of the optical type. See: **OPTICAL FLAT.** 5. To measure or test, as with the use of a gage.

**GAGE, ABSOLUTE PRESSURE, DIAL INDICATING.** An instrument designed to measure vacuum, and indicate in terms of pressure above absolute zero, without the necessity of correction or adjustment for barometric or atmospheric pressure.*

**gage, air blast.** An instrument for determining the pressure characteristics of the shock wave produced by an explosive.

**GAGE, ANGLE.** One or more blades (leaves) of tempered steel ground to and marked with their respective angles. It is used for checking angles, as in forgings, castings and machine work.*

**gage, angular.** See: **gage.**

**GAGE BLOCK.** A hardened metallic block with parallel precision ground superfinished surfaces to permit wringing together. A component of GAGE BLOCK SET used in setup and inspection work. Excludes GAGE BLOCK SET.*

**GAGE BLOCK SET.** A group of hardened metallic blocks with parallel surfaces, superfinished flat to permit wringing together. They are made in sizes which can be assembled to form dimensions of 0.0001 inch, in variations from 0.200 inch up, according to requirements. Tolerances are held so that accumulated error is very small. Used in setup and inspection of precision work.*

**gage, breechbore.** A device used to determine the wear of the lands in the breech end of the barrel of a gun.

**gage, caliper.** See: **gage.**

**GAGE, CANNON BORE EROSION.** A gage employing a vernier type slide specially designed as a maintenance tool to measure the amount of erosion of the bore diameter of a CANNON (as modified). It may include a case. See also: **BOREscope.***

**GAGE, CENTER.** A measuring tool used to test the angle of lathe centers, or as a standard for grinding and setting screw thread cutting tools. It consists of a short-tempered steel rule, one end of which is ground to a male angle and the other end to a female angle.*

**gage, check.** See: **gage.**

**gage complete penetration.** *Ballistics.* Penetration in which a hole of sufficient size is made through the plate so as to fully admit a plug gage of a designated percentage of diameter. If the projectile remains in the plate and prevents the complete insertion of the plug gage through the hole, the round is disregarded.

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**GAGE, PLUG, TAPER CYLINDRICAL.** A gage used for the dimensional control of the taper of a specified hole. It consists of a gaging member or members and handle.*

**GAGE, PLUG, THREAD.** A gage used for the dimensional control of a specified internal thread. It consists of a gaging member or members and handle.*

**gage pressure.** Pressure reading from a gage which registers 0 at atmospheric pressure.

**GAGE, PRESSURE, DIAL INDICATING.** An instrument designed to measure air, gas, fluid and vapor pressure by means of a pressure sensitive element which transmits energy, by direct linkage, to the indicating pointer of a scale calibrated in units of pressure. It may include a temperature equivalent scale.*

**GAGE, PRESSURE, RECORDING.** An instrument designed to measure and record fluid pressure, equal to or greater than atmospheric, by means of a pressure sensitive element directly linked to a pen staff which makes a permanent recording on a chart. May or may not have an indicating scale.*

**gage, radius.** See **GAGE, FILLET AND RADIUS.**

**gage, receiving.** See: **gage.**

**gage, reference.** See: **gage.**

**gage, ring.** See **gage.**

**GAGE, RING, PLAIN.** A gage used for the dimensional control of a specified external diameter, such as a shaft.*

**GAGE, RING, TAPER.** A gage used for the dimensional control of the taper of a specified external cylindrical component.*

**GAGE, RING, THREAD.** A gage used for the dimensional control of a specified external thread.*

**GAGE, SCREW AND WIRE.** A tool used to quickly determine the diameter size of machine screws and wires. It consists of a rectangular steel plate V-slotted and graduated in fractional diameters and wire gage numbers.*

**GAGE, SCREW PITCH.** One or more blades (leaves) of tempered steel, ground to and marked with their respective pitch, expressed as number of threads per inch in the English system and as millimeters or fractional parts thereof in the metric system. It is used for checking the pitch of external or internal screw threads.*

**GAGE SET, CANNON BORE EROSION.** A group of tools, including a steel rule, graduated rods and stops, hand oiler, magnifying glass, and the like, used as accessories to a GAGE, CANNON BORE EROSION. It may include a case and an instruction book.*

**gage, setting.** See: **gage.**

**GAGE, SHEET AND PLATE.** A tool used to quickly determine the thickness of sheet steel, sheet iron and steel plate. It consists of a rectangular plate or disk plate with slots cut around the periphery and marked according to a standard scale.*

**GAGE, SMALL HOLE.** A measuring instrument used to transfer inside measurements of holes or slots to micrometer calipers for direct reading. It consists of a handle attached to a spring expanding ball and is usually designed with means of locking the ball at any position within the range of the gage. Excludes GAGE, TELESCOPING.*

**gage, snap.** See: **gage.**

**GAGE, SNAP, PLAIN ADJUSTABLE.** A gage used for the control of specified external dimensions. It consists of a frame and gaging members such as buttons, pins, blades and anvil. The gaging members may be set and locked to specified maximum and minimum limits within the given size range of the gage.*

**GAGE, SNAP, THREAD ROLL.** A gage used for the dimensional control of a specified external thread. It consists of a C-type frame and gaging members (rolls). The gaging members may be set and locked to specified maximum and/or minimum limits within the given size range of the gage.*

**gage, star.** See: **star gage.**

**gage, strain.** A strain-sensitive element, which permits recording, via a bridge circuit, of displacements between selected places.

**GAGE, SURFACE.** An instrument used for laying out work by the scribing of lines at a given height from some face of the work, of transferring the height from one piece to another. Consists of a rectangular base to which a spindle is mounted and pivoted in an upright position. A scriber is clamped to spindle in such a manner so as to be adjustable.*

**GAGE, TAPER.** One or more blades (leaves) of tempered steel ground to and marked with their respective taper. It is used for measuring the inside diameters of tubing, nuts drilled for tapping, and the width of slots.*

**GAGE, TELESCOPING.** A measuring instrument used to transfer inside measurements of holes or slots to micrometer calipers for direct reading. It consists of a rod with spring expanding plunger to which is attached a handle designed to lock plunger at any point within the range of the gage. Excludes GAGE, SMALL HOLE.*

**GAGE, THICKNESS.** One or more tempered steel blades (leaves) ground to and marked with their respective thickness and mounted in a holder or encased within a frame or case into which the leaves fold. It is used for checking narrow slots or gaging the clearance between fitted parts. Excludes BLADE, THICKNESS GAGE.*

**GAGE, THICKNESS, DIAL INDICATING.** A precision measuring instrument for making accurate thickness measurements of paper, leather, sheet metal, and other thin materials, consisting of a dial indicator mounted on a metal frame. A piece to be measured is inserted in the throat of the gage, the throat opening is closed upon the piece, and the thickness is indicated upon the dial.*

**gage, thread.** A gage for measuring screw threads or for checking or determining the pitch, thread-angle, diameter, and other parts of the thread. See also: **GAGE, PLUG, THREAD; GAGE, RING, THREAD; GAGE, SCREW PITCH.**

**gage unit.** An instrument incorporating two or more gages into a single unit. It may include indicator(s) and/or thermometers.*

**gage, wear.** Gage, consisting of a truncated cone, inserted into the breech of a gun for measuring the bore enlargement at the origin of rifling.

**gage, wear limit.** See: **gage.**

**GAGE, WIRE.** A tool used to quickly determine the size number of wire, drill rod and/or for gaging the thickness of plates and sheets according to a wire number standard. Because of different standards for wire (e.g., nonferrous, stubs, American, Imperial, music, etc.), diameters of identical sizes differ in number size according to standards used. It may be a rectangular plate or disk with slotted gaging sections around the periphery for measuring thickness of sheets and plates.*

**gage, working.** See: **gage.**

**gain.** 1. *Radio.* In an amplifying system, the increase of output power, voltage, or current over the input power, voltage, or current, expressed in terms of a ratio. 2 *Radar.* The difference, expressed as a ratio, between the power radiated by a directional antenna and the power radiated by an isotropic antenna when both have an equal power output.

**gain control, automatic.** (AGC) A circuit, also called the automatic volume control, which automatically varies the overall amplification, inversely proportional to input signal strength changes, such that the output volume of the receiver remains constant.

**gaine.** A booster or auxiliary detonating fuze. *British.*

**gain time control.** See: **differential gain control.**

**gain-twist; gaining twist.** Increasing twist. See: **rifling.**

**gallery practice ammunition.** Small arms ammunition with a reduced charge, used in gallery practice and also for guard purposes.

**GALVANOMETER.** An instrument which shows the presence of an electric current and/or indicates the relative intensity thereof, but which is not calibrated in actual values.*

**galvanometer recorder.** *Electroacoustics.* A combination of mirror and coil suspended in a magnetic field. The application of a signal voltage to the coil causes a reflected light beam from the mirror to pass across a slit in front of a moving photographic film, thus providing a photographic record of the signal.

**gamma radiation.** The combined process of emission, transmission, and absorption of gamma rays, as from the explosion of an atomic bomb.

**gamma ray.** A ray related to light rays and X-rays, but of shorter wave length, emitted by certain radioactive substances.

The wave length is from $10^{-9}$ to $10^{-12}$ cm.

**gantry.** A frame structure, with side supports, to span over something, and usually of large dimensions. May be stationary or may travel, as on parallel tracks. Often used to form the support for cranes for erecting or servicing rockets and missiles. It can be positioned over the launching site and rolled away prior to the firing.

**gantry crane.** See: **gantry.**

**gantry truck.** See **TRUCK, STRADDLE-CARRY.**

**gap marker.** *Land mine warfare.* Used to mark a minefield gap. Gap markers at the entrance to and exit from the gap will be referenced to a **landmark** or intermediate marker.

**GAR** *(abbr).* 'Guided aircraft rocket.'

**Garand rifle.** Popular name for the United States rifle, caliber .30 M1. (After its designer, John C. Garand, formerly of Springfield Armory.)

**GAS** *(abbr).* 'General Automotive Service.'

**gas** *(abbr).* 'Gasoline.'

**gas.** 1. Short for **war gas.** 2. Short for **gasoline.** 3. To expose to, or be affected by, a war **gas.** 4. To fill the tanks with gasoline. Often with *up*, as in 'we gassed up.'

**gas bomb.** See: **BOMB, GAS.**

**gas check.** Device in a gun that prevents escape of gas through the breech. See: **obturator.**

**gas-check pad.** Part of an **obturator** (which see).

**gas-check seat.** Conical surface in the breech bore of a gun, carefully machined to provide a close fit with the split rings of the **obturator** (which see).

**gas cloud.** Mixture of air and war **gas vapor.**

**gas cylinder.** Tube fixed to the barrel of a **gas-operated** automatic weapon and containing a **piston,** the movement of which operates the extracting and reloading mechanisms.

**gas ejector system.** See: **scavenger system** (sense 1).

**gas grenade.** See: **grenade, gas.**

**gas mixture.** The mixture of gasoline and air supplied to a cylinder of a spark ignition engine.

**gas munition.** Munition such as **bomb, projectile, pot,** candle, or spray tank containing a **war gas** (which see) and means of release.

**gasoline.** (gas) A hydrocarbon fuel used esp. in internal combustion reciprocating engines. Called 'petrol' by the British.

**GASOLINE, AUTOMOTIVE.** A reciprocating engine gasoline whose combustion characteristics are indicated by motor and research ratings as determined by the American Society for Testing Materials F-2 and F-1 methods, and whose vapor pressure maximum limit is variable, but in excess of 7.0 pounds per square inch (Reid).*

**GASOLINE, AVIATION.** A reciprocating engine gasoline whose combustion characteristics are indicated by lean and/or rich mixture ratings as determined by the American Society for Testing Materials F-3 and F-4 methods, and whose vapor pressure maximum limit is 7.0 pounds per square inch (Reid).*

**gasoline can.** See: **CAN, GASOLINE, MILITARY.**

**gasoline gels.** See: **gelatinized gasoline.**

**gasoline, leaded.** A gasoline containing tetraethyl lead in more than trace amounts, in excess of 0.05 milliliters per gallon. Cf: **GASOLINE, UNLEADED.**

**GASOLINE, UNLEADED.** A gasoline containing no more than trace amounts of tetraethyl lead, not in excess of 0.05 milliliters per gallon.*

**gasoline, white.** See: **GASOLINE, UNLEADED.**

**gas-operated gun.** Automatic gun operated solely by gas, utilizing a portion of the gas pressure to act on some form of piston and cylinder arrangement. The relative movement, between the piston and the cylinder, drives the bolt to the rear with sufficient force to unlock and open the breech. The gas may be taken from the barrel through a hole drilled in the barrel at any point between the chamber and the

muzzle. In some weapons, gas is taken at the muzzle itself.

**gas port.** Opening for the passage of gas. The gas cylinder of a gas-operated automatic weapon has gas ports that admit some of the propellant gases from the barrel of the gun.

**GASR** *(abbr).* 'Guided air-to-surface rocket.'

**gas turbine.** See: **ENGINE, GAS TURBINE; TURBINE, GAS.**

**gate.** 1. See: **GATE, ELECTRONIC.** 2. *Computers.* A circuit having an output and a multiplicity of inputs so designed that the output is energized when and only when a certain definite set of input conditions are met. In computer work, a 'gate' is often called an 'and' circuit. 3. To cut a *circuit* off or on by use of square voltage waves. 4. To synchronise a receiver with returning echoes. 5. *Reactor Engineering.* A movable barrier of shielding material used for closing a hole.

**GATE, ELECTRONIC.** An item which, by electron tube circuitry, transistor circuitry, or the like, permits the passage of a radio frequency signal for predetermined relatively short periods of time.*

**Gatling gun.** [After the American inventor, R. J. *Gatling.*] Type of machine gun using multibarrels which fire in rotation. An early principle which has come back into use in the Vulcan machine guns. It permits very rapid fire because it reduces the problem of overheating in a single barrel.

**gauge.** See: **gage.**

**GB** *(abbr).* Chemical agent, 'isopropyl methylphosphonofluoridate' (sarin, war gas).

**GB-4.** A glide bomb with a mounted television camera and transmitter, controlled in azimuth and range by radio, and guided from a mother aircraft by means of the television. Often called 'GB-4 missile.'

The GB-4 was used in WW II, first in July 1944 against the U-boat pens of Le Havre.

**GCA** *(abbr).* 'Ground controlled approach.'

**GCI** *(abbr).* 'Ground controlled interception.'

**GD** *(abbr).* 'Pinacolyl methylphosphonofluoridate' (soman, war gas).

**GDA** *(abbr).* 'Gun defended area.'

**gdnce** *(abbr).* 'Guidance.'

**gear.** A cylindrically or conically shaped part having on one surface a full 360 degree complement of teeth which mate with and engage the teeth of another part nonconcentric with it.*

**GEAR ASSEMBLY, SPEED DECREASER.** A group of gear(s) and/or worm(s), of fixed ratio, specifically designed for the purpose of decreasing the speed from the driver(s) to the driven shaft or shafts; having no reversing feature except by reversing the prime mover. See also: **TRANSMISSION** (as modified) and **GEARCASE-MOTOR.***

**GEAR ASSEMBLY, SPEED INCREASER.** A group of gear(s), of fixed ratio, specifically designed for the purpose of increasing the speed from the driver(s) to the driven shaft or shafts; having no reversing feature except by reversing the prime mover. See also: **TRANSMISSION** (as modified) and **GEARCASE-MOTOR.***

**GEARCASE-MOTOR.** An item whose prime motion is produced by an electric motor which actuates a mechanism to change the speed, direction or type of motion so produced. The gearcase is coupled to a separately housed motor; however, the separation of the motor and other mechanism will not render either inoperable. The overall item may be encased to make it watertight, explosion-proof, dustproof, and the like.*

**gearing ratio, static.** See: **static gearing ratio.**

**gearing schematic.** A drawing illustrating the arrangement and essential data of a gearing system in as simple a form as possible.

**gearshaft.** An item consisting of a shaft and one or more integral complements of gear teeth. It must have a means of driving (other than a hub), such as keyway(s), splined section(s), holes, and the like.*

**GEAR, SPUR.** A gear, cylindrical in form, with straight teeth on the outer surface parallel to the axis of the gear.*

**Gee.** A medium distance radio navigation system or aid.

The aircraft's position is determined by measuring the difference in the time of arrival of synchronised pulses broadcast by a master and two slave stations. Developed by the British before WW II.

**Gee-H.** A combination of the Gee and H electronic navigation systems, used esp. in WW II, in which the Gee equipment was modified so that distances could be determined from transmitting stations on the ground with the aid of an airborne interrogator.

**Gee navigation.** See: **navigation, hyperbolic.**

**Geiger-Mueller counter.** Highly sensitive radiation detecting instrument for measuring relatively low intensities of radiation.

**gelatinised gasoline.** Gasoline treated with a thickening agent as used in napalm bombs, flame throwers, etc. Also called 'gasoline gels' and 'thickened fuel.' See also: **CHEMICAL AGENT, INCENDIARY OIL.**

**gelatinising agent.** In manufacture of propellants, a material which softens the nitrocellulose, permitting the mixture to be processed and formed.

**gen** *(abbr).* 'General.'

**general cargo.** See: **cargo classification.**

**general depot.** Large supply establishment for receiving, storing, and issuing supplies for more than one technical service.

**general purpose bomb.** See: **BOMB, GENERAL PURPOSE.**

**general purpose vehicle.** Motor vehicle designated to be used interchangeably for movement of personnel, supplies, ammunition or equipment for towing artillery carriages, trailers or semitrailers and used without modification to body or chassis to satisfy general automotive transport needs.

**general reserve artillery.** Consists of all artillery units not organic to divisions and corps. It is a pool of reserve artillery available to the field forces commander for assignment or attachment to subordinate commands as required by combat conditions.

**general supplies.** Intra-service classification applied to ordnance, quartermaster and transportation supplies. Ordnance general supplies include all ord-

nance supplies, with the exception of ammunition, required for the maintenance of an organization.

**general support artillery.** Artillery which executes the fires directed by the commander of the unit to which it organically belongs or is attached. It fires in support of the operation as a whole rather than in support of a specific subordinate unit.

**generation breakdown.** *Specif.* An outline of a missile and/or a missile system listing the constituent major combinations, major items, principal items and secondary items in descending order, along with the applicable part numbers and drawing numbers.

**generator.** 1. *Electrical.* A rotating machine that converts mechanical energy into electrical energy. 2. *Chemical.* An apparatus in which gas is produced from liquids and/or solids by chemical process.*

**GENERATOR, ELECTRONIC MARKER.** An item which generates electronic pulses of precise characteristics with respect to amplitude, shape, duration, and recurrence. Such pulses serve as reference indices on the face of a cathode-ray tube, for determination of data such as radar target range, azimuth, elevation, and similar applications. Excludes GENERATOR, SIGNAL and GENERATOR, PULSE.*

**GENERATOR, ENGINE ACCESSORY.** A generator primarily designed to be mounted on an internal combustion engine, and to be driven by the engine to keep the battery in a charged condition. May also supply current for the engine ignition system and/or electrical equipment which is connected to the battery circuit. Includes alternating current generators designed for use with a rectifier. Excludes the major generator of 'Generating Sets.'*

**GENERATOR, GAS PRESSURE, PROPELLANT ACTUATED.*** A closed chamber in which a burning propellant produces gas, the pressure of which is used to operate turbines, motors, servomechanisms, inflate flotation devices, etc. See: **propellant actuated device.**

**GENERATOR, INTERFERENCE.** An item designed to develop radio frequency signals which are amplitude or frequency modulated by random frequencies of erratic amplitude. The output signals are similar in nature to radio interference caused by atmospheric static.*

**GENERATOR, PULSE.** A device designed to develop a discontinuous electrical potential with an abrupt rate of change of voltage which determines the harmonic content of the pulse train. The duration of a single pulse output is relatively short compared to the time of the recurrence cycle. Excludes GENERATOR, ELECTRONIC MARKER.*

**generator set.** An item consisting of a commonly mounted electrical generator(s) and prime mover designed to produce electrical power. May include all necessary components.*

**GENERATOR, SIGNAL.** An instrument which produces a continuous audio and/or radio frequency voltage, and which is designed for test purposes only. It may provide for an output at one or more fixed frequencies or be continuously variable over one or more bands. The fixed frequency type is distinguished from CALIBRATOR, FREQUENCY in that it is a voltage source and is not primarily intended for checking frequencies from other sources. Excludes GENERATOR, INTERFERENCE.*

**GENERATOR, SMOKE, MECHANICAL.** A generator for producing quantities of dense particulate clouds for the purpose of concealing objects from enemy observation.*

**GENERATOR, SWEEP.** A device designed to develop an electrical signal whose amplitude varies in some predetermined manner with time. It is commonly used to create a time base for the electron beam of a cathode-ray tube. Excludes sine wave generators.*

**GENERATOR, TACHOMETER.** A generator consisting of a series of mounted coils surrounding a rotating permanent magnet or a permanent magnet and a rotating armature. The voltage output is directly proportional to the speed of rotation of the shaft. When used with an associated indicator, transmits such data as revolutions per minute, speed of travel, and the like. May also be used in servomechanism loops as a system stabilizer. Excludes rotary inverters, rotary converters, motor generators, dynamotors, generator sets, synchros, frequency or phase changers, and engine accessory generators.*

**Genie.** Air Force air-to-air missile, utilizing a solid propellant rocket motor and capable of carrying a nuclear warhead. Formerly called *Ding Dong.*

**geodesic.** The shortest line on the surface of the earth between two points; geodesic line.

**Gerlich gun.** See: **tapered bore.**

**g factor.** The ratio of the maximum acceleration that an object can withstand to the acceleration of gravity. It is equivalent to the ratio of the maximum accelerating force that the object can withstand to the weight of the object.

**GFE** *(abbr).* 'Government furnished equipment.

**GFP** *(abbr).* 'Government furnished property.'

**ghost signal.** An unwanted echo on the screen of a radar indicator.

**gilding metal.** Copper alloy used to jacket small arms bullets, to form detonator or primer cups, and to form rotating bands for artillery projectiles. This metal can be readily engraved by the lands as the projectile moves down the bore. Gilding metal is composed of approximately 90 percent copper and 10 percent zinc.

**gimbal.** Usually *pl.* in *sing.* sense. A contrivance containing two mutually perpendicular and intersecting axes of rotation.

A body mounted on gimbals is free to incline in any direction.

**GIN, POLE.** A device, such as a bracket or boom, designed to be temporarily attached to a pole as a support for block and tackle. It is used to raise and lower transformers and the like. It may include block and tackle.*

**gisement.** See: **declination.**

**glass armor.** Any of several special purpose armors composed of glass or containing glass.

**GLASS, LAMINATED, FLAT.** A glass affording clear vision formed by bonding two or more pieces of polished plate or sheet glass with a transparent plastic. When fractured, the particles of glass tend to adhere to the plastic instead of separating into flying fragments, thus providing a considerable meas-

ure of safety against body injury from pieces of broken glass when a fracture occurs. Excludes bent (curved) and/or special shaped items.*

**glide.** 1. The descent or drop of an aircraft or winged missile at a normal or nearly normal angle of attack, with little or no thrust. 2. In a less exact sense, a shallow dive. 3. To descend in a glide.

**glide bomb.** See: **bomb, glide.**

**glide bombing.** 1. The action of bombing a target from a gliding airplane. 2. The action of using glide bombs for bombing a target. Not frequently used in this sense. Cf: **toss bombing.**

**glide path.** Inclined surface of radio signal extending upward at an angle to the horizontal from the point of desired landing. Also called 'glide slope.'

**glide slope.** See: **glide path.**

**gliding angle.** A glide angle, esp. one at which an aircraft will steadily glide in still air without thrust.

**glint.** 1. The pulse-to-pulse variation in amplitude of reflected radar signals, owing to the reflection of the radar beam from a body which is changing its reflecting surface in an extremely rapid manner, such as would exist in pulses reflected from a rapidly spinning airplane propeller. 2. A gleam or flash of light reflected from the metal surface of an aircraft.

The glint is often used by experienced pilots to sight aircraft at high altitudes.

**g load.** A term expressing the numerical ratio of centrifugal force to gravitational force, or of acceleration or deceleration force to gravitational force.

**Glomb.** [*Glide bomb.*] A glider (LNT-2) adapted by the Navy for use as a glide bomb, loaded with destructive charges, and towed to the target area, where upon release, it is guided to its target by radio from a mother airplane.

**GLOW PLUG.** An item with a resistance type heating element for igniting fuel-air mixtures in ENGINE, DIESEL [illegible] for starting engines only. Excludes: SPARK PLUG.*

**glow plug.** An electric heating element which is used to raise a rocket propellant to its autoignition temperature.

**glycol.** A thick alcohol, $C_2H_4(OH)_2$, used as a coolant and antifreeze in liquid-cooled engines.

**GM** *(abbr).* 'Guided missile.'

**GM angle.** Angular difference between grid north and magnetic north measured east or west from grid north.

**GMC** [illegible]

**GOCO** *(abbr).* 'Government-owned contractor-operated.' (Frequently pronounced as a word.)

**Goer.** Name given to a highly mobile cross country amphibious transport vehicle having low-pressure tires and exoskeletal construction.

**go-getter.** A control mechanism for automatic guidance of a rocket to its target.

**GOGO** *(abbr).* 'Government-owned Government-operated.' (Frequently pronounced as a word.)

**goniometer.** Instrument, used in surveying, for measuring angles. With associated equipment used to determine limits of vision, as in a vehicle.

**GONIOMETER, ELECTRICAL.** An item used to calculate and resolve, electrically and continuously, mathematical problems or electrical functions and to establish directional phase difference between two transmitted or received signals. Two windings are crossed and fixed at a ninety degree angle; the third winding is rotable to the other windings.*

**goop.** A compound in paste form containing finely divided magnesium used as a constituent of certain incendiary bomb fillings.

**goop bomb.** A special kind of incendiary bomb. *Slang.* See: **goop.**

**Goose.** Air Force air-to-air missile with turbojet engines.

**Gopher Ordnance Works.** Ordnance Corps field installation, located at Rosemont, Minnesota.

**government.** (govt) *Specif.* Often *capitalized.* The government of the United States.

**Government furnished property.** (GFP) All tangible property of the Government furnished to the contractor, including both property acquired by the Government and delivered to the contractor and property acquired by the contractor for the account of the Government. The three classes of Government furnished property are:

*class A industrial property.* Government owned land, buildings, structures, roads, bridges, culverts, sidewalks, railroad tracks, utility systems, and utility plants furnished to supply contractors.

*class B industrial property.* Cataloged Government property furnished to supply contractors and consisting of all the larger units of property, other than class A, which may be easily traced. This class includes such items as machines, motors, locomotives, cranes, tractors, automobiles, platform scales, etc.

*class C industrial property.* Noncataloged Government property furnished supply contractors, including all raw materials, parts, components, assemblies, subassemblies and manufacturing, operating, maintenance, office, cafeteria, laboratory, dormitory, and hospital supplies.

**Government Patents Board.** Established by Executive Order 10096 on 23 January 1950 to administer a uniform policy for the Government with respect to inventions made by Government employees. The Board consists of a full-time Chairman appointed by the President, and of one *ad hoc* member appointed by each of the ten major federal departments or agencies.

**Government specifications.** Any description of the technical requirements for a material, an item, or service, including the procedure by which it can be determined that the requirements have been met, according to Government expectations. See also: **specification.**

**governor.** An automatic device or attachment for regulating the speed of an engine or motor under varying conditions of load and pressure, by controlling the flow of fluid, electric current, or varying the pressure of water or gas.*

**govt** *(abbr).* 'Government.'

**GP** *(abbr).* 1. 'General purpose,' often used for 'general purpose bomb.' 2. 'Group.'

**GP bomb.** Short for BOMB, GENERAL PURPOSE.

**GPI** *(abbr).* 'Ground position indicator.'

**GPO** *(abbr).* 'Government Printing Office.'

**gpveh** *(abbr).* 'General purpose vehicle.'

**gr** *(abbr)*. 'Grain.'

**gradient.** *Meteorological.* Change of value of a meteorological element per unit of distance. The gradients commonly discussed in meteorology are the horizontal gradient of pressure, the vertical gradient of temperature, and the vertical gradient of electrical potential.

**gradient microphone.** *Electroacoustics.* A microphone the output of which corresponds to a gradient of the sound pressure.

Gradient microphones may be of any order as, for example, zero, first, second, and so forth. A pressure microphone is a gradient microphone of zero order. A velocity microphone is a gradient microphone of order one.

**gradient wind.** A wind that flows parallel to the isobars and has a velocity such that the pressure gradient and Coriolis and centrifugal forces acting on the air are in balance.

**grain.** (gr) 1. A single piece of solid propellant regardless of size or shape used in a gun or rocket. For the latter a grain is often very large and shaped to fit the requirements of the rocket. It is termed **PROPELLANT GRAIN.** 2. A measure of weight, 1/7000 lb.

**grain, degressive type.** See: **degressive granulation.**

**grain, progressive type.** See: **progressive granulation.**

**grain, propellant, rocket.** See: **PROPELLANT GRAIN.**

**gram.** (g) The metric unit of weight equivalent to 15.432 grains.

**grand lot.** See: **lot, grand.**

**grant.** *Patent law.* 1. The conveyance by the Government to a successful applicant for patent of the right to exclude others from practicing the invention covered by the patent for a term of 17 years. 2. That part of the application for patent by a Government employee, wherein the inventor grants to the Government the right to use the invention without the payment of any royalty.

**granulation.** Size and shape of grains of material, particularly solid propellants.

**granulation, degressive.** See: **degressive granulation.**

**granulation, dual.** See: **dual granulation.**

**granulation, progressive.** See: **progressive granulation.**

**graphical firing table.** See **SCALE, GRAPHICAL FIRING.**

**graphic intersection.** Intersection where the position of the unknown point is determined by plotting the direction lines.

**GRAPHITE, COLLOIDAL.** A dispersion of graphite in a liquid which is other than refined petroleum oil, silicone fluid, or castor oil. For items having a refined petroleum oil, silicone fluid, or castor oil vehicle, see: **LUBRICATING OIL, COLLOIDAL GRAPHITE.** Excludes GREASE, GRAPHITE.*

**grass.** Random interference on a radarscope due primarily to circuit noises, such as thermal agitation.

**gravimetric density.** Weight of the propellant (in lb per $in.^3$) divided by the volume occupied by the propellant (includes the air space in and around propellant grains).

**gravity drop.** *Ballistics.* Vertical drop due to gravity. See: **vertical drop.**

**graze.** 1. Pass close to the surface, as a shot that follows a path nearly parallel to the ground and low enough to strike a standing man. 2. Burst of a projectile at the instant of impact with the ground. In this meaning also called 'graze burst.' 3. The sensing, in time fire, for a burst on impact with the ground or other material object on a level with or below the target.

**graze burst.** Burst of a projectile at the instant of impact with the ground. Also called **graze.**

**graze sensitivity.** The ability of a fuze to be initiated by grazing, that is, when the missile strikes a surface at a glancing angle (80°-90° from the normal).

**grazing fire.** Small arms fire which is approximately parallel to the ground and does not rise above the height of a man, standing.

**grazing point.** In the determination of dead space, the point where a trajectory touches the mask.

**grease.** A friction reducing solid or semisolid consisting of liquid lubricant(s) and soap and/or thickening agent(s) with or without additives or fillers.*

**GREASE, AIRCRAFT.** A grease designed for the lubrication of aircraft components such as actuators, engine accessories, control bearings, landing gears, and wheel bearings. Does not include GREASE, AIRCRAFT AND INSTRUMENT and GREASE, INSTRUMENT.*

**GREASE, AIRCRAFT AND INSTRUMENT.** A wide temperature range, synthetic base grease designed for lubrication of antifriction bearings, lightly loaded gears, and on sliding and rolling surfaces of such equipment as instruments, cameras, electronic equipment and aircraft control systems. It is not specially prepared for salt spray resistance. Does not include GREASE, AIRCRAFT and GREASE, INSTRUMENT.*

**GREASE, AIRCRAFT ORDNANCE.** A wide temperature range grease formulated for use as a lubricant of aircraft guns, accessory equipment, ammunition, and the like. Excludes GREASE, AIRCRAFT and GREASE, AIRCRAFT AND INSTRUMENT.*

**GREASE, AUTOMOTIVE.** A grease suitable for the lubrication of automotive components as chassis, wheel bearings, or water pumps. Does not include GREASE, AUTOMOTIVE AND ARTILLERY.*

**GREASE, AUTOMOTIVE AND ARTILLERY.** A grease with corrosion inhibitors designed for the lubrication of tactical automotive and artillery components suitable over an ambient temperature range of −65° Fahrenheit to +125° Fahrenheit.*

**GREASE, BALL AND ROLLER BEARING.** A grease designed primarily for the lubrication of ball and roller bearings operating at constant or intermittent high temperatures. Does not include GREASE, AUTOMOTIVE AND ARTILLERY; GREASE, AIRCRAFT; GREASE, AIRCRAFT AND INSTRUMENT; GREASE, SILICONE INSULATED ELECTRIC MOTOR and GREASE, ORDNANCE BEARING AND AMMUNITION.*

**GREASE, GENERAL PURPOSE.** A grease designed for lubrication of industrial types of equipment by means of cups, grease fittings, or pressure lubricating

systems. If special characteristics are required, see specific item names.*

**GREASE, INSTRUMENT.** A wide temperature range, synthetic base grease designed for lubrication of fire control equipment and instruments including related components such as synchros, gyros, and in control and computing mechanisms. It is specially prepared for salt spray resistance. Does not include GREASE, AIRCRAFT AND INSTRUMENT and GREASE, AIRCRAFT.*

**GREASE, ORDNANCE BEARING AND AMMUNITION.** A grease designed for lubrication and preservation of Naval Ordnance plain, ball, and roller bearings, and for the preservation of threads on ammunition. It is specially prepared for salt spray resistance.*

**GREASE, ORDNANCE, EXTREME PRESSURE.** A grease designed for lubrication of highly loaded Naval Ordnance components as rollers, tracks, pinions and racks of gun turrets and for slush-on lubrication of open or semi-inclosed gears exposed to salt sprays.*

**GREASE, RIFLE.** A grease designed for lubrication and preservation of small arms such as the .30 caliber rifle and the .30 caliber carbine.*

**grease seal.** 1. Type of seal used on floating pistons of some hydropneumatic recoil systems to prevent leakage past the piston of gas or oil. This type of seal is also used in cylinders of some hydropneumatic equilibrators. 2. Seal used to retain grease in a case or housing as on an axle shaft.

**GREASE, SILICONE INSULATED ELECTRIC MOTOR.** A grease designed for the lubrication of silicone insulated electric motors with heat stabilized ball and roller bearings and other specialized high temperature applications.*

**green.** Indicates, in the nomenclature of a SIGNAL, SMOKE, GROUND, several smoke pellets which produce freely falling streamers of green smoke at the height of the trajectory.

**green bag charge.** See: **charge green bag.**

**green labeled cargo.** See: **labeled cargo.**

**green parachute.** Indicates, in the nomenclature of a SIGNAL, SMOKE, GROUND, a single smoke pellet, parachute suspended, which produces a green smoke.

**Green Quail.** Popular name for an Air Force air-to-surface missile designed to confuse enemy radar.

**green star, cluster.** Indicates, in the nomenclature of a SIGNAL, ILLUMINATION, GROUND, a cluster of several freely falling green stars (lights).

**green star, parachute.** Indicates, in the nomenclature of a SIGNAL, ILLUMINATION, GROUND, a single green star (light), parachute supported.

**green tracer.** Indicates, in the nomenclature of a SIGNAL, ILLUMINATION, AIRCRAFT, a green tracer (light) preceding the ejection of displays of other types.

**Greenwich civil time.** (Z) Mean solar time at the zero meridian of Greenwich, England.

**Greenwich sidereal time.** Sidereal time measured with reference to the Greenwich meridian.

**grenade.** A small explosive or chemical missile, originally designed to be thrown by hand, but now also designed to be projected from special grenade launchers, usually fitted to rifles or carbines. Grenades may be classified in a broad sense as GRENADE, HAND and GRENADE, RIFLE. Many varieties and variations of these have been used, including a number of improvised ones. Some of the principal types and designations used in recent years are identified in the entries which follow.

**grenade, antipersonnel.** General term for any GRENADE, HAND or GRENADE, RIFLE, designed primarily for casualty effect against personnel. Usually refers to a **grenade, fragmentation** (which see).

**grenade, antitank.** A GRENADE, RIFLE designed to be used against tanks or other armored vehicles.

**grenade, chemical.** General term for any GRENADE, HAND or GRENADE, RIFLE charged with a **chemical agent** (which see).

**grenade, chemical, burning type.** General term for any **grenade, chemical** (which see) which releases its agent by a burning action. Contrasted with a **grenade, chemical, bursting type** (which see).

**grenade, chemical, bursting type.** General term for any **grenade, chemical** (which see) which releases its agent by a bursting action. Contrasted with a **grenade, chemical, burning type** (which see).

**grenade, concussion.** See: **grenade, offensive.**

**grenade, defensive.** See: **grenade, fragmentation.**

**grenade, dummy.** See: **grenade, training.**

**grenade, fragmentation.** A GRENADE, HAND designed to give fragmentation which is effective against personnel. The thrower needs protective cover, hence the grenade is used primarily for defensive operations and is often called a 'defensive grenade.'

**grenade, frangible.** Improvised incendiary hand grenade consisting of a glass container filled with a flammable liquid, with an igniter attached. It breaks and ignites upon striking a resistant target, such as a tank. Sometimes called 'Molotov cocktail.'

**grenade, gas.** Popular name for a **grenade, chemical** (which see), designed to release a war gas. The types of gases released are limited, usually, to tear gas and other irritants.

**GRENADE, HAND.** A grenade designed to be thrown by hand. May be projected by a rifle or carbine when grenade is fitted with an adapting device such as an ADAPTER, GRENADE PROJECTION.

**grenade, illuminating.** GRENADE, HAND or GRENADE, RIFLE designed to be placed or projected and to provide illumination by a burning action. It may be used also as a trip flare or as an incendiary device.

**grenade, improvised.** Any nonstandard type grenade which is prepared by the user. Examples are frangible grenades and 'fragmentation' grenades composed of nails, cartridge cases or other 'fragments' taped to the sides of a TNT block, with suitable detonating device.

**grenade, incendiary.** GRENADE, HAND designed to be filled with incendiary materials or used primarily for incendiary purposes.

**grenade launcher.** See: **LAUNCHER, GRENADE.**

**grenade launcher sight.** See: **SIGHT, RIFLE GRENADE LAUNCHER.**

**grenade, magnetic.** Also called **magnetic charge.** Small explosive charge with attached magnets, designed to be thrown or placed against tanks. The magnets hold the explosive in place until detonated by a time fuze.

**grenade net.** Net of chicken wire, or the like placed over a trench, etc., as a protection against grenades.

**grenade, offensive.** GRENADE, HAND having a nonmetallic container, designed to kill or injure by blast and concussion. Distinguished especially from a fragmentation or defensive grenade. The offensive grenade is so called because the thrower, being out of range of the grenade's effects, can continue to advance as he throws, and does not have to take cover.

**grenade pit.** Pit, usually at the bottom of an incline, to catch hand grenades and limit the effects of their explosion.

**grenade, practice.** GRENADE, HAND or GRENADE, RIFLE used for practice purposes. The grenade may contain a small charge of black powder to give an indicating puff of smoke on functioning

**grenade projection adapter.** See: **ADAPTER, GRENADE PROJECTION.**

**GRENADE, RIFLE.** A grenade especially designed or adapted to be fired or launched from the muzzle of a rifle or carbine.

**grenade, riot.** Grenade of plastic or other nonfragmenting material, containing a charge of tear gas and a detonating fuze with short delay. The grenade functions and the gas is released by a bursting action.

**grenade, smoke.** GRENADE, HAND or GRENADE RIFLE containing a smoke producing mixture. Used for screening or signaling. Sometimes charged with colored smoke, as red, green, yellow or violet.

**grenade, sticky.** A small explosive charge covered with an adhesive, intended to be thrown or placed by hand where the adhesive will hold the charge in place until detonated by a time fuze. Also called 'sticky charge.'

**grenade, training.** An inert GRENADE, HAND used in throwing training. Formerly called 'dummy grenade.'

**grenade, white phosphorus.** GRENADE, HAND or GRENADE, RIFLE containing a main charge of white phosphorus and a small explosive burster charge for scattering the main charge. Used for smoke and some incendiary effect.

**grid.** 1. a. The pattern of intersecting lines set up in accordance with a grid system, and superimposed upon charts, aerial photographs, or the like, to permit ready location of points on the ground. See: **military grid.** b. A grid line. 2. Any systematic network, as of power lines, telephone lines, etc. 3. A part in the rear section of a rocket motor, which supports the propellant grain but allows enough clearance for the propellant gases to escape to the nozzle. 4. *Electronics.* An electrode in a vacuum tube for controlling the flow of electrons.

**grid azimuth.** Azimuth measured from grid north.

**grid bearing.** A bearing in which the reference line is grid north.

**grid coordinates.** Numbers and letters of a coordinate system which designate a point on a gridded map, photograph or chart.

**grid course.** A course in which the direction of the reference line is grid north.

**gridded map.** Map on which is drawn a system of grid lines running north and south, and east and west. These lines are used in locating points.

**grid heading.** A heading by reference to **grid north.**

**grid north.** Upward (northward) direction of the arbitrary meridian or vertical grid lines (north-south grid lines) usually found on military maps.

**grid system.** A system employed in establishing grid lines on a map, chart, aerial photograph, or the like. See: **military grid system.**

**grinder.** A manual or power-driven tool, designed to impart a rotary motion to an abrasive wheel for cutting and smoothing surfaces. In operation, the tool is not fixed and is controlled by hand.*

**grinding machine.** A machine that uses an abrasive wheel, belt, or disk for the purpose of removing excess stock and of reducing the material to the desired shape and size, while at the same time leaving the desired finish on the work. Excludes **grinder.***

**grip.** One of a pair of wooden or plastic items designed to be attached by threaded fasteners to the two sides of the frame of a weapon, such as a revolver or bayonet. It is shaped to fit the hand and to provide a formed gripping surface to hold the weapon.*

**grip safety.** Safety mechanism that prevents a gun from being fired unless the stock is firmly grasped while the trigger is pulled. It is used mainly on automatic pistols.

**grommet.** Device made of rope, plastic, rubber or metal to protect the rotating band of projectiles.

**groove.** 1. One of the grooves in a rifled gun barrel. See: **rifling.** 2. A **crimping groove.** 3. A **fringing groove.**

**ground-air.** 1. Of missiles, signals, etc.: From ground to the air. 2. Of a military force: Made up of army, or marine, and air force units. 3. Of actions: Conducted by both ground and air units.

**ground distance.** 1. The distance between two points on the earth's surface measured on a great circle connecting the two points projected to mean sea level. 2. The shortest distance between two points on the ground, measured on the surface.

**ground fire.** Fire, such as antiaircraft fire, that emanates from the ground.

**ground-guided missile.** A missile guided by radio control from the ground.

**ground influence mine.** See: **mine, ground influence.**

**grounding plate.** Electrically grounded metal plate upon which a person stands for the purpose of draining off static electricity as it is generated.

**ground noise.** *Electroacoustics.* In recording and reproducing, the residual system noise in the absence of signal. It is usually caused by inhomogeneity in the recording and reproducing media, but may also include amplifier noise such as tube noise or noise generated in resistive elements in the input of the reproducer amplifier system.

**ground position indicator.** (GPI) A special computer continuously indicating the actual position of the aircraft with reference to some fixed point on the ground.

systems. If special characteristics are required, see specific item names.*

**GREASE, INSTRUMENT.** A wide temperature range, synthetic base grease designed for lubrication of fire control equipment and instruments including related components such as synchros, gyros, and in control and computing mechanisms. It is specially prepared for salt spray resistance. Does not include GREASE, AIRCRAFT AND INSTRUMENT and GREASE, AIRCRAFT.*

**GREASE, ORDNANCE BEARING AND AMMUNITION.** A grease designed for lubrication and preservation of Naval Ordnance plain, ball, and roller bearings, and for the preservation of threads on ammunition. It is specially prepared for salt spray resistance.*

**GREASE, ORDNANCE, EXTREME PRESSURE.** A grease designed for lubrication of highly loaded Naval Ordnance components as rollers tracks, pinions and racks of gun turrets and for slush-on lubrication of open or semi-inclosed gears exposed to salt sprays.*

**GREASE, RIFLE.** A grease designed for lubrication and preservation of small arms such as the .30 caliber rifle and the .30 caliber carbine.*

**grease seal.** 1. Type of seal used on floating pistons of some hydropneumatic recoil systems to prevent leakage past the piston of gas or oil. This type of seal is also used in cylinders of some hydropneumatic equilibrators. 2. Seal used to retain grease in a case or housing as on an axle shaft.

**GREASE, SILICONE INSULATED ELECTRIC MOTOR.** A grease designed for the lubrication of silicone insulated electric motors with heat stabilized ball and roller bearings and other specialized high temperature applications.*

**green.** Indicates, in the nomenclature of a SIGNAL, SMOKE, GROUND, several smoke pellets which produce freely falling streamers of green smoke at the height of the trajectory.

**green bag charge.** See: **charge green bag.**

**green labeled cargo.** See: **labeled cargo.**

**green parachute.** Indicates, in the nomenclature of a SIGNAL, SMOKE, GROUND, a single smoke pellet, parachute suspended, which produces a green smoke.

**Green Quail.** Popular name for an Air Force air-to-surface missile designed to confuse enemy radar.

**green star, cluster.** Indicates, in the nomenclature of a SIGNAL, ILLUMINATION, GROUND, a cluster of several freely falling green stars (lights).

**green star, parachute.** Indicates, in the nomenclature of a SIGNAL, ILLUMINATION, GROUND, a single green star (light), parachute supported.

**green tracer.** Indicates, in the nomenclature of a SIGNAL, ILLUMINATION, AIRCRAFT, a green tracer (light) preceding the ejection of displays of other types.

**Greenwich civil time.** (Z) Mean solar time at the zero meridian of Greenwich, England.

**Greenwich sidereal time.** Sidereal time measured with reference to the Greenwich meridian.

**grenade.** A small explosive or chemical missile, originally designed to be thrown by hand, but now also designed to be projected from special grenade launchers, usually fitted to rifles or carbines. Grenades may be classified in a broad sense as GRENADE, HAND and GRENADE, RIFLE. Many varieties and variations of these have been used, including a number of improvised ones. Some of the principal types and designations used in recent years are identified in the entries which follow.

**grenade, antipersonnel.** General term for any GRENADE, HAND or GRENADE, RIFLE, designed primarily for casualty effect against personnel. Usually refers to a **grenade, fragmentation** (which see).

**grenade, antitank.** A GRENADE, RIFLE designed to be used against tanks or other armored vehicles.

**grenade, chemical.** General term for any GRENADE, HAND or GRENADE, RIFLE charged with a **chemical agent** (which see).

**grenade, chemical, burning type.** General term for any **grenade, chemical** (which see) which releases its agent by a burning action. Contrasted with a **grenade, chemical, bursting type** (which see).

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**grenade, concussion.** See: **grenade, offensive.**

**grenade, defensive.** See: **grenade, fragmentation.**

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**ground position indicator.** (GPI) A special computer continuously indicating the actual position of the aircraft with reference to some fixed point on the ground.

Radar measurements, compass, airspeed indicator, and altimeter are used in making the computations.

**ground projector.** See: **PROJECTOR, SIGNAL, GROUND.**

**ground return.** Indication on a radar indicator screen caused by radio waves being reflected back by the surface of the ground. See **radar clutter.**

**ground signal.** Pyrotechnic signal intended to be fired from a position at ground level.

**ground signal projector.** See **PROJECTOR, SIGNAL, GROUND.**

**groundspeed.** (GS) Speed of an aircraft, missile or aerial target in reference to the ground. It is the airspeed plus or minus the effect of the wind. Cf. **airspeed.**

**ground strafing.** Attack upon ground troops by low-flying aircraft using bombs, machine guns, and cannon.

**ground support equipment.** (GSE) That part of a military weapon system which includes all the ground equipment required for test, operation, storage, and maintenance.

**ground surveillance radar.** A radar set operated at a fixed point for observation and control of the position of aircraft or other vehicles in the vicinity.

**ground wave.** A radio wave that travels along, or near, the ground. Distinguished from a sky wave.

A ground wave is made up of two component waves: a space wave and a surface wave.

**ground zero.** (GZ) The point on the earth's surface at which, above which, or below which, an atomic detonation has actually occurred.

**group.** (gp) 1. in telemetering, designates a number of subcarrier oscillators. 2. See: **bullet group.** 3. A collection of units, assemblies, or subassemblies, which is a subdivision of a set or system, but which is not capable of performing a complete operational function.

**grouser.** One of a number of projections on a tractor or tank track or automobile wheel to increase traction.

**growth factor.** *Ballistic missiles.* The additional weight of fuel and structural material required by the addition of one pound of payload to the original payload.

**GS** *(abbr)* 'Ground speed.'

**G-scope.** A modification of the F-scope, in which the bright spot of the signal shows 'wings' as the distance to the target diminishes.

**G-series.** See: **G-agent.**

**guard ammunition.** Ammunition specifically designed for use by guards. It usually contains a reduced propelling charge.

**GUARD, HAND, GUN.** An item made of wood or plastic usually designed with a semicircular groove to fit over the top of the barrel of a carbine or rifle and attached by metal fastening devices. It is shaped to fit the hand and to protect it during firing. Excludes FORE END, GUN.*

**GUARD, TRIGGER.** A protective device consisting of a curved framework, usually of metal, on a gun or LAUNCHER, ROCKET within which a TRIGGER is located.*

**guerrilla warfare.** Operations carried on by independent or semi-independent forces in the rear of the enemy. These operations usually are conducted by irregular forces acting either separately from, or in conjunction with, regular forces but may at times be conducted entirely with regular troops. The objective of these operations is to harass, delay, and disrupt the military operations of the enemy, possibly leading to civil war, and they normally are characterized by the extensive use of unorthodox tactics, passive resistance, espionage, sabotage, diversion, assassination, and propaganda.

**guidance** (gīdnce) *Missiles.* The entire process of intelligence and of maneuver intended for reaching a specified destination, with special connotation on the flight path and on the information for determining the proper course.

**guidance, beam rider.** See: **beam-rider guidance.**

**guidance, celestial navigation.** Navigation by means of observations of celestial bodies. A system wherein a missile, suitably instrumented and containing all necessary guidance equipment, may follow a predetermined course in space with reference primarily to the relative positions of the missile and certain preselected celestial bodies.

**guidance, command.** See: **command guidance.**

**GUIDANCE CONTROL GROUP.** A group which develops corrective guidance command signals to an item, such as aircraft or guided missile in flight by use of wire, radio, or radar techniques.*

**guidance, homing.** See: **homing guidance.**

**guidance, homing, active.** A system of homing guidance wherein both the source for illuminating the target and the receiver are carried within the missile.

**guidance, homing, passive.** A system of homing guidance wherein the receiver in the missile utilizes natural radiations from the target.

**guidance, homing, semiactive.** A system of homing guidance wherein the receiver in the missile utilizes radiations from the target which has been illuminated from a source other than in the missile.

**guidance, inertial.** See: **inertial guidance.**

**guidance, midcourse.** The guidance applied to a missile between the termination of the launching phase and the start of the terminal phase of guidance.

**guidance, preset.** See: **preset guidance.**

**guidance, radio navigation.** A form of guidance in which the path of the missile is determined by a time measurement of radio signals.

**guidance, stellar.** See: **navigation, celestial.**

**guidance system.** Concerning missiles, that system which performs data analysis, processes intelligence, and issues the necessary commands enabling a guided missile to reach a specified destination, with special emphasis on the flight path or orbit and on the information for determining the proper course whether computed externally or within the missile itself.

**guidance, terminal.** The guidance applied to a missile between the termination of the midcourse guidance and impact with, or detonation in close proximity to the target.

**guidance, terrestrial reference.** A technique of missile control wherein the predetermined path set into the control system of a missile can be followed by a device in the missile which reacts to some property of the earth, such as magnetic or gravitational effects.

**guided.** Of missiles, aircraft, tanks, etc.: Controlled or controllable as to direction by preset mechanisms, radio commands, or built-in self-reacting devices. Cf: **unguided.**

**guided aircraft missile.** A guided missile launched, or designed for launching, from an aircraft.

**guided aircraft rocket.** (GAR) A rocket-powered guided missile designed to be launched from an aircraft in flight.

**guided bomb.** See: **bomb, guided.**

**guided missile.** (GM) An unmanned self-propelled vehicle, with or without a warhead, designed to move in a trajectory or flight path all or partially above the earth's surface and whose trajectory or course, while in flight, is capable of being controlled remotely, or by homing systems, or by inertial and/or programmed guidance from within. Excludes drones, torpedoes, and rockets and other vehicles whose trajectory or course cannot be controlled while in flight.* Guided missiles may be air-to-air (AAM), air-to-surface (ASM), air-to-underwater (AUM), surface-to-air (SAM), suface-to surface (SSM), surface-to-underwater (SUM), underwater-to-air (UAM), underwater-to-surface (USM), and underwater-to-underwater (UUM).

**guided missile air accumulator.** See: **ACCUMULATOR, PNEUMATIC.**

**guided missile air servicer.** See: **AIR SERVICER, GUIDED MISSILE, TRUCK MOUNTED.**

**GUIDED MISSILE, ANTITANK.** An antitank missile whose flight path is controlled by a combination of optical sighting and command signals from an automatic computer through multiple wire command links. It may also contain an infrared homing device for final range correction. It is designed to be launched from any type vehicle or ground emplacement. Excludes items whose trajectory cannot be altered in flight.*

**guided missile assault fire command console.** See: **CONSOLE, ASSAULT FIRE COMMAND, GUIDED MISSILE.**

**GUIDED MISSILE BATTERY SERVICING SHOP, TRAILER MOUNTED.** A mobile unit which contains necessary equipment required to activate and test missile batteries at a missile firing site. Includes equipment, such as battery servicing console, battery charger(s), test equipment, and miscellaneous battery servicing accessories. Provides work space and may contain heating, ventilating, and air conditioning unit(s).*

**guided missile body aft section.** See: **BODY SECTION, GUIDED MISSILE.**

**guided missile body center section.** See: **BODY SECTION, GUIDED MISSILE.**

**guided missile body fore section.** See: **BODY SECTION, GUIDED MISSILE.**

**guided missile computer group.** See: **COMPUTER GROUP, GUIDED MISSILE.**

**guided missile control.** The guidance or direction exercised over a guided missile during its flight to a target.

See: **atmospheric control; command guidance; inertial guidance; nonatmospheric control.**

**guided missile control group, trailer mounted.** See: **GUIDANCE CONTROL GROUP.**

**GUIDED MISSILE, DECOY.** A guided missile specifically designed to provide characteristics for leading another missile(s) from the intended target(s).*

**guided missile director-computer group.** See: **DIRECTOR-COMPUTER GROUP, GUIDED MISSILE.**

**guided missile director station group.** See: **DIRECTOR STATION GROUP, GUIDED MISSILE.**

**guided missile director station trailer.** See: **TRAILER, GUIDED MISSILE DIRECTOR STATION.**

**guided missile director station, trailer mounted.** See: **DIRECTOR STATION, GUIDED MISSILE, TRAILER MOUNTED.**

**guided missile erector.** See: **ERECTOR, GUIDED MISSILE, SELF-PROPELLED.**

**guided missile field maintenance shop.** See: **SHOP EQUIPMENT, GUIDED MISSILE, SEMITRAILER MOUNTED.**

**guided missile fin.** See: **FIN, GUIDED MISSILE.**

**guided missile fin position indicator.** See: **INDICATOR, FIN POSITION.**

**uided missile fin protractor.** See: **PROTRACTOR, FIN POSITION.**

**guided missile firing panel.** See: **PANEL, FIRING, GUIDED MISSILE.**

**guided missile firing truck.** See: **FIRING STATION, GUIDED MISSILE.**

**guided missile flare.** See: **FLARE, GUIDED MISSILE.**

**guided missile flight simulator.** See: **SIMULATOR, GUIDED MISSILE FLIGHT.**

**guided missile fueling apron.** See: **APRON, FUELING, GUIDED MISSILE.**

**guided missile fuel manifold.** See: **MANIFOLD, FUEL, GUIDED MISSILE.**

**guided missile hoisting beam.** See: **BEAM, HOISTING, GUIDED MISSILE.**

**guided missile launcher, helical rail.** See: **LAUNCHER, HELICAL RAIL, GUIDED MISSILE.**

**guided missile launching and handling rail.** See: **RAIL, LAUNCHING-HANDLING, GUIDED MISSILE.**

**guided missile launching control station trailer.** See: **TRAILER, GUIDED MISSILE LAUNCHING CONTROL STATION.**

**guided missile launching shoe.** See: **LAUNCHING SHOE, MISSILE-ROCKET.**

**guided missile magnetic discriminator.** See: **DISCRIMINATOR, MAGNETIC, GUIDED MISSILE.**

**GUIDED MISSILE MAIN ASSEMBLAGE.** An item usually consisting of one or more BODY SECTION, GUIDED MISSILE; a CONTROL SURFACES KIT, GUIDED MISSILE; ROCKET ENGINE

and/or ROCKET MOTOR or the like. The assembled items, when attached to a guided missile nose section and WARHEAD (as modified), form a complete guided missile.*

**guided missile monorail launcher.** See **LAUNCHER, MONORAIL, GUIDED MISSILE.**

**guided missile optical tracker.** See: **TRACKER, OPTICAL.**

**guided missile oxidizer.** See **PROPELLANT, NITRIC ACID.**

**guided missile platform launcher.** See: **LAUNCHER, PLATFORM, GUIDED MISSILE.**

**guided missile portable hoisting unit.** See **HOISTING UNIT, PORTABLE, GUIDED MISSILE.**

**guided missile propellant draining kit.** See: **PROPELLANT DRAINING KIT, GUIDED MISSILE.**

**guided missile propellant filling kit.** See: **PROPELLANT FILLING KIT, GUIDED MISSILE.**

**guided missile propellant servicing truck.** See: **TRUCK, PROPELLANT SERVICING, GUIDED MISSILE.**

**guided missile propellant shutoff.** See **PROPELLANT SHUTOFF, GUIDED MISSILE.**

**GUIDED MISSILE, RECONNAISSANCE.** A guided missile specifically designed for passive observations of geographical, electronic, and/or physical phenomena.*

**guided missile remote control system organizational maintenance test equipment.** See: **TEST EQUIPMENT, GUIDED MISSILE REMOTE CONTROL SYSTEM, ORGANIZATIONAL MAINTENANCE.**

**guided missile servicing platform.** See: **SERVICING PLATFORM, TRUCK MOUNTED.**

**guided missile solid propellant.** See: **PROPELLANT GRAIN.**

**GUIDED MISSILE, TARGET.** A guided missile specifically designed for use as a target during weapons system evaluation and operational readiness tests.*

**guided missile test set.** See: **TEST SET, GUIDED MISSILE.**

**guided missile test station.** See: **TEST STATION, GUIDED MISSILE, TRUCK MOUNTED.**

**guided missile tie down kit.** See: **TIE DOWN KIT, GUIDED MISSILE.**

**guided missile tracker.** See: **TRACKER, ANGULAR, GUIDED MISSILE.**

**guided missile tracking station.** See: **TRACKING STATION GROUP, GUIDED MISSILE.**

**guided missile tracking station, trailer mounted.** See: **TRACKING STATION, GUIDED MISSILE, TRAILER MOUNTED.**

**guided missile trailer.** See: **TRAILER, GUIDED MISSILE.**

**GUIDED MISSILE, TRAINING.** A guided missile used exclusively for training purposes.*

**GUIDED MISSILE, TRANSPORT.** A guided missile specifically designed for carrying materiel and/or personnel.*

**guided missile warhead trailer.** See: **TRAILER, WARHEAD, GUIDED MISSILE.**

**guided missile zero length launcher.** See: **LAUNCHER, ZERO LENGTH, GUIDED MISSILE.**

**guided rocket.** A guided missile having rocket propulsion.

**Gulf Ordnance Plant.** Ordnance Corps field installation, located at Aberdeen, Mississippi.

**gun.** 1. *General.* A piece of ordnance consisting essentially of a tube or barrel, for throwing projectiles by force, usually the force of an explosive, but sometimes that of compressed gas, spring, etc. The general term embraces such weapons as are sometimes specifically designated as **gun; howitzer; mortar; cannon; firearm; rifle; shotgun; carbine; pistol;** revolver. (See separate entries.) 2. *Specif.* A *gun* (sense 1) with relatively long barrel, usually over 30 calibers, with relatively high initial velocity, and capable of being fired at low angles of elevation. 3. A discharge of a cannon in a salute, as a signal, or the like, as a salute of seventeen *guns;* the evening *gun.* 4. To fire upon with guns. 5. To advance the throttle or apply full power to an engine or motor.

**gun, antiaircraft.** A gun especially designed for use against aircraft, easily shifted in direction and elevation, having great range, and capable of firing at high angles of elevation.

**GUN, ANTIAIRCRAFT ARTILLERY, SELF-PROPELLED.** A complete projectile-firing weapon mounted on a self-propelled vehicle. It is designed for use as a mobile antiaircraft weapon.*

**GUN, ANTIAIRCRAFT ARTILLERY, TOWED.** A complete projectile-firing weapon designed to fire on and destroy enemy aircraft. It does not have facilities for self-propulsion.*

**gun, antitank.** A gun designed or suitable for use against tanks or other armored vehicles.

**GUN, ANTITANK, SELF-PROPELLED.** A complete projectile-firing weapon mounted on a self-propelled vehicle. It is designed for use against tanks or other armored vehicles.*

**GUN, ANTITANK, TOWED.** A complete projectile-firing weapon designed for use against tanks or other armored vehicles. It does not have facilities for self-propulsion.*

**gun, automatic, 20 millimeter.** See: **machine gun.**

**gun, automatic, 30 millimeter.** See: **machine gun.**

**gun barrel guidance.** See: **beam-rider guidance.**

**gun-bomb-rocket sight.** A computing sight used in a fighter aircraft in which different data may be set for use in aiming gunfire, bombs, or rockets.

**gun book.** Log that records the history of the operations and inspections of a particular gun.

**gunbore line.** The extended bore axis of a gun.

**gunbreech.** The rear end of a cannon from the front slope back to the rear face, exclusive of the breech mechanism. In this metal are formed the seat for the breech mechanism, the powder chamber, and the slopes connecting the latter with the rifled portion of the bore.

**gun camera.** 1. A camera used in gunnery training that records the image of the target at which it is aimed on a strip of motion-picture film. 2. A camera synchronized to a gun to record the results of firing. The film in a gun camera reveals if the camera was

correctly sighted on the target. Gun cameras used in flexible gunnery training may have the outward appearance of a machine gun.

**gun carriage.** Mobile or fixed support for a gun. It sometimes includes the elevating and traversing mechanisms. Sometimes called carriage.

**gun charger.** A mechanism on a gun that operates to retract the breech mechanism or bolt to the rear and to insert a charge into the chamber. Often shortened 'charger.'

On a machine gun, the charger retracts the breech mechanism to the rear of the receiver, lining up a round with the barrel and allowing the breech mechanism to move forward to chamber the round.

A gun charger may be operated manually or by other means. See: **automatic gun charger; charging cable; pneumatic gun charger.**

**guncotton.** Nitrocellulose of high nitration (13.35 to 13.4 percent nitrogen); nitrocotton. Explosive made by treating cotton with nitric and sulfuric acids. Guncotton is used principally in the manufacture of single base and double base propellants.

**gun cover.** Fabric cover, usually of canvas, to protect gun and sometimes carriage, from rain, dust and the like.

**gun-directing radar.** Radar used to direct antiaircraft artillery or similar fire.

**gun displacement.** 1. Distance from a gun to the directing point or the base piece of a battery. 2. Movement of a gun to a new firing position.

**gun emplacement.** Firing location of a gun together with necessary installations, such as camouflage, ammunition supply, etc.

**GUN, FIELD ARTILLERY, SELF-PROPELLED.** A complete projectile-firing weapon mounted on a self-propelled vehicle. It is designed for use as a mobile artillery weapon.*

**GUN, FIELD ARTILLERY, TOWED.** A complete projectile-firing weapon mounted on a carriage and mobile enough to accompany infantry or armored units in the field. It is used for long-range fire or for the delivery of fire requiring a flat trajectory and high velocity. It does not have facilities for self-propulsion.*

**gunfire.** Use of artillery, rifles, and small arms as distinguished from the use of bayonets, swords, torpedoes, and bombs.

**gun flash.** Muzzle flash.

**gun group.** Major parts of a gun, considered as a unit distinct from its mount.

**GUN, HEAVY, MOTORIZED.** A mobile, long-range, artillery weapon of the double recoil type, capable of firing conventional type ammunition. It consists of a cannon, gun carriage, primary recoil mechanism, secondary recoil mechanism, projectile hand cart, a front, heavy gun-lifting truck, and rear, heavy gun-lifting truck.*

**gun hoist.** Device placed near the breech of a gun for lifting propellant and projectiles.

**gun, 8 inch.** See: **GUN, FIELD ARTILLERY, TOWED.**

**gun jack.** A jack for forcing a tube of a gun out of battery.

**gun junction box.** Container for the connections of the wires and cables from the data transmission system, the power systems, indicators, etc., on an individual gun.

**gun launcher.** A gun adapted to launching guided missiles or rockets.

**gun laying.** The action of aiming a gun.

**gun-laying radar.** Any radar equipment specifically designed for determining range, azimuth, and elevation of a target for purposes of fire direction.

**gun lifting truck.** See: **TRUCK, GUN LIFTING.**

**gun line.** *Aircraft.* For a single aricraft gun, the axis of the bore extended. For multiple guns, it is the mean gun line.

**gun, line throwing.** See: **LINE THROWING DEVICE.**

**gun, machine, caliber .30.** See: **machine gun.**

**gun, machine, caliber .50.** See: **machine gun.**

**gun mantlet.** See: **mantlet.**

**gun, 90 mm.** See: **GUN, ANTIAIRCRAFT ARTILLERY, TOWED.**

**gun, 120 mm.** See: **GUN, ANTIAIRCRAFT ARTILLERY, TOWED.**

**gun, 155 mm.** See: **GUN, FIELD ARTILLERY, TOWED.**

**gun motor carriage.** See: **carriage.**

**gunner's quadrant.** See: **QUADRANT, FIRE CONTROL.**

**gunnery.** The art or practice of using machine guns or cannon either on the ground or in the air.

**gun parallax.** The difference in azimuth between the line from the directing point to the target and the line from the gun to the target. Cf: **parallax.**

**gun pointing data.** See: **firing data.**

**gun powder.** See: **black powder.**

**gun pressures.** See: **pressures, gun.**

**gun pull, critical.** The maximum pulling force in pounds developed by the gun feeder mechanism during satisfactory operation of automatic guns.

**gun rack.** See: **arms rack.**

**gun rail.** Track for machine gun carriage mounts that extends around the body of a scout car or a similar open, armored vehicle.

**gun reaction (counterrecoil).** The force exerted on the gun mount or mounts by the impact of the moving parts returning to battery or beyond.

**gun reaction (recoil).** The force exerted on the gun mount or mounts by the rearward movement of the gun resulting from the forward motion of the projectile and hot gases.

**gun, recoilless.** A smooth bore, open breech, launcher type artillery weapon constructed of light weight metals and employing a muzzle inserted propellant. It is designed with a firing mechanism activated electrically or mechanically by remote control. Excludes LAUNCHER, ROCKET.*

**GUN, RECOILLESS, 120 MILLIMETER.** A recoilless gun designed for firing from a tripod ground mount or from a mount on a self-propelled vehicle.*

**GUN, RECOILLESS, 155 MILLIMETER.** A recoilless gun designed for firing from a mount on a self-propelled vehicle.*

**gun, self-propelled.** See: **mount, self-propelled.**

**gun, self-propelled, full tracked.** See: **GUN, ANTIAIRCRAFT ARTILLERY, SELF-PROPELLED; GUN, ANTITANK, SELF-PROPELLED** and **GUN, FIELD ARTILLERY, SELF-PROPELLED.**

**gun, self-propelled, half tracked.** See: **GUN, ANTIAIRCRAFT ARTILLERY, SELF-PROPELLED; GUN, ANTITANK, SELF-PROPELLED** and **GUN, FIELD ARTILLERY, SELF-PROPELLED.**

**gun shield.** See: **shield** (sense 1).

**gun sight.** See: **SIGHT, LEAD COMPUTING, AUTOMATIC.**

**gunsight computer.** That component of a computing gunsight that calculates for variables in gunnery and computes a prediction angle.

**gun slide.** 1. Portion of a gun which rests on the cradle guides. 2. Part of a plotting and relocating board mechanism.

**gun sling.** See: **SLING, SMALL ARMS.**

**gun stock.** See: **STOCK, GUN, SHOULDER.**

**gun stoppage.** The accidental stopping of fire in a gun, caused by the faulty action of the gun or of the ammunition; stoppage.

**gun, submachine.** See: **submachine gun.**

**gun, submachine, caliber .45.** See: **machine gun.**

**gun-target line.** Imaginary straight line from a gun to a target.

**gun, tire repair.** See: **TIRE GUN, PUNCTURE REPAIR.**

**gun tube.** See: **tube.**

**gun-type weapon (gun-assembly weapon).** *Nuclear.* A nuclear weapon in which the assembly of two subcritical masses of fissionable material produces a super-critical mass, resulting in a nuclear explosion.

**gun wave.** See: **muzzle wave.**

**Gurney constant.** A factor for use in *Gurney formulas,* which is constant for each explosive, but which varies with different explosives. It is expressed in feet per second. See: **Gurney formulas.**

**Gurney formulas.** A series of formulas proposed by R. W. *Gurney* (a British physicist who worked at BRL during WW II) for determining initial fragment velocity as a function of the type of explosive and the ratio of explosive charge to metal weight. Each formula corresponds to a particular shape of container.

**gutter.** Portion of an inner liner of a jet engine which is grooved for better operation.

**gymnasticating.** Process of artificially exercising a recoil mechanism by mechanical means. Prevents undue deterioration in storage. See also: **gymnasticator.**

**gymnasticator.** Machine for artificially exercising recoil mechanisms by mechanical means, i.e., **gymnasticating,** which see. Permits exercise of recoil mechanisms without removing from storage. See also: **EXERCISER, RECOIL MECHANISM.**

**gyro.** 1. Short for 'gyroscope,' or 'gyroscopic.' Used in numerous combinations, as in *gyrocompass, gyro gunsight, gyro horizon,* and *gyro instrument.* 2. Also short for 'gyrocompass,' 'gyro horizon,' etc.

**gyrocompass.** See: **COMPASS, GYRO.**

**gyroscope.** A device which utilizes the properties of a spinning mass to remain fixed in space. The spinning mass (rotor) is supported in a **gimbal(s)** such that the outer structure has rotational freedom about one or more axes perpendicular to each other and to the axis of spin. The direction of the spin axis in space can be altered by applying a force about an axis (torque) perpendicular to both the spin axis and the axis about which the change in direction (precession) is desired. The 'space' herein referred to is that reference frame within which Newtonian physics applies, sometimes referred to as 'inertial space.'

**gyroscope, directional.** 1. A flight instrument employing a gyroscope which holds its position and indicates deviation from the desired heading. 2. A gyroscope in an autopilot or bombsight mechanism that provides directional stability.

**GYROSCOPE, DISPLACEMENT.** A gyroscope which senses, measures and transmits angular displacement data.*

**gyroscope, free.** A gyro mounted without any external means provided to control or affect its normal precession.

**GYROSCOPE, INTEGRATING.** A gyroscope which senses the rate of angular displacement and measures and transmits the time integral of this rate.*

**GYROSCOPE, RATE.** A gyroscope which senses, measures, and transmits rate of angular displacement data.*

**gyroscopic horizon.** A gyroscopic instrument that indicates the lateral and longitudinal attitude of the airplane by simulating the natural horizon.

**gyro sight.** A sight which employs a gyroscope.

**gyrostabiliser.** Mechanism which stabilizes the vertical motion of a tank gun, regardless of the pitching motion of the tank while moving.

**Gyrosyn.** In full, **Gyrosyn compass.** A trademark for a compass that consists of a directional gyro synchronized with the horizontal component of the earth's magnetic field by means of a flux gate.

The flux gate detects the direction of the lines of force and transmits the information electrically to a precession device. Repeaters are a part of the Gyrosyn or Gyrosyn system.

**GZ** *(abbr).* 'Ground zero.'

# H

**H** *(abbr)*. Chemical agent, 'mustard gas' (war gas).

**Haber process.** The production of synthetic ammonia by the combination of pure gaseous nitrogen and hydrogen, effected under pressure and high temperature in the presence of a suitable catalyst. (Other processes employed for synthesis of ammonia are modifications of the Haber process.)

**Haleite.** (EDNA) High explosive, ethylenedinitramine or EDNA. A white crystalline compound. It was named for its developer, Dr. G. C. Hale of Picatinny Arsenal. It has been found suitable for use as a bursting charge explosive and as an ingredient of the binary explosive **ednatol** (which see).

**half-adder.** *Electronic computers.* A circuit having two input and two output channels for binary signals (0, 1) and in which the output signals are related to the imput signals.

**halfcock.** To set the hammer of a small arm weapon at the **half cock.**

**half cock.** Position of the hammer of a small arm weapon when it is held by the first cocking notch, with the trigger locked and the weapon relatively safe. Cf: **halfcock.**

**halflife.** The length of time required for a radioactive isotope to decay to half its initial radioactive value, i.e., to lose half of the radioactive particles present through disintegration, its atoms being converted into stable atoms.

The halflife of different radioisotopes varies. For example, $C^{11}$ has a halflife of 21 minutes, $C^{14}$ has a halflife of 5,400 years. A substance that has had three halflife periods has one-eighth of its radioactivity remaining.

**half-loaded.** In automatic arms, the belt or magazine inserted and receiver charged, but without the first cartridge actually in the chamber.

**half thickness.** Thickness of absorbing material necessary to reduce by one-half the intensity of radiation which passes through it.

**half-track vehicle.** Combination wheeled and track-laying vehicle in which the rear end is supported by a complete band track and the front end is supported on wheels; halftrack.

**half-weight.** In the analysis of fragmentation results from projectiles or other munitions, that weight of fragment which divides the total fragments into two groups of equal weight, one group including all fragments heavier than the half-weight fragment, and the second group including all those which are lighter.

**halving.** Division of the field of view, observed from a coincidence type range finder, into two equal portions, one the exact mirror image of the other.

**halving adjustment.** Adjustment of the coincidence type range finder so that the two sections of the field of view, divided by the **halving line**, are exact mirror images of each other.

**halving line.** The line which divides the two half images in a coincidence type range finder. The two halves of the images produced by the two objectives of the instrument must be brought to a point where they match or coincide above and below the halving line.

**hammer.** See: **HAMMER, FIRING, SMALL ARMS.**

**HAMMER, FIRING, SMALL ARMS.** A metallic pivoted item, part of the firing mechanism of a firearm, designed to strike a firing pin or percussion cap and fire a gun.*

**hammer gun.** Gun with an outside, visible hammer.

**hammerless gun.** Gun with a wholly inclosed hammer and firing mechanism.

**hammer pin.** Pin that holds the hammer in its correct operating position in a gun, and upon which the hammer turns.

**hand arm.** See: **hand weapon.**

**hand grenade.** See: **GRENADE, HAND.**

**hand grenade simulator.** See: **SIMULATOR, HAND GRENADE.**

**handguard.** See: **GUARD, HAND, GUN.**

**hand held.** Indicates, in the nomenclature of SIGNAL, ILLUMINATION, GROUND and SIGNAL, SMOKE, GROUND, a rocket propelled, fin stabilized signal that has the launching mechanism integral with the signal.

**handle, breech operating.** Handle used for opening and closing the breech.

**HANDLE, FUZE SETTER, UNIVERSAL.** A device having a manually operated universal drive handle, with micrometer adjustment for vernier setting of a time fuze. It is designed to accommodate interchangeable styles of a SOCKET, FUZE SETTER, and has an integral instrument light to illuminate the fuze scale. See also: **FUZE SETTER.***

**handling unit, rocket, trailer mounted.** An item consisting of a supporting frame, a jib-type crane connected to a hydraulic column, chain hoist(s), and a chain traversing mechanism. It is a supporting member of a rocket during transport and is specifically designed to transfer a rocket to a launcher.*

**hand-operating device.** Mechanism on certain automatic firing weapons that permits the piece to be prepared by hand for firing.

**HAND PROTECTOR, SHOOTING.** A covering for the hand extending to an open gauntlet type wrist and having a flange-like protector for the inside of the thumb. A narrow strap separates the index finger from the remaining fingers. Both back and palm are padded.*

**hand rammed.** As part of cartridge nomenclature, indicates that the cartridge is intended to be rammed into the gun by hand rather than by power.

**handspike.** Handle attached to the trails of certain pieces for ease in handling.

**hand weapon.** A weapon, such as a pistol, knife, or sword, used by one hand; hand arm.

Distinguished esp. from a **shoulder weapon,** in regard to firearms.

**HANDWHEEL.** An item having a major diameter of 3 or more inches (other than items having spoked or simulated spoked construction, which may be under 3 inches) designed to be gripped by the hand to transmit rotary motion to other devices through a center axis, fabricated in the form of a solid body with simulated spokes or a recessed surface between the rim and the hub, or it may be built up in the form of a frame having a central hub connected to the rim by the spokes. It may have reference markings in the form of dots, arrows, hairline, etc., to indicate the relative position and/or direction of rotation of the item(s) with which it is used. It may also include an integral ratchet device. For similar items having a maximum diameter of less than 3 inches, see: **KNOB.**

**hang.** To lock the receiver or bolt of a gun in an open position.

**HANGER, UNDERWATER MINE.** A metallic item attached to an underwater mine case for the purpose of supporting an underwater mine anchor.

**hangfire.** A brief undesired delay in the functioning of an ammunition item after initiating action is taken. Usually refers to delay in ignition of a propelling charge. Cf: **misfire.** See also: **fire** (sense 1).

**hangfire device.** In ammunition testing, a device for measuring the time between the initiation of the firing cycle and the transit of the bullet through the recording device.

**hangfire test.** Test to determine uniformity and promptness of fire of a type of ammunition.

**hangwire.** Length of wire connecting the fuze assembly of an aerial flare or bomb to the structure of an aircraft. The wire removes the safety and arms the fuze after the flare or bomb has fallen the wire's length from the aircraft; in some flares it opens a parachute or stabilizing sleeve.

**harassing agent.** A **chemical agent** (which see), such as irritating gas or smoke, that forces troops to wear masks and so cuts down their efficiency. It produces irritating effects only.

**harassing fire.** Fire of less intensity than neutralization, designed to inflict losses, or, by the threat of losses, to disturb the rest of the enemy troops, to curtail movement, and in general, to lower morale.

**harassing gas.** See: **harassing agent.**

**hard.** A part of a beach with a specially-prepared hardened surface extending into the water, used for loading and unloading directly into or out of landing vessels.

**hardness.** 1. Resistance to deformations, indentations, penetrations, scratching and abrasion. An inverse quality to ductility. Several of the best known methods of measuring and recording hardness of materials are Brinell, Mohs, Rockwell, Shore, Vickers. See also: **Brinell hardness; Mohs hardness; Rockwell hardness; Shore scleroscope hardness; Vickers hardness.** 2. A target's relative invulnerability to damage, particularly from a nuclear explosion.

**hardstand.** Any paved, compacted, or otherwise specially-prepared surface or area set up either for vehicles, or for storing supplies and equipment.

**harmonic.** A component having a frequency which is an integral multiple of the fundamental frequency. For example, a component, the frequency of which is three times the fundamental frequency, is called the third harmonic.

**harmonic conversion transducer.** A conversion transducer in which the useful output frequency is a multiple of the input frequency. See: **FREQUENCY DIVIDER.**

**harmonic distortion.** Nonlinear distortion characterized by the appearance in the output of harmonics other than the fundamental component when the input wave is sinusoidal.

**harmonic frequency.** *Physics.* A frequency which is an integral multiple of a **fundamental frequency.**

**harmonic series of sound.** *Electroacoustics.* One in which each basic frequency in the series is an integral multiple of a fundamental frequency.

**harmonization.** Adjustment of a gun in relation to its sights so that the curving path of its projectile meets the straight line of sight at the target.

**harmonize.** To align the sights of a gun so that the curving path of the projectile will meet the straight line of sight at the target; to adjust or align the gunsight, guns, rocket launchers, or gun camera of a fighter aircraft so that an accurate aim is obtained at a given range, or so that the guns will produce a desired pattern of fire. Hence, **harmonization.**
Cf: **bore sighting;** and see: **pattern harmonization; point harmonization.**

**hasty mine field.** Field of mines quickly laid as a protection against an enemy attack. When practicable it is laid in a definite pattern, as is a **deliberate field,** but measurements are approximate rather than exact.

**HAW** *(abbr).* 'Heavy antitank weapon.'

**Hawk.** Army surface-to-air missile for use against low flying planes. Conventional or nuclear warhead may be used. Employs solid fuel and radar homing.

**hawk guided missile assault fire command console.** See: **CONSOLE, ASSAULT FIRE COMMAND, GUIDED MISSILE.**

**hawk guided missile organizational maintenance remote control system test equipment.** See: **TEST EQUIPMENT, GUIDED MISSILE REMOTE CONTROL SYSTEM, ORGANIZATIONAL MAINTENANCE.**

**H-bomb.** See: **bomb, hydrogen.**

**HBX.** Several explosive compositions used primarily for blast effect, carrying distinguishing nomenclature, such as HBX-1, etc., differing in proportions and constituents, being essentially mixtures of TNT, RDX, and aluminum.

**HC** *(abbr).* Chemical agent, 'hexachloroethane' (smoke).

**HC mixture.** See: **CHEMICAL AGENT, HEXACHLOROETHANE MIXTURE.**

**HD** *(abbr).* Chemical agent, 'mustard, distilled' (war gas).

**HE** *(abbr).* 'High explosive.'

**HEAA** *(abbr).* 'High explosive antiaircraft.'

**head.** 1. See: **warhead.** 2. Flat circular part of the base of a cartridge case; the covering area surrounding the face of the primer pocket. 3. Small part that

holds the cylinder on its axis on the revolver. 4. *Electronic computers.* A device which reads, records or erases information in a storage medium, usually a small electromagnet used to read, write or erase information on a magnetic drum or tape or the set of perforating or reading fingers and block assembly for punching or reading holes in paper tape.

**HEAD ASSEMBLY, TANK PERISCOPE.** The top section of a PERISCOPE, TANK, consisting of an inclosure which contains one or more mirror(s), and/or prism(s), and a window. It is readily removable to facilitate replacement.*

**heading.** The angle measured clockwise from an aircraft, ship, or ground vehicle between a reference datum point such as true or magnetic north and the longitudinal axis of the aircraft, ship, or ground vehicle. The respective angles are true heading and magnetic heading.

**heading indicator.** See: **INDICATOR, HEADING.**

**headlight.** Indicates, in nomenclature of tracer ammunition, that the tracer produces a light which is visible from the front, as from an airplane which is under fire.

**HEAD, SOUND RECORDER.** An item which changes electrical impulses into magnetic variations in order to record sonic variations data on wire or tape.*

**HEAD, SOUND REPRODUCER.** An item which changes magnetic variations into electrical impulses for the reproduction of sonic variations from wire or tape.*

**headspace.** The distance between the face of the locked bolt or breechblock of a gun and some specified point in the chamber.

With guns designed for rimless, bottlenecked cartridges, headspace is the space between the bolt face and a specified point on the shoulder of the chamber; with guns using rimmed cartridges, the space between the bolt face and the ridge or abutment in the chamber against which the rim rests; and with guns using rimless straight-case cartridges, the space between the bolt face and the ridge or point in the chamber where the mouth of the cartridge case rests.

**headspace gage.** See: **gage, headspace.**

**headwind.** In gunnery or target practice, a wind which blows from the target to the observer; a 12 o'clock wind.

**HEAP** *(abbr).* 'High explosive armor-piercing.'

**HEAT, HE,AT.** (Often pronounced as a word.) Originally an abbreviation for 'high explosive antitank.' A term used to designate high explosive ammunition containing a shaped charge. See also: **charge, shaped.**

**heat balance.** A tabulation showing the percentages of the heat developed by combustion in the engine cylinder that are: (a) delivered in the form of power at the crankshaft, (b) lost in friction, (c) lost to the cooling water, (d) lost in the exhaust gases, and (e) lost by direct radiation.

**heat engine.** Any engine or motor that converts heat energy into mechanical energy or motion, as an internal combustion piston engine, jet engine, steam engine, or rocket engine.

**HEATER, AIR DUCT-COOLANT, ENGINE.** A heater designed to burn fuel which applies heat by means of air ducts and a direct connection to the engine coolant system to facilitate starting in low temperatures; may also supply heat to engine surfaces, battery, and the like; must have mounting facilities and be equipped with a blower(s) (fan). See also: **HEATER, AIR DUCT, ENGINE** and **HEATER, COOLANT, ENGINE.***

**HEATER, AIR DUCT, ENGINE.** A heater designed to burn fuel which applies heat through ducts to engine surfaces, battery and the like to facilitate starting in low temperatures. It is not connected to the engine coolant system; must have mounting facilities and be equipped with a blower(s) (fan). See also: **HEATER, AIR DUCT-COOLANT, ENGINE** and **HEATER, COOLANT, ENGINE.***

**HEATER, COOLANT, ENGINE.** A heater designed to burn fuel or utilize electric power which applies heat through direct connection to the engine coolant system to facilitate starting in low temperatures; may also supply heated coolant to heat exchangers. Must have mounting facilities. See also: **HEATER, AIR DUCT, ENGINE** and **HEATER, AIR DUCT-COOLANT, ENGINE.***

**heater, gun.** A heating device for low temperature gun operation.

**heat of combustion.** Heat evolved in the complete oxidation of a substance under standard conditions of pressure and temperature.

**heat of explosion.** Heat evolved in burning (exploding) a sample in a combustion bomb in an inert atmosphere under standard conditions of pressure and temperature. Products of explosion vary with the **oxygen balance** (which see) of the sample.

**heat of formation.** Heat evolved, or absorbed, when a compound is formed by combination of its elements. One of the important properties to be determined with regard to explosives.

**heat of reaction.** Heat evolved when a sample is burned in a combustion bomb in an atmosphere of helium or other inert gas. Products of this reaction are dependent on the **oxygen balance** (which see) of the sample.

**heat seeker.** A guided missile or the like incorporating a heat-sensitive device for homing on heat-radiating machines or installations, such as an aircraft engine or blast furnace. *Colloq.*

**heat sink.** A device which absorbs heat energy.

**HE,AT-T; HEAT-T** *(abbr).* 'High explosive antitank with tracer.' See: **HEAT.**

**heat tests.** Tests consisting of heating explosive materials to temperatures above normal atmospheric temperatures, conducted to determine whether the explosives are safe for storage and use under various climatic conditions. When conducted with propellants containing nitrocellulose the tests give an indication as to the useful life. Seven heat tests are recognized and used as follows: ***Bergmann-Junk test.*** A heat test conducted on a sample of nitrocellulose in which the amount of gas liberated over a given period of time is determined. Used to determine the satisfactoriness (stability) of nitrocellulose for use in propellants. ***Methyl violet test.*** A sample is heated in a glass tube containing a slip of methyl violet test paper. Observation is made of the time required for the test paper to become salmon pink in color, for evolution of $NO_2$ fumes, and for ex-

plosion to occur. Temperature used is 135°C for single base propellants, and 120°C for double base propellants. Time requirements have been established for individual propellants. (Used for finished propellant testing.) *100°C heat test.* A 0.6-gram sample is heated for two 48-hour periods at 100°C. At the end of each period the sample is examined for indication of volatility. (Used for high explosive testing.) *75°C international heat test.* A 10-gram sample is heated for 48 hours at 75°C and is then examined for indication of decomposition or volatility. (Used for high explosive testing.) *65.5°C surveillance test.* A sample is placed in a bottle, sealed, and then stored at 65.5°C until red fumes of nitrous oxide appear. The time to this event is recorded and compared with an established standard. (Used for finished propellant testing.) *Taliani test.* A heat test conducted on explosives at 110°C to determine the rate of evolution of gases of decomposition by observing the pressure in a constant volume over a fixed time, usually 100 minutes. Permissible values have been established for solid propellants. *Vacuum stability test.* A 5.0-gram dried sample (1.0-gram for primary explosives) is heated in a vacuum for 40 hours at 90°C, 100°C and/or 120°C. The evolution of gas at each temperature is recorded. (Used for high explosive and propellant testing.)

**heat, total.** See: **enthalpy.**

**heavier-than-air aircraft.** Any aircraft weighing more than the air it displaces; an aerodyne.

**heavy antiaircraft artillery.** Conventional antiaircraft artillery pieces larger than 90 mm, the weight of which in a trailed mount is greater than 40,000 pounds.

**heavy artillery.** *Specif.* Artillery, other than antiaircraft artillery, consisting of all howitzers and longer-barreled cannon of a caliber larger than those included in the classification of medium artillery.

**heavy bombardment.** 1. A bombardment of great intensity, esp. one with large aerial bombs or other missiles. 2. Short for 'heavy bombardment aviation.'

**heavy case bomb.** See: **bomb, heavy case.**

**heavy drop.** An airdrop in which heavy articles, such as trucks or artillery pieces, are dropped by parachute.

**heavy duty.** Constant duty, or duty under demanding or adverse conditions. Said esp. of equipment.

**heavy lift cargo.** See: **cargo classification.**

**heavy machine gun.** (HMG) 1. In Army usage, any machine gun of relatively heavy weight, including caliber .30 water-cooled machine guns and caliber .50 machine guns. 2. Any aircraft machine gun above caliber .30.

**heavy weapons.** All weapons such as mortars, howitzers, guns, heavy machine guns, and recoilless rifles, which are usually part of infantry equipment.

**hedgehog.** 1. a. A portable obstacle, made of crossed poles laced with barbed wire, in the general shape of an hour glass. b. A beach obstacle, usually made of steel bars, channel iron, or the like, imbedded in concrete and used to interfere with beach landings. 2. A concentration of troops securely entrenched or fortified, with arms and defenses facing all directions.

**hedgehog round.** A small, mortarlike, antisubmarine projectile. Called PROJECTOR CHARGE, HIGH EXPLOSIVE, 7.2 INCH.

**hedgehop.** *Slang.* 1. To fly close to the ground, rising up over hedges, trees, houses, or other obstacles as they present themselves. 2. In a less exact sense, to fly at a very low level. Hence, *hedgehopping.*

**hedgehopping bombing.** Bombing from a very low altitude. *Popular.*

**heel.** 1. Upper corner of the butt of a rifle stock held in firing position. 2. Of aircraft: To tilt sideways, as in a bank. Usually with *over.*

**HEI** *(abbr).* 'High explosive incendiary.'

**height finder.** A radar equipment, used to determine height of aerial targets.

**height of burst.** Vertical distance from the ground, or target, to the point of burst.

**height of image adjuster.** A glass plate with plane surfaces which is tipped one way or the other in the line of sight in one of the internal telescopes of a range or height finder. It deviates the light upward or downward to adjust the image of one eyepiece to the same height as the image visible in the other eyepiece.

**height of site.** Altitude of a gun above some standard level, such as sea level.

**height-range indicator.** See: **INDICATOR, HEIGHT-RANGE.**

**HEISD** *(abbr).* 'High explosive incendiary self-destroying.'

**HEI-T; HEIT** *(abbr).* 'High explosive incendiary with tracer.'

**HEITDISD** *(abbr).* 'High explosive incendiary with dark ignition tracer self-destroying.'

**HEITSD** *(abbr).* 'High explosive incendiary with self-destroying tracer.'

**HEL** *(abbr).* 'Human Engineering Laboratory.'

**helical scan; helical scanning.** The scanning motion of a radar antenna in which a point on the axis of the transmitted beam describes a distorted helix. The antenna rotates continuously about the vertical axis while the elevation angle changes slowly from the horizontal to the vertical.

**H engine.** An internal combustion, piston engine having two rows of vertically-opposed cylinders on each side of the engine, driving two separate crankshafts geared to a common central shaft.

**HEP** *(abbr).* 1. 'High explosive plastic.' 2. 'High explosive plastic projectiles.' 3. 'High explosive with plugged tracer cavity.' (Often pronounced as a word.)

**HEPAT** *(abbr).* 'High explosive plastic antitank.'

**HEP-T** *(abbr).* 'High explosive plastic with tracer.'

**Hermes.** Name applied to an Army developmental type surface-to-surface ballistic missile. (*Historical*)

**hermetic sealing.** The process of sealing an assembly or a unit in a container in such a manner that neither a gas nor a liquid can enter or escape without destroying the seal. See: **encapsulation.**

**HE-S** *(abbr).* 'High explosive with spotting charge.'

**HESD** *(abbr).* 'High explosive self-destroying.'

**HE-T** *(abbr).* 'High explosive with tracer.'

**HETDI** *(abbr).* 'High explosive with tracer, dark ignition.'

**heterodyne conversion transducer.** A conversion trans-

ducer in which the useful output frequency is the sum or difference of the input frequency and an integral multiple of the frequency of another wave.

**heterosphere.** See **atmospheric shells.**

**HETSD** *(abbr)*. 'High explosive with tracer, self-destroying.'

**hexachloroethane.** See: **CHEMICAL AGENT, HEXACHLOROETHANE MIXTURE.**

**hexanite.** A mixture of 60 percent TNT and 40 percent hexanitrodiphenylamine (hexite). Slightly superior to TNT in brisance and power. Called 'novit' by the Germans. See: **hexanitrodiphenylamine.**

**hexanitrodiphenylamine.** (hexite) A high explosive which is intermediate between tetryl and TNT in its properties. It may be made from benzene derivatives.

**hexite.** See: **hexanitrodiphenylamine.**

**HF** *(abbr)*. 'High frequency.'

**H-hour.** A term customarily used to refer to the hour at which some specified operation will begin, as an attack, amphibious assault, or movement.

**high-altitude bombing.** *Specif.* Bombing, esp. **horizontal bombing,** from a high altitude, such as from an altitude of over 15,000 feet.

**high-angle fire.** Gunfire from a weapon set at an elevation angle greater than that for maximum horizontal range. Typical of mortar and howitzer fire. See also: **plunging fire.**

**high-angle gun.** A cannon, such as an antiaircraft cannon, capable of firing at a high angle of elevation.

**high-angle strafing.** Strafing from an airplane at a comparatively high dive angle, e.g., of approximately forty-five degrees.

**high-burst ranging.** Adjustment of gunfire by observation of airbursts; air-burst ranging.

**high capacity bomb.** See: **bomb, high capacity.**

**high capacity projectile.** See: **projectile, high capacity.**

**high energy fuel.** See: **fuel, high energy.**

**high explosive.** (HE) An explosive which when used in its normal manner detonates, rather than deflagrating or burning; that is, the rate of advance of the reaction zone into the unreacted material exceeds the velocity of sound in the unreacted material. Whether an explosive reacts as a high explosive or as a low explosive depends on the manner in which it is initiated and confined. For example, a double base propellant when initiated in the usual manner is a low explosive. However, this material can be made to detonate if the propellant is initiated by an intense shock. Conversely, a high explosive like TNT, under certain conditions, can be ignited by flame and will burn without detonating. High explosives are divided into two classes: primary high explosives and secondary high explosives, according to their sensitivity to heat and shock. (*Note*: This division is not accepted by some authorities who maintain that high explosives and primary explosives are entirely separate entities.) See: **low explosive; primary high explosive; secondary high explosive.**

**high explosive antitank.** (HEAT or HE,AT) See: **HEAT.**

**high explosive bomb.** See: **bomb, high explosive.**

**high explosive cargo.** See: **cargo classification.**

**high explosive plastic.** (HEP) **1.** High explosive substance or mixture which, within normal ranges of atmospheric temperature, is capable of being molded into desired shapes; plastic explosive or PE. **2.** A type of antitank projectile which defeats armor by producing a spalling action on the side away from the point of impact. The original functioning concept for this projectile type involved plastic deformation of the bursting charge against the face of the armor plate prior to fuze action. See: **projectile, high explosive plastic.** See also: **squash head.**

**high explosive plastic antitank.** (HEPAT) Term designating a shaped charge and a high explosive plastic charge, intended to produce jet penetration followed by a detonated plastic charge. See also: **charge, shaped; high explosive plastic.**

**high explosive plastic projectile.** See: **projectile, high explosive plastic; squash head.**

**high explosive projectile.** See: **projectile, high explosive.**

**high frequency.** (HF) See: **frequency, electronic.**

**high-level bombing.** High-altitude bombing.

**high-octane fuel.** High-octane gasoline; i.e., gasoline having a high **octane number.**

**high-order detonation.** See: **detonation.**

**high-speed carry.** See: **carry.**

**high velocity.** (HV) As used in connection with artillery, small arms, and tank cannon, generally accepted to have the following meanings: **1.** Muzzle velocity of an artillery projectile of from 3000 feet per second to, but not including, 3500 feet per second. **2.** Velocity of small arms ammunition between 3500 and 5000 feet per second. **3.** Velocity of tank cannon projectile between 1550 and 3350 feet per second. Cf: **hypervelocity.**

**high velocity aircraft rocket.** (HVAR) Any large air-to-ground aircraft rocket specially designed for high velocities, esp. such a rocket (six feet in length) developed by the US during WW II. Nicknamed 'Holy Moses.' The HVAR was first used operationally in July 1944.

**high velocity drop.** The act or process of delivering supplies or equipment from aircraft in flight wherein the rate of descent is greater than that obtained utilizing conventional cargo parachute methods (low velocity drop), but less than terminal velocity (freedrop). The high velocity drop system consists of retarding means to limit the rate of descent, stabilizing means (usually combined with the retarding means) to orient the load to strike on a predetermined surface, and sufficient cushioning material to absorb the shock upon impact and preserve the load from damage. Cf: **freedrop; low velocity drop.**

**hinge moment.** The tendency of an aerodynamic force to produce motion about the hinge line of a control surface.

More technically, the hinge moment is the product of the aerodynamic force acting upon the center of pressure of a control surface and the perpendicular distance from the center of pressure to the hinge line.

**HIR** *(abbr)*. 'Hydrostatic arming impact firing rocket.'

**hi ranger.** See: **SERVICING PLATFORM, TRUCK MOUNTED.**

**Hiroshima bomb.** The atomic fission bomb dropped at Hiroshima, Japan, on 6 August 1945, the first atomic bomb to be used against an enemy.

**hit.** *Specif.* 1. A blow or impact on a target by a bullet, bomb, or other projectile. 2. An instance of striking something with a bomb, or the like, as in 'he had two hits and one miss.'

**hit probability.** The probability of hits being made on a target out of a given number of projectiles directed at the target.

**HL** *(abbr).* 'Mustard-lewisite' (war gas).

**HMC** *(abbr).* 'Howitzer motor carriage.'

**HMG** *(abbr).* 'Heavy machine gun.'

**HMX** *(abbr).* 'Cyclotetramethylenetetranitramine' (explosive).

**HN** *(abbr).* Chemical agent, 'nitrogen mustard gas' (war gas). Individual gases are abbreviated HN-1, HN-2, HN-3.

**HOISTING UNIT, BOMB, AIRCRAFT MOUNTING.** An item, consisting of a supporting frame, designed to mount on an aircraft for lifting bombs into place. It may include hoist or winch, sling(s) and/or hoisting adapters.*

**HOISTING UNIT, GUNSIGHT, AIRCRAFT MOUNTING.** An item, consisting of a supporting frame, designed to mount on an aircraft for installing and/or removing a gunsight. It may include hoist or winch, sling(s) and/or hoisting adapters.*

**HOISTING UNIT, PORTABLE, GUIDED MISSILE.** An item consisting of a supporting frame with integral hoist and/or winch. It may include sling(s) and/or hoisting adapter(s). Designed for joining and/or disconnecting guided missile body sections and rocket motors. Equipped with rubber tired wheels and removable steering handle.*

**HOISTING UNIT, PORTABLE, ROCKET.** An item consisting of a supporting frame, integral hoist or winch, sling(s) and hoisting beam(s). Designed for joining and/or disconnecting rocket motor units to warheads, and transferring the complete rocket from the TRUCK, ROCKET to the launcher. See also: **HOISTING UNIT, PORTABLE, GUIDED MISSILE.***

**holdback mechanism.** In automatic guns, a feature incorporated in chargers of either manual or automatic operation which provides for retention of a gun bolt in the 'out of battery' position.

**HOLDER, ADAPTER-BOOSTER, BOMB.** A ring shaped device designed to accommodate and position an ADAPTER-BOOSTER, BOMB in a bomb body.*

**HOLDER, BLASTING CAP.** A holder for a blasting cap for detonating an explosive charge.*

**HOLDER, CARTRIDGE, BELT.** A device to hold ammunition in individual loops or compartments, usually attached to the belt.*

**HOLDER, DESTRUCTOR.** A holder for an electrically detonated type of explosive cartridge used to destroy electronic equipment.*

**HOLDER, RADIAC DETECTOR.** An item specifically designed to accommodate and position a radiac detector. Designed so as to facilitate quick replacement of the item.*

**HOLDER, SEAR-TRIGGER SPRING.** A metallic item formed into a shape resembling the letter "U," used for insertion into two holes in the receiver assembly of a gun. It is designed to hold the trigger and sear spring in its correct operating position in a gun.*

**HOLDER, TELESCOPE MOUNT.** A mechanical device which supports and levels a sight unit and mount. It may include elevation adjustment and/or cant correction mechanism.*

**holding beam.** *Electronic computers.* A diffuse beam of electrons for regenerating the charges retained on the dielectric surface of an electrostatic memory or storage tube.

**HOLDING DEVICE, BREECH PLUG.** An item designed to hold a breech plug firmly in place and to prevent it from rotating during maintenance and/or inspection operations.*

**HOLDING TOOL, BREECHBLOCK.** A specially designed metallic item used to support the breechblock of an artillery weapon during assembly and disassembly.*

**HOLDING TOOL, PROJECTILE.** A hand tool specifically designed to facilitate the holding of a projectile in a fixed position during assembly and/or disassembly operations.*

**Holloman Air Development Center.** Air Force center for test and evaluation of missiles and target drones. Also concerned with space biology. Located at Holloman AFB, New Mexico.

**hollow charge.** A term sometimes used (especially in the United Kingdom) to designate a shaped charge. Term arose from the fact that the explosive charge is hollowed out. Where the hollowed out portion is conical in shape, the charge is sometimes called 'hollow cone charge.' Also called 'beehive' or 'beehive shaped charge.' See: **charge, shaped.**

**hollow cone charge.** A form of shaped charge. See: **hollow charge.**

**holster.** A pocket type device with a single compartment designed to be worn on a belt or shoulder harness which may be furnished with the item. It is used to carry a pistol, revolver, or the like.*

**Holston Ordnance Works.** Ordnance Corps field installation, located at Kingsport, Tennessee.

**Holy Moses.** See: **high velocity aircraft rocket.**

**home.** Of a guided missile or the like: To direct itself to its target by guiding on heat radiations, radar echoes, radio waves, or other phenomena proceeding from, or inhering in, the target.

**homer.** A guided missile that *homes.*

**homing.** 1. Of a missile: One that *homes.* 2. The action of the verb 'home.'

The homing of a missile may be active, semiactive, or passive. If active, the missile is both the originator and receiver of radar signals, and as such is subject both to detection and to jamming by window or tinsel. If semiactive, the missile uses a radar receiver to pick up the target from echoes of pulses sent out by a cooperating ground facility; in which case, the missile's guidance system is subject to jamming but not readily to detection. If passive, the missile depends only on radiation from the target, such as noise, infrared rays, or electrostatic dis-

charge; in which case the missile's guiding system is more or less resistant to detection.

**homing device.** 1. Any transmitter, receiver, or adapter used for homing aircraft, or used by aircraft for homing purposes; a homer. 2. Any device incorporated in a guided missile or the like to home it on a target.

In sense 2, such a device utilizes light waves, radio waves, heat waves, etc. See: **homo.** In the case of a moving target, a homing device may be designed either to maintain a steady pursuit course directly toward the target, or to maintain a lead angle while intercepting on a collision course.

**homing guidance.** The guidance given a guided missile or the like by built-in homing devices.

**homing range.** *Specif.* The maximum distance at which a homing device incorporated into an air vehicle becomes effective in respect to a target or to a homing station.

**HOMING SET, INFRARED.** A complete electronic set required to operate a complete electronic system used for automatically self-guiding a moving object to a target and which utilizes infrared radiation from the target. The equipment in use is self-contained in the moving object.*

**HOMING SET, RADAR.** A complete electronic set for automatically self-guiding a moving object to a target by the use of radar signals. The equipment in use is self-contained in the moving object.*

**homing station.** A station at which a beacon emits signals that may be used for homing.

**homogeneous armor.** See: **armor.**

**homopause.** See: **atmospheric shells.**

**homosphere.** See: **atmospheric shells.**

**Honest John.** Popular name for the the 762-millimeter rocket system, a surface-to-surface tactical missile, employing solid propellant, developed by the Army. It is launched from a rail-type launcher at an elevation which can be varied to obtain the desired point of impact. It can carry either a conventional high explosive warhead or a nuclear warhead.

**honeycomb.** A grid used in certain wind tunnels to eliminate turbulence in airflow.

**hood.** 1. Protective cover for the fuze of a projectile. 2. Metal covering for a motor vehicle engine.

**HOOD, ANTIFLASH.** A knitted cotton garment, for protection of gun crew members, designed to fit over the head and covering the neck and shoulders. It has a circular face opening hemmed with elastic braid.*

**HOOD, ROCKET FUEL HANDLER'S.** An article of headwear designed to provide protection against acids and corrosive fuels.*

**HOOK, PINTLE.** A metal item formed or bent into a curve or at an angle, for catching, holding, sustaining or pulling, specifically designed as the hook portion of PINTLE ASSEMBLY, TOWING.*

**horizon, artificial.** See: **artificial horizon.**

**horizon, gyroscopic.** See: **gyroscopic horizon.**

**horizontal base line method.** Method of locating targets or other points by intersection from two observation stations located at opposite ends of a base line.

**horizontal bombing.** Bombing from an airplane in horizontal flight, as distinguished from dive bombing, glide bombing, toss bombing, etc. Also called 'level bombing.'

**horizons' parallax correction.** See: **angle of convergence.**

**horizontal range.** The distance measured horizontally between a gun and its target; *specif.*, in antiaircraft gunnery, the distance between a gun and a spot on the ground directly beneath the target.

**HORN, UNDERWATER MINE.** An item designed to protrude from an underwater mine case or an underwater mine float. Its purpose is to actuate a detonator or firing mechanism when struck by an external object.*

**Hotchkiss drive.** In automotive vehicles, a method of drive by which the torque reaction is transmitted to the frame through the springs rather than through a torque tube or a torque arm. See separate entries.

**Hound Dog.** Name given to an Air Force air-to-ground missile with nuclear warhead capabilities. Has relatively long range for strategic bombing suitability.

**HOUSING, RELAY ASSEMBLY, UNDERWATER MINE.** An item designed to inclose a relay assembly that is used in a controlled underwater mine system.*

**HOUSING, TRIGGER.** An item, usually of metal, designed to fit into the framework of a carbine, machine gun, pistol, rifle, or the like. It is used to provide a mounting for a TRIGGER.*

**how** *(abbr).* 'Howitzer.'

**howitzer.** (how) A complete projectile-firing weapon with bore diameter greater than 30 millimeters. The howitzer is used to deliver curved fire, with projectiles of lower muzzle velocities than those from the gun (sense 2, which see). The length of bore of a modern howitzer usually lies between 20 and 35 calibers, and the maximum angle of elevation is about 65 degrees. The muzzle velocity, hence range and curvature of the trajectory, can be altered by the use of any of several propelling charges or zones, thus permitting a howitzer to reach targets hidden from gun fire. In length, weight and muzzle velocity the howitzer lies generally between the gun and the mortar. See also: **cannon; mortar.**

**howitzer carriage.** See: **carriage; mount.**

**HOWITZER, HEAVY, SELF-PROPELLED.** A complete projectile-firing weapon, with a medium muzzle velocity and a curved trajectory, mounted on a self-propelled vehicle. The bore diameter is larger than 200 millimeters. It is designed for use as mobile artillery.*

**HOWITZER, HEAVY, TOWED.** A complete projectile-firing weapon with a medium muzzle velocity and a curved trajectory. The bore diameter is larger than 200 millimeters. It does not have facilities for self-propulsion. See also: **HOWITZER, LIGHT, TOWED** and **HOWITZER, MEDIUM, TOWED.***

**howitzer, 8 inch.** See: **HOWITZER, HEAVY, TOWED.**

**HOWITZER, LIGHT, SELF-PROPELLED.** A complete projectile-firing weapon, with a medium muzzle velocity and a curved trajectory, mounted on a self-propelled vehicle. The bore diameter is over 30

millimeters through 125 millimeters. It is designed for use as a mobile artillery or infantry weapon.*

**HOWITZER, LIGHT, TOWED.** A complete projectile-firing weapon with a medium muzzle velocity and a curved trajectory. The bore diameter is over 30 millimeters through 125 millimeters. It does not have facilities for self-propulsion. See also: **HOWITZER, MEDIUM, TOWED; HOWITZER, HEAVY, TOWED** and **HOWITZER, PACK.***

**HOWITZER, MEDIUM, SELF-PROPELLED.** A complete projectile-firing weapon, with a medium muzzle velocity and a curved trajectory, mounted on a self-propelled vehicle. The bore diameter is 126 millimeters through 200 millimeters. It is designed for use as mobile artillery.*

**HOWITZER, MEDIUM, TOWED.** A complete projectile-firing weapon with a medium muzzle velocity and a curved trajectory. The bore diameter is 126 millimeters through 200 millimeters. It does not have facilities for self-propulsion. See also: **HOWITZER, LIGHT, TOWED** and **HOWITZER, HEAVY, TOWED.***

**howitzer, 105 mm.** See: **HOWITZER, LIGHT, TOWED.**

**howitzer, 155 mm** See: **HOWITZER, MEDIUM, TOWED.**

**howitzer, 240 mm.** See: **HOWITZER, HEAVY, TOWED.**

**HOWITZER, PACK.** A complete projectile-firing weapon with a medium muzzle velocity and a curved trajectory. It is designed to be transported by animal or delivered by parachute. It may function as towed artillery.*

**HP** *(abbr).* 1. 'High pressure.' 2. 'Horsepower.'

**HPT** *(abbr).* 'High pressure test.'

**HS** *(abbr).* 'Hydrostatic.'

**H-scope.** A modified version of the B-scope.

**HT** *(abbr).* 'Mustard gas-agent T' (war gas).

**hub cannon.** A cannon mounted through a propeller hub of an aircraft.

**hull.** 1. The outer casing of a rocket, guided missile, or the like. 2. Massive armored body of a tank, exclusive of tracks, motor, turret, and armament.

**Human Engineering Laboratory.** (HEL) An Ordnance activity at **Aberdeen Proving Ground** that prepares **anthropometric data** and other information concerning the human body for consideration by design agencies in Ordnance design projects.

**human factors engineering.** The collecting, analyzing, disseminating, and using of human factors in research, development, and evaluation of materiel. Sometimes called merely 'human engineering.' See. **Human Engineering Laboratory.**

**hundred-percent rectangle.** A rectangle whose length is eight probable errors in range, and whose breadth is eight probable errors in direction. Its center is the center of dispersion. Also called *rectangle of dispersion*, it is the area in which all shots (except 'wild' shots) will fall when fired with the same data under identical conditions.

**hung bomb.** A bomb which accidentally remains hanging to the bomb rack after the releasing action has been taken.

**hung striker.** Defective striker of a grenade fuse, which failed to strike the primer and explode the grenade.

**hunt.** Of an aircraft, guided missile, or the like: 1. To make weaving motions about its median flight path, as in longitudinal or phugoid oscillation, or to vary in flight speed, as if seeking a new angle of attack, flight path, etc. 2. In popular usage, to yaw repeatedly.

The weaving or yawing may occur without movement of the control surfaces. Cf: **seek.**

**hunting.** A condition of instability resulting from overcorrection by a control device and resultant fluctuations in the quantity intended to be kept constant.

**Husky.** A popular name for the standardized amphibious cargo carrier. See: **CARRIER, CARGO, AMPHIBIOUS.**

**HV** *(abbr).* 1. 'Hypervelocity.' 2. 'High velocity.'

**hv** *(abbr).* 'Heavy.'

**HVAP** *(abbr).* 'Hypervelocity armor-piercing.'

**HVAPDS** *(abbr).* 'Hypervelocity armor-piercing discarding sabot.'

The abbreviation is frequently separated, as for example, HVAP-DS. It may also be extended by adding '-T' to indicate 'with tracer.'

**HVAPDSFS** *(abbr).* 'Hypervelocity armor-piercing discarding sabot fin stabilized.'

The abbreviation is frequently separated, as for example, HVAP-DS-FS. It may also be extended by adding '-T' to indicate 'with tracer.'

**HVAP-T** *(abbr).* 'Hypervelocity armor-piercing with tracer.'

**HVAR** *(abbr).* 'High velocity aircraft rocket.'

**HVAT** *(abbr).* 'Hypervelocity antitank.'

**H-vector.** The vector representing the magnetic field of an electromagnetic wave. In free space it is perpendicular to the E-vector and to the direction of propagation.

**HVTP** *(abbr).* 'Hypervelocity target practice.'

**HVTP-T** *(abbr).* 'Hypervelocity target practice with tracer.'

**hydrogen bomb.** See: **bomb, hydrogen.**

**hydrogen cyanide.** (AC) See: **CHEMICAL AGENT, HYDROGEN CYANIDE.**

**hydromagnetics.** See: **magneto fluid dynamics.**

**hydrometer.** 1. A floating instrument, consisting of a plummet with a stem designed to measure the specific gravity of liquids or solids. 2. An instrument consisting of hydrometer inclosed in a transparent syringe.*

**hydrometer, antifreeze solutions.** See: **TESTER, ANTIFREEZE SOLUTIONS.**

**hydropneumatic recoil system.** A **recoil mechanism** (which see) that absorbs the energy of recoil by the forcing of oil through orifices and returns the gun to battery by compressed gas.

**hydropneumatic-type equilibrator.** See: **equilibrator.**

**hydrospring recoil system.** A **recoil mechanism** (which see) that absorbs the energy of recoil by the forcing of oil through orifices and returns the gun to battery by spring action.

**hydrostatic fuse.** See: **fuse, hydrostatic.**

**HYDROSTAT, UNDERWATER MINE.** An item designed to be actuated by hydrostatic pressure at a predetermined depth. Its function is to assure proper depth of an underwater mine by locking the cable release mechanism in the underwater mine anchor.*

**hygroscopic.** Having a tendency to absorb and hold water, particularly moisture from the air.

**hyperbolic guidance.** The guidance or control of a guided missile or the like in which the difference in the time delay of radio signals transmitted simultaneously from two ground stations, arriving at the missile at different time intervals, controls the position of the missile.

This system is based upon the geometric theorem that the locus of all points of fixed difference in distance from two base points is a hyperbola.

**hyperbolic navigation.** See: **navigation, hyperbolic.**

**hypergolic.** Capable of igniting spontaneously upon contact. See: **hypergolic propellant.**

**hypergolic propellant.** A rocket propellant that ignites spontaneously upon contact with an oxidizer. 'Hypergolic' is a coined word, the element 'golic' being obtained from a German code word 'Gola,' used to refer to a series of rocket propellants containing methylaniline, organic amine, pyrol, and certain other compounds.

**hypersonic.** Of or pertaining to the speed of objects moving at mach five or greater. Cf: **supersonic.**

**hypervelocity.** (HV) As used in connection with artillery, small arms, and tank cannon, generally accepted to have the following meanings: 1. Muzzle velocity of an artillery projectile of 3500 feet per second or more. 2. Muzzle velocity of a small arms projectile of 5000 feet per second or more. 3. Muzzle velocity of a tank cannon projectile in excess of 3350 feet per second. Cf: **high velocity.**

**hypervelocity armor-piercing.** (HVAP) A term used to designate a type of artillery projectile consisting of a core of extremely hard, high density material, such as tungsten carbide, contained within a light weight carrier called a **sabot** (which see). Because of the low total weight, **hypervelocity** (which see) is obtainable within the allowable pressure of the gun tube. The velocity is rapidly lost but at short ranges the projectile is effective against armor.

**hypervelocity armor-piercing discarding sabot.** (HVAPDS) A term used to designate a type of HVAP projectile in which the **sabot** (which see) is designed so that it will become separated from the core a short distance from the muzzle of the gun. Separation of the sabot from the core results in the core becoming the free flight projectile with lowered air resistance. See: **hypervelocity armor-piercing.**

**hypervelocity armor-piercing discarding sabot fin stabilised.** (HVAPDSFS) A term used to designate a type of HVAPDS projectile in which the free flight projectile (core) is stabilized in flight by fins rather than by spin. See: **hypervelocity armor-piercing discarding sabot.**

# I

**IAS** *(abbr.)* 1. 'Indicated airspeed.' 2. 'Institute of Aeronautical Sciences.'

**IB** *(abbr.)*. 'Incendiary bomb.'

**ICAO** *(abbr.)*. 'International Civil Aviation Organization.'

**ICAO Atmosphere.** See: **Standard Atmosphere.**

**ICBM** *(abbr.)* 'Intercontinental ballistic missile.'

**ICC** *(abbr.)*. 'Interstate Commerce Commission.'

**ice mine.** See: **mine, ice.**

**ice mining.** The breaking of river or lake ice by the action of antitank or antipersonnel mines for the purpose of denying passage to the enemy. Actuation may be effected by control, passage of time, or enemy initiation.

**ICM** *(abbr.)*. 'Intercontinental missile.'

**icosahedron gage.** See: **gage, icosahedron.**

**ID** *(abbr.)* 'Inside diameter.'

**ideal exhaust velocity.** *Rockets.* The theoretical maximum velocity, relative to the nozzle, of the gas flow as it passes from a given nozzle inlet temperature and pressure to a given ambient pressure, when the combustion gas has a given mean molecular weight. See: **exhaust velocity.** Cf: **actual exhaust velocity; effective exhaust velocity.**

**ideal grain.** Propellant granulation which produces the maximum obtainable velocity without exceeding the permissible pressure at any point along the bore.

**ideal rocket.** A rocket motor or rocket engine that would have a velocity equal to the velocity of its jet gases.

An ideal rocket is assumed as a criterion in rocket design.

**identification.** (ident) *Specif.* In supply usage, the process or means by which, with the aid of applicable drawings, specifications, and catalogs, an item is identified and associated both with the assembly to which it belongs and with the classification of property in which it is procured, stored, and issued.

**Identification Code, Department of Defense.** See: **Department of Defense Identification Code.**

**identification, friend or foe.** (IFF) System of radio interrogation and reply (if friend) generally used in connection with radar for identifying an aircraft, ship, or craft. Commonly referred to as IFF.

**idler wheel.** *Auto.* A roller used to return an endless track or chain to the driving sprocket.

**IFF** *(abbr.)*. 'Identification, friend or foe.'

**igloo.** *Specif.* A dome-shaped or rounded structure, usually made of reinforced concrete and earth, normally used for the storage of explosives. A type of **magazine** (sense 1).

**igniter.** 1. Any device, chemical, electrical, or mechanical, used to ignite. IGNITER, BOMB and other specific types are listed and defined in the entries which follow. 2. Specially arranged charge of a ready burning composition, usually black powder, used to assist in the initiation of a propelling charge. 3. Device containing such a composition, used to amplify the initiation of a primer in the functioning of a fuze.

**IGNITER, BOMB.** A metal container designed to be filled with spontaneously combustible material to ignite the filler of incendiary and/or fire bombs. When empty or inert loaded it may be used for training purposes.*

**igniter composition.** See: **first fire composition.**

**IGNITER, ELECTRIC PRIMER.** An electric device used to amplify the initiation of a PRIMER, ELECTRIC in the functioning of a FUZE (as modified).*

**igniter, first fire.** See: **first fire.**

**IGNITER, FRICTION.** An item having a file and flint at one end which when rubbed together produce a spark.*

**IGNITER, INCENDIARY DOCUMENT DESTROYER.** A device used to ignite the incendiary component of a document destroyer.*

**igniter, jato unit.** See: **IGNITER, ROCKET MOTOR.**

**igniter pad.** A black powder charge in the form of a thin pad of cartridge cloth attached to separate-loading propelling charge to facilitate complete and certain ignition.

**IGNITER, RAMJET ENGINE.** A pyrotechnic item designed to ignite the combustible mixture in a ramjet engine.*

**IGNITER, ROCKET MOTOR.** An explosive item designed to ignite the propelling charge in a rocket motor.*

**IGNITER, ROCKET MOTOR, INERT.** An item designed to be substituted for an explosive IGNITER, ROCKET MOTOR for training purposes only. It conforms to the configuration of an IGNITER, ROCKET MOTOR. It may be a simulated electrical type having an electrical circuit with electrical resistor(s) to simulate a live igniter initiator(s).*

**IGNITER, SPOTTING CHARGE, BOMB.** A tube containing an explosive designed to relay the detonation wave from the nose fuze to the spotting charge in the base of a practice bomb.*

**IGNITER, TIME BLASTING FUSE.** A device containing a firing mechanism and suitable ignition material for igniting a FUSE, BLASTING, TIME.*

**IGNITER, TORPEDO.** A metal container with a combustible material to ignite the fuel in the combustion chamber of a torpedo.*

**igniter train.** Step by step arrangement of charges in pyrotechnic munitions by which the initial fire from the primer is transmitted and intensified until it reaches and sets off the main charge. Also called 'burning train.' Explosive munitions use a similar series, called an **explosive train** (which see).

**ignitibility.** The ease with which the burning of a substance may be initiated.

**igniting charge.** See: **igniter (sense 2).**

**igniting fuse.** See: **fuze, igniting.**

**igniting mixture.** See: **first fire composition.**

**igniting powder.** See: **first fire composition.**

**igniting primer.** See: **primer, igniting.**

**ignition cartridge.** See **CARTRIDGE, IGNITION.**

**IGNITION CYLINDER, FLAME THROWER.** A hollow cylindrical item having more than one chamber in the body parallel to the axis of the bore. These chambers are filled with flammable material which ignites the flame thrower when the ignition grip is engaged.*

**ignition delay.** *Propellant actuated devices.* Time interval between actuating the firing mechanism and the beginning of sustained use of pressure in the propellant chamber.

**ignition, multistage.** An ignition system in a ramjet in which a portion of the fuel is ignited and the products are used to ignite the remainder of the mixture.

**ignition system.** *Auto.* The electrical system which supplies the spark for the combustion of fuel in certain engines.

An ignition system includes the generator, magneto, distributor, battery, wires, and spark plugs.

**ignition system, central tube.** System of propelling charge ignition originating along the longitudinal axis, as exemplified by the long primers used in cased charges and the central core igniters used in bag charges.

**ignitor.** See: **igniter.**

**illum** *(abbr).* 'Illuminant'; 'illuminating.'

**illuminant composition.** A mixture of materials suitable for use in the candle of a pyrotechnic device, having production of high intensity light as its principal function. The materials used include a fuel (reducing agent), an oxidizing agent, and a binder, plus color intensifier and waterproofing agent. The mixture is loaded under pressure in a container to form the illuminant candle.

**illuminating.** Indicates, in ammunition nomenclature, that the munition is intended primarily for illuminating purposes. Usually contains a flare and may contain a parachute for suspension in the air.

**illuminating fire.** Gunfire employing illuminating projectiles delivered to silhouette the enemy, aid observation, and facilitate friendly troop movements.

**illuminating grenade.** See: **grenade, illuminating.**

**illuminating projectile.** See: **projectile, illuminating.**

**illumination signal.** See: **signal, illumination.**

**illuminator, target.** A transmitting device on a missile or off that is used in guiding on the target.

**image frequency.** In heterodyne frequency converters in which one of the two sidebands produced by beating is selected: An undesired input frequency capable of producing the selected frequency by the same process.

The word 'image' implies the mirror-like symmetry of signal and image frequencies about the beating oscillator frequency or the intermediate frequency, whichever is the higher.

**image plane.** *Optics.* The plane in which the image lies or is formed. It is perpendicular to the axis of the lens and is at the focal point. A real image formed by a converging lens would be visible upon a screen placed in this plane.

**image ratio.** *Receivers.* The ratio of (1) the field strength at the image frequency to (2) the field strength at the desired frequency, each field being applied in turn, under specific conditions, to produce equal outputs.

**immersion proof.** Unless otherwise specified, ***immersion proof*** means that an item of equipment when ready for field transport can be submerged for 2 hours in salt or fresh water to a covering depth of 3 feet, and be capable of operating at normal effectiveness immediately after being removed from the water.

**imp** *(abbr).* 1. 'Impact.' 2. 'Impulse.'

**impact.** (imp) The striking of an object against another, as the striking of a projectile or bomb on the target or surface.

**impact area.** Area in which projectiles or bombs strike or are expected to strike.

**impact fuse.** See: **fuse, impact.**

**impact pressure.** See: **pressure, impact.**

**impact sensitivity.** The characteristic of an explosive which expresses its susceptibility to initiation by externally applied energy in the form of impact. Impact sensitivity is usually measured either by the **Bureau of Mines test** or the **Picatinny test.** See separate entries.

**impact temperature.** See: **temperature, impact.**

**impact tests.** See: **Bureau of Mines test; Picatinny test.**

**impact velocity.** The velocity of a projectile or missile at the instant of impact. Also called 'striking velocity.'

**impedance matching test set.** See: **INDICATOR, STANDING WAVE RATIO.**

**implosion.** 1. A sudden inward burst of particles or gases that brings pressure upon the center of something. 2. The sudden reduction of pressure by chemical reaction or change of state which causes an inrushing of the surrounding medium. Opposed to **explosion** (which see) which results in a sudden expansion of the surrounding medium.

**implosion-type weapon (implosion weapon).** *Nuclear.* A nuclear weapon in which a sub-critical configuration of fissionable material is compressed into a super-critical state by a centrally directed radial shock, to produce a nuclear explosion.

**improvised grenade.** See: **grenade, improvised.**

**impulse.** (imp) 1. A force lasting over a comparatively short period of time. 2. In specific senses: **a.** A sudden and brief rise of current or voltage in a circuit. **b.** The force exerted by a shock wave from an explosion. **c.** The total force or thrust delivered by a jet engine, rocket motor, or rocket engine in a running of given duration. See: **specific impulse. d.** The detonative force delivered by a primer when fired. 3. A pulse of electronic energy.

**impulse, specific.** See: **specific impulse.**

**impulse, total.** In jet propulsion usage, the product of the average thrust (in pounds) developed by the motor, times the burning time (in seconds).

**in battery.** See: **battery** (sense 3).

**inc** *(abbr)*. 'Incendiary.'

**incapacitation criteria.** See: **casualty criteria.**

**incendiary.** (inc) (incd) In nomenclature, indicates that an incendiary effect at the target is intended.

**incendiary bomb.** (IB) See: **BOMB, INCENDIARY.**

**incendiary grenade.** See: **grenade, incendiary.**

**incidence.** The act of falling upon or affecting, as light upon a surface.

**incident ray.** *Optics.* A ray of light which falls upon or strikes the surface of an object such as a lens or mirror. It is said to be incident to the surface. Cf: **reflected ray.**

**inclinometer.** An item that indicates the altitude of a carrier with respect to the horizontal.*

**Inconel.** [A trademark name.] A nickel, chrome, and iron alloy designed for corrosion resistance at fairly high temperatures.

**incr** *(abbr)*. 'Increment.'

**increasing twist.** See: **twist, increasing.**

**increment.** An amount of propellant added to, or taken away from, a propelling charge of semifixed or separate loading ammunition to allow for differences in range. Increments are commonly packed in propellant bags made of cartridge cloth, as for the main propelling charge.

**independent line of sighting.** A system for laying a gun, whereby the angle of site and the angle of elevation (range) mechanisms work independently of each other. With the employment of a rocker arm, the angle of elevation mechanism is interposed between the cradle and the bottom carriage.

**independent recoil system.** A **recoil mechanism** (which see) that has an independent recuperator, that is, the recuperator is entirely independent of the recoil brake in the recoil mechanism. Cf: **dependent recoil system.**

**independent recuperator.** A hydropneumatic type of recuperator in which the hydraulic recoil brake and the compressed gas counterrecoil cylinders are entirely independent of each other. Cf: **dependent recuperator.**

**indeterminate error.** *Firing.* Error in firing which cannot be determined exactly.

**index error.** Difference between an actual reading and the correct reading on a compass, scale, or other instrument.

**index of air, refractive.** See: **refractive index of air.**

**index of refraction.** A number applied to a transparent substance which denotes how much faster light will travel in vacuum than through that particular substance.

**Indiana Arsenal.** Ordnance Corps field installation, located at Charlestown, Indiana.

**indicated airspeed.** (IAS) See: **airspeed, indicated.**

**indicator.** 1. An instrument which presents information transmitted or relayed from some other source. Excludes items having a more specific name, such as ALTIMETER (as modified). 2. An item which provides visual presentation of data such as azimuth, bearing, range and position. It does not present specific data, such as volts and amperes obtained from electrical meters.*

**INDICATOR, AZIMUTH.** An indicator for the display of the terrestrial bearing of a target with respect to a fixed reference point.*

**INDICATOR, AZIMUTH AND PANORAMIC.** An indicator which presents the angle between a fixed reference point and a target, and an array of signals received from a segment of the frequency spectrum.*

**INDICATOR, AZIMUTH DEVIATION.** An indicator which presents the relationships between a target and the azimuth of a directional radio beam.*

**INDICATOR, AZIMUTH-ELEVATION.** An indicator that displays data for the determination of the terrestrial bearing and vertical spacing between a target and a common reference point.*

**INDICATOR, AZIMUTH-ELEVATION-RANGE.** An indicator that displays data for the determination of the terrestrial bearing, vertical spacing, and range between a target and a common reference point.*

**INDICATOR, AZIMUTH, MECHANICAL.** A device used to indicate the position of a target in relation to a gun and the longitudinal axis of the vehicle. It is actuated by a ring gear attached to a tank turret or gun carriage. The scale pointers may be set independently by manual operation of a pointer knob. Includes accommodations for a LIGHT, INSTRUMENT for night operations.*

**INDICATOR, AZIMUTH-RANGE.** An indicator that displays data for the determination of the terrestrial bearing and range between a target and a common reference point.*

**INDICATOR, BEARING.** An indicator that displays data for the determination of the terrestrial bearing between a target and a fixed reference point.*

**INDICATOR, BEARING-DISTANCE-HEADING.** An indicator that displays data for the determination of the angle between a target and a fixed reference point, the spacing between two or more points in scalar values, and the angle between a point such as magnetic or true north and the longitudinal axis of the aircraft, ship, or ground vehicle in which it is installed.*

**INDICATOR, BEARING-RANGE.** An indicator that displays data for the determination of the angle between a target and a fixed reference point, and for the spacing between two points as determined by interpolation between nondeterminate reference indices.*

**INDICATOR, COURSE.** An indicator that displays the angular value of the course of an aircraft, ship, or ground vehicle.*

**INDICATOR, COURSE-DISTANCE-TRACK.** An indicator which displays the angle measured clockwise from true north to a line connecting the point of origin and the point of destination, the spacing between two points, and the actual path of an aircraft relative to the ground.*

**INDICATOR, ELEVATION.** A component which presents visually the angle between a fixed reference point and a target in a vertical plane. May include accessories.* *Specif.* Electrical instrument on some guns that shows the quadrant elevation to be used; it is part of a remote control system.

**INDICATOR, ELEVATION DEVIATION.** A component which presents visually the relationship be-

tween a target and the elevation of a directional radio beam. May include accessories.*

**INDICATOR, FAULT LOCATING.** An item specifically designed to indicate by means of push buttons and associated indicator lights the component of an electronic set, central or system, in which a malfunction has occurred. It does not make quantitative or qualitative tests such as are provided by test sets.*

**INDICATOR, FIN POSITION.** An indicator specifically designed to present visual information regarding the attitude of a guided missile's fin position.*

**INDICATOR, HEADING.** An indicator for the display of the angular value between true or magnetic north, and the longitudinal axis of the aircraft, ship, or ground vehicle in which it is installed.*

**INDICATOR, HEIGHT.** A component which presents visually the vertical distance between two points. May include accessories.*

**INDICATOR, HEIGHT-RANGE.** An indicator that displays data for the determination of the vertical spacing and range between a target and a common reference point.*

**indicator, moving target.** See: **MOVING TARGET INDICATOR GROUP.**

**indicator, pitch.** An instrument for indicating the existence and approximate magnitude of the angular velocity about the lateral axis of an airframe.

**INDICATOR, PRELAUNCH CHECKOUT.** An indicator which, when used with associated equipment, visually displays the operational readiness of a guided missile, and/or the carrier from which it is launched.*

**INDICATOR, PRESSURE.** An indicator which indicates the pressure of a gas or liquid in a given system.*

**indicator, propellant temperature.** A unit consisting of a standard cartridge case with propelling charge, but without primer. The cartridge case is sealed with a plug through which the stem of a dial type thermometer extends into the propelling charge. The unit is contained in a fiber container which is closed with a transparent plastic cover. The temperature shown by the thermometer is used to determine the temperature corrections to be applied to firing table figures.

**INDICATOR, RADIAC.** An item designed to display radioactivity detection, identification, or computation data.*

**INDICATOR, RADIOLOGICAL.** An item designed to display the occurrence of radioactivity above a predetermined value.*

**INDICATOR-RECORDER, TRANSMISSOMETER.** A component which performs the dual functions of presenting visual information from other components or sets and makes a permanent representation of information received from other components or sets.*

**INDICATOR, STANDING WAVE RATIO.** An item designed to determine the ratio of current or voltage at a loop in a transmission line or waveguide to the value of a node. May include the following: rectifier, amplifier, detector, adapters, couplings, meters, probes, radio frequency plumbing, accessories, and spare parts.*

**INDICATOR, WHEEL ALIGNMENT.** A composite group of gages and attachments, with or without runway facilities, designed to measure the degree of caster, camber, kingpin angle, toe-in and/or turning radius of automotive vehicle wheels.*

**indicator, wind component.** Device which mechanically determines the range and deflection components of the computed wind that is equivalent to all true winds encountered by a projectile in flight.

**indirect fire.** Gunfire delivered at a target that cannot be seen from the gun position or firing ship.

**indirect laying.** Aiming a gun either by sighting at a fixed object, called the aiming point, instead of the target, or by using a means of pointing other than a sight, such as a gun director, when the target cannot be seen from the gun position.

**indirect pointing.** See: **indirect laying.**

**induced angle of attack.** See: **angle of attack, induced.**

**induced drag.** See: **drag, induced.**

**Industrial Division.** One of the principal divisions of the Office, Chief of Ordnance. Official symbol: ORDI.

**industrial installation.** *Army.* Any installation of the Department of the Army primarily used in connection with the production of material, munitions, or supplies. See also: **activity; command installation; installation; subinstallation.**

**industrial mobilization.** Transformation of industry and other productive facilities and contributory services from their peacetime activities to the fulfillment of the munitions program necessary to support the military effort.

**industrial security.** That portion of internal security which refers to the protection of industrial installations, resources, utilities, materials, and classified information essential to protection from loss or damage by enemy-inspired action, other than as a result of organized military attack.

**industrial security office.** Any command, office, unit, agency, or person within a military department, designated by that military department as being responsible for exercising control over industrial security matters at a facility for which that department is cognizant.

**inert.** Descriptive of condition of a munition, or component thereof, which contains no explosive, pyrotechnic or military chemical agent

**inertia.** The property of any material to resist change in its state of motion. See: **setback force; set forward force** and cf: **moment of inertia.**

**inertia fuse.** See: **fuse, nondelay.**

**inertial control.** Control exercised through **inertial guidance.**

**inertial force.** 1. *General.* Force produced by change in magnitude and/or direction of velocity. 2. In the launching of projectiles or missiles, large accelerations occur, which result in correspondingly large inertial forces, called setback forces. See: **setback force.**

**inertial guidance.** A kind of guidance effected by means of mechanisms that automatically adjust the missile after launching to follow a given flight path, the mechanisms reacting to inertial forces during flight.

**inf** *(abbr)*. 'Infantry.'

**infantry mil.** See: **mil.**

**infernal machine.** Disguised or cleverly concealed explosive device, usually intended for sabotage. Distinguished from an 'open bomb.' (Both terms now rarely used.) See: **bomb, open.**

**infiltration.** Movements of individuals or vehicles, singularly or in small groups at extended and irregular intervals. This movement is used when a maximum of secrecy and deception is desired. It provides the best possible protection from enemy air observation and attack but is very difficult to control.

**infinity.** The extreme point of distance. In optics, the term is used to denote a distance sufficiently great so that light rays coming from that distance are practically parallel to one another.

**infinity method.** Method of adjusting two lines of sight to make them parallel. Lines are adjusted on an object at great distance, for example, a star.

**inflammable.** Preferred term is **flammable** (which see). Cf: **nonflammable.**

**inflammable cargo.** See: **cargo classification.**

**influence fuse.** See: **FUZE, PROXIMITY.**

**infrared guidance.** Similar to homing guidance, but using heat-seeking technics. Cf: **guidance system.**

**infrared homing set.** See: **HOMING SET, INFRARED.**

**infrared viewer.** Device used to convert infrared light to visible light.

**infrasonic frequency.** A frequency below the audible range.

**inhabited building distance.** The minimum distance permitted between an ammunition or explosive location and any building used for habitation or where people are accustomed to assemble, except operating buildings or magazines. This distance is also applicable to land outside the boundaries of Government establishments. Tables of distances may be found in the Ordnance Corps Safety Manual, ORDM 7-224.

**inherent stability.** See: **stability, inherent.**

**inhibited oil.** Lubricating oil to which a compound has been added in order to prevent corrosion of the metal with which it is in contact.

**inhibitor.** 1. In general, an additive used to minimize an undesirable burning property. 2. A material applied to surface(s) of propellant grains to prevent burning on the coated surface(s).

**INHIBITOR, CORROSION, LIQUID COOLING SYSTEM.** A compound composed of various chemicals to be added to cooling media to retard and/or prevent formation of rust, scale, sludge, and corrosion in cooling systems, such as in internal combustion engines. Excludes flush-out compounds.*

**INHIBITOR, CORROSION, PETROLEUM FUEL.** A composition of various chemicals, soluble in petroleum fuels, which is added to prevent corrosion in storage tanks, tankers, pipelines, and the like, in the distribution of petroleum fuels.*

**INHIBITOR, CORROSION, WATER SOLUBLE.** A mixture of chemicals formulated to inhibit corrosion of wet vapor blasted surfaces of ferrous metals. It is also added to rinsing water to form a protective coating on the metal upon drying. When of a single specific chemical, use specific chemical name. Excludes CORROSION PREVENTIVE COMPOUND.*

**initial aiming point.** Point on which a gun is sighted to establish a reference line from which direction angles for targets are measured. From this reference line, other aiming points that give the direction of the targets are measured off. This method of aiming is used in indirect laying.

**initial air space.** See: **initial free space.**

**initial detonating agent.** See: **primary high explosive.**

**initial free space.** In interior ballistics, the portion of the *effective chamber capacity* not displaced by propellant; initial air space.

**initial lead.** Amount a gun is pointed in front of, above, or below a moving target when opening fire. This amount allows for the distance the target will travel while the projectile is in flight.

**initial mass.** The mass of a rocket missile at the beginning of its flight.

**initial point.** 1. First point at which a moving target is located on a plotting board. 2. Well defined point, easily distinguishable visually and/or by means of radar, used as a starting point for the bomb run on to the target. The distance from the initial point to the target will be governed by type of bombing, type of airplane, and altitude bombing.

**initial radiation.** The nuclear radiation accompanying an atomic explosion and emitted from the resultant fireball; immediate radiation. It includes the neutrons and gamma rays given off at the instant of the explosion, and the alpha, beta, and gamma rays emitted in the rising fireball and the column of smoke. In contrast to residual radiation, its delivery to persons and objects on the earth's surface is terminated by the removal of the source (fission products in the atomic cloud) from within effective radiation range of the earth by the rising cloud.

**initial shot start pressure.** In interior ballistics, the pressure required to start the motion of the projectile from its initial loaded position. In fixed ammunition includes pressure required to separate projectile and cartridge case and to start engraving the rotating band.

**initial velocity.** (IV) The projectile velocity at the moment that the projectile ceases to be acted upon by propelling forces. For a gunfired projectile the initial velocity, expressed in feet or meters per second, is also called 'muzzle velocity.' It is obtained by measuring the velocity over a distance forward of the gun, and correcting back to the muzzle for the retardation in flight. For a rocket a slightly fictitious value is used. The fictitious initial velocity is the velocity at the launcher which would produce the actual velocity at the point of burnout if there were no thrust. The initial velocity of a bomb dropped from an airplane is the speed of the airplane.

**initial yaw.** The yaw of a projectile the instant it leaves the muzzle of a gun.

**initiating agent.** An explosive material which has the necessary sensitivity to heat, friction, or percussion to make it suitable for use as the initial element in

an explosive train. See: **primary high explosive; priming composition.**

**initiation.** 1. As applied to an explosive item, the beginning of the deflagration or detonation of the explosive. 2. The first action in a fuze which occurs as a direct result of the action of the functioning medium. 3. In a time fuze, the starting of the action which is terminated in the functioning of the fuzed munition.

**initiation, base.** Detonation initiated at the base (rear) of the charge.

**initiation, peripheral.** Simultaneous initiation of detonation around the entire periphery of a cylindrical explosive charge. It may be accomplished from point initiation by inserting a disc of inert material, of proper dimensions, in the explosive column.

**initiation, plane wave.** Simultaneous initiation at all points of the rear surface of the main explosive charge by a flat detonation wave, usually accomplished by a composite explosive charge of proper dimensions.

**initiation, point.** Application of the initial impulse from the detonator to a single point on the main charge surface; for a cylindrical charge this point is usually the center of one face.

**initiator.** A device used as the first element of an explosive train, such as a detonator or squib, which upon receipt of the proper mechanical or electrical impulse produces a burning or detonating action. It generally contains a small quantity of a sensitive explosive.

**INITIATOR, CARTRIDGE ACTUATED.** An item designed to provide gas pressure for activitation of various aircraft components such as canopy removers, thrusters, catapults, and the like.* See: **propellant actuated device.**

**INITIATOR, ROCKET MOTOR IGNITER.** An electrically ignited explosive device designed to actuate an IGNITER, ROCKET MOTOR.*

**injection pressure.** The pressure difference between the total pressure at the fuel outlet orifice and the pressure in the combustion chamber.

**injector.** *Specif.* A device for injecting fuel and an oxidizer into the combustion chamber of a rocket engine.

**in-line engine.** An internal combustion, reciprocating engine in which the cylinders are arranged in one or more straight rows. Distinguished esp. from a radial engine.

An in-line engine may be upright or inverted, and includes V or W engines. In-line engines are usually liquid cooled.

**inner body.** Any closed body located in the ramjet duct, around which the air taken into the diffuser must flow.

**inner liner.** The inner shell of a combustion chamber in certain jet engines, inserted to diffuse the compressed air in the chamber and maintain an efficient flame pattern. Also called a 'burner basket,' 'flame holder,' or 'flame tube.'

**in-process inspection.** Inspection during process of production rather that after first assembly.

**input.** *Electronic computers.* The information which is transferred from external storage into the internal storage; a modifier designating the device performing this function.

**INSERT, BODY ARMOR.** A removable section designed for use in compartments of ARMOR, BODY, FRAGMENTATION PROTECTIVE to resist penetration of fragmentation type missiles and small arms projectiles.*

**insert earphones.** *Electroacoustics.* Small earphones which fit partially inside the ear.

**inspection by attributes.** An inspection system by which a product is inspected on the basis of either compliance or noncompliance without regard to the extent of deviation from the requirement. Use of 'go' and 'not-go' gages, as applied to a dimensional requirement (attribute) is an example of inspection by attributes. Cf: **inspection by variables.**

**inspection by variables.** An inspection system in which quantitative determination is made for each item in the sample of the characteristic being inspected, and the result recorded. The accumulated data are then analyzed statistically and decision made as to acceptability. Cf: **inspection by attributes.**

**inspection engineering.** The activity in connection with **production engineering** (which see) involving design of test methods and equipment, design of inspection equipment, development of quality assurance provisions, and preparation of specifications.

**INSPECTION PENETRANT.** An oil or ester base liquid used with a developer to detect surface flaws in metals, ceramics, glass, and some plastics. Penetrants will reveal only defects which are open to the surface and which are of sufficient magnitude to permit entrance of the penetrant by capillary action. The penetrant remains in the opening until it is withdrawn by the greater capillary action of the developer.*

**inspection penetrant developer.** A finely divided material of high capillarity which provides an ideal background for good contrast with inspection penetrants.*

**inst** *(abbr).* 'Instantaneous.'

**installation.** *Army.* Land and the improvements thereon, under the control of the Department of the Army, at which functions of the Department of the Army are carried on, and which has been established by order of the Department of the Army. Where located contiguously or on the same reservation, the combined property is designated as one installation and the separate facilities are designated as activities of that installation. Installations are classified for command purposes as follows:

*class I installation.* One which is under the command of the commanding general of a Zone of Interior army.

*class II installation.* One which is under the command of the head of a Department of the Army agency. See also: **activity; command installation; industrial installation; subinstallation**

**installation kit.** A collection of items, not all having the same basic name, which are of a supplementary nature to a major component or equipment. The items within the collection are used to physically establish and install an accessory or equipment to an operational condition or to the component or equip-

nent. It may contain instruction sheets but does not include the accessory or equipment to be installed. Excludes MODIFICATION KIT (as modified); PARTS KIT (as modified); REPAIR KIT (as modified).*

**instantaneous fuze.** See: **fuze, superquick.**

**instantaneous recording.** *Electroacoustics.* A recording which is intended for direct reproduction without further processing.

**instruction.** *Electronic computers.* A set of characters which defines an operation together with one or more addresses (or no address) and which as a unit, causes the computer to operate accordingly on the indicated quantities. The term 'instruction' is preferable to the terms 'command' and 'order'; command is reserved for electronic signals; order is reserved for 'the order of the characters' (implying sequence) or 'the order of the interpolation,' etc.

**instrumental error.** Repeated error due to faulty adjustment of an instrument or to a defect in it. Also called systematic error.

**instrument light.** See: **LIGHT, INSTRUMENT.**

**intake manifold.** See: **manifold.**

**integrating accelerometer.** See: **accelerometer, integrating.**

**integrating circuit.** A circuit whose output voltage is proportional to the product of the instantaneous applied input voltages and their duration. Some such circuits are made to give output proportional to input frequency and amplitude.

**INTEGRATOR.** A mechanical device for ascertaining the area and moments relative to any axis of any figure by tracing its outline.*

**integrator.** 1. *Electronic computers.* A device whose output is proportional to the integral of an input signal. 2. See: **INTEGRATOR.**

**intellectual property.** Intangible creations of the mind, including inventions, useful 'know-how,' technical and ornamental designs, and literary, art and other products of man's ingenuity.

**intercarrier sound.** The method employed in those television receivers which make use of the television picture carrier and the associated sound carrier to produce a frequency-modulated signal whose center frequency is equal to the difference between the two carrier frequencies.

**interceptor missile.** *Specif.* A guided missile used to intercept aircraft or guided missiles. See also: **antimissile missile.**

**interchangeable assembly.** Assembly in which any and all mating parts will assemble and function properly without the need for any machining or fitting at assembly. There are also instances in which a subassembly must be interchangeable in the complete assembly, although the parts within the subassembly need not necessarily be interchangeable.

**interchangeability list.** *Vehicles.* List of parts which are common to and interchangeable among various types of general purpose and combat vehicles.

**INTERCOMMUNICATION SET.** A complete wired system specifically designed to provide two-way voice communication which may be amplified. It may be supplemented by signal devices, between any two stations or from one station to any number of other stations in the set.*

**intercontinental ballistic missile.** (ICBM) A ballistic missile which has a range of not less than 5000 nautical miles.

**interdiction.** The prevention or destruction of, or interference with, enemy movements, communications, and lines of communication, as by gunfire, shelling, or bombing; the action of making it very difficult for the enemy to move from one place to another.

**interdiction bombing.** Bombing done for purposes of **interdiction.**

**interdiction fire.** Gunfire delivered in the process of **interdiction;** *specif.,* the fire placed on a specified place, as a railyard, assembly area, crossroad, or the like, and intended to prevent its effective use.

**interface.** 1. The boundary between two media especially as transited by a propagated wave, e.g., the inner surface of the bore of a gun. 2. The boundary, electrical or mechanical, existing between two systems or components.

**interference.** (interf) 1. The aerodynamic influence of two or more bodies on one another. 2. *Physics.* The effect of superimposing two or more trains of waves. The resulting amplitude is the algebraic sum of the amplitudes of the interfering trains. When two sets of spherical waves interfere, a system of stationary nodes and antinodes is formed, which in optics is known as interference fringes. See: **interferometer.** 3. *Radio communication.* The disturbance of reception owing to strays or undesired signals. 4. *Radar.* Confusing signals accidentally produced on the indicator by the effects of either friendly or enemy electrical apparatus or machinery or by atmospheric phenomena. 5. *Receivers.* In a signal transmission system, either extraneous power which tends to interfere with the reception of the desired signals, or the disturbance of signals which results. 6. The total amount of deformation which must be effected in order to force an internal member into a smaller external member.

**interference fit.** See: **fit.**

**interferometer.** An apparatus used to produce and show interference between two or more wave trains coming from the same luminous area, and also to compare wave lengths with observable displacements of reflectors, or other parts, by means of interference fringes. An interferometer is frequently used to obtain quantative information on flow around bodies in wind tunnels. See: **interference.**

**interior ballistics.** See: **ballistics.**

**interlacing.** A technique in television scanning wherein, if the lines are sequentially numbered, all the odd-numbered lines are scanned first, following which all the even-numbered lines are scanned.

**intermediate frequency.** In superheterodyne reception, a frequency resulting from the combination of the received modulated carrier frequency and the locally generated oscillator frequency.

An intermediate frequency is so called because it lies between the modulated radio frequency and audio frequency.

**intermediate range ballistic missile.** (IRBM) A ballistic missile which has a range of approximately 1500 nautical miles.

**intermittent jet.** See: **ENGINE, PULSE-JET.**

**intermodulation.** *Electroacoustics.* The modulation of the components of a complex wave by each other in a nonlinear system.

**internal ballistics.** 'Interior ballistics' is the preferred term. See: **ballistics.**

**internal combustion engine.** Any engine in which the pressure of gases formed by combustion of fuel is directly used to give the engine motion; *specif.* a piston-driven engine of this type that converts back-and-forth movement into rotary movement by means of a crankshaft.

This term is sometimes applied to jet engines, and in its broad meaning can be applied to rocket engines: the common designation for engines of this type, however, is 'reaction engine.'

**internal combustion reciprocating engine.** An internal combustion engine that converts back-and-forth movement into rotary movement.

**international candle.** An international unit of luminous intensity which is the light emitted by five square millimeters of platinum at solidification temperature.

**international foot.** That unit of length which is one-third of the **international yard**, which see, and is the exact equivalent of 304.8 millimeters. The international foot and appropriate multiples and submultiples thereof have been prescribed for use by the Ordnance Corps. Cf: **U. S. survey foot.**

**international heat test, 75°C.** See: **heat tests.**

**international inch.** That unit of length which is one thirty-sixth of the **international yard**, which see, and is the exact equivalent of 25.4 millimeters. The international inch has been prescribed for use by the Ordnance Corps.

**international nautical mile.** That unit of length established by international agreement as the exact equivalent of 1852 meters. The international nautical mile has been prescribed for use by the Ordnance Corps.

**international pound.** That unit of mass established by international agreement as the exact equivalent of 0.45359237 kilogram. The international pound and appropriate multiples and submultiples thereof have been prescribed for use by the Ordnance Corps.

**international yard.** That unit of length established by international agreement as the exact equivalent of .9144 meter. The international yard and appropriate multiples and submultiples thereof have been prescribed for use by the Ordnance Corps.

**interpolator.** A simple calculating device used to give fractions of the units of firing data that are computed by a percentage corrector or by other instruments which correct observed data for the effect of wind, speed, direction, etc.

**Inter-Range Instrumentation Group.** (IRIG) A Department of Defense advisory group composed of representatives from principal missile ranges in the U. S., the function of which is to present recommendations in the field of instrumentation to the commanders of the ranges and to other Government organizations requiring the service.

**interrogation.** *Electronics.* The act of transmitting radar pulses to trigger a radar beacon for purposes of identification and navigation; the pulses themselves. Also called the 'challenge.'

**interrogator.** (intg) An electronic device for transmitting challenging or interrogating pulses for reception and response by a transponder; also the radio or radar beacon used for this purpose.

The interrogator is one component of the **interrogator-responser** (which see).

**interrogator-responser.** An electronic device combining a transmitter for sending pulses interrogating a transponder and a receiver for receiving and displaying the answering pulses of the transponder. This device consists of an **interrogator** and a **responser.**

**INTERROGATOR SET.** A complete electronic set specifically designed to transmit predetermined signals for reception by coordinated transponding equipment and receive and interpret the reply of the transponding equipment. It may also transmit signals for the remote actuation of additional equipment, such as indicators, servo amplifiers, and the like.*

**INTERROGATOR-TRANSPONDER SET.** A complete electronic set which combines the functions of an INTERROGATOR SET and TRANSPONDER SET.*

**interrupted fire.** Automatic fire delivered in short series of bursts.

**interrupted-screw breechblock.** See: **breechblock, interrupted-screw.**

**interrupter.** A barrier in a fuze which prevents transmission of an explosive effect to some element beyond the interrupter. Used to obtain **fuze safety** (which see).

**interrupter gear.** A synchronizing gear for machine guns, so called because it interrupts the firing mechanism of the gun or guns to allow a propeller blade to pass the muzzle.

**intervalometer.** An electrical device used in bombing, by which data is preset in order to drop a desired number of bombs at a constant predetermined interval.

**intraline distance.** The minimum distance permitted between any two buildings within an explosives operating line. The distance is expected to protect buildings from propagation of explosions due to blast effect. Tables of distances may be found in the Ordnance Corps Safety Manual, ORDM 7-224.

**intrusion.** For a fuze which is partially housed within the missile, the length of that portion of the fuse which intrudes.

**inventory control.** Integrated materiel inventory management to include: cataloging direction, requirements computation, procurement direction, distribution management, rebuilt direction, and disposal direction.

**inverted engine.** An in-line engine in which the cylinders are placed below the crankshaft.

**INVERTER, VIBRATOR.** A device which through use of an interrupter vibrator and associated transformer or other inductive device changes a direct current input to an alternating current input.*

**ion.** A particle consisting of a positively or negatively charged atom or group or atoms.

**ion engine.** A species of reaction engine in which thrust is obtained by ejection of a stream of ionized atomic particles.

**ION EXCHANGE COMPOUND.** A chemical agent used to soften water by demineralization and to treat other compounds by means of a chemical substitution of positive and negative radicals of compounds (ions). Includes natural and resinous types of zeolites. Most types are capable of being regenerated.*

**ionisation chamber.** An instrument consisting essentially of a closed chamber or tube of air or gas with two electrodes, used for detecting and measuring nuclear radiation.

Radiation passing through an ionization chamber ionizes the air or gas in the chamber, permitting detection and measurement of the radiation by electrical means.

**ionosphere.** See: **atmospheric shells.**

**Iowa Ordnance Plant.** Ordnance Corps field installation, located at Burlington, Iowa.

**IRBM** *(abbr).* 'Intermediate range ballistic missile.'

**IRE** *(abbr).* 'Institute of Radio Engineers.'

**IRFNA** *(abbr).* 'Inhibited red fuming nitric acid.'

**IRIG** *(abbr).* 'Inter-Range Instrumentation Group.'

**IROAN concept.** [*Inspect, repair only as necessary.*] A concept embracing this approach to maintenance rebuild and field repair activity. The concept limits this maintenance activity to those repairs determined necessary upon inspection. This type of repair does not change any previous reliability or performance requisites.

**iron sight.** Any metallic gunsight, as a blade sight, as distinguished from an optical or computing sight.

**irreversible steering gear.** The steering gear of a vehicle so designed as to prevent transmittal of wheel deflections to the steering wheel or control. See: **reversible steering gear.**

**irritant gas.** A nonlethal gas, causing irritation of the skin and flow of tears. Any one of the family of 'tear gases' used for training and riot control. See: **tear gas.**

**ISA** *(abbr).* 'Instrument Society of America.'

**isobar.** A chart line drawn through points of equal barometric pressure. Isobars are drawn on weather charts to indicate instantaneous pressures over a certain area for the same time of day.

**isobaric adiabatic flame temperature.** Adiabatic flame temperature attained in a constant pressure system. See: **adiabatic flame temperature.**

**isochoric adiabatic flame temperature.** Adiabatic flame temperature attained in a constant volume system. See: **adiabatic flame temperature.**

**isolead curve.** Curved line, on a chart or diagram, used to show how far ahead of a moving target a weapon must be aimed to allow for the time the projectile takes to reach the target. The isolead curve connects points of equal lead on the chart or diagram.

**iso-octane.** An octane with a particular branch structure (2, 2, 4-trimethylpentane) that gives it high antiknock value when used in liquid fuel. Called 'octane' for short. See also: **octane number.**

**isotherm.** A chart line drawn through points of equal temperature.

**item name.** A basic name, or basic name followed by those modifiers necessary to differentiate between item concepts for items having the same basic name. Example: TRUCK, CARGO. See also: **basic name** and **nomenclature.**

**IV** *(abbr).* 'Initial velocity.'

# J

**jacket.** 1. Cylinder of steel covering and strengthening the breech end of a gun or howitzer tube. 2. The water jacket on some machine guns. 3. See: **jacket, bullet.**

**jacket, bullet.** A metal shell surrounding a metal core, the combination comprising a bullet for small arms. The jacket is either composed of, or coated with, a relatively soft metal such as **gilding metal** (which see) which engages the rifling in the bore, causing rotation of the bullet.

**jam.** 1. Of a machine gun, full-automatic, semiautomatic or other firearm: To stick or become inoperative because of improper loading, ejection, or the like. 2. To make the transmissions of a radio unintelligible; to make a radio or radar set ineffective, either by the use of counter-transmissions or by the use of a confusion reflector. See: **electronic jamming.** 3. An instance of jamming.

**jamming.** 1. Electronic jamming. 2. Of equipment: That jams.

**jamming device.** Any device used to transmit or reflect electromagnetic waves for jamming purposes.

**JAN** *(abbr)*. 'Joint Army-Navy.' (Often pronounced as a word.)

**JANAF** *(abbr)*. 'Joint Army-Navy-Air Force.' (Often pronounced as a word.)

**JANAP** *(abbr)*. 'Joint Army-Navy-Air Force Publications.' (Often pronounced as a word.)

**JATO** *(abbr)*. 'Jet assisted takeoff.' (Often pronounced as a word.)

**jato, reverse.** See: **rocket motor, reverse.**

**jato unit.** A ROCKET MOTOR, consisting of one or more continuous type combustion units closed at one end, with a nozzle type opening(s) at the other end containing a propelling charge which, when ignited, creates a gas pressure that is expelled through the nozzle(s), exerting a propulsion action. The item is normally used to assist the initial action of the main propulsion unit(s). Terms JATO and JATO UNIT discontinued as official names in favor of ROCKET MOTOR or ROCKET ENGINE.

**JCS** *(abbr)*. 'Joint Chiefs of Staff.'

**jeep.** A one-quarter ton, four-wheel-drive, utility vehicle in wide use in all services.

**Jefferson Proving Ground.** Ordnance Corps field installation, located at Madison, Indiana.

**jel.** Variant of 'gel.'

**jellied gasoline.** See: **CHEMICAL AGENT, INCENDIARY OIL.**

**jerry can.** A five-gallon, flat-sided, narrow can, adapted from a German-made can, easily stacked and transportable, and adapted by special openings for discharging fuel. Also called 'blitz can.' *Slang.*

This term is sometimes written solid, *jerrican*, a French spelling of the English loan word. See also: **CAN, GASOLINE, MILITARY.**

**jet.** 1. A **jet stream** (which see). 2. a. In a carburetor, a nozzle or tube of a predetermined size for metering the flow of fuel. b. The fuel flow so metered. 3. A jet engine. 4. A jet airplane. 5. As pertains to shaped charge ammunition: a. From a lined charge: The slender, generally fastest moving part of a liner after collapse. b. From an unlined shaped charge: The central stream of high-velocity gases produced upon detonation.

**jet assist.** 1. An assist in thrust given an airplane or missile by use of a jet engine or a jato unit. 2. The unit that provides this assist. Cf: **rocket assist.**

**jet assisted takeoff.** (JATO) A takeoff assisted by use of a jet stream, especially that of a ROCKET MOTOR. See also: **jato unit.**

**jet breakup.** As pertains to shaped charge ammunition: Breaking of jet into discrete particles. The time of breakup is a factor in effective penetration. Bifurcation: radial breakup of the jet into two distinct jets. Polyfurcation: radial breakup of the jet resulting in two or more distinct jets.

**jet engine.** 1. A species of reaction engine, namely, an engine that takes in air from outside for use as a fuel oxidizer and projects a jet of hot gases backward to create thrust, the gases being derived from combustion within the engine. 2. In a broader sense, any reaction engine. *Obsolescent.*

**JET FUEL.** A liquid petroleum distillate refined especially for use in jet engines. Excludes PROPELLANT (as modified).*

**jet horsepower.** The thrust horsepower of a jet stream.

**jet motor.** A **ROCKET MOTOR.** See: **jet engine.**

**jet-propelled.** (JetP) *Specif.* Propelled by one or more **jet engines** (esp. sense 1), as in *jet-propelled aircraft, jet-propelled missile, jet-propelled squadron.*

**jet propulsion.** (JP) Propulsion by means of a jet of gas or fluid; *specif.*, propulsion by means of a **jet engine** (sense 1) or engines.

***Jet Propulsion Laboratory.*** (JPL) *Government-owned,* contractor-operated installation located at Pasadena, California. The contractor is the California Institute of Technology. Formerly operated as an agency under the U. S. Army Ordnance Corps, with responsibility for research and development in jet and rocket propulsion and associated problems including aerodynamics and guidance. This agency was transferred to the National Aeronautics and Space Administration, effective 3 December 1958.

**jet stream.** The stream of gas or fluid expelled by any reaction device, esp. the stream of combustion products expelled from a jet engine, rocket engine, or rocket motor.

**jet thrust.** The **thrust** (which see), measured in pounds, developed by a jet engine, rocket engine, or the like, in reaction to its jet stream; *specif.*, the thrust of a jet engine.

**jet vane.** A fixed, adjustable, or movable vane placed directly in a jet stream to improve stability or control, especially at low speeds.

**jet velocity.** 1. The velocity of a jet stream, usually measured with respect to surrounding air. 2. Pertaining to shaped charge ammunition: The measured velocity is usually the velocity of the tip of the moving jet after detonation of the charge but before penetration of the target. For conical liners in cylindrical charges, the tip moves fastest, the tail of the jet slowest, with a gradient of velocities between.

**jewel.** See: **bearing, jewel.**

**jig.** *Mechanical.* A device fastened to or inclosing a piece of work. It is a special tool designed to give the location of work during actual machining and must be equipped with facilities for guiding cutting tools, such as drills, to insure all parts manufactured with the help of a particular jig shall conform to duplicate dimensions.*

**jitter.** The jittering or unstable motion of a signal on a cathode-ray screen.

**jitter, beam.** See: **beam jitter.**

**joint.** Of a force, organization, operation, plan, mission, etc.: Belonging to, or carried out by, two or more military services of the same nation, as in 'joint campaign,' 'joint board,' 'joint command.'

When all services are not involved, each participating service should be identified, as in 'Joint Army-Navy operation.'

**Joint Army-Navy-Air Force Publications.** (JANAP) A series of publications produced by supporting agencies of the Joint Chiefs of Staff and intended for distribution through the approved offices of distribution within the Army, Navy, and Air Force.

**Joliet Arsenal.** Ordnance Corps field installation, located at Joliet, Illinois.

**jolt and jumble tests.** A standardized program of tests intended to simulate the shocks to which various components of ammunition are subjected in transportation and handling.

**Jominy test.** A test to determine the hardenability of steels. It is conducted by cooling the end of a bar of the test steel under standard conditions in a prescribed manner and determining the resulting hardness pattern.

**JP** *(abbr).* 'Jet propulsion.'

**JPL** *(abbr).* 'Jet Propulsion Laboratory.'

**jump.** 1. Movement of a gun tube or barrel when the gun is fired. 2. **Angle of jump,** which see.

**JUNCTION BOX.** An inclosure of other than cast metal designed to house, mount and protect, but does not include wiring connections or electrical devices such as terminals and/or terminal boards, switches, jacks, fuseholders, connectors, circuit breakers and the like.*

**Jupiter.** Name applied to an Army-developed intermediate range ballistic missile. Utilizes liquid fuel and inertial guidance. Capable of carrying a thermonuclear warhead.

**Jupiter C.** Army research vehicle built to test components of the Jupiter. Used for developing nose cones and for launching Explorer satellites. First stage uses Redstone engine. Upper stages are solid propellant rockets.

# K

**K.** 1. In artillery ground fire, a factor to be applied to the actual range to a point in order to determine the range which must be fired to hit that point. The K factor is the result of registration and/or the solution of a meteorological message. It is expressed as 'plus' ( us' so many yards per thousand units of actual r . Cf: **K transfer.** 2. The ratio of propellant surface to nozzle throat area. 3. **Kelvin scale** (which see).

**K-14 sight.** A gyroscopic computing gunsight employing a mechanical range-control system.

**K-18 sight.** A gyroscopic computing gunsight employing an electrical range-control system.

**kamikaze.** [Japanese 'divine wind.'] 1. An action taken by certain Japanese pilots during WW II, in which they flew their airplanes as missiles against Allied targets, involving self-destruction on the part of the pilots; any like action performed by any pilot. 2. Short for 'kamikaze airplane,' 'kamikaze attack,' or 'kamikaze pilot.'

**Kankakee Ordance Works.** Ordnance Corps field installation, located at Joliet, Illinois. A sub-installation of Joliet Arsenal.

**Kansas Ordnance Plant.** Ordnance Corps field installation, located at Parsons, Kansas.

**Kantrowitz-Donaldson diffuser.** See: **diffuser, Kantrowitz-Donaldson.**

**Katusha.** A type of Russian mutiple rocket launcher used in WW II, operating either from fixed or mobile installations.

**kc** *(abbr).* 'Kilocycle(s).'

**kcs** *(abbr).* 'Kilocycles per second.'

**K damage.** See: **damage categories.**

**keeper.** 1. A dowel or pin used to keep piston rings from moving out of a fixed position. 2. Loop that holds straps or cords together. Keepers are used on gun slings, etc.

**Kelvin scale.** (K) A temperature scale that uses centigrade degrees, but makes the zero degree signify absolute zero.

In this scale, water freezes at plus 273.16 degrees and boils at 373.16 degrees.

This scale is named after the first Baron Kelvin (1824-1907), English mathematical physicist and inventor.

**KEROSINE.** A refined medium liquid petroleum distillate used as an illuminant in lamps and as fuel in stoves. Excludes KEROSINE, DEODORIZED; ILLUMINATING OIL, PETROLEUM and PROPELLANT, KEROSINE.*

**key.** 1. *Propellant actuated devices.* Small mechanical component in a PAD mechanism which acts as a restraint to limit the direction of motion of a component. 2. *Electronic computers.* A group of characters usually forming a field, utilized in the identification or location of an item; a marked lever manually operated for copying a character, e.g., typewriter, paper tape perforator, card punch manual keyboard, digitizer or manual word generator.

**keyholing.** Tumbling of bullet in flight usually caused by failure of the bullet to receive sufficient spin from the rifling in the barrel.

**KEY, MACHINE.** An item of solid metal, usually square or rectangular in cross section, usually longer in relation to its width and thickness, with or without a head, designed to fit into a slot on an axle or shaft, and into a mating slot in a hub or boss of a wheel, gear, pulley.*

**Keystone Ordnance Works.** Ordnance Corps field installation, located at Meadville, Pennsylvania. A sub-installation of Ravenna Arsenal.

**KEY, WOODRUFF.** An item in the form of a segment of a disk, which may have a flat bottom, with or without projecting shoulders, designed to fit into a keyway in an axle or shaft, and into a matching slot in the hub or boss of a wheel, gear or pulley.*

**K-gun.** A type of Navy gun in the shape of a 'K' for firing depth charges on arbors.

**kick.** 1. Violent backward movement of a gun after being fired, caused by the rearward force of the propellant gases acting on the gun. 2. Move backwards under the force of a propelling explosion. In both meanings, also called 'recoil.'

**kill.** 1. A term used alternatively with K damage, destructive damage. See: **damage categories.** 2. To cause a person or animal to die. 3. To destroy an aircraft or other vehicle.

**kill probability.** Probability that, given a hit, a single projectile or missile will kill the target against which it is fired. See also: **single shot probability.**

**kiloton.** The explosive energy of 1000 tons of TNT. Cf: **megaton.**

**kinetic energy ammunition.** Ammunition designed to inflict damage to fortifications, armored vehicles or ships by reason of the kinetic energy of the missile upon impact. The damage may consist of shattering, spalling or piercing. The missile may be solid, or may contain an explosive charge, intended to function after penetration. Cf: **chemical energy ammunition.**

**kinetic lead.** The correction or allowance made for the relative motion of a target when computing the lead angle in gunnery. Cf: **ballistic lead.**

**KINGPIN, FIFTH WHEEL.** A metal item designed for mounting to a fifth wheel coupler or fifth wheel upper plate to provide a towing and pivot connection between a truck-tractor or dolly and the semitrailer.*

**KINGPIN, STEERING KNUCKLE.** A hardened metal pin, with or without a head, designed to connect the wheel spindle to the front axle to permit vehicular steering. May be grooved, slotted or threaded to accommodate a locking device and drilled or grooved for lubrication.*

**Kingsbury Ordnance Plant.** Ordnance Corps field installation, located at Laporte, Indiana.

**K, internal.** The ratio of propellant surface which must discharge past any constricted region to the area at that region, at the most restricted portion of a rocket motor.

**Kirkwood-Brinkley's theory.** In terminal ballistics, a theory formulating the scaling laws from which the effect of blast at high altitudes may be inferred, based upon observed results at ground level. See: **Sach's theory.**

**KI starch paper test.** Test applied to check the stability of nitrocellulose, a sample of which is heated to 65.5°C in a glass tube in which is placed a piece of paper impregnated with potassium iodide and starch. The stability is measured by the length of time required for the products of decomposition to discolor the test paper. Specifications require that the paper shall not be discolored in less than 35 minutes.

**kit bag.** A closed baglike container, to be carried as a piece of luggage, designed to hold a group of related special purpose items.*

**kit case.** A caselike container, to be carried as a piece of luggage, especially designed to hold a group of related special purpose items.*

**KITE, ANTENNA.** An item consisting of one or more plane or winglike surfaces, which derives its lifting power from the inclination of its axis to the wind, and which is used to hoist and hold aloft an antenna.*

**kit, maintenance.** See: **maintenance kit.**

**kit, modification, guided missile launcher.** See: **MODIFICATION KIT, GUIDED MISSILE LAUNCHER.**

**kit, rocket conditioning.** See: **CONDITIONING KIT, ROCKET.**

**KK damage.** See: **damage categories.**

**klystron.** A vacuum tube for converting direct-current energy into radio-frequency energy by alternately slowing down and speeding up an electron beam, utilizing the transit time between two points to produce a velocity-modulated electron stream to deliver radio-frequency power to a cavity resonator. The term is applicable to an ultra-high-frequency amplifier, or generator, that combines the velocity-modulation principle with one or more cavity resonators to produce and/or utilize a velocity-modulated beam of electrons. See: **ELECTRON TUBE.**

**knife, trench.** See: **BAYONET-KNIFE.**

**KNOB.** An item of various shapes designed to be gripped by the fingers to transmit motion to other devices. May include detachable or nondetachable shaft, stud, pointer, or skirt. It may have reference markings in the form of dots, arrows, hairlines, and/or symbols which may be used in conjunction with a calibrated panel, vernier indicator, and the like to indicate the position or motion of items such as switches, valves, variable capacitors and the like. For items having a maximum diameter of three inches or more, excluding skirt and for all items, regardless of size, having spoked or simulated spoked construction, see: **HANDWHEEL.***

**knock.** A **detonation** (which see, sense 2).

**knot.** (kt) A velocity of one nautical mile per hour, i.e., 1.1508 statute miles per hour.

**known datum point.** A clearly visible point, to which the azimuth and range are known.

**known-distance firing.** Practice firing when the distance between the weapon and the target is known.

**knuckle pin.** See: **KINGPIN, STEERING KNUCKLE.**

**knuckle post.** *Automotive.* The vertical arm or post of the steering knuckle on which the knuckle is pivoted.

**kopfring.** A metal ring which is attached to the nose of a bomb to reduce its penetration in earth or water.

**KT** *(abbr).* 'Kiloton.'

**K transfer.** In artillery ground fire, the shift of fire from one point to another in the transfer limits of the piece, the actual range being corrected by application of the K. See: **K.**

# L

**L** *(abbr)*. Chemical agent, 'lewisite' (war gas).

**labeled cargo.** Cargo of a dangerous nature, such as explosives, flammable or corrosive liquids, and the like, which is designated by different colored labels to indicate the requirements for special handling and storage. Examples of such colored labels are:

**label, green.** A label required on shipments of nonflammable gases.

**label, red.** A label required on shipment of articles of a flammable nature.

**label, white.** A label required on shipments of acids or corrosive liquids.

**label, yellow.** A label required on shipments of flammable solids and oxidizing materials.

**laboratory notebook.** Notebook to be kept by engineers, scientific and laboratory personnel for the purpose of recording by dates the projects undertaken, work performed, and results achieved. All entries should be dated, signed and witnessed in such manner that the notebook serves not only as a technical record but also as a useful legal document for establishing the dates of conceptions, inventions, etc., in connection with patent claims.

**LACQUER.** A clear or pigmented liquid coating composition which, when applied in a thin layer, sets and dries rapidly to form a solid film chiefly by evaporation of the solvent portion of the vehicle. It is composed basically of a cellulose derivative and/or a blend of resins such as vinyl, acrylic, polystyrene, and the like, mixed in a solvent, with or without the addition of plasticizers. Excludes all items that are mechanically strippable.*

**lacrimator.** A chemical agent of the tear gas type. See: **tear gas.**

**Lacrosse.** Name applied to an Army surface-to-surface guided missile used by ground forces for attack of enemy strong points, such as pill boxes. Employs solid fuel and command guidance.

**Lacrosse target ranging set test set.** See: **TEST SET, GUIDED MISSILE TARGET RANGING SET.**

**LADDER, ROTATING, AERIAL.** A ladder with an adjustable metal base attached thereto, designed to be mounted on a motor truck or trailer. It is adjustable to various angles of inclination and rotation and is used for overhead installation and maintenance work.*

**Lake City Arsenal.** Ordnance Corps field installation, located at Independence, Missouri.

**Laminac.** A proprietary polyester resin containing styrene, which becomes self-hardening when a suitable catalyst is added. Used as an adhesive and binding agent.

**laminar boundary layer.** A **boundary layer** characterized by laminar flow.

**laminar flow.** A nonturbulent airflow over or about an airfoil or other body, made up of thin parallel layers.

**LAMMP** *(abbr)*. 'Lower acceptable mean maximum pressure.'

**lamp unit.** A sealed item containing a light source and one or more of the following: reflector, lens, shade and/or mask. It is designed to be a replacement unit for a specific type light. Use application type modifier such as stop light.*

**lamp, vehicle.** Lighting device mounted on a vehicle. Types include:

**backing:** A lighting unit mounted on rear end of vehicle and intended to illuminate road to rear.

**dome:** An interior lighting unit mounted in top of vehicle.

**head:** A lighting unit on front of vehicle intended primarily to illuminate road ahead of vehicle.

**hood:** A lighting unit mounted under hood of vehicle to illuminate engine compartment.

**inspection:** A portable lighting unit connected by extension cord to lighting system of vehicle.

**instrument:** A lighting unit mounted on instrument board and intended to illuminate instruments.

**panel:** A lighting unit mounted either in rear panel or in corners of closed vehicle.

**side:** A lighting unit mounted on either side of vehicle and intended primarily as a marker to indicate location of vehicle. Side lamps cover types generally known as bullet, cowl, fender or parking, pillar or wind-shield lamps.

**spot:** A lighting unit, mounted on a manually operated adjustable bracket, which has one focusing-type reflector and one focusing-type light source.

**step:** A lighting unit mounted on exterior of vehicle and intended primarily to illuminate step or running board.

**tail:** A lighting unit used to indicate rear end of vehicle by means of a ruby sight.

**land.** 1. *Firearms.* One of the raised ridges in the bore of a rifled gun barrel. See: **rifling.** 2. *Electroacoustics.* The record surface between two adjacent grooves of a mechanical recording.

**landing craft.** Craft which is especially designed for beaching, unloading or loading on the beach, and retracting.

**LANDING CRAFT, MECHANIZED.** (LCM) A twin-propeller, steel landing craft, with a ramp bow, designed to land military equipment, such as trucks, trailers, and tanks directly on the beach, and to retract under its own power.*

**landing ship.** Large type assault ship generally over 200 ft long which is designed for long sea voyages and for rapid unloading over or onto a beach.

**LANDING VEHICLE, TRACKED.** (LVT) A track propelled vehicle, with or without armor protection or fixed armament, for use in amphibious landing operations to carry personnel or cargo on rough waters, over coral reefs and other obstacles. Excludes CARRIER, CARGO, AMPHIBIOUS.*

**LANDING VEHICLE, WHEELED.** A self-propelled wheeled vehicle designed to transport cargo and/or

personnel on land or water.* Popularly called 'DUKW', pronounced 'duck'.

**landmark.** *Land mine warfare.* A feature, either natural or artificial, that can be accurately determined on the ground from a grid reference.

**lane marker.** *Land mine warfare.* Used to mark a minefield lane. Lane markers at the entrance to and exit from the lane will be referenced to a **landmark** or intermediate marker.

**land mine.** See: **mine, land.**

**language.** (lang) *Electronic computers.* A **set** of symbols, with rules for the combination of these symbols, which may be used to express information, such that the sum of the number of symbols and the number of rules is much smaller than the number of distinct expressible meanings. See also: **code.**

**Langweiler charge.** See: **charge, traveling**

**LANYARD, FIRING.** A cord or cable of specific length usually with a hook on one end and a *handle* on the opposite end. It is designed to be attached to a component of the firing mechanism of a gun, rocket launcher, smoke puff discharger or the like and is used to fire the weapon by remote control. Excludes LANYARD, LINE THROWING GUN and LANYARD, PISTOL.*

**LANYARD, PISTOL.** An assembly of a cord, slides, and a fastening device, generally used by military police. It is worn looped over the shoulder with the end attached to the pistol.*

**LAOD** *(abbr).* 'Los Angeles Ordnance District.'

**LARC** *(abbr).* [*L*ighter, *A*mphibious, *R*esupply *C*argo.] (Usually pronounced as a word.) An over-the-beach amphibious wheeled vehicle designed to deliver general cargo from ship to inland storage or distribution areas.

**Lark.** A Navy rocket-powered guided missile, designed as a short-range antiaircraft weapon.

**LASER** *(abbr).* 'Light amplification by stimulated emission of radiation.'

**lash-up.** A model or test sample of equipment required in the testing of a new concept or idea which is in the embryo stage. See also: **mockup; production model; prototype (preproduction) model.**

**latch.** *Specif.* A device designed to fasten a rocket in or on a launcher prior to firing.

**latent defect.** A flaw or other imperfection in any article which is discovered after delivery to the Government. Usually, latent defects are inherent weaknesses which normally are not detected by examination or routine tests, but which are present at time of manufacture and are aggravated by use.

**lateral.** 1. Situated at the side, coming from the side, directed toward the side. Said esp. of an aircraft's movements or attitudes. 2. To one side of a line, such as the observer-target line in control of fire.

**lateral acceleration.** See: **acceleration, lateral.**

**lateral adjustment correction.** See: **lateral deflection angle.**

**lateral deflection angle.** The horizontal angle representing the difference between the azimuth of the target at the instant of firing and the azimuth at which the gun must be pointed in order to hit the target. It is the algebraic sum of the principal lateral deflection angle and the lateral pointing correction.

*approximate lateral deflection angle.* An approximation of the principal lateral deflection angle obtained by multiplying an instantaneous lateral angular velocity by a time of flight.

*lateral pointing correction.* That part of the lateral deflection angle due to causes other than the travel of the target, such as wind, drift, and lateral adjustment correction.

*principal lateral deflection angle.* That part of the lateral deflection angle due to the change in the azimuth of the target during the time of flight.

**lateral deflection setting.** The setting on the lateral deflection scale of the sighting mechanism of the gun, corresponding to the lateral deflection angle.

**lateral deviation.** Horizontal distance between the point of impact or burst and the gun-target line.

**lateral jump.** The horizontal angle between the **plane of fire** and the **plane of departure.**

**lateral lead.** The horizontal angle by which the gun must be traversed to the right or left of the line of position for the trajectory to pass through a moving target. It is equal to the algebraic sum of the principal lateral deflection and the lateral pointing correction.

**lateral observation.** Observation of gunfire from a point considerably to the right or left of the line of fire.

**lateral pointing correction.** See: **lateral deflection angle.**

**lateral resistance derivatives.** See: **derivatives, lateral resistance.**

**lateral stability.** See: **stability, lateral.**

**lathe.** A machine tool used principally for shaping articles of metal, wood, or other material by causing the work to revolve while the cutting tool, held either by hand or a mechanical holder, is applied to the work.*

**lattice.** *Navigation.* A pattern of fixed lines of position established by a system of radio or radar transmitters.

**lattice energy.** *Chem.* The energy required to separate the ions of a crystal to an infinite distance from each other.

**lattice network.** *Elec.* A network composed of four branches connected in series to form a mesh. Two nonadjacent junction points serve as input terminals, while the remaining two junction points serve as output terminals.

**launch.** 1. To release or send forth, under its own power only, a rocket missile, robot bomb, or the like from a special launcher, rack, ramp, or other device or installation. 2. To drop or release an aerial torpedo from an aircraft. 3. To catapult, especially to catapult or discharge a torpedo from a torpedo tube or to catapult an airplane, as from a ship's deck.

**launcher.** A structural device, airborne, fixed, mobile, portable, seaborne, or transportable, designed to support and hold in position for firing a rocket or guided missile. It may have limited means for directing the flight. It is not equipped with any form of powered device for catapulting the rocket or guided missile into the air.*

**launcher adapter.** See: **adapter, launcher.**

**LAUNCHER AND ROCKET, AIRCRAFT.** An item consisting of a launcher and rocket(s). It is designed to be attached to an aircraft, and after firing,

the launcher may be expendable and jettisoned in flight.*

**LAUNCHER, GRENADE.** A device designed to hold a grenade in position for firing but does not itself propel the missile. Excludes LAUNCHER, ROCKET.*

**LAUNCHER, HELICAL RAIL, GUIDED MISSILE.** A helical rail launcher formed in a right-hand helix of not less than 10 degrees and not more than 30 degrees. It is designed with a hydraulically powered system for positioning the rail less than 45 degrees in azimuth and less than 90 degrees in elevation. May be equipped with automatic missile test set, firing panel and sighting device.*

**launcher line.** *Aircraft.* For a single launcher, the axis of its bore extended. For a multiple launcher, the mean of the single launcher lines. Cf: **effective launcher line.**

**LAUNCHER-LOADING RACK, GUIDED MISSILE.** An item having the dual function of a LAUNCHER, MONORAIL, GUIDED MISSILE or a LAUNCHER, HELICAL RAIL, GUIDED MISSILE and a RACK, LOADING, GUIDED MISSILE. Specifically designed for storing, erecting, and firing a guided missile.*

**LAUNCHER, MONORAIL, GUIDED MISSILE.** A single rail missile launcher designed to rotate 360 degrees left or right from an azimuth position and 90 degrees in elevation.*

**LAUNCHER, MONORAIL, ROCKET.** A single rail rocket launcher with retractable undercarriage, outriggers and leveling jacks. It is designed to rotate less than 45 degrees in azimuth and less than 90 degrees in elevation. It may be equipped with sighting unit and firing panel.*

**LAUNCHER, PLATFORM, GUIDED MISSILE.** A platform launcher which is designed to rotate through 360 degrees in azimuth, and to launch the missile at 90 degrees in elevation. Excludes LAUNCHER, ZERO LENGTH, GUIDED MISSILE.*

**LAUNCHER, ROCKET.** A launcher designed to support and hold in position for firing a rocket(s). It may be fixed or portable. See also: **LAUNCHER** (as modified).*

**LAUNCHER, ROCKET, AIRCRAFT.** A launcher designed for aircraft installation. It is designed for attaching, arming, releasing and/or ejecting one or more ROCKET (as modified). See also: **LAUNCHER, ROCKET; LAUNCHER, MONORAIL, ROCKET.***

Various types of aircraft rocket launchers are normally identified by a word or term in parentheses identifying the kind of launcher as follows: ***aircraft rocket launcher (automatic)***; ***aircraft rocket launcher (displacement)***, a kind of launcher that swings rockets from carrying position into firing position; ***aircraft rocket launcher (drop)***, a launcher that drops the rocket before ignition; ***aircraft rocket launcher (full automatic)***, a kind of launcher requiring only operation of the firing switch to fire and launch a number of rockets automatically; ***aircraft rocket launcher (post)***, a launcher carrying the rocket on a post or posts fitted to the rocket motor tube; ***aircraft rocket launcher (rail)***, a launcher carrying the rocket on rails; ***aircraft rocket launcher (semiautomatic)***, a launcher requiring operation of both feeding and firing switch; ***aircraft rocket launcher (tree)***, a kind of launcher having a central stem with rocket-bearing branches; and ***aircraft rocket launcher (tubular)***, a launcher carrying the rocket in, and launching it through, a tube.

**launcher, tower.** A missile launcher that is vertical (or nearly so) and high enough to give directional stability to the missile. Also called 'vertical tower launcher.'

**launcher, zero length.** A short mobile launcher, designed essentially to hold the object launched in position for launching, not to give it guidance.

**LAUNCHER, ZERO LENGTH, GUIDED MISSILE.** A launcher which breaks physical contact with a missile immediately upon firing. Excludes LAUNCHER, PLATFORM, GUIDED MISSILE.*

**aunching and handling rail, guided missile.** See: **RAIL, LAUNCHING-HANDLING, GUIDED MISSILE.**

**launching angle.** *Specif.* The angle between the horizontal and the longitudinal axis of a rocket or missile at the time of launching.

**LAUNCHING CONTROL GROUP, GUIDED MISSILE.** A group which provides facilities for monitoring and controlling two or more launching sections.*

**aunching platform.** A platform from which a guided missile or the like is launched or fired. Also called a 'firing platform.' See: **LAUNCHER, PLATFORM, GUIDED MISSILE; LAUNCHER, ROCKET.**

**launching rail.** See: **LAUNCHER, MONORAIL, GUIDED MISSILE; LAUNCHER, MONORAIL, ROCKET; RAIL, LAUNCHING-HANDLING, GUIDED MISSILE.**

**launching ramp.** A ramp used for launching an aircraft or missile into the air.

**LAUNCHING SHOE, MISSILE-ROCKET.** An irregular shaped item specifically designed for mating with the rails of a launcher to impart the rotating or straight motion required to maintain stability of a guided missile or rocket in flight.*

**launching site.** 1. A site from which launching is done, such as a site used for the German V-1 and V-2 of WW II. 2. The platform, ramp, rack, or other installation at such a site.

**LAUNCHING STATION, GUIDED MISSILE, SEMITRAILER MOUNTED.** A specifically designed mobile missile launching station equipped to assemble, test, and launch a guided missile.*

**aunching tube.** A tube used to guide a rocket missile or other projectile during launching. See: **LAUNCHER, ROCKET.**

**LAW** *(abbr).* 'Light antitank weapon.'

**law of burning.** *Interior ballistics.* The rate of regression of the burning surface equals $qP^r$, where P is the pressure. In Bennett's table (BRL R-993), q is called the **quickness** (which see) and $r = \frac{1}{3}$. In Röggla's charts, $r = 0.7$.

**law of reflection.** *Optics.* The angle of reflection is equal to the angle of incidence; the incident ray, reflected ray, and the normal, all lie in the same plane.

**law of refraction.** *Optics.* When light is passing from a lighter medium to a denser medium, its path is deviated toward the normal; when passing into a less dense medium, its path is deviated away from the normal. The amount of deviation is determined by means of the equation for the index of refraction for the two media involved.

**lay.** 1. To direct or adjust the aim of a weapon. 2. Setting of a weapon for a given range, or for a given direction or for both.

Not usually applied to shoulder or hand arms in either sense.

**layout.** Plan or design, as illustrated by sketches or drawings, to determine feasibility or practicability.

**LC** *(abbr).* 'Light case.'

**lchr** *(abbr).* 'Launcher.'

**LCM** *(abbr).* 'Landing craft, mechanized.'

**LD** *(abbr).* 'Line of departure.'

**LE** *(abbr).* 'Low explosive.'

**leaching.** The treatment of a solid material with a liquid capable of extracting the soluble portions.

**lead.** [Rhymes with 'feed.'] 1. The action of aiming ahead of a moving target with a gun, bomb, rocket, or torpedo so as to hit the target, including whatever action is necessary to correct for deflection. 2. The lead angle. 3. The distance between the moving target and the point at which the gun or missile is aimed. 4. The number of diameters for one complete turn of the rifling. See: **rifling.** 5. An explosive train component which consists of a column of high explosive, usually small in diameter, used to transmit detonation from one detonating component to a succeeding high explosive component. It is generally used to transmit the detonation from a detonator to a booster charge. Also called 'explosive lead.' 6 The distance a screw advances axially in one turn. On a single-thread screw, the lead and *pitch* are identical; on a double-thread screw, the lead is twice the pitch, etc. See: **pitch, sense 2.**

**lead angle.** 1. The angle between the line of sight to a moving target and the line of sight to a point ahead of the target, at which point a missile is aimed so as to strike the target. 2. A dropping angle.

A lead angle (sense 1) may include corrections for gravity and wind effects upon the missile and also for other deflection effects if the launching device is also in motion, as well as for the motion of the target. However, a lead angle is not to be confused with a **deflection angle** (which see, sense 2), which need not represent a lead.

**lead azide.** Primary high explosive (which see) used in small quantities (as in detonators) to set off other explosives. Lead azide, $Pb(N_3)_2$, as usually prepared, consists of colorless crystals. This agent has largely replaced mercury fulminate in military ammunition.

**lead bullet.** In small arms ammunition, indicates a bullet composed of lead or of a composition with a high percentage of lead.

**lead chart.** A chart or table giving the leads necessary to strike a moving target under various conditions, such as the distance to the target and its speed and direction of travel.

**lead computer.** Device for calculating leads to hit a moving target. It is often a device in the sights or mount of a machine gun that automatically gives the proper lead when the target is tracked by the gun. See: **SIGHT, LEAD COMPUTING, AUTOMATIC.**

**lead curve.** Line on a chart, which records in graphic form the lead involved in aiming a weapon at a moving target.

**leader cable.** A navigational aid consisting of a cable around which a magnetic field is established, marking the path to be followed.

**lead in.** A lead (sense 5, which see), that conducts a detonating impulse into an explosive-loaded cavity.

**leading edge.** The edge of an airfoil, as of a wing, propeller, or stabilizer, which first meets or bites the air.

**leading fire.** Fire delivered ahead of a moving target to allow for its motion.

**lead marks.** Small marks on the eyepiece of a telescope by means of which the angular lead to allow for the motion of a target may be calculated.

**lead out.** A lead (sense 5, which see), that conducts a detonating impulse out of an explosive loaded cavity.

**lead styphnate.** A primary high explosive (which see). It forms reddish-brown rhombic crystals. It is a relatively poor initiator of detonation but has found use as a cover charge for lead azide and as an ingredient of priming compositions because of its relative heat sensitivity. Used extensively in some explosive trains.

**leaflet bomb.** See: **BOMB, LEAFLET.**

**leaflet projectile.** See: **projectile, leaflet.**

**leaf sight.** Rear sight for small arms, hinged so that it can be raised for aiming or lowered to keep it from being broken when not in use. A leaf sight contains a peep sight that can be moved up and down to make adjustments for range.

**leakance.** A reciprocal of insulation resistance.

**leaker.** Popular term for bomb or projectile filled with a chemical agent, which is leaking the contents and contaminating the surrounding area.

**lean mixture.** A fuel-air mixture containing a low percentage of fuel and a high percentage of air, as compared with a normal or rich mixture; lean fuel mixture.

**LeDuc system.** An empirical method for solving the interior ballistics problem, based upon the assumption of a simple formula for the velocity-travel curve. This formula, which assumes a hyperbolic curve for this relationship, was evolved by Captain A. LeDuc, a French Artillerist.

**left hand twist.** See: **twist, left hand.**

**left trail.** Left hand part of a split-type gun trail.

**LEG, MORTAR MOUNT.** An item which, in conjunction with a similar item, aids in the support of a MORTAR (as modified) as a component of a MOUNT, MORTAR.*

**Lenape Ordnance Modification Center.** Ordnance Corps field installation, located at Newark, Delaware.

**length, characteristic.** *Propulsion.* The ratio of the chamber volume to its nozzle throat area. A measure

of the length of travel available for the combustion of the propellants.

**length-diameter ratio.** See: **fineness ratio.**

**length of bore.** Length of the bore, as measured from the rear face of the tube or barrel to the muzzle. Also called 'length of tube,' 'length of barrel,' or 'length of cannon.' May be expressed in inches or calibers.

**lens.** 1. An item of transparent material, usually glass, having two opposite regular surfaces, either both curved, or one curved and the other plain, having refractive properties for changing the direction of light rays to create a true image of an object. A lens may be composed of one element (single optical form), one cell (group of elements), or two or more cells used as a unit. It may or may not include the lens mount and light regulating devices contained in or attached to the lens mount. 2. A transparent or translucent item designed to inclose or be placed in front of a light source. Sections of the lens may be opaque. It may include the holder. It is designed to be a replacement unit for a specific type of light, such as SPOTLIGHT, VEHICULAR.* 3. An insert placed within an explosive charge and shaped so that the detonation wave front set up in the explosive emerges from the insert with a different curvature from that with which it entered. See also: **barrier material; wave shaper.**

**LENS, INFRARED RECEIVER.** A lens used as the eye piece of an infrared viewer or receiver. May include gaskets, rings and spacers.*

**lens system.** *Optics.* Two or more lenses arranged to work in conjunction with one another. When in proper alignment, the principal axes will be coincident and the system can be referred to as a 'centered lens system.'

**lethal area.** In terminal ballistics, a figure of merit, having the dimension of area, which permits prediction of the number of casualties a missile may be expected to produce when employed under specified conditions. An equation has been evolved stating the relationship between the lethal area and the numerous factors affecting its numerical value.

**lethality criteria.** See: **casualty criteria.**

**lethal radius.** The distance from point of burst or ground zero at which a projectile, missile, or the like will probably destroy a target or kill persons. Cf: **damage radius.**

**lethal range.** See: **lethal radius.**

**Letterkenny Ordnance Depot.** Ordnance Corps field installation, located at Chambersburg, Pennsylvania.

**letters patent.** *Patent law.* Open letters. *Specif.* An instrument proceeding from the Government and conveying a right, authority, or grant to an individual for the exclusive right to make and sell a new invention. Familiarly termed a **patent,** which see.

**level bombing.** Bombing in which bombs are released in level flight.

**leveling.** Adjusting any device, such as a launcher, gun mount, or sighting equipment, so that all horizontal or vertical angles will be measured in the true horizontal and vertical planes.

**leveling circuit.** An r-c filter circuit used to level out fluctuations of a bias voltage.

**LEVEL, MORTAR MOUNT.** A device which utilizes a cylindrical VIAL, LEVEL. It is designed for use in leveling a MOUNT, MORTAR.*

**level point.** A point on the descending branch of the trajectory at the same altitude as the muzzle of the gun. Same as the **point of fall.**

**LEVEL, RIFLE GRENADE LAUNCHER SIGHT.** A device which utilizes a cylindrical VIAL, LEVEL. It is an integral part of a SIGHT, RIFLE GRENADE LAUNCHER.*

**lever.** *Mechanical.* A rigid item capable of turning about one point, or axis, and in which are two or more other points where forces are applied. It is designed for use on mechanical assemblies to transmit or modify force and motion. Excludes ARM (as modified) and BELL CRANK.*

**LEVER, BREECHBLOCK, COCKING.** A lever that activates the firing pin. It is one of the component parts of the breechlock of an artillery weapon.*

**LEVER, LOADER-RAMMER.** A mechanically activated lever, designed to feed ammunition into the gun breech from the magazine. It is one of the component parts of the loader-rammer of an artillery weapon.*

**Lewis gun.** [After Col I. N. *Lewis* (1858-1931), U. S. Army, inventor.] A gas-operated machine gun with a horizontal drum magazine, manufactured in several modifications. Now *obsolete.*

**lewisite.** (L) See: **CHEMICAL AGENT, LEWISITE.**

**LF** *(abbr).* 'Low frequency.'

**license.** *Patent law.* Authority granted by the owner of a patent to another person empowering the latter to make and/or use the patented article for a limited period or in a limited territory. Cf: **assignment; exclusive license; grant.**

**lift.** 1. That component of the total aerodynamic forces acting on an airfoil or on an entire aircraft or winged missile, perpendicular to the relative wind, and exerted, normally, in an upward direction opposing the pull of gravity. See: **crosswind force.** 2. A contrivance for lifting heavy weights, as in a fork lift truck.

**lift, aerodynamic.** See: **lift** (sense 1).

**LIFT BAR SET, ROCKET HANDLING.** A set consisting of two or more items of barlike construction designed to facilitate lifting and carrying rocket(s). May have special ends.*

**lift coefficient.** A factor that relates the aerodynamic lift of a projectile or airfoil to its projected area, its velocity relative to the medium, and the density of the medium.

**lift direction.** *Stress analysis.* The direction in the plane of symmetry perpendicular to the relative wind. See: **chord direction; drag direction.**

**lift/drag ratio.** *Aerodynamics.* The ratio of the lift to the drag of any body.

**lift fire.** 1. Advance the range of fire by elevating the muzzle of a weapon. 2. Cease or suspend fire.

**lift force or component.** *Stress analysis.* A force or component in the lift direction. See: **chord force or component; drag force or component; side force or component.**

**lifting plug.** Threaded eye bolt which fits into the fuze cavity of a separate loading projectile, permitting the heavy projectile to be handled by means of a winch.

**LIFT, MOTOR VEHICLE.** A power-operated device consisting essentially of a vertically movable supporting structure for elevating motor vehicles to a height convenient for maintenance operations.*

**LIGHT, AIMING POST.** A light specifically designed to supply illumination on a POST, AIMING for night operation. It consists of a battery case, lamp housing, toggle switch, lamp hood, and filters.*

**light antiaircraft artillery.** Conventional antiaircraft artillery pieces, usually under 90 mm, the weight of which in a trailed mount, including on carriage fire control, does not exceed 20,000 pounds. Self-propelled versions are rated in the same category as the trailed version.

**light artillery.** All guns and howitzers of 105-mm caliber (4.13 inches) or smaller.

**light case bomb.** See: **bomb, light case.**

**lighter, fuse.** See: **IGNITER, TIME BLASTING FUSE.**

**lighthouse tube.** See: **ELECTRON TUBE.**

**LIGHT, INFRARED TRANSMITTER.** A light specifically designed for use with an infrared transmitter to emit energy in the infrared spectrum. May include lamp-holder, filter and lens.*

**LIGHT, INSTRUMENT.** A compact, sealed, electrical component, specifically designed to supply direct illumination for reticles in optical instruments, dials and/or scales and level vials on mechanical devices. May include battery source, filters, cables and controls for intensity of illumination. Provides method of securing. Do not use if a more specific name exists.*

**light machine gun.** (LMG) Any machine gun including, or lighter than, a caliber .30, air-cooled machine gun.

**LIGHT, MONOCHROMATIC.** A light source which provides monochromatic light of specified microinch wave length for laboratory use. The light is inclosed in a wood or metal housing and includes a diffusing glass, transformer, switch, cord and plug.*

**Lima Ordnance Modification Center.** Ordnance Corps field installation, forming part of the Ordnance Tank-Automotive Command, located at Lima, Ohio.

**LIMBER.** A two-wheeled vehicle designed primarily to support the trail section of a gun carriage while in transit. It has facilities for attaching to a prime mover. See also: **BOGIE, ARTILLERY; TRAILER, CANNON** and **TRAILER, GUN CARRIAGE.***

**limber.** To attach a gun to its LIMBER.

**limit dimensioning method.** Method of dimensioning and tolerancing wherein the maximum and minimum permissible values for a dimension are stated specifically to indicate the size or location of the element in question. In the case of location dimensions the high limit (maximum dimension) shall be placed above the dimension line and the low limit (minimum dimension) shall be placed below the line. In the case of size dimensions, the limit representing the maximum material condition shall be placed above the dimension line and the limit representing the minimum material condition shall be placed below the line. When the limits are specified in the form of a note, the dimension which otherwise would appear above the line shall precede the other.

**limited production type.** See: **type classification.**

**limited standard type.** See: **type classification.**

**limited traverse.** Restricted movement of a gun to right or left. The restriction may be caused by mechanical devices or by natural obstacles.

**limiter.** *Electronics.* A circuit which limits the maximum positive or negative values of a wave form to some predetermined amount. It is used in frequency modulation systems to eliminate unwanted variations of amplitude in received waves.

**limiting.** The action performed upon a signal by a limiter.

**limiting velocity.** See: **terminal velocity** (sense 1).

**limit of fire.** 1. Any angular limit, established for safety purposes, for firing at a towed aerial target. 2. The boundary of an area within which gunfire is placed.

**limits.** In dimensioning, the maximum and minimum values prescribed for a specific dimension. The limits may be of size if the dimension concerned is a size dimension, or they may be of location if the dimension concerned is a location dimension.

**limit stop.** An arm or part used to limit angular motion, as of a gun turret.

**limit velocity.** *Armor and projectile testing.* Lowest possible velocity at which any one of the complete penetrations is obtained. Since the limit velocity is difficult to obtain, a more easily obtainable value, designated as the ballistic limit, is usually employed.

**linear.** 1. Pertaining to or of the nature of a line. 2. A linear relationship exists between two quantities when the change in one quantity is exactly proportional to the change in the other quantity.

**linear acceleration.** Acceleration in a straight line; *specif.*, acceleration along the longitudinal axis of a projectile, missile or aircraft.

**linear burning rate.** The distance normal to any burning surface of the propellant grain burned through in unit time.

**linear charge.** See: **charge, linear.**

**linear electro-mechanical actuator.** See: **ACTUATOR, ELECTRO-MECHANICAL, LINEAR.**

**linear explosive actuator.** See: **ACTUATOR, EXPLOSIVE, LINEAR.**

**linear scan.** A radar scan projected and fixed in a straight line, used esp. in sector scanning to increase the intensity of the echoes.

**linear speed method.** Method of calculating firing data in which the future position of a moving target is determined by finding the direction of flight and the ground speed of the target. By multiplying the ground speed by the time of flight of the projectile, the future position is determined. See: **angular travel method.**

**linear velocity.** Velocity in a straight line.

**line charge.** See: **charge, line.**

**line item.** See: **requisition line item.**

**line of aim.** A line from a person's eye, as that of a gunner or bombardier, through a sight, along which aim is taken.

The line of aim may or may not be directed at the target; in allowing for lead with fixed sights, for example, the line of aim is ahead of the target. Cf: line of sight. (sense 1).

**line of collimation.** Line which passes through the optical center of the objective lens of the instrument and the point of reference at the point of principal focus.

**line of departure.** (LD) 1. The direction of a projectile at the instant it clears the muzzle of the gun. 2. The direction of a bomb or rocket at the instant of launching.

In sense 1, the line of departure may be coincident with the gunbore line, or, in the case of an aircraft-mounted gun, it may be the resultant of the aircraft velocity vector and the muzzle velocity vector.

**line of elevation.** The prolongation of the bore when the piece is set to fire.

**line of fall.** Line tangent to the trajectory at the level point.

**line of fire.** The flight path or paths followed by projectiles fired from a weapon or group of weapons.

**line of flight.** The line of movement, or the intended line of movement, of an aircraft, guided missile, projectile, or the like in the air.

The line of flight may or may not be coincident with, or parallel to, the longitudinal axis of the aircraft, projectile, etc.

**line of impact.** Line tangent to the trajectory at the point of impact.

**line of observation.** Line from a position finder to a target at the exact time of a recorded observation.

**line of position.** The straight line connecting the point of origin with the point of position.

The point of origin is usually the gun or a position-finding instrument. Thus, corresponding to the three positions of the target, there are the line of position at observation, the line of present position, and the line of future position. Cf: line of site.

**line of sight.** 1. Line of vision; optical axis of an observation instrument; the straight line between an observor's eye and a target or other observed object or spot, along which sight is taken. Cf: line of aim; line of site. 2. The straight line from a transmitting radar antenna in the direction of the beam, esp. toward a target.

**line of site.** Straight line between the origin of the trajectory and the target. Cf: line of sight. Sometimes also called line of position.

**liner.** 1. Inner tube in a cannon, which bears the rifling and which may be replaced when worn out. 2. Detachable plastic or fiber inner layer of a metal helmet; helmet liner. 3. Metal inner box usually with soldered or welded seams, designed as an inside container for placing within a sturdily constructed exterior container for protection of ammunition or explosives against deterioration. 4. Cone of material used as an integral part of shaped charges; a shaped charge liner. See also: charge, shaped.

**liner assembly.** Pertaining to shaped charge ammunition: A liner (sense 4) plus the parts immediately attached, all functioning as a unit. These can be liner with spitback tube, plus cap or cup.

**liner collapse.** The collapse of the liner of a shaped charge into jet and slug as a result of detonation. See: jet; liner (sense 4); slug.

**liner, conic.** A shaped charge liner of conical shape. See: liner (sense 2).

**liner, fuse cavity.** A thin-walled lining in the fuze cavity of a bursting charge.

**line throwing cartridge.** See: **CARTRIDGE, CALIBER .32 LINE THROWING; CARTRIDGE, CALIBER .45 LINE THROWING.**

**LINE THROWING DEVICE.** An item which fires or launches a line carrying projectile. May include applicable equipment such as projectiles and lines.*

**line throwing gun.** A gun used as a **LINE THROWING DEVICE**, which see.

**line throwing projectile.** See: **PROJECTILE, LINE THROWING GUN.**

**LINK, CARTRIDGE.** A unit part of a belt, link (which see) by means of which ammunition is fed into automatic weapons.

**link chute adapter.** A unit attached to a gun to allow a link ejection chute to be fastened to the gun, and to lead ejected links to the chute.

**linked ammunition.** Cartridges fastened to one another side by side with metal links, forming a belt, link (which see) for ready feed to a machine gun.

**link ejection chute.** A chute or passage attached to a machine gun, through which links are thrown or conveyed to a desired point after being separated from the cartridges. Such a chute may be either fixed or flexible. See also: **CHUTE, EJECTION.**

**link, end.** See: **LINK, CARTRIDGE.**

**LINKER-DELINKER, 20 MILLIMETER, HAND.** A machine designed to assemble or disassemble metallic disintegrating linked belt for rapid fire 20 millimeter ammunition.*

**LINKER-DELINKER, 20 MILLIMETER, POWERED.** A device designed to power link or delink 20 millimeter ammunition pertaining to short range antiaircraft guns.*

**LINKER, 20 MILLIMETER, POWERED.** A device specifically designed to power link 20 millimeter ammunition.*

**LINK FILLER, CARTRIDGE.** A filler piece for linked ammunition, used to prevent the trailing loop from catching when leaving the feed system.

**link-loading machine.** Machine that quickly loads ammunition into interlocking metal links, which in turn form an ammunition belt for certain types of automatic weapons.

**LINK, RELEASE, FLOAT.** An item designed to contain an explosive charge and to connect a float to a switch box submerged under water. The float surfaces when the link is ruptured by the explosive charge to provide a means of locating the switch box.*

**link stretch.** The change in the center to center distance of the individual rounds of belted ammunition as the load is applied.

**liquid cooled engine.** An engine having a water jacket around the valve ports, combustion chamber, and cylinders, and a radiator for dissipating the heat from the cooling liquid into the surrounding air.

As a rule, liquid cooled engines use a pump for circulating the cooling liquid.

**liquid oxygen.** See: **OXYGEN, LIQUID; PROPELLANT, OXYGEN.**

**liquid propellant.** A propellant in a liquid state, as distinguished from a solid propellant. May be classified as monopropellant, bipropellant, and sometimes multipropellant. Used in rocket engines. See also: **bipropellant; monopropellant; multipropellant; PROPELLANT** (as modified); **ROCKET ENGINE; solid propellant.**

**liquid rocket.** See **rocket, liquid.**

**Little David.** Experimental mortar of 36-inch diameter developed during WW II. This mortar and its special ammunition were secretly developed in case they should be required in reducing German fortifications, however, the reduction of these proved to be unnecessary.

**Little John.** Name applied to an Army rocket system (318 mm) consisting of a surface-to-surface tactical missile, similar to, but smaller than, **Honest John,** which see. Employs solid fuel.

**Little John rocket spinning power unit.** See: **POWER UNIT, GAS TURBINE ENGINE, ROCKET SPINNING.**

**live ammunition.** Ammunition containing explosives or active chemicals as distinguished from inert or drill ammunition.

**LMG** *(abbr).* 'Light machine gun.'

**$LN_2$** (or **$LN_2$**). Popular term for liquid nitrogen.

**L network.** A network composed of two branches in series, the free ends being connected to one pair of terminals, and junction point and one free end being connected to another pair of terminals.

**LO** *(abbr).* 'Lubrication order.'

**$LO_2$** (or **$LO_2$**). [Pronounced *ell-oh-two.*] Popular term for liquid oxygen.

**load.** 1. See: **charge.** 2. The force or pressure exerted upon an object, under static or dynamic conditions, either by virtue of its own weight or by some imposed object or force. 3. That which is placed upon a vehicle or person for conveyance, or that which is held up or sustained. 4. Short for 'payload' or 'useful load.' 5. A basic load of ammunition. 6. The power carried by an electric circuit; the impedance to which energy is being supplied. 7. Inertia forces and frictional restraints to motion experienced by the stroking member of a propellant actuated device. 8. To place ammunition in a gun, bombs on an airplane, explosives in a missile, fuel in a fuel tank, cargo or passengers into a vehicle, and the like.

**load, design.** *Stress analysis.* A specified load below which a structural member or part should not fail. It is the probable maximum applied load multiplied by the factor of safety. Also, in many cases, an appropriate basic load multiplied by a design-load factor.

**loaded impedance.** *Electroacoustics.* Of a transducer: The impedance at the input of the transducer when the output is connected to its normal load.

**loader.** *Weapons.* Mechanical device which loads guns with cartridges. See also: **LOADER-RAMMER, POWERED.**

**LOADER-RAMMER, POWERED.** A device specifically designed to automatically load and ram rounds of ammunition into a gun chamber at high speed. It may also include a fuze setter.*

**LOADER-TRANSPORTER, GUIDED MISSILE.** A self-propelled vehicle specifically designed to transport and load one or more guided missiles on a launcher. Excludes items designed to transport and vertically erect missiles on launcher. See also: **ERECTOR, GUIDED MISSILE, SELF-PROPELLED.***

**load factor.** *Stress analysis.* The ratio of two loads (the second being a basic load) that have the same relative distribution. The first load may be the load applied during some special maneuver, the maximum probable load on the airplane or part, the design load, or the ultimate load.

**loading angle.** Angle of elevation specified for loading a particular weapon with its ammunition.

**loading density.** A term applied specifically to explosive charges of projectiles, bombs, warheads, etc. The quantity of explosive per unit volume, usually expressed as grams per cubic centimeter. Cf: **density of loading.**

**loading rack, guided missile.** See: **RACK, LOADING, GUIDED MISSILE.**

**loading tray.** 1. Trough-shaped carrier on which heavy projectiles are placed so that they can be more easily and safely slipped into the breech of a gun. 2. Hollowed slide which guides the projectiles into the breech of some types of automatic weapons.

**loading, unsymmetrical.** *Stress analysis.* A design loading condition for the wings and connecting members representing the conditions as in a roll (which see).

**loading, wing.** The gross weight of an airplane divided by the wing area.

**load, thrust.** See: **thrust load.**

**load, towed.** The weight of the gun, carriage, trailer, or other equipment towed by a prime mover.

**load, ultimate.** *Stress analysis.* The load that causes destructive failure in a member during a strength test, or the load that, according to computations, should cause destructive failure in the member.

**load, working.** *Stress analysis.* The maximum load applied to a material, or occurring under ordinary working conditions.

**Lobber.** Name given to an Army solid propellant, cargo-carrying, rocket with a range of 10 to 15 miles.

**lobe.** Any rounded and elongated pattern or object; *specif.,* the pattern of electromagnetic waves radiated esp. by a radar antenna.

**lobe, side.** A portion of the radiation from an antenna outside the main beam and usually of much smaller intensity; a region between two minima in the pattern.

**lobe switching.** Process of directing radio frequency beam rapidly back and forth between two positions in order to determine the axis of reflection more accurately.

**local oscillator.** *Receivers.* An oscillator whose output is mixed with a wave for frequency conversion.

**local procurement.** 1. Procurement of supplies or equipment in the continental United States by other than

a centralised purchasing office, such as purchase by an installation of supplies and equipment for use of that installation. 2. Procurement of supplies or equipment for its own use in an area outside the United States by a United States military command located in that area.

**location dimension.** Dimension which specifies the position or distance relationship of one feature of an object with respect to another.

**lock.** 1. Position of a safety mechanism which prevents a weapon from being fired. 2. Fastening device used to secure against accidental movement, as on a control surface. 3. To secure or make safe, as to set the safety on a weapon. 4. To lock on, to fasten onto and automatically follow by means of a radar beam. Said of a radar set or antenna.

**locked rotor torque.** See: rotor torque, locked.

**lock frame.** Mechanical unit in certain firearms. It is used to assist in unlocking the bolt from the barrel after recoil has started.

**LOCKING CUP ASSEMBLY, BOMB.** A group of metallic items designed to hold an ADAPTER, CLUSTER, BOMB in a closed position.*

**locking lugs.** Metal projections on the bolt of a small arms weapon which cam into recesses cut in the side of the receiver to lock the weapon prior to firing.

**LOCKING WEB, BOMB FIN.** A metallic item designed to prevent rotation of a FIN ASSEMBLY, BOMB in relation to the bomb.*

**lock mechanism, final.** Device for locking stroking member of a cartridge actuated device in final position.

**lock mechanism, initial.** Device for preventing inadvertent motion of stroking member in a cartridge actuated device prior to firing.

**loft bombing.** A method of aerial bombing in which the delivery plane approaches the target at a very low altitude, makes a definite pull up at a given point, releases bomb at predetermined point during the pull up and tosses the missile on the target.

**log** *(abbr).* 'Logistics.'

**logarithmic computer.** A part of an electronic computing system that resolves problems in terms of logarithmic values, or as a logarithmic function.

The logarithmic computer is a part of such electronic computers as Eniac, and is used in the complicated calculations of gunnery.

**logarithmic range scale.** Type of scale used on the range disks of guns when the disks are graduated for the combination of propelling charge and projectile. It is so named because it follows a logarithmic rather than an arithmetic curve.

**logic.** *Electronic computers.* The science that deals with the canons and criteria of validity in thought and demonstration; the science of the formal principles of reasoning; the basic principles and applications of truth tables, gating, interconnection, etc., required for arithmetical computation in a computer.

**logistics.** (log) In its most comprehensive sense, those aspects of military operations that deal with: (1) Design and development, acquisition, storage, movement, distribution, maintenance, evacuation, and disposition of materiel; (2) movement, evacuation, and hospitalization of personnel; (3) acquisition or construction, maintenance, operation, and disposition of facilities; and (4) acquisition or furnishing of services. It comprises both planning, including determination of requirements, and implementation.

**Lone Star Ordnance Plant.** Ordnance Corps field installation, located at Texarkana, Texas.

**long delay fuse.** See. fuse, long delay.

**LONGERON.** (logn) A principal longitudinal member of the structural framework of a fuselage, nacelle or empennage boom.*

**Longhorn Ordnance Works.** Ordnance Corps field installation, located at Marshall, Texas.

**longitudinal acceleration.** See: acceleration, longitudinal.

**longitudinal deviation.** See: range deviation.

**longitudinal stability.** See: stability, longitudinal.

**longitudinal stress.** See: stress, circumferential.

**long-life items.** Items which have an estimated average service life of 5 years or more.

**long-range materiel requirements.** Items required by operational and organizational concepts established for a period 5 to 10 years hence. See also: mid-range materiel requirements; very-long-range materiel requirements.

**long-range radar.** Equipment whose maximum range on a reflecting target of one square meter normal to the signal path exceeds 300 miles but is less than 800 miles, provided line of sight exists between the target and the radar. See: very long-range radar.

**long recoil.** See: recoil operated.

**Long Tom.** Popular name for 155-millimeter self-propelled gun.

**Loon.** The U. S. Navy designation for the JB-2, American version of the German V-1 flying bomb.

**loop.** 1. A flight maneuver in which an airplane flies a circular path in an approximately vertical plane, with the lateral axis of the airplane remaining horizontal; *specif.*, an inside loop. 2. To make a loop.

**loose ammunition.** *Obsolescent* term. Usual form of ammunition for old muzzle-loading arms in which loose powder and the ball or projectile were individually loaded through the muzzle.

**loose liner.** A liner (*sense* 1), made to such dimensions that when assembled in the gun, there is a small but definite clearance between the outside surface of the liner and the inside surface of the tube. Made with a slight taper to facilitate its assembly and removal.

**loose round.** Defective cartridge in which the bullet is loose in the cartridge case.

**loran.** Sometimes *capitalized.* [*Long-range* navigation.] An electronic system of hyperbolic navigation, utilizing a minimum of three shorebased radio transmitters, identified as a 'master' and two 'slave' stations. In operation, the 'master' station transmits a pulse, which is radiated into space, and also triggers through precise time delay circuits the 'slave' stations, so as to produce electromagnetic 'fixes' for navigational use of surface vessels and aircraft. Loran differs from Shoran in that: transmitters are self-triggered, navigation charts are required, usable

data is developed by interpolation between display data and associated charts. Cf: **standard loran.**

**Los Angeles Ordnance District.** (LAOD) One of the eleven districts into which the United States is divided for purposes of industrial mobilization, procurement, contract negotiation and administration, etc., by the Ordnance Corps. Embraces the counties of San Luis Obispo, Kern, and San Bernardino, and all counties south thereof in California; the counties of Clark, Lincoln, Esmeralda, and Nye in Nevada; the States of Utah, Arizona, and New Mexico; and the counties of El Paso, Hudspeth, Culberson, Jeff Davis, Presidio, and Brewster in the State of Texas. The main office is located in Pasadena, California.

**lost motion.** Motion of a mechanical part which is not transmitted to connected or related parts. It is the cumulative result of backlash and end play.

**lot.** Quantity of material, such as propellant, the units of which were manufactured under identical conditions. A lot is not ordinarily made up of identical units, in fact, the units will only rarely be identical. To minimize the effect of this, the units composing a lot are sometimes deliberately and thoroughly mixed. This is always done in the case of propellant lots. It is called 'blending.' A lot in which the units are so thoroughly mixed that all portions are essentially alike is called a 'homogenous lot.' See also: **ammunition lot; blending.**

**lot-by-lot sampling.** *Inspection.* Sampling by which a predetermined number of units are selected from a **lot** in a manner such that the quality of the sample will represent as accurately as possible the quality of the lot.

**lot, grand.** A designated combination of a number of lots, each of which is expected to give the same level of quality and performance. The lots are selected on the basis of being made by the same manufacturer, either consecutively or at nearly the same time under the same conditions and from nearly identical components or raw materials.

**lot number.** Identification number assigned to a particular quantity or lot of materiel, such as ammunition, from a single manufacturer. For an example, see: **ammunition lot number.**

**lot, reference.** A lot of select ammunition components or cartridges assembled with such components; used as a standard.

**loudspeaker.** An item designed to convert audio frequency electrical energy into acoustic energy which it projects over a distance. It may include one or more drivers, horns, attenuators or transformers. It may be cased or include mounting.*

**LOUDSPEAKER, CRYSTAL.** A loudspeaker whose diaphragm movements are produced by the piezoelectric element through which audio frequency current is flowing.*

**LOUDSPEAKER, ELECTROMAGNETIC.** A loudspeaker whose diaphragm movements are produced by a coil or iron armature moving in the field of an electromagnet or fixed coil.*

**loudspeaker, magnetostriction.** *Electroacoustics.* A loudspeaker in which the mechanical displacement is derived from the deformation of a material having magnetostrictive properties.

**loudspeaker, moving coil.** *Electroacoustics.* A moving-conductor loudspeaker in which the moving conductor is in the form of a coil conductively connected to the source of electric energy.

**loudspeaker, moving conductor.** *Electroacoustics.* A loudspeaker in which the mechanical forces result from magnetic reactions between the field of the current in a moving conductor and a steady magnetic field.

**LOUDSPEAKER, PERMANENT MAGNET.** A loudspeaker whose diaphragm movements are produced by a coil or iron armature moving in the field of a permanent magnet.*

**Louisiana Ordnance Plant.** Ordnance Corps field installation, located at Shreveport, Louisiana.

**louver.** Also *louvre.* A slotted opening or slit in a cowling, fuselage, hood, or the like, for the passage of cooling air or for ventilation.

**low-altitude bombing.** Horizontal bombing with the height of release at an altitude between 900 and 8,000 feet.

**low-angle bombing.** Bombing from an airplane at a slight dive angle.

Although low-angle bombing is sometimes distinguished from dive bombing, it is actually a species of **dive bombing.**

**low-angle fire.** Gunfire delivered at angles of elevation below the elevation that corresponds to the maximum range of the piece, so that ranges increase with increases in angles of elevation. Cf: **high-angle fire.**

**low drag.** Designed for low air resistance, as bombs for use on supersonic planes.

**lower acceptable mean maximum pressure.** (LAMMP) See: **pressures, gun.**

**low explosive.** (LE) An explosive which when used in its normal manner deflagrates or burns rather than detonates; that is, the rate of advance of the reaction zone into the unreacted material is less than the velocity of sound in the unreacted material. Low explosives include propellants, certain primer mixtures, black powder, photoflash powders and delay compositions. Whether an explosive reacts as a **high explosive** (which see) or a low explosive depends on the manner in which it is initiated and confined. For example, a double base propellant when initiated in the usual manner is a low explosive. However, this material can be made to detonate if the propellant is initiated by an intense shock. Conversely, a high explosive like TNT, under certain conditions, can be ignited by flame and will burn without detonating.

**low frequency.** (LF) See: **frequency, electronic.**

**low-level bombing.** Bombing from any altitude considered relatively low. Low-level bombing is not distinguished from minimum-altitude bombing. Cf: **low-altitude bombing.**

**low order burst.** Functioning of a projectile or bomb in which the explosive fails to attain a high order detonation. Usually evidenced by the breaking of the container into a few large fragments instead of a large number of smaller fragments. See also: **detonation.**

**low order detonation.** See: **detonation.**

**low-pressure area.** *Bearing lubrication.* The point in a bearing where the pressure is the least and the area or space for a lubricant is the greatest; the point at which it is usually most desirable to introduce a lubricant into a bearing.

In every bearing there are high- and low-pressure areas which are the result of the lubricant's wedging action as it forms and maintains a protective film due to journal motion. If an attempt is made to introduce the oil into the bearing at the high-pressure point, the pressure of the oil film wedge will force the oil back out of the bearing. This, in turn, will result in a failure of the lubricating film.

**low velocity.** *Specif.* Muzzle velocity of an artillery projectile of 2,499 feet per second or less.

**low velocity drop.** The act or process of delivering personnel, supplies, or equipment from aircraft in flight, utilizing sufficient parachute retardation to prevent injury or damage upon ground impact. Cf: **freedrop; high velocity drop.**

**LOX** (*abbr*). 'Liquid oxygen.' See: **PROPELLANT, OXYGEN.**

**LOZ** (*abbr*). 'Liquid ozone'; used as an oxidizer in certain liquid propellant mixtures.

**LS** (*abbr*). 'Limited standard.'

**LPT** (*abbr*). 'Low pressure test.'

**LST** (*abbr*). 'Landing ship, tank.'

**LT TK** (*abbr*). 'Light tank.'

**lubricant.** That which lubricates. *Specif.* A substance possessing such properties that it will, when interposed between moving parts of machinery, make the surface slippery and reduce friction, eliminate asperities, and prevent cohesion between the lubricated surfaces.

**LUBRICANT, TIRE AND RIM.** A soap type lubricant designed to reduce friction and prevent cohesion in the mounting or dismounting of pneumatic tires. It may contain additives, such as inhibitors, accelerators, and the like, but is not resistant to high temperatures.*

**LUBRICATING AND SERVICING UNIT, POWER OPERATED.** A self-contained maintenance unit. Usually consists of a lubricant storage tank and/or drums with air or electrically operated pump(s) designed for high pressure application of lubricant to machinery in the field. May include transporting vehicle.*

**LUBRICATING OIL, COLLOIDAL GRAPHITE.** A colloidal graphite dispersed in a refined petroleum oil, silicone fluid, or castor oil. See also: **GRAPHITE, COLLOIDAL.***

**LUBRICATING OIL, COMPOUNDED.** A petroleum product compounded with various fatty materials. It is generally used for lubrication under conditions involving condensed steam or humid air.*

**LUBRICATING OIL, GEAR.** A petroleum or synthetic product with load-carrying properties, especially prepared for lubrication of various type gears, such as worm gears, spiral bevel type gears, hypoid gears, transmissions or the like.*

**LUBRICATING OIL, GENERAL PURPOSE.** A refined mineral oil, with or without additives, suitable for applications which require other than special lubricants. Commonly used for household uses, machinery, general squirt can application, or the like. May have especially added preservative qualities. When prepared for specific special purpose, see specific item name.*

**LUBRICATING OIL, INSTRUMENT.** An oil primarily prepared for lubrication of aircraft instruments, gyro instruments, electronic equipment, gyros in torpedoes and aerial bombs, and calibrating and measuring instruments.*

**LUBRICATING OIL, INTERNAL COMBUSTION ENGINE.** A petroleum oil, a synthetically prepared product, or a combination thereof, prepared primarily for lubrication in crankcases of internal combustion engines. It usually contains additives for corrosion prevention and oxidation prevention, and may contain detergents. See also: **LUBRICATING OIL, GENERAL PURPOSE.**

**LUBRICATING OIL, SEMIFLUID.** A mixture with a mineral and/or synthetic base, not having a true grease structure. It contains a thickening agent which increases viscosity. The lubricant is compounded specifically to be effective in a wide temperature range. Excludes GREASE, AIRCRAFT ORDNANCE.*

**LUBRICATING OIL, WATCH.** A nonspreading, nongumming, noncorrosive oil prepared for lubrication of jewel and steel bearings in timepieces.*

**LUBRICATING OIL, WEAPONS.** A petroleum and/or synthetic oil with antioxidation and noncorrosion characteristics, principally prepared for the lubrication of aircraft weapons.*

**lubrication.** The act of applying petroleum products for the lubrication, actuation, and preservation of various machines. A film of lubricant is provided between all rubbing, moving, and bearing surfaces in order to prevent undue friction and wear on these surfaces.

**lubrication action.** The ability of the lubricant: (1) to make a surface slippery, (2) to adhere to the surface, and (3) to maintain a film between rubbing surfaces.

**lubrication, chassis.** Lubrication of all parts of the vehicle other than the engine, transmission, rear axle (differential), clutch, and wheels.

**LUG ASSEMBLY.** Part of a rocket motor, when used as a jato unit, by which the motor is attached to the load. To be differentiated from the thrust structure.

**LUG, SUSPENSION, BOMB.** A steel forging with one or more mounting holes or with a threaded base for attachment to a bomb or ADAPTER, CLUSTER, BOMB to provide connecting means for suspension in the bomb station.*

**LUG, SUSPENSION, UNDERWATER MINE.** An item designed for attachment to an underwater mine to provide connecting means for suspension in the bomb station of an aircraft.*

**LUMBER, HARDWOOD.** Wood from the botanical group of trees that are broad-leaved. The modifier hardwood has no reference to the hardness of the wood. The product of the sawmill and planing mill, not further manufactured than by sawing, resawing and/or passing lengthwise through a standard planing machine.*

**lumber, softwood.** Wood from any of the coniferous

trees of the United States, which are characterized by needle-like or scale-like leaves. The modifier "SOFTWOOD" has no reference to the softness of the wood. The product of the sawmill and planing mill, not further manufactured than by sawing, resawing and/or passing lengthwise through a standard planing machine.*

**LUMBER, SOFTWOOD, SHOP.** Softwood lumber presenting a surface containing blemishes and defects which can be removed by recutting to a specified minimum size and quality.*

**lumiline screen.** See: **chronograph.**

**lunette.** Towing ring in the trail plate or tongue of a towed vehicle, such as a gun carriage or trailer, used for attaching the towed vehicle to the prime mover or towing vehicle.

**lung irritant.** A chemical agent which attacks the respiratory passages. One of the family of 'choking gases.' See **choking gas.**

**Lupersol.** A proprietary catalyst, used as the hardener in **Laminac** (which see).

**lusterless paint.** Paint which absorbs light rays so that no shine or polish appears on its surface. It is used extensively on Army vehicles.

**LVT** *(abbr).* 'Landing vehicle, tracked.'

**LVT(A)** *(abbr).* 'Landing vehicle, tracked, (armored).'

**lyddite.** Picric acid (which see), a high explosive. Also called 'melinite.'

# M

**M** *(abbr)*. 1. 'Mach number.' 2. In such usage as M19, designates a standardized item. See also: **A**; **B**; **E**; **T**; **X**. 3. 'Meter.'

**MAAG** *(abbr)*. 'Military Assistance Advisory Group.'

**Mace.** Name given to an Air Force surface-to-surface tactical missile, a successor to the **Matador** (which see).

**mach.** Also **Mach.** [Named for Ernst *Mach*, 1838-1916, Austrian physicist.] Frequently used for **mach number** (which see).

**mach angle.** The acute angle between a mach line and the line of flight of a moving body.

**mach diamonds.** See: **shock diamonds.**

**mach effect.** A single effect, or a total effect, resulting from objects moving at transonic or supersonic speeds.

Mach effect may be considered in terms of: a. The changes in the air brought on by a shock wave, i.e., changes in pressure, velocity, density, and temperature. b. The fusion of shock waves in atomic explosions. c. The changes in the drag coefficient, lift coefficient, or moment coefficient of an aircraft or missile.

**mach front.** A **mach stem.**

**machine gun.** (MG) 1. A weapon that fires small arms ammunition, caliber .60 or 15.24 millimeters or under, automatically and is capable of sustained rapid fire. It can be belt- or link-fed, air- or water-cooled, recoil or gas operated, and usually fired from a mount. Excludes CANNON (as modified) and RIFLE (as modified). For automatic weapons larger than caliber .60 or 15.24 millimeters, see: **GUN** (as modified).* 2. To riddle a target with machine gun fire.

**machine gun chronograph.** See: **chronograph.**

**MACHINE GUN POD, AIRCRAFT MOUNTING.** A complete unit containing a machine gun, drive, power supply, and ammunition completely encased in an aerodynamic shape suitable for external carriage on a tactical aircraft by means of pylons. It is intended for use in air-to-ground gunnery as supplementary armament, thereby adding fire power and versatility.*

**machine gun turret.** See: **TURRET, MACHINE GUN, AIRCRAFT.**

**machine pistol.** 1. A pistol capable of full-automatic fire. 2. A **submachine gun** (which see).

The application of the term in sense 2 has been introduced since WW II, from the German and Russian words of the submachine gun, *Maschinen-pistole* ('machine pistol') and *pistolyet-pulemyot* ('pistol-machine gun'), so called because the submachine gun ordinarily uses pistol-type ammunition.

**mach line.** A theoretical line representing the back-sweep of a cone-shaped shock wave made by an assumed infinitesimally small particle moving at the same speed and along the same flight path as that of an actual body or particle. Used in defining effects resulting from supersonic speeds.

This line, as represented on any plane bisecting the shock-wave cone, forms an angle with the flight path usually somewhat more acute than the angle formed by the shock wave of the actual body, since the angle of the actual shock wave depends, among other things upon the shape of the body. A very weak shock wave forms an angle approximating the angle of the mach line.

**MACHMETER.** An instrument designed to indicate the ratio of true airspeed to the speed of sound.*

**mach number.** (M) The ratio of the velocity of a body to that of sound in the medium being considered. Thus, at sea level, in air at the U. S. Standard Atmosphere, a body moving at a mach number of one (M = 1) would have a velocity of 1116.2 ft/sec (the speed of sound in air under those conditions). Term is frequently shortened to 'mach' or 'Mach.'

**mach number, critical.** The mach number at which sonic velocity is attained at some point on the airframe.

**mach stem.** A shock wave or front formed above the surface of the earth by the fusion of direct and reflected shock waves resulting from an airburst bomb. Also called 'mach wave' and 'mach front.'

**mach wave.** 1. A species of shock wave theoretically formed by an infinitesimally small particle moving at supersonic speed, the same as that of an actual body, which wave forms a mach angle with the line of flight of the body. 2. A mach stem resulting from an explosion.

In sense 1, the mach wave is represented by the **mach line** (which see).

**macrometer.** Instrument that has two mirrors and a focusing telescope with which the ranges of distant objects can be found.

**MARRU** *(abbr)*. 'Mobile Ammunition Evaluation and Reconditioning Unit.'

**magazine.** 1. A structure or compartment for storing ammunition or explosives. 2. That part of a gun or firearm that holds ammunition ready for chambering.

In sense 2, magazines for small arms may be detachable or nondetachable from the rest of the piece. A *box magazine* is a detachable magazine in the shape of a rectangular box; a *drum magazine* is a detachable magazine in the shape of a drum.

**magazine area.** Area specifically designed and set aside for the storage of explosives or ammunition.

**MAGAZINE, CARTRIDGE.** A metallic spring-loaded container of rectangular cross-sectional shape designed to hold cartridges and to be inserted into the magazine well of a pistol, rifle, or machine gun. It is an integral part of a gun, capable of being removed from the magazine well, reloaded and reused. Excludes CLIP, CARTRIDGE.*

**magazine, gun.** See: **MAGAZINE, CARTRIDGE.**

**magazine, pistol.** See: **MAGAZINE, CARTRIDGE.**

**magazine, rifle.** See: **MAGAZINE, CARTRIDGE.**

**magazine, trigger guard, assembly.** See: **RECEIVER, CARTRIDGE.**

**magic tee.** A particular radar waveguide configuration, so called because its physical aspect resembles a double letter 'T.' The use of this configuration permits the coupling of a radar transmitter and receiver to a common antenna without the use of an anti-transmit-receive box.

**Magnaflux.** Proprietary name for a **MAGNETIC INSPECTION UNIT** (which see) and the test conducted therewith.

**magnesium bomb.** See: **bomb, magnesium.**

**magnetic azimuth.** Azimuth measured from magnetic north.

**magnetic bearing.** The angle in the horizontal plane between the direction of magnetic north and a line joining the observer and the object, usually measured clockwise.

**magnetic biasing.** *Electroacoustics.* The simultaneous conditioning of the magnetic recording medium during recording by superposing an additional magnetic field upon the signal magnetic field.

In general magnetic biasing is used to obtain a substantially linear relationship between the amplitude of the signal and the remanent flux density in the recording medium.

**magnetic brake.** A braking system for a vehicle in which the brake is held in the off position magnetically, i.e., through use of energized solenoids. Used as a breakaway safety in towed vehicles, since loss of the energy source, coming from the tractor vehicle, will result in immediate application of the brake.

**magnetic charge.** See: **grenade, magnetic.**

**magnetic course.** Direction of movement or flight as measured by the angle between the line to magnetic north and the line of motion.

**magnetic declination.** See: **declination.**

**magnetic deviation.** As opposed to magnetic declination, amount of compass error for given deduction on any one azimuthal reading.

**MAGNETIC DRUM, DATA STORAGE.** An electromechanical item which accepts and systematically retains digital input data in such a manner as to facilitate the rapid recovery of the stored information. The item consists of a drum-like structure the surface of which is coated with a material susceptible to spot magnetization, integral wiring, a drive motor and its mechanical linkage, and data translating heads for impressing on or removing from the drum surface data in digital form. The item is a component of an electronic computer. See also: **CORE MEMORY UNIT.**[9]

**magnetic field.** 1. Any space or region in which magnetic forces are present, as in the earth's magnetic field, or in or about a piece of magnetized steel, or in or about an electrical current. 2. The magnetic forces present in such a space or region.

**magnetic fluid dynamics.** See: **magneto fluid dynamics.**

**magnetic hardness comparator.** A device for checking the hardness of steel parts by placing a unit of known proper hardness within an induction coil. The unit to be tested is then placed within a similar induction coil, and the behavior of the induction coils compared. If the standard and test units have the same magnetic properties, the hardness of the two units is considered to be the same.

**magnetic head.** *Electroacoustics.* A transducer for converting electric variations for storage on magnetic media, for reconverting energy so stored into electric energy or for erasing such stored energy.

**magnetic heading.** The angle in the horizontal plane between the direction of magnetic north and the line along which the vehicle is pointing, usually measured clockwise.

**MAGNETIC INSPECTION OIL.** A light petroleum oil, such as kerosine or naphtha, to which has been added fine ferromagnetic particles to form an inspection penetrant. The ferrous particles are usually colored black or red for contrast. When the penetrant is applied to a metal surface being inspected by means of a magnetic inspection machine, the ferrous particles accumulate in any surface cracks by magnetic attraction, thereby permitting the cracks to be readily discernible. If the ferrous particles are fluorescent, surface cracks will be brilliantly illuminated under black light. See also: **INSPECTION PENETRANT.**[9]

**MAGNETIC INSPECTION PASTE.** A paste containing ferromagnetic particles designed to be added to a light distilled petroleum oil, such as kerosine or naphtha, to form an inspection penetrant. When the inspection penetrant is applied to a metal being inspected by means of a magnetic inspection machine, the ferrous particles accumulate in any surface cracks (flaws) by magnetic attraction, thereby permitting the cracks to be readily discerned. If the ferrous particles are fluorescent, surface cracks will be brilliantly illuminated under black light.[9]

**MAGNETIC INSPECTION POWDER.** A dry powder containing ferromagnetic particles colored gray, black or red for contrast, designed to be dusted on metal parts being inspected by a magnetic inspection machine. The ferrous powder accumulates in any surface cracks (flaws) by magnetic attraction, thereby permitting the cracks to be readily discerned. If the ferrous particles are fluorescent, surface cracks will be brilliantly illuminated under black light.[9]

**MAGNETIC INSPECTION UNIT.** A unit designed for inspecting magnetic metal part(s) for surface or near surface defects, by setting up a suitable magnetic field within the part(s) to be inspected; any sudden interruptions to this magnetic field indicates by magnetic particles exact extent and location of the defect.[9] It may be either portable or stationary.

**magnetic mine.** See: **mine, magnetic.**

**magnetic powder-impregnated tape.** (impregnated tape) (dispersed magnetic power tape) *Electroacoustics.* A magnetic tape which consists of magnetic particles uniformly dispersed in a nonmagnetic material.

**magnetic printing.** (magnetic transfer) (crosstalk) *Electroacoustics.* The permanent transfer of a recorded signal from a section of a magnetic recording medium to another section of the same, or a different, medium when these sections are brought into proximity.

**magnetism.** The property of attraction. The property of the molecules of certain substances, as iron, by virtue of which they may store energy in the form

of a field of force, due to the motion of the electrons in the atoms of the substance; a manifestation of energy due to the motion of a dielectric field of force.

**magneto aerodynamics.** See: **magneto fluid dynamics.**

**magneto fluid dynamics.** Science treating the dynamics of a fluid which interacts with a magnetic field. Only those liquids, gases or ionized gases (plasma) which are excellent electrical conductors are considered. Applications of this science include phenomena relative to the dynamics of liquid metals, solar flares, plasma instabilities occurring in interplanetary magnetic fields, thermonuclear plasmas, arc produced plasma, and highly ionized gases produced under hypersonic flight conditions.

**magneto gas dynamics.** See: **magneto fluid dynamics.**

**magnetohydrodynamics.** See: **magneto fluid dynamics.**

**magnetometer.** An instrument for measuring the magnitude and direction of the earth's magnetic field or other types of magnetic fields.

**magnetomotive force.** The force which is necessary to establish flux in a magnetic circuit or to magnetize an unmagnetized specimen.

**magnetorheodynamics.** See: **magneto fluid dynamics.**

**magnetorheology.** See: **magneto fluid dynamics.**

**magnetostriction.** Change in the dimensions of a body when it is magnetized.

**MAGNETOSTRICTION ELEMENT.** An item of metallic material which changes in dimensions when placed in a magnetic field or which varies a magnetic field or which varies a magnetic field when pressure is applied. Excludes COIL (as modified).*

**magnetostriction loudspeaker.** See: **loudspeaker, magnetostriction.**

**magnetostriction microphone.** See: **microphone, magnetostriction.**

**magnetostriction oscillator.** See: **oscillator, magnetostriction.**

**magnetostrictive resonator.** See: **RESONATOR, MAGNETOSTRICTION.**

**magnetron.** A high-vacuum thermionic tube capable of producing high output power in the microwave region of the frequency spectrum. This tube consists of a heater, cathode, usually a multisegment anode, and an external magnet (electro or permanent) for controlling the unidirectional current flow in the tube. See: **ELECTRON TUBE.**

**magnifying power.** *Optics.* The ability of a lens, mirror, or optical system to make an object appear larger. If an optical element or optical system makes an object appear twice as high and twice as wide, the element or system is said to have a magnification of 2-power. The power of an optical instrument is the entrance pupil divided by the exit pupil, the focal length of the objective divided by the focal length of the eyepiece, or the apparent field of view divided by the true field of view.

**magnitude method.** Method of adjusting gunfire for range when the amount and direction of the deviation are known. Cf: **bracketing method.**

**Magnus force.** The sideways thrust on a rotating body when acted on by a current of air (or component of such current) perpendicular to its axis. This is the force that causes baseballs, golf balls and tennis balls to swerve. It also is one of the forces acting on a spinning projectile in flight because of the component of the air current acting perpendicular to the axis of the yawing projectile.

**maint** *(abbr).* 'Maintenance.'

**maintenance.** (maint) The servicing, repair, and care of materiel or equipment to keep it in operating condition. The U. S. Army categories and echelons of maintenance are:

*organizational maintenance.* That maintenance authorized for, performed by, and the responsibility of, a using organization on its own equipment. This maintenance normally consists of inspecting, cleaning, servicing, preserving, lubricating, and adjusting as required, and may also include minor parts replacement not requiring highly technical skills, or expensive, complicated, or bulky test equipment or tools. Organizational maintenance usually incorporates the first and second echelons as follows:

*first echelon.* That maintenance performed by the user, wearer, or operator of the equipment; includes the proper care, use, operation, cleaning, preservation, lubrication; and adjustment, minor repair, testing, and parts replacement prescribed by pertinent technical publications and tool and parts lists.

*second echelon.* That maintenance performed by specially trained personnel provided for that purpose in the using organization. Appropriate publications authorize additional tools and the necessary parts, supplies, test equipment, and skilled personnel to perform maintenance beyond the capabilities and facilities of the first echelon.

*field maintenance.* That maintenance authorized for and performed by designated maintenance activities in direct support of using organizations. This category normally will be limited to repair and/or replacement of unserviceable parts, assemblies or components. Field maintenance usually incorporates the third and fourth echelons as follows:

*third echelon.* That maintenance authorized by appropriate technical publications to be performed by specially trained units in direct support of using organizations. Third echelon maintenance may be performed by using organizations when specifically authorized by Tables of Organization and Equipment, the Maintenance Allocation Chart, or by specific agreement between the commanders of the direct support unit and the using unit. A third echelon unit normally provides maintenance support to a number of using organizations. Third echelon maintenance is authorized a larger assortment of parts, and assemblies, and more precise tools and test equipment than is provided for organizational maintenance. Third echelon maintenance organizations repair components and assemblies, and perform repairs for lower echelons within limits imposed by specific authorizations of tools, parts, and test equipment. They also support the lower echelons by providing maintenance assistance, mobile repair crews, and repair parts as required.

*fourth echelon.* That maintenance authorized by appropriate technical publications to be performed by units organized as semifixed or permanent shops to support lower echelons of maintenance. Fourth echelon maintenance is authorized a larger assortment of parts and additional and more precise tools

and test equipment than the lower echelons. It may furnish mobile repair crews or reinforcing elements to lower echelons when required. The principal function of fourth echelon maintenance is to repair assemblies, components and end items for return to using organizations or to maintenance float stock. When necessary, fourth echelon maintenance may assist in the repair or modification of overflow work from third echelon maintenance organizations for return to lower echelons.

*depot maintenance.* That maintenance required for the major overhaul or complete rebuild of assemblies, components and/or end items. Such maintenance is intended to augment stocks of serviceable equipment or to support lower levels of maintenance by use of more extensive shop equipment and personnel of higher technical skill than are available in organizational or field maintenance activities. Depot maintenance usually embraces fifth echelon, which is the highest echelon of maintenance.

*fifth echelon.* That maintenance authorized for the rebuild of major items, assemblies, accessories, tools and test equipment, and the fabrication of parts peculiar to the support of such rebuild. It normally supports supply on a rebuild and return to stock basis. Limited fabrication of parts, components or special test and handling equipment not readily available from procurement is authorized to support emergency requirements for stock or rebuild. Fifth echelon operations are scheduled so as to employ production and assembly line methods wherever practicable. Fifth echelon is authorized to perform technical calibration services beyond the ability of field maintenance facilities in accordance with implementing directives of the head of the technical service.

**maintenance engineering.** The function of providing policy guidance for maintenance activities, and of exercising technical and management review of maintenance programs.

**maintenance kit.** A collection of items not all having the same basic name, which are of a supplementary nature to a major component or equipment. The items within the collection may provide replacement parts and/or facilitate such functions as inspection, test repair, preventive types of maintenance and the like, for the specific purpose of restoring and/or improving the operational status of a component or equipment comparable to its original capacity and/or efficiency. Excludes TEST SET (as modified). See also: **installation kit; MODIFICATION KIT** (as modified); **parts kit; REPAIR KIT** (as modified).*

**MAINTENANCE KIT, RECOIL MECHANISM.** A maintenance kit designed for use with a RECOIL MECHANISM (as modified).*

**MAINTENANCE KIT, SMALL ARMS, ARMORER'S.** A group of items including test breech bolts, gages and barrel reflectors specifically designed for organizational, field or base shop maintenance of small arms.*

**maintenance platform, boom type.** See: **SERVICING PLATFORM, SELF-PROPELLED; SERVICING PLATFORM, TRACTOR MOUNTED.**

**maintenance platform, truck mounted.** See: **SERVICING PLATFORM, TRUCK MOUNTED.**

**maintenance vehicle.** Vehicle used for carrying parts, equipment and personnel for maintenance or evacuation of vehicles.

**major activity.** See: **activity.**

**major assembly.** A self-contained unit of individual identity. A completed assembly of component parts ready for operation, but utilized as a portion of, and intended for, further installation in an end item or major item. See also: **assembly; end item; major item.**

**major caliber.** Gun or ammunition eight inches in caliber, or larger. Navy terminology. No longer used as an Army classification.

**major combination.** Single composite unit of mechanical equipment inherently complete for independent use and consisting of one or more major items. A major combination as issued is complete in respect to both equipment and spare parts, including items furnished by services other than the issuing service. A tank, complete with armament, equipment and spare parts, is an example of a major combination.

**major defect.** See: **classification of defects.**

**major item.** An end item, a group of end items individually classified by the responsible technical service, or an assembled group of items as procured or issued for a specific tactical role, excluding combinations required to complete the assigned tactical mission.

**Major Item Supply Management Agency.** Ordnance Corps field installation, located at Chambersburg, Pennsylvania. Official symbol: ORDSM.

**major repair.** Repair work on items of materiel or equipment that need complete overhaul or substantial replacement of parts, or that require special tools.

**malfunction.** Faulty action of a gun or other mechanism which may result in a stoppage; failure of ammunition to function in a normal or expected manner; failure of a parachute to open properly, and the like.

**MALFUNCTION SETTER, WARHEAD SECTION.** An item specifically designed to create malfunctions in a training or practice warhead section during training procedures.*

**malleability.** The property of being permanently extended in all directions without rupture, as when metal is hammered or rolled.

**Malta Test Station.** Ordnance Corps field installation, located at Schenectady, New York.

**MAMS** *(abbr).* 'Modern Army Maintenance System.'

**M&O** *(abbr).* 'Maintenance and operation.'

**M&R** *(abbr).* 'Maintenance and repair.'

**M&S** *(abbr).* 'Maintenance and supply.'

**maneuverability.** *Missiles.* That structural or aerodynamic quality which determines the rate at which attitude and direction of flight can be changed. Commonly expressed in g's.

**Manhattan Project.** A project of the Manhattan District, lasting from August 1942 to August 1946, that developed the atomic-energy program, with special reference to the atomic bomb.

This project consolidated work begun in 1939-1940 under joint auspices of the War and Navy Departments.

**manifold.** 1. A fitting with numerous branches used to convey fluids between a large pipe and several smaller pipes. 2. A header for a coil.

*Intake manifold.* The branch pipe, usually Y-shaped, which connects to the inlet port openings in cylinders, through which the combustible mixture of gas and air passes from the carburetor. It is generally a casting bolted to the cylinder block.

*Exhaust manifold.* A hollow casting (bolted to the cylinder block) through which the burnt gases from the various cylinders are discharged on their way through the exhaust pipe and through the muffler.

**MANIFOLD, FUEL, GUIDED MISSILE.** A specifically designed cylindrically shaped item for collecting and distributing guided missile propellant mixture to a missile propulsion unit.*

**manifold pressure.** The pressure in the intake manifold of an internal combustion engine.

**manometer.** An instrument for measuring the elastic pressure of fluids by balancing their pressure against a column of liquid and this difference indicated on a calibrated scale. Excludes BAROMETERS.*

**mantlet.** Also **mantelet.** Protective shield or armor, as in front of a gun, or attached to the front of a tank.

**manual tracking.** System of tracking a target in which all the power required is supplied manually through the tracking handwheels.

**manufacturer's part number.** Identification number or symbol assigned by the manufacturer to a part, subassembly or assembly.

**MAP** *(abbr).* 1. 'Military Assistance Program.' 2. 'Mutual Assistance Program.'

**map K.** A proportional correction for the discrepancy between the scale of a firing chart and that of the plotting scale being used.

**map range.** The range from the piece to any point as scaled or computed from a map.

**margin of safety.** A design criterion, usually the ratio between the load that would cause failure of a member or structure and the load that is imposed upon it in service. Cf: **safety factor.**

**marker.** A sign or signal for marking a location on land or water. Frequently contains pyrotechnics.

**MARKER KIT, UNDERWATER MINE.** A group of items designed to be assembled to an underwater practice mine. Its purpose is to locate the underwater mine during training and evaluation operation.*

**MARKER, LOCATION, MARINE.** A item which contains a dye or a burning mixture for marking a location on water. It may contain an explosive charge for dispersion of contents.*

**MARKER, LOCATION, TORPEDO.** An item containing an explosive charge for expulsion of wooden disks. Its purpose is to indicate the point of actuation of an EXPLODER MECHANISM, TORPEDO for training purposes only.*

**MARKER, TARGET.** An item designed to indicate and signal, by means of the hoisting and lowering of various colored attached disks, the value of hits made on a target or the number of misses. It generally consists of a staff of a specified length with one or more attached disks, colored on each face and secured in slot(s) on end(s) by means of attaching hardware such as bolts, washers and wing nuts.*

**Mark number.** A numerical designation for Naval Ordnance items, preceded by the word 'Mark' or 'MK.'

Also used on some British material and at one time used by the Ordnance Corps.

**Marsh Buggy.** Name given to vehicle whose chassis is supported by four 10-foot balloon tires. Rubber-cleat chains, when placed on the wheels, enable the vehicle to travel over water. Designed to travel over marshlands.

**MASA** *(abbr).* 'Military Automotive Supply Agency.'

**mask.** 1. Any natural or artificial obstruction that interferes with, or protects from, observation or gunfire. 2. A gas mask.

**MASS** *(abbr).* 'Modern Army Supply System.'

**mass burning rate.** Rate of consumption of propellant charge, usually expressed in lb/sec.

**mass flow.** The mass of fluid flowing past or through a particular reference plane, per unit of time.

**mass ratio.** *Rockets.* The ratio of the total propellant weight to the gross rocket weight.

**master station.** In a hyperbolic navigation system, that station in a given pair of transmitting stations that controls the transmissions of the other station in the pair (the slave station) and maintains the time relationship between the pulses of the two stations.

**masthead bombing.** Very low bombing, esp. against shipping.

**mat** *(abbr).* 'Material; materiel.'

**Matador.** Name applied to an Air Force surface-to-surface tactical missile, controlled electronically from the ground. It is powered by a jet engine, is rocket-boosted, and attains subsonic speed. Has a range of several hundred miles, and can carry a conventional or atomic warhead. Has a combination radar and inertial guidance system. Transported to launching site on a transport trailer.

**MAT, BLASTING.** An item fabricated by weaving or plaiting together fiber rope or steel chain to a specific size. It is designed to be placed over blasts to confine flying fragments.*

**matching.** In electrical circuitry, the connecting of two circuits in such a way that correct impedance to insure maximum transfer of energy exists in each circuit.

**match-the-pointer system.** Remote control system for artillery fire control. Also called 'follow-the-pointer system.' See: **follow-the-pointer indicator.**

**materiel.** (mat) [Also sometimes spelled matériel as in the French.] 1. Things of all kinds required for the equipment, maintenance, operation, and support of military activities, both combat and noncombat. 2. In a restricted sense, those things used in combat or logistic support operations, as weapons, motor vehicles, airplanes, component parts of machines, special-purpose clothing, etc., as distinguished from items of ordinary use, such as uniforms, food, bedding, medicines, housekeeping equipment, etc.

**matrix.** 1. Any rectangular array of symbols. 2. A square array of numbers from an algebraic ring; an

element of a matric algebra. 3. Natural material in which some other material is embedded. 4. *Electronic computers.* An array of quantities in a prescribed form, usually capable of being subject to a mathematical operation by means of an operator or another matrix according to prescribed rules; an array of circuit elements, e.g., diodes, wires, magnetic cores, relays, etc., which are capable of performing a specific function, e.g., conversion from one numerical system to another.

**MATS** *(abbr).* 'Military Air Transport Service.' (Pronounced as a word.)

**Mauler.** Name given to an Army developed surface-to-air, lightweight, highly mobile, air defense missile for use in forward areas. It has infrared guidance.

**MAW** *(abbr).* 'Medium antitank weapon.'

**maximum barrel pressure.** See: **pressures, gun.**

**maximum chamber pressure.** See: **pressures, gun.**

**maximum depression.** The maximum vertical angle below the horizontal at which a piece can be laid and still deliver effective fire.

**maximum effective range.** The greatest distance at which a weapon may be expected to fire accurately to inflict casualties or damage.

**maximum elevation.** The greatest vertical angle at which a gun or launcher can be laid. It is usually limited by the mechanical structure of the piece.

**maximum gradability.** Steepest slope a vehicle can negotiate in low gear. This is usually expressed in percentage of slope, namely, the ratio between the vertical rise and the horizontal distance traveled. It is sometimes expressed by the angle between the slope and the horizontal.

**maximum metal condition.** In the tolerancing of dimensions in the Ordnance Corps, the unilateral tolerance system is used, except in certain special cases. Under this system the basic dimension is the one corresponding to *maximum metal condition,* for example, a bar diameter carries a minus tolerance, and a hole diameter carries a plus tolerance. Applies also to parts made from material other than metal, such as plastic parts. See also: **minimum metal condition.**

**maximum ordinate.** Difference in altitude between the origin and highest point of the trajectory of a projectile.

**maximum or peak chamber pressure.** See: **pressures, gun.**

**maximum permissible dosage.** The weekly radiation dosage set up as a safe maximum for personnel working under nonemergency conditions. See: **dosimeter; radiation dosage.**

**maximum pressure.** See: **pressures, gun.**

**maximum range.** A capability of an aircraft, gun, radar transmitter, or the like that expresses the most distant point to which the aircraft can fly, the gun can shoot, etc. See: **range.**

**maximum rated pressure.** See: **pressures, gun.**

**maximum sky brightness.** A meteorological condition, usually involving uniform clouds or overcast, which impedes observation of pyrotechnic signals.

**maximum strain theory.** The theory that plastic flow will occur when the unit strain in any direction is equal to the strain corresponding to the elastic limit. The Ordnance Corps has adopted this theory as the basis of gun design.

**maximum thrust.** *Missile testing.* The highest thrust recorded on the thrust-time trace.

**maximum undistorted output; maximum useful output.** For sinusoidal input, the greatest average output power into the rated load with distortion not exceeding a specified limit.

**mbl** *(abbr).* 'Mobile.'

**MC** *(abbr).* 'Military characteristics.'

**mcs** *(abbr).* 'Megacycles per second.'

**MD** *(abbr).* 1. 'Methyldichloroarsine' (war gas). 2. 'Mean deviation.'

**M damage.** See: **damage categories.**

**M-day.** The day on which mobilization begins or is postulated to begin.

**meaconing.** A system for receiving electromagnetic signals and rebroadcasting them with the same frequency so as, for instance, to confuse navigation. A confusion reflector, such as chaff, is an example. See: **countermeasures; jamming.**

**meadow.** Ranges of air-fuel ratio within which smooth combustion may be had.

**meal powder.** An unglazed black powder of very fine granulation. See also: **black powder; coal powder.**

**mean.** A quantity representing the average of two or more other quantities, arrived at by adding the quantities together and dividing by their number. Also called 'arithmetic mean.' The 'geometric mean' of two quantities is the square root of the product of the quantities.

**mean aerodynamic chord.** See: **chord, mean aerodynamic.**

**mean chord.** That chord of an airfoil that is equal to the sum of all the airfoil's chord lengths divided by the number of chord lengths added.

A mean chord is equal to the area divided by the span.

**mean chord of a wing.** See: **chord, mean, of a wing.**

**mean deviation.** (MD) Average of the distance between the center of impact, or burst, and points of impact or burst. Usually each component of the distance is considered separately, yielding a mean deviation in horizontal range, altitude, or deflection.

**mean effective pressure.** (MEP) The average pressure, in pounds per square inch, exerted inside the cylinder of an internal combustion engine during the power stroke.

**mean error.** Algebraic mean of the errors.

**mean free path.** *Electroacoustics.* For sound waves in an enclosure, the average distance sound travels between successive reflections in the enclosure.

**mean height of burst.** Average of the heights of bursts of a group of shots fired with the same firing data.

**mean point of impact.** The point which is at the geometrical center of all the points of impact of the several shots of a salvo, excluding wild shots. When firing time-fuzed projectiles, the point of detonation of such a projectile is considered to be the point of impact.

**mean point of impact error.** Distance between the mean point of impact and the target. See: **center of burst error.**

**mean pulse time.** The arithmetic mean of the leading edge pulse time and the trailing edge pulse time.

For some purposes the importance of a pulse is that it exists (has significant quality) at a particular instant of time. For such applications the important quantity is the 'mean pulse time.' The 'leading edge pulse time' and the 'trailing edge pulse time' are significant primarily in that they may allow a certain tolerance in timing.

**mean range.** Average distance reached by a group of shots fired with the same firing data.

**mean trajectory.** The trajectory that passes through the center of impact or center of burst.

**measuring wedge.** An optical element employed in a range or height finder to deviate light entering the variable angle end of the instrument. One type consists of a single, perpendicular wedge which is moved in alignment with the path of light to increase or decrease the amount of deviation. The other type consists of one or two pairs of circular wedges, each pair being capable of rotating equally or simultaneously in opposite directions about the axis of the path of light to produce variable deviation. The wedges of both types are compound elements corrected for color. See: **PRISM, OPTICAL INSTRUMENT.**

**mech** *(abbr).* 'Mechanical.'

**mechanical efficiency.** The external efficiency of an engine rated in horsepower, as of an internal combustion reciprocating engine, expressed as the ratio of brake horsepower to indicated horsepower.

**mechanical fuse.** See: **fuse, mechanical.**

**mechanical integration.** A solution of a system of differential equations by mechanical means.

**mechanical jamming.** Intentional production of multiple false targets by such devices as countermeasures chaff to interfere with reception of signals by another station.

**Mechanical Mule.** Popular name for a lightweight, low-silhouette infantry light weapons carrier, powered by an opposed-cylinder engine. See: **TRUCK, PLATFORM, UTILITY.**

**mechanical reliability (of motor vehicle).** Ability of a vehicle to operate successfully over great mileages without failure; the ability of a vehicle to continue operation though assemblies are damaged.

**mechanical time and superquick fuse.** (MTSQ) See: **FUZE, MECHANICAL TIME AND SUPERQUICK.**

**mechanical time fuse.** See: **FUZE, MECHANICAL TIME.**

**mechanize.** To equip a military force with armed and armored motor vehicles, such as tanks and combat vehicles. Mechanization differs from motorization, in that the motorization of a unit provides a means of transportation only, whereas in mechanization the unit both travels in, and fights from, its vehicles. Cf: **motorize.**

**mechanized cavalry.** See: **armored cavalry.**

**mechanized gun.** Gun mounted on, and fired from, a motor vehicle. It is usually an artillery gun mounted on an armored, wheeled or tracklaying vehicle.

**med** *(abbr).* 'Medium.'

**medium.** *Optics.* Any substance or space through which light can travel.

**medium-altitude bombing.** Horizontal bombing with the height of release at an altitude between 8,000 and 15,000 feet.

**medium antiaircraft artillery.** Conventional antiaircraft artillery pieces, 90 mm or larger, the weight of which in a trailed mount, excluding on-carriage fire control, does not exceed 40,000 pounds.

**medium artillery.** Artillery which includes (1) guns of greater caliber than 105 mm but less than 155 mm, and (2) howitzers with calibers greater than 105 mm but not greater than 155 mm.

**medium caliber, or intermediate caliber.** Greater than four inches and less than eight inches. Navy terminology. No longer used as an Army classification.

**medium delay fuse.** See: **fuse, medium delay.**

**medium frequency.** (MF) See: **frequency, electronic.**

**medium range radar.** Equipment whose maximum range on a reflecting target of one square meter normal to the signal path exceeds 150 miles but is less than 300 miles, provided line-of-sight exists between the target and the radar.

**megaton.** The explosive energy of 1,000,000 tons of TNT. Cf: **kiloton.**

**megatron.** See: **ELECTRON TUBE.**

**melinite.** Picric acid (which see), a high explosive. Also called 'lyddite.'

**melt.** A quantity of material, such as explosives, melted in one kettle at one time.

**melt loading.** Process of melting solid explosive by heat and pouring into bombs, projectiles, and the like to solidify. Also called 'cast loading.' Cf: **pressed loading.**

**memory.** *Electronic computers.* Any device into which information can be introduced and then extracted at a later time. The mechanism or medium in which the information is retained commonly forms an integral part of a computer. See also: **storage,** a preferred term.

**memory capacity.** *Electronic computers.* The maximum number of distinguishable stable states in which a memory device can exist is a measure of its capacity. It is customary to use the logarithm to the base two of that number as a numerical measure of the memory capacity. In this case, the unit of memory capacity is a binary digit.

**memory, delay-line.** *Electronic computers.* See: **delay-line memory.**

**meniscus-convergent lens.** A lens, the surfaces of which are curved in the same direction; one surface is convex, the other is concave. The convex surface has the greater curvature or power.

**MEP** *(abbr).* 'Mean effective pressure.'

**méplat.** The flat nose formed by truncation of the ogival portion of a projectile or point fuze.

**Mercator chart.** A map based upon a **Mercator projection** and widely used for surface and air navigation.

**Mercator projection.** A projection with the base line at the equator that shows the meridians as parallel lines equally spaced and the parallels as straight lines, perpendicular to the meridians, so spaced mathematically as to produce the property of true shape in the imposed geographic representation.

Exaggeration of area increases with distance from the point of tangency, but a straight line on this projection, between any two points, represents a rhumb line or a true course.

**mercury fulminate.** A **primary high explosive** (which see) that is detonated by friction, impact, or heat; fulminate of mercury. Mercury fulminate is used to initiate other less sensitive explosives in fuzes, projectiles, mines, or bombs. Its military uses have been taken over to a large extent by lead azide because of the poor stability of mercury fulminate at elevated temperatures.

**mercury strain test.** Test of brass cartridge cases which causes cracks to appear at the time of the test; cracks which would appear naturally in the future. Test involves treatment with nitric acid and mercurous nitrate.

**meson.** *Physics.* A particle with a mass approximately 200 times that of an electron, having either a negative or positive charge, formerly called a 'mesotron' or 'heavy electron.'

The meson was first detected in cosmic rays.

**mesopause.** See: **atmospheric shells.**

**mesophere.** See: **atmospheric shells.**

**met.** *(abbr).* 'Meteorology; meteorological.'

**metal fatigue.** A weakening in the strengtn of a metal caused by repeated or fluctuating stresses.

**metal fouling.** Deposits of metal that collect in the bore of a gun. Metal fouling comes from the jackets or rotating bands of projectiles.

**metal jacket.** See: **jacket, bullet.**

**metallic belt.** See: **belt, link.**

**metallographic tests.** *Metals.* Tests to determine the structural composition as shown at low and high magnification and by X-ray diffraction methods; tests include macro-examination, micro-examination, and X-ray diffraction studies.

**metascope.** Hand carried device designed for locating a source of infrared rays.

**met. data** *(abbr).* 'Meteorological data.'

**meteorological check point.** *Gunnery.* Arbitrarily selected point for which meteorological corrections are determined as a time saving expedient. These corrections are applied to any target located within transfer limits of the meteorological check point.

**meteorological correction.** Adjustment made in the firing data of a gun or other weapon to allow for the effect of wind, air pressure, etc., on the flight of a projectile.

**meteorological data.** (met. data) Facts pertaining to the atmosphere, especially wind, temperatures, and air density, which are used in determining correction to basic firing data.

**meteorological datum plane.** Reference plane assumed as a basis or starting point for atmospheric data furnished to artillery. Its altitude is that of the meteorological station.

**meteorological message.** Message giving data about atmospheric conditions, usually in code.

**meter.** (M) The metric unit of length equal to 39.37 inches.

**meter, blast.** A device for measuring the severity of a blast wave. Electric blast meters give a record of peak pressure, duration of the pressure wave and enable total impulse to be computed. The simplest meter is the diaphragm type, in which holes of various sizes (diameters) are covered by a paper or foil diaphragm. Observation of the smallest hole in which the diaphragm is broken gives a comparative measure of the peak pressure.

**meter, engine-hour.** An instrument, generally located on the (front) dash of automotive vehicles, that registers the total number of hours the engine operates.

**metering rod.** A device consisting of a long metallic pin of graduated diameters fitted to the main nozzle of a carburetor (on an internal combustion engine) or passage leading thereto in such a way that it measures or 'meters' the amount of gasoline permitted to flow by it at various speeds. Called also 'metering pin.'

**methyldichloroarsine.** (MD) A blister gas, very similar to **ethyldichloroarsine** (which see).

**methyl violet test.** See: **heat tests.**

**metro K.** Range correction for artillery in yards per thousand yards, determined from a meteorological message.

**MEV** *(abbr).* 'Million electron-volts.'

**MEW** *(abbr).* 'Microwave early warning.'

**MF** *(abbr).* 'Medium frequency.'

**MG** *(abbr).* 'Machine gun.'

**Michoud Ordnance Plant.** Ordnance Corps field installation, located at New Orleans, Louisiana.

**microbarograph.** Instrument that automatically records changes of air pressure. It is more accurate than a barograph.

**microminiaturisation.** See: **miniaturisation.**

**microphone.** An item specifically designed for converting sonic or supersonic waves in air into equivalent electrical impulses.*

**MICROPHONE, CAPACITOR.** A microphone which depends for its operation upon variation of its electrostatic capacitance.*

**MICROPHONE, CARBON.** A microphone which depends for its operation upon the variation in resistance of carbon granules.*

**MICROPHONE, CRYSTAL.** A microphone which depends for its operation upon the generation of an electrical charge by the deformation of a crystal having piezoelectric properties.*

**MICROPHONE, DYNAMIC.** A microphone which depends for its operation upon the generation of an electromotive force by the motion of a moving coil within a magnetic field.*

**MICROPHONE, MAGNETIC.** A microphone which depends for its operation upon variations in reluctance of a magnetic circuit.*

**microphone, magnetostriction.** *Electroacoustics.* A microphone which depends for its operation on the

generation of an electromotive force by the deformation of a material having magnetostrictive properties.

**microphone, moving coil.** See: **MICROPHONE, DYNAMIC.**

**microphone, moving conductor.** A microphone the electric output of which results from the motion of a conductor in a magnetic field.

**microphone, parabolic reflector.** *Electroacoustics.* A microphone employing a parabolic reflector to improve its directivity and sensitivity.

**MICROPHONE, RIBBON.** A microphone which depends for its operation upon variations in the electromotive force generated in a metallic ribbon within a magnetic field or the change in resistance of a suspended hot wire due to the change in temperature caused by the cooling effect of the particle velocity of a sound wave.*

**microsecond.** A millionth part of a second.

**microwave.** A very short electromagnetic wave, esp. in the frequency range of 1,000 to 30,000 megacycles, or in the wavelength range of 30 centimeters to 1 centimeter.

**microwave early warning.** (MEW) A highpower, long-range radar, giving high resolution and used for early warning.

**mid-range materiel requirements.** Items required as soon as possible by current operational and organizational concepts or required by new concepts to be implemented within the next 5 years. See also: **long-range materiel requirements; very-long-range materiel requirements.**

**Mighty Mouse.** Popular name for a type of 2.75-inch air-to-air folding-fin rocket developed by the Navy.

**mil** *(abbr).* 'Military.'

**mil.** 1. Unit of measurement for angles based on the angle subtended by approximately 1/6400 of the circumference of a circle. A mil is the angle subtended by one unit at one thousand units. 2. 1/1000 of an inch (wire measurement).

**Milan Arsenal.** Ordnance Corps field installation, located near Milan, Tennessee.

**mil formula.** Mil relation used in gunnery; expressed by $n = W/R$, where n is the angular measurement in mils between two points, W is the lateral distance in yards between the points, and R is the mean distance to the points in thousands of yards. The mil relation is approximately true for angles less than 400 mils. See also: **mil** (sense 1).

**Military Automotive Supply Agency.** (MASA) An Army agency located in Detroit, Michigan, designated by the Department of Defense as the single manager for all military automotive supplies.

**military characteristics.** (MC) Those characteristics of equipment found desirable or necessary to the performance of a military mission, either combat or noncombat.

Military characteristics are prescribed by the using arms and usually form the basis of initiating development of a new item.

**military department.** *Specif.* The Department of the Army, the Department of the Navy, or the Department of the Air Force.

**military grid.** Network of squares made of north-south lines showing distance east of arbitrary origin, and east-west lines showing distance north of the same reference point. The distance between grid lines is 1,000, 5,000 or 10,000 yards (or meters), depending on the scale of the map.

**military grid system.** Method of subdividing the earth's surface into zones or segments sufficiently small to allow mathematical treatment as a plane surface for the purpose of simplifying azimuth and distance computations and for providing a simple but accurate means of location reference on military maps. See: **military grid.**

**military motor vehicle.** Wheeled or tracklaying vehicle or combined wheeled and tracklaying vehicle, designed for transporting personnel or cargo for military purposes. A military motor vehicle may be either propelled by a self-contained power unit or drawn by a vehicle containing a self-contained power unit. Cf: **commercial type vehicle; military transport vehicle.**

**military requirement.** The statement of a recognized and approved need for a new item, a weapons system, or an assemblage for military use.

**military research.** Investigation or experimentation to discover and interpret new facts or to analyze existing facts with the aim of applying new or revised conclusions, theories, or laws to areas of interest to the military services.

**military specification.** A procurement specification promulgated by the military agencies and used for the procurement of military supplies and equipment.

**Military Standard.** (Mil Std) An authoritative Department of Defense publication setting forth uniform procedures, definitions and standards for mandatory use throughout the Departments of the Army, the Navy, and the Air Force.

**military standard test.** Specifications approved by the Department of Defense, to ensure uniformity of test conditions.

**military target.** 1. Any industrial plant, city, or other object, or any person, group of persons, or force marked as a target for destruction, damage, injury, or capture because of its direct or indirect use in the conduct or support of an enemy's military endeavor. 2. In restricted usage, a military person, force, installation, or area marked as a target because of its use, or potential use, in direct military operations. Distinguished from an industrial target.

**military transport vehicle.** Wheeled or tracked vehicle specifically designed for military purposes other than employment as a fighting vehicle, intended for transporting cargo, personnel and/or equipment, or for towing other vehicles, over land and roads in close support of fighting vehicles and troops. It has excellent cross-country performance capabilities, built-in waterproofing, and other special characteristics not normally provided in a commercial type vehicle. Cf: **commercial-type vehicle; military motor vehicle.**

**military-type vehicle.** Vehicle designed primarily for military purposes to meet field requirements in connection with combat and tactical operations. Cf: **commercial-type vehicle; military motor vehicle; military transport vehicle.**

**milling machine.** A machine tool for shaping material generally of a metallic character which is fed against a revolving multitoothed cutter.*

**millisecond.** A thousandth part of a second.

**Mil Std** *(abbr).* 'Military Standard.'

**min** *(abbr).* 1. 'Minimum.' 2. 'Minute(s).'

**mine.** 1. An encased explosive or chemical charge designed to be placed in position so that it detonates when its target touches or moves near it or when touched off by remote control. General types are: land mine and underwater mine. 2. An explosive charge placed in a subterranean tunnel under a fortification. 3. To place mines or prepared charges. See also: **mine, land; MINE, UNDERWATER.**

**mine, acoustic.** A mine which is designed to be actuated by the sounds emitted by its target.

**mine action.** The explosion of a projectile below the surface of the ground. Cf: **mining effect.**

**mine, activated.** A mine having a secondary fuze which will cause detonation when the mine is moved or otherwise interfered with. The device may be attached either to the mine itself or to a second mine or to an auxiliary charge beside or beneath the mine.

**mine, actuated.** A controlled mine whose detecting element has been operated, resulting either in explosion of the mine, or signaling to the control station.

**mine, aerial.** 1. A mine designed to be dropped from an aircraft, especially into water. Hence, aerial minelaying, aerial mining. 2. An early World War II light case bomb, the predecessor of the blockbuster, that was normally dropped by parachute. Was also called a 'land mine.'

**mine, amphibious.** A mine designed especially to hinder beach landings and river crossing operations by damaging or destroying landing craft, small boats, water fording vehicles, and floating bridges. It may be contact, controlled, drifting, ground or ground influence type.

**MINE, ANTIPERSONNEL.** A land mine, for use against personnel, consisting of a small amount of high explosive, generally less than 1 pound, in a metallic or nonmetallic container fitted with a detonating fuze arranged for actuation by pressure or release of pressure by pull on a trip wire, or by release of tension (cutting) of a taut trip wire. Two types are available, the blast type, which explodes in place, and the bounding type, which projects a fragmenting body into the air that, upon detonation, scatters fragments over a wide area. See also: **mine, bounding.**

**MINE, ANTIPERSONNEL, PRACTICE.** An antipersonnel practice mine is the same size, weight, and shape as an antipersonnel mine but contains a small charge consisting of black powder or pyrotechnic composition instead of a high explosive.

**MINE, ANTITANK.** A land mine, consisting of an explosive charge, contained in a metallic or nonmetallic case, with provision for a main fuze, and usually for secondary, antiremoval fuzes. Designed to function when a tank or other vehicle runs over it. Provided with a charge designed to produce disabling effect on a tank.

**MINE, ANTITANK, PRACTICE.** An antitank practice mine is of the same size, weight, and shape as an antitank mine but contains a small charge consisting of black powder or pyrotechnic composition instead of a high explosive.

**mine, armed.** 1. Mine with all safety devices removed so the mine is ready to function. 2. Controlled underwater mine that will be fired when firing power is applied to the shore cable.

**mine, booby trapped.** A hidden mine arranged so that it will be detonated by the disturbance of an apparently harmless object.

**mine, bounding.** Type of MINE, ANTIPERSONNEL usually buried just below the surface of the ground. It has a small charge which throws the case up in the air. This case explodes at a height of three or four feet, throwing shrapnel or fragments in all directions.

**mine case.** See: **CASE, UNDERWATER MINE.**

**MINE, CHEMICAL AGENT.** Container filled with war gas for detonation by burster. Used to contaminate materiel or areas.

**MINE CLEARING EQUIPMENT, MECHANICALLY POSITIONED.** A group of linear shaped prefabricated structural sections, filled with composition explosives, with a nose section and a towing and pushing attachment, designed for assembly into a device to be propelled by any standard tank. It is designed to breach a path through a mine field upon the detonation, by fire from the pushing tank's machine guns, of the linear shaped charges.[9] Early designs were termed 'snake, demolition.' See also: **DEMOLITION KIT, PROJECTED CHARGE.**

**mine, contact.** Mine fitted with a firing device which explodes the mine when it is touched by a vessel, person, or vehicle.

**mine, controlled.** Mine fitted with firing devices capable of being activated by an electrical system leading to a central control station. May apply to underwater mines or to land mines.

**mine countermeasures.** Includes all methods for preventing or reducing damage or danger to ships, personnel, aircraft, and vehicles from mines.

**mine, delayed action.** Explosive charge designed to go off some time after planting, and often left behind by a retreating enemy to harass or destroy pursuing forces.

**mine detecting equipment.** See: **DETECTING SET, MINE.**

**mine detector.** See: **detector, mine.**

**mine, drifting.** MINE, UNDERWATER adjusted to float, unanchored, on or just below the surface of the water. A special type of drifting mine is the oscillating mine, which rises and falls gently as it continuously seeks its point of balance.

**mine, dummy.** False or imitation land mine used to deceive the enemy, or used for training purposes.

**mine field.** The space either in water or on land in which mines have been placed.

**mine field gap.** A portion of a mine field in which no mines have been laid, of specified width to enable a friendly force to pass through the mine field in tactical formation. It will seldom be less than 100 yards wide.

**mine field lane.** An unmined (or demined) route through any mine field, normally 8 yards wide and suitably marked. For lanes through enemy mine fields, the width will depend on the method of breaching and the purpose for which required.

**mine, ground.** MINE, UNDERWATER possessing considerable negative buoyancy and intended to rest on the bottom. For this reason it is suitable for use in relatively shallow water only.

**mine, ground influence.** A **mine, ground** (which see) designed to be dropped from aircraft, and to rest on the bottom. It is detonated by magnetic or other influence.

**mine, ice.** A waterproof mine placed in or under the ice, detonated by a pressure device on the surface or exploded deliberately to break river or lake ice in destroying it. See also: **ice mining.**

**mine, improvised.** A mine manufactured of available materials because of unavailability of standard mines or because those mines available are not capable of producing the desired result.

**mine, land.** Container filled with high explosive or chemicals, placed on the ground or lightly covered, and fitted with a fuze or a firing device or both. It is usually set off by the weight of vehicles or troops passing over it.

**mine, magnetic.** MINE, UNDERWATER intended to be detonated when the hull of a passing vessel causes a change in the magnetic field at the mine.

**mine, moored.** MINE, UNDERWATER with positively buoyant mine case, held at a predetermined depth beneath the surface by a cable or chain mooring attached to an anchor that rests on the bottom.

**mine, oscillating.** See: **mine, drifting.**

**mine, phony.** Harmless object used to simulate mine or to give false signals in detectors. Used in phony mine fields.

**MINE PLANTING EQUIPMENT, MECHANICAL.** A group of items for uncrating, fuzing and magazine loading of antitank mines, and the mechanical emplacement of barrier type mine fields.*

**mine, practice.** Imitation land mine used in training. A practice mine may contain a smoke producing agent for maneuvers or for practice in observing the effects of mines against vehicles, or it may be simply a block of wood, metal, or concrete for practice in laying mine fields.

**mine, sea.** See: **MINE, UNDERWATER.**

**mine, selected.** Controlled MINE, UNDERWATER which has been connected, through the selector assembly, to the control equipment at the shore station. A selected mine is exclusive of all other mines in its group and may be fired, tested, or disarmed independently of the remainder of the group. See: **mine, controlled.**

**mine, submarine.** See: **MINE, UNDERWATER.**

**mine sweeper.** 1. Heavy road roller pushed in front of a tank, used to destroy land mines by exploding them. 2. A ship, especially equipped for locating and removing or neutralizing underwater mines.

**mine-sweeping.** Process of detecting and removing land mines or underwater mines.

**MINE, UNDERWATER.** An item designed to be located under water and exploded by means of propeller vibration, magnetic attraction, contact, and/or remote control. When empty or inert loaded it may be used for training purposes.*

**MINE, UNDERWATER, PRACTICE.** An item designed for launching from an aircraft to simulate the trajectory and falling speed of a MINE, UNDERWATER. Various weights are installed to represent different types of underwater mines.*

**miniature practice bomb.** See: **bomb, miniature practice.**

**miniature range.** Small range on which targets and distances are reduced in scale; used in firing practice.

**miniaturization.** The reduction in size and weight of a system, package, component, or element by using very small parts, printed circuits, transistors, and other techniques. Degrees of miniaturization in descending order are subminiaturization and microminiaturization.

**minimum altitude bombing.** Horizontal or glide bombing with the height of release at an altitude under 900 feet. It includes masthead bombing (bombing at masthead level), which is sometimes erroneously referred to as skip bombing.

**minimum elevation.** Lowest elevation of a weapon at which the projectile will safely clear an obstacle between the weapon and the target.

**minimum metal condition.** The condition corresponding to the removal of the greatest amount of material permissible in a machined part. Under the *maximum metal* method of dimensioning this condition results from the use of the *tolerance* applied to the *basic dimension*. See also: **maximum metal condition.**

**minimum range.** 1. Least range setting of a gun at which the projectile will clear an obstacle or friendly troops between the gun and the target. 2. Shortest distance to which a gun can fire from a given position.

**minimum safe distance.** (MSD) *Atomic explosion.* The total distance from desired ground zero (DGZ) to friendly positions required to ensure troops safety. MSD is the sum of the radius of safety and the buffer distance.

**minimum turning circle.** The diameter of the circle described by the outermost projection of a vehicle when the vehicle is making its shortest possible turn; the diameter of the smallest hollow cylinder within which the vehicle can make a complete turn.

**mining effect.** Violent upheaval or movement of earth and the destruction or damage resulting therefrom, generally caused by an explosion below the surface of the earth. Mining effect may be contrasted with the **blast effect** produced by an explosion on or above the surface of the earth.

**minol.** High explosive mixture containing 40 percent TNT, 40 percent ammonium nitrate, and 20 percent powdered aluminum. Produces large blast effect. Suitable for **melt loading** (which see).

**minor activity.** See: **activity.**

**minor caliber.** Guns and ammunition over caliber .60 and including three inch. Navy terminology. No longer used as an Army classification.

**minor defect.** See: **classification of defects.**

**minor repair.** Repair which in general permits quick return to serviceability without extensive disassembly. Can be accomplished with few tools and little or no equipment and normally does not require evacuation to a rear echelon.

**minSAT** (*abbr*). 'Minimum safe air travel.'

**Minuteman.** Intercontinental ballistic missile under development for the Air Force. Utilizes solid fuel.

**misfeed.** Failure to supply ammunition properly, especially to a magazine-fed or belt-fed automatic gun.

**misfire.** Failure of a round of ammunition to fire after initiating action is taken. Cf: **hangfire**; see also: **fire** (sense 1).

**miss.** *Specif.* An instance of failing to hit, as with a projectile or bomb. Cf: **near miss.**

**missile.** (msl) 1. Any object that is, or is designed to be, thrown, dropped, projected, or propelled, for the purpose of making it strike a target. 2. A **guided missile** (which see). 3. A **ballistic missile** (which see).

**missile, antiaircraft.** A guided missile intended to be launched from the surface against an airborne target. See **guided missile.**

**missile attitude.** The position of a missile as determined by the inclination of its axes (roll, pitch, and yaw) in relation to another object, as to the earth.

**missile checkout.** Performance of procedures to determine whether all parts of the missile are apparently capable of performing their prescribed functions. Cf **missile test.**

**missile destruct system.** That portion of a missile which, upon command or due to a failure, is capable of destroying the missile, generally for safety reasons. Cf: **fail-safe device.**

**MISSILE, FREE FALLING, ANTIPERSONNEL.** A nonexplosive missile designed to be dropped from aircraft, for effect against personnel.

**MISSILE, FREE FALLING, TIRE-PUNCTURING.** A nonexplosive missile designed to be dropped from aircraft, on roads and airfield runways, to cause damage to tires of vehicles or aircraft by contact.

**MISSILE GUIDANCE CENTRAL.** A collection of items specifically designed to provide target ranging facilities, guidance and control equipment for directing the terminal flight phase of a guided missile Excludes DIRECTOR STATION, GUIDED MISSILE, TRAILER MOUNTED.*

**MISSILE IMPACT PREDICTOR GROUP.** A group that provides facilities for determining the point of impact of a missile.*

**MISSILE POSITION TRACKING GROUP.** A group that provides facilities for determining the in-flight position of a missile.*

**missile servicing platform, truck mounted.** See **SERVICING PLATFORM, TRUCK MOUNTED.**

**missile test.** The test that includes **missile checkout** (which see) plus actual firing to determine whether the missile is capable of performing its operational function.

**missile tie down kit.** See: **TIE DOWN KIT, GUIDED MISSILE.**

**mistake.** *Electronic computers.* A human blunder which results in an incorrect instruction in a program or in coding, an incorrect element of information, or an incorrect manual operation.

**Missnay-Schardin effect.** The acceleration of a solid end-plate (usually metal) from the face of an explosive charge under detonation, such that the end-plate remains a solid and is usable as a missile.

**mixed salvo.** Series of shots in which some fall short of the target and some beyond it. A mixed salvo differs from a bracketing salvo, in which the number of shots going over the target equals the number falling short of it.

**mixed sensing.** In artillery, applied to height of burst only, for a group of rounds which result in both 'airs' and 'grazes' in any proportion.

**mixture.** *Specif.* Short for 'fuel-air mixture'; 'fuel-oxidizer mixture'; etc.

**mixture ratio.** The ratio of the weight of oxidizer used per unit of time to the weight of fuel used per unit of time.

**MK** *(abbr).* 'Mark.'

**mm** *(abbr).* 'Millimeter.'

**MMC** *(abbr).* 'Medium machine gun.'

**MMG** *(abbr).* 'Medium machine gun.'

**MNT** *(abbr).* 'Mononitrotoluene.'

**mobile aerial tower.** See: **SERVICING PLATFORM, TRUCK MOUNTED.**

**mobile armament.** See: **mobile artillery.**

**mobile artillery.** Artillery weapons designed for movement and ready conversion from traveling position to firing position. Wheels or other suspension devices are not ordinarily removed in the firing position.

**mobile mount.** Any mount which is mobile, as contrasted to one which is fixed; as a mount for mobile artillery.

**mobilisation, industrial.** See: **industrial mobilisation.**

**Mocar babbitt.** Trade name for a high lead-base alloy designed for use in main, connecting, and camshaft bearings for automobile engines, and in bearings of gas engines, paper mills, mining machinery, electric motors, road machinery, etc.

**mockup.** A model, often full-sized, of a piece of equipment, or installation, so devised as to expose its parts for study, training, or testing.

A mockup is sometimes made from a functioning piece of equipment by cutting it into parts, keeping it generally together by hinges, clamps, or the like.

**mod** *(abbr).* 'Modification.'

**mode.** The figure in a series of statistical data which occurs most often.

**model.** 1. An object, usually in miniature, built to give some idea of what a functioning prototype would be like. See: **production model; prototype (preproduction) model.** 2. A miniature copy of an object, as an airplane or motor vehicle. 3. Year, Mark number, or other type designator adopted by manufacturer, producer, or purchaser to identify an item of equipment, its design, unit assemblies, and parts. See: **Ordnance type designator; Mark number.**

**MODEL, COMBAT VEHICLE.** A facsimile or replica of a combat vehicle embodying its superficial characteristics and proportional dimensions. It is used for recognition teaching. Excludes **MODEL, TANK.***

**model designation.** See: **Ordnance type designator.**

**model number.** See: **Ordnance type designator.**

**MODEL, TANK.** A facsimile or replica of a tank embodying its superficial characteristics and proportional dimensions. It is used for recognition teaching.*

**Modern Army Maintenance System.** (MAMS) A maintenance method intended for efficiently supporting a modern Army. The method is directed toward resolving logistical problems resulting from existent equipment designs and the rapid advance in technological developments. Resolution of these problem areas is brought about through the media of policy and design which are coordinated by a designated agency. The maintenance policies embrace the following considerations:

a. The *non-maintained item* concept, wherein the item is designed as a non-maintained piece of equipment and as this equipment becomes unserviceable it is replaced on a one for one basis. Sometimes erroneously referred to as a *throw-away item.*

b. The *modified support* concept which is a combination of the non-maintained item concept and modular maintenance. The equipment is designed for maintainability through the adaptation of identical type modular units which are replaced when they become unserviceable. See also: **module.**

c. Active design participation between design engineers and maintenance engineers to insure that all new development design characteristics are compatible with reduced and simplified maintenance objectives. This effort is also directed toward a continual evaluation of existent equipment for maintainability.

**Modern Army Supply System.** (MASS) A system which utilizes automatic data processing and transmission equipment and priority transportation to supply overseas forces.

**modernisation code system.** Former system of coding to guide logistic actions concerning military items during development and use. System abolished with establishment of present Army system of **type classification,** which see.

**mode transducer.** A device for transforming an electromagnetic wave from one mode of propagation to another mode of propagation; mode transformer.

**mode transformer.** See: **mode transducer.**

**modification.** (mod) A major or minor change in the design of an item of materiel, effected in order to correct a deficiency, to facilitate production, or to improve operational effectiveness.

**modification kit.** A collection of items not all having the same basic name which are employed individually or conjunctively to alter the design of a component or equipment. The items may be used in lieu of, or supplemental to, one or more items within the component or equipment to effect such attributes as improved stability, greater efficiency, extended application and the like, which were not previously inherent in its original design. Excludes PARTS KIT (as modified); REPAIR KIT (as modified) and INSTALLATION KIT (as modified).*

**MODIFICATION KIT, GUIDED MISSILE LAUNCHER.** A modification kit designed to convert a basic guided missile launcher for use in various type installations, such as fixed, mobile, airborne, seaborne and portable. It may include necessary tools and instructions.*

**MODIFICATION KIT, GUIDED MISSILE TRAILER.** A modification kit used in the modification of a TRAILER, GUIDED MISSILE.*

**MODIFICATION KIT, GUIDED MISSILE WARHEAD.** A modification kit used in the modification of a guided missile warhead.*

**MODIFICATION KIT, GUN MOUNT.** A modification kit used in the modification of a MOUNT, GUN including machine gun mounts. Excludes MODIFICATION KIT, HOWITZER; MODIFICATION KIT, MORTAR; MODIFICATION KIT, RIFLE (as modified).*

**MODIFICATION KIT, MORTAR.** A modification kit used in the modification of a MORTAR, ARTILLERY; MORTAR, ARTILLERY, TOWED; MORTAR, INFANTRY.*

**MODIFICATION KIT, ROCKET ENGINE.** A modification kit used in the modification of a ROCKET ENGINE.*

**MODIFICATION KIT, ROCKET MOTOR.** A modification kit used in the modification of a ROCKET MOTOR.*

**MODIFICATION KIT, ROCKET WARHEAD.** A modification kit used in the modification of a rocket warhead.*

**modified support.** See: **Modern Army Maintenance System.**

**modify.** To make a major or a minor change in the design or assembly of an item of materiel.

**modular construction.** See: **module.**

**modular design.** See: **module.**

**modular maintenance.** See: **module.**

**modular unit.** See: **module.**

**modulate.** 1. To vary the amplitude, frequency, or phase of a radio or electric wave; to change a wave by varying its amplitude, frequency, or phase. 2. To vary the velocity of the electrons in an electron beam.

**modulation.** The process of varying the amplitude, frequency, or phase of a carrier wave with time, to transmit information.

**modulation, amplitude.** See: **amplitude modulation.**

**modulation factor.** The ratio of the peak variation actually used to the maximum design variation in a given type of modulation.

In conventional amplitude modulation, the maximum design variation is considered that for which the instantaneous amplitude of the modulated wave reaches zero.

**modulation, frequency.** See: **frequency modulation.**

**modulation noise.** *Electroacoustics.* The noise caused by the signal. The signal is not to be included as part of the noise.

The term is used where the noise level is a function of the strength of the signal.

**modulation, velocity.** A form of modulation in which the electrons of a stream are speeded up and slowed down so as to produce bunches or groups.

**modulator, balanced.** In electronics, a circuit arrangement in which a carrier frequency is controlled by a signal wave in a manner to generate the sideband frequencies but suppress the carrier in the output.

**module.** An assembly, forming part of a larger assemblage, and which is designed for complete replacement as a unit. Hence the terms *modular unit,*

*modular construction, modular maintenance, modular design,* and the like.

**modulus of compressibility.** See: **compressibility, modulus of.**

**Mohaupt effect.** The effect of a metal liner introduced in a shaped charge to increase penetration. Generally incorporated in HEAT ammunition. See also: **Munroe effect.**

**Mohs hardness.** A measure of hardness of materials obtained by determining which material of a set of 10 (or 15 in revised scale) is next harder and next softer by scratch test, on the principle that the harder material will scratch the softer. The original Mohs hardness numbers, and the materials upon which the scale is based, are: talc 1, gypsum 2, calcite 3, fluorite 4, apatite 5, orthoclase 6, quartz 7, topaz 8, corundum 9, diamond 10. A revised Mohs scale provides finer graduations above 5 by renumbering as follows: orthoclase, periclase, 6; vitreous pure silica 7; quartz, stellite, 8; topaz 9; garnet 10; tantalum carbide, fused zirconia, 11; tungsten carbide, fused alumina, 12; silicon carbide 13; boron carbide 14; diamond 15.

When a substance is found to have hardness between two of the standard substances in the scale, this fact is expressed by use of decimal notation, e.g., 6.65. Cf: **Brinell hardness; Rockwell hardness; Shore scleroscope hardness; Vickers hardness.**

**Molotov cocktail.** See: **grenade, frangible.**

**moment coefficient.** The coefficients used for moment are similar to coefficients of lift, drag, and thrust, and are likewise dimensionless. However, these must include a characteristic length, in addition to the area. The span is used for rolling or yawing moment, and the chord is used for pitching moment.

**moment, hinge.** See: **hinge moment.**

**moment of inertia.** A measure of the resistance offered by a body to angular acceleration; the products of mass and the distance squared from the axis of reference, summed over all particles in the system or body.

**MONITOR, MISSILE GUIDANCE SET.** An item which presents operational information derived from a missile guidance set, to which it is connected.*

**monobloc engine.** An engine in which the cylinders are cast in one block.

**monobloc gun.** Gun (tube) made from a single piece and without a liner. See: **liner** (sense 1), and cf: **built-up gun.**

**monobloc projectile.** See: **projectile, monobloc.**

**monocoque.** [French 'single shell.'] 1. A type of airplane construction in which the skin of the fuselage bears the primary stresses arising in the fuselage. 2. An airplane of this construction, such as the Messerschmitt 109. 3. A monocoque fuselage.

**monofuel propulsion.** Propulsion system which obtains its power from a single fuel (**monopropellant**). When used in rocket units, this fuel must furnish both oxygen supply and the hydrocarbon for combustion. Cf: **bifuel propulsion.**

**monopropellant.** A rocket liquid propellant consisting of a liquid chemical compound, or liquid mixture of compatible chemical compounds, which is stable and can be handled, stored, and fed into the combustion chamber of a missile from one storage tank. The propellant must then be capable, under proper ignition conditions, of supporting its own combustion at a rate to develop a useful thrust. Cf: **bipropellant; multipropellant.**

**MOORING AND SAFETY DEVICE, UNDERWATER MINE.** An item designed to provide a safe-when-adrift feature in an underwater mine. It is assembled to an underwater mine case and contains a spring loaded shackle to which the mooring is secured. When properly moored, tension of the mooring chain or cable operates the underwater mine extender; when this tension is released the item releases the extender and allows it to retract, rendering the underwater mine safe.*

**Morgantown Ordnance Works.** Ordnance Corps field installation, located at Morgantown, West Virginia.

**mortality factor.** Numerical factor used to determine the quantity of replacement parts to be allowed any echelon of maintenance. It is based on durability of any given part relative to the durability of the entire unit.

**mortar.** A complete projectile-firing weapon, rifled or smooth bore, characterized by shorter barrel, lower velocity, shorter range and higher angle of fire than a **howitzer** or a **gun, sense 2.** (See separate entries.) Like the howitzer, the mortar may be fired with any one of several propelling charges or zones, according to the trajectory desired. Most present day mortars are muzzle loaded and of simple construction for lightness and mobility.

**mortar, spigot.** See: spigot mortar.

**motor.** *Electrical.* A rotary machine which converts electrical energy into mechanical energy. May include: integral gear unit. See also: **GEARCASE-MOTOR.***

**motorboating.** The emission by an audio system of pulsating audio sounds resembling the characteristic sound of a motorboat. These audio sounds are caused by feedback at audio-frequency in the amplifier or receiver.

**motor carriage.** See: carriage.

**motorize.** To equip a military force with motor-driven vehicles. Cf: **mechanize.**

**motorized artillery.** Artillery drawn by truck or tractors, or self-propelled.

**motor, rocket.** See: **ROCKET MOTOR.**

**motor torpedo boat.** Small vessel of great speed, armed with torpedoes, mines, and automatic weapons.

**motor transport.** Motor vehicles used for transporting military personnel, weapons, equipment, and supplies, excluding combat vehicles such as tanks, scout cars, and armored cars.

**motor vehicle.** Any wheeled-type, pneumatic-tired, self-propelled vehicle, designed and used for the transportation of supplies, personnel or equipment. This does not include bicycles or materials-handling equipment.

**mount.** 1. Structure supporting any apparatus, as a gun, searchlight, telescope, surveying instrument, etc. 2. To fasten in position, as a gun on its support. 3. To equip; put into operation; go into operation, as to mount an offensive.

**mountain artillery.** Light artillery that can be carried on pack horses or mules; artillery designed for use in mountainous country.

**mount, flexible.** In aircraft guns, a mount which for standardization purposes is arbitrarily defined as having a horizontal rigidity less than 250,000 pounds per inch horizontal deflection. Cf: **mount, rigid.**

**MOUNT, GUN.** An item designed to support a gun. Includes machine gun mounts. Excludes MOUNT, RIFLE; MOUNT, MORTAR; MOUNT, HOWITZER; and MOUNT, TRIPOD (as modified).* In vehicles, the assembly which consists of the cradle, recoil cylinders, rotor, elevating mechanism, and fire solenoids that hold the gun; in armored vehicles, the supporting and protective device for the armament which connects the armament to the hull and turret.

Tank and armored car guns are in practically all cases based on and carried by some portion of the hull walls. These mounts may be divided into three classes: (a) Turret mounts, (b) sponson mounts, and (c) ball mounts.

**turret mount.** Gun mount positioned in the turret of a tank or combat vehicle. Multiple gun turret mounts, for more than one gun, give improved control in tracking aerial targets and increased firepower, and are power driven.

**sponson mount.** Gun mount positioned on the sponson of a tank or combat vehicle. Practically abandoned on account of vulnerability and limited field of fire although widely used in earlier tanks.

**ball mount.** Gun mount used for mounting automatic small arms for use against personnel targets.

**MOUNT, HOWITZER.** An item designed to support a howitzer. Excludes MOUNT, GUN; MOUNT, RIFLE and MOUNT, MORTAR.*

**MOUNT, MORTAR.** An item designed to support a mortar. Excludes MOUNT, GUN; MOUNT, HOWITZER and MOUNT, RIFLE.*

**MOUNT, OPTICAL SPOTTING INSTRUMENT.** A device having a rotatable table designed to accommodate a specific type of instrument. It has three detachable stakes which are used for securing the mount into the ground. With stakes removed, the assembly is operable from any smooth, level surface. Stake guides and mounting holes are provided in the base of the mount.*

**MOUNT, RIFLE.** An item designed to support a rifle. Excludes MOUNT, GUN; MOUNT, HOWITZER and MOUNT, MORTAR.*

**mount, rigid.** In aircraft guns, a mount which for standardization purposes is arbitrarily defined as having a horizontal rigidity of at least 250,000 pounds per inch horizontal deflection. Cf: **mount, flexible.**

**mount, self-propelled.** Motor vehicle on which a gun or launcher is permanently mounted.

**MOUNT, TANK PERISCOPE.** A device which is usually attached to a gun trunnion or tank turret. It is used to link the PERISCOPE, TANK with the gun bore at all angles of gun elevation and it provides an operating and/or retracting position for the periscope. A HEADREST, OPTICAL INSTRUMENT is furnished with the item.*

**MOUNT, TELESCOPE.** A mechanical device designed to support and/or position a telescope. It may include one or more of the following: cross leveling device, means of bore-sighting a gun, azimuth and/or elevation, adjusting mechanism, and accommodations for attaching a LIGHT, INSTRUMENT.*

**mount, tripod.** A three-legged device, with a central socket or head and necessary attachments, for supporting a machine gun, recoilless gun, recoilless rifle, or the like. Excludes MOUNT, GUN and MOUNT, RIFLE.*

**Mouse.** Code name for an early satellite project. Named for '*M*inimum *O*rbital *U*nmanned *S*atellite of the *E*arth.'

**mouth plug.** Plug which seals the mouth of the cartridge case in separated ammunition. It may be made of various materials, such as cork, plastic, or cardboard.

**movable slot.** A slot that comes and goes according to the position of the auxiliary airfoil. See: **slot** (sense 2). Also called an 'automatic slot.'

**moving-coil pickup.** *Electroacoustics.* A phonograph pickup, the electric output of which results from the motion of a conductor or coil in a magnetic field.

**MOVING TARGET INDICATOR GROUP.** A group which provides increased visibility of moving targets. Signal returns from fixed targets are partially or completely eliminated.*

**MOX.** An explosive mixture containing a high explosive, plus powdered metal and an oxidizing agent. Used in some antiaircraft projectiles.

**MP** *(abbr).* 'Melting point.'

**mph; MPH; m.p.h.** *(abbr).* 'Miles per hour.'

**MRL** *(abbr).* 'Multiple rocket launcher.'

**MSD** *(abbr).* 'Minimum safe distance.'

**msl** *(abbr).* 'Missile.'

**MT** *(abbr).* 1. 'Mechanical time.' 2. 'Moving target indication.' 3. 'Megaton.'

**MTF** *(abbr).* 'Mechanical time fuze.'

**MTI** *(abbr).* 'Moving target indicator.'

**mtr** *(abbr).* 'Motor.'

**Mt. Rainier Ordnance Depot.** Ordnance Corps field installation, located at Tacoma, Washington.

**MTSQ** *(abbr).* 'Mechanical time and superquick.'

**mud capping.** Method of breaking up large rocks without drilling. A charge of high explosive is laid on the rock and covered with mud, then detonated.

**muffler.** *Mechanical.* A metal device of various shapes and sizes designed for reducing noise in exhaust or intake systems. It incorporates integral chambers and/or baffles which allow the gases to expand gradually. The item may be jacketed and/or watercooled. Excludes items containing filtering elements.*

**multipaths.** The several paths by which, owing to reflections, a radiated signal may reach the receiving antenna from the transmitter.

**multiperforated.** Referring to solid propellants: Indicating that the propellant grain has more than one longitudinal perforation, for control of burning rate. One of the most common types has seven longitudinal perforations, one being central, and the remaining six being regularly located around the center.

**multiple-address (instruction) code.** *Electronic computers.* An instruction in general consists of a coded representation of the operation to be performed and of one or more addresses of words in storage. The instructions of a multiple-address code contain more than one address.

**multiple antiaircraft weapon.** Antiaircraft weapon provided with more than one firing unit or barrel assembly.

**multiple gun.** Group of guns emplaced and adjusted for firing as a unit; any group of guns mounted in one position and fired as a unit.

**multiple stage rocket (or missile).** See: **multistage rocket.**

**multiple wall.** Descriptive of a projectile or missile designed for antipersonnel effect, in which the wall consists of two or more layers.

**multiplex.** The simultaneous transmission of several functions over one link without loss of detail of each function, such as amplitude, frequency, phase, or wave shape.

Very high-speed commutation that would satisfy these conditions could, in special instances, be correctly classified as multiplexing. However, to prevent confusion, the term 'commutation' is still to be preferred whenever a switch is used.

**MULTIPLEXER.** An item designed to combine two or more simultaneous intelligence signals for transmission over a single transmission facility. Includes both time division and frequency division types or combinations thereof. Does not include the transmission facilities.*

**multiplier.** *Electronic computers.* A device which has two or more inputs and whose output is a representation of the product of the signed magnitudes represented by the input signals.

**multipropellant.** A rocket propellant consisting of two or more unmixed chemicals fed into the combustion chamber separately. Cf: **bipropellant; monopropellant.**

**multipurpose weapon.** Weapon that can be used for a number of different purposes, such as against ground forces and against aircraft.

**multisection charge.** See: **charge, multisection.**

**multistage rocket.** A rocket or rocket missile having two or more thrust-producing units, each used for different stages of the rocket's flight. Normally, each unit of a multistage rocket is jettisoned when its fuel is consumed.

**mun** *(abbr).* 'Munition.'

**munition.** (mun) Usually *pl.* 1. In a broad sense, any and all supplies and equipment required to conduct offensive or defensive war, including war machines, ammunition, transport, fuel, food, and clothing, but excluding personnel and excluding supplies and equipment for purposes other than for direct military operations. 2. In a restricted sense, **ordnance** (sense 1).

**Munroe effect.** The effect produced by a shaped charge. In Europe sometimes called 'Neumann effect.' When a liner is used, the effect is termed 'Mohaupt effect.' See also: **charge, shaped; Mohaupt effect.**

**Muskegon Ordnance Plant.** Ordnance Corps field installation, located at Muskegon, Michigan.

**mustard gas.** (H) See: **CHEMICAL AGENT, MUSTARD GAS.**

**mustard gas, distilled.** (HD) See: **CHEMICAL AGENT, MUSTARD, DISTILLED.**

**mustard-lewisite.** (HL) A mixture of mustard gas and lewisite, two of the blister gases. See: **CHEMICAL AGENT, LEWISITE; CHEMICAL AGENT, MUSTARD GAS.**

**mustard, simulated.** See: **CHEMICAL AGENT, MUSTARD, SIMULATED.**

**mustard-T mixture.** (HT) A mixture of mustard gas and agent T. Properties are similar to distilled mustard gas. See: **CHEMICAL AGENT, MUSTARD, DISTILLED; CHEMICAL AGENT, MUSTARD GAS; CHEMICAL AGENT, T.**

**muzzle.** The end of the barrel of a gun from which the bullet or projectile emerges.

**muzzle bell.** Bell-shaped, built-up section at the muzzle of some types of cannon.

**muzzle blast.** Sudden air pressure exerted at the muzzle of a weapon by the rush of hot gases and air on firing.

**muzzle booster.** A unit attached to the muzzle of a gun to divert a part of the blast pressure to help actuate the recoil mechanism and increase the rate of fire.

**muzzle brake.** See: **BRAKE, MUZZLE.**

**muzzle burst.** Explosion of a projectile at the muzzle of a weapon, or at a very short distance from the muzzle.

**muzzle energy.** Kinetic energy of the projectile as it emerges from the muzzle. This is a measure of the power of the weapon.

**muzzle flash.** Flame that appears at the muzzle of a gun when a projectile leaves the barrel.

**muzzle plug.** See: **PLUG, MUZZLE.**

**muzzle preponderance.** 1. Unbalance of the tipping parts of a weapon when the weight of the 'muzzle end' exerts a greater moment about the trunnions than does the weight of the 'breech end.' This unbalance may be corrected by an equilibrator. 2. The amount of the unbalanced moment.

**muzzle sight.** See: **SIGHT, FRONT.**

**muzzle velocity.** (MV) See: **initial velocity.**

**muzzle velocity error.** The numerical difference between the corrections determined by application of meteorological data and other known variations and those determined at approximately the same time by registration, expressed in feet-per-second variations from standard muzzle velocity. It is assumed to represent the difference between firing table muzzle velocity and developed muzzle velocity.

**muzzle wave.** Compression wave or reaction of the air in front of the muzzle of a weapon immediately after firing. Caused by **muzzle blast.**

**MV** *(abbr).* 'Muzzle velocity.'

**MWDP** *(abbr).* 'Mutual Weapons Development Program.'

**MWO** *(abbr).* 'Modification Work Order.'

# N

**NACE** *(abbr)*. 'National Association of Corrosion Engineers.'

**nacelle.** 1. *General.* A separate streamlined inclosure on an airplane for sheltering or housing something. 2. *Specifically.* a. A compartment for a crew. b. An engine nacelle.

**NAD** *(abbr)*. 'Naval Ammunition Depot.'

**nadir.** A point on the celestial sphere 180 degrees from the zenith, i.e., directly beneath the observer.

**NAM** *(abbr)*. 'National Association of Manufacturers.'

**NAMC** *(abbr)*. 'National Air Materiel Command.'

**nanosecond.** A millimicrosecond or $10^{-9}$ second.

**napalm.** (NP) 1. Aluminum soap in powder form, used to gelatinize oil or gasoline for use in napalm bombs or flame throwers. 2. The resultant gelatinized substance. See also: **CHEMICAL AGENT, INCENDIARY OIL; THICKENER, INCENDIARY OIL.**

**napalm bomb.** See: **bomb, napalm.**

**NAS** *(abbr)*. 1. 'National Aircraft Standards.' 2. 'Naval Air Station.'

**NASA** *(abbr)*. 'National Aeronautics and Space Administration.'

**NASC** *(abbr)*. 1. 'National Aircraft Standards Committee.' 2. 'National Aeronautics and Space Council.'

**National Aeronautics and Space Administration.** (NASA) Federal agency with control of US space research except specific military projects.

**National Aeronautics and Space Council.** (NASC) Policy making agency for US space programs. Its chairman is the President.

**national development mission.** One of the **national missions,** which see. The planning, direction, and appraisal of the process of reducing basic design data to practice. For specific information as to what the various missions include, consult appropriate Ordnance Corps Orders.

**national industrial engineering mission.** One of the **national missions,** which see. The planning, direction, and appraisal of the development, provision, and maintenance of the technical resources essential to the accomplishment of the **national procurement and production mission** and the **national industrial mobilisation mission,** which also see. For specific information as to what the various missions include, consult appropriate Ordnance Corps Orders.

**national industrial mobilisation mission.** One of the **national missions,** which see. The planning, direction, and appraisal of actions required for the successful and efficient accomplishment of the **national procurement and production mission** (which see) in accordance with the Ordnance Mobilization Plan. Technical support to this mission is rendered by the **national industrial engineering mission** (which see) for which national industrial mobilization funds are applicable for items not in current production. For specific information as to what the various missions include, consult appropriate Ordnance Corps Orders.

**national maintenance mission.** One of the **national missions,** which see. The functions of planning, directing, and appraising those elements of the Ordnance Supply Distribution and Maintenance Program (with respect to major combinations or systems; end items of ammunition; components and items as applicable). For specific information as to what the various missions include, consult appropriate Ordnance Corps Orders.

**national missions.** The Ordnance national missions which may be assigned to a commodity command or commodity arsenal, or to other Ordnance installations and activities as directed by the Chief of Ordnance. They are identified as: **national development; national procurement and production; national industrial engineering; national industrial mobilisation; national supply control; national stock control; national maintenance.** See separate entries. For specific information as to what the various missions include, consult appropriate Ordnance Corps Orders.

**national procurement and production mission.** One of the **national missions,** which see. The planning, direction, and appraisal of all phases of the acquisition and delivery to point of first destination of assigned materiel, including spare parts and special tools therefor, except for that materiel which may be specifically authorized for local procurement. For specific information as to what the various missions include, consult appropriate Ordnance Corps Orders.

**National Science Foundation.** (NSF) Civilian agency of the Federal Government established to encourage and finance basic scientific research and to help improve science teaching.

**National Security Council.** (NSC) Includes Cabinet members and Chairman of the Joint Chiefs of Staff and advises the President on all matters affecting national security.

**national stock control mission.** One of the **national missions,** which see. The functions of planning, directing, and appraising those elements of the Ordnance Supply Distribution and Maintenance Program with respect to assigned materiel. For specific information as to what the various missions include, consult appropriate Ordnance Corps Orders.

**national supply control mission.** One of the **national missions,** which see. The functions of planning, directing, and appraising assigned elements of the Ordnance Supply Distribution and Maintenance Program with respect to assigned materiel. For specific information as to what the various missions include, consult appropriate Ordnance Corps Orders.

**NATO** *(abbr)*. 'North Atlantic Treaty Organization.' (Pronounced as a word.)

**natural frequency.** The frequency at which a body vibrates, or will vibrate, as determined by the physical characteristics of the body.

**nautical mile.** (nm) A measure of distance equal to approximately 6076 feet or 1.1508 statute miles. Cf: **knot.**

**nav** *(abbr)*. 1. 'Naval; navy.' 2. 'Navigation.'

**Navaglobe.** A particular kind of long-distance navigation system using one or more omnidirectional radio ranges with the appropriate airborne equipment to furnish aircraft with automatic azimuth and direction-finding indications in respect to a range station.

**Navaho.** Name applied to an Air Force surface-to-surface long range supersonic strategic missile, the SM-64. It is powered by two ramjet engines.

**Navajo Ordnance Depot.** Ordnance Corps field installation, located near Flagstaff, Arizona.

**navigation.** (nav) The process of finding the position of a vehicle, and directing it to reach a desired destination.

Navigation is inherently three-dimensional but is often reduced to two dimensions by projecting all positions, courses, and speeds upon the surface of the earth.

**navigational coordinate.** A quantity whose measurement serves to define a surfac of position (or a line of position if one surface is already known) containing the vehicle.

**navigation, celestial.** Navigation by means of observations of celestial bodies. A system wherein a missile, suitably instrumented and containing all necessary guidance equipment, may follow a predetermined course in space with reference primarily to the relative positions of the missile and certain preselected celestial bodies. Determination of the vertical to the earth's surface may be necessary in addition.

**navigation, Decca.** See: **navigation, hyperbolic.**

**navigation, gee.** See: **navigation, hyperbolic.**

**navigation, hyperbolic.** A general method for determining lines of position by measuring the difference in distance of the navigator or navigating apparatus from two or more stations of known position. The difference in distance is determined by measuring the difference in time of arrival of signals transmitted from two or more stations. Although a great variety of signaling methods are theoretically possible, only radio waves are now commonly used in hyperbolic navigation. One system, using continuous wave signals, is known as Decca. Loran and Gee are systems using signals transmitted as pulses. One transmitting station is the master station, with the other station or stations, separated from 75 miles to 1200 miles, being slave stations. The cycle of transmission always begins at the master station and signal travels out in all directions. The arrival of the master signal at the slave station 'triggers off' the slave which, in turn, transmits a signal. Points of constant difference in time of arrival of the two or more signals will fall on hyperbolas, with the transmitters at the foci. The accuracy of the line of position which can be established by the navigator or the navigating apparatus varies from 200 yards to 2 miles depending upon the distance of the observer or the receiver from the base line between stations and upon the type of system and equipment used. Although the navigator's equipment differs in details for Gee, Decca, and loran, the fundamental characteristics are the same. In the Decca and Gee systems, the master station operates in conjunction with two or more slave stations. In the loran system, the master station operates with one slave station. Shoran is a short-range system.

**NAVOL TANK, TORPEDO.** A tank forming part of a torpedo assemblage, provided for the storage of solution of hydrogen peroxide in water. Decomposition of the hydrogen peroxide furnishes the oxygen required to effect combustion of the fuel, alcohol.

**NBS** *(abbr)*. 'National Bureau of Standards.'

**NC** *(abbr)*. 1. 'Nitrocellulose' (explosive). 2. 'National coarse' (thread).

**near miss.** The strike of an explosive missile, esp. of an aerial bomb, near but not on the object of attack, and usually close enough to it to cause effective damage.

**Nebelwerfer.** [German 'smoke thrower.'] A German ground mobile rocket launcher of WW II, having six chambers fired singly.

**Nebraska Ordnance Plant.** Ordnance Corps field installation, located at Wahoo, Nebraska.

**neck, case.** Cylindrical portion of cartridge case between mouth and shoulder.

**needle valve.** A type of valve used in certain carburetors consisting of a small plain or threaded rod having a conical or tapered point, operated within a jet to vary the flow of fuel through the jet.

**need-to-know.** A criterion used in securing procedures that requires a person requesting classified information to establish his need to know such information in terms of his mission.

**NEF** *(abbr)*. 'National extra fine (thread).

**negative acceleration.** See: **deceleration.**

**negotiated contract.** A purchase or sales agreement made by a Government agency without normally employing techniques required by formal advertising.

**NEMA** *(abbr)*. 'National Electrical Manufacturers Association.'

**nerve gas.** Chemical agent (war gas) which is absorbed into the body by breathing, by ingestion, or through the skin, and affects the nervous and respiratory systems and various body functions. Examples: **soman; tabun; CHEMICAL AGENT, ISOPROPYL METHYLPHOSPHONOFLUORIDATE (sarin).** (See separate entries.)

**NESC** *(abbr)*. 'National Electric Safety Code.'

**net thrust.** The total thrust produced by a propulsion system minus the drag resulting from aerodynamic forces acting on the propulsion system. Cf. **effective thrust; thrust.**

**NETWORK, PULSE FORMING.** A grouping of two or more different items such as resistors, coils, and capacitors, electrically connected and used to shape the leading and/or trailing edge of a pulse. See also: **ATTENUATOR** (as modified); **FILTER** (as modified); and **transformer.***

**NETWORK, SUMMATION.** A grouping of two or more different items, such as resistors, capacitors, or coils, electrically connected and designed to sum two or more sources of data and combine into a single input for a computer or other electrical or electronic equipment.*

**Neumann effect.** Term sometimes used by Europeans for the more common British-American term of **Munroe effect** (which see).

**neutral burning.** See: **neutral granulation.**

**neutral granulation.** Propellant granulation in which the surface area of a grain remains constant during burning. The burning of a propellant with neutral granulation is termed 'neutral burning.' Cf: **degressive granulation; progressive granulation.**

**neutralization fire.** Fire which is delivered to cause casualties, to hamper and interrupt the firing of weapons, movement, or action and to reduce the combat efficiency of enemy personnel.

**neutralize.** 1. To destroy or reduce the effectiveness of enemy personnel and materiel by gunfire, bombing or any other means. 2. To make a toxic chemical agent harmless by chemical action. See: **decontamination.** 3. To disarm or otherwise render safe mines, bombs, or other missiles and booby traps.

**neutral oil.** See: **oil, neutral.**

**neutron.** A particle which is one of the constituents of an atomic nucleus in most elements, having no electric charge.

Neutrons are released as radiation in the atomic disintegration of certain elements, and because they are uncharged they serve as particles with which to bombard the atomic nuclei of fissionable matter.

**neutron bombardment.** The bombardment of atomic nuclei by neutrons, esp. so as to produce nuclear fission.

**New River Ordnance Plant.** Ordnance Corps field installation, located at Radford, Virginia. A subinstallation of Radford Arsenal.

**Newton's rings.** A series of concentric colored or bright and dark circles seen when positive and negative surfaces of nearly the same curvature are pressed together. It is caused by interference of light rays. It is used to test lenses. The more nearly the surfaces are matched, the greater the distance between the rings and the larger the circles.

**New York Ordnance District.** One of the eleven districts into which the United States is divided for purposes of industrial mobilization, procurement, contract negotiation and administration, etc., by the Ordnance Corps. Embraces the State of New York; and the counties of Monmouth, Middlesex, Somerset, and Hunterdon, and all counties north thereof in the State of New Jersey. The main office is located in New York City.

**NF** *(abbr)*.. 1. 'Nose fuze.' 2. 'National fine' (thread).

**NG** *(abbr)*. 'Nitroglycerin' (explosive).

**NH** *(abbr)*. 'Nonhygroscopic.'

**NH propellant.** A propellant which, by reason of its formulation or method of manufacture, does not absorb moisture from the air. See: **nonhygroscopic.**

**Nike.** Name applied to a system of Army surface-to-air guided missiles designed to seek out, intercept, and destroy enemy aircraft. Several weapons of the Nike system are Nike-Ajax, Nike-Hercules, and Nike-Zeus. The Nike-Ajax has a range of approximately 25 miles, a speed of mach 2, is liquid-fueled and rocket-boosted, with command guidance. The Nike-Hercules has a range of approximately 70 miles, a speed of over mach 3, nuclear warhead capability, employs solid fuel and command radar guidance. The Nike-Zeus is an antimissile missile using solid fuel and radar guidance.

**NIR** *(abbr)*. 'Nose fuze impact rocket.'

NITRIC ACID.

**nitriding.** A process of case-hardening steel by causing the surface to absorb nitrogen. It is usually done by heating the steel in ammonia gas at 500° to 550° C.

**nitrocellulose.** (NC) Cellulose nitrate. An explosive used in the manufacture of smokeless propellants. Formed by the action of a mixture of nitric and sulfuric acids on cotton or some other form of cellulose. Guncotton is a nitrocellulose that has a very high nitrogen content.

**nitrocellulose propellant.** A single base propellant whose main constituent is nitrocellulose, with only minor percentages of additives, for stabilizing, etc. See: **propellant.**

**nitrocotton.** See: **guncotton.**

**nitrogen mustard gas.** (HN) See: **CHEMICAL AGENT, NITROGEN MUSTARD GAS.**

**nitrogen tetroxide.** See: **PROPELLANT, NITROGEN TETROXIDE.**

**nitroglycerin.** (NG) Nitrated ester of glycerol in which the OH radicals are replaced by $NO_2$. A colorless liquid at ordinary temperatures. Very powerful and sensitive high explosive; used in dynamites and in some propellant mixtures. See also: **DYNAMITE; propellant.**

**nitroguanidine.** Picrite, a colorless crystalline compound. One of the principal constituents of triple base propellants. The other two principal constituents are nitrocellulose and nitroglycerin. The nitroguanidine is present in the nitrocellulose nitroglycerin colloid as a finely dispersed crystalline solid. The nitroguanidine contributes to the potential and helps in reducing muzzle flash.

**nitromethane.** A liquid compound, $CH_3NO_2$, oily and colorless, used as a **monopropellant** (which see) for rockets.

**nitrostarch.** Explosive used in some blasting compositions. It has been used during emergencies as a substitute for TNT. Manufactured from starch by nitration.

**NM** *(abbr)*. 'Nonmetallic.'

**NMTBA** *(abbr)*. 'National Machine Tool Builder's Association.'

**nodal point.** See: **node.**

**node.** 1. *Optics.* One of the two points on the optical axis of the lens, or system of lenses, such that a ray emergent from the second point is parallel to the ray incident at the first. 2. *Physics.* A line, point, or surface of a vibrating body which is free or relatively free from vibration. 3. *Electricity and electronics.* a. A point on a conductor at which there is zero voltage or zero current. b. A point in a radio wave or the like where amplitude is zero.

**noise.** Unwanted sound or disturbances found in or introduced into a communication system, or appearing on a radar scope.

Crosstalk, grass, and clutter are forms of noise. Minimum noise is caused by input of power im-

pedance; other noise may be caused by atmospheric conditions, electronic circuit components, etc.

**noise level.** The strength of noise signals at a particular point in the electrical or electronic circuit; usually expressed in microvolts or in decibels with respect to some arbitrary level such as signal voltage or power.

**noise reduction.** *Electroacoustics.* In photographic recording and reproducing, a process whereby the average transmission of the sound track of the print (averaged across the track) is decreased for signals of low level and increased for signals of high level.

Since the ground noise introduced by the sound track is less at low transmission, this process reduces film noise during soft passages. The effect is normally accomplished automatically.

**NOL** (*abbr*). 'Naval Ordnance Laboratory.'

**nomen** *(abbr)*. 'Nomenclature.'

**nomenclature.** (nomen) The identifying name of materiel. Example: CARTRIDGE, 81 MILLIMETER: HE M43A1.

In the above example 'CARTRIDGE' is the **basic name**, while 'CARTRIDGE, 81 MILLIMETER' is the **item name**, and 'M43A1' is the **Ordnance type designator**. See separate entries.

**nomenclature plate.** Plate, usually made of metal, which is conspicuously mounted on equipment, giving model letters, symbols and numbers, together with other pertinent information.

**nominal size.** Size used for purposes of general identification. The basic size of a part will be approximately the same as the nominal size but need not be exactly the same. For example, a rod may be referred to as ¼ inch, although the actual dimension on the drawing is .2495 inch. In this case ¼ inch is the nominal size.

**nomograph.** A device used for repeated solutions of mathematical formulas. It consists of a series of straight line scales, curved scales and/or grids, which are lined up serially with a straight edge to obtain the solution to an equation.*

**nonatmospheric control.** Any device or system designed or set up to control a guided rocket missile, rocket craft, or the like outside the atmosphere or in regions where the atmosphere is of such tenuity that it will not affect aerodynamic controls; the control provided by such devices or systems.

Some of the systems used to accomplish nonatmospheric control incorporate vanes or fins directly in the jet stream; others are based on the swiveling or gimballing of the entire rocket motor or the use of exhaust ports to direct the exhaust in such a manner as to change the course.

**nonboresafe.** Term applied to a fuse or booster that does not include a safety device to prevent the explosion of the main charge of a projectile prematurely, while it is still in the bore of the gun. See also: **fuse safety.**

**noncombat vehicle.** Unofficial term, sometimes used to distinguish a vehicle which is not classed as a **combat vehicle** (which see); that is, it is without means for engaging in combat.

**nondelay fuse.** See: **fuse, nondelay.**

**nondestructive testing.** Testing of any nature which does not materially affect the life expectancy of the item tested.

**nonelectric.** Indicates, in the case of blasting caps, that functioning is initiated by means other than electric, e.g., by FUSE, BLASTING, TIME.

**nonexpendable.** Of a supply item or piece of equipment: That is not consumed in use and does not lose its identity in use, as a weapon, vehicle, machine, tool, piece of furniture, or instrument.

**nonflammable.** Not flammable.

**nonfrag** *(abbr)*. 'Nonfragmenting.'

**nonhygroscopic.** (NH) Not capable of absorbing moisture from the air. Used especially in regard to smokeless propellants.

**nonhypergolic.** Not capable of igniting spontaneously upon contact. Used especially with reference to rocket fuels. Cf: **hypergolic.**

**noninitiating high explosive.** See: **secondary high explosive.**

**nonlinear distortion.** *Electroacoustics.* Distortion caused by a deviation from a desired linear relationship between specified measures of the output and input of a system.

The related measures need not be output and input values of the same quantity; e.g., in a linear detector, the desired relation is between the output signal voltage and the input modulation envelope.

**non-maintained item.** See: **Modern Army Maintenance System.**

**nonpersistent war gas.** Chemical agent (war gas) normally effective in the open 10 minutes or less at the point of dispersion. Cf: **persistent war gas; see also: war gas.**

**nonplanar network.** A network which cannot be drawn on a plane without crossing of branches.

**nonrecurring issue.** An issue made on a onetime basis with no foreseeable subsequent demand from the consignee to whom issue was made. Cf: **recurring issue.**

**nonstandard.** (NS) Differing from specifications, conditions, or procedures that have been prescribed or established. Weather conditions different from those assumed in firing tables, for instance, are nonstandard.

**nonsystematic error.** See: **accidental error.**

**Norden bombsight.** [Named for its developer, C. L. *Norden*, 1880- , a US aeronautical consultant.] A gyroscopically-stabilized synchronizing bombsight used mainly for synchronous bombing but useful for fixed-angle bombing.

Utilizing preset data and manual operation by the bombardier, the Norden bombsight computes the correct dropping angle and, in connection with an automatic pilot or pilot direction indicator, determines the proper course of the aircraft required to maintain the necessary line of sight to the target.

**Nordenfeld breechblock.** See: **breechblock, eccentric-screw (Nordenfeld).**

**norm** *(abbr)*. 'Normal.'

**normal acceleration.** See: **acceleration, normal.**

**normal aiming error.** In bombing, an aiming error that falls within the boundary for gross errors.

**normal axis.** The vertical axis of an aircraft or missile. See: **axes of an aircraft.**

**normal charge.** See: **charge, normal.**

**normal impact.** Impact on a plane perpendicular to the trajectory; striking of a projectile against a surface that is perpendicular to the line of flight of the projectile.

**normal maintenance.** *Ammunition.* Maintenance that does not involve the disassembly of ammunition or replacement of components, but that work performed to prevent deterioration of exterior surfaces of individual items and/or packages of ammunition components.

**North Atlantic Treaty Organization.** (NATO) An organization of several nations in a treaty alliance for collective defense and preservation of peace and security against aggression, organized in 1949. Signatory nations were the United States, Great Britain, France, Canada, Italy, Belgium, Luxemburg, the Netherlands, Norway, Denmark, Portugal, Iceland. Nations admitted after original ratification of the treaty were Greece, Turkey, the Federal Republic of Germany.

**nose.** The foremost point or section of a bomb, missile, or the like. Indicates, in the case of fuze nomenclature, that item is to be attached to the nose of the munition for which intended; and, in the case of the component of a fuze, that the component is to be used with a nose fuze.

**NOSE ASSEMBLY, TORPEDO.** An item attached to the front of a torpedo warhead designed to contain hydrophones or transducer electronic circuits, and other equipment necessary for acoustic control.*

**nose cone.** Protective ballistic case for the nose section of a missile or rocket. The nose cone may include the warhead, fuzing system, stabilization system, heat shield and supporting structure and equipment. Cf: **reentry body.**

**nose drag.** See: **drag, nose.**

**nose fuse.** (NF) See: **fuse, nose.**

**nose-heavy.** The condition of an airframe in which the nose tends to sink when the longitudinal control is released in any attitude of normal flight.

**NOSE SECTION, GUIDED MISSILE.** The extreme forward portion of a guided missile, designed to contain instrumentation, spotting charges, and/or fuzing or arming devices, and the like, but does not contain the payload. It is usually tapered or rounded for ease of atmospheric penetration. Excludes BODY SECTION, GUIDED MISSILE and WARHEAD SECTION (as modified). See also: **RADOME** and **ANTENNA-RADOME.**^

**NOSE SECTION, ROCKET.** The extreme forward portion of a rocket, designed to contain instrumentation, spotting charges, and/or fuzing or arming devices, and the like, but does not contain the payload. It is usually tapered or rounded for ease of atmospheric penetration. Excludes WARHEAD SECTION (as modified).*

**nose spray.** Fragments of a bursting projectile that are thrown forward in the line of flight, in contrast to **base spray,** thrown to the rear, and **side spray,** thrown to the side.

**NOTS** *(abbr).* 'Naval Ordnance Test Station.'

**nozzle.** A duct through which a liquid or gas is directed, designed to increase the velocity of the liquid or gas; *specif.,* a jet nozzle for a jet engine or rocket.

**NOZZLE, EXHAUST, ROCKET MOTOR.** An item designed with a constricting throat section and a divergent section. The constricting throat section compresses the propellant gases and maintains the pressure within the thrust chamber of the rocket motor by limiting the flow of gases. The divergent section controls the expansion of the gases causing increased thrust.*

**NP** *(abbr).* 1. 'Napalm-incendiary oil mixture.' 2. Thickener, M1 ('napalm'). 3. 'Dummy nose plug.'

**NPA** *(abbr).* 'National Petroleum Association.'

**NPG** *(abbr).* 'Naval Proving Ground.'

**n-propyl nitrate.** See: **PROPELLANT, n-PROPYL NITRATE.**

**NRL** *(abbr).* 'Naval Research Laboratory.'

**NS** *(abbr).* 1. 'Nonstandard.' 2. 'National special' (thread).

**NSC** *(abbr).* 1. 'National Security Council.' 2. 'National Safety Council.'

**NSD** *(abbr).* 'Nonself-destroying.'

**NSF** *(abbr).* 'National Science Foundation.'

**NSP** *(abbr).* 'Nose shipping plug.'

**N-terminal network.** A network with n accessible terminals.

**N-terminal pair network.** A network with 2n accessible terminals grouped in pairs. In such a network one terminal of each pair may coincide with a network node.

**NTP** *(abbr).* 'Normal temperature and pressure.'

**nuclear.** 1. Of or pertaining to a nucleus, especially to the nucleus of an atom. 2. Of or pertaining to the fission or fusion of an atomic nucleus. See also: **fission, nuclear; fusion, nuclear.**

**nuclear bomb.** See: **bomb, nuclear.**

**nuclear energy.** Energy held within the nucleus of an atom, released in part in certain isotopes by the process of fission, or in certain other elements by the process of nuclear fusion; *restrictive,* that part of this energy that is released by fission or fusion.

In nuclear fission, the energy released comes from the atomic nucleus being split, resulting in the emission of nuclear particles, such as neutrons, the alpha particle, or the beta particle. In nuclear fusion, the combining atomic nuclei fail to utilize their entire atomic mass in forming the new nucleus, the unused mass being converted into energy.

**nuclear fission.** See: **fission, nuclear.**

**nuclear fusion.** See: **fusion, nuclear.**

**nuclear propulsion.** Propulsion by means of nuclear energy.

Nuclear propulsion utilizes atomic, or nuclear, energy to provide heat, which in turn is converted, in one way or another, to mechanical energy. Instances of this propulsion are in the submarines, such as the Nautilus and the Sea Wolf.

**nuclear radiation.** The radiation of neutrons, gamma particles, and other particles from an atomic nucleus, resulting from nuclear fission or from the escape of particles in the process of nuclear fusion.

**nuclear reactor.** (Commonly, only **reactor.**) An apparatus in which nuclear fission may be sustained in a self-supporting chain reaction. It includes fissionable material (fuel), such as uranium or plutonium, and moderating material (unless it is a fast reactor) and usually includes a reflector to conserve escaping neutrons, provision for heat removal and measuring and control elements. The terms **pile** (which see) and reactor have been used interchangeably, with reactor now becoming more common.

**nuclear rocket.** A rocket propelled by reaction to released nuclear energy.

**nuclear warhead.** A warhead that contains fissionable or fissionable-fusionable material.

**nuclear weapon.** A bomb, projectile, missile, or the like that carries a nuclear warhead.

**null.** *Electricity and electronics.* Zero.

**nulling.** The accurate adjustment of different input-voltages in electro-mechanical directors so that the indicated voltages represent correct distances in yards.

**number.** (no.) *Electronic computers.* Formally an abstract mathematical entity defined by the rules governing the relations and operations to which it is susceptible. In this sense, a number is independent of the manner of its representation. Commonly a representation of a number as defined above, such as a 'binary number,' or a 'decimal number,' or a sequence of pulses. In a digital machine, a word composed only of digits and possibly a sign.

**number, random.** *Electronic computers.* A set of digits constructed of such a sequence that each successive digit is equally likely to be any of n digits to the base n of the number.

**nutation.** 1. The oscillation of the axis of a rotating body such as a spinning projectile. 2. In radar, the situation where, with the radar reflector stationary, the center of the dipole, which has its longitudinal axis fixed, is caused to describe a circle centered at the focus of the paraboloid and lying in a plane perpendicular to the axis of the paraboloid

**NUT, FIN LOCK, BOMB.** A nut, circular in shape, with holding or tightening features; designed to position and hold a **FIN ASSEMBLY, BOMB** to a bomb.*

# O

**OAC** *(abbr)*. 'Ordnance Ammunition Command.'

**OASD** *(abbr)*. 'Office of the Assistant Secretary of Defense.'

**OASD (S&L)** *(abbr)*. 'Office of the Assistant Secretary of Defense (Supply and Logistics).'

**obj** *(abbr)*. 'Object.'

**object.** *Optics.* The principal thing imaged by the optical system. It may be part of a large object, an entire object plus its immediate surroundings, or a number of objects. It is a general term used for the sake of convenience.

**objective.** *Optics.* The lens in an optical system which receives light from the field of view and forms the first image. It is the lens farthest from the eye and nearest the object viewed.

**objective plane.** Plane tangent to the ground or coinciding with the surface of the target, especially such a plane at the point of impact of a bomb or projectile.

**objective point.** See: **point of impact.**

**objective prism.** A right-angle prism employed in some types of instruments to bend light 90 degrees before it enters the objective.

**oblique fire.** Fire placed on a target from a direction diagonal to the long dimension of the target, or on an enemy from a direction between his front and his flank.

**obliquity.** State of being oblique; deviation from a right line; deviation from parallelism or perpendicularity; the amount of such deviation; divergence.

**oboe.** A radar navigation and blind-bombing system using two ground stations measuring distance to a radar beacon carried by an aircraft.

In oboe, the course flown by the navigating aircraft is circular. The ground station at the center of the circle is designated the 'cat' station; the circle passes through the target or destination at a predetermined range from the 'mouse' station. Communication signals sent over the system instruct the pilot the course to fly, and the bombardier when to drop his bombs. This system was widely employed in Europe during WW II.

**obs** *(abbr)*. 'Obsolete.'

**obscuration.** The act or state of being indistinct or hidden from view, as from smoke, dust or a mask.

**observation, astronomic.** The observation made on celestial bodies to determine longitude, latitude, time and/or azimuth.

**observation of fire.** Act of watching fire in order to locate the burst or impact of projectiles in respect to the target and to correct firing data; surveillance of fire. Observation of fire may be made from the ground or from the air.

**observe.** (obsr) To watch and take notice of artillery fire, enemy movements, or the like.

**observed angular height** (or other observed element of data). A term denoting the element of data pertaining to the position of the target at instant of observation.

**observed fire.** Fire for which the points of impact or burst can be seen by an observer on the ground, in aircraft, or on a naval vessel. The fire can be controlled and adjusted on the bases of the observations.

**observed position.** Position of a moving target at the instant of observation.

**observing angle.** Angle at the target between a line to the observer and a line to the gun or battery; the angular distance of an observer from the gun or battery.

**obsolescent.** Becoming obsolete.

**obsolete.** (obs) Of ordnance materiel: No longer satisfactory for the purpose for which obtained due to improvements or revised requirements.

**obsolete category.** See: **type classification.**

**obstacle.** See: **beach obstacle; underwater obstacle.**

**obturating cup.** Inverted cup, sealing against passage of gases of explosion, which inverts due to pressure actuating firing pin or other mechanism.

**obturation.** 1. The act of, or means for, preventing the escape of gases. 2. In explosive applications, sealing of the breech of a gun to prevent escape of propellant gases. 3. In automotive applications, sealing of a piston by the use of piston rings or other means.

**obturator.** 1. Assembly of steel spindle, mushroom head, obturator rings, and a gas-check or obturator pad of tough plastic material used as a seal to prevent the escape of propellant gases around the breechblock of guns using separate-loading ammunition, and therefore not having the obturation provided by a cartridge case. 2. A device incorporated in a projectile to make the tube of a weapon gas-tight, preventing escape of gas until projectile has left the muzzle of the weapon.

**obturator pad.** Pad of tough plastic material, forming part of an **obturator** (which see).

**obturator rings.** Accurately machined and fitted rings forming part of an **obturator** (which see).

**obturator spindle.** Part of the breechblock assembly of a gun which fires separate loading ammunition. It extends through the breechblock and holds in position the various parts of the **obturator**, while permitting the breechblock independent rotation about these parts.

**OC** *(abbr)*. 1. 'Ordnance Corps.' 2. 'Operating characteristic curve.'

**OCO** *(abbr)*. 1. 'Office, Chief of Ordnance.' 2. 'Ordnance Corps Order.'

**octal.** A fuel-thickening material.

**octane.** 1. Any of several isomeric hydrocarbons ($C_8H_{18}$) of the methane series; *specif.*, a colorless liquid obtained in refining petroleum. 2. Short for

'iso-octane.' 3. A fuel containing an octane, esp. iso-octane. See also: **octane number.**

**octane number.** A number assigned to a liquid fuel to designate its relative antiknock value in a reciprocating engine of the spark ignition type.

The octane number is the percentage number of the iso-octane in a given fuel mixture of iso-octane and normal heptane that matches the fuel being tested in antiknock properties. The higher the octane number, the more compression the fuel can withstand without detonation.

**octane rating.** The rating of a liquid fuel indicated by its **octane number** (which see).

**OCTI** *(abbr).* 'Ordnance Corps Technical Instruction.'

**octol.** A high explosive composed of HMX and TNT in varying proportions.

**ocular prism.** *Optics.* The prism employed in a range finder to bend the lines of sight through the instruments into the eyepieces.

**OD** *(abbr).* 'Outside diameter.'

**odograph.** An instrument which when installed in a vehicle automatically plots on a map the course and distance traveled by the vehicle.

**odometer.** An instrument for measuring distance traversed, as of a vehicle; the indicating gage of such an instrument.

**Oerlikon gun.** [*Oerlikon,* Switzerland.] Any of certain Swiss-developed, 20-mm, automatic aircraft or antiaircraft cannon, shooting greased ammunition.

These cannon have been used by various nations, including the US, Great Britain, Germany, and Japan.

**off-carriage fire control.** Process of controlling fire on a target with the aid of a sighting device which is not mounted directly on the weapon. Cf: **on-carriage fire control.**

**off-carriage fire control equipment.** Fire control items, such as directors, aiming circles, and observation instruments, which are required for directing the fire of the weapon and which are separately transported. Cf: **on-carriage fire control equipment.**

**offensive grenade.** See: **grenade, offensive.**

**Office, Chief of Ordnance.** (OCO) Official designation of the office of the Chief of the U. S. Army Ordnance Corps. Symbol: ORD.

**Office of Naval Research.** (ONR) One of the principal research agencies of the Navy, with headquarters in Washington, D. C.

**Office of Ordnance Research.** (OOR) Formerly a field activity of the Ordnance Corps, located at Durham, North Carolina. Redesignated Army Research Office (Durham), January 1961.

**Office of Scientific Research.** Division of the Air Research and Development Command responsible for basic scientific research.

**official master drawing.** That drawing which is established as the official drawing upon which any revision will originally be made and from which copies of the current drawing will originally be reproduced.

**offset.** *Bomb disposal.* The horizontal distance of forward travel covered by the missile after it strikes the ground. This distance is measured from the center of the hole of entry to the most forward part of the missile.

**offset bombing.** Any bombing procedure which employs a reference or aiming point other than the actual target.

This type of bombing is employed when the target cannot be seen or is a poor reference point. When employed, the compensating factors are either set into the bombsight or computed by the bombardier. Cf: **direct bombing.**

**offset-course computer.** See: **course-line computer.**

**offset ground zero.** *Atomic explosion.* A case where the desired ground zero is displaced some distance and direction from the target center.

**offset plotting.** Method of plotting firing data when different ranges and azimuths must be sent to each gun of a battery.

**offshore procurement.** Procurement from a foreign country.

**off the shelf items.** Those items required by the military services which are generally used throughout the civilian economy and which are available through normal commercial distribution channels.

**ogive.** The curved or tapered front of a projectile. As a geometrical body, a convex solid of revolution in which the generating area is bounded by an arc of a circle the center of which lies on the side of the axis of revolution opposite to the arc. When applied to a projectile contour the radius of the arc is expressed in calibers, such as a '7-caliber ogive.' With a bullet, bomb, or other projectile having a fuze forming the nose, the ogive is included between a point where the projectile begins to curve or taper and a point on the line where fuze and body meet; in other types of projectiles, the nose of the projectile is included as a part of the ogive. See also: **ogive, false.**

**ogive, conical.** A cone plus cylinder; an ogive generated by a line segment plus an arc of infinite radius. See also: **ogive.**

**ogive, false.** A rounded or pointed hollow cup added to the nose of a projectile to improve streamlining. Also called 'windshield' or 'ballistic cap.'

**OGIVE, PROJECTILE.** A hollow, conical, metallic item, designed to inclose the forward portion of a projectile to reduce air resistance during flight.*

**OGIVE, RIFLE GRENADE.** A hollow metallic item designed for attachment to the forward end of a practice rifle grenade. It cushions the impact and permits reuse of the grenade.*

**OGIVE, ROCKET.** A hollow, conical, metallic shell covering for a rocket warhead, designed to reduce air resistance during flight.*

**ogive, secant.** An ogive generated by an arc not tangent to, but intersecting at a small angle, a segment which forms the cylindrical surface. A secant ogive may have any radius of curvature greater than that of the tangent ogive up to an infinite radius of curvature (i.e., a straight, conical ogive); but, unless otherwise specified, a secant ogive has approximately twice the radius of curvature of a tangent ogive. Called 'fractional ogive' by the British. See also: **ogive; ogive, tangent.**

**ogive, tangent.** Ogive generated by arc, tangent to segment forming the cylindrical surface. Called 'true ogive' by the British. See: **ogive.**

**oil bath.** 1. Oil, in a container, within which a mechanism works, or into which it dips. 2. Oil in which a piece of apparatus is submerged. 3. Oil used in tempering. 4. Oil poured on a cutting tool.

**oil buffer.** A mechanism on certain types of automatic weapons, especially the caliber .50 guns, for absorbing the shock of recoil and regulating the speed of firing. See: **BUFFER, RECOIL MECHANISM.**

**oil detergent.** See: **detergent oils.**

**oil-dilution valve.** A valve used to mix gasoline with engine oil to permit easier starting of the gasoline engine in cold weather.

**oil filter.** See: **filter, oil.**

**oil gear.** An electromechanical device utilizing hydraulic principles to convert electrical data signals into power drive. See: **DRIVE ASSEMBLY, ELECTRO-HYDRAULIC, ANTIAIRCRAFT GUN.**

**oil groove.** A groove running part way round the inside of a bearing from the oilhole to distribute lubricating oil to the journal.

**oilhole.** A hole for conducting oil, as from an oil cup, to a bearing.

**oiliness.** The ability of an oil to 'stay slippery' under difficult operating conditions; the characteristic of a lubricant that makes it cling or adhere to surfaces; the property that causes a difference in the friction when lubricants of the same viscosity at the same temperature and pressure of the film are used with different bearings. It is a phenomenon that becomes strongly evident only when the oil film separating rubbing surfaces is exceedingly thin. In films of molecular dimensions, viscosity effects are negligible although oiliness has a marked bearing.

**oil, lubricating, engine, automotive and diesel.** See: **LUBRICATING OIL, INTERNAL COMBUSTION ENGINE.**

**oil, magnetic, inspection.** See: **MAGNETIC INSPECTION OIL.**

**oil, mineral, fog.** See: **FOG OIL.**

**oil, neutral.** 1. Any of the oils carrying paraffin which are obtained by the steam-distillation of paraffin-base petroleum after the second-grade illuminating oil has been run off. Neutral oil carrying paraffin is known as 'wax distillate.' 2. Any of the lubricants of medium viscosity and fire test, usually filtered, and obtained by the reduction of pressed distillate from wax oil or wax distillate.

**oil pump.** *Automotive.* Oil pumps are of the gear, vane or plunger type. They are usually an integral part of the engine. Their purpose is to lift oil from the sump to the upper level in the splash and circulating systems, and in forced-feed lubrication they pump the oil to the tubes leading to the bearings and other parts.

**oil ring.** 1. A ring located at the lower part of a piston to prevent an excess amount of oil from being drawn up onto the piston during the suction stroke. See: **RING, PISTON.** 2. A ring on a journal, dipping in an oil bath for lubrication.

**oil seal.** 1. A device for preventing the entrance or return of oil from a chamber. 2. A device using oil as the sealing medium to prevent the passage of fluid from one chamber to another.

**oil-temperature regulator.** See: **regulator, oil-temperature.**

**Oklahoma Ordnance Works.** Ordnance Corps field installation, located at Pryor, Oklahoma. A subinstallation of Kansas Ordnance Plant.

**omnibearing.** A bearing toward an omnidirectional radio-range station, as given to an aircraft by the omnidirectional radio range.

**omnibearing-distance navigation.** Radio navigation utilizing a polar-coordinate system as reference, making use of omnibearing-distance facilities.

**omnibearing indicator.** An instrument that continually indicates a bearing toward a VHF omnidirectional radio-range station.

**OMRO** *(abbr).* 'Ordnance Materials Research Office.'

**on-carriage equipment.** Items of supply which, although not part of the cannon carriage proper, are mounted on the carriage and remain in their respective mounts, brackets, or containers on the carriage when it is being towed. These items are required for organizational maintenance and to provide the fire control necessary for laying the piece. Examples: rammer staves, handspikes.

**on-carriage fire control.** Process of controlling fire on a target with the aid of a sighting device mounted directly on the weapon. Cf: **off-carriage fire control.**

**on-carriage fire control equipment.** Fire control items, such as telescope mounts, which are built into the cannon carriage or mount, or which are carried on the carriage or mount in the traveling position. Cf: **off-carriage fire control equipment.**

**one and a half stage missile.** A ballistic missile which stages part of the booster system but retains the basic tankage and other equipment. The main feature is that the sustainer engine is started on the ground (in contrast to a two stage missile).

**one-dimensional flow.** See: **flow, one-dimensional.**

**one hundred degree centigrade heat test.** See: **heat tests.**

**one hundred percent rectangle.** See: **hundred-percent rectangle.**

**on-line operation.** *Electronic computers.* A type of system application in which the input data to the system is fed directly from the measuring devices and the computer results obtained during the process of the event; e.g., a computer receives data from wind tunnel measurements during a run, and the computations of dependent variables are performed during the run enabling a change in the conditions so as to produce particularly desirable results.

**ONR** *(abbr).* 'Office of Naval Research.'

**on the way.** Expression sent over communication system from firing position to observation position

when weapon is fired, thus warning the observers to be on the alert for spotting the impact.

**on-vehicle materiel.** (OVM) Items of supply which, although not part of the vehicle proper, are issued with, and carried on, ordnance or other technical service vehicles. They are required for vehicular maintenance, armament, fire protection, communication, etc., and to complete the **major combination** (which see). Examples: guns, gun mounts, radios, flashlights, fire extinguishers, sighting and fire control equipment, specified vehicular spare parts and tools for maintenance of the vehicle and weapons.

**OOR** *(abbr).* 'Office of Ordnance Research.'

**OP** *(abbr).* 1. 'Observation post.' 2. Navy, 'Ordnance Pamph'et.'

**opacifier.** A substance used to treat a solid rocket propellant so as to absorb light and heat and thus protect the propellant from deterioration until ready for use.

**open ammunition space.** Ground area prepared or improvised for storage of ammunition in open areas to supplement magazine space.

**open-end contract.** Agreement for the supply of goods or services which contains no or varying limits of time and quantity and which usually involves recurring orders and charges in varying degree.

**open sight.** A rear gunsight having a notch. Distinguished esp. from a **peep sight.**

**open storage.** The storage of certain materiel outdoors; the materiel so stored.

**operand.** *Electronic computers.* A word on which an operation is to be performed.

**operating characteristic curve.** (OC) A graph of the probability of acceptance of material containing defective items, depending upon the sample size and percentage of defective items. The number of items being sampled is not considered, since it is always a large number, and is treated as being infinite.

**operating handle.** Handle or bar with which the operating lever of a gun is operated to open and close the breech of the gun.

**operating lever.** Lever device on a gun with which the breech of the gun is opened and closed.

**operating maintenance.** Service and repair to vehicles and other equipment. Operating maintenance differs from scheduled maintenance, which consists of the regular servicing and repair of equipment according to a time schedule or on a mileage basis. Also called 'march maintenance.'

**operating slide.** Mechanism in a Browning machine gun that permits opening the breech for loading, unloading, and clearing out stoppages, and closing the breech for firing.

**operation.** *Electronic computers.* 1. The activity resulting from an instruction. 2. The execution of a set of commands.

**operational.** When used in connection with equipment such as aircraft, vehicles, etc., indicates the equipment is in such a state of repair as to be immediately usable.

**operational research.** See: **operations research.**

**operational suitability test.** The service evaluation of atomic weapons' compatibility with a given system of delivery to a selected target. Within the Department of the Army, operational suitability testing is considered synonymous with user testing. See also: **user test.**

**operation, complete.** *Electronic computers.* An operation which includes (a) obtaining all operands from storage, (b) performing the operation, (c) returning resulting operands to storage, and (d) obtaining the next instruction.

**operation, computer.** *Electronic computers.* The electronic action of hardware resulting from an instruction; in general, computer manipulation required to secure computed results.

**operations analysis.** See: **operations research.**

**operations evaluations.** See: **operations research.**

**operations research.** 1. A scientific method of providing executives with a quantitative basis for decisions regarding the operations under their control. 2. Scientific, qualitative, and quantitative study of warfare by military agencies with the objective of improving the weapons, tactics, and strategy of future operations through analysis and evaluation of past operations and maneuvers, and operations trials. Also known as operational research, operations analysis, and operations evaluations.

**OPM** *(abbr).* 'Ordnance Proof Manual.'

**opposed engine.** An internal combustion, reciprocating engine having the pistons on opposite sides of the crankshaft, with the piston strokes on each side working in a direction opposite to the direction of the strokes on the other side.

**opt** *(abbr).* 'Optical.'

**optical.** (opt) 1. Pertaining to instruments having specially ground lenses and used with the eye, as in 'optical sight.' 2. Pertaining to actions in which optical instruments are used, as in 'optical bombing.'

**optical axis.** The line formed by the coinciding principal axes of a series of optical elements comprising an optical system; in other words, an imaginary line passing through the optical center of the system.

**optical center.** The point of a lens through which the rays pass and emerge parallel to their path of incidence. It is the thickest part of a converging (convex) lens and the thinnest part of a diverging (concave) lens.

**optical element.** A part of an optical instrument which acts upon the light passing through the instrument, such as a lens, prism, or mirror.

**OPTICAL FLAT.** A flat, transparent piece of glass, generally of fused quartz, with one or both principal surfaces polished to within a few millionths of an inch of a true plane, used in conjunction with a monochromatic light source to measure the flatness of precision finished surfaces, and to determine the distance and parallelism between precision finished surfaces by comparison with known standards. In operation the flat is superimposed, reference surface

downward, on the parts under test and when illuminated by monochromatic light the rays reflected from the reference surface are either reinforced or neutralized by the rays reflected from the surface under test producing interference bands which reveal any variations in the thickness of the film of air between surface under test and the flat. Excludes optical paralliels.*

**optical glass.** Glass carefully manufactured to obtain purity, transparency, homogeneity, and correct optical properties. See: **crown glass; flint glass.**

**optical instrument.** A measuring, sighting, indicating, or computing device, the operation of which is based upon the properties of light. Examples: telescope, microscope, transit, spectroscope, sextant, range finder.

**optical sight.** A sight with lenses, prisms, or mirrors that is used in laying weapons, for aerial bombing, or for surveying.

**optical surface.** A reflecting or refracting surface.

**optical system.** A number of lenses, or lenses and prisms, so arranged as to refract, or refract and reflect light, to perform some definite optical function.

**OPTICAL SYSTEM, INFRARED RECEIVER.** An assemblage consisting of one or more lenses and a combination of mirrors, specifically designed to receive and focus infrared radiation from an external source upon a detecting medium. Does not include the detecting medium. See also: **RECEIVER, INFRARED.***

**optimization.** The approach to economically perfect design or operation, accomplished primarily by analytical rather than 'hit or miss' methods.

**optimum charge.** Propelling charge with web and propellant weight combination which produces maximum velocity at a specified pressure.

**orbit.** 1. The path described by a body in its revolution about another body, as by a planet about the sun or by a manmade satellite about the earth. 2. To revolve about another body.

**orbit, closed.** A circle or ellipse in a central force field (invariant elements).

**orbit, open.** Circle or ellipse in a perturbed field (with changing elements).

**orbits of planets.** See table below.

| PLANET | Orbit, Nearest Point | Orbit, Farthest Point |
|---|---|---|
| Earth | perigee | apogee |
| Moon | perilunar | apolunar |
| Sun | perihelion | aphelion |
| Mars | periares | apoares |
| Venus | perihesperian | aphesperian |
| Jupiter | perijove | apojove |
| Saturn | pericronus | apocronus |
| Uranus | periuranian | apouranian |
| Neptune | periposeidon | apoposeidon |
| Pluto | periplutonian | apoplutonian |
| Mercury | perimercurian | apomercurian |

| PLANET | | SPACE | |
|---|---|---|---|
| Noun | Adjective | Between Earth and Planet | On Other Side of Planet—Earth Reference |
| Earth | Gee | —— | —— |
| Moon | Lunar | cis-Lunar | trans-Lunar |
| Mars | Martian | cis-Martian | trans-Martian |
| Venus | Venusian, Hesperian | cis-Venusian | trans-Venusian |
| Jupiter | Jovian | cis-Jovian | trans-Jovian |
| Saturn | Saturnian | cis-Saturnian | trans-Saturnian |
| Uranus | Uranian | cis-Uranian | trans-Uranian |
| Neptune | Neptunian | cis-Neptunian | trans-Neptunian |
| Pluto | Plutonian | cis-Plutonian | trans-Plutonian |
| Sun | Helion | cis-Helion | trans-Helion |
| Mercury | Mercurian | cis-Mercurian | trans-Mercurian |

**ord** *(abbr)*. 'Ordnance.'

**ORDAB.** Official symbol for Army Ballistic Missile Agency.

**ORDBA.** Official symbol for Frankford Arsenal.

**ORDBB.** Official symbol for Picatinny Arsenal.

**ORDBC.** Official symbol for Rock Island Arsenal.

**ORDBD.** Official symbol for Springfield Armory.

**ORDBE.** Official symbol for Watertown Arsenal.

**ORDBF.** Official symbol for Watervliet Arsenal.

**ORDBG.** Official symbol for Aberdeen Proving Ground.

**ORDBI.** Official symbol for Jefferson Proving Ground.

**ORDBK.** Official symbol for Alabama Ordnance Works.

**ORDBN.** Official symbol for Keystone Ordnance Works.

**ORDBP.** Official symbol for Longhorn Ordnance Works.

**ORDBS.** Official symbol for White Sands Missile Range.

**ORDBT.** Official symbol for Volunteer Ordnance Works.

**ORDBV.** Official symbol for West Virginia Ordnance Works.

**ORDBX.** Official symbol for Badger Ordnance Works.

**ORDBZ.** Official symbol for Indiana Arsenal.

**OrdC** *(abbr)*. 'Ordnance Corps.'

**ORDCB.** Official symbol for Radford Arsenal.

**ORDCC.** Official symbol for Cactus Ordnance Works.

**ORDCM.** Official symbol for Lake City Arsenal.

**ORDCN.** Official symbol for St. Louis Ordnance Plant.

**ORDCO.** Official symbol for Twin Cities Arsenal and Gopher Ordnance Works.

**ORDCP.** Official symbol for Cleveland Ordnance Plant.

**ORDCS.** Official symbol for Cornhusker Ordnance Plant.

**ORDCT.** Official symbol for Joliet Arsenal.

**ORDCV.** Official symbol for Michoud Ordnance Plant.

**ORDCX.** Official symbol for Oklahoma Ordnance Works and Kansas Ordnance Plant.

**ORDCY.** Official symbol for Kingsbury Ordnance Plant.

**ORDCZ.** Official symbol for Lone Star Ordnance Plant.

**ORDDA.** Official symbol for Louisiana Ordnance Plant.

**ORDDB.** Official symbol for Nebraska Ordnance Plant.

**ORDDD.** Official symbol for Pantex Ordnance Plant.

**ORDDN.** Official symbol for Rockford Ordnance Plant.

**ORDDO.** Official symbol for Dickson Gun Plant.

**ORDDQ.** Official symbol for Ordnance Assembly Plant.

**ORDDS.** Official symbol for Maumelle Ordnance Works.

**ORDDW.** Official symbol for Redstone Arsenal.

**ORDDY.** Official symbol for Wabash River Ordnance Works.

**ORDEA.** Official symbol for Birmingham Ordnance District and Charlotte Ordnance Missile Plant.

**ORDEB.** Official symbol for Boston Ordnance District.

**ORDEC.** Official symbol for Chicago Ordnance District.

**ORDED.** Official symbol for Cincinnati Ordnance District.

**ORDEE.** Official symbol for Cleveland Ordnance District.

**ORDEF.** Official symbol for Detroit Ordnance District.

**ORDEH.** Official symbol for New York Ordnance District.

**ORDEI.** Official symbol for Philadelphia Ordnance District.

**ORDEL.** Official symbol for San Francisco Ordnance District.

**ORDEM.** Official symbol for St. Louis Ordnance District.

**order.** *Electronic computers.* See: **instruction.**

**ORDEU.** Official symbol for Iowa Ordnance Plant.

**ORDFX.** Official symbol for Chief, Field Service Division, Office, Chief of Ordnance.

**ORDGB.** Official symbol for Ordnance Board.

**ORDGC.** Official symbol for Comptroller, Office, Chief of Ordnance.

**ORDGI.** Official symbol for Inspector General, Office, Chief of Ordnance.

**ORDGL.** Official symbol for Legal Office, Office, Chief of Ordnance.

**ORDGP.** Official symbol for Provost Marshal, Office, Chief of Ordnance.

**ORDGQ.** Official symbol for Services and Installations Office, Office, Chief of Ordnance.

**ORDGU.** Official symbol for Intelligence, Security and Safety Office, Office, Chief of Ordnance.

**ORDGX.** Official symbol for Executive Office, Office, Chief of Ordnance.

**ORDHB.** Official symbol for Ordnance Training Command.

**ORDHX.** Official symbol for Chief, Personnel and Training Division, Office, Chief of Ordnance.

**ordinate.** 1. One of the coordinates of a point. 2. The distance of a point of the trajectory from the plane of site. The maximum ordinate is the highest point of the trajectory.

**ORDIX.** Official symbol for Chief, Industrial Division, Office, Chief of Ordnance.

**ORDJC.** Official symbol for Benicia Arsenal.

**ORDJH.** Official symbol for Erie Ordnance Depot.

**ORDJR.** Official symbol for Raritan Arsenal.

**ORDJU.** Official symbol for Savanna Ordnance Depot.

**ORDKA.** Official symbol for Fort Wingate Ordnance Depot.

**ORDKB.** Official symbol for Anniston Ordnance Depot.

**ORDKC.** Official symbol for Black Hills Ordnance Depot.

**ORDKD.** Official symbol for Blue Grass Ordnance Depot.

**ORDKE.** Official symbol for Letterkenny Ordnance Depot.

**ORDKG.** Official symbol for Navajo Ordnance Depot.

**ORDKI.** Official symbol for Pueblo Ordnance Depot.

**ORDKJ.** Official symbol for Red River Arsenal.

**ORDKL.** Official symbol for Seneca Ordnance Depot.

**ORDKM.** Official symbol for Sierra Ordnance Depot.

**ORDKN.** Official symbol for Sioux Ordnance Depot.

**ORDKO.** Official symbol for Tooele Ordnance Depot.

**ORDKP.** Official symbol for Umatilla Ordnance Depot.

**ORDKT.** Official symbol for Sunflower Ordnance Works.

**ORDLA.** Official symbol for Holston Ordnance Works.

**ORDLB.** Official symbol for Cherokee Ordnance Works.

**ORDLE.** Official symbol for Gulf Ordnance Plant.

**ORDLI.** Official symbol for Ordnance Technical Intelligence Agency.

**ORDLT.** Official symbol for Lima Ordnance Modification Center.

**ORDLY.** Official symbol for Ordnance Ammunition Command.

**ORDMC.** Official symbol for Ordnance Tank-Automotive Command.

**ORDML.** Official symbol for Mt. Rainier Ordnance Depot.

**ORDMX.** Official symbol for Detroit Arsenal.

**ordnance.** (ord) 1. Military materiel, such as combat weapons of all kinds, with ammunition and equipment for their use, vehicles, and repair tools and machinery. 2. *Capitalized.* a. The **Ordnance Corps** (which see) of the U. S. Army. b. An organization or activity that stores, issues, or maintains ordnance materiel, as in "Ordnance will repair the division artillery."

**Ordnance Ammunition Command.** (OAC) Field command of the Ordnance Corps located at Joliet Arsenal, Joliet, Illinois, charged with responsibility for procurement and associated activities of end items of ammunition; it directs the operation of a number of Government owned ordnance plants.

**Ordnance Assembly Plant.** Ordnance Corps field activity, located at Army Chemical Center, Maryland. Official symbol: ORDDQ.

**ordnance automotive test program.** A single test program consolidating all the tests normally required in the research or development testing of an Ordnance motor vehicle and the methods of test. In general, automotive tests include the determination of the capabilities and limitations of the vehicle or component thereof under test. These tests may be classified as development, research, or miscellaneous tests.

**Ordnance Board.** A major deliberative agency of the Chief of Ordnance, responsible for the development of future broad Ordnance Corps concepts, plans, and policies. In relation to various concepts, plans, and policies of the Department of the Army and other Defense agencies, the Board determines responsibilities and functions of the Ordnance Corps in its support of military operations, recommends the best course of action for the Ordnance Corps, and prepares recommendations to other agencies concerning items of mutual interest; is responsible for the coordination of the combat development program within the Ordnance Corps. Located at Aberdeen Proving Ground, Maryland.

**Ordnance Corps.** (OrdC) A technical service of the U. S. Army, charged with the design, construction, testing, and supply of ordnance materiel. The Ordnance Corps provides guns, ammunition, missiles, armored and tracklaying vehicles, apparatus for sighting and firing guns. It maintains arsenals and depots for the design, manufacture, testing, storage, and issue of such materiel; it also maintains an extensive research program.

**Ordnance Corps Technical Instruction.** (OCTI) A publication from the Office, Chief of Ordnance promulgating to the field policies, procedures, responsibilities, and instructions of a technical nature.

**ordnance depot.** A depot which contains reserve stocks of arms, ammunition and equipment furnished by the Ordnance Corps.

**Ordnance drawing number.** A number assigned by the Ordnance Corps for the identification of an Ordnance drawing.

**Ordnance Field Safety Office.** Ordnance Corps field installation, located at Jeffersonville, Indiana.

**Ordnance Guided Missile School.** Ordnance Corps field installation, located at Redstone Arsenal, Alabama.

**Ordnance Industrial Data Agency.** An Ordnance Corps Class II activity located at Radford Arsenal, with the postal address of Snowville, Virginia. Official symbol: ORDOD.

**Ordnance Management Engineering Training Agency.** A field agency of the Ordnance Corps, located at Rock Island Arsenal, Rock Island, Illinois. Official symbol: ORDOW.

**Ordnance Materials Research Office.** (OMRO) A special mission activity located at Watertown Arsenal, responsible for the Ordnance Corps Supporting Research Program on Materials, the Ordnance Corps Materials Standardization Program and the operation of the Ordnance Materials Research Reactor.

**ordnance materiel.** Weapons of all types, ammunition, fire-control instruments, and other articles for whose design, storage, and issue the Ordnance Corps is responsible.

**Ordnance Missile Command.** Short for **U. S. Army Ordnance Missile Command** (which see).

**ordnance motor book.** Called 'log book.' A book issued with each ordnance motor vehicle, in which an accurate record must be kept of performance and maintenance of each motor vehicle issued by the

Ordnance Corps, and which must accompany the vehicle at all times.

**ordnance officer.** 1. Officer who is a member of the Ordnance Corps. 2. Special staff officer who advises his commander on technical matters of ordnance. In this meaning, also called ordnance staff officer. 3. Officer having responsibilities dealing with ordnance maintenance, ammunition, and general supply, including that of placing captured enemy materiel into usable condition.

**Ordnance part number.** A part number assigned to an Ordnance item for Ordnance Corps engineering purposes.

**ordnance plan.** Detailed statement on ordnance operations prepared for a commander, usually by his ordnance officer. An ordnance plan includes specific instructions for the use of ordnance units. It deals with ordnance maintenance, ammunition, and general supply, and the putting of captured materiel into usable condition.

**Ordnance Proof Manual.** (OPM) A manual whose purpose is to simplify, codify, and standardize proof technique and to provide a guide for those who plan, execute, or analyze proof work on ordnance materiel. The manual includes a discussion, in detail, of basic principles, related facts, and specific instructions relating to: 1. Classification of tests. 2. Examples of test programs on all classes or types of ordnance materiel. 3. Proof technique, including the detail operation of proof facilities. 4. The methods of reductions of proof data, calculations performed, the evaluation of tests, and instructions for preparation of proof reports.

**Ordnance Proprietary Rights Board.** A board established by the Chief of Ordnance via Ordnance Corps Orders as an evaluation and advisory body for the Ordnance Corps in the field of proprietary rights. See: **proprietary item.** See also: **proprietary rights.**

**ordnance service.** All activities necessary to maintain in usable condition the ordnance equipment of a command and such other equipment as directed by proper authority.

**Ordnance Special Weapons–Ammunition Command.** (OSWAC) Short for 'U. S. Army Ordnance Special Weapons–Ammunition Command.'

**ordnance staff officer.** See: **ordnance officer, sense 2.**

**Ordnance Stock Number.** A number that has been assigned by the Ordnance Corps for stock control of ordnance general supplies.

**ordnance stores.** All commodities and materials used by the Ordnance Corps in the design, manufacture, testing, preservation, and overhaul of ordnance property or supplies.

**ordnance supplies.** All military supplies assigned to the Ordnance Corps for storage, issue, and maintenance. Ordnance supplies consist of all raw materials, completely manufactured articles, and parts of such articles assigned to the Ordnance Corps.

**Ordnance Tank-Automotive Command.** (OTAC) A commodity command under the direction of the Chief of Ordnance which administers, controls, and coordinates the Ordnance Corps responsibilities pertaining to tanks, automotive vehicles, armor for vehicles and land locomotion problems. The headquarters is located at Detroit, Michigan. Subordinate units include Detroit Arsenal and Lima Ordnance Modification Center.

**Ordnance Technical Committee.** Committee appointed by the Chief of Ordnance, with membership from the Ordnance Corps and other agencies of the Department of Defense who are interested in or users of Ordnance materiel. Primary purpose is to effect coordination within the Ordnance Corps and among the developing and using agencies during research, development, test, type classification, and procurement activities on Ordnance Corps materiel.

The Ordnance Technical Committee, formerly the Ordnance Committee, functions under the chairmanship of the Chief of the Ordnance Research and Development Division and is frequently called upon to act in an advisory capacity to the Chief of Ordnance. The Committee is called upon to consider and recommend action concerning such subjects as the establishment or termination of research or development projects, the priorities to be assigned to each, standardization of equipment, and the security classification to be assigned to the various items of Ordnance materiel. Actions of the Committee, consisting of formal and 'read-for-record' actions, are published and distributed by the Chief of Ordnance as Ordnance Technical Committee Minutes (OTCM). Similar committees also operate within the Army's other technical services.

**Ordnance Technical Intelligence Agency.** (OTIA) Ordnance Corps field installation, located at Arlington Hall Station, Arlington, Virginia. Official symbol: ORDLI.

**Ordnance Test Activity.** An agency located at Yuma Test Station, Arizona, operating under the control and direction of the Commanding General, Aberdeen Proving Ground, for the purpose of conducting hot weather, desert, and other type development and engineering tests of ordnance materiel and equipment. Official symbol: ORDBG.

**Ordnance Training Command.** (OTC) Ordnance Corps field command, located at Aberdeen Proving Ground, Maryland. Has overall responsibility for training of Ordnance personnel.

**ordnance troops.** Technically trained troops assigned or attached to a tactical unit to provide ordnance maintenance, supply, or technical service. They also give instruction in the use, maintenance, and adjustment of ordnance materiel.

**Ordnance type designator (model number, model designation).** Combination of letters and numbers assigned as part of the **nomenclature** (which see) for identification of Ordnance materiel, as applicable. In the nomenclature: ROCKET, HIGH EXPLOSIVE, 3.5 INCH: AT M28A2, the Ordnance type designator is *M28A2*.

**Ordnance Weapons Command.** (OWC) Field command of the Ordnance Corps located at Rock Island, Illinois. Charged with responsibility for development and procurement, and associated activities, of Ordnance materiel classified as field, antitank and antiaircraft artillery, small arms weapons and attachments thereto. The command encompasses Rock Island Arsenal, Springfield Armory and Watertown Arsenal.

**Ordnance weapon system management.** In the U. S. Army weapon systems management program, a re-

sponsibility of the Chief of Ordnance for the coordination of all efforts to provide the Army with complete ordnance systems on time. The Chief of Ordnance normally designates an ordnance officer as the **weapon system manager** for a particular weapon system, normally a commander whose organization, such as an arsenal, will have a prominent part in furnishing the weapon and developing the **weapon system.**

**ORDOD.** Official symbol for Ordnance Industrial Data Agency.

**ORDOW.** Official symbol for Ordnance Weapons Command.

**ORDP** *(abbr).* 'Ordnance Corps Pamphlet.'

**ORDPX.** Official symbol for Chief, Office of Program Coordination, Office, Chief of Ordnance.

**ORDSB.** Official symbol for Ravenna Arsenal.

**ORDSD.** Official symbol for Milan Arsenal.

**ORDSM.** Official symbol for Major Item Supply Management Agency.

**ORDSO.** Official symbol for Ordnance Field Safety Office.

**ORDSW.** Official symbol for U. S. Army Ordnance Special Weapons—Ammunition Command.

**ORDTL.** Official symbol for Diamond Ordnance Fuze Laboratories.

**ORDTX.** Official symbol for Chief, Research and Development Division, Office, Chief of Ordnance.

**ORDWD.** Official symbol for Rossford Ordnance Depot.

**ORDXM.** Official symbol for U. S. Army Ordnance Missile Command.

**ORDXR.** Official symbol for Army Rocket and Guided Missile Agency.

**organizational maintenance.** See: **maintenance.**

**organizational supply.** See: **supply.**

**orient.** 1. To relate a thing to something else. 2. To acquaint or familiarize a *person* with something. 3. To get one's bearings. Used reflexively.

**orienting point.** Distant object sighted on in aligning a director or other instrument with a gun.

**orifice.** 1. Any opening through which something passes, as in a hydraulic piston for the passage of fluid. 2. *Electronics.* An opening in a wave guide through which energy is transmitted.

**original master.** *Electroacoustics.* In disk recording, the master produced by electroforming from the face of a wax or lacquer recording. Also called 'metal master,' 'metal negative,' 'No. 1 master.'

**original package.** In storage operations, package containing the number of pieces directed to be packed together by procurement specifications or other packing schedules. A legend must show on the outside indicating the quantity and description of the contents and designation of the producer, and the original seals must be unbroken.

**origin of rifling.** The position in a rifled gun bore at which the rifling begins. More specifically, the plane, perpendicular to the axis of the gun bore, in which the rifling starts; the intersection of the forcing cone and the gun bore. See: **rifling.**

**origin of the trajectory.** Center of the muzzle of a gun at the instant when the projectile leaves it.

**orthoscopic eyepiece.** *Optics.* An eyepiece which has been corrected for distortion; particularly that type of eyepiece having a triple element cemented field lens and a meniscus eye lens. See: **EYEPIECE ASSEMBLY, OPTICAL INSTRUMENT.**

**OSA** *(abbr).* 'Office of the Secretary of the Army.'

**OSAF** *(abbr).* 'Office of the Secretary of the Air Force.'

**OSB** *(abbr).* 'Ordnance Supply Bulletin.'

**oscillation.** 1. A periodic moving or swinging from one extreme position or attitude to another, each time passing a mean or median position or attitude, esp. (a) any such swinging back and forth by an aircraft about one of its axes, as in pitching up and down, or (b) any such movement in an elastic surface, as in flutter. 2. A single swing in this movement from one extreme position to the other. 3. *Electricity.* a. A recurring periodic disturbance in the flow of electricity. b. An alternating current.

**oscillation, phugoid.** *Aerodynamics.* A long-period oscillation characteristic of the disturbed longitudinal motion of an aircraft.

**oscillation, stable.** An oscillation of constant amplitude or frequency.

**oscillation, unstable.** In aerodynamics, an oscillation whose amplitude increases continuously until an attitude is reached from which there is no tendency to return towards the original attitude, the motion becoming a steady divergence.

**oscillator.** *Electricity.* Any device for producing oscillations, such as a nonrotating device, normally incorporating a vacuum tube, that converts direct current into alternating current, or a device that sets up and maintains oscillation in a current.

An oscillator may be used to produce audio-frequency current or radio-frequency current.

**OSCILLATOR, AUDIO FREQUENCY.** A device utilizing electron tubes, transistors or electromagnetic means to produce audio frequency voltages of 20 kilocycles and below, and whose frequency (often adjustable within a specified range) is generated and determined by its circuit constants. It is specifically designed for other than test and/or calibration purposes. See also: **GENERATOR, SIGNAL.***

**OSCILLATOR, AUDIO-RADIO FREQUENCY.** A device utilizing electron tubes, transistors or electromagnetic means to produce alternating voltages above and below 20 kilocycles per second, and whose frequency (often adjustable within a specified range) is generated and determined by its circuit constants. It is specifically designed for use other than test and/or calibrator purposes. See also: **GENERATOR, SIGNAL** and **CALIBRATOR, FREQUENCY.***

**oscillator, magnetostriction.** An oscillator whose frequency is controlled by a magnetostrictive resonator.

**OSCILLATOR, PULSE DELAY.** A device utilizing electron tubes or transistors to produce alternating voltages whose frequency is determined by constants of its circuits. The duration is determined by a trigger pulse of predetermined width which is delayed

in transmission for a definite time interval by a delay network in the input, output, or both input and output of the oscillator.*

**OSCILLATOR, RADIO FREQUENCY.** A device utilizing electron tubes, transistors, or electromagnetic means to produce alternating voltages above 20 kilocycles per second, and whose frequency (often adjustable within a specified range) is generated and determined by its circuit constants. It is specifically designed for use in other than test and/or calibrator purposes. See also: **GENERATOR, SIGNAL** and **CALIBRATOR, FREQUENCY.**

**oscillogram.** A record of the readings from an oscilloscope.

**OSCILLOGRAPH.** An item which makes a permanent visual record of values and variations in electrical voltage, and of quantities which can be converted into terms of electrical potential. For items that are not separable and operable when detached from equipment of which they are a part (built into operational end equipment), see: **INDICATOR** (as modified), **MONITOR** (as modified), and **RECORDER** (as modified). See also: **OSCILLOSCOPE.***

**OSCILLOSCOPE.** A test instrument which is designed to give visual indications on a cathode-ray tube of instantaneous values and variations in electrical voltage. It can also be used to indicate any quantity which can be converted into terms of electrical potential. It may include an integral pulse generator, the output of which can be used to trigger an external component; be triggered by pulses from an external source, or it may utilize a special type of multigun cathode-ray tube and circuitry which permits a trace(s) to be sustained and displayed indefinitely, and the trace(s) may be erased when desired. For items which are not separable and operable when detached from equipment of which they are a part (built into operational equipment), see: **INDICATOR** (as modified); **MONITOR** (as modified); **RECORDER** (as modified). See also: **OSCILLOGRAPH.***

**OSD** *(abbr).* 1. 'Office of the Secretary of Defense.' 2. 'Ordnance Supply Depot.'

**OSN** *(abbr).* 'Office of the Secretary of the Navy.'

**OSR** *(abbr).* 'Office of Scientific Research' of the Air Force.

**OSWAC** *(abbr).* 'Ordnance Special Weapons–Ammunition Command.'

**Oswatitsch diffuser.** See: **diffuser, Oswatitsch** or **Ferri.**

**OTAC** *(abbr).* 'Ordnance Tank-Automotive Command.'

**OTC** *(abbr).* 'Ordnance Training Command.'

**OTCM** *(abbr).* 'Ordnance Technical Committee Minutes.'

**OTIA** *(abbr).* 'Ordnance Technical Intelligence Agency.'

**Otto cycle.** A reciprocating internal combustion engine cycle characterized by constant-volume combustion, as distinguished from the Diesel cycle which is characterized by constant-pressure combustion.

**OUSecA** *(abbr).* 'Office of the Under Secretary of the Army.'

**outage.** *Electricity.* Accidental suspension of electrical power.

**out-of-line safety.** A term descriptive of a method by which detonator safety or bore safety is attained. In the safe condition, one or more components of the fuze or booster explosive train are in a nonaligned condition with respect to the other components, so that normal functioning cannot occur. See also: **detonator safety; fuse safety.**

**output equipment.** *Electronic computers.* The equipment used for obtaining information from a computer.

**outrigger.** Used mainly in antiaircraft artillery. An outrigger might be called a form of trail in that it aids in stabilizing the weapon. The outriggers are hinged, allowing them to be folded either horizontally or vertically for traveling and extended in a horizontal plane when the mount is emplaced. Four outriggers are usually attached to each mobile gun mount.

**over.** A bomb or projectile hit beyond or past the target.

**overall efficiency.** The efficiency of a jet engine, rocket engine, or rocket motor in converting the total heat energy of its fuel first into available energy for the engine, then into effective driving energy.

Overall efficiency is expressed as a percentage of the total heat energy of the fuel. It is a product of thermal efficiency and propulsive efficiency.

**overcast bombing.** The bombing of a target through an overcast above the target, using radar or other equipment to aid in sighting through the overcast. Cf: **blind bombing.**

**overdrive.** A transmission gear which transmits to the propeller shaft a speed greater than the engine speed. It is equivalent to a four-speed transmission in which third speed is the direct drive and fourth speed a higher or faster ratio.

**overgear.** A gear train in which the angular velocity ratio of the driven to driving shafts is greater than unity, as when the propelling shaft of an automobile revolves faster than the engine shaft.

**overhaul.** Restore an item to a completely serviceable condition by disassembling its assemblies and subassemblies, by inspecting, replacing parts, and necessary boring, grinding, or machining operations, followed by reassembly and final inspection. Cf. **rebuild; recondition.**

**overhead fire.** Fire that is delivered over the heads of friendly troops.

**overhit.** To hit a target with more destructive force than necessary to accomplish the desired amount of damage.

**overkill.** See: **overhit.**

**overmatching plate.** Armor plate whose thickness exceeds the diameter of the projectile. Cf: **overmatching projectile.**

**overmatching projectile.** A projectile whose diameter exceeds the thickness of the armor plate. Cf: **overmatching plate.**

**overpressure.** The transient pressure, usually expressed in pounds per square inch, exceeding existing atmospheric pressure manifested in the blast wave from an explosion. Cf: **peak overpressure.**

**override.** To supplant or cancel out the influence of an automatic or robotic control by a manually operated control.

**oversaturate.** See: **overhit.**

**overseas pack.** Package or method of packing designed to withstand rough handling of military transportation and distribution overseas.

**overspin.** In a spin stabilized projectile, when the rate of spin is too great for the particular design of projectile, it becomes overstable and its nose does not turn downward as it passes the summit of the trajectory and follows the descending branch. In such cases the projectile is said to have 'overspin,' or 'overstabilization.'

**overstabilization.** See: **overspin.**

**overtravel.** In machine guns, the distance the firing notch overrides the sear notch in cocking, to insure positive engagement of the two notches.

**OVM** *(abbr).* 'On-vehicle materiel.'

**OWC** *(abbr).* 'Ordnance Weapons Command.'

**oxidation of oil.** The breaking down and combining of oil particles with oxygen of the air to form a dark, sticky substance of a tarry nature. This change in oil structure is the result of severe service under extreme temperatures in the presence of highly agitated air in the interior of the engine. Oxidation is increased by high operating temperatures, low oil consumption, and infrequent oil drains.

**oxidizer.** In an explosive or other chemical mixture, a substance that furnishes the oxygen for burning the fuel. For rocket propellants, the oxidizer is often liquid oxygen, nitric acid or the like.

**oxygen balance.** The excess or deficiency of oxygen as compared to that required to convert the carbon in an explosive to carbon dioxide and the hydrogen to water, expressed as a percentage. It is a measure of the extent to which an explosive is deficient or overly rich in oxygen compared to the amount necessary for its complete decomposition.

**oxygen deficiency.** *Specif.* The deficiency in the oxygen present in a constituent of a propellant, under the assumption that the oxygen will be utilized in the formation of carbon monoxide and water. Any carbon left uncombined is considered to be a producer of smoke and the number of oxygen atoms required for the formation of the additional carbon monoxide is called an oxygen deficiency. This is expressed as a percentage in the ratio of the atomic weight of the oxygen deficiency to the molecular weight of the compound.

If there is oxygen present in the compound in excess of that required for the formation of carbon monoxide and water, there is said to be an excess of oxygen. The overall oxygen balance of the propellant formulation (deficiency or excess) is the algebraic sum of the oxygen balance of each constituent multiplied by the factor representing the percentage of each in the formulation.

**OXYGEN, LIQUID.** A liquid normally used to produce oxygen gas. For oxygen, liquid, propellant grade, see: **PROPELLANT, OXYGEN.**

# P

**PA** *(abbr)*. 'Picatinny Arsenal.'

**pack.** 1. To render impervious, as by filling or surrounding with suitable material, or to fit or adjust, so as to move without giving passage to air, water, or steam; as to *pack* a joint. 2. Provide protection for an article or group of articles against physical damage during shipment. Packing is accomplished by placing articles in a shipping container, and blocking, bracing and cushioning them when necessary, or by strapping the articles or containers on a pallet or skid. See: **amphibious pack** and **overseas pack.** 3. Part of a parachute assembly in which the canopy and shroud lines are folded and carried. In this meaning also called **pack assembly.**

**packaged petroleum.** Liquid petroleum in containers of 55-gallon capacity or less; or semisolid or solid petroleum in containers of 400-pound capacity or less.

**packaging.** (pkg) The process of wrapping, cushioning, or putting a thing or things into individual containers, and of completely identifying them separately by a tag or label, esp. with reference to objects shipped together in a large shipping container.

Packaging is concerned with the individual items packed, not with the overall shipping container. Cf: **packing.**

**pack artillery.** Artillery weapons designed for transport in sections by animals or delivery by parachute. The weapon and carriage are partially disassembled for transport and reassembled for firing from ground positions. When equipped with wheels, pack artillery may be used as towed artillery.

**PACK ASSEMBLY, PARACHUTE, UNDERWATER MINE.** A complete assembly of all the component parts of a parachute used to retard and stabilize an underwater mine when launched from an aircraft.*

**pack howitzer.** See: **HOWITZER, PACK.**

**packing.** (pkg) 1. The process of putting packages into a large shipping container, together with necessary bracing, weatherproofing, and the like, as well as the marking of the outside container. 2. The process of folding a parachute into its pack. 3. Material wrapped around barrel of water cooled machine guns to prevent leakage of water. 4. A seal which converts axial pressure to radial pressure to preclude passage of fluid past two moving surfaces.

**packing ring.** A spring ring, or any of a set of such rings, for packing a piston.

**PAD** *(abbr)*. 'Propellant actuated device.' Usually pronounced as a word.

**pad.** 1. A cushionlike mass of soft material.* 2. A permanent or semipermanent base constructed to support a missile-launcher device.

**PAD, CUSHIONING.** A pad of various shapes and cross sections, designed for mounting on vehicular panels, doors, hatches, bulkheads, racks, boxes, and the like, for the protection of personnel and equipment from injury and/or damage resulting from sudden stops, jarring, bumping, etc.*

**PADDING STOCK, TIRE REPAIR.** A rubber compound used for filling in and/or building up tread bases and/or sidewall veneering on tires. See also: **TREAD RUBBER.***

**paint.** Pigment dispersed in a vehicle, or a pigment mixed with a dry binder such as cement, casein, or glue. Paint may be a ready mixed liquid or may be in the form of a paste or powder that requires the addition of other ingredients before use. When mixed and applied in a thin layer, it sets and dries to an opaque solid film.*

**PAINT, HEAT RESISTING.** A paint that has the quality to withstand temperatures of 400 degrees F. and higher. See also: **ENAMEL, HEAT RESISTING.***

**PAINT, OIL.** A paint that uses drying oil or drying oil modified with varnish as the principal nonvolatile component of the vehicle. The total drying oil content, including the oil in the varnish when varnish is used, must be greater than 75 percent, by weight, of the total nonvolatile portion of the vehicle. See also: **ENAMEL.***

**paint, rust arresting.** See: **RUST ARRESTING COATING.**

**pallet.** A platform or shallow open box, commonly four feet square, for holding supplies or material segregated as a unit and making for convenient storage or handling, as in a warehouse. When made in the form of a box, it is called a *box pallet.*

**palletise.** To store supplies on pallets.

**palletised unit load.** Quantity of any item, packaged or unpackaged, which is arranged on a pallet in a specified manner and securely strapped or fastened thereto so that the whole is handled as a unit.

**PALLET, LOADING AND STORAGE, GUIDED MISSILE.** A pallet specifically designed for use in storage of guided missiles and to aid in fast, efficient launcher loading.*

**PALLET, MATERIAL HANDLING.** An item consisting of a platform(s) on two or more stringers; it may have sides extending above the platform deck. Designed primarily for moving material by fork lift trucks. It may be equipped with hoisting fittings so that it may also be lifted by slings.*

**PAM** *(abbr)*. 1. 'Pulse-amplitude modulation.' 2. 'Pamphlet.'

**P&P** *(abbr)*. 'Procurement and production.'

**panel.** A single flat-surfaced item upon which are mounted such items as switches, variable resistors, relays, meters, circuit breakers, fuses, jacks, etc., and may be used to perform functions such as control, protection, measuring and switching. May or may not have associated framework and/or inclosure. Do not use if all of the items mounted thereon have the same basic name or for items for which a more specific name is assigned.*

**PANEL, FIRING, GUIDED MISSILE.** A panel upon which are mounted items such as meters,

switches, lights, and other necessary instruments which indicate a missile's readiness to fire. Includes facilities for arming a guided missile.*

**panoramic sight.** See **TELESCOPE, PANORAMIC.**

**Pantex Ordnance Plant.** Ordnance Corps field installation, located at Amarillo, Texas.

**panzer.** [German] A German tank or other armored vehicle. Used in the plural in sense: A German mechanized armored force.

**PAPER, LENS.** A tissue paper used for wrapping and/or polishing optical lenses or other glass equipment or finely polished surface.*

**parabola.** A conic section made by a plane intersecting a cone parallel to its side.

**parabolic reflector.** A paraboloid reflector; a reflector that employs a surface that has a cross section shaped like a parabola.

**parabomb.** Specially prepared equipment container with a parachute which is capable of opening automatically after a delayed drop.

**paracaisson.** Small, two-wheeled, hand-drawn vehicle, the body of which forms an aerial delivery container for artillery ammunition and which, upon being assembled, becomes a utility cart.

**parachute.** (prcht) 1. A contrivance that opens out somewhat like an umbrella and catches the air so as to retard or slow down the movement of a body attached to the contrivance. 2. The canopy of this contrivance.

**PARACHUTE AND CONTAINER, BOMB.** An assembled unit designed to retard and stabilize a bomb in flight.*

**parachute brake.** A deceleration parachute.

**PARACHUTE, CARGO.** A parachute used to drop loads or cargo from an aircraft in flight.*

**PARACHUTE, CARGO EXTRACTION.** A parachute used in conjunction with aerial delivery of heavy drop equipment such as 2½ ton truck, etc. The purpose of this parachute is to extract heavy equipment from an aircraft in flight and assist the deployment of the load bearing parachute.*

**parachute-opening shock.** The shock or jolt exerted on a suspended parachute load when the parachute fully catches the air.

**parachute troops.** Troops organized and trained to be carried into battle by transport aircraft and dropped by parachute, as distinguished esp. from airborne infantry. Also called 'paratroopers' or 'paratroops.'

**paracrate.** Rigid equipment container for dropping specialized equipment from an airplane by parachute.

**paraffin wax.** A white translucent, waxy, tasteless, odorless solid, consisting of a mixture of solid hydrocarbons chiefly of the methane series obtained from petroleum.

Before purification it is known as paraffin scale, used as a lubricant, as an ingredient of adhesives, as an absorbent, for electrical insulation, protecting rubber products from suncracking as a general coating agent, in explosives, etc.

**parafrag.** Short for 'parachute fragmentation bomb.' See: **bomb, parachute fragmentation.**

**parallax.** 1. Apparent differences in the position of an object viewed from two different points, especially from a gun position and a directing point. In this meaning, also called azimuth difference. 2. Apparent motion of the cross wire in a telescope across the image of the object as the eye is moved from side to side across the eyepiece. Such parallax is caused by improper focusing of the objective lens. 3. *Antiaircraft.* Distance measured in north-south, east-west, and above below directions from the battery directing point to the tracking instrument. 4. Angle contained between the two straight lines joining a heavenly body with two different points on earth.

**parallax correction.** *Specif.* Allowance to be made for difference in position of target as measured from the gun and as measured from the observer's position.

**parallax error.** 1. Error in an observation caused by making the observation from a position different from the normal one or from the one where the firing data are used. 2. Error made by reading the dial of an instrument from a slant rather than directly from the front.

**PARALLEL.** One or more precision ground metal tools with two or more opposite sides parallel, made in various shapes and sizes. It is used for laying off, setting up, inspecting and supporting work to be machined.*

**parallel arithmetic unit.** *Electronic computers.* Unit in which separate equipment is provided to operate (usually simultaneously) on the digits in each column. See also: **serial arithmetic unit.**

**parallel two-terminal pair networks.** *Network topology.* Two-terminal pair networks are connected in parallel at the input or at the output terminals when their respective input or output terminals are in parallel.

**parameter.** A quantity which may have various values, each fixed within the limits of a stated case or discussion.

**parapack.** 1. A package or bundle with a parachute attached for dropping from an aircraft. 2. Such a package or bundle without its parachute.

**parapet.** Elevation of earth or material thrown up in front of a trench or emplacement to protect the occupants from fire and observation, and over which fire may be delivered. See: **breastwork.**

**parasheet.** A simple form of parachute, in which the canopy is a single piece of material or two or more pieces sewed together to form the equivalent of a single piece. It may have any geometrical form, such as square, hexagonal, or other, and the hem may be gathered to assist in the development of a crown on opening of the parasheet. Sometimes used as an antiricochet device (which see).

**parasite drag.** See: **drag, parasite.**

**paratroop.** Used as adj. in sense: Of or pertaining to a paratrooper or paratroopers, as in paratroop battalion; paratroop carrier.

**paratrooper.** A person in the parachute troops.

**paravane.** Protective underwater device which, when towed with a wire rope from a fitting on the bow of a ship, rides out from the ship's side and cuts the cables of anchored mines. The mines will then

rise to the surface, where they can be seen and destroyed.

**part.** 1. Essential element, component, or subassembly of an item of equipment. Parts are held in reserve to replace worn, damaged, lost or destroyed elements of equipment in order to restore the item to sound condition. 2. *Maintenance and supply.* An item which cannot be disassembled or is of such design that disassembly is impractical (bracket, gear, resistor, toggle switch, potted circuit).

**part, common.** See: **common parts.**

**partial.** *Electroacoustics.* 1. A physical component of a complex term. 2. A component of a sound sensation which may be distinguished as a simple tone that cannot be further analyzed by the ear and which contributes to the character of the complex sound.

The frequency of a partial may be either higher or lower than the basic frequency and may or may not be an integral multiple or submultiple of the **basic frequency,** which see. If the frequency is not a multiple or submultiple, the partial is inharmonic.

When a system is maintained in steady forced vibration at a basic frequency equal to one of the frequencies of the normal modes of vibration of the system, the partials in the resulting complex tone are not necessarily identical in frequency with those of the other normal modes of vibration.

**partial carry.** See: **carry.**

**partial penetration.** Penetration obtained when a projectile fails to pass through the target far enough for either the projectile itself or light from its penetration to be seen from the back of the target; Army partial penetration.

**part, peculiar.** A part for which (a) the design is controlled by a single manufacturer; and (b) the use is restricted to items produced by a single manufacturer.

**part, repair.** *Maintenance and supply.* Any part, assembly, or component which is required for installation in the maintenance of an end item.

**parts kit.** A group of parts, not all having the same basic name, used for repair or replacement of the worn and/or broken parts of an item. It may include instruction sheets and material, such as sandpaper, tape, cement, gaskets, and the like. For items containing parts and tools, see: **REPAIR KIT** (as modified). Excludes MODIFICATION KIT (as modified); INSTALLATION KIT (as modified).*

**PARTS LIST.** One or more printed sheets showing manufacturer's parts and/or assemblies of an end item(s) by illustration and/or a numerical listing of part numbers and names. It does not outline any assembly, maintenance, and/or operating instructions. It may or may not have price list and/or cover sheet. The sheet may be fastened by staple(s) or folded.*

**passive air defense.** See: **air defense.**

**passive armor.** A protective device against shaped charge ammunition. Designed to absorb the energy of a shaped charge. Examples: **spaced armor** (which see), homogeneous materials, plastic armors, composite designs.

**passive homing.** Homing by use of a passive detection device. See: **homing.**

**pass through plate; projectile through plate.** Projectile passes completely through the armor, in ballistic testing.

**PASTER, TARGET.** An item specifically designed to be used for covering holes shot in a target but which is sometimes used to indicate aiming points on certain types of targets. It generally consists of a square piece of paper, usually gummed on back surface, and is sufficiently large enough to cover shot holes. It comes in various colors, usually black, white or buff to blend with area surrounding shot hole. Applied to target by means of moistened gummed surface or with paste.*

**PAT** *(abbr).* 'Platoon antitank.'

**patent.** A grant made by the Government to an inventor, conveying and securing to him the exclusive right to make, use, and sell his invention for a term of years.

**patent search.** A search of patent records to determine whether newly filed patent applications are valid. Cf: **prior-art search.**

**pattern.** The distribution of a series of shots fired from one gun or a battery of guns under conditions as nearly identical as possible, the points of impact of the projectiles being dispersed about a point called the center of impact. Also called 'dispersion pattern.'

**pattern bombing.** A method of bombing in which the bombs are made to strike the target in a certain pattern.

Pattern bombing is done by a formation of planes acting as a single unit. The lead plane of a formation does the sighting for the entire formation, and the formation tries to release its bombs as simultaneously as possible. Pattern bombing, properly done, insures an efficient distribution of bombs.

**pattern harmonization.** The adjusting of a fighter's fixed guns so that they will produce the largest uniform pattern of lethal density possible at a given range. See: **harmonize.**

**PAULIN.** A fabricated, textile item, generally used as a weather protection cover for various items and/or material during storage or transit.*

**payload.** 1. Generally, that part of a load that is expendable, deliverable, or ready for use in direct accomplishment of the mission. 2. In a guided missile or rocket, the warhead compartment and that which is carried in it. 3. In a projectile, the explosive or other filler.

**payload, available.** The passenger and/or cargo capacity expressed in weight and/or space available to the user.

**PC** *(abbr).* 'Personnel carrier.'

**pcmk** *(abbr).* 'Piece mark.'

**PD** *(abbr).* 1. 'Point detonating' (fuze). 2. 'Pitch diameter.' 3. Chemical agent, 'phenyldichloroarsine.'

**PDF** *(abbr).* 'Point detonating fuze.'

**pdr** *(abbr).* 1. 'Pounder.' 2. 'Powder.'

**PDSD** *(abbr).* 'Point detonating self-destroying' (fuze).

**PDSQ** *(abbr).* 'Point detonating superquick.'

**PE** *(abbr).* 1. 'Plastic explosive.' 2. 'Pentaerythritol' (explosive). 3. 'Probable error.'

**peak overpressure.** The highest overpressure resulting from the blast wave. Peak overpressures near the fireball of an atomic explosion are very high but drop off rapidly as the blast wave travels along the ground outward from ground zero.

**peak pressure.** The maximum pressure reached in the bore of a weapon during the burning of the propellant. See also: **pressures, gun.**

**pedestal.** Base or support of a fixed mount for a gun or other equipment about which the gun or equipment can be pivoted in traversing; hence *pedestal mount.*

**pedestal sight.** In an aircraft gunnery system, a sight mounted on a pedestal for remote control of the guns.

**peep sight.** A rear gunsight having a small hole in which the front sight is centered in aiming. Distinguished from an **open sight.**

**peep slot.** A vision slot in a combat vehicle which can readily be opened or closed from within.

**pelleting.** 1. Method of accelerating solidification of cast explosive charges by blending precast pellets of the explosives into the molten charge. 2. The pressing of an explosive so as to form cylindrical pellets.

**PELORUS.** A navigational instrument consisting of sighting vanes and/or alidade located above a dial graduated in degrees. It is used to determine bearings and is normally mounted on a pedestal or rail bracket.[a]

**PEMA** *(abbr).* 'Procurement of Equipment and Missiles, Army.'

**pencil beam.** A radar beam nearly round about its axis, and equally sharp in all planes that pass through its axis.

**pencil of light.** *Optics.* A group of light rays coming from a point source, or converging toward a point. A pinhole opening produces a pencil of rays.

**penetrant, inspection.** See: **INSPECTION PENETRANT.**

**PENETRATING OIL.** A blend of refined light petroleum oils, petroleum derivatives, and other suitable ingredients, suitable for penetrating rust and corrosion and loosening frozen metallic parts such as nuts, bolts, pins and the like. Excludes LUBRICATING OIL (as modified).[a]

**penetration.** 1. Distance to which a projectile sinks into a target. See: **complete penetration; partial penetration; perforation.** 2. Depth of fusion of a weld, which is the distance from the original surface of the base metal to that point at which fusion ceases.

**penetration ballistics.** A branch of terminal ballistics concerned with the motion and behavior of a missile during and after penetrating a target.

**penetration test of lubricants.** Measure of the consistency of semisolid greases such as cup greases.

**pentaerythrite tetranitrate; pentaerythritol tetranitrate.** See: **PETN.**

**pentaerythritol.** (PE) A chemical used to produce the explosive PETN.

**penta prism.** *Optics.* A five-sided prism used to bend light through a constant angle, usually 90 degrees, without producing inversion.

**pentolite.** An explosive composition of any mixture of PETN and TNT, but usually a 50/50 composition. Can be melt loaded.

**Pentrate.** A proprietary name or process for applying a black, protective finish on steel surfaces.

**peptized fuel.** Thickened flame thrower fuel to which water or other chemical is added before mixing, to reduce mixing time and to increase storage stability.

**perc** *(abbr).* 'Percussion.'

**percentage corrector.** Mechanical device for correcting the range of a gun and for determining the correct elevation.

**percentage modulation.** *Receivers.* The modulation factor expressed as a percentage.

**percent of slope.** Angle of ascent or descent expressed as a percent; the number of units a slope rises or falls vertically in a horizontal distance of 100 like units.

**percent stereopsis.** A unit of measurement of the keenness of stereoscopic vision.

**perch.** A pad on the axle of an automotive vehicle, on which the spring is mounted.

**percuss.** To strike smartly or violently, as a firing pin strikes a primer to set off the explosive charge. Military usage in this (verb) form is rare. See: **percussion.**

**percussion.** (perc) Sharp blow, especially one for setting off an explosive.

**percussion fire.** Fire with fuzes set to burst on impact.

**percussion fuse.** See: **fuse, impact.**

**percussion hammer.** See: **HAMMER, FIRING, SMALL ARMS.**

**percussion primer.** See: **PRIMER, PERCUSSION.**

**perforation.** 1. Passage of a missile completely through an object. 2. Any hole made by boring, punching, or piercing.

**performance characteristic.** A characteristic of a piece of equipment, determined during its test or during its operation. Usually plural.

**performance data.** Data on the manner in which a given substance or piece of equipment performs during actual use.

**performance index.** See: **specific impulse.**

**periares.** See: **orbits of planets.**

**pericronus.** See: **orbits of planets.**

**perigee.** See: **orbits of planets.**

**perihelion.** See: **orbits of planets.**

**perihesperian.** See: **orbits of planets.**

**perijove.** See: **orbits of planets.**

**perilunar.** See: **orbits of planets.**

**perimercurian.** See: **orbits of planets.**

**peripheral.** Near the boundary or edge of the field of an optical system; the outer fringe.

**periplutonian.** See: **orbits of planets.**

**periposeidon.** See: **orbits of planets.**

**periscope.** An optical instrument used to provide a raised line of vision may not be practical or possible, as in intrenchments, tanks, submarines, and the like. The raised line of vision is obtained by the use of mirrors or prisms within the structure of the item,

maintaining a 180 degree line of vision for the eyes of the observer. It may have single or dual optical systems.*

**PERISCOPE, BATTERY COMMAND.** An optical instrument consisting of dual telescope tubes positioned vertically on a common mounting, providing periscopic vision for the observer. It is used for observing artillery fire and/or measuring angles by means of calibrated reticles. It has facilities for attaching a LIGHT, INSTRUMENT. It may or may not include a mount designed to be used with a TRIPOD OPTICAL INSTRUMENT.*

**PERISCOPE, TANK.** A rectangular or cylindrical periscope, usually positioned in a holder or mount within an armored vehicle. It is used to observe terrain, near and distant targets, and the like. It may also be linked to gun training mechanisms for integration of movement for fire control purposes.*

**periscopic sight.** Gunsight made in the form of a periscope permitting a gunner to see over an obstacle.

**perishable cargo.** See: **cargo classification.**

**periuranian.** See: **orbits of planets.**

**permanent emplacement.** A **fixed emplacement** (which see).

**permissible explosive.** Explosive which can pass certain tests prescribed by the U. S. Bureau of Mines; safe in gassy and dusty mines.

**permissible individual maximum pressure.** See: **pressures, gun.**

**permissible mean maximum pressure.** See: **pressures, gun.**

**permissible pressures.** See: **pressures, gun.**

**Pershing.** Name given to an Army tactical ballistic missile using solid propellant, with range capability of 600 miles. Successor to the **Redstone** (which see).

**persistent.** That is not blown away at once or dissipated. Said of gas, radioactive dust, etc. See: **persistent war gas.**

**persistent war gas.** War gas (which see) that is normally effective in the open at the point of dispersion more than 10 minutes. A moderately persistent war gas is one which is normally effective in the open at the point of dispersion from 10 minutes to 12 hours. Cf: **nonpersistent war gas.**

**personnel carrier.** (PC) See: **CARRIER, PERSONNEL** (as modified).

**personnel error.** Error due to the particular reaction of an individual or to his imperfect training.

**personnel mine.** See: **MINE, ANTIPERSONNEL.**

**perturbation.** In space flight, the disturbance of an orbit by gravitational or other (e.g., drag) effects.

**petalling.** Condition of armor plate where the metal around the penetration is forced into a leaflike or petal form.

**PETN.** A high explosive of exceptional brisance, pentaerythrite tetranitrate. Used in detonating cord, boosters, detonators, blasting caps, and as a constituent of pentolite, in which it is mixed with TNT. Also called **pentaerythritol tetranitrate.**

**Petrel.** Name applied to a Navy air-to-surface tactical missile launched from aircraft at distances beyond the target's defense range, for attack of ships, other surface targets, or underwater targets. Employs radar homing.

**petrol.** Gasoline. *British.*

**petrol bomb.** See: **bomb, napalm.**

**petroleum.** (petrl) 1. Oily, flammable liquid found in the earth and used as a source of jet fuel, gasoline, and lubricating oils. 2. Short for 'petroleum products.' Cf: **POL** *(abbr).*

**Pettman cement.** See: **cement, Pettman.**

**PG** *(abbr).* 'Proving ground.'

**phase.** 1. A stage in the planned development of an action, program, or operation considered in respect both to (a) the nature of the tasks undertaken and (b) the timing. 2. In periodic changes of any magnitude, as of circular movements, sound vibrations, or electrical currents, a point or stage in the period of cycle measured from a standard position. 3. *To be in phase* (said of two or more waves), to pass through their maximum, and minimum, values at the same instant.

**phase difference.** *Acoustics.* Difference in time between the perception of a sound by the two ears. The ability to distinguish the direction of a sound source is dependent upon phase difference, since one ear generally hears a sound a fraction of a second before the other ear. Binaural balance, that is, hearing a sound at the same time with both ears, is arrived at by turning the head so that the phase difference is reduced to zero.

**phase modulation.** *Electricity* or *radio.* A modulation of a wave's phase by changing its frequency.

**Philadelphia Ordnance District.** One of the eleven districts into which the United States is divided for purposes of industrial mobilization, procurement, contract negotiation and administration, etc., by the Ordnance Corps. Embraces the State of Pennsylvania except the counties of Erie, Mercer and Crawford; the States of Deleware, Maryland and Virginia; the District of Columbia; and the counties of Mercer, Burlington and Ocean and all counties south thereof in the State of New Jersey. Main office is in Philadelphia, Pennsylvania. Official symbol: ORDEI.

**Philadelphia Ordnance Plant.** Ordnance Corps field installation, located at Philadelphia, Pennsylvania.

**phlegmatiser.** Material used to desensitize explosives, also to reduce erosion effect of gases in gun barrel.

**phonotelemeter.** A device consisting essentially of a stop watch, for estimating the distance of guns in action by measuring the interval between the flash and the arrival of the sound waves from the discharge.

**phosgene.** (CG) See: **CHEMICAL AGENT, PHOSGENE.**

**phosphate coating.** Coating produced on steel surfaces by imersion in solutions containing phosphoric acid. See also: **acid wash.**

**PHOSPHATE COATING, METAL.** A chemical compound which forms a nonmetallic, integral, phosphate coating on metals by chemical reaction therewith. It may form a coating to hold lubricants for use on the bearing surfaces of such items as pistons, piston rings, and the like. It may form a coating for bonding paint, or a coating for protecting the metal

surface without other protective media (nonbearing surface type).*

**phosphate finish.** Black finish applied to small arms, artillery or automotive components to provide resistance to corrosion.

**phosphors.** Materials used in coating the viewing screen in rada or other cathode-ray, indicator tubes, to transform the energy of the electron beam into visible light. In use are two types: (1) The single-layer (short persistence) phosphor producing visible green light of rapid decay (to about 1 percent of initial value in about .05 sec). (2) The double-layer cascade (long persistence) phosphor producing visible yellow light with a decaying time of several seconds.

**phosphorus bomb.** See: **bomb, phosphorus.**

**photo bomb.** See: **BOMB, PHOTOFLASH.**

**photoelectric screen.** See: **chronograph.**

**photoflash bomb.** See: **BOMB, PHOTOFLASH.**

**photoflash composition.** Pyrotechnic material which, when loaded in a suitable casing and ignited, will produce a flash of sufficient intensity and duration for photographic purposes. Used as the filler in photoflash bombs and cartridges. See also: **BOMB, PHOTOFLASH; CARTRIDGE, PHOTOFLASH.**

**photon engine.** A projected species of reaction engine in which thrust is to be obtained from a stream of light rays. Theoretically, this engine could be applied to build up speeds approaching the speed of light.

**phototheodolite.** A device for measuring and recording the horizontal and vertical angles to a missile while photographing its flight.

**phugoid.** *Aeronautics.* Pertaining to variations in the longitudinal motion or course of the center of mass of an aircraft.

**phugoid oscillation.** See: **oscillation, phugoid.**

**physical tests.** *Metals.* Tests to determine hardness, ductility, toughness, tensile, impact and fatigue strengths.

**PI** *(abbr).* 'Point initiating.'

**pibal.** 1. Wind observations made by following a pilot balloon with a theodolite. 2. Report on the upper winds based on observations of a pilot balloon. Cf: **rabal.**

**PIBD** *(abbr).* 'Point initiating base detonating.'

**Picatinny Arsenal.** (PA) Field installation of the Ordnance Corps located at Dover, New Jersey. Army research and engineering center for the development and limited production of explosives, special weapons, propellants, and those end items of ammunition classified as artillery, mortars, bombs, mines, grenades and pyrotechnics. Also conducts research and engineering in plastics, adhesives and ordnance packing. Location of the U. S. Army Ordnance Special Weapons—Ammunition Command and the Plastics Technical Evaluation Center.

**Picatinny test.** One of two impact tests used in the United States for evaluating the sensitivity of high explosives. In this test a small sample of the explosive is placed in a depression in a steel die cup, capped by a thin brass cover. A cylindrical steel plug is placed in the center of the cover and a 2-kg weight is dropped from varying heights on the plug. The reported sensitivity figure is the minimum height, in inches, at which at least one firing results from 10 trials. The other impact test is the **Bureau of Mines test** (which see).

**picklebarrel bombing.** The bombing of a very small target; highly accurate bombing.

**pickup.** 1. *Automotive.* a. Acceleration. b. A small open-bed ½-ton truck. 2. *Receivers.* a. A device that converts a sound, scene, or other form of intelligence into corresponding electric signals (e.g., a microphone, a television camera, or a phonograph pickup). b. The minimum current, voltage, power or other value at which a relay will complete its intended function. c. Interference from a nearby circuit or system. 3. In telemetering, a sensing instrument to measure a varying quantity, such as a pressure gage, strain-gage element, position indicator, etc.; also called 'end instrument.' 4. *Nuclear.* A nuclear reaction in which an incident particle removes a nucleon from a target nucleus and proceeds with the nucleon bound to itself. Pickup is the inverse of stripping.

**pickup point.** A point on a trajectory visible to radar, and to which data has been obtained by computation or radar observation.

**picratol.** A binary explosive composed of 52 percent Explosive D (ammonium picrate) and 48 percent TNT (trinitrotoluene). Can be melt loaded. Less sensitive than TNT, picratol was developed for use in armor-piercing bombs.

**picric acid.** Trinitrophenol, high explosive, slightly more powerful than TNT, used widely in the form of mixtures with other nitro compounds. Extensively used in some foreign countries. Also called 'melinite' and 'lyddite.'

**piece.** An artillery weapon, a machine gun, a rifle, or any firearm.

**piece mark.** (pcmk) Identification number for an individual part, subassembly, or assembly. Shown on the drawing, but not necessarily on the part.

**piezoelectric.** The property of certain crystals in developing electrical charge or potential difference across certain crystal faces when subjected to a strain by mechanical forces or, conversely, to produce a mechanical force when a voltage is applied across the material. Examples of piezoelectric materials are quartz, tourmaline, Rochelle salts, and barium titanate. See also: **gage, piezoelectric.**

**piezoelectric gage.** See: **gage, piezoelectric.**

**piezoelectric generator.** A device for producing electrical energy when subjected to pressure. Similar to a piezoelectric gage in principle, but the electrical energy is directly utilized for a desired purpose, such as functioning an electric detonator. Used as a fuzing device in missiles.

**pile.** Short for 'atomic pile' or 'nuclear pile,' i.e., a nuclear reactor.

In combinations, as in 'plutonium pile' or 'uranium pile,' where the designating word shows the type of material used in the pile.

**pillaring.** The rapid vertical movement of smoke which sometimes results, for instance, from the explosion of a white phosphorus bomb or projectile.

Undesirable because it does not produce obscuration over a desirably large area.

**pillbox.** Small, low fortification that houses machine guns, antitank weapons, etc. Usually made of concrete, steel, or filled sandbags.

**pillow block.** A block or standard to support a journal, as of a shaft; a bearing. In some armored vehicles the pillow block is located on top of the intermediate axle and is a part of the drive line, running from the transfer case to the rear axle.

**pilot.** 1. A person who handles the controls of an airplane or other aircraft, and in doing so guides it in three dimensional flight; esp. such a person who pilots a heavier-than-air aircraft. 2. Something that leads or shows the way, esp. in such uses as *pilot model, pilot parachute,* or *pilot plant.* 3. A short plug at the end of a shaft to align it with another shaft or rotating part.

**pilot balloon.** *Meteorology.* A small free balloon sent aloft and observed with a theodolite to determine the direction and speed of the wind by the movements of the balloon. Also called a 'pibal.' See: **BALLOON, METEOROLOGICAL.**

**PILOT CHUTE.** A small parachute canopy attached to a larger canopy to actuate and accelerate the opening of the load bearing canopy. When used in conjunction with personnel parachutes, it is usually equipped with a spring opening device.*

**pilotless aircraft.** A term which has been used to designate aircraft adapted to control by or through a preset self-reacting, or radio-controlled unit without the benefit of a human pilot. Not used in the assignment of Department of Defense item names. See: **GUIDED MISSILE** (as modified).

**pilot line operation.** Minimum production of a military item in order to preserve or develop the art of its production. Items selected for pilot line operation are generally either those of the highest advanced type or those which require long periods for resumption of manufacture when once terminated and for which there is no current procurement objective but a known or reasonably possible future procurement objective.

**pilot materials.** A minimum quantity of special materials, partially finished components, forgings, and castings, identified with specific production equipment and processes and required for the purpose of proofing, tooling, and testing manufacturing processes to facilitate later reactivation.

**pilot model.** A production model or other model of an article or piece of equipment that is used for experimental and testing purposes, and serves as a guide in future production.

**pilot motor.** A small motor used in the automatic control of an electric current.

**PIMP** *(abbr).* 'Permissible individual maximum pressure.'

**pinacolyl methylphosphonofluoridate.** (GD) See: **soman.**

**pin, arming.** Safety device used in fuzes. A pin partly inserted into a fuze to prevent arming process from starting until its removal.

**PIN, ARMING, EXPLOSIVE ACTUATOR.** An item which cocks the striker of a FIRING DEVICE, EXPLOSIVE ACTUATOR by compressing the firing spring. When the pin is extracted, the striker is released, firing the actuator.*

**pin, bore riding.** A safety pin which is held in place in the fuze while the projectile or missile is within the gun barrel or launching tube and then ejected from the fuze by centrifugal effects or spring action beyond the muzzle.

**PIN, DRIVE, POWDER ACTUATED.** An item specifically designed to fasten steel, wood, or composition material to concrete, masonry or steel, by power provided by a separate cartridge-like unit. Excludes items having the actuating media (powder) as an integral part of the pin.*

**pi network.** *Network topology.* A network composed of three branches connected in series with each other to form a mesh, the three junction points forming an input terminal, an output terminal and a common input and output terminal respectively.

**PIN, FIRING.** An item used in a firing mechanism of a gun, mine, bomb, fuze, projectile or the like which strikes and detonates a sensitive explosive to initiate an explosive train or a propelling charge.*

**ping.** See: **detonation, sense 2.**

**pinpoint bombing.** **Precision bombing** (in sense 1 or sense 2).

**pinpoint target.** A small or precisely defined target.

**pin, shear.** See: **shear pin.**

**pintle.** 1. Vertical bearing about which a gun carriage revolves; pin used as a hinge or axis. 2. A **HOOK, PINTLE.**

**PINTLE ASSEMBLY, TOWING.** A hook with a latch on the front and/or rear of a vehicle, to which another vehicle may be attached.*

**pintle center.** An assumed center of a weapon on which all firing data computations are based.

**pintle hitch.** A frame, secured to the rear of a tank or combat vehicle, that carries a quick-release pintle assembly with a cable running over a pulley into the tank. Used for towing trailers.

**pip.** 1. A **blip.** 2. An artificial signal on a radarscope, similar to a blip, used for reference. 3. *Gunnery.* A **pipper** (which see).

**PIPE, EXHAUST.** A preformed metal item of rigid and/or flexible tubing having one or both ends processed and/or terminated. Used to direct the exhaust gases away from an engine, heater or the like.*

**pip matching.** The operation of positioning a radar antenna so that alternate echo pips of elevation or azimuth resulting from offset lobe patterns will be equal in height or amplitude.

**pipper.** A small hole in the reticle of an optical sight or computing sight; a pipper image.

**pipper image.** A spot of light projected through the pipper in an optical or computing sight, used in aiming. See: **reticle image.**

**PIR** *(abbr).* 'Pressure arming impact rocket.'

**pistol.** 1. A short automatic or semiautomatic firearm aimed and fired from one hand, using the force of recoil to eject the empty shell and to insert a new round into the firing chamber. Excludes REVOLVER (as modified) and PISTOL, PYROTECHNIC.* Official designations of several calibers of

pistols are listed hereunder with item name in each case.

**PISTOL, CALIBER .22, AUTOMATIC.**
**PISTOL, CALIBER .32, AUTOMATIC.**
**PISTOL, CALIBER 380, AUTOMATIC.**
**PISTOL, CALIBER .45, AUTOMATIC.**

2. In the British service sometimes used as a generic term for fuze.

**pistol, depth charge.** See: **DEPTH CHARGE PISTOL.**

**pistol, flare.** See: **PISTOL, PYROTECHNIC.**

**pistol, line throwing.** See: **LINE THROWING DEVICE.**

**PISTOL, PYROTECHNIC.** A single shot device designed specifically for projecting pyrotechnic signals. This item may or may not be provided with a method of mounting to an adapter.*

**pistol, spotting.** A short automatic or semiautomatic firearm mounted coaxially on a larger caliber gun, designed to conserve and to increase first round hit probability of the ammunition used in the larger weapon. It employs a magazine and fires a spotter-tracer projectile which is ballistically matched with the trajectory of the projectile of the gun on which it is mounted. Excludes PISTOL (as modified).

**pistol, Very.** See: **PISTOL, PYROTECHNIC.**

**piston.** A cylindrical piece which moves or reciprocates in a cylinder, either under fluid pressure, as in engines, or to displace or compress a fluid as in pumps and compressors.*

**piston, differential.** A combination of two pistons and one shaft, the movement of the shaft at any instant resulting from the sum or difference of the total pressures on the separate pistons at that instant.

**piston displacement.** The volume displaced by any or all of the pistons of a reciprocating engine during a specified number of strokes, usually one stroke per piston.

**piston engine.** A reciprocating engine, esp. an internal combustion reciprocating engine.

**piston valve.** A reciprocating valve, consisting of a piston, or connected pistons, working in a cylindrical case provided with ports traversed by the valve.

**pitch.** 1. An angular displacement about an axis parallel to the lateral axis of an airframe or vehicle. 2. The distance from a point on a screw thread to the corresponding point on the next thread, measured parallel to the axis. See: **lead**, sense 6.

**pitch acceleration.** See: **acceleration, pitch.**

**pitch attitude.** The angle between the longitudinal axis of the airframe or vehicle and the horizontal.

**pitch indicator.** See: **indicator, pitch.**

**Pittsburgh Ordnance District.** Former Ordnance district, absorbed into the **Philadelphia Ordnance District** (which see) and designated the Pittsburgh Regional Office thereof.

**pitted.** Marked with small indentations or holes caused by rust, acid erosion or other causes. Any metal part of a gun may become pitted if moisture remains on it.

**pivot-type equilibrator.** See: **equilibrator.**

**pkg** *(abbr)*. 1. 'Package.' 2. 'Packaging.' 3. 'Packing.'

**PL** *(abbr)*. 'Proportional limit.'

**place.** *Electronic computers.* See: **column.**

**plane of departure.** Vertical plane containing the path of a projectile as it leaves the muzzle of the gun.

**plane of fire.** Vertical plane containing the axis of the bore of a gun when it is ready to be fired.

**plane of position.** Vertical plane containing the gun and the target; vertical plane containing a line of site.

**plane of site.** Plane made by two lines, one from the muzzle of the gun to the target, the other horizontal but perpendicular to the first line at the muzzle of the gun.

**plane of yaw.** The plane determined by the tangent to the trajectory of a projectile in flight and the axis of the projectile.

**planer.** A machine tool with a work table moving in reciprocating motion under and alongside of cutting tools fixed in tool heads which move laterally on a cross rail and/or vertically on a side column, to make straight line cuts in material clamped to the table.*

**planetary transmission.** Transmission, or a transmission system, as in an automobile, using a **planet differential** (which see).

**planet differential.** *Mach.* An epicyclic gear train having two contiguous, parallel, main wheels, usually of equal diameter, meshing with a single pinion, one of the wheels having one or more teeth than the other. Usually, one of the two wheels is fixed to the frame of the mechanism, the other then being slowly rotated as the pinion moves about the pair.

**planform.** The form or shape of an object, as of an airfoil, as seen in plan view, as it appears from above.

**planform, developed.** The plan of an airfoil as drawn with the chord lines at each section rotated about the airfoil axis into a plane parallel to the plane of projection and with the airfoil axis rotated or developed and projected into the plane of projection.

**planform, projected.** The contour of the plan form as viewed from above.

**PLANIMETER.** An instrument designed to ascertain by simple mechanical operation the area of any plane surface represented by a figure such as indicator diagrams, profile plans, sections.*

**plano-concave lens.** A lens with the front surface plane; the other concave.

**plano-convex lens.** A lens with the front surface plane; the other convex.

**plan position indicator.** (PPI) Radar oscilloscope on which the sweep is a radius of the tube face and moves through 360 degrees, giving a plan view of map-like representation of the area scanned by the radar beam. Azimuth is given by the direction of the radical sweep line and range by distance of the signal from the center of the screen. See: **INDICATOR, AZIMUTH-RANGE.**

**plant protection.** That portion of industrial security which concerns the safeguarding of industrial installations, resources, utilities and materials by physical measures such as guards, fences, lighting designation of restricted areas, and other similar means.

**plasma.** A partially ionized jet, a mixture of gas and electrically charged particles (e.g., ions, electrons) at high temperatures.

**PLASTEC** *(abbr)*. 'Plastics Technical Evaluation Center.'

**plastic deformation.** The permanent deformation of a material, structure or other object beyond its elastic limit.

**plastic explosive.** (PE) Explosive which, within normal ranges of atmospheric temperature, is capable of being molded into desired shapes.

**plasticised white phosphorus.** (PWP) See: **CHEMICAL AGENT, PLASTICIZED WHITE PHOSPHORUS.**

**plasticiser.** A constituent of a propellant or high explosive composition which makes the finished product less brittle.

**plastics.** Materials which under the influence of pressure and heat become soft enough to form, shape, or press into any desired shape, and when cooled, retain the form imparted to them. There are two types: thermoplastic and thermosetting. The thermoplastic material softens when heated. On cooling it becomes rigid, and if it is reheated it softens again. This process may be repeated. Thermosetting resins undergo a chemical change under the effect of heat and pressure. They set permanently to a solid infusible mass. Examples: Plastacele, Plexiglas, Bakelite, etc.

**Plastics Technical Evaluation Center.** (PLASTEC) A Department of Defense center, located at Picatinny Arsenal, Dover, New Jersey, engaged in the collection, exchange, collation, development, evaluation and distribution of technical data on plastic materials of interest to the Department of Defense.

**plate.** 1. Metal in sheets, whether beaten, rolled, or cast. 2. *Engineering.* A sheet of rolled iron or steel a quarter of an inch or more thick. 3. *Ord.* Armor plate.

**PLATE, ARMING WIRE.** A metallic item specifically designed to provide a means of attaching a primary arming wire to two or more secondary arming wires permitting simultaneous operation of all secondary arming wires.*

**PLATE, BUTT, SHOULDER GUN STOCK.** A formed metallic or plastic item attached by threaded fastener(s) to the butt end of a STOCK, GUN, SHOULDER.*

**PLATE, DRAG AND RING, SPOILER.** A set of two parts designed for attachment to an aimable cluster adapter to increase the drag. It consists of a drag plate for attachment to the tail, and a spoiler ring for attachment to the nose, of the adapter. See: **adapter, cluster, aimable; ADAPTER, CLUSTER, BOMB.**

**PLATE, MOUNTING, SAFETY-ARMING DEVICE.** An item specifically designed for mounting a guided missile safety and arming device. It may contain integral filter circuit(s) and electrical receptacle(s) for connections to the guidance section and warhead(s).*

**platform.** 1. Temporary or permanent solid bed on which artillery pieces are supported to give greater stability. 2. Metal stand at the base of some types of guns upon which the gun crew stands while serving the gun.

**PLATFORM, CARGO, AERIAL DELIVERY.** An item consisting of a flat surface of wood or metal, attached to reinforcing cross members having tie-down eyes or rings. It is a component of an aerial delivery kit used for dropping cargo from an aircraft by parachute.*

**platform launcher, guided missile.** See **LAUNCHER, PLATFORM, GUIDED MISSILE.**

**PLATFORM, MISSILE TRACKING ANTENNA, TRUCK MOUNTED.** A specifically designed shock absorbing platform installed on a truck for transporting a missile tracking antenna.*

**PLATFORM, ROCKET HANDLING.** A transportable item usually of metal and/or wood structure, equipped with cradling devices for retaining large caliber rockets in temporary storage or transit. The item is equipped with an integral hoisting mechanism for handling, joining and/or disassembling complete rockets.*

**Plexiglas.** A trade name, often spelled incorrectly plexiglass, for a clear plastic made of acrylic resin.

**plot.** 1. Map, chart, or graph representing data of any sort. 2. To represent on a diagram or chart the position or course of a target in terms of angles and distances from known positions; locate a position on a map or chart; draw to scale.

**plotting board.** An item usually having a plane surface upon which data is compiled or recorded to serve as a basis for determining distances, ranges, velocities, and the like. It may be inscribed with predetermined data or may require the use of auxiliary items such as charts, maps, or patterns.*

**PLOTTING BOARD, COORDINATE CONVERTER.** A plotting board on which data is plotted, compiled and/or recorded, and converted from grid to polar coordinates or vice versa.*

**PLOTTING BOARD, FIELD ARTILLERY.** A box like frame having an illuminated area over which one of two interchangeable translucent plastic grids can be fitted.*

**PLOTTING BOARD, FLASH RANGING, FIRE CONTROL.** An item used to determine the locations of enemy guns by plotting the azimuth of the flash or smoke, as reported from two or more observation posts. It may also be used to determine the center of impact of friendly fire.*

**PLOTTING BOARD, RADAR DATA.** A plotting board specifically designed to make a plot of data received by radar equipment.*

**PLOTTING BOARD, SOUND RANGING, FIRE CONTROL.** An item used to determine the location of enemy guns by plotting the difference in time at which the sound of the gun reaches each of several microphone stations. It may also be used for adjustments of gun and howitzer fire to compensate for the trajectory of the projectile. Excludes SOUND RANGING SET and SOUND MEASURING SET.*

**PLOTTING GRID, TARGET.** A sheet of translucent tracing paper on which is printed a graduated azimuth circle and within the circumscribed area of which is a scaled rectangular grid. Intended for use by field artillery units for converting observer's correction into firing data in connection with artillery range determination and fire control. Excludes PLOTTING SHEET.*

**PLOTTING SET, ARTILLERY FIRE CONTROL.** A collection of plotting equipment such as slide rules, tracing paper and the like. Primarily intended for use to supplement other fire control sets. It is not suitable for field or office plotting work.*

**PLOTTING SHEET.** An item having lines forming rectangular grids printed on one side. The grid lines are approximately parallel with and extending to the edges of the sheet, and are approximately centered thereon. It is used in graphical determination of artillery ranges and deflection angles to targets from plotted gun position. Excludes PLOTTING GRID, TARGET.*

**plug, base.** A plug used for closure of the base of some types of projectiles. It may include provision for housing a fuze.

**plug, closing.** A plug used to close openings of various components of a round of ammunition, i.e., primer, nose of unfuzed projectile, etc.

**PLUG, DELAY CLOCK.** An electrical fitting with integrally molded wire designed to replace a delay clock in an underwater mine.*

**PLUG, FLOODER, UNDERWATER MINE.** An item designed to contain a detonator and installed in an opening in the side of an underwater mine case. The detonator ruptures it, thus providing a means for sinking the underwater mine by flooding it with water.*

**PLUG, MUZZLE.** A device that fits into the muzzle end of a CANNON (as modified); to serve as a protection to the cannon bore.*

**plumbing.** Metal tubing which extends from the side well to the nose and tail of some bombs and which forms a conduit to accommodate the electrical connections to the fuze(s).

**Plum Brook Ordnance Depot.** Ordnance Corps field installation, located at Sandusky, Ohio.

**PLUMMET, ANCHOR, UNDERWATER MINE.** An item designed to separate an anchor from an underwater mine case and to actuate a pawling mechanism in the underwater mine anchor. This controls the planting depth of an underwater mine.*

**plunging fire.** Gunfire that strikes the earth's surface at a high angle of fall, i.e., greater than 45 degrees. An artillery term. A more general term is high-angle fire.

**plutonium.** A radioactive element formed by the decay of certain isotopes of neptunium and also found in minute amounts in pitchblende.

The symbol for plutonium is Pu; it has an atomic number of 94, and an atomic weight of 239. The element was discovered in 1940.

**PM** *(abbr).* 1. 'Phase modulation.' 2. 'Permanent magnet' (speaker). 3. 'Preventive maintenance.'

**pm erasing head.** *Electroacoustics.* Head which uses the fields of one or more permanent magnets for erasing.

**PMMP** *(abbr).* 'Permissible mean maximum pressure.'

**pneumatic deception device.** A dummy tank, vehicle, or weapon made of inflatable material. It is used for deceiving the enemy intelligence as to location of friendly installations.

**pneumatic gun charger.** A gun charger that operates by compressed air or gas. See: **gun charger.**

**PNEUMATIC SHOP, GUIDED MISSILE SYSTEM, TRUCK MOUNTED.** A mobile unit permanently fitted with the necessary equipment and tools for testing and repairing components of a pneumatic system used in a guided missile system.*

**pneumatic tire.** See: **TIRE, PNEUMATIC.**

**pneumatic-type equilibrator.** See: **equilibrator.**

**POCKET, AMMUNITION MAGAZINE.** An envelope type device, having two compartments, which is designed to be worn on a belt for the purpose of carrying reserve clips of ammunition.*

**POD** *(abbr).* 'Philadelphia Ordnance District.'

**pod.** 1. A streamlined housing for something carried externally on an airplane or missile 2. A self-contained, detachable compartment on an airplane or missile.

**POE** *(abbr).* 'Port of embarkation.'

**point.** 1. Tip or foremost part of a projectile. 2. In fuze nomenclature, indicates that fuze is to be attached to the point of the projectile. 3. *Electronic computers.* The dot that marks the separation between the integral and fractional parts of a quantity; i.e., between the coefficients of the zero and the minus one powers of the number base. It is usually called, for a number system using base two, a *binary point;* for base ten, a *decimal point,* etc; base point; radix. 4. To aim a weapon; lay a gun on a target.

**point, binary.** *Electronic computers.* See: **binary point.**

**point-blank range.** Distance to a target that is so short that the trajectory of a bullet or projectile is practically a straight, rather than a curved, line. Point-blank range is one for which no superelevation is needed.

**point detonating fuse.** See: **FUZE, POINT DETONATING.**

**point fire.** Concentrated fire from a number of guns, directed at a single point or small area.

**point fuse.** See: **fuse, point.**

**point harmonisation.** The adjusting of a fighter's fixed guns so that they converge upon a point at a given range. See: **harmonise.**

**pointing.** The operation of giving the piece a designated elevation and direction.

**point initiating fuse.** See: **fuse, point initiating.**

**point of aim.** The aiming point (which see).

**point of burst.** Point at which a projectile bursts.

**point of fall.** Point in the curved path of a falling projectile that is level with the muzzle of the gun. Also called **level point.**

**point of impact.** The point at which a bullet, bomb, projectile, or the like strikes. Cf: **center of impact;** and see: **mean point of impact.**

**point target.** A precise target of small dimensions. Distinguished from an area target.

**Poisson's ratio.** Ratio of the unit strain in the perpendicular directions to that in the directions parallel to the simple stress. Varies for different materials, dependent upon the elementary crystal structure of the material. For gun steels it is usually taken as ⅓.

**POL** *(abbr)*. 'Petroleum, oil, and lubricants.' 'POL', pronounced by letter, is applied to petroleum fuels, lubricants, hydraulic and insulating oils, temporary protectives, liquid coolants, deicing and antifreeze compounds, together with components and additives of such products.

**polar coordinate.** The location of a point in a plane by the length of a radius vector from a fixed origin in the plane, and the angle the radius vector makes with a fixed line in the plane.

**Polaris.** Navy surface-to-surface ballistic missile of intermediate range. Intended for launching from surface ships and submarines. Utilizes solid fuel and inertial guidance, switching to celestial.

**pole charge.** See: **charge, pole.**

**polyethylene.** A light, tough, flexible, resinous plastic.

**polyfurcation.** See: **jet breakup.**

**pom-pom.** 1. A rack of antiaircraft cannon, usually mounted in fours, as on the deck of a ship. 2. An automatic cannon.

'Pom-pom' was first applied to an automatic cannon used by the Boers in the Boer War (1899-1902). This cannon, of the one-pounder automatic type, sounded like the beating of drums.

**poppet.** A spring-loaded ball engaging a notch. A ball latch.

**Porro prism.** One of two identical prisms used in the Porro prism erecting system. It is a right angle prism with the corners rounded to minimize breakage and simplify assembly. See: **Porro prism erecting system.**

**Porro prism erecting system.** A prism erecting system, designed by M. Porro, in which there are four reflections to completely erect the image. Two **Porro prisms** are employed. The line of sight is bent through 360 degrees, is displaced, but is not deviated. Used in prism binoculars and some telescope systems. Less difficult to manufacture than the **Abbe prism erecting system**, which see.

**port.** 1. Harbor with its facilities, for example, a port of embarkation of debarkation. 2. Slit or hole in an armored vehicle or fortification through which guns are fired. 3. Small opening in some automatic guns through which the gas from the bore can escape. The escaping gas actuates a piston whose action prepares the gun for the next shot. 4. Opening in a cylinder block or sleeve for intake, exhaust, water, oil, etc.

**position angle.** See: **angle of site.**

**position correction.** Correction applied to firing data to compensate for difference in location of individual pieces in a battery.

**position correction grid.** Transparent template superimposed on a large scale plot of a battery position used to determine individual range and deflection corrections within the battery in order to obtain the type of sheaf desired.

**position finder.** Optical or electrical instrument used in finding the range and position of a target.

**position finding.** The process of determining the position of a target with relation to the battery and the determination of a future position upon which to direct the fire.

**position firing.** A term applied to a method of defensive gunnery used by bombers, esp. during WW II, in which definite amounts of deflection are prescribed for firing at attacking fighter planes. See: **deflection, sense 2.**

**positioning band.** A metal band on some recoilless ammunition, placed to insure the proper positioning of the round inside the chamber and tube.

**position of target.** In firing at a moving target, as in AA gunnery, three different positions of the target are considered. *Position of target as predicted*—future position of target. The predicted position of the target at the end of the predicted time of flight. *Position of target at instant of firing*—present position of target. The position of the target at the instant the gun is fired. *Position of target at instant of observation*—observed position of the target.

**positron.** [*positive* + *electron*.] A positively charged particle having the same mass and ionizing power as an electron.

The positron was first discovered in 1932 in cosmic rays. Positrons are emitted also from radioactive substances, and are sometimes called 'positive electrons.' Cf: **electron.**

**post.** 1. *Rocketry.* A vertical rod fastening an aircraft rocket to the underside of a wing in a certain kind of launching device. See: **LAUNCHER, ROCKET, AIRCRAFT.** 2. Used generically in reference to any military installation at which military personnel are stationed.

**POST, AIMING.** A wooden or metal post, having contrasting painted transverse bands, and a metal point or stake for driving into the ground. A cap on top provides a driving surface. It is used as a sighting point in direct fire. May be fitted with a LIGHT, AIMING POST for night operations.*

**potential (of an explosive).** Total work that can be performed by the gas resulting from the explosion of an explosive when expanded adiabatically from its original volume until its pressure is reduced to atmospheric pressure and its temperature to 150°C, or the total quantity of heat given off at constant volume when expressed in equivalent work units.

**potting.** The process of embedding an electronic circuit component or assembly in a (usually) plastic material to reduce susceptibility to deleterious environments, simplify maintenance, etc.

**pour point.** The temperature at which a lubricating oil begins to flow freely.

**pour test.** A test to determine the lowest temperature (*pour point*) at which an oil, as a lubricating oil from petroleum, flows under given conditions.

**powder.** (pdr) An explosive in powder form, that is, in small granules or grains, such as black powder or smokeless propellant of fine granulation. No longer accepted as a general term for propellant or propelling charge. See: **propellant powder.**

**powder bag.** See: **bag, propellant.**

**powder chamber.** See: **chamber.**

**powder fouling.** See: **propellant fouling.**

**powder metallurgy.** Production of finely divided metal powders, and die forming into useful articles by pressure and heat. This process is more economical for appropriate articles (e.g., gears) than machining

or casting, and more feasible than ordinary melting and casting for metals having extremely high melting point, such as tungsten.

**powder-moisture test.** Determination of moisture in propellant by drying under prescribed conditions; expressed as percentage by weight.

**powder ring.** See: **ring, powder.**

**powder silk.** Also called 'cartridge silk.' Special silk fabric formerly used in making propellant bags. Powder silk leaves no burning residue when the propellant is burned. Silk has now been largely replaced by other materials and the fabric is called 'cartridge cloth.' See also: **bag, propellant; cloth, cartridge.**

**powder tag.** See: **propellant tag.**

**powder train.** 1. Train, usually of compressed black powder, used to obtain time action in older fuze types. 2. Train of explosives laid out for destruction by burning.

**power.** 1. In a lens, a measure of ability to bend or refract light. It is usually measured in diopters. 2. In a telescope, the number of times the instrument magnifies the object viewed. For example, with a 6-power instrument, an object 600 yards away is enlarged six times, or it appears as it would to the naked eye if it were at a distance of only 100 yards. 3. Mechanical or kinetic energy developed by one or more engines or motors in the transformation of atomic energy, electrical energy, or the chemical energy of fuel; *specif.*, (a) brake horsepower, or (b) thrust (which see). 4. The force or energy that inheres in an electric current, in an atomic pile, or in a chemical fuel. 5 Ability of an explosive to displace the surrounding medium.

**POWER DISTRIBUTION STATION, GUIDED MISSILE SYSTEM, TRAILER MOUNTED.** A mobile unit equipped with the necessary items required to convert electrical power received from an external source into precise voltages, and distributes the required amount to various components within a guided missile system.*

**power-driven.** Of a component or piece of equipment: Moved, rotated, or operated by electrical or mechanical energy, as in 'power-driven fan' or 'power-driven turret.'

**power package.** A complete engine and its accessories, designed as a single unit for quick installation or removal.

**power plant.** 1. *Specif.* The complete engine or engines for a vehicle, together with accessories, fuel and oil tanks and lines, etc. 2. *Restrictive.* An engine only, without accessories, tanks, etc.

**power rammed.** Indicates, in cartridge nomenclature, that the cartridge is intended to be rammed into the gun by a power rammer.

**POWER TAKEOFF, TRANSMISSION.** An item consisting of one or more gears and gear shifting devices housed in a casing, designed to be mounted on a transmission or transfer transmission to provide additional power shafts for driving auxiliary equipment such as pumps, compressors, winches, cranes, and the like. Excludes items with input shaft.*

**power train.** System including those parts utilized in transmitting power from the output shaft of the engine to the wheels or the track.

**power train efficiency.** Efficiency of the power train = $\frac{\text{Power input to wheel or track}}{\text{Power delivered to engine output shaft}}$.

**power-transmission system.** A group of units transmitting power from the engine (power plant) to the wheels or tracks. It consists of clutch, transmission, propeller shafts, universal joints, differentials, and driving axle shafts.

**power traverse.** Turning of a gun to change the direction of fire by means of a power-driven mechanism, as in a tank, aircraft, or ship turret.

**power traverse mechanism.** Mechanism that is driven by power and used in turning a gun to change the direction of fire, especially in a tank, aircraft, or ship turret.

**power turret.** A power-driven turret. See: **power-driven.**

**power unit.** An item consisting of an internal combustion engine with all external accessories, cooling system, fuel system (may have tank or designed for direct remote fuel source), and operational controls, mounted on a base or having a base which is an integral part of the engine. It is used as a prime mover for various types of equipment and machinery. Excludes motor generator and generator sets. For item name use type of engine as modifier, such as gasoline, diesel, gas, gas turbine, liquid propellant and solid propellant. Includes power units with compressed air bleedoff. Excludes ENGINE, GASOLINE; ENGINE, DIESEL and ENGINE, GAS TURBINE.*

**POWER UNIT, DIESEL.** An ENGINE, DIESEL with accessories to form a **power unit** (which see).

**POWER UNIT, GASOLINE.** An ENGINE, GASOLINE with accessories to form a **power unit** (which see).

**POWER UNIT, GAS TURBINE ENGINE, ROCKET SPINNING.** An item specifically designed to impart high speed rotary motion through a SHAFT ASSEMBLY, FLEXIBLE to a ROCKET (as modified) prior to launching to obtain a more stabilized flight attitude.*

**POWER UNIT, MULTIPLE ENGINE.** Two or more complete reciprocating gasoline or diesel engines mounted on a common base and usually interconnected to a common gear case.*

**PPI** *(abbr).* 'Plan position indicator.'

**PPM** *(abbr).* 'Pulse-position modulation.'

**prac** *(abbr).* 'Practice.'

**practice ammunition.** Ammunition used for target practice or similar types of training. For gun and rocket type weapons, practice ammunition contains a propelling charge, and either an inert filler or a spotting charge in the projectile. Other types of practice ammunition, such as bombs or mines, usually contain a spotting charge or some form of charge to indicate functioning.

**practice bomb.** See: **BOMB, PRACTICE.**

**practice fire.** Target practice with live ammunition.

**practice grenade.** See: **grenade, practice.**

**PRACTICE UNIT.** An item comprising the necessary equipment for practice runs simulating special bombing missions.

**Prandtl number.** An expression of the temperature distribution in a fluid, equal to the product of the specific heat at constant pressure and the kinematic viscosity divided by the thermal conductivity.

**prcht** *(abbr).* 'Parachute.'

**precession.** *Mechanics.* A change in the direction of the axis of a rotating body, as a spinning top, or gyroscope, the effect of which is to rotate this axis (**axis of precession**) perpendicular to its original direction and to the axis of the twisting forces producing the change. A spinning projectile, as a gyroscopic body, is also subject to this phenomenon as a result of the various aerodynamic forces which it encounters along its trajectory.

**precipitation number.** A number indicating the amount of water and solids carried in suspension in a sample of lubricating oil, expressed as a percentage.

The precipitation number is determined by precipitating the water and solids in the sample by centrifugal force.

**precision.** The quality of having small dispersion about the mean.

**precision adjustment.** A deliberate adjustment of the fire of one weapon for the purpose of placing the center of impact accurately on the target.

**precision bombing.** 1. In a restricted sense, horizontal bombing done with the appropriate precision instruments and equipment so as to strike a target of comparatively small bulk or area. 2. In a general sense, any type of bombing against a small or restricted target. *Rare.*

In sense 1, precision bombing is usually a strategic operation, and is done either to achieve destruction of a target with a minimum expenditure of force, or to hit a target near other areas or installations not considered desirable to hit. When the term is used in sense 2, it is usually applied to tactical attacks by dive bombers or fighter-bombers against tanks, etc. Cf: **area bombing.**

**precision fire.** Fire in which the center of impact is accurately placed on a limited target; fire based on precision adjustment. Usually precision fire is used to destroy enemy installations, such as gun emplacements, structures, and supply points. Precision fire differs from area fire, which is directed against a general area rather than against a given objective in the area.

**precision sweep.** In radar, a small portion of a normal sweep, usually 2,000 yards, selected and expanded over the entire radar screen in order to permit precise range measurements.

**precombustion chamber, diesel engine.** A chamber in the cylinder head into which the oil is sprayed in some engines, and partly burned when mixing with the small amount of air in the precombustion chamber. It is so proportioned with respect to the clearance volume proper of the cylinder that only about 30 percent of the combustion takes place within the chamber itself.

**predicted barrage.** *Specif.* A more precise term for **an antiaircraft barrage (sense 1).**

**predicted firing.** Firing at the point at which a moving target is expected to be when the projectile reaches it, according to predictions based on observation.

**predicted point.** Position at which it is expected a moving target will arrive at the instant of firing. Cf: **set forward point.**

**predicting dead time.** The time allowed for calculation and applying firing data, from the time of observation to the instant of firing.

**predicting interval.** The interval between successive predictions of future positions of the target.

**prediction.** Determining what the probable future position of a moving target will be at a given time.

**preengraved rotating band.** See: **band, rotating, preengraved.**

**preformed fragment.** See: **fragment, preformed.**

**preignition.** Ignition in advance. *Specif.* The premature ignition of the mixture in the combustion chamber of a reciprocating engine.

**prelaunch simulator, guided missile.** See: **SIMULATOR, GUIDED MISSILE FLIGHT; SIMULATOR, GUIDED MISSILE PRELAUNCH SIGNALS.**

**premature.** A type of malfunctioning in which a munition functions before the expected time or circumstance.

**preparation fire.** Fire delivered on a target or predetermined point preparatory to an assault on the target. It may be naval, ground, or air. Cf: **counterpreparation fire; covering fire.**

**preparatory fire.** In AA fire, to determine or check corrections of firing data prior to conducting fire for effect.

**prepositioned.** Actual placement of a weapon at the desired point of detonation and preparation for firing by some form of remote control or a timer mechanism.

**prescribed muzzle velocity.** See: **standard muzzle velocity.**

**present angular height.** A term denoting the element of data pertaining to the **present position** of the target; that is, the position at the instant the gun is fired.

**present elevation.** *Antiaircraft.* **Elevation** (which see sense 2) corresponding to the **present position** of the target.

**present position.** Position of a moving target at the instant of firing.

**present range.** The range between a gun and the **present position** of its target.

**preservation.** 1. The result of packing and/or the application of preservatives. 2. That work performed on materiel to prevent deterioration and to correct minor defects not requiring major repairs, rebuild, renovation or major modification.

**PRESERVATIVE OIL, HYDRAULIC SYSTEMS.** A fluid of vegetable origin with admixtures of additive agents, used as a preservative for hydraulic brake parts and components in warehouse storage and for vehicles in stand-by storage. It may also function temporarily as a hydraulic brake fluid for short periods, such as in moving vehicles from storage to shop.*

**preservatives.** Material used to protect an item against corrosion, deterioration, disintegration, and physical damage.

**preset guidance.** A type of guidance for guided aircraft rockets or other guided missiles in which the path of the missile is determined by controls set before launching. Cf: **inertial guidance.**

The mechanism for this type of guidance usually consists of gyros, integrating accelerometers, and related devices.

**PRESS, ARBOR, HAND OPERATED.** A hand-operated mechanical device which performs various functions of bending, straightening, arbor and mandrel pressing and removing.*

**PRESS, ARBOR, POWER OPERATED.** A power-operated mechanical device which performs various functions of bending, straightening, arbor and mandrel pressing and removing.*

**pressed loading.** A loading operation in which bulk material, such as an explosive in granular form, is reduced in volume by the application of pressure. Cf: **melt loading.**

**pressure altitude.** 1. Generically, altitude above the standard datum plane, as determined by applying the standard pressure lapse rate to the atmospheric pressure at altitude. 2. Either indicated pressure altitude or calibrated pressure altitude. 3. A simulated pressure altitude (sense 1) inside a low-pressure chamber. Pressure altitude (sense 1) is the same as true altitude only when the pressure lapse rate is standard. Cf: **true altitude.**

**pressure, base.** The aerodynamic pressure exerted on the base or rear end of a missile in flight.

**pressure, center of.** *Ballistics.* The point where the resultant force caused by air resistance intersects the axis of the projectile.

**pressure, dynamic.** The pressure exerted by a gas, liquid, or solid solely by virtue of its relative motion when it strikes an object.

For example in a pitot-static tube, dynamic pressure is that part of the impact pressure derived from the relative motion of the air, as distinguished from that derived from atmospheric pressure.

**pressure firing device.** See: **firing device.**

**pressure gage.** See: **GAGE** (as modified); **INDICATOR, PRESSURE; manometer.**

**pressure, impact.** The pressure existing when a moving stream of gas strikes a surface which brings part of the gas abruptly to rest. This recovered pressure is roughly equivalent to the stagnation pressure, for subsonic flow.

**pressure, injection.** See: **injection pressure.**

**pressure microphone.** *Electroacoustics.* A microphone in which the electric output substantially corresponds to the instantaneous sound pressure of the impressed waves. See: **MICROPHONE, DYNAMIC.**

A pressure microphone is a gradient microphone (see: **gradient microphone**) of zero order and is non-directional when its dimensions are small compared to a wavelength.

**pressure ratio, critical.** See: **critical pressure ratio.**

**pressures, gun.** Pressures within a gun tube or barrel, as used in design practices.

Because of the wide variations in size, wall ratios, heat dissipation, required factors of safety, etc., design practices vary for the different types of weapons. Some pressure terms having significance in the design of (a) all tubes and barrels, (b) cannon tubes, (c) recoilless rifle tubes, and (d) small arms barrels, are given below.

(a) *For All Tubes and Barrels*

**chamber pressure.** The pressure existent within the gun chamber at any time as a result of the burning of the propellant charge. This pressure normally varies from atmospheric pressure at the time of ignition to a peak pressure which is attained when the projectile has traveled a very short distance, decreasing steadily until the projectile emerges from the muzzle. It then drops quickly to atmospheric pressure again.

(b) *For Cannon Tubes*

**elastic strength pressure.** (ESP) Computed true internal gas pressure in a gun at any given cross section thereof that will stress the metal at the inner layer of the wall at that section tangentially up to the minimum elastic limit of the metal from which the inner layer is made. Normally required to be at least 1.5 times the computed maximum pressure.

**maximum pressure.** Maximum value of the pressure exerted by the propellant gases on the walls of a gun during the firing of a round.

**computed maximum pressure.** (CMP) Value of maximum pressure computed by means of interior ballistic formulas and which it is desired will be developed when a new gun of the particular type is fired under standard conditions, with a propelling charge which will give to the projectile its rated muzzle velocity.

**rated maximum pressure.** (RMP) Value of maximum pressure specified in the propellant specifications as the upper limit of average pressure which may be developed by an acceptable propellant in the form of propelling charges which will impart the specified muzzle velocity to the specified projectile. Normally about 2000 psi above the computed maximum pressure, subject to determination at the time of development.

**lower acceptable mean maximum pressure.** (LAMMP) Value of maximum pressure specified in the propellant specifications as the lower limit for the average of the maximum pressures developed by acceptable propellant in propelling charges that will impart the specified muzzle velocity to the specified projectile. Normally about 4000 psi under the computed maximum pressure, subject to determination at the time of development.

**permissible mean maximum pressure.** (PMMP) Value which should not be exceeded by the average of the maximum pressures developed in a series of rounds fired under any service conditions. Normally established as 1.08 times the rated maximum pressure.

**permissible individual maximum pressure.** (PIMP) Value which should not be exceeded by the maximum pressure developed by any individual round under any service condition. Normally established as 1.15 times the rated maximum pressure.

(c) *For Recoilless Rifle Tubes*

**elastic strength pressure.** (ESP) The gas pressure that will produce an equivalent stress (based on distortion-energy criteria) at some point in the gun that is equal to the minimum elastic limit of the material at ambient temperature.

**elastic strength pressure (hot).** (ESP (hot)) A reduced elastic strength pressure; the reduction is made to allow for the decreased elastic limit of the gun materials at elevated temperatures.

**computed maximum pressure.** (CMP) The gas pressure which is computed by means of interior ballistic formulas to be the maximum gas pressure developed by the gun under standard conditions and rated muzzle velocity.

**rated maximum pressure.** (RMP) The gas pressure which should not be exceeded by the average of the maximum pressures developed by a group of firings which will impart the specified muzzle velocity to the specified projectile. If the RMP is exceeded, the propellant lot is considered unacceptable.

**lowest acceptable mean maximum pressure.** (LAMMP) The gas pressure which should be equalled or exceeded by the average of the maximum pressures developed in a series of rounds which meet the muzzle velocity requirements.

**permissible mean maximum pressure.** (PMMP) The gas pressure which should not be exceeded by the average of the maximum pressures developed in a series of rounds fired under any service conditions.

**permissible individual maximum pressure.** (PIMP) The gas pressure which should not be exceeded by the maximum pressure developed by any individual round under any service condition.

(d) *For Small Arms Barrels*

**maximum (or peak) chamber pressure.** Maximum value of pressure induced in the chamber as determined with the help of a copper crusher gage or with a piezoelectric gage. Comparison has shown that copper pressures should be multiplied by 1.2 to give true peak pressures.

**residual chamber pressure.** Pressure in chamber from time of bullet exit.

**barrel pressure.** Value of pressure induced by the propellant gases at any barrel position and at the time that the bullet bypasses the particular position. May be calculated with the help of the simultaneous chamber pressure.

**maximum barrel pressure.** Value of pressure induced by the propellant gases at a barrel position just passed by the bullet, and at a time that peak pressure exists in the chamber.

**proof pressure.** This pressure is about 20 percent larger than that induced by the service round. If used for barrel design purposes, it provides some margin of safety.

**pressure, stagnation.** Static pressure that could be realized if the flow could isentropically be brought to rest. It depends upon the static pressure, the mach number, and kind of gas. At low mach numbers, it approaches the sum of the static pressure and the incompressible velocity head but is increasingly greater than this sum at higher mach numbers.

**pressure, static.** The pressure which is exerted by a gas at rest, or which would be indicated by a gage placed in the stream and moving with the same speed as the stream. The static pressure for a given gas is determined by the density and the temperature.

**pressure-travel curve.** Curve showing pressure plotted against the travel of the projectile within the bore of the weapon.

**PRESS, WIRE ROPE, POWDER ACTUATED.** A tool which utilizes an explosive charge to compress a fitting or splicing sleeve to wire rope. In operation the tool is not fixed but is controlled by hand. The item is suitable for use under water as well as above water.*

**preventive maintenance.** (PM) The systematic care, servicing, and inspection of equipment and facilities for the purpose of maintaining them in serviceable condition and detecting and correcting incipient failures.

**Primacord.** Trade name for a type of CORD, DETONATING, utilizing PETN as the explosive filler.

**Primacord net.** See: **detonating net.**

**primary armament.** See: **primary weapon.**

**primary blast injuries.** Those injuries incurred as a direct result of the pressures of the blast or shock wave.

**primary bomb damage.** Physical bomb damage. See: **bomb damage** (sense 1).

**primary coil.** The input coil or winding of a transformer.

**primary gun.** Principal or main gun, especially of a tank or other armored vehicle.

**primary high explosive.** An explosive which is extremely sensitive to heat and shock and is normally used to initiate a secondary high explosive. A primary explosive is capable of building up from a deflagration to detonation in an extremely short distance and time; it can also propagate a detonation wave in an extremely small diameter column. The term is generally used in referring to a pure compound and not to an explosive mixture. It has been suggested (Bowden and Yoffe) that primary explosives can be defined on the basis that upon slow heating they will decompose explosively while still in the solid state, while secondary high explosives will melt before undergoing an explosive reaction. This characteristic is true for mercury fulminate, lead azide, lead styphnate and tetracene; however, data are not available for all primary explosives. (*Note*: Some authorities recognize the term as 'primary explosive' but not as 'primary high explosive,' maintaining that 'hign explosive' is an entirely separate entity.) Cf: **secondary high explosive.**

**primary ignition system.** *Automotive.* The originating or low voltage section of the ignition system—from battery or magneto to coil.

**primary sample.** *Armor plate.* A flat plate produced in order to sample resistance to penetration and resistance to shock tests, for each lot. Primary

sample is 36" × 36". One is required for each group of plates of the same thickness from the same mill heat.

**primary structure.** *Missiles.* The main framework, including fittings and attachments. Any structural member the failure of which would seriously impair the safety of the missile is a part of the primary structure.

**primary weapon.** The principal arm of a combat unit. The rifle is the primary or basic weapon for an infantry rifle company, as compared with grenades or chemical projectiles, which are secondary or auxiliary weapons in such an organization.

**prime.** To introduce fuel into the induction system of an engine preparatory to starting the engine.

**prime contract.** A contract, agreement, or, in some cases, a purchase order entered into by a contractor with the United States Government.

**prime contractor.** A contractor whose contract is directly with the Government. Distinguished from a subcontractor. Often called the 'contractor' for short. Cf: **subcontractor.**

**prime mover.** In a contrivance of two or more moving parts, that unit considered to be the source, or principal source, of energy for movement, as with a tractor pulling a trailer truck.

**primer.** A relatively small and sensitive initial explosive train component which on being actuated initiates functioning of the explosive train and will not reliably initiate high explosive charges. In general, primers are classified in accordance with the method of initiation; such as, percussion, electric, friction, etc. Primer is also used as a term referring to the assembly which ignites propelling charges. Primers exist in various forms and types, some of which are listed and defined in suitable entries below. See also: **DETONATOR** (as modified).

**primer, artillery.** Term applied to a **primer** (which see) provided to effect ignition of the propellant charge of an artillery weapon. In ammunition employing a cartridge case, the primer is contained in the cartridge case. For separate loading ammunition the primer is inserted in the breechblock. Consists of a charge of heat producing material, such as black powder, together with means for igniting the charge, and a metal housing to permit it to be handled as a unit. Artillery primers are classified by the method of initiation, as percussion, electric, friction, and combination percussion-electric.

**PRIMER ASSEMBLY, PERCUSSION, ROCKET MOTOR.** An item consisting of one or more adapter(s), knob(s), nut(s), or the like, mounted on a PRIMER, PERCUSSION to specifically adapt it for ROCKET MOTOR installation. See also: **PRIMER** (as modified).*

**primer, blown.** A primer that, when the cartridge is fired, is entirely blown from the head of a small arms cartridge case. This is one of the most serious defects found in a cartridge.

**primer, cannon.** Term applied to **primer** (which see) used with separate-loading ammunition.

**primer, case.** Term applied to **primer** (which see) intended to be assembled into the cartridge case of case ammunition.

**primer cup.** A small metal cup, into which the primer mixture is loaded. See: **primer; primer mixture.**

**primer-detonator.** A unit, in a metal housing, in which are assembled a primer, a detonator, and when indicated, an intervening delay charge.

**PRIMER-DETONATOR, FUZE, BOMB.** A metallic device designed to contain a combination of explosive charges for assembly into a fuze to initiate the detonation wave in the explosive train of a bomb. It may be empty for use in training.* See: **primer-detonator.**

**PRIMER, ELECTRIC.** A primer (which see) designed for initiation by an electric current.

**PRIMER, ELECTRIC AND PERCUSSION.** A primer (which see) designed for initiation either by impact of a firing pin, or by electric current, as desired.

**primer, friction.** Type of primer (which see) that is fired by pulling a toothed wire or plug through an explosive mixture. Largely supplanted by PRIMER, ELECTRIC and PRIMER, PERCUSSION.

**PRIMER-IGNITER, MINE FUZE.** An item consisting of a priming device and an igniting device designed to initiate explosive action of an antipersonnel mine.*

**primer, igniting.** An auxiliary primer that carries the fire from a primer to the propelling charge in certain subcaliber tubes.

**primer leak.** Defect in a cartridge which allows partial escape of the hot propelling gases in a primer, caused by faulty construction or an excessive charge.

**primer, lock.** Term applied to **primer** (which see) intended to be placed by hand in the firing lock of a gun. It is used for initiation of the ignition of bag charges.

**primer, long.** Term applied to **primer** (which see) with relatively long body, designed to provide central ignition for a propelling charge. Such a primer is used in a central tube ignition system. See also: **ignition system, central tube.**

**primer mixture.** An explosive mixture containing a sensitive explosive and other ingredients, used in a primer.

**primer mixture, conductive.** **Primer mixture** (which see) containing a small amount of conductive material, such as carbon, used in a bridgeless type PRIMER, ELECTRIC. The heat necessary for firing the primer is generated by the resistance offered to the flow of the firing current through the mixture.

**PRIMER, PERCUSSION.** Any **primer** (which see) designed to be initiated by percussion.

**PRIMER, PERCUSSION, INERT.** A PRIMER, PERCUSSION in which the explosive components are simulated by inert components.

**primer pouch.** Container that holds the primer used in firing with separate-loading ammunition.

**primer seat.** Chamber in the breech mechanism of a gun that uses separate-loading ammunition, into which the primer is set.

**primer setback.** The backward movement of a primer cup in a cartridge case which occurs when the base of the cup is not properly supported by the bolt face or breechblock.

**priming composition.** A physical mixture of materials that is very sensitive to impact or percussion and, when so exploded, undergoes very rapid autocombustion. The products of such an explosion are hot gases and incandescent solid particles. Priming compositions are used for the ignition of primary high explosives, black powder igniter charges, propellants in small arms ammunition, etc.

**priming pump.** A device on motor vehicles and tanks, providing a means of injecting a spray of fuel into the engine to facilitate starting.

**principal item.** Item which, because of its major importance, requires detailed analysis and examination of all factors affecting its supply and demand, as well as an unusual degree of supervision. Its selection is based upon such criteria as strategic importance, high monetary value, unusual complexity of issue, and procurement difficulties. See: **secondary item.**

**principal lateral deflection angle.** See: **lateral deflection angle.**

**principal vertical deflection angle.** See: **vertical deflection angle.**

**printed cable.** Electrical cable produced by same general process as used in producing a **printed circuit**, which see.

**printed circuit.** An electronic circuit which is reproduced, in whole or in part, by procedures which are classified as printing techniques. These techniques differ in detail, but all have as their objective the rapid, automatic and inexpensive reproduction of electronic circuits in a usable form.

**prior-art search.** 1. A search for prior-art which may possibly anticipate an invention which is being considered for patentability. Cf: **patent search.** 2. A similar search but for the purpose of determining what the status of existing technology is before going ahead with new research—done to avoid unwittingly retracing steps taken by other workers in the field.

**prismatic compass.** Magnetic compass combined with a sighting device, used to measure angles. It is equipped with a prism to assist in reading the scale while sighting. It may be equipped with a clinometer for measuring vertical angles.

**prismatic lens.** A lens with parallel grooves or flutes which deflect and distribute light rays.

**PRISM, OPTICAL INSTRUMENT.** A transparent item with at least two polished plane faces inclined toward each other, designed for use in optical instruments to reflect and/or refract a beam of light in an optical system. It may have one or more mirrored faces for greater reflection. Also includes optical wedges used to divert paths of light by refraction, but to a lesser degree.* When light is refracted by a prism, it is deviated or bent toward the thicker part of the prism.

**probability factor.** A factor used as an argument in entering the probability tables. It is equal to the error not to be exceeded, divided by the probable error.

**probable.** An instance in which a hostile aircraft is probably destroyed; the hostile aircraft so designated.

**probable error.** (PE) 1. *General.* A value that any given error will as likely fall under as exceed. 2. *Gunnery.* Measure of the impact distribution in the dispersion pattern around the center of impact; dimensionally expressed in firing tables as one interval of the dispersion ladder. See: **range probable error.**

**PROBE LIGHT KIT, INSPECTION.** A group of items used to illuminate small bores, cavities, and the like, for purposes of internal inspection.*

**proc** *(abbr).* 'Procurement.'

**process control.** A process inspection technique based on statistical methods which makes possible the diagnosis and correction of production troubles at the earliest point in the process before defective material has been produced.

**PROCESSED GLASS.** A flat, relatively thin, light-diffusing, translucent glass, one side of which has been processed after annealing to produce a rough surface.*

**processing.** 1. Series of related steps taken in the segregation, identification, classification and preparation of records of materiel or equipment. 2. Treatment of materiel or equipment to prevent its deterioration, including cleaning, drying, applying paint or preservative compounds, sealing and packaging.

**process inspection.** See: **in-process inspection.**

**procurement.** (proc) 1. In a broad sense, the complete action or process of acquiring or obtaining personnel, materiel, services, or property from outside a military service by means authorized in pertinent directives. 2. More specifically, the action or process of acquiring or obtaining materiel, property, or services at the operational level, i.e., purchasing contracting, and negotiating directly with the source of supply.

**procurement lead time.** (prolt) The time elapsing between the initiation of procurement action and the receipt into the supply system of the materiel procured.

**product engineering.** Translation of the development design into one suitable for efficient manufacture in the desired quantities and for the conditions of specified usage, handling, and life; the development and preparation of functional ordnance designs and/or specifications which are not only sufficiently clear and complete to represent the requirements and intent of research, but are also prepared in such manner as to facilitate efficient manufacture with the minimum of modification.

Product engineering includes such liaison with and direction over production engineering as to insure that the end product is suitable for service use.

**production.** 1. The act or process of producing, esp. of gathering and fabricating raw materials into finished articles. 2. In a restricted sense, the act or process of manufacturing finished articles. 3. That which is produced.

In sense 1, administrative actions or processes such as scheduling, inspection, and inventory control, concomitant with the actual producing, are considered a part of production.

**production engineering.** 1. Consultation with product engineering on prototype or functional developments and designs and specifications and the making of recommendations that will promote maximum efficiency and economy in manufacture. 2. Participation in an advisory or consulting capacity in the

preparation of detailed manufacturing drawings and specifications from which the item can be most efficiently manufactured, having in mind not only the limited production required in time of peace but also the high rate of production with unskilled workers which is required in time of war. 3. The performance of the engineering function incident to efficient manufacture, such as tool and gage engineering, method engineering, process engineering, production research, job standards. See also: **inspection engineering.**

**production model.** A model in its final mechanical and electrical form of final production design made by production tools, jigs, fixtures and methods.

**production prototype.** See: **prototype (preproduction) model.**

**production requirements.** The sum of authorized stock levels and pipeline needs less stocks expected to become available, stocks on hand, stocks due in, returned stocks, and stocks from salvage, reclamation, rebuild, and other sources.

**profile drag.** That part of the airfoil drag that results from the skin friction and the shape of the airfoil as indicated by the airfoil profile.

**profile thickness.** The maximum distance between the upper and lower contours of an airfoil, measured perpendicular to the mean line of the profile.

**program.** 1. *Electronic computers.* A plan for the solution of a problem. A complete program includes plans for the transcription of data, coding for the computer and plans for the absorption of the results into the system. The list of coded instructions is called a *routine;* to plan a computation or process from the asking of a question to the delivery of the results, including the integration of the operation into an existing system. Thus programming consists of planning and coding, including numerical analysis, systems analysis, specification of printing formats, and any other functions necessary to the integration of a computer system. 2. *Missile guidance.* The planned flight path events to be followed by a missile in flight. These events include all the critical functions, preset in a **program device** (which see), which control the behavior of the missile.

**program device.** *Missile guidance.* The automatic device used to control time and sequence of events of a **program** (which see).

**programmer.** See: **program device.**

**PROGRAMMER, COURSE.** An item which initiates and processes signals in a manner so as to establish a vehicle in which it is installed along one or more preselected courses.*

**progressive burning.** See: **progressive granulation.**

**progressive granulation.** Propellant granulation in which the surface area of a grain increases during burning. The burning of a propellant with progressive granulation is termed 'progressive burning.' Cf: **degressive granulation; neutral granulation.**

**proj** *(abbr).* 1. 'Projectile.' 2. 'Project.'

**project.** (proj) A specifically defined task within a research and development field, which is established to meet a single military requirement, either stated or anticipated, for research data, an end item of materiel, a major component, or a technique.

**projectile.** (proj) 1. *General.* A body projected by exterior force and continuing in motion by its own inertia. 2. *Specif.* A **missile** (sense 1) for use in any type of **gun** (sense 1). In the general sense the term is sometimes applied to rockets and guided missiles, although they may not fall within the stated definition. In sense 2, the term 'projectile' is preferred over 'shell,' 'shot,' and the like, in official nomenclature.

**PROJECTILE AND PROPELLING CHARGE, 120 MILLIMETER.** An item, consisting of a projectile and a propelling charge in a cartridge case, boxed and issued as a unit, to provide all material required to fire a 120-millimeter weapon once.

**projectile, arrow.** A relatively long projectile which is designed to be fired from a gun of a caliber considerably larger than the diameter of the projectile body. It is stabilized by fins having a span approximately that of a caliber of the gun. This design is made for the purpose of increasing the velocity, to decrease the time of flight, and/or increase the striking energy of the projectile.

**projectile, colored marker.** Projectile loaded with a charge consisting primarily of organic dye, and provided with a burster charge. Upon impact the projectile is ruptured and the dye is dispersed and vaporized by the heat of explosion. The dye then resolidifies in the air, forming a colored smoke cloud, which serves as a marker and/or target indicator to supporting ground and air forces.

**projectile, common.** A penetrating type projectile containing a bursting charge of high explosive, intended to explode after passing through the lighter protective armor of a vessel.

**projectile, composite rigid.** An armor-piercing projectile consisting of a core of heavy, hard material, such as tungsten carbide, contained within a nonseparable carrier of lightweight material, such as aluminum. The carrier is termed a 'sabot.' See also: **hypervelocity armor-piercing; sabot.**

**projectile, concrete piercing.** Projectile especially designed or adapted for penetrating concrete and other similarly resistant targets.

**projectile, drill.** An inert projectile of the same weight, center of gravity, and essential contour as the service separate loading projectile, designed or adapted for drill purposes.

**projectile, drive fastener, powder actuated.** See: **PIN, DRIVE, POWDER ACTUATED.**

**projectile, dummy.** Projectile that has no explosive charge. Dummy projectiles are used for practice and training purposes.

**projectile, fragment simulator.** Projectile which simulates the action of a fragment. Used in ballistic tests at the proving ground.

**projectile, high capacity.** A projectile with thin walls and high explosive loading, for use where no special penetrative qualities are required.

**projectile, high explosive.** Projectile with a bursting charge of high explosive.

**projectile, high explosive plastic.** (HEP projectile) A thin-walled projectile, filled with plastic explosive. The projectile is designed to 'squash' against an armored target before detonation, and to defeat the

armor by producing spalls which are detached with considerable velocity from the back of the target plate. Also called 'squash head,' especially by the British. See: **high explosive plastic.**

**projectile, illuminating.** Projectile, with a time fuze, that releases a parachute flare at any desired height. Used for lighting up an area. Popularly called 'star shell.' See: **flare, parachute.**

**PROJECTILE, 5 INCH 51 CALIBER.** A projectile intended for firing from 5-inch 51-caliber weapons. (Names of projectiles for other Naval weapons are formed in a similar manner where the caliber of the weapon is similarly designated.)

**PROJECTILE, 6 INCH.** A projectile intended for firing from 6-inch weapons. (Names of projectiles for weapons of other calibers are formed in a similar manner where the caliber of the weapon is similarly designated, i.e., in inches.)

**projectile, leaflet.** A projectile designed for, or adapted to, use as a carrier for leaflets.

**PROJECTILE, LINE THROWING GUN.** A special projectile for use in the Lyle Lifesaving Gun, caliber .45/70, a smooth bore shoulder rifle used for line throwing. The projectile is a steel, club-shaped rod and the rear end fits into a special blank cartridge. The forward end of the projectile has an eye machined into it, for attachment of one end of the line. See also: **CARTRIDGE, CALIBER .45 LINE THROWING.**

**PROJECTILE, 60 MILLIMETER.** A projectile intended for firing from 60-millimeter weapons. (Names of projectiles for weapons of other calibers are formed in a similar manner where the caliber of the weapon is similarly designated, i.e., in millimeters.)

**projectile, monobloc.** Armor-piercing projectile which consists of one piece of steel, suitably heat treated. May be provided with a false ogive to decrease air resistance.

**projectile, multipurpose.** A projectile designed so that the type of payload can be changed. This is accomplished by using prepared loads in canister form and providing a removable base plug to permit change of canister. Thus a canister containing colored smoke mixture can be replaced by, for instance, one containing leaflets.

**projectile, nonfragmenting.** Projectiles for antiaircraft gun practice, containing a smoke producing substance, available in various colors, which makes it possible to observe the burst without close bursts destroying the target.

**projectile, overmatching.** See: **overmatching projectile.**

**projectile, proof.** Special projectile for use at proving grounds, usually consisting of a solid, blunt nosed projectile of low cost. It duplicates the standard projectile in weight and location and type of rotating band so that it may be used in developing propelling charges as well as for proof firing of guns. Often called 'proof slug.'

**projectile rammer.** See: **rammer.**

**projectile, smoke.** Any projectile containing a smoke producing chemical agent with means for properly dispersing the agent.

**projectile, squeeze bore.** See: **projectile, tapered bore.**

**projectile, tapered bore.** A projectile intended for firing in a gun tube having a tapered bore (squeeze bore), as a means of obtaining increased velocity. See: **tapered bore.**

**projectile, target practice.** Projectile suitable for target practice use. Usually has same size, shape, and weight as a projectile actually used in service. Some models are inert; others contain a smoke puff charge. Sometimes called merely 'target projectile.'

**projectile, training.** Projectile used in instruction and drill, often one that contains no explosive. Some training projectiles may be used more than once.

**projector.** 1. *General.* Any apparatus for launching a projectile, such as a gun or rocket launcher. 2. Smooth bore type barrel or other unrifled weapon from which pyrotechnic signals, grenades, and certain mortar projectiles are fired. 3. A rack for launching target rockets. 4. Special type of gun for projecting antisubmarine projectiles.

**PROJECTOR, AIMING POST REFLECTOR LIGHT.** A device used to project a light beam, which is reflected back to an observer from a REFLECTOR, AIMING POST. It must have facilities to connect the item to an external power source. It may include a set of adapters which facilitate connection to various types of telescopes, sightunits, mounts, or the like. Excludes PROJECTOR, INSTRUMENT LIGHT.*

**PROJECTOR CHARGE, HIGH EXPLOSIVE, 7.2 INCH.** A missile which is propelled by an explosive cartridge from a projector. The missile consists of a head, a tail assembly, a means of stabilization, and a fuze. Excludes rockets and missiles whose trajectory can be altered in flight.*

**PROJECTOR CHARGE, INERT, 7.2 INCH.** A missile similar to a PROJECTOR CHARGE, HIGH EXPLOSIVE, 7.2 INCH except that it is without explosive components in fuze, head, or tail assembly. Excludes rockets and missiles whose trajectory can be altered in flight.*

**PROJECTOR CHARGE, PRACTICE, 7.2 INCH.** A missile similar to a PROJECTOR CHARGE, HIGH EXPLOSIVE, 7.2 INCH except that it is without a fuze and the head is filled with a practice charge or with an inert material. The tail assembly contains an explosive cartridge. Excludes rockets and missiles whose trajectory can be altered in flight.*

**PROJECTOR, PYROTECHNIC, HAND.** A manually-operated, muzzle-loading, barrel-type projector used for projecting flares or signals. It is fired by striking the hand knob against the hand, ground or other object. Excludes PROJECTOR, SIGNAL, GROUND.*

**PROJECTOR, RETICLE IMAGE.** An electromechanical device designed for use in a fire control system, to project a specific illuminated reticle image into the field of view of an optical instrument when the physical reticle is not included in the optical system.*

**PROJECTOR, SIGNAL, GROUND.** A manually-operated, muzzle-loading projector used for projecting high-burst ranging signals from the ground. Excludes PROJECTOR, PYROTECHNIC, HAND and PISTOL, PYROTECHNIC.*

**prolonge.** Rope, with a hook or loop at one end, with which soldiers can move a vehicle or gun carriage into position.

**prolt** *(abbr).* 'Procurement lead time.'

**Prony brake.** A form of friction brake or dynamometer in which the pull on the flywheel friction blocks is measured by a spring balance or weighted lever. See also: **brake horsepower.**

**proof.** The **ballistic test** (which see). For propellants, proof also includes chemical and stability tests.

**proof firing.** The firing of certain rounds for the purpose of testing the serviceability of a weapon or its mount.

**proof mark.** Distinguishing mark on weapon to indicate inspection and proof firing.

**proof pressure.** See: **pressures, gun.**

**proof projectile.** See: **projectile, proof.**

**propaganda shell.** See: **projectile, leaflet.**

**propagation.** Extending the action of; transmitting, carrying forward, in space or time or through a medium, as the propagation of sound or light waves.

**propagation, radio, velocity of.** See: **radio propagation, velocity of.**

**propellant.** A propelling agent; specifically, a low explosive substance or mixture of substances which, through burning, can be made to produce gases at controlled rates and to provide the energy necessary to propel a projectile or missile. Propellants may be classified as liquid propellants and solid propellants according to physical state. Liquid propellants, used primarily in rocket engines, may be classified as **monopropellants, bipropellants,** and sometimes **multipropellants,** according to the number of unmixed chemicals fed to the combustion chamber. Solid propellants, used primarily in gun type weapons and rocket motors, may be classified either as nitrocellulose based propellants or composite propellants. Nitrocellulose based propellants are further classified according to the number of basic explosives which they contain. A single base propellant contains only one explosive ingredient, normally nitrocellulose. A double base propellant contains two explosive ingredients, commonly nitrocellulose and nitroglycerin. A composite propellant consists of an inorganic oxidizer in powder form, thoroughly mixed with an organic fuel which solidifies and acts as the binder. See also: **composite propellant; liquid propellant; PROPELLANT GRAIN; pyropropellant.**

When used as the basic noun in item names, the following definition of 'propellant' is currently prescribed by *Cataloging Handbook H6-1:* A liquid chemical, liquid petroleum, combination of liquid chemicals or a combination of liquid chemicals and liquid petroleum manufactured specifically for use as a fuel and/or oxidizer in a ROCKET ENGINE.

**propellant actuated device.** (PAD) A device that employs the energy supplied by the gases produced by burning propellants to accomplish or initiate a mechanical action other than propelling a projectile. These devices are compact packages, usually with self-contained power sources for supplying mechanical energy in the form of rectilinear or rotary motion and can be mechanically, gas, or electrically triggered. The power source is frequently in the form of a special cartridge (see: **CARTRIDGE, ACTUATING DEVICE**). For this reason the devices were formerly known as cartridge actuated devices. Specific names are assigned to the devices, according to their purposes. Examples: CATAPULT, AIRCRAFT EJECTION SEAT; REMOVER, AIRCRAFT CANOPY; THRUSTER, CARTRIDGE ACTUATED.

**PROPELLANT, ANILINE-FURFURYL ALCOHOL.** A propellant consisting of aniline and furfuryl alcohol of specific quantities. It may include other chemical additives or impurities.*

**propellant chamber.** See: **chamber.**

**propellant charge.** See: **charge, propelling.**

**propellant condition test kit.** See: **TEST KIT, PROPELLANT CONDITION.**

**propellant, cool.** A propellant which burns with a relatively low temperature, thus making it easier to obtain flashlessness and reducing gun tube erosion.

**PROPELLANT DRAINING KIT, GUIDED MISSILE.** An item consisting of adapters, fittings, nozzles, vent pipes, hose assemblies, and the like, designed to facilitate draining guided missile propellant tanks.*

**PROPELLANT, ETHYLENE OXIDE.** A propellant having a minimum assay by weight of 99.9 percent ethylene oxide (by difference) with a maximum water and aldehyde content of not over 0.03 percent. Excludes ETHYLENE OXIDE, TECHNICAL.*

**PROPELLANT, ETHYL NITRATE-n-PROPYL NITRATE.** A propellant having a minimum assay by weight of 58 percent ethyl nitrate and 38 percent n-propyl nitrate and a maximum assay by weight of 62 percent ethyl nitrate and 42 percent n-propyl nitrate with a maximum water content by weight of not over 0.1 percent.*

**PROPELLANT FILLING KIT, GUIDED MISSILE.** An item consisting of adapters, fittings, nozzles, vent pipes, hose assemblies, and the like, designed for filling guided missile propellant tanks.*

**propellant fouling.** Bits of unburned or partially burned propellant left in the bore after firing. Formerly called 'powder fouling.'

**propellant fraction.** See: **propellant weight fraction.**

**PROPELLANT GRAIN.** A solid preformed item specifically designed to produce the required propulsion effect in nonairbreathing reaction propulsion devices. It consists of all of the ingredients necessary for sustained combustion. It may be a heterogeneous mixture of an oxidizing agent and a fuel, or it may be a chemical composition which provides its own oxidizer.* See: **propellant.**

**propellant granulation.** See: **granulation.**

**PROPELLANT, HYDRAZINE.** A propellant having a minimum assay by weight of 97 percent hydrazine.*

**PROPELLANT, HYDROGEN PEROXIDE.** A propellant having a minimum assay by weight of 90 percent hydrogen peroxide.*

**propellant increment charge.** See: **CHARGE, PROPELLANT INCREMENT.**

**propellant injector.** *Specif.* A device for injecting propellants, which includes fuel and oxidizer, into the combustion chamber of a rocket engine.

**PROPELLANT, KEROSINE.** A propellant consisting of highly refined low aromatic liquid petroleum distillate with a gravity range not exceeding three degrees American Petroleum Institute gravity at sixty degrees Fahrenheit. It may contain additives. Excludes KEROSINE and JET FUEL.*

**propellant mixture, guided missile.** See: **PROPELLANT** (as modified).

**PROPELLANT, NITRIC ACID.** A propellant consisting of fuming nitric acid containing various amounts of nitrogen dioxide and with or without hydrofluoric acid inhibitor.*

**PROPELLANT, NITROGEN TETROXIDE.** A propellant having a minimum assay by weight of 99.5 percent nitrogen tetroxide.*

**propellant nozzle.** See: **nozzle.**

**PROPELLANT, n-PROPYL NITRATE.** A propellant having a minimum assay by weight of 95 percent n-propyl nitrate with a maximum water content by weight of not over 0.03 percent.*

**PROPELLANT, OXYGEN.** A propellant having a minimum assay by volume of 99.9 percent oxygen when gasified. Excludes OXYGEN, LIQUID.*

**propellant powder.** A low explosive of fine granulation which, through burning, produces gases at a controlled rate to provide the energy for propelling a projectile. Restricted to small arms propellants, for which the grain size is small. In larger grain form it is called simply 'propellant' or 'propellant grain.' See also: **powder; propellant; PROPELLANT GRAIN.**

**PROPELLANT SHUTOFF, GUIDED MISSILE.** A self-contained emergency control unit designed to instantaneously disable the propulsion system of a guided missile.*

**propellant, solid, guided missile** See: **PROPELLANT GRAIN.** See also: **propellant.**

**propellant tag.** Linen tag attached to a propellant bag, carrying information about the propellant charge, such as the name of the loading plant, the date of loading, and the caliber and model of the gun for which it was made. Formerly called 'powder tag.'

**PROPELLANT, uns-DIMETHYLHYDRAZINE.** A propellant having a minimum assay by weight of 98 percent unsymmetrical dimethylhydrazine with a maximum water content of not over 0.3 percent.*

**PROPELLANT, uns-DIMETHYLHYDRAZINE-JET FUEL.** A propellant consisting of unsymmetrical dimethylhydrazine and jet fuel of specific quantities. It may include other chemical additives or impurities.*

**propellant weight fraction.** The weight of the solid propellant charge divided by weight of the complete solid propellant propulsion unit. Cf: **charge weight ratio.**

**propellant weight ratio.** See: **propellant weight fraction.**

**propellent.** Driving forward, able or tending to propel. Should not be used as a noun in place of **propellant** (which see).

**PROPELLER SHAFT.** A shaft designed to accommodate a UNIVERSAL JOINT at one or both ends.* *Specif.* In automotive vehicles it is the shaft making the driving connection between the transmission and the driving axle.

**propelling charge.** See: **charge, propelling.**

**propelling charge explosive train.** See: **explosive train.**

**proportional control.** See: **control, proportional.**

**proportional limit.** The greatest unit stress which a metal is capable of withstanding without deviating from the law of proportionality of stress to strain.

**proprietary item.** An item in which the owner has a property right or interest enabling him in accordance with recognized principles of law to exclude others from its use or to authorize use thereof subject to such restrictions as he may appropriately impose. This often means that the item is obtainable only from a single source of supply.

**proprietary rights.** Those personal properties or other rights subsisting in the product of an originator's mental effort which may be established by statute, common law, or agreement, and includes, but is not limited to, rights in inventions and/or designs, either patented or unpatented; trade-secrets and know-how comprising technical data in the form of reports, drawings, blueprints, data, and technical information, and material subject to copyright, such as the literary and artistic work of authors or proprietors. See: **proprietary item.** See also: **Ordnance Proprietary Rights Board.**

**propulsion.** (prpln) See: **bifuel propulsion; jet propulsion; monofuel propulsion; reaction propulsion; rocket propulsion.**

**propulsion system.** *Missiles.* A complete missile propulsion mechanism generally operates in two phases; the launching phase and the cruising phase. During the launching phase, the missile is accelerated to cruising speed by a unit of high thrust called a 'booster unit' or JATO. During the cruising phase, a unit of relatively lower thrust (sometimes called a 'sustainer unit') is used to keep the missile at the desired flight speed. The complete propulsion system may employ only 1 of the 2 phases or both, depending on the target, missile, and tactical mission. There are four basic propulsion units that have or may have application to guided missiles. They are rocket, pulsejet, ramjet, and turbojet motors. Each of these have their own characteristics which determine their use.

**propulsive force.** A force that drives or impels.

The propulsive force of a gun results from the energy released by burning the propellant; that of an airplane from the energy of its fuel.

**protection complete penetration.** Penetration in which a fragment or fragments of either the impacting projectile or the plate are thrown to the rear of the plate with sufficient energy to perforate a .020-inch aluminum-alloy, 24ST, sheet, or its equivalent, when placed so as to receive those fragments passing from the rear of the plate. When it is possible to observe

that these conditions are being met without the use of the sheet, as in heavier plate testing, the sheet is omitted.

**protection partial penetration.** Penetration which approaches but does not fulfill the requirements for **protection complete penetration.**

**protective clothing.** Especially constructed and/or chemically treated clothing to protect individuals against liquid blister gas and blister gas vapor and against certain biological agents. It includes permeable protective clothing and impermeable protective clothing.

**protective fire.** Fire delivered by supporting guns and directed against the enemy to hinder his fire or movement against friendly forces.

**PROTECTOR, BOMB PARACHUTE.** A device designed to prevent damage to a parachute during installation in a bomb.*

**PROTECTOR, THREAD, BREECHBLOCK.** A device designed to prevent damage to the mating threads of a breechblock during assembly or disassembly operations. May assist in positioning components being assembled.*

**protectoscope.** Device in a tank, etc., similar to the periscope of a submarine. It enables a soldier to see around a shield without exposing himself to enemy gunfire directed at the ports of the tank or armored car.

**proton.** The positively charged nucleus of the atom of the light isotope of hydrogen, considered to be a nuclear constituent of all atoms. See: **electron.**

**prototype (preproduction) model.** A model suitable for complete evaluation of mechanical and electrical form, design and performance. It is in final mechanical and electrical form, employs approved parts and is completely representative of final equipment.

**PROTRACTOR, FIN POSITION.** A protractor specifically designed for measuring the angular position of guided missile fins.*

**proving ground.** (PG) An area or location where equipment, ammunition, or weapons are tested or proved.

**proximity fuse.** See: **FUZE, PROXIMITY.**

**prpln** *(abbr).* 'Propulsion.'

**PS** *(abbr).* 'Trichloronitromethane' (chloropicrin, war gas).

**pseudo-velocity.** The vertical projection of the actual velocity on the line of departure. (Used in Siacci method of computation of trajectories.)

**psi** *(abbr).* 'Pounds per square inch.'

**psychological warfare.** The planned use, by a nation or group of nations, of propaganda and related informational measures directed toward enemy, neutral, or friendly groups, to influence opinions, emotions, attitudes, and behavior in such a manner as to support the policies and aims of the using nation or group of nations.

**PTX1.** Explosive consisting of RDX, tetryl and TNT.

**PTX2.** Explosive consisting of RDX, PETN and TNT.

**Pueblo Ordnance Depot.** Ordnance Corps field installation, located at Pueblo, Colorado.

**pull-type equilibrator.** See: **equilibrator.**

**pulse.** 1. A single disturbance of definite amplitude and time length, propagated as a wave or electric current. 2. *Radar.* A radar transmission signal of very short duration, from 1 to 50 microseconds. Its transmission is accurately timed at intervals, ranging from 1/60 to 1/4000 second, which will permit correlation of the transmitted pulse with the image on the oscilloscope representing the reflection of the same pulse.

**pulse amplitude.** A general term indicating the magnitude of a pulse. For specific designation, adjectives such as average, instantaneous, peak, rms (effective), etc., should be used to indicate the particular meaning intended. Pulse amplitude is measured with respect to the normally constant value unless otherwise stated.

**pulse-amplitude modulation.** (PAM) Amplitude modulation of a pulse carrier.

**pulse amplitude, RMS (effective).** See: **RMS (effective) pulse amplitude.**

**pulse bandwidth.** Pulse spectrum bandwidth; the smallest continuous frequency interval outside which the amplitude of the spectrum does not exceed a prescribed fraction of the amplitude at a specified frequency. This spectrum amplitude may be less than the prescribed amplitude within the interval.

**pulse carrier.** A pulse train used as a carrier.

**pulse coder.** A circuit which sets up a plurality of pulses disposed in an identifiable pattern.

**pulse decay time.** The interval between the instants at which the instantaneous amplitude last reaches specified upper and lower limits, namely, 90 percent and 10 percent of the peak-pulse amplitude unless otherwise stated.

**pulse duration.** The duration in time of a pulse, esp. of an electromagnetic wave.

The pulse duration of a radar wave or the like is measured between points of zero value, or some other specified points.

**pulse-duration modulation.** A form of pulse-time modulation in which the duration of a pulse is varied.

The terms 'pulse-width modulation' and 'pulse-length modulation' are also used to designate this system of modulation but the term 'pulse-duration modulation' is preferred.

**pulse interleaving.** A process in which pulses from two or more sources are combined in time-division multiplex for transmission over a common path.

**pulse interval.** See: **pulse spacing.**

**pulse-interval modulation.** A form of pulse-time modulation in which the pulse spacing is varied.

**pulsejet engine.** See: **ENGINE, PULSE-JET.**

**pulse length.** The time duration of the transmission of a pulse of energy, usually measured in microseconds or in the equivalent distance in yards, miles, etc., represented by the pulse signal on a radarscope.

**pulse-position modulation.** (PPM) A form of pulse-time modulation in which the position in time of a pulse is varied.

**pulse regeneration.** The process of restoring pulses to their original relative timings, forms, and/or magnitudes.

In many devices, pulses may become distorted due

to phase or amplitude distortion, limiting, or other processes. It is often desirable to restore the pulse to something resembling its original form before it has become so distorted that the original information which it contains is completely destroyed.

**pulse repetition rate.** The average number of pulses per unit of time.

**pulse rise time.** The interval between the instants at which the instantaneous amplitude first reaches specified lower and upper limits, namely, 10 percent and 90 percent of the peak-pulse amplitude unless otherwise stated.

**pulse spacing.** The interval between the corresponding pulse times of two consecutive pulses.

The term 'pulse interval' has been dropped because it may be taken to mean the duration of the pulse instead of the space or interval from one pulse to the next. Neither term means the space *between* pulses.

**pulse spectrum.** The frequency distribution of the sinusoidal components of the pulse in relative amplitude and in relative phase; pulse frequency spectrum.

**pulse spike.** An unwanted pulse of relatively short duration superimposed on the main pulse.

**pulse-time modulation.** Modulation in which the time of occurrence of some characteristic of a pulse carrier is varied from the unmodulated value.

**pulse train.** A group of pulses of similar characteristics.

**pump, constant stroke.** A fuel pump which delivers a definite quantity of fuel on each stroke, the quantity needed to maintain the speed of the engine being controlled by bypassing part of the fuel back to the supply tank.

**pump, variable stroke.** A fuel pump whose stroke is lengthened or shortened so as to meter the correct charge to meet varying operating conditions.

**punch, electronic calculating.** *Electronic computers.* A card handling machine which reads a punched card, performs a number of sequential operations and punches the result on a card.

**PUNK, STICK.** A preformed material in cylindrical form, which when ignited smolders without flame, to provide means for igniting safety fuse.

**push-type equilibrator.** See: **equilibrator.**

**PWP** *(abbr).* Chemical agent, 'plasticized white phosphorus' (smoke).

**PYLON, AIRCRAFT.** A suspension device externally installed under the wing and/or fuselage of an aircraft. It is aerodynamically designed to fit the configuration of specific aircraft(s), thereby creating an insignificant amount of drag. It includes means of attaching to accommodate fuel tanks, bombs, rockets, torpedoes, rocket motors, or the like.* See also: **RACK, BOMB, AIRCRAFT; RACK, BOMB EJECTOR, AIRCRAFT; SHACKLE, BOMB, AIRCRAFT.**

**pyro** *(abbr).* 'Pyrotechnic.'

**pyrocellulose.** Nitrocellulose having a lower nitration than guncotton, used in smokeless propellants. Contains approximately 12.6 percent nitrogen. Also called 'pyrocotton.'

**pyrocotton.** See: **pyrocellulose.**

**pyrometer.** *General.* An instrument for measuring temperatures by electrical means, especially those beyond the range of mercurial thermometers.*

**PYROMETER, OPTICAL.** A pyrometer which measures the quality and intensity of light emitted from a hot body, or glowing material by comparison with a standard source of light and indicated by the position of a pointer relative to a graduated temperature scale.*

**PYROMETER, RECORDING.** A pyrometer which utilizes the effect of temperature variations to change the characteristics of an electric constant and this difference in electric potential transcribed to a chart.*

**pyrophoric propellant.** A propellant combination of a liquid fuel and a fluid oxidizer (usually air) that will quickly reach when brought into intimate contact and will achieve ignition temperature. Explanation: pyrophoric propellants were first called hypergoles by their German originators and then became known as hypergolic propellants in the English language.

**pyropropellant.** Single base propellant consisting principally of nitrocellulose. See: **propellant.**

**pyrotechnic.** Of or pertaining to **pyrotechnics.**

**pyrotechnic code.** Significant arrangement of the various colors and arrangements of fireworks, signal lights, or signal smokes used for communication between units or between ground and air.

**pyrotechnic outfit.** See: **SIGNAL KIT, PYROTECHNIC PISTOL.**

**pyrotechnic pistol.** See: **PISTOL, PYROTECHNIC.**

**pyrotechnic projector.** See: **PROJECTOR, SIGNAL, GROUND.**

**pyrotechnic rocket motor initiator.** See: **INITIATOR, ROCKET MOTOR IGNITER.**

**pyrotechnics.** Items used for both military and nonmilitary purposes, such as producing a bright light for illumination, or colored lights or smoke for signaling, and which are consumed in the process.

**pyrotechnic signal.** **Signal** (which see) designed for military use to produce a colored light or smoke, for the purpose of transmitting information.

**pyroxylin.** Nitrocellulose containing less than 12.5 percent nitrogen.

# Q

**QDRI** *(abbr)*. 'Qualitative Development Requirements Information.'

**QF** *(abbr)*. 'Quick firing.'

**Q-factor.** 1. A rating applied to coils, capacitors, and resonant circuits, equal to the reactance divided by resistance. 2. Mechanical or electrical systems, the ratio of energy stored to energy dissipated. 3. In bombing, a factor representing the ratio of the velocity of the differential ballistic wind to the velocity of the wind at release altitude.

**QMC** *(abbr)*. 'Quartermaster Corps.'

**QMR** *(abbr)*. 'Qualitative materiel requirement.'

**qty** *(abbr)*. 'Quantity.'

**qty-dis** *(abbr)*. 'Quantity-distance.'

**quadrant.** 1. One of the four parts into which a plane is divided by vertical and horizontal axes. 2. See: **QUADRANT, FIRE CONTROL.**

**quadrant angle of departure.** Vertical angle between the horizontal and the line of departure of a projectile.

**quadrant angle of elevation.** See: **quadrant elevation.**

**quadrant angle of fall.** The vertical acute angle at the level point, between the horizontal and the line of fall of a projectile.

**quadrant elevation.** Vertical angle between horizontal and axis of bore of gun which exists just prior to firing; quadrant angle of elevation.

**quadrant, elevation.** See: **QUADRANT, FIRE CONTROL.**

**QUADRANT, FIRE CONTROL.** A mechanical device having scales graduated in mils, with a fine micrometer adjustment(s) and a leveling and/or a cross-leveling vial(s). It may be physically attached to the gun, gun mount, or gun carriage and is used for setting and/or measuring the elevation angles of a weapon for obtaining the horizontal range of a target.* When attached to the elevating mechanism as a part thereof, it is called *elevation quadrant* if graduated in mils or degrees, or *range quadrant* if graduated in range units. When it consists of a separate unattached instrument for hand placement on a reference surface, it is called a *gunner's quadrant.*

**quadrant, gunner's.** See: **QUADRANT, FIRE CONTROL.**

**quadrant mount.** Device on a gun that holds the gunner's quadrant while the gun is being laid in elevation; quadrant seat.

**quadrant, range.** See: **QUADRANT, FIRE CONTROL.**

**quadrant seat.** See: **quadrant mount.**

**quadrant sight.** Sighting instrument on a gun that is used in laying the gun in elevation. The quadrant sight is used in conjunction with a telescope that is used for laying the gun for direction.

**quadricycle.** A four-wheeled motor vehicle with a bicycle seat for the driver, and a two-wheeled forecarriage steered by handle bars.

**Quail.** An air-to-surface missile decoy under development for the Air Force.

**qualified product.** A product which has been examined and tested and which has passed all qualification requirements of the applicable specification. See: **qualified products list.**

**qualified products list.** (QPL) A list of products, qualified under the requirements stated in the applicable specification, including appropriate identification and reference data with the name and plant address of the manufacturer. See: **qualified product.**

**Qualitative Development Requirements Information.** (QDRI) Information concerning items of Ordnance which will require future development. This information is furnished by class II Ordnance installations having a research and development mission to civilian organizations properly qualified by Ordnance Districts.

**qualitative materiel development objective.** A Department of the Army approved statement of a military need for development of new materiel, the feasibility of which cannot be determined sufficiently to establish a qualitative materiel requirement.

**qualitative materiel requirement.** (QMR) A Department of the Army approved statement of a military need for a new item, system, or assemblage, the development of which is believed to be feasible. Qualitative materiel requirements serve as a basis for the development of military characteristics, and provide guidance for research and development programing actions.

**quality assurance.** System of assuring that material accepted is in accordance with requirements. This involves the techniques followed in determining the acceptability of products, such as defining a lot, establishing acceptance criteria, determining methods of inspection, determining classification of defects and setting required quality levels.

**quality control.** The exercise of such influence as to assure that a service or product measures up to a desired quality. See: **quality assurance.**

**quantity.** (qty) *Electronic computers.* A positive or negative real number in the mathematical sense. The term 'quantity' is preferred to the term 'number' in referring to numerical data; the term number is used in the sense of natural number and reserved for 'the number of digits,' the 'number of operations,' etc.

**quantity-distance tables.** The regulations pertaining to the amounts and kinds of explosives that can be stored and the proximity of such storage to buildings, highways, railways, magazines, or other installations. See also: **American Table of Distances.**

**quantizer.** A device which measures the magnitude of a time-varying quantity in multiples of some fixed unit, or quantum, at a defined instant or repetition

rate and delivers a response, usually in pulse code or digital form, equal in magnitude to the measured number of quanta.[9]

**Quartermaster Corps.** (QMC) An Army corps providing rations, clothing and other supplies and services, and commanded by the Quartermaster General.

**quickmatch.** Fast burning fuse made from a cord impregnated with black powder.

**quickness.** General term, expressing the mass rate of gas evolution of a propellant in a quantitative sense. Basically a function of the propellant geometry.

**quickness, relative.** Ratio of the quickness of a test propellant to the quickness of a standard propellant, measured at the same initial temperature and loading density in the same closed chamber.

# R

**R** *(abbr)*. 1. 'Rankine scale.' 2. 'Reynolds number.'

**r** *(abbr)*. 'Radius.'

**rabal.** 1. Determination of varying atmospheric conditions by use of a radiosonde *bal*loon. 2. Reports based on observations of a radiosonde balloon. Cf. **pibal.**

**race.** 1. A track or channel in which something rolls or slides, as a slide for a shuttle; a groove for the balls in a bearing. 2. A circular ring upon which travel the rollers supporting a revolving superstructure, such as the roller race of a revolving crane, or of a rotating gun mount. 3. To speed (an engine or motor) without a working load or in disengagement from the transmission.

**RACE, BEARING, INNER.** An inner component of a ball or roller bearing which provides a contact surface for the rolling elements of the bearing.*

**RACE, BEARING, OUTER.** An outer component of a ball or roller bearing which provides a contact surface for the rolling elements of the bearing.

**racer.** Turntable on which a heavy gun is turned to left or right; a **race** (sense 2).

**RACK, BOMB, AIRCRAFT.** A suspension device permanently fixed to an aircraft. It is designed for attaching, arming and releasing of one or more bombs. It may also be utilized to accommodate other items such as mines, rockets, torpedoes, fuel tanks, rescue equipment, sonobuoys, flares or the like.* See also: **PYLON, AIRCRAFT.**

**RACK, BOMB EJECTOR, AIRCRAFT.** A suspension device permanently fixed to an aircraft. It is designed for attaching, arming, releasing and ejecting one or more bombs, or the like.* See also: **PYLON, AIRCRAFT.**

**RACK, LOADING, GUIDED MISSILE.** An item of open framework consisting of side and end trusses, specifically designed to form two parallel tracks on which a guided missile is stored prior to loading on a launcher.* See also: **LAUNCHER-LOADING RACK, GUIDED MISSILE.**

**racon** *(abbr)*. 'Radar beacon.'

**RAD** *(abbr)*. 'Research and Development.'

**RAD.** [From *R*adiation *A*bsorbed *D*ose.] A unit of absorbed dose of ionizing radiation. The RAD, 100 ergs/gram, is a measure of the energy imparted to matter by ionizing radiation per unit mass of irradiated material at the place of interest.

**rada** *(abbr)*. 'Radioactive.'

**Radan.** [Coined: *r*adar *D*oppler *a*utomatic *n*avigator.] Name given to a navigation system which operates independently of any ground-based or celestial aids.

**radar.** 1. Any of certain methods or systems of using beamed and reflected radio-frequency energy (radio waves) for detecting and locating objects, for measuring distance or altitude, or for certain other purposes, such as navigating, homing, or bombing. 2. The electronic equipment, sets, or devices used in any such system.

In its original and principal application, 'radar' has reference to a method or system of detecting and finding the range of objects by means of beamed radio-frequency energy, the objects in the path of the beam reflecting part of the energy back to the source of transmission. The time interval between the transmission of the energy and the reception of the reflected energy establishes the range of any object in the beam's path, the reflected energy being displayed on a cathode-ray screen in such a manner as to indicate this information. In addition, many radar sets also display such information as azimuth, elevation, and direction of movement of the object.

The principal military use of radar is in the detection and location of airborne aircraft, but numerous other uses have arisen, e.g., in air navigation and air traffic control, in altitude measurement, in reconnaissance and mapping, in bombing and homing, in storm detection, etc.

**radar altitude.** See: **altitude, absolute.**

**radar background.** See: **radar clutter.**

**radar beacon.** (racon) A radar transmitter, including its antenna and other associated equipment, that emits radar waves for pickup, the waves then being displayed or used to cause a responder to react.

**radar bombing.** Any type of bombing in which radar is used to locate the target or aiming point, or to aid in positioning the bombing aircraft at the proper release point for bombing, esp. under conditions of poor visibility.

**radar bombsight.** An airborne radar set used to sight the target, solve the bombing problem, and drop bombs, as in **synchronous radar bombing.**

**radar bore sight.** A bore sight used in harmonizing a radar-controlled gun.

**RADAR CHRONOGRAPH SET.** A complete set for measuring projectile velocities by radar.* See also: **chronograph.**

**radar clutter.** Visual evidence on the radar indicator screen of **sea return,** or **ground return,** which if not of particular interest, tends to obscure the target indication. Usually called merely 'clutter.' See also: **grass; noise; snow.**

**radar, continuous-wave.** A system in which a transmitter sends out a continuous flow of radio energy to the target which reradiates (scatters) the energy intercepted and returns a small fraction to a receiving antenna. Since both the transmitter and receiver are operating simultaneously and continuously, it is impractical to employ a common antenna, and usually two similar structures are employed side-by-side and so oriented that only a small fraction of the transmitted power leaks directly into the receiver. The reflected wave is distinguished from the transmitted signal by a slight change in radio frequency.

The continuous-wave method, while not so adaptable to military needs, has many interesting proper-

ties, such as its ability to distinguish moving targets against a stationary reflecting background and its greater conservation of bandwidth than pulse radar.

**radar control.** Guidance, direction, or employment exercised over an aircraft, guided missile, gun battery, or the like, by means of, or with the aid of, radar.

**radar countermeasure.** (RCM) Usually *pl.* Any electronic countermeasure against radar. See: **electronic countermeasures.**

**RADAR COURSE DIRECTING CENTRAL.** A system comprising a number of associated electronic sets which are used to direct the course of a moving object (such as an aircraft, ship, tank, or missile) to a target by means of radar techniques. May be manual or automatic in operation.*

**radar deception.** See: **electronic deception.**

**radar dish.** See: **dish, radar.**

**radar fire control.** Fire control by means of radar. See: **fire control.**

**radar gun-layer.** A radar device which tracks a target and aims a gun or guns automatically.

**radar homing.** Homing on radar eminations. See: **home.**

**radar horizon.** The effective surface detection range of radar.

**RADAR MISSILE TRACKING CENTRAL.** A number of associated electronic sets which, when used with additional electronic sets, provides facilities for recording and/or indicating signals received simultaneously from a transponder-equipment missile and the additional electronic sets. The received signals provide free-space position data of the missile.*

**radar picket.** Any ship stationed at a distance from the force protected, for the purpose of increasing the radar detection range.

**radar, pulse.** Radar in which sharp bursts of radio energy, somewhat like the bursts of acoustic energy from the barrel of a machine gun, are sent out from the transmitter. When these bursts, or 'pulses,' encounter a reflecting object, they are reflected as discrete echos which are detected by the radar receiver during the interval between the transmitted pulses. The pulse method has the ability to measure distances and engage several targets simultaneously.

**radar range.** The maximum distance at which a radar set is ordinarily effective in detecting objects; *specif.*, the distance at which a radar set can detect a specified object at least fifty percent of the time.

**radar, range of.** The maximum usable distance to the target of a radar system; under free-space conditions, the range varies as the fourth power of the transmitted power, the receiver power sensitivity, the target echo area, and the square of the antenna gain.

**radar reconnaissance.** Reconnaissance by means of radar to determine the location, disposition, and strength of enemy forces and to determine the nature of the terrain.

**radar report.** Information about the position of [illegible] or enemy aircraft, obtained with radar apparatus. The radar report usually is sent to an aircraft warning system filter center or information center.

**radar scan.** 1. The motion of a radar beam as it searches for an object of interest, or target. 2. The path or pattern described by this motion. 3. The process of directing a radar beam. See also: **scan.**

**radarscope.** The cathode-ray oscilloscope or screen in a radar set.

**radar search.** See: **radar reconnaissance.**

**RADAR SET.** A complete set for determining the presence and location of objects.* See: **radar.**

**radar silence.** A condition existing when radar operations are stopped; the period of time during which this condition prevails.

**RADARSONDE SET.** A complete set for automatically measuring and transmitting high altitude meteorological data from a balloon, kite, or rocket by pulse modulated radio waves when triggered by a radar signal. See also: **RADIOSONDE SET.***

**radar station.** The place, position, or location from which, or at which, a radar set transmits or receives signals.

**radar target.** See: **TARGET, RADAR.**

**radar wind.** Wind of which the movement, speed, and direction is observed or determined by radar tracking of a balloon carrying a radiosonde, a radio transmitter, or a radar reflector. See: **rawin** (sense 1).

**RADC** *(abbr).* 'Rome Air Development Center.'

**Radford Arsenal.** Ordnance Corps field installation, located at Radford, Virginia.

**radiac.** [*Radiation detection, identification, and computation.*] The act or process of detecting, identifying, and measuring the intensity of nuclear radiation in an area.

**RADIACMETER.** An item specifically designed to detect and measure radioactivity. It may include a radiac computer.*

**RADIAC SET.** A complete set for detecting, indicating and measuring radioactivity.*

**radial band pressure.** The pressure which is exerted on the rotating band by the walls of the gun tube, and hence against the projectile wall at the band seat, as a result of the engraving of the band by the gun rifling. Since the same pressure is exerted against the gun tube, it must be taken into account in gun design as well as in projectile design.

**radial engine.** 1. An engine with one or more stationary rows of cylinders arranged radially around a common crankshaft. 2. In a more general sense, any engine having the cylinders arranged radially around the crankshaft.

**radial expansion.** A method of making gun tubes by expanding steel cylinders under internal pressure until the interior diameter has been permanently enlarged. This method is also known as *cold working* and *auto-frettage.* (The latter is a French term meaning 'self-hooping.')

As generally practiced in the US, a hollow steel cylinder (often consisting of a centrifugal casting) with an interior diameter slightly less than the caliber desired is subjected to an interior hydraulic pressure of sufficient intensity to enlarge the bore permanently about 6 percent. The outside diameter of the cylinder is enlarged only very slightly (about

1 percent). When the hydraulic pressure is released, the outer layers tend to shrink to their original dimensions and the inner layers tend to maintain their enlarged diameter, thus putting the critical inner layers under compression by the contracting force of outer layers. Final machining and rifling is, of course, still required. This method, like the built-up and wire-wrapped methods of gun construction, gives the gun a high resistance to internal (propellant) pressure since a good part of the internal pressure is required to relieve the inner layers of their compression before they are subjected to any tension. The method, at least for some calibers, offers advantages of simplicity, reduced cost and increased production.

**radial stress.** See: **stress, circumferential.**

**radiation.** 1. The transmission of energy through space in the form of electronic waves. 2. **Nuclear radiation** (which see).

**radiation absorbed dose (dosage).** (RAD) The total quantity of ionizing radiation absorbed by an individual or any mass of material exposed to radiation. If the radiation is X or gamma and the mass is free air, the unit of measure is the roentgen.

**radiation dosage.** Total quantity of radiation to which a person is exposed over a period of time. It is measured in roentgens.

**radiation dose rate.** The radiation dose (dosage) absorbed per unit time. The common unit of measure for X or gamma radiation is roentgen or milli-roentgen per hour.

**radiation intensity.** The amount of radiant energy per unit time passing through a unit area perpendicular to the line of propagation at the point in question. This term is often used incorrectly when dose rate is intended.

**radiator.** A device for radiating the heat out of a substance, as water or oil, esp. such a device connected to an engine.

**radiator temperature drop.** In liquid-cooled engines, the difference in temperature of the liquid between the inlet and outlet of the radiator. A good commercial value is 10° to 12°F.

**radioactive.** (rada) Emitting nuclear radiations; possessing radioactivity.

**radio altitude.** See: **altitude, absolute.**

**radio beacon.** A radio transmitter which emits a distinctive or characteristic signal for the determination of bearings, courses, or locations.

**radio channel.** A **channel** (which see) for radio transmission.

**radio countermeasures.** (RCM) Electrical or other techniques depriving the enemy of the benefits which would ordinarily accrue to him through the use of any technique employing the radiation of radio waves. It includes benefits derived from radar and intercept services.

**radio deception.** Employment of radio to deceive the enemy. Radio deception includes sending false dispatches, using deceptive headings, employing enemy call signs, etc. See also: **electronic deception.**

**radio direction finder.** (RDF) Radio receiving equipment incorporating an azimuth scale and a directional antenna system. It is employed to determine the azimuth of incoming radio waves.

**radio fix.** 1. The location of a friendly or enemy radio transmitter determined by finding the direction of the radio transmitter from two or more listening stations. 2. The location of a ship or aircraft by determining the direction of radio signals coming to the ship or aircraft from two or more sending stations, the locations of which are known.

**radio frequency.** (RF) See: **frequency, electronic.**

**radio-frequency pulse.** A radio-frequency carrier amplitude modulated by a pulse. The amplitude of the modulated carrier is zero before and after the pulse. Coherence of the carrier (with itself) is not implied.

**radio fuze.** See: **FUZE, PROXIMITY.**

**radiogoniometry.** Science of locating a radio transmitter by means of taking bearings on the radio waves emitted by such a transmitter.

**radiographic tests.** Tests using **radiography** (which see).

**radiography.** Nondestructive examination of matter by means of X-rays or gamma rays. The rays are permitted to impinge on a fluorescent screen for temporary work or photographic film for permanent record. Used in metal industry, research and analysis, for purposes such as determining the soundness of castings and welded joints.

**radio guided bomb.** See: **bomb, radio guided.**

**radiolocation.** The determination of relative direction, position, or motion of an object, or its detection, by means of the constant velocity of rectilinear propagation characteristics of radio waves.

**radiological.** Of or pertaining to radiation, esp. nuclear radiation; of or pertaining to the study and use of radioactivity, radioactive substances, atomic weapons, or the like.

**radiological agent.** Any of a family of substances that produce casualties by emitting radiation.

**radiological defense.** The methods, plans, and procedures involved in establishing and exercising defensive measures against the radiation effects of an attack by atomic weapons or radiological warfare agents. It encompasses both the training and the implementation of these methods, plans and procedures. Because of the close association of the other effects of atomic weapons with the radiological effects, the term often connotes atomic defense. See: **atomic defense; radiological warfare.**

**radiological warfare.** (radwar) The employment of agents or weapons to produce residual radioactive contamination as distinguished from the initial effects of a nuclear explosion (blast, thermal, and initial nuclear radiation).

**radio navigation.** Air navigation by means of radio navigational aids or navigation systems using radio. Radio navigation includes radio direction-finding, the use of radio ranges, radio compasses, radio homing beacons, loran, etc.

**radio position finding.** Process of locating a radio transmitter by plotting the intersection of its azimuths as determined by two or more radio direction finders.

**radio propagation, velocity of.** The velocity of radio propagation, within the accuracy demanded of radar

equipment, is usually taken as the velocity of light, $2.998 \times 10^8$ m/sec.

**radio proximity fuse.** See: **FUZE, PROXIMITY.**

**radio range.** 1. The reach of a radio beam or the reach and scope of radio beams emitted by a given station for use as directional signals for airborne aircraft; the flight paths, course directions, and position signals provided by these beams. 2. The station or installation that sends such directional beams out.

Radio ranges are classified by: a. The frequencies transmitted. These are low frequency (LF), medium frequency (MF), or very high frequency (VHF). b. The sensory organ used for receiving the signals. These are visual or aural, or a combination of the two. c. The number of directions in which on-course signals are sent. These are the two-course ranges, the four-course ranges, and the omnidirectional. d. The kind of antenna system used, such as the loop-type radio range.

**radio range finding.** Radio location in which the distance of an object is determined by means of its radio emissions, whether independent, reflected, or retransmitted on the same or other wavelength.

**RADIOSONDE SET.** A complete set for automatically measuring and transmitting high altitude meteorological data by radio from such carriers as a balloon, kite, or rocket. See also: **RADARSONDE SET.***

**radius of action.** Maximum distance a ship, airplane, or vehicle can travel away from its base along a given course with normal combat load and return without refueling, allowing for all safety and operating factors.

**radius of gyration.** The distance from the axis of rotation at which the total mass of a body might be concentrated without changing its moment of inertia. The product of total mass and the square of the radius of gyration will give moment of inertia.

**radius of rupture.** Greatest distance from the center of an underground explosive charge at which the explosion will be destructive.

**radius of safety.** *Atomic explosion.* The horizontal distance from **ground zero** beyond which the weapon effects on friendly troops are acceptable.

**radius rod.** A rod which restricts movement of a part to a given arc.

**radix.** *Electronic computers.* The integer of whose successive powers the digits of a number are the coefficients.

**RADOME.** An item which incloses an antenna. It is specifically designed to permit maximum passage of radio frequency energy through it, while providing protection to the antenna from weather. The item may also inclose the antenna support, and rotating mechanism. It may be flexible or rigid, streamlined or irregular shaped. May also include pressurizing mechanism and anti-icing or de-icing equipment.*

**radwar** *(abbr).* 'Radiological warfare.'

**railhead.** Supply transfer point on a rail line at which supplies are unloaded and forwarded or distributed usually by other means of transportation or distributed to or by a supply activity at that location. Comparable installations are: **truckheads, navigation-heads, aerial ports.**

**railhead distribution.** Supply point distribution in which supplies are issued at a railhead.

**railing.** In electronics, an image on a radar indicator resembling fence railings, caused by radar pulse-jamming at high recurrence rates (50 to 150 kilocycles).

**RAIL, LAUNCHING-HANDLING, GUIDED MISSILE.** An item of welded steel construction specifically designed to support and position a guided missile-rocket motor combination during propellant filling, warhead installation and launching.*

**railway artillery.** Heavy artillery, given mobility by mounting on railway mounts or carriages. No longer in use by US forces.

**railway mount; railway carriage.** Mount for **railway artillery.** No longer in use by US forces, but still of interest for possible future application.

Railway mounts are classified, according to the method of absorbing recoil energy, as *sliding mounts, rolling mounts,* and *platform mounts.* In the first two types there is no recoil system and the energy is absorbed by sliding or rolling with the brakes set. The platform mount is equipped with a recoil system and remains in place without movement.

**railway torpedo.** See: **TORPEDO, SIGNALING, RAILROAD.**

**rake.** To sweep a target, esp. a ship or a column of troops, with gun or cannon fire. Hence, *raking fire.* Cf: **strafe.**

**ram.** 1. The forward motion of an air scoop or air inlet through the air. 2. **Ram effect** (which see). 3. *Capitalized.* A popular or code name for a certain large aircraft rocket with a shaped charge. 4. Seat a projectile in the bore of a gun. 5. Run into something head on.

**ram effect.** The increased air pressure in a jet engine or in the manifold of a piston engine, due to **ram** (which see, sense 1).

**ramjet.** 1. A ramjet engine. 2. An aircraft or missile using a ramjet engine.

**ramjet engine.** See: **ENGINE, RAMJET.**

**rammer.** 1. Device for driving a projectile into position in a gun. It may be hand or power operated. See also: **LOADER-RAMMER, POWERED.** 2. Tool used to remove live projectiles from the bore of a gun.

**rammer head.** Replaceable end of a **rammer.**

**rammer-loader, powered.** See: **LOADER-RAMMER, POWERED.**

**ramp.** A sloping passageway between levels used as a bridge between two points. May or may not have treadways.*

**RAMP, LOADING, VEHICLE.** A ramp which is used for loading cargo on a ship, railroad car, truck, trailer, aircraft, and the like.*

**ramp sight.** Type of metallic sight in which the aperture is raised or lowered by moving it forward or backward on an inclined ramp.

**R and D** *(abbr).* 'Research and development.'

**random noise.** *Electronics.* See: **noise.**

**random sample.** A sample in which each item in the lot has an equal chance of being selected in the sample.

**range.** (rg) 1. The capability of a rocket missile, guided missile, or the like that indicates how far it can fly or be projected; also, the capability of a gun, radar transmitter, etc., that indicates how far it can project a missile or radiate effective waves, or otherwise exert influence at a distance under given conditions; also, the capability of a place measured by the distance to which a missile, radar wave, or the like can be projected from it, as in 'the range of a launching site.' 2. The measured or estimated distance between one object and another, esp. as applied to the distance between a gun and its target, between a radar set and its object of interest, or between an aircraft and its base, as in 'we are now at a range of ten miles from base.' 3. In bombing, the horizontal distance that a bomb travels after release to the moment of impact. Also called 'actual range.' See next sense. 4. The factor of forward distance that a bomb or other missile travels after release, as distinguished from the factor of azimuth, as in 'the azon bomb is controlled in azimuth but not in range.' 5. An area set up for bombing practice, gunnery practice, or harmonization, as in 'bombing range.' 6. The capability of an aircraft that indicates how far it can fly under operating conditions from the moment of takeoff to the time when its fuel supply is exhausted. 7. To find the range of a target; to adjust a gun to the range of a target.

**range adjustment.** Correction of firing data so that the impact or burst will be on the target with respect to range.

**range and azimuth indicator.** See: **INDICATOR, AZIMUTH-RANGE.**

**range and height indicator.** See: **INDICATOR, HEIGHT-RANGE.**

**range angle.** Angle between the aircraft-target line and the vertical line from the aircraft to the ground at the instant a bomb is released. Also called 'dropping angle.'

**range calibration.** Adjustment of a radar set so that when 'on target' the radar set will indicate the correct range.

**range correction.** Changes of firing data necessary to allow for deviations of range due to weather, materiel, or ammunition.

**range correction board.** Device with which the correction to be applied to a gun is computed mechanically. The correction that is obtained allows for all nonstandard conditions, such as variations in weather and ammunition, and it is known as the 'ballistic correction.'

**range corrector setting.** Degree to which the range scale of a position-finding apparatus must be adjusted before use.

**range determination.** Process of finding the distance between a gun and a target, usually by firing the gun, by estimating with the eye, by the use of a range finding instrument, or by plotting.

**range deviation.** Distance by which a projectile strikes beyond, or short of, the target. It is the distance as measured along the gun-target line or along a line parallel to the gun-target line.

**range difference.** Difference between the ranges from any two points to a third point; especially, the difference between the ranges of a target from two different guns.

**range disk.** Graduated disk, used for range setting, connected mechanically with the elevating mechanism of a gun. A range disk usually is graduated in yards of range and degrees of elevation.

**range dispersion diagram.** Chart indicating the expected percentage of shots fired with the same data which will fall into each of eight areas within the dispersion pattern for ranges.

**range drum.** Graduated indicator of cylinder type, connected mechanically with the elevating mechanism of a gun, used for range setting.

**range error.** Difference between the range to the point of impact of a particular projectile and the range to the center of impact of a group of shots fired with the same data.

**range estimation.** Rough estimate of the distance to a target or other object.

**RANGE FINDER, FIRE CONTROL.** An instrument used to determine the unknown distance of a target from the range finder.*

**range flag.** Red flag displayed on or near a target range during firing practice as a warning that firing is being conducted.

**range ladder.** A naval term used to describe a method of adjusting gunfire by firing successive volleys; starting with a range which is assuredly over or short and applying small uniform range corrections to the successive volleys until the target is crossed.

**range probable error.** Error in range that a gun or other weapon may be expected to exceed as often as not. Range probable error is given in the firing tables for the gun, and may be taken as an index of accuracy of the piece.

**range quadrant.** See: **QUADRANT, FIRE CONTROL.**

**ranger.** A soldier belonging to a specially selected group of soldiers in the U. S. Army, trained esp. in raiding tactics.

The British equivalent of the ranger is the commando.

**range rake.** T-shaped device with pegs set in the cross. The distance between pegs subtends a definite angle at the base of the T. By sighting with a range rake, a flank observer can get a quick angular measurement of range deviation.

**range rate.** In gunnery, the rate of change in range per unit of time.

**range scale.** 1. Scale on the arm of a plotting board where the observed range of a moving target is recorded in finding firing data. 2. Graduated scale on the sight or mount of a gun used to show the elevation of the gun. 3. Table of firing data giving elevation settings corresponding to various ranges for the standard charges.

**range sensing.** Observing the location of the striking or bursting point of a projectile with respect to range, and reporting it as a hit, over, short, lost, doubtful, etc. Range sensing does not include accurate determination of distances.

**range, slant.** See: **slant range.**

**range spotting.** Watching the burst or impact of shots to note their deviation beyond, or short of the target.

**range table.** Prepared table that gives elevations corresponding to ranges for a gun or other weapon, under various conditions. A range table is part of a firing table.

**range-tracking element.** An element in a radar set which measures range and its time derivative. By means of the latter, a range gate is actuated slightly before the predicted instant of signal reception.

**range wind.** Horizontal component of true wind in the vertical plane through the line of fire.

**ranging.** 1. Wide-scale scouting, especially by aircraft, designed to search an area systematically. 2. Locating an enemy gun by watching its flash, listening to its report, or other similar means.

**rank (degrees of freedom of a node basis).** *Network topology.* The number of independent cut-sets that can be selected in a network. The rank R is equal to the number of nodes V minus the number of separate parts P. $R = V - P$.

**Rankine scale.** (R) A thermometer scale which uses Fahrenheit degrees and zero is absolute zero of the Fahrenheit scale. The freezing point of water is 491.69 degrees.

**rapid fire.** Rate of firing small arms or automatic weapons, faster than slow fire, but slower than quick fire.

**rarefaction.** In an atomic bomb explosion, a condition existing at the center of the explosion, in which the pressure, after a rise induced by the explosion, drops below that which existed prior to the explosion.

**rarefaction wave.** A pressure wave or rush of air or water induced by rarefaction.

The rarefaction wave (also called a 'suction wave') travels in the opposite direction to that of the shock wave directly following the explosion.

**Raritan Arsenal.** Ordnance Corps field installation, located near Metuchen, New Jersey.

**Rascal.** Name applied to an Air Force air-to-surface missile released from aircraft at long ranges from the target for strategic bombing. It is rocket powered. Employs liquid fuel engines and inertial, command radar guidance.

**raster.** A system of luminescent lines traced on the phosphor of a cathode-ray tube by motion of the cathode-ray beam. The changes of brightness in the lines produce a picture as a television picture or a radar map. This word is of German origin and is used particularly in television.

**RAT** *(abbr).* 'Rocket assisted torpedo.'

**rated engine speed.** The rotative speed of an engine specified as the maximum for continuous reliable performance.

**rated horsepower.** The normal rated power or military rated power of a reciprocating engine.

**rated maximum pressure.** (RMP) See: **pressures, gun.**

**rate gyro.** A gyroscopic instrument (either spinning or vibratory) that measures rate of turn.

**rate-of-climb indicator.** An instrument that indicates the rate of ascent or descent of an aircraft.

**rate of decay.** *Electroacoustics.* The time rate at which the sound pressure level (or velocity level) is decreasing at a given point and at a given time. The practical unit is the decibel per second.

**rate of detonation.** Rate at which detonation of an explosive progresses. Usually expressed in meters or yards per second. See: **detonation.**

**rate of fire.** The rapidity with which rounds are fired per minute from a weapon or group of weapons. Cf: cyclic rate.

**ratio, drag-weight.** See: **drag-weight ratio.**

**ratio, effective aspect.** The aspect ratio of an airfoil of elliptical planform that, for the same lift coefficient, has the same induced-drag coefficient as the airfoil or the combination of airfoils in question.

**ratio, equivalence.** See: **equivalence ratio.**

**ratio of specific heats.** The ratio of specific heat at constant pressure to specific heat at constant volume.

**ratio, reactant.** See: **reactant ratio.**

**RATO** *(abbr).* 'Rocket assisted takeoff.'

**rat race.** A particular type of radar waveguide configuration which serves the same purpose as the 'magic tee' but allows the handling of greater power.

**Ravenna Arsenal.** Ordnance Corps field installation, located near Apco, Ohio.

**raw data.** Any data or information which has not been analyzed or evaluated.

**rawin.** [*Radar wind* or *radio wind*; pronounced 'ray win.'] 1. Wind tracked either by radar or radio direction-finding. See: **radar wind.** 2. The action of determining the movement and velocity of winds. 3. A radiosonde, radiosonde balloon, or other specially equipped balloon used for this purpose. 4. Wind information gathered by means of radar tracking or radio direction-finding of a specially equipped balloon.

**RAWIN SET.** A grouping of mechanical, electrical and electronic components which, operated together, utilize radio direction finding principles to track a radiosonde or radar target in its trajectory, permitting the indication and/or recording of the elevation and azimuth angles of the balloon with respect to fixed reference points. Used for determining direction and speed of winds aloft by triangulation.

**rawinsonde** *(abbr).* 'Radiosonde and radar wind sounding.' A radiosonde or radiosonde balloon used to **rawin** (sense 2); the act or procedure of obtaining weather and wind information by means of a radiosonde and receiving and tracking equipment.

**razon.** [*Range* plus *azon.*] A kind of glide bomb having movable control surfaces in the tail adjusted by radio signals to control the bomb in range and in azimuth. Hence, 'razon bomb.' See also: **azon; bomb, glide.** (*Historical*)

**RCM** *(abbr).* 1. 'Radar countermeasure.' 2. 'Radio countermeasures.'

**RD** *(abbr).* 'Research and Development.'

**rd** *(abbr).* 'Round.'

**RD 38 system.** A system of interior ballistics used by the British. It is adapted to rapid solution by manual methods.

**RDF** *(abbr).* 'Radio direction finder.'

**RDX** *(abbr).* 'Cyclonite' (explosive).

**reactant ratio.** The ratio of the weight flow of oxidizer to fuel in a ROCKET ENGINE.

**reaction balance.** A kind of dynamometer for measuring the thrust of a rocket.

**reaction engine.** An engine that derives thrust by expelling its gases of combustion to the rear. See: **ROCKET ENGINE.**

**reaction method.** A method of finding the specific gravity of a vehicle by placing it on a trailer with a sloping bed, one end of the trailer being on a platform scale. This method is based upon the fact that the sum of the moments about an axis of rotation is zero as long as the subject body is in the static condition.

**reaction motor.** A motor that derives thrust by expelling its gases of combustion to the rear. See: **ROCKET MOTOR.**

**reaction propulsion.** Propulsion by means of reaction to a jet of gas or fluid projected rearward, as by a jet engine, rocket engine, or rocket motor. Cf.: **jet propulsion; rocket propulsion.**

**reactor.** 1. A **nuclear reactor** (which see). 2. A reaction engine or reaction motor.

**read.** *Electronic computers.* To extract information.

**reader, card.** *Electronic computers.* A mechanism that permits the sensing of information punched on cards by means of wire brushes or metal feelers.

**reader, magnetic tape.** *Electronic computers.* A device capable of restoring to a train or sequence of electrical pulses, information recorded on a magnetic tape in the form of a series of magnetized spots, usually for the purpose of transferring the information to some other storage medium.

**reader, paper tape.** *Electronic computers.* A device capable of restoring to a train or sequence of electrical pulses, information punched on a paper tape in the form of a series of holes, usually for the purpose of transferring the information to some other storage medium.

**readiness time.** The length of time required to obtain a stabilized system ready to perform its intended function. (Readiness time includes warm-up time.) The time is measured from the point when the system is unassembled or uninstalled to such time as it can be expected to perform as accurately as at any later time. Maintenance time is excluded from readiness time.

**rear sight.** See: **SIGHT, REAR.**

**rebound clip.** A clip surrounding the back and one or two other leaves of a leaf spring, usually rigidly fastened to the shortest, to distribute the load during rebounds.

**rebound leaf.** In a leaf spring, a leaf placed over the master leaf, of a curvature opposite to it, to limit the rebound and help carry the load imposed by it.

**rebuild.** To restore to a condition comparable to new by disassembling the item to determine the condition of each of its component parts, and reassembling it, using serviceable, rebuilt, or new assemblies, subassemblies, and parts. Synonymous with 'overhaul and rebuild' and 'recondition.'

**receding leg.** That portion of the target's course line in which the slant range increases for successive target positions.

**receiver.** 1. A component specifically designed to intercept and demodulate signals propagated by a transmitter. It may include facilities for presenting intelligence such as sound output, indicator, recorder.* 2. The basic unit of a firearm, esp. a small arm, which contains the operating mechanism of the weapon and to which the barrel and other components are attached.

**RECEIVER, CARTRIDGE.** An item, integral to a carbine, rifle, shotgun, or the like, designed to take the charge from a MAGAZINE, CARTRIDGE, or CLIP, CARTRIDGE or a single cartridge or shell and hold it until chambered.*

**RECEIVER, INFRARED.** An item specifically designed to intercept and/or demodulate infrared radiations. May have provisions for presenting intelligence.*

**RECEIVER, RADAR.** A receiver for signals from a radar transmitter. The signals are received after reflection. May include accessories.*

**RECEIVER, RADIO.** A receiver for signals from a radio transmitter(s).*

**RECEIVER, SONAR.** A single component designed to be used in conjunction with a hydrophone or transducer for the specific purpose of intercepting underwater sounds. Facilities for presenting intelligence may be provided.*

**RECEIVER-TRANSMITTER, FACSIMILE.** An item designed to receive and transmit messages and/or pictures by facsimile method. May include built-in power supply.*

**RECEIVER-TRANSMITTER, INFRARED.** An item having the dual functions of generating infrared energy for transmission and of receiving, demodulating, and sometimes presenting intelligence from infrared transmissions.*

**RECEIVER-TRANSMITTER, MISSILE GUIDANCE SET.** A single item, which is a major component of a MISSILE GUIDANCE SET, having the dual function of generating electromagnetic energy or signals for transmission, and of receiving, demodulating, coding and decoding intelligence required to change the flight path or trajectory of a guided missile. Excludes RECEIVER-TRANSMITTER, RADAR; RECEIVER-TRANSMITTER, RADIO. See also: **TRANSPONDER SET.***

**RECEIVER-TRANSMITTER, RADAR.** A single component having the dual functions of generating electromagnetic energy for transmission, and of receiving, demodulating, and sometimes presenting intelligence from the reflected electromagnetic energy. May include accessories. For items designed to initiate an explosion in an item of ammunition, see: **FUZE** (as modified).*

**RECEIVING SET, INFRARED.** A complete set for intercepting, demodulating, and presenting intelligence propagated by an infrared transmitter.*

**RECEIVING SET, RADAR.** A complete set for intercepting, demodulating, and presenting intelligence derived from signals propagated by a compatible radar transmitter.*

**RECEIVING SET, TELEMETRIC DATA.** A complete electronic set designed to intercept, demodulate, and provide suitable output to enable a visual presentation and/or a permanent record of meter and/or instrument data propagated by a telemeter data

transmitter. See also: **RECORDING SET, TELEMETRIC DATA.***

**receptacle box.** Central electrical distribution box mounted on a gun carriage. A receptacle box serves as a distributor of the fire control data from a director to the azimuth, elevation, and fuze setter.

**rechamber.** To rebore or otherwise alter the chamber of a small arm, normally for the purpose of adapting it to cartridges for which not originally designed.

**reciprocal laying.** Method of making the planes of fire of two guns parallel by pointing the guns in parallel direction. In reciprocal laying, the two guns sight on each other, then swing out through supplementary angles to produce equal deflections from the base line connecting the two pieces.

**reciprocating engine.** An engine in which power is delivered in a back-and-forth movement of a piston or pistons; *specif.*, a piston-driven, internal combustion engine.

Distinguished esp. from a jet or rocket engine.

**reclassify.** To change the security classification of a document, piece of equipment, or the like. Cf: **declassify.** For classifications see **defense classification.**

**recoil.** The backward movement of a gun or part thereof on firing, caused by the backward pressure of the propellant gases; the distance that a gun or part travels in this backward movement.

*Recoil*, particularly as pertains to small arms, is popularly called 'kick.'

**recoil adapter.** A device fastened between a gun, esp. an aircraft machine gun, and its mount to adapt the gun for mounting and to absorb the gun's recoil. See: **ADAPTER, GUN MOUNTING, AIRCRAFT.**

**recoil booster.** Component of machine gun which traps some of the gas from the barrel and acts to insure positive recoil action when the gun is fired at angles other than the usual horizontal.

**recoil brake.** That part of the **recoil mechanism** (which see) that actually absorbs the energy of recoil and stops the rearward movement of the recoiling parts.

**recoil cylinder.** See: **CYLINDER, RECOIL.**

**recoiling mass.** The mass of the recoiling parts of a weapon.

**recoiling parts.** Those parts of a weapon which move in recoil. This usually includes the tube, breech housing, breechblock assembly, and parts of the recoil mechanism.

**recoilless.** Of a gun: Built so as to eliminate or cancel out recoil.

Most recoilless guns are designed to let part of the propellant gases escape to the rear to eliminate recoil.

**recoilless ammunition.** Term used to identify ammunition intended for use in recoilless rifles. Provision is made in the ammunition for release of propellant gases in the manner and quantity necessary to produce the recoilless action.

**recoilless rifle.** Term applied to a weapon consisting of a light artillery tube of the recoilless type and a very light mount. For the 57-mm caliber the gun is fired from a shoulder mount, thus giving rise to the term 'recoilless rifle.' The larger calibers are fired from light weight, portable tripod mounts or from light vehicles such as the jeep. Ammunition for all calibers is termed recoilless ammunition. See: **recoilless; recoilless ammunition; rifle,** sense 2.

**recoil mechanism.** A hydraulic, pneumatic, or spring type shock absorber that decreases the energy of the recoil gradually and so avoids violent movement of the gun or howitzer carriage.* In the broad sense it also includes the *counterrecoil mechanism* for returning the gun to the in battery position after recoil. The recoil mechanism usually incorporates a **CYLINDER, RECOIL,** containing a recoil oil, and a recoil piston. The piston is forced through the oil filled cylinder forcing the oil through orifices and thus converting the recoil energy into increased temperature of the oil. The gun is returned to battery by the counterrecoil mechanism which stores energy for this purpose, usually in a pneumatic or spring mechanism. See also: **battery** (sense 3); **counterrecoil mechanism; single recoil system; double recoil system; independent recoil system; dependent recoil system; hydropneumatic recoil system; hydrospring recoil system.** Several calibers of recoil mechanisms are listed hereunder, with **item name** in each case.

**RECOIL MECHANISM, 8 INCH GUN.**
**RECOIL MECHANISM, 8 INCH HOWITZER.**
**RECOIL MECHANISM, 37 MILLIMETER GUN.**

**recoil oil.** A neutral, constant-viscosity oil used in hydropneumatic and hydrospring recoil systems.

**recoil operated.** Of an automatic or semiautomatic firearm: That utilizes recoil to throw back or unlock the bolt or slide and actuate the loading mechanism. Applied especially to certain locked-breech firearms. Recoil operated weapons are classified as *long recoil* when the barrel and breechblock or bolt recoil the entire distance together, and as *short recoil* when the breechblock or bolt is unlocked and the barrel is stopped after only a short distance of recoil together.

**recoil pit.** Pit dug near the breech of a gun to provide space for the breech when it moves backward during recoil.

**recoil system.** See: **recoil mechanism.**

**recoil velocity.** Velocity in recoil of the recoiling parts of a gun.

**recondition.** Renovate, repair, overhaul, rebuild or take any combination of these actions in order to return an item to a state of serviceability.

**reconnaissance guided missile.** See: **GUIDED MISSILE, RECONNAISSANCE.**

**reconnaissance satellite.** An earth satellite designed to obtain strategic information, as through photography, television, etc.

**record.** (rec) *Electronic computers.* A listing of information, usually in printed or printable form; one output of a compiler consisting of a list of the operations and their positions in the final specific routine and containing information describing the segmentation and storage allocation of the routine; to copy or set down information in reusable form for future reference; to make a transcription of data by a systematic alteration of the condition, property or configuration of a physical medium, e.g., placing information on magnetic tape or a drum by means of magnetized spots.

**RECORDER, AZIMUTH.** An item which makes a permanent representation of the angle measured in

a horizontal plane between a target and a selected reference line. Does not include RECORDER, AZIMUTH DEVIATION.*

**RECORDER, AZIMUTH DEVIATION.** A device which makes a permanent representation of the relationship between the bearing of an observed point and the bearing of a directional radio beam. May include accessories.*

**RECORDER, AZIMUTH-ELEVATION-RANGE.** An item which makes a permanent representation of the angle between a fixed reference point and a target in a horizontal plane, the angle between a fixed point and a target in a vertical plane, and the distance between a reference point and a target. May include accessories.*

**RECORDER, RANGE.** An item which makes a permanent representation of distance expressed as range, versus time.*

**RECORDER, TELEMETRIC DATA.** A device which makes a permanent record of meter and/or instrument data received by a telemetric data receiver on a medium such as tape. It does not include audio or radio frequency amplifiers or switches.*

**recorder, time-distance.** A device used for simultaneously recording time elapsed and distance traveled.

**RECORDING SET, TELEMETRIC DATA.** A complete electronic set specifically designed to make a permanent record of meter and/or instrument data received by a telemetric data receiver on a medium such as tape. See also: **RECEIVING SET, TELEMETRIC DATA.***

**recovery party.** A form of contact party whose purpose is the recovery of disabled ordnance materiel from predesignated collecting points, and the transportation of this materiel to the ordnance shops for repairs. A recovery party consists of two or more wrecking trucks and their crews under an officer or noncommissioned officer.

**recovery vehicle.** Special purpose vehicle equipped with winch, hoist, or boom for recovery of vehicles.

**RECOVERY VEHICLE, FULL TRACKED.** A self-propelled vehicle, usually armored, having boom and power winch equipment, designed primarily to recover disabled tanks and other vehicles for combat areas. It may also be used for lifting engines, transmissions, and the like, during repair of disabled vehicles. The item may be equipped with armament and/or gun mounts.*

**rectangle of dispersion.** See: **hundred-percent rectangle.**

**rectifier.** Device for changing alternating current to pulsating direct current; a device which will allow current to flow through it in one direction only.

**RECTIFIER, METALLIC.** An electrical item (the working element of which is constructed essentially of metallic substances) which changes alternating current to direct current by the rectifying action occurring at the junction interface between a metallic conductor and a semiconductor. Excludes sets of metallic rectifiers which are not rated for rectifying capabilities but are used as suppressors. For items containing germanium or silicon, see: **SEMICONDUCTOR DEVICE, DIODE; SEMICONDUCTOR DEVICE SET; RECTIFIER, SEMICONDUCTOR DEVICE.***

**RECTIFIER, SEMICONDUCTOR DEVICE.** Two or more interconnected SEMICONDUCTOR DEVICE, DIODE arranged in stack(s) for use in power supplies to change alternating current to direct current. For items containing material, such as selenium or copper oxide, see: **RECTIFIER, METALLIC.***

**recuperator; recuperator mechanism.** See: **counterrecoil mechanism.**

**recurring issue.** An issue made on a cyclic basis to replenish material consumed or worn out through fair wear and tear in operations, with each issue being made to a consignee eligible to request further replenishment when required, in the foreseeable future. Cf: **nonrecurring issue.**

**red.** Indicates, in the nomenclature of a SIGNAL, SMOKE, GROUND, several smoke pellets which produce freely falling streamers of red smoke at the height of the trajectory.

**red chg** *(abbr).* 'Reduced charge.'

**Redeye.** Name given to an Army developmental surface-to-air small combat missile, utilizing solid propellant and infrared guidance. For frontline use in bazooka-type launchers against low-flying aircraft.

**red labeled cargo.** See: **labeled cargo.**

**red, parachute.** Indicates, in the nomenclature of a SIGNAL, SMOKE, GROUND, a single smoke pellet, parachute suspended, which produces red smoke.

**Red River Arsenal.** Ordnance Corps field installation, located at Texarkana, Texas.

**red star, cluster.** Indicates, in the nomenclature of a SIGNAL, ILLUMINATION, GROUND, a cluster of several freely falling red stars (lights).

**red star, parachute.** Indicates, in the nomeclature of a SIGNAL, ILLUMINATION, GROUND, a single red star (light), parachute supported.

**Redstone.** Name applied to an Army surface-to-surface ballistic missile. Uses liquid fuel and has a range of approximately 300 miles. Has nuclear and nonnuclear capabilities.

**Redstone Arsenal.** (RSA) Field installation of the Ordnance Corps located near Huntsville, Alabama. Location of U. S. Army Ordnance Missile Command, Army Ballistic Missile Agency, and Army Rocket and Guided Missile Agency.

**red tracer.** Indicates, in the nomenclature of a SIGNAL, ILLUMINATION, AIRCRAFT, a red tracer light which burns for 2½ to 4 seconds, followed by two freely falling stars (lights) of indicated colors, which burn for 3 to 4½ seconds.

**reduce.** To clear a stoppage in a weapon.

**reduced charge.** See: **charge, reduced.**

**REDUCER, FLASH, PROPELLING CHARGE.** An item designed for use with a propelling charge to reduce muzzle flash.*

**reduction gear.** A gear assembly between a powered shaft and another shaft, by which the latter shaft is driven at lower rpm than the powered shaft.

**redundancy.** The existence of more than one means for accomplishing a given task, where all means

must fail before there is an overall failure to the system. *Parallel redundancy* applies to systems where both means are working at the same time to accomplish the task, and either of the systems is capable of handling the job itself in case of failure of the other system. *Standby redundancy* applies to a system where there is an alternate means of accomplishing the task that is switched in by a malfunction-sensing device when the primary system fails.

**redundant bombing.** A term used in reference to the bombing of a target or targets which have already been made inoperative or useless by attacks on other targets upon which the former are dependent for their operation.

**reentry.** *Specif.* The reentry of a missile into the earth's atmosphere, or into the denser portion of the atmosphere, as it descends from very high altitudes. This poses problems in ballistics, the study of which is termed *reentry ballistics.*

**reentry body.** That portion of a space-traversing missile which usefully reenters the atmosphere. In a long-range ballistic missile, the separable reentry body contains the heat shield, warhead, attitude stabilizing and fuzing equipments needed to reenter the earth's atmosphere without self-destruction from a very high velocity and altitude, as well as to reduce the dispersion and explode the warhead.

**reentry vehicle.** See: **reentry body.**

**refer.** *Gunnery.* To bring the gunsights on a chosen aiming point without moving an artillery piece which has been laid for direction.

**reference dimension.** In dimensioning, a dimension without tolerance used for informational purposes only. Does not govern machining operations in any way. Reference dimensions are indicated on drawings by writing the abbreviation 'REF' directly following or under the dimension.

**reference fuel.** A fuel of known characteristics used to determine octane requirements of an engine.

**reference rounds.** Ammunition rounds of known performance which are fired during ballistic tests of ammunition for comparative purposes.

**reflected pressure.** The pressure from an explosion, which is reflected back from a solid object or surface, rather than dissipated in the air. Said esp. of an airburst bomb.

**reflected ray.** *Optics.* A ray of light which has been reflected from the surface of an object such as a mirror. Cf: **incident ray.**

**reflection.** 1. *Physics.* The rebounding of electromagnetic, heat, light, or sound waves from a surface. 2. *Optics.* Light striking a surface and returning or 'bouncing back' into the medium whence it came. *Regular reflection* from a plane polished surface, such as a mirror, will return the major portion of the light in a definite direction lying in the plane of the incident ray and the normal. See: **angle of reflection.** *Regular reflection* will form a sharp image. *Diffuse reflection* occurs when the surface is irregular and the reflected light diverges from each point as if it were a separate reflecting surface. Diffused rays go in many directions and will not form a distinct image.

**reflection interval, radar.** The length of time required for a radar pulse to travel from the source to the target and return to the source, taking the velocity of radio propagation to be equal to the velocity of light $2.998 \times 10^8$ m/sec or 299.8 m/micro-second. Since the pulse must travel, in all, twice the distance of the target (out and back), the apparent velocities are only one-half of the true velocity of the pulse. Likewise, the reflection intervals are just twice as great when target ranges are considered The following table, as calculated, takes into consideration both travel to the target and return:

| *Apparent velocity (travel, unit time)* *Radar Ranges* | *Reflection intervals* |
|---|---|
| 149.9 m/microsec | 0.006671 microsec/m |
| 491.8 ft/microsec | 0.002033 microsec/ft |
| 163.9 yd/microsec | 0.006101 microsec/yd |
| 0.0932 statute mi/microsec | 10.735 microsec/statute mile |
| 0.0809 nautical mi/microsec | 12.361 microsec/nautical mile |

**reflector.** A mirror, usually concave, for reflecting light or sound in a particular direction.

**REFLECTOR, AIMING POST.** A retrodirective reflecting device which is attached to an aiming post, and used to reflect images of a light source to establish a reference line for indirect artillery fire. May be used with or without colored filters.*

**REFLECTOR, GUN BARREL.** An L-shaped housing designed for insertion into the barrel of a gun, such as a rifle, machine gun, or the like. An integral mirror provides a reflecting surface for visual inspection of the surface of the barrel interior. Excludes BORESCOPE.*

**reflector, parabolic.** See: **parabolic reflector.**

**reflector plate.** *Gunnery* and *bombing.* A transparent mirror in a computing gunsight or in some types of optical gunsights and bombsights, that reflects the reticle image or images to the eye.

**reflex sight.** An optical or computing sight that reflects a reticle image or images onto a reflector plate for superimposition on the target by the eye.

**refraction.** 1. The bending of light which occurs when a ray of light passes obliquely from one medium to another of different density. 2. In air navigation, the bending of light waves from a celestial body, caused by the atmosphere or by an astrodome. Hence, *atmospheric refraction, dome refraction.* 3. *Radio.* The bending of a radio or radar wave, caused esp. by striking the ionosphere.

**refraction loss.** *Electroacoustics.* That part of the transmission loss due to refraction resulting from nonuniformity of the medium.

**refractive index of air.** The ratio of propagation velocity in a vacuum to the velocity in the atmosphere for electromagnetic radiation. At sea level the refractive index is approximately 1.0003, decreasing at the rate of approximately $-1.2 \times 10^{-8}$ per foot with gain in altitude.

**regenerative engine.** 1. A jet or rocket engine that utilizes the heat of combustion to preheat air or fuel entering the combustion chamber. 2. Specifically applied to a type of rocket engine in which one of

the propellants is used to cool the engine by passing through a jacket prior to combustion.

**register.** 1. Adjust fire on a visible point, called a check point, and compute accurate adjusted data so that firing data for later targets may be computed with reference to that check point. 2. Adjust fire on several selected points in order that they may serve later as auxiliary targets. 3. *Electronic computers.* A device capable of retaining information which is usually subset of the aggregate information in a digital computer.

**registered document.** Any document that has an assigned number by which accounting of it is made to the office of record. It usually, but not necessarily, has a security classification.

**registration fire.** That fire delivered to obtain corrections for increasing the accuracy of subsequent artillery fires.

**regressive burning.** Term sometimes used for 'degressive burning.' See: **degressive granulation.**

**regulated item.** An item requiring special control in handling, distribution, and use because of its highly technical, costly, or hazardous nature, or because of some other specified concern.

**regulating station.** A command agency established to control all movements of personnel and supplies into or out of a given area.

**regulator.** A device designed to control or maintain designated characteristics at predetermined values, or vary them in accordance to a predetermined plan. (Excludes governors, which perform a similar function in controlling speed or revolutions per minute.)*

**REGULATOR, CHARGING RECOIL MECHANISM-EQUILIBRATOR.** A manually operated device designed for accepting compressed nitrogen gas from a cylinder and to deliver it to a recoil mechanism or an EQUILIBRATOR, CANNON. It has an outlet connection controlled by a needle valve. A bleeder valve is provided for purging purposes and there is a threaded projection for the attachment of a pressure gage.*

**regulator, oil-temperature.** A device, sometimes referred to as a cooler, used on internal combustion engines, to lower the oil temperature during summer and to assist in increasing the temperature during cold starts in winter.

**Regulus.** Name applied to a Navy surface-to-surface tactical missile, which resembles a swept wing jet fighter and may be launched from submarine, surface ship or shore base. Designed primarily for use against land targets. This winged missile or pilotless bomber is powered with a solid fuel rocket and turbojet engines. The guidance system is command radar and the range is 650-900 miles. Two missiles in this series are *Regulus I* and *Regulus II.*

**Reid vapor-pressure test for gasoline.** A test for gasoline which measures the vapor pressure exerted by that fuel in a closed system. Used to determine the presence of objectionable quantities of the light constituents in the gasoline which may prematurely become vapor in the fuel line or carburetor and thus prevent a free flow of fuel to the engine.

**relative azimuth angle.** *Specif.* An azimuth angle measured from the heading of a ship or aircraft.

**relative force.** *Interior ballistics.* Ratio of the force (which see) of a test propellant to the force of a standard propellant, measured at the same initial temperature and loading density in the same closed chamber.

**relative shrinkage.** See: **shrinkage.**

**relative velocity.** 1. The velocity of relative motion, esp. in respect to an aircraft or missile and the airstream. 2. The velocity of one moving object as compared with that of another moving object.

**relative wind.** The velocity of the air with reference to a body in it. Usually determined from measurements made at such a distance from the body that the disturbing effect of the body upon the air is negligible.

**relay.** 1. *Electrical.* A protective or control device which completes or breaks into electrical circuit(s) in response to electrical changes in an external circuit. The contacts and actuating element are not in series. It is not designed to permit manual opening of the protected or controlled circuit but may have facilities for manual closing or reset upon automatic opening of the circuit. It is classified by the type of contact actuation, such as armature, meter movement, motor driven, rotary, and solenoid rather than by its application. Such uses as time delay, antenna switching, and keying are secondary features since, for example, a time-delay relay may be of the armature, motor driven, or solenoid, or thermal type. Motor-driven switches, photoelectric tubes and electron tubes which may function as switching devices are not considered as relays. For items with provisions for manual operation, see: **RELAY-SWITCH.*** 2. An explosive train component that provides the required explosive energy to reliably initiate the next element in the train. Specifically applied to small charges that are initiated by a delay element and, in turn, cause the functioning of a detonator. See: **explosive train.**

**RELAY-SWITCH.** An item having the dual functions of a switch and a relay which are fixed together or assembled together on a common panel or in an inclosure. Contacts may be common to both relay and switch. For relay operated switch, use RELAY with applicable modifier. Excludes CIRCUIT BREAKER and rotary relay with protruding shaft.*

**release.** 1. *Mechanical.* A mechanical arrangement of parts for the holding or freeing of a device or mechanism as required.* 2. *Propellant actuated devices.* A device used for various specialty applications such as releasing latches or fasteners.

**RELEASE, ANCHOR, UNDERWATER MINE.** A hydrostatically operated release mounted on the mine anchor designed to separate the anchor from the mine case at a predetermined depth.*

**RELEASE, CARGO PARACHUTE.** A device which automatically releases a parachute from its cargo after it has reached the ground.*

**RELEASE, CASE, UNDERWATER MINE.** A hydrostatically operated release mounted on the mine case designed to separate the case from the mine anchor at a predetermined depth.*

**RELEASE, DRAG PLATE, UNDERWATER MINE.** A hydrostatically operated release designed to sepa-

rate a mine drag plate from a mine at a predetermined depth.*

**RELEASE, FIRING PIN.** A gas operated release utilized to hold or free a firing pin in a canopy remover, thruster, initiator, and the like. Basically it is a small cylindrical piston and cylinder assembly incorporating a pressure inlet with an integral fitting for attaching a standard high pressure hose.*

**RELEASE, FLOAT, UNDERWATER MINE.** A hydrostatically operated release designed to separate a mine float from a mine case at a predetermined depth.*

**RELEASE, MARKER BUOY, UNDERWATER MINE.** An item designed to be actuated by a blasting cap for the release of a marker buoy from an underwater mine control box and/or junction box.*

**RELEASE, PARACHUTE, UNDERWATER MINE.** A release designed to separate an underwater mine parachute from an underwater mine upon impact with the water.*

**RELEASE, PROPELLANT VALVE, GUIDED MISSILE.** An item specifically designed to operate a propellant valve through explosive actuation and shut off the flow of the guided missile propellant.*

**reliability.** The probability of a device performing its purpose adequately for the period of time intended under the operating conditions encountered. For a system with independent components the *overall reliability* is based on the product of the individual reliabilities; e.g., three independent components with a 90% reliability each will have an overall reliability of .9 × .9 × .9 or 72.9%. Similarly, 100 components with a 99% reliability each will have an overall reliability of only 36.5%.

**reline.** To replace a worn liner of a gun to give it the ballistics of a new weapon.

**REM** *(abbr).* 'Roentgen equivalent man.'

**remaining velocity.** Speed of a projectile at any point along its path of fire. Usually measured in feet per second.

**remnant lot.** Not a full lot (which see).

**remote control system.** A system or method of control in which control is directly exercised from a distance over a gun, tank or other piece of equipment, esp. by means of electrical or electronic apparatus.

**REMOTE CONTROL SYSTEM, ANTIAIRCRAFT GUN.** A grouping of electromechanical components which accurately and automatically points an antiaircraft gun in azimuth and elevation from a location moderately distant from the gun in accordance with data received from a gun director. The system also provides for manual operation.*

**remote gun control.** Pointing a gun in azimuth and elevation by means of a remote control system, which automatically keeps the gun pointed according to the firing data.

**removal liner; removable liner.** Rifled inner cylinder of a gun tube, made so it can be taken out and replaced when it becomes worn. See: liner (sense 1).

**remover.** *Propellant actuated devices.* A device similar to a catapult (sense 2), but usually of shorter stroke. Removers usually are employed to remove the canopy of an aircraft prior to personnel escape and do not have strict specifications for acceleration or rate of change of acceleration.

**REMOVER, AIRCRAFT CANOPY.** An item designed to jettison the canopy from an aircraft to provide an exit for personnel.*

**REMOVER, ARTILLERY CARTRIDGE.** An Item specifically designed to remove cartridge(s) from the automatic loader of an artillery weapon.*

**REMOVER, FUZE AND BOOSTER.** A hand operated device consisting of a quick release vise for holding a projectile being defuzed or deboostered, a gear box through which power is applied to a shaft by means of a wheel, and a shaft set up between the vise and the gear box. The shaft is of sufficient length to pass through a safety barricade. It is used when safety conditions demand barricade protection for removing the fuze or booster from a projectile.*

**renegotiation.** Proceeding under the Renegotiation Act to determine the existence of and secure the repayment to the Government of excessive profits, if any, for a fiscal year or other period, received or accrued under contracts and subcontracts subject to statutory renegotiation.

**renegotiation agreement.** Voluntary agreement resulting from renegotiation, which provides for the repayment of that portion of the profits found to be excessive, or for price reductions, or both.

**renovation.** 1. Process of restoring materiel to, or nearly to, its original condition by cleaning, painting or similar methods. 2. Restoration of ammunition to serviceable condition by operations more extensive or hazardous than routine ammunition maintenance (which see). Normally involves replacement of components.

**reorder point.** An arbitrary level of stock on hand plus due in, at or below which routine requisitions for replenishment purposes are submitted in accordance with established requisitioning schedules.

**repair.** To restore that which is unserviceable to a serviceable condition by adjusting or replacing damaged or unserviceable parts, components, or assemblies.

**repair forecast.** The quantity of items estimated to be repaired or rebuilt for issue during a stated future period.

**repair kit.** A group of parts and tools, not all having the same basic name, used for repair or replacement of the worn and/or broken parts of an item. It may include instruction sheets and material, such as sandpaper, tape, cement, gaskets, and the like. For items containing parts without tools, see: parts kit. Excludes MODIFICATION KIT (as modified); INSTALLATION KIT (as modified).*

**REPAIR KIT, FIELD ARTILLERY MAINTENANCE.** A repair kit designed for the maintenance of light, medium, and heavy artillery guns and howitzers.*

**repair parts list.** List approved by designated authorities, indicating the total quantities of repair parts, tools, and equipment necessary for the maintenance of a specified number of end items for a definite period of time.

**replacement factor.** The estimated percentage of equipment in use that will require replacement during a given period due to wearing out beyond repair, enemy action, abandonment, pilferage, and other causes except losses incident to the separation of personnel and in transit losses attributable to ship sinkings.

**replenisher.** A cylinder containing recoil oil and a spring actuated piston, which allows for expansion of oil in the recoil system which has become heated during firing of the weapon. It also returns oil to the recoil system after firing, when the temperature (and volume) of the oil is down.

**report.** Sharp explosive sound, as of a shot, bursting bomb, or projectile.

**report of survey.** An official report prepared on a standardized form, which records the circumstances concerning the loss, damage, or destruction of property, and which serves as, or supports, a voucher for dropping the property from property records.

The report of survey also serves in the determination of responsibility for the property concerned.

**repose angle of yaw** See: **yaw.**

**repship.** Document forwarded to consignee *reporting* that *shipment* of an item or items has actually been physically accomplished.

**required supply rate.** See: **ammunition required supply rate.**

**requisition line item.** Unit of work measurement in supply operations based on one line entry on a requisition, shipping order, or other related document.

**rescue vehicle.** See: **RECOVERY VEHICLE, FULL TRACKED.**

**RESDAT** *(abbr).* 'Restricted Data—Atomic Energy Act of 1954.'

**research.** (rsch) 1. A process by which something is sought out, esp. by systematic effort; a gathering and a close examination of data with a particular object of discovering something or of making something; a studious inquiry given direction by a purpose. 2. The product of such a process or effort.

The term 'research' (sense 1) is a broad term. It embraces, in one instance, the activity involved in collecting hitherto unknown or undetected data by means of any method of investigation, as by running a series of experiments, by uncovering relics or records, or by making observations through reading written records; or it may embrace a second step in this activity, that of classifying collected data, analyzing and evaluating it, or developing principles or hypotheses out of it. This activity is called 'basic research,' because it deals with primary evidence and provides new knowledge and new understandings. See: **basic research.**

In another instance, research may apply to the mental and physical activity involved in making something concrete to exemplify some principle or put knowledge gained in basic research to some useful purpose, as in the research done to build a missile. This research is called 'applied research.' Often basic research and applied research go hand in hand, applied research being used to test the validity of the basic research process. See: **applied research.** See also: **operations research.**

**Research and Development Division.** One of the principal divisions of the Office, Chief of Ordnance. Symbol: ORDT.

**research and development project.** A specifically defined task, subtask, or group of related tasks within a research and development field, which is established (by technical committee action, which see) to meet a military need for research data, a technique or an administrative service, an item or items of materiel, a system, a major component or components, or modifications to adopted items.

**reservoir.** 1. A place where anything is kept in store; *specif.*, a part of an apparatus in which a liquid is held. 2. In brake systems, cylinder designed for storage of compressed air.

**Resident Inspector of Ordnance.** (RIO) A civilian inspector stationed at a contractor plant, who supervises or performs the inspection required on Government contracts, and executes documents by which formal acceptance for the Government is effected.

**residual chamber pressure.** See: **pressures, gun.**

**residual penetration.** As pertains to shaped charge ammunition: Penetration of the jet into a backing target of some standard material after passage through a thickness of target material under test. This penetration is a measure of the effectiveness of the tested material against the jet.

**residual radiation.** Nuclear radiation emitted by the radioactive material deposited after an atomic burst or an attack with radiological warfare agents. Following an atomic burst the radioactive residue is in the form of fission products, unfissioned nuclear material, and material, such as earth, water, and exposed equipment, in which radioactivity may have been induced by neutron bombardment.

**RESIN COATING, THERMOSETTING.** An item consisting of a thermosetting resin in a suitable solvent. It is used as an oil resistant permanent corrosion preventive on surfaces of metallic nonbearing engine parts, airframe components, magnesium parts, aircraft wheels, gun mounts, gear housings, and the like. Do not use if a more specific name exists. Excludes CORROSION PREVENTIVE COMPOUND.*

**resistance.** 1. *Physics.* Any opposing force; a force tending to prevent motion; as, the *resistance* of a target to projectiles. 2. *Elec.* The opposition to the flow of electric current.

**resistor.** *Electrical.* A device, the primary purpose of which is to introduce resistance to the flow of current in an electrical circuit.*

**RESISTOR, THERMAL.** A resistor specifically designed so that its ohmic value varies with ambient temperature changes.*

**resojet.** See: **ENGINE, PULSE-JET.**

**resolution.** In radar, the minimum separation in angle or in range between two targets which the equipment is capable of distinguishing.

**resolution in azimuth.** The angle by which two targets must be separated in azimuth in order to be distinguished by a radar set, when the targets are at the same range.

**resolution in range.** Distance by which two targets must be separated in range in order to be dis-

tinguished by a radar set when the targets are on the same azimuth line.

**resolver.** *Electronic computers.* Means for resolving a vector into two mutually perpendicular components.

**resolver, electrical.** See: **SYNCHRO, RESOLVER.**

**resolving power.** *Optics.* A measure of the ability of a lens or optical system to form separate images of two objects close together. No lens or optical system can form a perfect image of a point; it will appear as a small disk surrounded by concentric circles. If two points are so close together that the disks overlap, the points cannot be distinguished seperately; they cannot be resolved. Increasing the lens diameter decreases the size of the disks. Thus, resolving power is the angle subtended by two points which are just far enough apart to permit resolution. This angle is termed the limiting angle of resolution.

**resonant jet.** A pulsejet engine, so-called because of the intensification of power under the rhythm of explosions and compression waves within the engine. See: **ENGINE, PULSE-JET.**

**RESONATOR, MAGNETOSTRICTION.** A frequency control device, the operation of which is based on the magnetic and mechanical resonant properties of a ferromagnetic material, which has applications in oscillators and filters as a substitute for quartz crystals.*

**respirator.** Device for regulating counterrecoil in some hydropneumatic recoil systems. By the controlled release of air pressure the device assists in buffer action during counterrecoil.

**responder.** That part of a transponder that automatically transmits a reply to the interrogator-responser. Also called 'responder beacon' when its function as a beacon is emphasized.

**responder beacon.** The radar beacon that serves to emit the signals of the responder in a transponder.

**responsor.** That component of an interrogator-responser that receives and displays the reply from the responder beacon.

**restricted data.** As defined in the Atomic Energy Act of 1946, 'all data concerning the manufacture or utilization of atomic weapons, the production of fissionable material, or the use of fissionable material in the production of power,' but not including 'any data which the [Atomic Energy] Commission from time to time determines may be published without adversely affecting the common defense and security.' See also: **defense classification; RESDAT.**

**restricting plug.** See: **choke ring.**

**RETAINER, ANTITANK MINE BOOSTER.** Component for a MINE, ANTITANK which serves to retain a booster charge in place, prior to insertion of the fuze.

**RETAINER, ANTIPERSONNEL MINE TRIP WIRE ASSEMBLY SPOOL.** A metallic device with spring clips designed to attach the trip wire spool to the mine body.*

**RETAINER, ARMING WIRE SEAL.** An item which mates with another item to compress a special rubber seal to form a seal around one or more arming wires and to seal arming wire openings when wires are removed.*

**RETAINER, OPTICAL ELEMENT.** A cylindrical externally threaded item having a centrally located hole specifically designed to retain by means of either a raised box (shoulder), or counterbore countersink, or a similar shaped recess, an optical element such as a lens, reticle, cell, and the like, in optical assemblies. It must have drilled holes or slots to facilitate assembly and disassembly. Excludes RING, EXTERNALLY THREADED.*

**RETAINER, ROCKET SPOTTING CHARGE.** An item specifically designed to retain a rocket spotting charge in a fixed position within the rocket.*

**retaining band, rocket motor cluster.** See: **BAND, RETAINING, ROCKET MOTOR CLUSTER.**

**retardation.** Loss of velocity of a projectile or other missile as it travels along its trajectory.

**RETICLE, OPTICAL INSTRUMENT.** An item, usually made of glass, having fine wires or hairs, or etched or printed fine lines on a surface, and placed in the focal plane of an optical instrument to establish a reference point to the axis for the purpose of aiming, measuring, ranging, and the like. Excludes LENS, OPTICAL INSTRUMENT.*

**reticle image.** A light image of the reticle in a computing gunsight or in certain types of optical gunsights and bombsights, cast on a reflector plate and superimposed on the target.

The reticle image is formed by light passing through a pierced reticle and projected on a reflector plate. It often consists of a ring-shaped light image surrounding the **pipper image.**

**reticule.** Variant of 'reticle.'

**retrace line.** The line traced by the electron beam in a cathode-ray tube in going from the end of one line or field to the start of the next line or field.

**retreat gun.** The firing of a gun as a signal for the lowering of the flag at retreat. The gun is fired after the sounding of the last note of the bugle call at retreat. Also called 'evening gun.' See also: **reveille gun.**

**retro-fired.** Rearward-fired. See: **rocket motor, reverse.**

**retrofit.** [*Retro*active re*fit.*] A modification of equipment to incorporate changes made in later production of similar equipment. Retrofitting may be done in the factory or field.

**retro rocket.** See: **rocket motor, reverse.**

**reveille gun.** The firing of a gun at the first note of reveille or at sunrise. Also called 'morning gun.' See also: **retreat gun.**

**reverse jato.** See: **rocket motor, reverse.**

**reversible engine.** 1. An engine that may be reversed. 2. *Thermodynamics.* A heat engine which, if forced to trace out its indicator diagram in a reversed direction (so that the work which would be done by the engine, when running direct, is actually spent upon it) will reject to the source of heat the same quantity of heat as, when running direct, it would take from the source, and will take from the receiver of heat the same quantity as, when running direct, it would reject to the receiver.

**reversible steering gear.** A steering gear for a vehicle which permits road shock and wheel deflections

to come through the system and be felt in the steering control. See: **irreversible steering gear.**

**revetment.** A retaining wall faced with concrete, stone, etc., commonly used for fortifications or to protect against explosions.

**revolver.** A firearm with a cylinder of several chambers so arranged as to revolve on an axis and be discharged in succession by the same lock. Excludes PISTOL (as modified) and PISTOL, PYROTECHNIC.* Official designation of a revolver is given hereunder with item name.

**REVOLVER, CALIBER .38.**

**revolving gantry crane.** See: **CRANE, GANTRY REVOLVING.**

**Reynolds number.** (R) [Named after Osborne *Reynolds* (1842-1912), a physicist and engineer of Northern Ireland and Manchester, England.] A correction factor applied to analysis of the fluid flow about scale models in wind-tunnel tests to determine the results to be expected of the flow about full-scale models.

The Reynolds number corrects for the scale effect resulting from the difference in size between the scale model and its full-scale prototype. It is expressed in a fraction, the numerator consisting of the density of the fluid, multiplied by its velocity and by a linear dimension of the body immersed in the fluid, the denominator consisting of the coefficient of viscosity. See **dynamic similarity.**

**RF** *(abbr).* 'Radio frequency.'

**RFNA** *(abbr).* 'Red fuming nitric acid.'

**RH** (*abbr*). 1. 'Relative humidity.' 2. 'Rockwell hardness.' 3. 'Right hand.'

**rhomboidal prism.** *Optics.* A prism with four parallel sides and two slanting or oblique, parallel ends. It will divert the path of light entering its ends without changing the form of the light. Rhomboidal prisms may be rotated on the centers of their ends to divert the lines of sight to permit interpupillary adjustment of the eyepiece of a binocular instrument such as a stereoscopic height finder.

**RIA** *(abbr).* 'Rock Island Arsenal.'

**rib.** *Aeronautical.* A transverse structural member that gives cross-sectional shape and strength to a portion of an airfoil.*

**ribbon parachute.** A type of parachute consisting of numbers of ribbons held in place by equally-spaced tapes, with spacing between the ribbons to give the required porosity.

**rib rifling.** Rifling of the bore of a gun in which the lands and grooves are of equal width.

**rich mixture.** A fuel-air mixture containing a high percentage of fuel and a low percentage of air, as compared with a normal mixture or lean mixture; rich fuel mixture.

**ricochet.** 1. Of a projectile, bomb, or the like: To skip, bounce, or fly off at an angle after striking an object or surface. 2. An act or instance of ricocheting.

**ricochet bombing.** See: **skip bombing.**

**ricochet burst.** Burst of a projectile in the air after it has hit and bounced. A ricochet burst is used effectively against enemy personnel.

**ricochet fire.** Fire in which the projectiles ricochet; sometimes used in artillery to obtain air bursts after initial impact.

**Ridgewood Ordnance Plant.** Ordnance Corps field installation, located at Cincinnati, Ohio.

**rifle.** 1. A firearm having spiral grooves upon the surface of its bore to impart rotary motion to a projectile, thereby stabilizing the projectile and insuring greater accuracy of impact and longer range. It may fire projectiles automatically or semiautomatically, or successive rounds may be manually loaded. The operation may be gas, recoil, or manual. It is provided with a stock for shoulder firing and may have a sling to aid in carrying and aiming. 2. A recoilless, breech-loading, single shot, artillery weapon with a manually operated, vented, breech-block and a rifle bore. It is fired from various types of ground or vehicular mounts. Excludes GUN, RECOILLESS (as modified).* 3. To cut spiral grooves (**rifling**) in the bore of a gun in order to give a spin to the projectile so that it will have greater accuracy of fire and longer range.

Several calibers and types of rifles are listed in the subentries hereunder, with item name in each case.

**RIFLE, CALIBER .22.**
**RIFLE, CALIBER .30.**
**RIFLE, CALIBER .30, AUTOMATIC.**
**RIFLE, CALIBER, .30, SUBCALIBER.**
**RIFLE, CALIBER .50, SPOTTING.**
**RIFLE, 7.62 MILLIMETER, AUTOMATIC.**
**RIFLE, 106 MILLIMETER.**

**rifle bracket.** Metal clamp for holding the rifle in easy accessibility, usually on a *motor* vehicle.

**rifle bullet impact sensitivity.** See: **sensitivity, rifle bullet impact.**

**rifled.** Of a gun tube or barrel: Containing **rifling** (which see).

**rifle grenade.** See: **GRENADE, RIFLE.**

**rifle-grenade cartridge.** See: **cartridge, grenade, rifle.**

**rifle-grenade launcher.** See: **LAUNCHER, GRENADE.**

**rifle range.** Place for practice in shooting with a rifle.

**rifle scabbard.** See: **scabbard.**

**RIFLE-SHOTGUN, SURVIVAL.** A single shot weapon of the over and under type with the top barrel chambered for the caliber .22 hornet cartridge and the lower barrel chambered for the .410 gage shotgun shell. It is equipped with a folding sheet metal stock having facilities for storing ammunition.*

**rifle, spotting.** An auxiliary item mounted coaxially on a larger caliber gun used to assist a gunner in determining range. It is usually a magazine-fed, semiautomatic gun with a rifled barrel that utilizes ammunition incorporating a tracer element providing a smoke puff on impact.

**rifling.** The helical *grooves* cut in the bore of a rifled gun tube, beginning at the front face of the gun chamber (*origin of rifling*) and extending to the muzzle; also the operation of forming the grooves in the gun tube. The purpose of rifling is to impart spin to the projectile; if the spin is fast enough, the

projectile will be gyroscopically stable and will travel approximately nose first.

Engagement of the projectile with the rifling is generally accomplished by use of a *rotating band* on projectiles greater than about .60 inch in diameter, and on smaller projectiles, by providing a soft bullet or, if a hard cored projectile is necessary, by the use of a relatively soft jacket.

The gun bore diameter is determined by the ridges between the rifling grooves. These ridges are referred to collectively as the *lands*, and the sides of the lands are called *edges*.

When the projectile or bullet starts to move under the force exerted by the propellant gases the rotating band or jacket is *engraved* by the rifling which forms a reverse replica in the band or jacket. This *engraving* is accomplished partly by cutting and partly by forming.

In *recoilless ammunition* the force required to accomplish engraving of the band would interfere with accomplishment of the recoilless feature, and the projectiles for this ammunition are *preengraved*; that is, the grooves corresponding to the rifling are made in the rotating band at the time of manufacture. Provision is made to insure that the projectile will be inserted in the *recoilless rifle* in proper relationship to the rifling.

The *twist of rifling* is the reciprocal of the *lead of rifling*; it is expressed as the number of calibers of length in which the helix makes one complete turn; e.g., 1 turn in 40 calibers, or 1/40. The *inclination of the rifling* is the tangent of the *angle of rifling*, which is the angle between the axis of the bore and the edge of a land; the inclination is $\pi$ times the lead.

The present practice in the Ordnance Corps is to providing rifling of *uniform twist*; that is, the direction of rifling in which the angle of the helix to an element of the bore is constant.

Opinion relative to the desirability of *uniform twist of rifling* as opposed to *increasing twist of rifling* has apparently become settled in favor of the *uniform twist*. Considerations of production were important factors in this decision. Under the *increasing twist* system, the twist may start either at zero or at some low value, and then increase according to some function of the travel, either to the muzzle, or to some point short of the muzzle at which point the twist would become uniform to the muzzle. Increasing twist is also known as *gain-twist* or *gaining twist*.

**rifling head.** A cutting tool for rifling large gun tubes.

**rigging.** The shroud lines attached to a parachute.

**right-angle prism.** A type of prism used to turn a beam of light through a right angle (90°). It will invert (turn upside-down) or will revert (turn right for left), according to the position of the prism, any light reflected by it.

**right hand twist.** See: **rifling; twist, right hand.**

**right trail.** Right hand part of a split type gun trail.

**rigidity of the trajectory.** The assumption that the trajectory may be tilted up or down through small angles of site without materially affecting its shape.

**rim.** The outer part of an object of circular shape as the base of a cartridge case or the outer part of a wheel.

**rimfire.** 1. Of a cartridge: Having the primer mixture in the rim of the cartridge case base. 2. Of a firearm: Using rimfire cartridges. Cf: **center-fire.**

**rimless.** Said of a cartridge case in which the extracting groove is machined into the body of the case, i.e., no part of the case extends beyond the body.

**rimmed.** Said of a cartridge case in which an extractor rim projects beyond the body of the case.

**ring and bead sight.** Type of gunsight in which the front sight is a bead or post and the rear sight a ring.

**RING AND CHAIN ASSEMBLY, ANTIPERSONNEL MINE.** A metallic device consisting of a pull ring, chain, and hook designed to assure withdrawal of all safety devices when mine is armed.*

**RING, DRAG, TORPEDO.** A cylindrical item designed to fit over a torpedo warhead or exercise head. It is used to increase the efficiency of a torpedo stabilizer and reduce the impact of an aircraft torpedo when entering the water.*

**RING, DUMMY PROJECTILE.** A replaceable part of a dummy projectile. RING, DUMMY PROJECTILE, sliding type, is the carrier for the BAND, DUMMY PROJECTILE, and serves to facilitate release of the dummy projectile from the weapon. The retaining ring retains the BAND, DUMMY PROJECTILE: rear, in place and permits its replacement when necessary.

**ring gear.** A gear cut on a ring-shaped rim; *specif.*, in an automobile, the large gear in the differential that is driven by the propeller shaft pinion and transmits the power through the differential to the live axle.

**RING, HANDLING, GUIDED MISSILE.** A segmented ring designed to completely surround a guided missile. It is used to facilitate certain missile handling functions, such as rotating the missile on its servicing truck and erecting the missile. It may also provide sling accommodations for lifting and/or transporting.*

**ring head.** *Electroacoustics.* A magnetic head in which the magnetic material forms an enclosure with one or more air gaps. The magnetic recording medium bridges one of these gaps and is in contact with or in close proximity to the pole pieces on one side only.

**ringing.** *Electroacoustics.* An oscillatory transient occurring in the output of a system as a result of a sudden change in input.

**ring-oil.** To oil (a bearing) by conveying the oil to the point to be lubricated by means of a ring, which rests upon and turns with the journal, and dips into a reservoir containing the lubricant.

**ring oiler.** A ring-oiling device. See: **ring-oil.**

**RING, PISTON.** A metallic or nonmetallic item of single or multipiece construction, circular in shape, having various cross sections, designed to be used in a groove around a piston as a seal or wiper.*

**ring, powder.** 1. Cloth bag in the shape of a ring that holds a section of the propelling charge in some types of ammunition. The number of rings used controls the strength of the charge and the range of the projectile. 2. Metal ring in which powder train of black powder time fuzes is loaded.

**ring sight.** A sight, esp. a gunsight, in the shape of a ring or concentric rings, through which aim is taken and range is estimated.

Ring sights include the iron type (a simple ring or set of rings inclosing a cross hair or the like) and the optical type, in which a system of lenses is used to show a series of concentric rings and the bead.

**RIO** *(abbr).* 'Resident Inspector of Ordnance.'

**riot grenade.** See: **grenade, riot.**

**riot gun.** Any shotgun with a short barrel, especially a short-barreled shotgun used in guard duty or to scatter rioters. A riot gun usually has a 20-inch cylinder barrel. See also: **SHOTGUN, 12 GAGE, RIOT TYPE.**

**rise time.** In electronics, the time required for a pulse to rise to an arbitrary fraction (usually 90 percent) of its amplitude.

**Riverbank Ordnance Plant.** Ordnance Corps field installation, located at Riverbank, California.

**rkt** *(abbr).* 'Rocket.'

**RL** *(abbr).* 'Rocket launcher.'

**RMP** *(abbr).* 'Rated maximum pressure.'

**RMS** *(abbr).* 'Root mean square.'

**RMS (effective) pulse amplitude.** The square root of the average of the square of the instantaneous amplitude taken over the pulse duration.

**rn** *(abbr).* 'Range.'

**rnd** *(abbr).* 'Round.'

**road oil.** Oil for putting on roads to lay the dust and act as a binder. Heavy oils from asphalt-base petroleum are the most used.

**road test.** Test of an item, such as a vehicle, under practical operating conditions on the road.

**robo.** *R*ocket *o*rbital *bo*mber; an acronym composed of the letters italicized.

**robot bomb.** See: **bomb, robot.**

**Rochester Ordnance District.** Former Ordnance district, absorbed into the **New York Ordnance District** (which see).

**rocker.** Movable, built-in support in a field gun carriage, between the trail and the cradle, that allows changes in elevation to be made without disturbing the angle of position setting.

**rocket.** (rkt) 1. An unmanned self-propelled vehicle, with or without a warhead, designed to travel above the surface of the earth and whose trajectory or course, while in flight, cannot be controlled. Excludes guided missile and other vehicles whose trajectory or course, while in flight, can be controlled remotely, or by homing systems, or by inertial and/or programmed guidance from within.* 2. To fire at with rockets. 3. To go or send by rocket.

**rocket, aircraft.** (AR) A rocket especially designed to be carried by, and launched from, an airplane.

**rocket ammunition.** Any type of ammunition incorporating rockets.

**rocket, antitank.** Rocket designed for use against tanks or other armored vehicles. See: **rocket.**

**ROCKET ASSEMBLY KIT.** A collection of tools, fixtures and hardware items required to accomplish assembly of the components of a rocket, preparatory to launching, packed in a manner suitable for issue.

**rocket assist.** An assist in thrust given an airplane or missile by use of a ROCKET MOTOR(S) or ROCKET ENGINE(S) during flight or during **takeoff.** See also: **jet assisted takeoff.**

**rocket assisted takeoff.** (RATO) A term referring to **rocket assist** (which see) at **takeoff.**

**rocket assisted torpedo.** (RAT) See: **torpedo, rocket assisted.**

**rocket bomb.** See: **bomb, rocket.**

**rocket, boosted.** A rocket contained in a cylindrical shaped case, one end of which is fitted with a primer and propelling charge for imparting initial velocity to the rocket.* Official designations of boosted rockets are listed hereunder with **item name** in each case.

**ROCKET, BOOSTED, 105 MILLIMETER.**
**ROCKET, BOOSTED, 107 MILLIMETER.**

**rocket booster.** See: **booster.**

**rocket, booster.** A rocket that suplies temporary additional thrust to an aircraft, missile, or the like having other means of propulsion. It is used to attain speeds required for initiation of ramjet engine operation, to provide rapid acceleration, to assist in takeoff, etc. The initial stage of any two (or more) stage missile may be a booster rocket. Cf: **rocket assist.**

**rocket, chemical agent.** A rocket with warhead containing a chemical agent.

**rocket conditioning kit.** See: **CONDITIONING KIT, ROCKET.**

**rocket delivery sling.** See: **SLING, ROCKET, AERIAL DELIVERY.**

**ROCKET ENGINE.** A nonairbreathing reaction propulsion device that consists essentially of an injector, thrust chamber(s) and exhaust nozzle(s), and utilizes liquid fuels and oxidizers at controlled rates from which hot gases are generated by combustion and expanded through a nozzle(s).* Cf: **ROCKET MOTOR.**

**rocket firing box.** See: **firing box.**

**rocket flare.** See: **FLARE, PARACHUTE, HAND FIRED.**

**ocket, flash-smoke.** A rocket with warhead containing material to produce flash and smoke on functioning. Official item name of such a rocket is listed hereunder. The size designation indicates the diameter of the warhead.

**ROCKET, FLASH-SMOKE, 762 MILLIMETER.**

**rocket fuel.** A fuel, either in liquid or solid form, developed for, or used by, a rocket. Sometimes includes the oxidizing substance. See: **PROPELLANT** (as modified); **PROPELLANT GRAIN.**

**rocket, gas.** A rocket with warhead containing a war gas. Official item name of such a rocket is listed hereunder. The size designation indicates the diameter of the warhead.

**ROCKET, GAS, 4.5 INCH.**

**rocket gun.** Term sometimes (loosely) applied to a tube-type rocket launcher. See: **LAUNCHER, ROCKET.**

**rocket handling platform.** See: **PLATFORM, ROCKET HANDLING.**

**rocket head.** Former name for the ogive-shaped front part of a round of rocket ammunition which carries the explosive or other payload. See: **warhead.**

**rocket, high explosive.** A rocket with warhead containing a high explosive charge. Official designations of such rockets are listed hereunder with item name in each case. The size designation indicates the diameter of the warhead.

**ROCKET, HIGH EXPLOSIVE, 3.5 INCH.**
**ROCKET, HIGH EXPLOSIVE, 76 MILLIMETER.**
**ROCKET, HIGH EXPLOSIVE, 318 MILLIMETER.**
**ROCKET, HIGH EXPLOSIVE, 762 MILLIMETER.**

**rocket igniter.** An igniter for igniting the propellant in a rocket. See: **IGNITER, ROCKET MOTOR.**

**rocket, illuminating.** A rocket to be fired into the air for the purpose of producing illumination.

**rocket, incendiary.** A rocket with warhead designed to produce an incendiary effect at the target. Official item name of such a rocket is listed hereunder. The size designation indicates the diameter of the warhead.

**ROCKET, INCENDIARY, 8 INCH.**

**rocket, inert.** A rocket with warhead in which all explosives, pyrotechnics, and chemical agents are omitted or replaced with inert materials. Official designations of such items are listed hereunder with item name in each case. The size designation indicates the diameter of the warhead.

**ROCKET, INERT, 2.25 INCH.**
**ROCKET, INERT, 2.75 INCH.**
**ROCKET, INERT, 4.5 INCH.**

**rocket launcher.** See: **LAUNCHER, ROCKET.**

**rocket launcher sight.** See: **SIGHT, ROCKET LAUNCHER.**

**rocket launching shoe.** See: **LAUNCHING SHOE, MISSILE-ROCKET.**

**rocket, liquid.** Term used to indicate a rocket using liquid propellant. See: **ROCKET ENGINE.**

**rocket missile.** A missile using rocket propulsion. See: **missile; rocket propulsion.**

**ROCKET MOTOR.** A nonairbreathing reaction propulsion device that consists essentially of a thrust chamber(s) and exhaust nozzle(s), and that carries its own solid oxidizer-fuel combination from which hot gases are generated by combustion and expanded through a nozzle(s). It may be empty or contain a simulated and/or inert load.* Cf: **ROCKET ENGINE.**

**rocket motor breechblock.** See: **BREECHBLOCK, ROCKET MOTOR.**

**rocket motor, guided missile.** See: **ROCKET ENGINE; ROCKET MOTOR.**

**rocket motor, reverse.** A ROCKET MOTOR mounted or turned backward so that when fired the force can be used for decelerating the vehicle upon which it is mounted. Sometimes called *retro rocket.*

**rocket ogive.** See: **OGIVE, ROCKET.**

**rocket pod.** A pod containing rocket ammunition usually mounted on a wingtip or under a wing.

**rocket, practice.** A rocket used in practice or training, having either an uncharged warhead, or a warhead containing a spotting charge, but having the same engine or motor as the corresponding service rocket. Official designations of such rockets are listed hereunder with item name in each case. The size designation indicates the diameter of the warhead.

**ROCKET, PRACTICE, 2.75 INCH.**
**ROCKET, PRACTICE, 4.5 INCH.**
**ROCKET, PRACTICE, 80 MILLIMETER.**

**rocket projector.** See: **LAUNCHER, ROCKET.**

**rocket-propelled.** Propelled by one or more rocket engines or rocket motors.

**rocket propulsion.** Propulsion by means of a rocket or rockets. A species of reaction propulsion. See: **reaction propulsion; rocket.**

**rocket rail.** A launching rail for rockets. See: **LAUNCHER, MONORAIL, ROCKET.**

**rocket, ram.** 1. A rocket motor mounted coaxially in the open front end of a ramjet, used to provide thrust at low speeds and to ignite the ramjet fuel. 2. The entire unit or power plant consisting of the ramjet and such a rocket.

**rocket, retro.** See: **rocket motor, reverse.**

**rocketry.** 1. The science or study of rockets, embracing theory, research, development, and experimentation. 2. The art and science of using rockets, especially rocket ammunition.

**rocket, smoke.** A rocket with warhead which contains material to produce a smoke cloud on functioning. Official item name of such a rocket is listed hereunder. The size designation indicates the diameter of the warhead.

**ROCKET, SMOKE, 3.5 INCH.**

**rocket, sounding.** A high altitude rocket for carrying equipment for recording and/or transmitting information on ambient conditions at high altitudes.

**rocket spinning gas turbine engine power unit.** See: **POWER UNIT, GAS TURBINE ENGINE, ROCKET SPINNING.**

**rocket, subcaliber.** A rocket designed especially to be fired from launching tubes of larger caliber than the rocket itself.

**rocket, subcaliber aircraft.** (SCAR) A subcaliber rocket designed to be launched from aircraft. See: **rocket, subcaliber.**

**rocket thrust.** The thrust of a rocket engine or rocket motor. See: **jet thrust.**

**ROCKET, TRAINING.** A practice missile designed to be used with rocket launchers for training in launching techniques.

**rocket tube.** 1. A launching tube for rockets. See: **launching tube.** 2. A tube or nozzle through which rocket gases are ejected.

**Rockford Ordnance Plant.** Ordnance Corps field installation, located at Rockford, Illinois.

**Rock Island Arsenal.** (RIA) Ordnance Corps installation, forming a part of the Ordnance Weapons Command, located at Rock Island, Illinois. Principal development, engineering and Ordnance manufacturing installation in the field of carriages, recoil

mechanisms for light and medium field artillery, and for surface-to-surface rocket launchers. Has special mission assignments in connection with corrosion problems and research on nonmetallic materials.

**rockoon.** Word coined from *rocket* and *balloon* to designate a balloon-supported and -launched rocket.

**Rockwell hardness.** (RH) A measure of hardness of materials obtained by pressing a steel ball of 1/16-inch diameter (in Rockwell B test) or a conical diamond point (in Rockwell C test) into the surface of the test material. The depth of penetration is read directly on a micrometer gage marked with arbitrary numbers corresponding inversely to the depth. A smaller indention is produced than in the Brinell hardness test. Cf: **Brinell hardness; Mohs hardness; Shore scleroscope hardness; Vickers hardness.**

**ROD, CLEANING, SMALL ARMS.** A cylindrical item with or without a handle on one end with an integral brush, swab holder or tip on the other end or threaded or coupled to receive the like. It is used for cleaning the bore of a carbine, machine gun, pistol, revolver, rifle, shotgun, or the like. See also: **STAFF SECTION, CLEANING, ARTILLERY.***

**ROD SECTION, CLEANING, SMALL ARMS.** A round metal or wooden item, solid or tubular used singly or as one of two or more similar items attachable end to end. It is designed for use as a section of a ROD, CLEANING, SMALL ARMS.*

**roentgen.** A measure of ionization produced by X-ray or gamma radiation. The unit of measurement of radiation in terms of its effect on human beings. This is technically defined as the amount of X or gamma radiation which as a result of ionization will produce, in 1 cubic centimeter of dry air at standard conditions of temperature and pressure, ions carrying 1 electrostatic unit of electricity of either sign.

**roentgen equivalent man.** (REM) The quantity of any type of ionizing radiation which when absorbed by man produces an effective equivalent to the absorption by man of one roentgen of X or gamma radiation.

**roll.** An angular displacement about an axis parallel to the longitudinal axis of an airframe or a missile.

**roll acceleration.** See: **acceleration, roll.**

**rolled armor.** See: **armor.**

**ROLL, CARGO, AERIAL DELIVERY.** An item of flexible material consisting of folding flaps, removable end caps, specifically designed to package loose items within a unit and rolled up to form a roll, with fittings and fasteners used for the parachute. Excludes BAG, CARGO, AERIAL DELIVERY.*

**Rolligon.** Name given to vehicle equipped with low-pressure pneumatic bags which take the place of wheels or tracks. Primarily designed to travel over sand, muskeg, swamps, marshes, and ice- or snow-covered terrain.

**rolling barrage.** An artillery barrage that precedes infantry troops at a predetermined rate in their advance during the attack to protect them and facilitate their advance. A creeping or jumping barrage. See: **barrage.**

**rolling recoil.** System formerly used for absorbing the recoil energy of some railway guns. With the brakes set, the entire car is allowed to roll back when the gun is fired.

**ROLL, ORDNANCE WEAPONS SPARE PARTS.** An item made of duck, coated cloth, or similar flexible material with loops and/or pockets for retaining ordnance weapons spare parts. It does not include the spare parts.*

**roll out.** *Electronic computers.* To read out of a storage device by simultaneously increasing by one the value of the digit in each column and repeating this 'r' times (where r is the radix) and, at the instant the representation changes from (r-1) to zero: (a) generating a particular signal, or (b) terminating a sequence of signals or (c) originating a sequence of signals.

**roll, target.** See: **TARGET ROLL.**

**Rome Air Development Center.** (RADC) Air Force center responsible for technical developments concerning ground electronics systems. Located at Griffiss Air Force Base, Rome, New York.

**roof-angle prism; roof prism.** See: **Amici prism.**

**root mean square.** (RMS) 1. *Math.* The square root of the arithmetical mean of the squares of a set of numbers. 2. *Electrical and electronic.* The RMS of a sinusoidal wave is the maximum (crest) value divided by the square root of 2. In measuring the effective volts or amperes of an alternating current, the RMS values equal the same values in a continuous current.

**root sum square.** (RSS) The square root of the sum of the squares. In electroacoustics, commonly used to express the total harmonic distortion.

**rope.** Electromagnetic wave reflectors consisting of long strips of metal foil. Similar to window or chaff, but longer. Dropped from airplanes or shot into the air in projectiles. A small parachute or other device may be attached to each strip to reduce rate of fall. See also: **CHAFF, COUNTERMEASURES; window.**

**Rossford Ordnance Depot.** Ordnance Corps field installation, located at Toledo, Ohio.

**rotating band.** See: **band, rotating.**

**rotating crank.** *Specif.* Crank used to turn the breech mechanism of a large gun.

**rotating prism.** See: **Dove prism.**

**rotating wedge.** A circular optical wedge mounted to be rotated in the path of light to divert the line of sight to a limited degree. See: **correction wedge; measuring wedge.**

**rotation coefficients.** Factors employed in computing the effects on range and deflection which are caused by the rotation of the earth. They are published only in firing tables involving comparatively long ranges.

**rotor.** 1. A turning or rotating object or part; the part which revolves around a stationary part. 2. A vehicular gun-mount member provided with trunnions. 3. *Elec.* The rotating part of an electrical rotating machine which does not include a commutator. It may include the winding and/or collector rings.*

**rotor torque, locked.** *Elec.* The locked rotor torque of a motor is the minimum torque which it will develop at rest for all angular positions of the rotor,

with rated voltage applied at rated frequency. Also called 'static torque.'

**rough burning.** Pressure fluctuations frequently observed at the onset of burning and at the combustion limits of a ramjet or rocket.

**round.** (rnd) Short for **complete round** (which see).

**round of ammunition.** See: **complete round.**

**round-off.** *Electronic computers.* To change a more precise quantity to a less precise one, according to some rule.

**routine.** *Electronic computers.* A set of coded instructions arranged in proper sequence to direct the computer to perform a desired operation or series of operations.

**routine ammunition maintenance.** Maintenance operations not involving disassembly of ammunition or replacement of components, and comprising chiefly cleaning and protecting exterior surfaces of individual items, packages of ammunition, ammunition components and explosives. Cf: **renovation** (sense 2).

**routine, general.** *Electronic computers.* A routine expressed in computer coding designed to solve a class of problems, specializing to a specific problem when appropriate parametric values are supplied.

**roving artillery.** Artillery withdrawn from its regular position and assigned to special missions. Roving artillery is usually moved about and fired from different positions to deceive the enemy as to position and strength.

**roving gun.** Gun that is moved about and fired from different positions to mislead or harass the enemy. Generally used for registration when the location of the battery position must remain secret.

**row stack.** To stack supplies in rows from wall or imaginary wall line to aisle.

**rpm** *(abbr).* 1. 'Revolutions per minute.' 2. 'Rounds per minute.'

**RSA** (*abbr*). 'Redstone Arsenal.'

**rsch** *(abbr).* 'Research.'

**RSS** *(abbr).* 'Root sum square.'

**rubber.** *Vehicles.* Includes **track bushings, track shoes, band tracks, bogie tires, combat tires,** and **shock-absorbing mounts** for equipment ranging from engines to instruments.

**rudder.** A movable control surface, usually attached to a vertical stabilizer, by which an air vehicle is guided in the horizontal plane.

On a rocket missile or the like, a rudder may be placed to work either in the airstream or in the jet stream. See: **jet vane.**

**rudder angle.** The acute angle between the chord of a rudder moved from a neutral position and an aircraft's plane of symmetry.

This angle is positive when the trailing edge of the rudder is to the left of neutral.

**RUDDER, INITIAL CONTROL, GUIDED MISSILE.** An item specifically designed to extend into the exhaust blast of a missile motor for controlling the movement of a missile by deflection of the motor blast during low velocity initial takeoff.*

**run.** 1. Steady, level flight of an aircraft across a target to enable bombs to be dropped accurately in horizontal bombing. 2. Passing of a moving target once across the range.

**runaway gun.** Automatic weapon that continues firing after the trigger is released. A runaway is caused by a defect in some part of its mechanism.

**run in.** To operate (a newly built machine) long enough and at the proper speeds to cause the bearing surfaces to so wear that the machine may be satisfactorily operated under service conditions.

**running gear.** All parts of a vehicle pertaining to road operation, including **wheels, axles** (front and rear), **suspension** (springs), **brake system, tires, steering mechanism, frame, lunette, drawbar attachment,** and **lights.**

*Frame,* usually of pressed steel, forms a foundation for the body, the power plant, transmission, steering devices, fuel tank, and some accessories. Cf: **CHASSIS** (as modified); **hull.**

*Springs* break the jars and bumps and protect the machinery, load, and occupants from undue shock and vibration. Cf: **suspension.**

*Wheels* are front and rear, the motor vehicle being driven by either; if by the rear wheels, the front wheels run free on the axle and support the front end of the vehicle and give it direction.

*Rear axle* revolves and communicates the driving effort of the power plant to the rear wheels.

*Front axle,* attached to the frame through the front spring members, forms a means of attachment for the front wheels so as to permit moving the wheels themselves by means of the steering device.

Some vehicles drive on all four wheels, some on four wheels on two rear axles, some on two front and four rear wheels, and some on only the front wheels.

**rupture.** 1. Complete or partial circular break in the metal of a fired cartridge case. A rupture causes loss of power and difficult extraction or jamming. Cf: **split.** 2. Breaking of earth or other substance by the explosion of a projectile or other charge below the surface.

**rust inhibitor.** Compound, usually added to lubricants, which prevents or deters corrosion of metals. See: **INHIBITOR** (as modified).

**rust preventive.** Preventive compound which may be applied to metallic surfaces to protect them from rusting or corroding. See: **CORROSION PREVENTIVE COMPOUND.**

# S

**S** *(abbr)*. In jato unit nomenclature, indicates a solid propellant.

**SA** *(abbr)*. 1. 'Secretary of the Army.' 2. 'Small arms.' 3. 'Springfield Armory.' 4. 'Arsenic trihydride' (arsine, war gas).

**SAA** *(abbr)*. 'Small arms ammunition.'

**sabin.** In acoustics, a unit of equivalent absorption equal in its absorbing effort to 1 sq ft of a completely absorbing surface; i.e., one that does not reflect sound waves.

**sabot.** Lightweight carrier in which a subcaliber projectile is centered to permit firing the projectile in the larger caliber weapon. The sabot diameter fills the bore of the weapon from which the projectile is fired. One type of sabot is discarded a short distance from the muzzle and is known as a 'discarding sabot.' A sabot is used with a hypervelocity armor-piercing projectile having a tungsten carbide core; in this case, the core may be considered as the subcaliber projectile. See also: **hypervelocity armor-piercing; hypervelocity armor-piercing discarding sabot.**

**sabotage.** Action by enemy agents or sympathisers with intent to stop or otherwise hinder a nation's war effort or to interfere with or obstruct the defense of a nation.

**sabotage bomb.** See: **bomb, sabotage.**

**SAC** *(abbr)*. 'Strategic Air Command.'

**Sach's theory.** An alternate theory to **Kirkwood-Brinkley's theory,** embodying scaling laws by which the effect of blast at high altitudes may be inferred from the results at ground level.

**SAE** *(abbr)*. 'Society of Automotive Engineers.'

**SAE horsepower formula.** Standard (Society of Automotive Engineers) formula for computing horsepower of gasoline engines, as follows:

$$hp = \frac{D^2 \times N}{2.5},$$

based on 1,000 feet per minute piston speed. D is the cylinder bore in inches, N the number of cylinders, and 2.5 a constant.

**SAE standard engine test codes.** Detailed codes contained in the SAE Handbook, published by the Society of Automotive Engineers, Inc., with accompanying standard log sheets and data forms, which describe the routine practices generally followed in determining the operating characteristics of engines and which form a guide for engine testing.

**SAE standard threads.** Society of Automotive Engineers Standard system of screw threads. The thread form and pitch series are the same as for the American Standard system, except the extra fine (EF) and special pitch (SP) series, which are special for the SAE system.

**SAE viscosity.** A number used by the Society of Automotive Engineers to designate the viscosity of a lubricant, as in *30 SAE* or *50 SAE*.

An SAE viscosity number is approximately one-half th Saybolt number for an oil having the same viscosity. See **Saybolt viscosity.**

**SAF** *(abbr)*. 'Secretary of the Air Force.'

**safe.** *Ordnance.* So constituted and set as not to detonate or function accidentally; in a safe condition.

**safe contents destroyer.** See: **CRYPTOGRAPHIC EQUIPMENT DESTROYER, INCENDIARY; FILE DESTROYER, INCENDIARY.**

**safety.** A locking or cut-off device that prevents a weapon or missile from being fired accidentally.

**SAFETY AND ARMING DEVICE-FUZE, GUIDED MISSILE.** An item consisting of a SAFETY AND ARMING DEVICE, GUIDED MISSILE and a fuze, specifically designed to provide the safety and arming functions for a guided missile and/or fuzing of the missile in the event of malfunction of the safety and arming mechanism.*

**SAFETY AND ARMING DEVICE, GUIDED MISSILE.** A mechanism which prevents or allows the warhead train of explosives to operate.*

**SAFETY AND ARMING DEVICE, GUIDED MISSILE, TRAINING.** An item identical in configuration to a SAFETY AND ARMING DEVICE, GUIDED MISSILE. It is designed for use in training procedures associated with assembly and/or disassembly of a weapon.*

**safety angle.** See: **angle of safety.**

**safety belt.** Strong belt that is used in aircraft, tanks, or other vehicles to prevent the wearer from being thrown from his seat during swift maneuvering or mishap.

**safety block.** A block which, in the safe position, prevents functioning of the fuze, by limiting the motion of the PIN, FIRING.

**SAFETY CAN.** A cylindrical metal container intended for temporary storage or handling of flammable liquids such as gasoline, naphtha, benzine inside of buildings that are not provided with special storage rooms of proper construction, and for transport of such liquids for filling and supply purposes within local outside areas (excludes bench type safety cans).*

**SAFETY CLIP, ANTIPERSONNEL MINE.** An item specifically designed to prevent pressure being applied to the upper portion of a pressure actuated antipersonnel mine.*

**SAFETY CLIP ASSEMBLY, ANTIPERSONNEL MINE.** A metallic device usually consisting of one or more spring clips or slides designed to render the mine safe to handle until ready for use.*

**safety device.** See: **safety.**

**safety exemption.** A written authorization by the Chief of Ordnance which specifically permits deviation from a mandatory regulation of the Ordnance Safety Manual ORDM 7-224. Cf: **safety waiver.**

**safety factor.** 1. Increase in range or elevation that must be set on a gun so that friendly troops, over whose heads fire is to be delivered, will not be endangered. 2. Overload factor in design to insure safe operation. 3. See: **factor of safety.**

**safety fork.** Metal clip that fits over the collar of the fuze in a land mine and prevents the mine from being set off accidentally. Its function is the same as that of a safety pin. Cf. **SAFETY CLIP, ANTI-PERSONNEL MINE; safety pin; safety wire.**

**safety fuse.** See: **FUSE, BLASTING, TIME.**

**safety glass, laminated.** See: **GLASS, LAMINATED, FLAT.**

**safety groove.** A groove incorporated in an item or component of ammunition, so that any failure will occur at a selected location and will be of a less hazardous nature than might otherwise result from a failure.

**safety lever.** 1. A metal piece forming part of a grenade fuze that is restrained by the thrower's hand or by the projection adapter after the safety pin is removed. Upon throwing or projection, the lever is discarded and the fuze train is initiated by the action of the released fuze firing pin. 2. Lever that sets the safety mechanism on certain types of automatic weapons. Cf: **safety pin.**

**safety lock.** Locking device that prevents a weapon from being fired accidentally.

**safety, margin of.** See: **margin of safety.**

**safety pin.** A device designed to fit the mechanism of a fuze and to remain with it throughout transportation. Presence of the safety device prevents arming or functioning of the fuze, and the device is intended to be removed by the user just prior to employment. Cf: **safety fork; safety wire.**

**safety shoes.** See: **SHOE, SAFETY.**

**safety stake.** One of the stakes set in the ground to mark the right or left limit of safe fire of a weapon.

**safety waiver.** 1. A written authorization by the Chief of Ordnance which specifically permits deviation from a mandatory regulation of the Ordnance Safety Manual for a limited time pending correction of a condition. 2. A written authorization by an installation commander permitting deviation from an advisory provision of the Ordnance Safety Manual ORDM 7-224 for a specific period of time. Cf: **safety exemption.**

**safety wire.** Wire set into the body of a fuze to lock all movable parts into safe positions so that the fuze will not be set off accidentally. It is pulled out just before firing. In some cases it is called 'safety pin.' Cf: **safety fork; safety pin.**

**SAGE.** Abbreviation and usual terminology for **Semi-automatic Ground Environment,** which see.

**sal** *(abbr).* 'Saluting.'

**sally port.** Large gate or passage in a fortified place.

**saluting gun.** Cannon used for firing salutes.

**salvo.** 1. A simultaneous, or nearly simultaneous, discharge of shots from two or more closely placed guns or launchers against the same target. 2. a. The release of several bombs or rocket missiles simultaneously, or in close train, from one or more aircraft at a single target. b. The manner of such release, as in 'he released his bombs, in salvo.' 3. The aggregate of shots, bombs, or rockets so discharged or released.

**salvo bombing.** Method of bombing in which the release mechanisms are operated to drop all bombs carried simultaneously.

**salvo fire.** That method of fire in which weapons are discharged one after the other, usually at intervals of two seconds. Not to be confused with Navy usage, wherein salvo is the equivalent of an artillery volley.

**SAM** *(abbr).* 'Surface-to-air missile.'

**SAME** *(abbr).* 'Society of American Military Engineers.'

**SAMPLING AND ANALYZING KIT, CBR AGENTS.** A collection of items for use in sampling and identifying toxic chemical warfare agents and toxic smokes in the field involving partial qualitative analysis; in sampling biological warfare agents and radiological warfare agents for further processing by appropriate laboratories.*

**sampling risk.** In inspection procedure, the probability, under the sampling plan used, that acceptable material will be rejected or that unsatisfactory material will be accepted. See: **acceptable quality level** and **operating characteristic curve.**

**S&P** *(abbr).* 'Stake and platform' (truck).

**S&W** *(abbr).* 'Smith and Wesson.'

**San Francisco Ordnance District.** (SFOD) One of the eleven districts into which the United States is divided for purposes of industrial mobilization, procurement, contract negotiation and administration, etc., by the Ordnance Corps. Embraces the counties of Monterey, Kings, Tulare, and Inyo, and all counties north thereof in the State of California; the State of Nevada except the counties of Clark, Lincoln, Esmeralda, and Nye; and the States of Oregon, Washington, Idaho, Montana, and Wyoming. The main office is located in San Francisco, California.

**SAP** *(abbr).* 'Semi-armor-piercing.'

**sarin.** (GB) See: **CHEMICAL AGENT, ISOPROPYL METHYLPHOSPHONOFLUORIDATE.**

**satellite.** Anything that attends another of the same kind, as in astronomy, a body that revolves about another body, or in space aviation, a man-made body caused to revolve about the earth or the sun.

**saturation.** *Specif.* The striking of a target area with such numbers of missiles that no place in it remains untouched by destruction.

**saturation bombing.** Intense area bombing intended to leave no place in a given area free from destructive effects.

Saturation bombing may be achieved by dropping many small bombs, or by dropping a medium number of large bombs, or by dropping a single massive bomb.

**Saturn.** Name given to a project for a space vehicle system with a thrust of 1,500,000 pounds estimated. Begun by Army Ordnance but turned over to the National Aeronautics and Space Administration (NASA).

**Savanna Ordnance Depot.** Ordnance Corps field installation, located at Savanna, Illinois.

**Saybolt number.** A number that designates viscosity of a lubricant, as in *60 Saybolt* or *100 Saybolt*. See: **SAE viscosity; Saybolt viscosity.**

**Saybolt viscosity.** Viscosity as determined by the number of seconds required for an oil heated to 130°F for lighter oils, and 210°F for heavier oils to flow through a standard orifice and fill a 60 cc flask. See: **Saybolt number.** See also: **COMPARATOR, VISCOSITY, OIL; VISCOSIMETER, WEIGHT BALANCE.**

**SB** *(abbr)*. 'Supply Bulletin.'

**SC** *(abbr)*. 1. 'Shaped charge.' 2. 'Subcaliber.'

**scabbard.** A sheath with an open top. It is usually made of leather or canvas and is designed to protect edged weapons, rifles, carbines, and submachine guns from elements and rough usage.* Several examples of official designations of scabbards are listed hereunder with item name in each case.

**SCABBARD, BAYONET.**
**SCABBARD, BAYONET-KNIFE.**
**SCABBARD, CARBINE.**
**SCABBARD, RIFLE.**
**SCABBARD, SUBMACHINE GUN.**
**SCABBARD, SWORD.**

**scabbing.** Breaking off of fragments in the inside of a wall of hard material due to the impact or explosion of a projectile on the outside. See: **spall** and **spalling,** preferred terms.

**scalar quantity.** Any quantity that can be described by magnitude alone, such as temperature. Cf: **vector quantity.**

**scale.** A device designed to weigh, count or compute (or a combination thereof) through an element which indicates the state of equilibrium between two opposing forces.*

**SCALE, DIOPTER.** A graduated scale, usually cylindrical in shape, attached to, or forming a part of, the focusing nut or knob of the eyepiece of an optical instrument. It is read in conjunction with a line or dart indicator to measure the change in refracting power of the eyepiece, in diopters, and introduces correction to compensate for the eyesight variation of the observer. It may have a knurled periphery and/or teeth on the inside diameter.*

**scale effect.** An effect in fluid flow that results from changing the scale, but not the shape, of a body around which the flow passes. This effect is relevant to wind-tunnel experiments. See: **Reynolds number.**

**SCALE, GRAPHICAL FIRING.** A device designed in the form of a slide rule, having one or more scales of varying ranges, on either surface, and a plastic cursor with a matte to receive pencil markings of range correction. It is used with various types of ground and sky-sweeper weapons to determine quadrant elevation, angle of sight, or drift, and to calculate the trajectory of a projectile in relation to a target. It may contain scales for yards to meters conversion and gage points which are used in conjunction with the cursor and range scale to convert data given in meters to yards. Scales may be in mils for determining high angle fire, time of flight, deflection shift, and the like.*

**scaling law.** A formula which permits the calculation of some property for a given article based on data obtained from a similar, but different size, article; e.g., crater size, nuclear radiation, etc., for a nuclear warhead of any yield from the known values for another yield.

**scaling wind.** Same as **ballistic wind,** which see.

**scan.** 1. The process of bringing something under systematic search or observation with the intention of detecting some significant object, as in radar or in watching out for hostile aircraft either from the ground or air; *specif.*, radar scan. 2. The motion or the pattern associated with this process, esp. in radar. 3. The extent of this motion or pattern. See: **sector scan.** 4. To survey the sky or any particular airspace by looking successively from one point of direction to another. 5. *Radar.* To traverse or sweep an airspace or region with a succession of directed beams emanating from a radar antenna. 6. *Television.* To pass over a subject, view, or image with successive motions of an electronic beam so as to pick up and transmit the image, view, or the like by television.

The scans in radar are described by the patterns they make, as in **circular scan, conical scan, helical scan, linear scan,** and **spiral scan.** See separate entries.

**scan, axis of.** In a scanning system, the axis about which information as to the target location is collected and with reference to which target displacement is measured.

**scanner.** In radar, the mechanism used in scanning (see: **scan**) and in tracking targets during gunfire.

The scanner is the mechanical and electrical structure that rotates or swivels so that it points in successively different directions. Incorporated in it is the radiator. See: **ANTENNA.**

**scanning.** *Radar.* The motion, usually periodic, given to the major lobe of an antenna; the process of directing the radio-frequency beam successively over all points in a given region of space.

**scanning, electrical.** A type of scanning which is accomplished electrically and without motion of the antenna.

**SCAR** *(abbr)*. 'Subcaliber aircraft rocket.'

**scavenger system.** 1. A device for clearing smoke and gases from the chamber and bore after firing. Also known as 'gas ejector system.' 2. The evacuation system in a wind tunnel for disposing of the products of combustion liberated from a burning model in the tunnel.

**scavenging.** 1. The sweeping out of engine cylinder, by piston movement or a blast of air, of all or most of the gaseous products of the preceding fuel combustion. 2. The sweeping out by a blast of air, of the gaseous products resulting from the firing of a gun. Provided for in some fixed or turret installations.

**schematic diagram.** A presentation of the element-by-element relationship of all parts of a system.

**schematic drawing.** A line drawing showing the interconnection of the various circuits within a component, using conventional symbols to represent the detail parts.

**schiesswolle 18.** Aluminized hexanite, a high explosive, prepared by the Germans during WW II. Also designated as *TSMV 1-101.* Contains 60 percent TNT,

24 percent hexite, and 16 percent powdered aluminum. Has large blast effect and was used in loading torpedo warheads.

**schlieren.** 1. Gradients or variations in gas density, or striae, from the German word. 2. An optical system which either cuts off or passes a large change in light intensity, owing to the slight refraction of the light passing through gas. This system is often used in wind tunnels, making visible turbulence and weak shock waves by directly showing the first derivatives of gas density.

**Schneider ordnance.** Ordnance originally manufactured at the Schneider works in France, and used at times in French, Russian, American, Japanese, and other armies.

**Schneider recoil system.** A recoil system, of Schneider design, employing the hydropneumatic principle without a floating piston.

**scientific intelligence.** That component of strategic intelligence which deals with the progress of research and development as it affects the economic or military potential of nations.

**scientific research.** 1. Research in the field of science. 2. Research employing scientific methods or techniques.

**scleroscope.** [Greek *skleros* (hard) + *scope*.] An apparatus for measuring hardness of materials, such as metals, on the basis of the height of rebound of a small plummet dropped vertically by the force of gravity onto the surface being measured.

**scleroscope hardness.** (SH) Hardness measured in a prescribed manner by a scleroscope. See also: **Shore scleroscope hardness.**

**SCOOTER, MOTOR.** A drop frame vehicle having two wheels, one behind the other, or, consisting of one front and two rear wheels or one rear and two front wheels; steered with a handle bar or wheel and propelled by a gasoline engine driving through sprockets and chain(s), pulleys and belts or shaft to the rear wheels.*

**scope.** 1. A cathode-ray screen. 2. A cathode-ray tube. 3. Short for 'oscilloscope.' 4. Short for 'telescope' or 'telescopic sight.'

**Scorpion.** Name given to a full-tracked 90-mm air-transportable self-propelled gun.

**scout car.** Lightly armed and armored reconnaissance vehicle, either wheel or half-track, without turrets, adapted for high-speed operation on hard roads and for cross-country missions. Cf: **CAR, ARMORED.**

**SCRAMBLER, AUDIO SIGNAL.** An item which renders intelligible speech or keyed audio frequency signals unintelligible without proper reconversion equipment and/or reverses this process.*

**Scranton Ordnance Plant.** Ordnance Corps field installation, located at Scranton, Pennsylvania.

**screaming.** See: **screeching.**

**screeching.** A form of combustion instability, esp. in an afterburner, occurring at relatively high frequencies and characterized by a harsh, shrill noise. Sometimes called *screaming*.

**screen.** 1. *General.* To eliminate undesirable elements from anything. 2. *Specif.* To eliminate undesirable fixed echoes or clutter from a radar set, normally accomplished by sighting the radar a shallow defilade. 3. *Physics.* A part of an instrument or piece of apparatus designed to prevent agencies in one part from affecting other parts; as, optical, electric, and magnetic *screens*.

**screening elevation.** The elevation angle from a radar antenna to the crest that screens the radar.

**screening smoke.** A smoke cloud produced by chemical agents or smoke generators. Used to conceal friendly troops and/or to deny observation by enemy troops. See also: **smoke blanket; smoke screen.**

**SD** *(abbr).* 'Self-destroying; self-destruction.'

**S/D** *(abbr).* 'Secretary of Defense.'

**sdrag** *(abbr).* 'Sound ranging.'

**seacoast artillery.** Class of artillery formerly used for seacoast defense. Consisted of fixed guns, howitzers, and mortars defending the harbors and manned by the former Coast Artillery Corps. As a class of artillery the term is now obsolete.

**sea level.** 1. The level at the surface of the sea; *specif.*, mean sea level adopted as a standard for measuring height or altitudes. 2. The standard datum plane from which altitudes are computed by means of differences in atmospheric pressures.

**sea mine.** See: **MINE, UNDERWATER.**

**SEAR.** 1. An item so designed as to retain the firing mechanism of a gun in the cocked position.* 2. A variety of lockwork in the firing mechanism of a propellant actuated device which prevents motion of the firing pin until released.

**search.** 1. In radar scanning, the action of looking for an object of interest. 2. To distribute gunfire over an area in depth by successive changes in gun elevation.

**searching control.** Mechanism that changes the azimuth and elevation settings on a searchlight automatically and constantly, so that its beam is swept back and forth within certain limits.

**searchlighting.** Projecting the radar beam continuously at an object instead of scanning.

**SEARCHLIGHT SET.** A grouping of items consisting of one or more SEARCHLIGHT and one or more major components required to operate a complete searchlight system. May include accessories and/or operating spares.*

**sea return.** Indication on a radar indicator caused by radio waves being reflected back by the surface of the sea. See: **radar clutter.**

**season cracking.** An occurrence in brass cartridge cases and other brass parts in which cracking occurs because of residual internal strains from the manufacturing operations. Prevented by a short time anneal, which removes the residual strains without affecting the hardness.

**seat.** 1. Support or holder for a mechanism, or for a part of one. 2. To fit correctly in or on a holder, or prepared position; as, to seat a fuse in a bomb, a projectile in the bore of a gun, or a cartridge in a chamber.

**SEAT, AIRCRAFT EJECTION.** A seat designed to be ejected through an aircraft canopy or hatch opening, by means of some form of an explosive.*

**seating.** *Specif.* Distance to which a projectile is rammed into the bore of a cannon, usually measured

from the base of the projectile to the rear face of the breech.

**sec** *(abbr)*. 'Second(s).'

**secant ogive.** See: **ogive, secant.**

**SecNav** *(abbr)*. 'Secretary of the Navy.'

**secondary armament.** See: **secondary weapon.**

**secondary blast injuries.** Those injuries sustained from the indirect effects, such as falling rubble from a collapsed building or missiles (debris or objects) which have been picked up by the winds generated and hurled against an individual. Also includes injuries resulting from individuals being hurled against stationary objects. Cf: **primary blast injuries.**

**secondary bomb damage.** Nonphysical bomb damage. See: **bomb damage** (sense 2).

**secondary fragment.** See: **fragment, secondary.**

**secondary high explosive.** A high explosive which is relatively insensitive to heat and shock and is usually initiated by a primary high explosive. It requires a relatively long distance and time to build up from a deflagration to detonation and will not propagate in extremely small diameter columns. Secondary high explosives are used for boosters and bursting charges. Sometimes called 'noninitiating high explosives.' (*Note*: The use of the terms 'secondary high explosive' and 'noninitiating high explosive' is not accepted by all authorities.) Cf: **primary high explosive.**

**secondary item.** Any item, including end items, components, and spare parts, which has not been classified as a **principal item** (which see).

**secondary station.** 1. Observation post at the end of a base line farthest from the gun or directing point. 2. Any station in a radio net other than the net control station.

**secondary target.** (stgt) Target against which fire is directed when the main fire mission has been accomplished, or when it has become impossible or impracticable for the gun or battery to carry out the main fire mission.

**secondary weapon.** Supporting or auxiliary weapon of a unit, vehicle, position, or aircraft. It is generally a gun of smaller caliber than the primary weapon and its purpose is to protect or supplement the fire of the primary weapon.

**second-channel interference.** Interference (which see), in which the extraneous power originates from a signal of assigned (authorized) type in a channel two channels removed from the desired channel.

**second echelon maintenance.** See: **maintenance.**

**second echelon supply.** See: **supply.**

**secret.** See: **defense classification.**

**secret weapon.** A weapon closely guarded or kept under concealment so as to be used with advantage before countermeasures can be taken against it.

**sector.** A clearly defined area or air space designated for a particular purpose.

Examples would include: a. A distinct part of a front held by a given force. b. A defined area in a coastal frontier defense: the organization responsible for its defense. c. A defined air space in which a given force is responsible for its air defense. d. A defined part of the enemy's back or rear area, used in assigning air attack missions. e. A segment of air space extending cone-like from a radar scanner.

**sector gear.** 1. A toothed device resembling a portion of a gear wheel containing the center bearing and a part of the rim with its teeth. 2. A gear having such a device as its chief essential feature.

**sector scan.** A radar scan through a limited angle, either in azimuth or depth, as distinguished from a scan that fully rotates. Hence, *sector scanning*.

**security classification.** See: **defense classification.**

**security clearance.** A clearance given a person permitting him access to classified material, equipment, or information up to and including a given classification, provided he can establish a need-to-know. For classifications see: **defense classification.**

**security cognisance.** The responsibility for the implementation of the Department of Defense Industrial Security Program for an individual facility which the Assistant Secretary of Defense (Manpower and Personnel) has assigned to one military department for that purpose.

**security control officer.** An officer, warrant officer, or responsible civilian official appointed in each command or agency to exercise staff supervision over the safeguarding of defense information.

**security courier service.** A courier service authorized and able to handle and transport classified information and material.

**sedan, automobile.** See: **AUTOMOBILE, SEDAN.**

**seek.** To go toward a target or other object in reaction to some influence such as heat, light, or sound emitted by the target or object. See: **seeker; target seeking.**

**seeker.** Any moving object that seeks its direction through a device attracted to light, heat, radio waves, sound, or the like, esp. a missile that finds its target by means of the light, heat, or the like emitted by the target; the device used in such an object. See: **heat seeker; homing; homing device; target seeker.**

**seen fire.** Fire which is continuously aimed at the future position of an aircraft, the aim being derived from visual observation. Cf: **unseen fire.**

**segment.** *Electronic computers.* To divide a routine in parts each consisting of an integral number of subroutines, each part capable of being completely stored in the internal storage and containing the necessary instructions to jump to other segments; in a routine too long to fit into internal storage, a part short enough to be stored entirely in the internal storage and containing the coding necessary to call in and jump automatically to other segments. Routines which exceed internal storage capacity may be automatically divided into segments by a compiler.

**selected mine.** See: **mine, selected.**

**selective delay fuse.** See: **fuse, selective delay.**

**Selective Stockage Plan.** A basic element of the **Army Field Stock Control System** (which see). A plan for selecting and stocking fast moving items forward and slower moving items to the rear.

**selectivity.** *Receivers.* That character which determines the extent to which the receiver is capable of differentiating between the desired signal and disturbances of other frequencies.

**selector.** *Electronic computers.* A device which interrogates a condition and initiates a particular operation according to the interrogation report.

**SELECTOR, LAUNCHER CONTROL.** An item specifically designed to monitor and control a guided missile launching area. Includes communication circuits and readiness to fire information from two or more individual missile launching panels. Excludes PANEL, FIRING, GUIDED MISSILE.*

**SELECTOR, MEMORY ADDRESS, COMPUTER.** A component of an electronic data processing equipment containing circuitry that provides electrical pulses for inserting and removing information stored in a core memory matrix.*

**self-chambering.** Ability of a weapon to chamber cartridges without manual aid.

**self-contained base-line system.** System of target location whereby the target is located in azimuth and range using a **self-contained range finder.**

**self-contained range finder.** Instrument used for measuring range by direct observation, without using a base line. The two types are the coincidence range finder and the stereoscopic range finder.

**self-destroying.** (SD) Indicates, in connection with a fuze or a tracer, that the missile (projectile, rocket, or missile) with which it is used will be destroyed (functioned) in flight prior to ground impact in case the target is missed. See also: **self-destruction.**

**self-destroying fuze.** See: **fuze, self-destroying.** See also: **self-destruction.**

**SELF-DESTRUCT CHARGE, GUIDED MISSILE.** An explosive element which operates in conjunction with that part of the missile which, of itself or by command, senses a catastrophic flight malfunction and destroys the missile.*

**self-destruction.** (SD) A term descriptive of an event which occurs from fuze or tracer action without outside stimulus, when provided for in the design, by which the fuze (or tracer) effects projectile or missile destruction, after flight to a range greater than that of the target. Self-destruction (also called 'self-destroying') items are employed in several types of antiaircraft ammunition where impact of unexploded projectiles or missiles would occur in friendly areas. See also: **fuse, self-destroying; shell destroying tracer.**

**self-destruction equipment.** Equipment that may be destroyed by a self-contained explosive.

Detonation of the explosive may be by a time-delay mechanism, by radio command, by automatic trip mechanism, or by other device. Secret equipment exposed to the danger of capture may be rigged with a self-destruction device.

**self-energising.** Term applied to a mechanical unit which has the ability to utilize itself to increase effectiveness; for example, the rotation of a brake drum to increase braking effectiveness.

**self-hooping.** Term sometimes used to describe the effect on a gun tube of manufacture by **radial expansion,** which see. The effect is similar to that produced by a hoop which is shrunk over the tube in 'built up' guns.

**self-instructed carry.** *Electronic computers.* A system of executing the carry process in which information is allowed to propagate to succeeding places as soon as it is generated and without receipt of a specific signal. See also: **carry** and **separately instructed carry.**

**self-loader.** A self-loading firearm or gun.

**self-loading.** Of a firearm or gun: That utilizes either the explosive gases or recoil to extract the empty case and chamber the next round.

Self-loading firearms or guns include both semiautomatic and full-automatic types.

**self-propelled.** 1. Of a gun: Mounted on a vehicle that has its own motive power. 2. Of a missile: That is propelled by fuel carried by the missile itself, as in the case of a rocket. 3. Of a military unit: Having self-propelled guns. 4. Of a vehicle: Given motion by means of a self-contained motor.

**self-propelled antiaircraft artillery gun.** See: **GUN, ANTIAIRCRAFT ARTILLERY, SELF-PROPELLED.**

**self-propelled antitank gun.** See **GUN, ANTITANK, SELF-PROPELLED.**

**self-propelled artillery.** Artillery weapons permanently installed on vehicles which provide motive power for the piece. These weapons are fired from the vehicle.

**self-propelled field artillery gun.** See **GUN, FIELD ARTILLERY, SELF-PROPELLED.**

**self-propelled heavy howitzer.** See: **HOWITZER, HEAVY, SELF-PROPELLED.**

**self-propelled light howitzer.** See: **HOWITZER, LIGHT, SELF-PROPELLED.**

**self-propelled medium howitzer.** See: **HOWITZER, MEDIUM, SELF-PROPELLED.**

**self-propelled mount.** (SPM) See: **mount, self-propelled.**

**self-sealing.** Of a fuel tank: Lined with a substance that closes immediately over any small rupture in the tank, such as a bullet hole.

**Selsyn.** [A General Electric name, coined from *self-synchronous.*] A term applied either to a synchro generator or a synchro motor, designed for different purposes, as for synchronizing gunfire with a radar scanner. See: **synchro; SYNCHRO, RECEIVER.**

**semiapical angle.** See: **apical angle.**

**semi-armor-piercing bomb.** (SAP bomb) See: **BOMB, SEMI-ARMOR-PIERCING.**

**semiautomatic.** Of a firearm or gun: Utilizing part of the force of an exploding cartridge to extract the empty case and chamber the next round, but requiring a separate pull on the trigger to fire each round. Hence, *semiautomatic rifle; semiautomatic pistol; semiautomatic weapon; semiautomatic fire;* etc. See: **automatic.**

**Semiautomatic Ground Environment.** (SAGE) A defense system providing instantaneous information needed for control of missiles and aircraft used to wage air battles. Best known by its abbreviation, pronounced as a word.

**semiautomatic supply.** System by which certain specified items of supplies needed by units, activities, or forces are shipped by the agencies responsible for supply on the basis of periodic reports of the status of stocks on hand and en route to the using agency. All other supplies are furnished on the basis of requisitions initiated by the using agency. See: **automatic supply.**

**semiconductor device.** An electron device in which the characteristic distinguishing electronic conduction takes place within a semiconductor which is an electronic conductor with resistivity in the range between metals and insulators and in which the electrical charge carrier concentration increases with increasing temperature over part of its temperature range. The semiconductor utilizes two types of carriers namely negative electrons and positive holes.* See: **TRANSISTOR.**

**SEMICONDUCTOR DEVICE, DIODE.** A two-electrode semiconductor device containing germanium or silicon, and having an asymmetrical voltage-current characteristic. Excludes SEMICONDUCTOR DEVICE, PHOTO. For items containing material such as selenium and copper oxide, see: **RECTIFIER, METALLIC.***

**SEMICONDUCTOR DEVICE SET.** A grouping of two or more individual semiconductor devices, such as transistors, diodes, and photo semiconductor devices. Includes matched pairs. For interconnected items, see: **RECTIFIER, SEMICONDUCTOR DEVICE.***

**semidiesel engine.** An internal combustion engine of a type resembling the diesel engine in using heavy oil as fuel but employing a lower compression pressure and spraying it under pressure, against a hot (uncooled) surface or spot, or igniting it by the precombustion or supercompression of a portion of the charge in a separate member or uncooled portion of the combustion chamber.

**semifixed ammunition.** Ammunition in which the cartridge case is not permanently fixed to the projectile, so that the **zone charge** (which see) within the cartridge case can be adjusted to obtain the desired range; loaded into the weapon as a unit. Cf: **fixed ammunition; separate loading ammunition; separated ammunition.**

**semifluid lubricant.** See: **LUBRICATING OIL, SEMIFLUID.**

**semimobile artillery.** Artillery weapons designed for movement but which require partial disassembly to place in firing position. Wheels or other suspension devices are removed from the mount to permit its resting on the ground. *Examples*: 90-mm and 120-mm antiaircraft weapons, 8-inch gun, 240-mm howitzers.

**SEMITRACTOR, WHEELED.** A two-wheeled, self-propelled vehicle primarily designed for high speed towing of heavy duty equipment, such as scrapers, dump trailers, cranes, and the like.*

**semitrailer.** A nonpowered vehicle, having integral wheels at the rear only, designed to carry materials, supplies or equipment and to be towed by a self-propelled motor vehicle and partially supported, when in motion, by the towing vehicle or by a dolly and couples with a FIFTH WHEEL ASSEMBLY. It may include a DOLLY, TRAILER CONVERTER. Excludes trailer.*

**SEMITRAILER, GUIDED MISSILE BODY SECTION.** A specifically designed van type semitrailer equipped with shock absorbing cradles, hold-down devices, and integral jacks for transporting a guided missile body section.*

**SEMITRAILER, GUIDED MISSILE LAUNCHING EQUIPMENT.** A semitrailer specifically designed for transporting a platform launcher on the rear section, with a van type body installed on the front section. It is equipped with storage racks for transporting various items of launching equipment. When equipped, it will provide a mobile source of electrical power, battery servicing facilities, and may contain facilities for installing high pressure air tanks for use in the preparation of a missile for test and/or tactical application.*

**SEMITRAILER, LOW BED.** A semitrailer with a front gooseneck (with or without a deck) designed to provide low loading height for transporting heavy and/or bulky objects. Excludes SEMITRAILER, TANK TRANSPORTER.*

**SEMITRAILER, TANK.** A semitrailer with a tank body designed for transporting water, gasoline, oil or other liquid. May include facilities for dispensing. Excludes items with integral spray attachments.*

**SEMITRAILER, TANK TRANSPORTER.** A semitrailer primarily designed to transport tracked combat vehicles. Excludes SEMITRAILER, LOW BED and commercial automobile transport semitrailers.*

**SEMITRAILER-TRUCK TRACTOR, TANK.** An item consisting of a SEMITRAILER, TANK attached to a TRUCK TRACTOR on which is mounted a power operated pumping unit.*

**Semple plunger.** A centrifugal plunger, named for the inventor. This plunger operates to maintain a fuze in a safe condition until centrifugal force unlocks and moves the PIN, FIRING into the armed position.

**Seneca Ordnance Depot.** Ordnance Corps field installation, located at Romulus, New York.

**sense.** 1. *Electronic computers.* To examine, particularly relative to a criterion; to determine the present arrangement of some element of hardware, especially a manually-set switch; to read holes punched in paper. 2. *Gunnery.* To determine the **sensing** (which see).

**sensing.** The direction of a point of burst or impact, or centers of burst or impact with respect to the target; such as over, short, air or graze.

**SENSING ELEMENT, PROXIMITY FUZE.** An item consisting of an electronic sensing element which initiates the action of a FUZE, PROXIMITY.*

**sensitivity.** The characteristic of an explosive component which expresses its susceptibility to initiation by externally applied energy.

**sensitivity, rifle bullet impact.** A measure of sensitivity of an explosive, determined by firing a caliber .30 bullet (standard ball ammunition) under standard conditions through a charge of test explosive loaded in a short pipe nipple closed at both ends by pipe caps. The results of a series of tests are compared with those for an accepted explosive.

**separated ammunition.** Separated ammunition is characterized by the arrangement of the propelling charge and the projectile for loading into the gun. The propelling charge, contained in a primed cartridge case that is sealed with a closing plug, and the projectile, are loaded into the gun in one operation. Separated ammunition is used when the ammunition is too large to handle as fixed ammunition. Cf: **fixed ammunition; semifixed ammunition; separate loading ammunition.**

**separate loading ammunition.** Ammunition in which the projectile, propellant charge (bag loaded), and primer are handled and loaded separately into the gun. No cartridge case is utilized in this type of ammunition. Cf: **fixed ammunition; semifixed ammunition; separated ammunition.**

**separately instructed carry.** *Electronic computers.* A system of executing the carry process in which carry information is allowed to propagate to succeeding places only on receipt of a specific signal. See also: **self-instructed carry, and carry.**

**separation.** 1. The phenomenon in which the **boundary layer** of the flow over a body placed in a moving stream of fluid separates from the surface of the body. 2. In multistage missiles, the time or place at which a burnt-out stage is discarded and the remaining missile continues on its way.

**separation point.** *Aerodynamics.* The point at which the separation of the **boundary layer** begins. See: **separation (sense 1).**

**sequential operation.** *Propellant actuated devices.* Functioning involving the programmed triggering of more than one device according to a predetermined schedule.

**Sergeant.** Army surface-to-surface ballistic missile, using solid propellant. Heavier with somewhat longer range than the **Corporal.** Has nuclear and nonnuclear capabilities.

**sergeant missile system ground support equipment hoisting adapter.** See: **ADAPTER, HOISTING, GUIDED MISSILE GROUND SUPPORT EQUIPMENT.**

**serial arithmetic unit.** *Electronic computers.* One in which the digits of a number are operated on sequentially. See also: **parallel arithmetic unit.**

**serial transmission.** *Electronic computers.* A system of information transmission in which the characters of a work are transmitted in sequence over a single line, as contrasted to parallel transmission.

**series elements.** *Network topology.* 1. Two-terminal elements are connected in series when they form a path between two nodes of a network such that only elements of this path, and no other elements, terminate at intermediate nodes along the path. 2. Two-terminal elements are connected in series when any mesh including one must include the others.

**service ammunition.** Ammunition intended for combat, rather than for training purposes.

**service board.** Organization established by the chief of each technical service to service-test items of material, e.g., **Ordnance Board (which see).**

**service bomb.** See: **bomb, service.**

**SERVICE KIT, GAS BOMB.** A collection of spare parts, accessories and tools contained in a wooden chest. It is intended to provide equipment for making repairs, testing for gas pressure within the bomb body and the detection of and sealing against gas leakage.*

**service marking.** Symbols, numerals or letters that are painted, stenciled or stamped on supplies or ammunition to give information needed for proper handling, storage and use.

**service of the piece.** Operation and maintenance of a gun or other equipment by its crew.

**service practice.** Part of the training program for troop units, consisting primarily of practical problems in the preparation, execution and conduct of fire with service or target practice ammunition.

**service project.** A research and development activity initiated because of an indicated need for developing methods, techniques and apparatus for research, development, or testing; for development leading to desirable modifications of adopted materiel, or for development of improved components of end items; and for other purposes which are of interest only to the developing agency in which they originate. Does not normally require **technical committee** action (which see).

**service test.** See: **user test.**

**service test type.** See: **type classification.**

**service velocity.** The muzzle velocity established as the velocity to be attained by a projectile of standard weight, under standard conditions of temperature, when fired from a new gun of the designated type. The range tables are computed on the basis of this velocity.

**SERVICING PLATFORM, SELF-PROPELLED.** A self-propelled item designed to provide a safe working platform for overhead inspection, maintenance, repair, or construction operation. A small floored area (working platform) is mounted on articulated booms which may be rotated in any horizontal plane within the limits of the supporting equipment. The booms are cable and/or hydraulically operated and are controlled by mechanism located within the platform and/or on the vehicle. It is designed for servicing items above and/or below ground level.*

**SERVICING PLATFORM, TRACTOR MOUNTED.** A tractor mounted item designed to provide a safe working platform for overhead inspection, maintenance, repair, or construction operations. A small floored area (working platform) is mounted on articulated booms which may be rotated in any horizontal plane within the limits of the supporting equipment. The booms are cable and/or hydraulically operated and are controlled by mechanism located within the platform and/or on the vehicle. It is designed for servicing items above and/or below the ground level.*

**SERVICING PLATFORM, TRUCK MOUNTED.** A truck mounted item designed to provide a safe working platform for overhead inspection, maintenance, repair, or construction operations. A small floored area (working platform) is mounted on articulated booms which may be rotated in any horizontal plane

within the limits of the supporting equipment. The booms are cable and/or hydraulically operated and are controlled by mechanism located within the platform and/or on the vehicle. It is designed for servicing items above and/or below ground level. Excludes SPRAYING UNIT, CLEANING-DEICING-DECONTAMINATING FLUID, TRUCK MOUNTED; TRUCK, MAINTENANCE with platform lift.*

**servo.** Short for 'servomotor,' 'servomechanism,' or the like.

**servoamplifier.** An amplifier in a servosystem.

**servocontrol.** 1. Control of anything through use of a servomechanism. 2. The servomechanism that provides this control; *specif.*, on an airplane, an auxiliary control surface that by mechanical or aerodynamic relay takes over part of the load in operating a larger control surface.

**SERVOCYLINDER, HYDRAULIC, GUIDED MISSILE.** A hydraulic device designed to actuate airframe control surfaces on a guided missile.*

**SERVOCYLINDER, PNEUMATIC, GUIDED MISSILE.** A pneumatic device designed to actuate airframe control surfaces on a guided missile.*

**servodyne.** A power unit used in a servosystem.

**servo gain.** State of responsiveness of a servosystem to a voltage change.

**servolink.** A power amplifier, usually mechanical, by which signals at a low power level are made to operate control surfaces requiring relatively large power inputs, e.g., a relay and motor-driven actuator.

**servomechanism.** An integral, electro-mechanical device, which, upon receiving signals, transmits mechanical energy to effect changes or corrections in position, direction, speed, power output, and the like, of operating equipment, such as a mounted gun, an automatic pilot system, and the like. It usually consists of a synchro generator, a control transformer, amplifying device, a servomotor, and/or any other devices required to perform its automatic functions.*

A servomechanism may, in one instance, be a simple relay in which, for example, a control lever is connected with a flying tab, which is the device that helps move the control surface into a desired position. Or it may be a mechanism in which an auxiliary motor provides the power for keeping something in correct position, reacting to anything that serves to trigger the mechanism, such as a photoelectric cell, a meter, a particular voltage, etc. The mechanism that aims a gun on a ship, reacting to roll, pitch, and yaw is a kind of servomechanism.

**SERVOMECHANISM, ELEVATION, RANGE FINDER.** A servomechanism which receives a signal composed of gun elevation data minus superelevation, and mechanically positions a RANGE FINDER, FIRE CONTROL, to the proper elevation angle.*

**servomotor.** A motor that supplies power for moving a servomechanism or a component of a servomechanism.

**servosystem.** The system in which a servomechanism works.

For example, a source of power output that is controlled by a servomechanism may have some of its power output used to cause a reactor, such as a thermostat, to react so as to trigger motion in a servomotor, which in turn drives the servomechanism. The whole constitutes a servosystem.

**set.** A unit or units and necessary assemblies, subassemblies and parts connected or associated together to perform an operational function.

**setback.** 1. The relative rearward movement of component parts in a projectile, missile or fuze undergoing forward acceleration during its launching. These movements, and the setback force which causes them, are used to promote events which participate in the arming and eventual functioning of the fuse. 2. Short for 'setback force.' See also: setback force; set forward.

**setback force.** The rearward force of inertia which is created by the forward acceleration of a projectile or missile during its launching phase. The forces are directly proportional to the acceleration and mass of the parts being accelerated. See also: setback.

**set forward.** 1. Relative forward movement of component parts which occurs in a projectile, missile or bomb in flight when impact occurs. The effect is due to inertia and is opposite in direction to 'setback.' 2. Short for 'set forward force.' See also: setback; set forward force.

**set forward force.** The forward force of inertia which is created by the deceleration of a projectile, missile or bomb when impact occurs. The forces are directly proportional to the deceleration and mass of the parts being decelerated. Also called 'impact force.' See also: set forward.

**set forward point.** A point on the expected course of the target at which it is predicted the target will arrive at the end of the time of flight.

**set forward ruler.** A device for determining the set forward point of a target.

**setting ring.** Part of a mechanical fuze setter that takes hold of a fixed ring on the fuse of a projectile. It then rotates the entire projectile except a small ring, or setting element, in the fuse. This setting element is kept from turning by the adjusting ring in the fuze setter just long enough to make the desired change in the setting of the fuse.

**settling rounds.** Rounds fired at varying angles of elevation to seat the spade and base plate of a gun mount firmly in the ground.

**seventy-five degree centigrade international heat test.** See: heat tests.

**seventy-five degree line.** Imaginary line between the final bomb release line and the vulnerable area upon which antiaircraft artillery guns are located. From such positions the guns at an elevation of 75 degrees can still engage and deliver effective fire on the final bomb release line.

**S factor.** *Artillery.* The deflection change in mils required to keep the burst on the observer target line when the range is changed 100 yards along that line.

**SFOD** *(abbr).* 'San Francisco Ordnance District.'

**sfxd** *(abbr).* 'Semifixed.'

**SH** *(abbr).* 'Scleroscope hardness.'

**SHACKLE.** An open or closed link of various shapes with extended legs. Each leg has a transverse hole

to accommodate a pin, bolt, or the like, which may or may not be furnished.*

**shackle bolt.** A bolt passing through a shackle and some other part, fastening the two together.

**SHACKLE, BOMB, AIRCRAFT.** A suspension device installed in, but not permanently fixed to, an aircraft. It is designed for attaching, arming and releasing of a bomb. It may also be utilized to accommodate other items such as mines, rockets, torpedoes, fuel tanks, rescue equipment, sonobuoys, flares and the like.* See also: **PYLON, AIRCRAFT; RACK, BOMB, AIRCRAFT; RACK, BOMB EJECTOR, AIRCRAFT.**

**shackle, spring.** A **SHACKLE** (which see) for supporting the end of a spring, permitting the spring to vary in length as it deflects.

**SHAFT, AXLE, AUTOMOTIVE.** A shaft which is a component of AXLE ASSEMBLY, AUTOMOTIVE, DRIVING, used to transmit rotary motion from the differential assembly either directly or indirectly to the wheel hubs. Excludes shafts with a universal joint or a component of a universal joint attached to it.*

**SHAFT, DRIVE, FUZE ARMING.** An item which connects the arming assembly to a mechanical bomb tail fuze. It is rotated at a constant speed by the arming assembly thereby arming the fuze in a present time.*

**shaft horsepower.** (SHP) The horsepower delivered by a specified shaft of a power train. If measured at engine output shaft, it is net engine horsepower; if measured at output shafts of transmission, transfer case, differential, or final drive, horsepower values will be successively lower to the extent that losses occur.

**shallow fording.** The ability of a vehicle or gun, equipped with built-in waterproofing with its suspension in contact with the ground, to negotiate a water obstacle without the use of a special waterproofing kit. Cf: **deep fording.**

**SHAPE** *(abbr).* 'Supreme Headquarters Allied Powers Europe.'

**shaped charge.** See: **charge, shaped.**

**shearing wire.** See: **shear pin.**

**shear pin.** 1. A pin or wire provided in a fuze design to hold parts in a fixed relationship until forces are exerted on one or more of the parts which cause shearing of the pin or wire. The shearing is usually accomplished by setback or set forward (impact) forces. The shear member may be augmented during transportation by an additional safety device. 2. In a propellant actuated device, a locking member which is released by shearing. Called 'shearing pin' in this sense. 3. In a power train, such as a winch, any pin, as through a gear and shaft, which is designed to fail at a predetermined force in order to protect a mechanism.

**shear wire.** See: **shear pin.**

**sheathing.** Vertical timbering used to keep the sides of the shaft from collapsing inward during search for, or removal of, unexploded bombs.

**shelf life.** Length of time in storage, under stated conditions, during which an item will remain in serviceable condition. Term usually applied to small items such as might be stored on a *shelf* in a warehouse before being put into service. For larger items the term **storage life** is frequently used.

**shell.** 1. A hollow metal projectile designed to be projected from a gun, containing, or intended to contain, a high explosive, chemical, atomic or other charge. 2. A shotgun cartridge or a cartridge for artillery of small arms. 3. To shoot at with projectiles.

In nomenclature the term 'projectile' is now used in sense 1 and the term 'cartridge' in sense 2. See: **cartridge; projectile.**

**shell case.** See: **CASE, CARTRIDGE.**

**shell destroying tracer.** A tracer which includes an explosive element beyond the tracer element, that is designed to cause activation of the explosive by the tracer after the antiaircraft projectile has passed the target point, thus destroying the projectile to avoid impact in friendly territory. See: **fuze, self-destroying; self-destruction.**

**shell engraving.** See: **body engraving.**

**shell filler.** Explosive or other material used to make up the filler or charge in a projectile. See: **charge** (sense 2).

**shell room.** A large room for the storage of projectiles.

**SHF** *(abbr).* 'Super high frequency.'

**shield.** 1. Armor plate mounted on a gun carriage to protect the operating mechanism and gun crew from enemy fire. 2. *Elec.* A screen or device which protects electrical apparatus from being affected by outside electrostatic or magnetic fields. Cf: **shielding.**

**SHIELD, HEAT, GUIDED MISSILE AFT SECTION.** A thin flat circular shaped fireproof item specifically designed to conform to the cross-sectional contour of a guided missile, for providing protection to the aft section of a missile from heat.*

**SHIELD, HEAT, GUIDED MISSILE FIN.** A thin flat rectangular piece of fireproof material, used to prevent flames and heat from reaching guided missile fins.*

**SHIELD, GUIDED MISSILE LAUNCHER.** An item specifically designed to protect launching equipment from the heat and force of exhaust gases from missile propelling units.*

**shielding.** 1. Electrical equipment or devices to eliminate interference and static from the radio. 2. Material or obstructions which tend to protect personnel or materiel from the effects of an atomic explosion.

**SHIELD, SPARK PLUG.** An item specifically designed to be placed around a spark plug for the purpose of shielding against electrical interference and having provisions for passage of the ignition cable. May also provide mechanical protection.*

**shift.** *Electronic computers.* To move the characters of a unit of information column-wise right or left. For a number, this is equivalent to multiplying or dividing by a power of the base of notation.

**shift, arithmetic.** *Electronic computers.* To multiply or divide a quantity by a power of the number base, e.g., binary 1011 represents decimal 11, therefore two arithmetic shifts to the left is binary 101100, which represents decimal 44.

**shift, cyclic.** *Electronic computers.* A shift in which the digits dropped off at one end of a word are returned at the other in a circular fashion; logical, nonarithmetical or circular shift.

**Shillelagh.** Name given to an Army antitank, lightweight, vehicle-mounted rocket, used by forward troops.

**shimmy.** Excessive vibration of the front wheels of a wheeled (or half-track) vehicle, causing a jerking motion of the steering wheel.

Low-speed shimmy occurs at speeds less than about 30 mph, and is usually caused by excessive caster or excessive looseness in any part of the steering system. High-speed shimmy occurs at speeds above about 35 mph, and may be caused by low or unequal tire pressures, unbalanced front wheels, improperly acting shock absorbers, loose wheels or steering connections, or incorrect toe-in.

**shipping and storage container.** A reusable noncollapsible item of any configuration so designed as to provide protection for a specific item(s) to be inclosed against impact, vibration, climatic conditions, and the like, during handling, shipment and storage. It has integral fastening and/or shock absorbing media and it may be capable of being pressurized or hermetically sealed. The item may include a compartment(s) for component parts and accessories which are of a supplementary nature to the item which it accommodates. It is usually equipped with attachments for handling by hoist, fork lift truck, or by skidding. Excludes DRUM, METAL; chest; and CRATE, WOOD. See also: **case**; and **BOX** (as modified). Use an application modifier.* Example: SHIPPING AND STORAGE CONTAINER, GUIDED MISSILE.

**shipping document.** Document listing the items in a shipment and showing other supply and transportation information that is required by supply and transportation agencies concerned in the movement of material. This document is used primarily for the movement of supplies from one Army installation to another and for transferring accountability.

**SHOCK ABSORBER, DIRECT ACTION.** A damper, either frictional or hydraulic, designed to dampen the shock of suddenly applied force and/or to control spring rebound and oscillation, usually attached to the vehicle frame, body or hull and connected to an axle, spring, spring support web or pad or between suspension arms of track-laying vehicles.*

**SHOCK ABSORBER, LEVER ACTION.** A damper, either frictional or hydraulic, designed to dampen the shock of suddenly applied force and/or to control spring rebound and oscillation, usually attached to the frame of a vehicle, with the arm connected by a link or linkage to the axle or spring.*

**shock action.** A method of attack by mobile units in which the suddenness, violence, and massed weight of the first impact produce the main effect. Tank attacks usually rely on shock action.

**shock diamonds.** The shock waves that appear in the exhaust stream of a rocket. They are made visible by their luminosity and describe an approximate diamond configuration in side view.

**shock front.** The outer side of a **shock wave** (which see) at which pressure rises from zero up to its peak value. Also called a 'pressure front.'

**shock resistance.** *Armor.* That property which prevents cracking or general rupture when impacted by fragments, irregular projectiles, or glancing blows from **overmatching projectiles.** See also: **shock test.**

**shock test.** *Armor plate.* The test to determine whether the armor sample will crack or spall under impact by kinetic energy or high explosive projectiles.

**shock tube.** A long tube divided into two parts by a diaphragm. The volume on one side of the diaphragm constitutes the compression chamber, the other side is the expansion chamber. A high pressure is developed by suitable means in the compression chamber, and the diaphragm ruptured. The shock wave produced in the expansion chamber can be used for the calibration of air blast gages, or the chamber can be instrumented for the study of the characteristics of the shock wave.

**shock wave.** 1. A boundary surface or line across which a flow of air or other fluid, relative to a body or projectile passing through the air or fluid, changes discontinuously in pressure, velocity, density, temperature, and entropy within an infinitesimal period of time. 2. Such a boundary surface or line that comes into being when an object moves at transonic or supersonic speeds. 3. Such a surface or line produced by the expansion of gases away from an explosion.

**shock wave, lip.** The shock wave obtained from the lip of a free jet nozzle, owing to the failure in matching of the stream pressure and the ambient exhaust pressure.

**shock wave, oblique.** A kind of shock wave forming an oblique angle with the line of flight greater than that of the mach wave.

The velocity of air passing through the oblique shock wave drops more than the theoretical flow that passes through the mach wave.

**shock wave, reflected.** A shock wave resulting from an explosion, especially from the explosion of an airburst bomb, which is reflected from a surface or object.

**shoe.** 1. *Mach.* A plate, or notched piece, interposed between a moving part and the stationary part on which it bears, to take the wear and afford means of adjustment; called also slipper or gib. 2. *Automotive.* The external rubber-and-fabric casing of a pneumatic tire, which contains and protects from injury the air-filled inner tube.

**shoe, launching, missile-rocket.** See: **LAUNCHING SHOE, MISSILE-ROCKET.**

**SHOE, SAFETY.** Special shoe without spark-producing nails or plates, worn by personnel working around explosives. Different types of shoes are worn, depending on conditions. Some have nonconductive soles and some have conductive soles for the purpose of discharging static electricity. All are designed to avoid sparking. Not to be confused with safety toe shoes which are designed to protect the toes from injury.

**shoot.** 1. To project a missile with force; to fire a weapon, as a gun or cannon; to strike or hit something with a missile. 2. *To shoot down,* to cause an aircraft to fall by hitting it with missiles. 3.

*To shoot something up*, to strike something with several missiles.

**SHOP EQUIPMENT, FIRE CONTROL SYSTEM, TRAILER MOUNTED.** A van type mobile unit which houses items of organizational maintenance equipment, not all having the same basic name, which are of a supplementary nature to a major component or equipment. The items within the collection may provide replacement parts and/or facilitate such functions as inspection, test repair, preventive types of maintenance and the like, for the specific purpose of restoring and/or improving the operational status of a component or equipment comparable to its original capacity and/or efficiency. It provides work space and may contain a heating and ventilating cabinet, and other materials associated with the fire control system.*

**SHOP EQUIPMENT, FIRE CONTROL SYSTEM, TRUCK MOUNTED.** A mobile unit permanently fitted with a shop set (special), spare parts cabinets, analyzers, calibrators, hand tools and other necessary equipment for testing and making repairs. It is used for field maintenance of fire control systems.*

**SHOP EQUIPMENT, FORGE, BASE MAINTENANCE.** A group of items consisting of the necessary equipment to do general blacksmith maintenance repair work.*

**SHOP EQUIPMENT, FOUNDRY, BASE MAINTENANCE.** A group of items consisting of the necessary tools and materials required in a permanent shop installation.*

**SHOP EQUIPMENT, GENERAL PURPOSE REPAIR, SEMITRAILER MOUNTED.** A mobile unit providing hand tools, machine tools, electric arc and oxyacetylene welding equipment, and work space for mechanics performing second, third and fourth echelons of maintenance within an organization. The unit is operable as a self-contained unit or by use of commercial power when available.*

**SHOP EQUIPMENT, GENERAL PURPOSE REPAIR, TRUCK MOUNTED.** A mobile unit providing various tools for use in general purpose repair work, in conjunction with other motorized shops.*

**SHOP EQUIPMENT, GUIDED MISSILE, BASE MAINTENANCE.** A group of special tools and equipment for performing base maintenance of a guided missile. See also: **SHOP EQUIPMENT, GUIDED MISSILE, SEMI-TRAILER MOUNTED.***

**SHOP EQUIPMENT, GUIDED MISSILE, FIELD MAINTENANCE.** A group of special tools and equipment for performing field maintenance of a guided missile. See also: **SHOP EQUIPMENT, GUIDED MISSILE, SEMI-TRAILER MOUNTED.***

**SHOP EQUIPMENT, GUIDED MISSILE REMOTE CONTROL SYSTEM, FIELD MAINTENANCE.** A group of special tools and equipment for performing field maintenance of a guided missile remote control system.*

**SHOP EQUIPMENT, GUIDED MISSILE REMOTE CONTROL SYSTEM, ORGANIZATIONAL MAINTENANCE.** A group of special tools and equipment for performing organizational maintenance of a guided missile remote control system.*

**SHOP EQUIPMENT, GUIDED MISSILE, SEMI-TRAILER MOUNTED.** A van type mobile unit which houses organizational maintenance equipment, not all having the same basic name, which are of a supplementary nature to a major component or equipment. The items within the collection contain special tools and equipment for performing field maintenance of a guided missile. It provides work space and may contain heating and air conditioning unit(s).*

**SHOP EQUIPMENT, INTERNAL COMBUSTION ENGINE REPAIR, BASE MAINTENANCE.** A group of items such as battery charger, spark plug cleaner, cylinder boring bar, valve seat grinder, hones, testing equipment, analyzer, crane, and the like, assembled for use in higher echelon maintenance operations.*

**SHOP EQUIPMENT, MACHINE SHOP, BASE MAINTENANCE.** A group of machine tools and related items such as machine tool attachments, cutters, and the like, to be used in a permanent shop installation.*

**SHOP EQUIPMENT, ORGANIZATIONAL REPAIR, LIGHT, TRUCK MOUNTED.** A mobile unit providing items such as an analyzer set, generator set, lathe, sander and an assortment of machine and hand tools. It provides work space for mechanics performing second, third and fourth echelons of maintenance within an organization.*

**SHOP EQUIPMENT, SMALL TOOL REPAIR, TRUCK MOUNTED.** A mobile unit providing various tools for use in small tool repair work.*

**SHOP EQUIPMENT, TOOL AND BENCH, TRUCK MOUNTED.** A mobile unit providing various tools for use in general repair work, in connection with other motorized shops.*

**SHOP EQUIPMENT, TOOLROOM, HEAVY, BASE MAINTENANCE.** A group of special tools and materials to be used in conjunction with other base maintenance shops.*

**SHOP EQUIPMENT, WELDING, BASE MAINTENANCE.** A group of items consisting of tools and material used in a permanent shop installation for general welding and cutting operations.*

**SHOP EQUIPMENT, WELDING, TRUCK MOUNTING.** A group of items consisting of tools and materials used for welding, cutting, soldering, and forging. The equipment is designed to be installed in a mobile unit.*

**shop supplies.** Expendable items consumed in operation and maintenance (e.g., waste, oils, solvents, tape, packing, flux, welding rod).

**shoran.** *Sometimes capitalised.* [*Short range navigation.*] A radar system for precision position finding, used in aerial navigation and missile guiding. Under this system navigation is accomplished by ranging on two ground stations. Signals transmitted from the aircraft or missile trigger the two responder beacons.

**Shore scleroscope hardness.** A measure of hardness of materials obtained by dropping a small cylinder of very hard steel onto the sample being tested. The distance the cylinder rebounds is taken as the meas-

ure of hardness. A scale on a transparent measuring tube, in which the cylinder falls and rebounds freely, gives the following values: glass 130, porcelain 120, wrought iron 18, Babbitt metal 7 to 10, zinc 8, copper 6, lead 2. See also: **scleroscope hardness.** Cf. **Brinell hardness; Mohs hardness; Rockwell hardness; Vickers hardness.**

**short.** *Specif.* A bomb or projectile hit short of the target. Cf: **over.**

**short cartridge.** (sht ctg) See: **cartridge, short.**

**short delay fuse.** See: **fuse, short delay.**

**shortcoming.** An imperfection or malfunction occurring during the life cycle of equipment, which should be reported and which must be corrected to increase efficiency and to render the equipment completely serviceable. It will not cause an immediate breakdown, jeopardize safe operation, or materially reduce the usability of the materiel or end product. If occurring during test phases, the shortcoming should be corrected if it can be done without unduly complicating the item or inducing another undesirable characteristic such as increased cost, weight, etc. Cf: **deficiency.**

**short-range radar.** Equipment whose maximum range on a reflecting target of one square meter normal to the signal path exceeds 50 miles but is less than 150 miles, provided line of sight exists between the target and the radar.

**short recoil.** See: **recoil operated.**

**short round.** 1. Defective cartridge in which the bullet has been seated too deeply. 2. A projectile which fails to travel the expected distance or range.

**shot.** 1. a. A solid projectile for cannon, without a bursting charge. b. A mass or load of numerous, relatively small, lead pellets used in a shotgun, as birdshot or buckshot. 2. That which is fired from a gun as 'the first shot was over the target.' In sense 1 a the term **projectile** (which see) is preferred for uniformity in nomenclature.

**shot group.** See: **shot pattern.**

**shotgun.** Smooth-bore shoulder weapon. Usual classes are **riot gun; skeet gun;** and **sporting gun.** See separate entries.

**shotgun cartridge.** See: **cartridge, shotgun.**

**SHOTGUN, 12 GAGE, RIOT TYPE.** A manually-operated, slide action, repeating, hammerless, shoulder weapon having a solid frame. It is equipped with a bayonet attachment, hand guard, sling, and sling swivels.*

**shot pattern.** Design made on a surface by all the impacts of a series of shots fired under similar conditions. Also called 'shot group.'

**shot tonga.** Device used to lift and convey heavy projectiles in a horizontal position.

**shot truck.** Small truck or cart on which heavy projectiles are loaded to be run up to the breech, in loading heavy artillery. It is adjusted to the height of the breech so that the projectile can be rammed into the breech. See: **CART, PROJECTILE.**

**shoulder arm.** See: **shoulder weapon.**

**shoulder, cartridge case.** The portion of the cartridge case between the neck and the body, shaped like the frustum of a cone.

**shoulder guard.** Any shield over the firing mechanism of a gun designed to protect the gunner from contact; particularly, such a shield on cannon mounted in tanks, armored vehicles, and other cramped quarters. Cf: **shield.**

**shoulder weapon.** Any firearm designed to be braced on or against the shoulder when firing, as a rifle, carbine, bazooka launcher, etc. Cf: **hand weapon.**

**SHP** *(abbr).* 'Shaft horsepower.'

**shpg bnd(s)** *(abbr).* 'Shipping band(s).'

**shrapnel.** 1. Strictly speaking, small lead or steel balls contained in a shrapnel case which is fired from an artillery piece. The balls are projected in a forward direction upon functioning of the fuze. Shrapnel is no longer in use by US Services. 2. Also applied to munition fragments. *Popular.*

**shrinkage.** The process of assembling two or more cylinders to form a compound cylinder or **built-up gun.** The difference between the exterior diameter of the tube and the interior diameter of the jacket before heating is known as the *absolute shrinkage.* The shrinkage per inch of diameter, that is, the absolute shrinkage divided by the diameter of the contact surface, is known as the *relative shrinkage.*

**shrinkage pressure.** *Gun construction.* The radial pressure between the contacting surfaces of two cylinders assembled by shrinkage and due to the shrinkage alone. It is expressed in pounds per square inch and acts with equal intensity on both cylinders but in opposite directions.

**shutoff.** In rocket propulsion, a term used to define the intentional termination of burning where the shutoff time is present before the missile or rocket is launched or commanded by a self-contained or internal guidance system. Cf: **cutoff.**

**shutter.** A barrier in an explosive train used to stop a detonation wave. An interrupter which opens or closes as a shutter. Often used to obtain fuse safety. See: **fuse safety; interrupter.**

**shuttling.** A movement involving two or more trips or partial trips by the same motor vehicles between two points.

Shuttle movements are used when there are not enough vehicles available to move a command intact.

**side arms.** Weapons that are worn at the side or in the belt when not in use. The bayonet, automatic pistol, revolver, etc., are side arms.

**sidebands.** *Receivers.* 1. The frequency bands on both sides of the carrier frequency within which fall the frequencies of the wave produced by the process of modulation. 2. The wave components lying within such bands.

In the process of amplitude modulation with a sine-wave carrier, the upper sideband includes the sum (carrier plus modulating) frequencies; the lower sideband includes the difference (carrier minus modulating) frequencies.

**side direction.** *Stress analysis.* The direction perpendicular to the plane of symmetry.

**side force or component.** *Stress analysis.* A force or component, perpendicular to the plane of symmetry.

**side lobe.** A lobe of energy emanating from a radar antenna that is not parallel to or coincident with the main lobe. See: **lobe.**

**SIDE RACK, VEHICLE BODY.** An item, either solid or lattice type, having one or more horizontal cross members of wood and/or metal attached to vertical

stakes or frame of wood and/or metal. It may have interlocking side fasteners. It is used in end and/or side positions to retain cargo in trucks, trailers, semitrailers, tracked vehicles, and the like. It may be used as a push bar.*

**sidereal table.** A test device with a servo-driven table which is used to cancel out earth's rotation. The axis of the table is aligned for the particular latitude of location.

Single degree of freedom gyroscope tests are made by connecting the gyroscope sensitive axis to the table servo. At the end of 24 hours, any difference in position from the start is a measure of the gyroscope drift rate, etc.

**sidereal time.** Time measured by reference to the apparent motion of the first point of Aries. See: **Greenwich sidereal time.**

**side slope.** A test course used to determine lateral stability of a vehicle as well as steering, carburetion, and other functions.

**side spray.** Fragments of a bursting projectile thrown sidewise from the line of flight, in contrast with **base spray**, thrown to the rear, and **nose spray**, thrown to the front.

**SIDE TRUSS, LOADING RACK, GUIDED MISSILE.** A specifically designed open frame structure, with a T-shaped metal track. Provides lateral movement of launching and handling rail(s), when stored on a RACK, LOADING, GUIDED MISSILE.*

**Sidewinder.** Name applied to a Navy air-to-air missile. Employs a 'heat seeker' type of guidance and has a range of 1 to 2 miles with a speed of approximately mach 2.5.

**SIE** *(abbr)*. 'Society of Industrial Engineers.'

**siege-howitzer.** A short, heavy gun of large caliber, used for destruction of fortresses. Such a weapon was the German 11-inch (28-cm.) howitzer.

**Siemens.** A Siemens and Halske trade name for synchronous device. See: **synchro.**

**Sierra Ordnance Depot.** Ordnance Corps field installation, located at Herlong, California.

**SigC** *(abbr)*. 'Signal Corps.'

**sight.** 1. Mechanical or optical device for aiming a firearm or for laying a gun or launcher in position. It is based on the principle that two points in fixed relation to each other may be brought in line with a third. Sights are classified as fixed or adjustable depending on the provision made for setting windage and range, and also according to type. Glass sights comprise all sights which include an optical element, such as a collimator, telescope, periscope, etc. Iron sights are classified as either open or aperture. Aperture sights are those that are sighted through, such as peep, ring, etc. Open sights are all those that are sighted over or at, such as post, bead, notch, etc. Leaf sights are those which can be folded down for protection. 2. To aim at a target or aiming point. 3. To look through a sighting device to determine the angular direction of a point, either horizontal or vertical, in surveying or navigation, especially the angular position of the sun, a star, or a planet in navigation.

**sight base.** 1. In gunnery, the distance between the eye and the rings of an optical ring sight. 2. Mount for a gunsight.

**sight blade.** See: **BLADE, FRONT SIGHT.**

**SIGHT, BORE, BREECH.** A sighting device, usually a disk or segment with a central peephole, so designed to fit in the breech end of the gun tube for the purpose of aligning the sights with the gun.* See also: **bore sighting.**

**SIGHT, BORE, MUZZLE.** A sighting device consisting of: (1) a string and a web belt which is attached to the outside of the muzzle end of the tube, or (2) a disk, with a central peephole, which is inserted in the bore, or (3) a short piece of tubing, with cross lines, which is inserted in the bore of a cannon.* See also: **bore sighting.**

**SIGHT, BORE, OPTICAL.** A telescopic device which utilizes a boresighting reticle, used to align the axis of a weapon bore with a target. It is secured to the exterior of a weapon barrel or tube by means of a MOUNT, TELESCOPE, having a strap and clamp assembly. Excludes SIGHT, BORE, BREECH and SIGHT, BORE, MUZZLE.*

**sight bracket.** Clamp used to hold a detachable sight in position when mounted on a gun.

**sight cover.** See: **COVER, GUN SIGHT.**

**sight extension.** Any device which raises the normal base or mount of a sight to provide improved or unobstructed sighting.

**SIGHT, FRONT.** A metallic bead, blade, post, or the like, attached on the muzzle end of military carbines, pistols, revolvers, rifles, shotguns, and other similar items as a sighting device. It may be provided with a hood or protective wings.*

**SIGHT, INFINITY.** An optical instrument capable of superimposing a reticle pattern upon a target as seen through a unit-power optical system.*

**sighting.** 1. The act or procedure of aiming with the aid of a sight. 2. The action of bringing something into view; the action of seeing something.

**sighting angle.** In bombing, the angle between the line of sight to the aiming point and the vertical.

At the bomb release point, the sighting angle and the dropping angle become the same.

**sighting bar.** Wooden device with enlarged front and rear sight, eyepiece and a movable target. It is used to train men in the proper method of aiming a small arms weapon. The eyepiece forces the student to hold his eye in proper position. Because of the size of the sights, errors of aiming are very apparent.

**sighting instruments.** Devices or instruments designed to aid in the pointing of a weapon.

**sighting shot.** Trial shot, fired to find out whether the sights are properly adjusted.

**sighting station.** A place from which remote-controlled weapons are sighted.

**SIGHTING STATION, AIRCRAFT TURRET.** An item which controls the aiming and firing operation of the turret guns in a remote control turret system. It consists of a sighting device, a means of moving the sight in azimuth and elevation, and a Selsyn circuit which indicates and receives signals from the sight to the gun turret, causing the turret movement to conform to the sight.*

**sighting system.** Mechanical or optical device for aiming a firearm or for laying a gun in position;

all such devices required for a specific weapon or group of weapons.

**SIGHTING SYSTEM, AUXILIARY.** A system comprised of two similar groupings of items, each containing a periscopic telescope; MOUNT, TELESCOPE; and azimuth or elevating mechanisms which provide for emergency viewing and tracking of moving ground or aerial targets. Both groupings are integral components of, and transverse with, the weapon. They include interrelated, manually operated hand controls for observers on each side of the weapon to continually track the target. A linkage connected to each hand control transmits motion to the azimuth and/or elevation mechanisms. For items *incorporating automatic lead computing devices, see*: **SIGHT, LEAD COMPUTING, AUTOMATIC.***

**SIGHT, LEAD COMPUTING, AUTOMATIC.** An instrument designed to direct the fire of automatic weapons against rapidly moving targets by computing, automatically and continuously, the offset of the gun bore axis from the line of sight in such a manner that the gun is constantly pointed at the advance position of the target while the line of sight is maintained on the target.*

**sight leaf.** Movable hinged part of a rear sight of a gun that can be raised and set to a desired range, or snapped down when not in use.

**sight radius.** Distance between the front and rear sights on a weapon.

**SIGHT, REAR.** A item attached to the breech end and integral to a carbine, machine gun, pistol, rifle, or the like. It may be a fixed or adjustable cross blade with a U- or V-shaped notch or aperture, or it may have elevation and windage adjustment knobs, slides, and graduated scales and be provided with aperture disks.*

**sight, reflector.** See: **TRAINER, GUN SIGHT.**

**SIGHT, RIFLE GRENADE LAUNCHER.** An item attached to a STOCK, GUN, SHOULDER consisting of a calibrated mounting plate to which is attached a sight bar assembly to provide an accurate angular measurement of elevation for firing a GRENADE, RIFLE.*

**SIGHT, ROCKET LAUNCHER.** A detachable folding sighting device which is mounted on a LAUNCHER, ROCKET. Used in sighting for direct fire. It is opened and closed against spring action.*

**sight tracking line.** The line of sight from a computing gunsight reticle image to the target.

**SIGHTUNIT.** A compact sighting device composed of an elbow or panoramic telescope, mount, and/or adapter, usually used for pointing a weapon for direct or indirect fire. It may be attached to, or used in conjunction with, a weapon, rocket launcher, or the like. Excludes SIGHT, INFINITY; SPOTTING INSTRUMENT, OPTICAL.*

**signal.** A pyrotechnic item designed to produce a sign by means of illumination, smoke, sound or combination of these effects to provide identification, location, warning, etc.*

**signal, altitude.** See: **altitude signal.**

**Signal Corps.** (SigC) A technical service of the U. S. Army, charged with the development, maintenance, and operation of communications systems within the Army.

**signal, drift.** Floating signal dropped from an aircraft flying over water to provide a reference point for determining drift and for aiding in navigation, or marking an area or object for the aid of surface vessels. Fire, smoke, or metallic powder is released when the signal strikes the water surface.

**signal, error.** See: **error signal.**

**signal flare.** General term formerly denoting a pyrotechnic flare of distinct color and character used as a signal, and now designated under the general term **signal, illumination** (which see).

**SIGNAL, FLASH, GUIDED MISSILE.** A signal which simulates fuze and/or warhead operation in guided missile flights in which live warheads are not used.*

**signal, illumination.** A pyrotechnic item designed to produce a sign by means of illumination to provide identification, location, warning, etc. See: **signal.**

**SIGNAL, ILLUMINATION, AIRCRAFT.** A signal which produces a sign by illumination, designed to be discharged from aircraft.

**SIGNAL, ILLUMINATION, GROUND.** A signal which produces a sign by illumination, designed to be discharged from ground positions.

**SIGNAL, ILLUMINATION, MARINE.** A signal which produces a sign by illumination, designed to be discharged from surface craft or submarines.

**SIGNAL KIT, ABANDON SHIP.** A group of items consisting of a hand projector and pyrotechnic signals in a metal container designed for use with an abandon ship outfit.*

**SIGNAL KIT, PYROTECHNIC PISTOL.** A group of items consisting of pyrotechnic pistol(s), pyrotechnic signals, and associated items in a container. See also: **SIGNAL KIT, ABANDON SHIP.***

**signal light.** General term indicating a **signal, illumination** (which see) or any pyrotechnic light used as a sign.

**signal, parachute flare.** See: **FLARE, PARACHUTE, HAND FIRED.**

**signal pistol.** See: **PISTOL, PYROTECHNIC.**

**signal rocket.** Rocket that gives off some characteristic color or display which has a meaning according to an established code. It is usually fired from a signal pistol or a ground signal projector.

**signal, smoke.** A pyrotechnic item designed to produce a sign by means of smoke to provide identification, location, warning, etc. See: **signal.**

**SIGNAL, SMOKE, AIRCRAFT.** A signal which produces a sign by production of smoke, designed to be discharged from aircraft.

**SIGNAL, SMOKE AND ILLUMINATION, AIRCRAFT.** A signal which produces a sign by production of light and smoke, designed to be discharged from aircraft.

**SIGNAL, SMOKE AND ILLUMINATION, MARINE.** A signal which produces a sign by production of light and smoke, designed to be discharged from surface craft or submarines.

**SIGNAL, SMOKE, GROUND.** A signal which produces a sign by production of smoke, designed to be discharged from ground positions.

**SIGNAL, SMOKE, MARINE.** A signal which produces a sign by production of smoke, designed to be discharged from surface craft or submarines.

**signature.** The identifying characteristics peculiar to each type of target which enable detecting apparatus, such as certain fuzes, to sense and differentiate targets.

**sign digit.** *Electronic computers.* A character used to designate the algebraic sign of a number.

**significance.** *Electronic computers.* The arbitrary rank, priority, or order of relative magnitude assigned to a given position or column in a number; the significant digits of a number are a set of digits, usually from consecutive columns beginning with the most significant digit different from zero and ending with the least significant digit whose value is known are assumed relevant, e.g., 2300.0 has five significant digits, whereas 2300 probably has two significant digits.

**significant digits.** *Electronic computers.* The digits of a number ordered according to their significance; the significance of a digit is greater when it occupies a column corresponding to a higher power of the radix. The significant digits of a number are a set of digits from consecutive columns beginning with the most significant digit difference from zero and ending with the least significant digit whose value is known or assumed to be relevant.

**SILENCER, GUN.** An item specifically designed to silence the explosive report(s) caused by the discharge of cartridges by small arms weapon(s). It incorporates integral chambers and/or baffles which allow the gases to expand gradually. The item may be jacketed.*

**silhouette target.** 1. Target whose shape is outlined against a light background although its body features cannot be clearly seen. 2. Practice target consisting of the dark image of a person or object outlined against a light background. See: **TARGET, SILHOUETTE.**

**SILICONE COMPOUND.** An inert inorganic resin-like material obtained from a variety of molecular combinations. When compounded with other ingredients, it can be applied to glass, paper, ceramics, finely powdered material, metal, or quartz; forms heat resisting, dielectric, and water resisting coatings, extremely high and low temperature lubricants, hydraulic fluids, heat transfer fluids, synthetic rubber, and the like. Does not include paints and polishes which contain in part silicone compounds.*

**simple machine.** *Mech.* Any of six (or more) elementary mechanisms, formerly considered as the elements of which all machines were composed, including (1) the *lever* (with its fulcrum), (2) the *wheel and axle* (equivalent to a continuous lever, as is the next), (3) the *pulley*, (4) the *inclined plane* (making forced closure with a relatively sliding piece on its inclined face), (5) the *wedge* (equivalent to a double inclined plane), and (6) the *screw* (combining a male and a female screw rotation into a straight-line motion, or vice versa). Some writers include the toggle joint and the hydraulic press. The so-called funicular machine, although not a machine, is sometimes included.

**simulated.** 1. Being like something else; considered for the purpose as the same as something else. 2. Artificially creating an illusion of something natural. 3. Artificially creating the conditions of a natural or real situation. 4. A set of test conditions designed to duplicate field operating and usage environments as closely as possible.

**simulator.** Any machine or apparatus that simulates an item, condition or set of conditions.

**SIMULATOR, ACCELEROMETER SIGNAL.** An item whose electrical output provides synthetic pitch and yaw signals similar to those produced by an accelerometer.*

**SIMULATOR, AIRCRAFT.** An item which, by controlled movement, reproduces the characteristics of an aircraft in flight on a map or plotting board.*

**SIMULATOR, ANTIPERSONNEL MINE PROJECTILE.** An item designed to hold a spotting charge. When the spotting charge is ignited, it causes the item to simulate the projectile of a bounding antipersonnel mine.*

**SIMULATOR, ATOMIC EXPLOSION.** A pyrotechnic item which upon initiation on the ground will, at a reduced scale, display the visual and auditory effects of a nuclear explosion, and serve as an indication to troops participating in field exercises that a nuclear device was exploded.*

**SIMULATOR, BOOBY TRAP.** An item for use during maneuvers and in troop training, providing a small pyrotechnic device which can be installed as a 'safe' booby trap. Used to give training in the installation and use of booby traps and instill caution in troops who may be exposed to traps set by the enemy.

**SIMULATOR, FLASH, ARTILLERY.** A pyrotechnic item designed to simulate the flash of artillery fire.* Used in the training of artillery observers and troops in army maneuvers, and as a decoy in forward combat areas.

**SIMULATOR, GUIDED MISSILE FLIGHT.** An item that simulates signal voltages for ground guidance equipment, that are analogous to signals received from a guided missile in flight. Excludes SIMULATOR, RADAR SIGNAL.*

**SIMULATOR, GUIDED MISSILE PRELAUNCH SIGNALS.** An item specifically designed to simulate guided missile prelaunch signals or voltages. Excludes SIMULATOR, GUIDED MISSILE FLIGHT.*

**SIMULATOR, HAND GRENADE.** An explosive pyrotechnic item designed to simulate the flash and sound of a hand grenade.*

**SIMULATOR, PROJECTILE AIR BURST.** An item used to simulate the burst of an artillery projectile by producing a puff of smoke.

**SIMULATOR, PROJECTILE GROUND BURST.** A pyrotechnic device used to provide battle noises and effects during troop maneuvers.

**SIMULATOR, RADAR SIGNAL.** An item whose electrical output is applied directly to another component or set, to produce artificial radar echoes.*

**SIMULATOR, RADAR TARGET.** A mechanical device whose reflection properties are similar to those of a radar target. It is designed for fixed position installation so that its range and azimuth, with respect to the equipment with which it is used, is

known. It is normally used for the calibration of a radar set. See also: **TARGET, RADAR.***

**SIMULATOR STATION, RADAR SIGNAL, GUIDED MISSILE SYSTEM.** A station designed to be used in conjunction with a guided missile remote control system to produce artificial radar echoes identical to those received from a hostile target(s). Usually mounted in a van type trailer, semitrailer, or truck, and provides operating personnel space.*

**SIMULATOR, WARHEAD SECTION.** An item designed to simulate the electrical and/or mechanical components of a warhead section. It is used in conjunction with a rocket, guided missile, or the like, during training, practice, and/or test procedures.*

**simulator, yaw (pitch).** A test instrument used to derive and thereby permit study of probable areodynamic behavior in controlled flight under specific initial conditions. Certain components of the missile guidance system, such as the receiver, servo-loop, etc., are connected into the simulator circuitry. Also, certain areodynamic parameters of the specific missile must be known and set into the simulator. Most simulators are applicable to a single plane, which in case of the yaw simulator is the yaw plane. The missile is assumed to be completely roll stabilized. See also: **SIMULATOR, ACCELEROMETER SIGNAL.**

**single acting.** Acting in one direction only; as, a *single acting plunger;* a *single acting engine* (admitting the working fluid on one side of the piston only).

**single action.** Method of fire in some revolvers and shoulder arms in which the hammer must be cocked by hand, in contrast to **double action** in which a single pull of the trigger both cocks and fires the weapon.

**single-address (instruction) code.** *Electronic computers.* An instruction in general consists of a coded representation of the operation to be performed and of one or more addresses of words in storage. The instructions of a single-address code contain only one address.

**single base propellant.** See: **propellant.**

**single compound explosive.** Explosive composed of a single chemical compound. For example, TNT.

**single loader.** See: **single-shot weapon.**

**single perforated grain.** A cylindrical propellant grain with a single perforation located in its axis. This type of granulation is used in propelling charges for several calibers of guns, and in rockets.

**single-recoil system.** Classification of recoil system to distinguish from the **double-recoil system,** which see. In the latter case there are two complete recoil systems interposed between the gun and the nonrecoiling parts in such a manner that one of the complete systems moves in recoil. In the former case, there is only one recoil system between the gun and the nonrecoiling parts.

**single sampling.** Sampling inspection in which a decision to accept or to reject is reached after the inspection of a single sample.

**single shot.** 1. Loaded by hand for each shot. 2. Semiautomatic operation of an automatic gun, in which the trigger must be pulled for each shot fired.

**single shot probability.** Probability that a single projectile fired against a target will hit that target under a given set of conditions.

**single-shot weapon.** Gun, such as an old-style rifle, that is loaded by hand for each shot.

**single stage rocket.** A rocket or rocket missile to which the total thrust is imparted in a single phase, by either a single or multiple thrust unit. Cf: **multistage rocket.**

**single star.** Indicates, in the nomenclature of a **SIGNAL, ILLUMINATION, AIRCRAFT, freely falling,** single star (light) of the color indicated.

**sink.** A point or element in a system where energy is dissipated or otherwise removed from the system.

**sinking valve.** See: **PLUG, FLOODER, UNDERWATER MINE.**

**sintered iron.** Ferrous metal, either pure iron or iron alloy, which has been processed from powdered metal through the sintering process. Sometimes used for rotating bands.

**sinusoidal.** Varying proportionally to the sine of an angle or time function. Sometimes written 'sinoidal.'

**Sioux Ordnance Depot.** Ordnance Corps field installation, located at Sidney, Nebraska.

**site.** 1. Position of anything, for example, the position of a gun emplacement. 2. Vertical angle between the horizontal and a line joining the target and the muzzle of a weapon. In this meaning, usually called 'angle of site.'

**site scale.** Instrument for setting off site in laying a gun.

**six by four.** As applied to motor vehicles, six wheels of which four are driving wheels, dual wheels being considered as one wheel. It is usually written 6 × 4.

**six by six.** As applied to motor vehicles, six wheels of which six are driving wheels, dual wheels being considered as one wheel. It is usually written 6 × 6.

**sixty-five degree centigrade surveillance test.** See: **heat tests.**

**size dimension.** In dimensioning, a specified value of a diameter, width, length, or other geometrical characteristic directly related to the size of an object.

**skate mount.** Mounting of a machine gun that permits it to travel on a continuous track extending around the inside of the body of a vehicle. The gun can be locked in any position for use.

**skeet gun.** Classification of shotguns which includes those with 26-inch improved cylinder barrels. Other classifications are **riot gun** and **sporting gun.**

**skid chain.** See: **CHAIN ASSEMBLY, TIRE.**

**SKID, LAUNCHING, DEMOLITION CHARGE.** A specially designed item of boat type construction with runners used for transporting and launching a **DEMOLITION KIT, PROJECTED CHARGE.***

**SKID, PLATFORM.** An item consisting of a metal and/or wood deck, runners, legs, or legs and wheels, designed for storing and transporting materials. It may include coupler(s) for towing. Excludes **SLED** (as modified).*

**skin friction.** The friction of the air against the outside of a moving aircraft, projectile, or the like, esp.

at high speeds; the drag or resistance caused by this friction. See: **drag, skin-friction.**

**skip bombing.** Bombing by releasing one or more bombs from a plane flying at a low altitude, so that the bomb or bombs glance off the surface of the water or ground and strike the target.

**skip vehicle.** A reentry body which climbs after striking the sensible atmosphere in order to cool the body and to increase its range. It may make several tentative reentries. See: **reentry.**

**skirt.** A name given the lower part of a parachute canopy.

**skirting armor.** See: **skirting plate; spaced armor.**

**skirting plate.** A thin plate, which is spaced a considerable distance in front of the main armor plate and which acts as a passive form of resistance to the jet of shaped charge ammunition. Cf: **spaced armor.**

**Skybolt.** Name given to an air-to-ground air launched ballistic missile. Designed for a range of 1000 miles, it is a 2-stage, solid propellant missile with hypersonic velocity.

**sky glow.** Illumination caused by a weapon firing from a defiladed position.

**sky screen.** See: **chronograph.**

**sky wave.** A radio wave which travels upward into space and may or may not be returned to earth by reflection from the ionosphere.

**SL** *(abbr).* 1. 'Stock list.' 2. 'Sand loaded.' 3. 'Sea level.'

**slack.** Looseness or play in a mechanism, as the play in the trigger of a small arms weapon.

**slack adjuster.** See: **ADJUSTER, SLACK, BRAKE.**

**slant distance.** The line-of-sight distance between two points neither vertical to each other nor at the same elevation.

**slant plane.** In antiaircraft artillery, the plane containing the target course line and the pintle center of the gun.

**slant range.** The straight line distance between two points not at the same elevation.

This term is used in reference to range between an airborne gun or radar set and a ground target or other target not at the same elevation; between an antiaircraft gun and the future position of a target; between a bomber and a target; etc. Cf: **horizontal range.**

**slat.** A movable auxiliary airfoil running along the leading edge of a wing, remaining against the leading edge in normal flight conditions, but lifting away from the wing to form a slot at certain angles of attack. See: **movable slot.**

**slaved gyro.** A gyroscope that is controlled by a magnetic force through a transmitter as in a Gyrosyn; an instrument that employs such a device.

**slave station.** A station of a synchronized group whose emissions are controlled by a **master station.** Used in hyperbolic navigation.

**sled.** An item equipped with runners and a suitable body designed to transport loads over ice and snow.*

**SLED, ARTILLERY.** A flat-bottomed steel item usually curved up at one end. It usually has wheel welds and attaching facilities for fastening the wheels of artillery mounts. Primarily used to transport weapons over snow, ice, swamps or rough terrain.*

**SLED, SELF-PROPELLED.** A powered vehicle supported on pontoons with endless tracks, or runners and pontoons with endless tracks, deriving its traction power from the endless tracks. It is designed to transport personnel and/or cargo over snow covered terrain.*

**SLED SET, ARTILLERY.** A group of items consisting of two or more SLED, ARTILLERY combined as a unit to transport artillery weapons and/or equipment. It may include components such as brackets, chains, drawbar extensions, fastening devices, and the like.*

**sleeve target.** See: **target, sleeve, towed.**

**sleigh.** Part of a gun carriage which supports the recoil mechanism and barrel of the gun and slides with the gun on recoil, guiding it in runways in the cradle.

**slenderness ratio.** A configuration factor expressing the ratio of a missile's length to its diameter.

**slew.** Swing a gun sidewise; traverse a gun.

**slewing mechanism.** Device which permits rapid traverse or change in elevation of a weapon or instrument.

**slide.** 1. Sliding part of the **receiver** of certain automatic weapons. 2. Sliding catch on the **breech mechanism** of certain weapons.

**slider.** A fuze or exploder component that interrupts the explosive train when the device is in the unarmed condition, and that moves during arming in such a way as to render the explosive train operative. See also: **interrupter.**

**sliding block.** See: **breechblock, sliding wedge.**

**sliding gear.** A change gear in which speed changes are made by sliding gears along their axes, so as to place them in or out of mesh.

**sliding mount.** A type of **railway mount** in which the recoil energy is absorbed by sliding friction.

**sliding wedge breechblock.** See: **breechblock, sliding wedge.**

**sling.** 1. A **SLING, SMALL ARMS** (which see). 2. An item made of strap, chain, rope, webbing or the like, specifically designed to hold securely something being hoisted, lowered, carried, dropped or suspended, often fitted with hooks or tackles. Excludes items of a single length of material with fittings.*

**SLING, CARRYING, GUNSIGHT.** A sling consisting of straps, buckles and D-rings, designed for carrying aircraft gunsights when not in box.*

**SLING, GUIDED MISSILE CONTAINER.** A sling consisting of an I-beam, specially designed hooks, clamps, cables and/or chains, and thimbles, specifically designed for handling a SHIPPING AND STORAGE CONTAINER, GUIDED MISSILE or container for BODY SECTION, GUIDED MISSILE.*

**SLING, GUIDED MISSILE LAUNCHER.** A sling consisting of cable or chain, thimble, clamps, pins, and sockets specifically designed for handling a guided missile launcher.*

**SLING, RADAR FUZE.** A sling consisting of straps and brackets specifically designed for hoisting a FUZE, RADAR.*

**SLING, ROCKET, AERIAL DELIVERY.** A sling consisting of cables, brackets, clamps, and rings, specifically designed for transporting one or more rockets by helicopter.*

**SLING, ROCKET HANDLING.** A sling consisting of an I-beam and straps, specifically designed for handling a rocket.*

**SLING, ROCKET LAUNCHER, AERIAL DELIVERY.** A sling consisting of straps and brackets, specifically designed for transporting a rocket launcher by helicopter.*

**SLING, ROCKET MOTOR, AERIAL DELIVERY.** A sling consisting of straps, hooks, brackets, and rings, specifically designed for transporting one or more ROCKET MOTOR by helicopter. Excludes SLING, ROCKET, AERIAL DELIVERY.*

**SLING, ROCKET TRAILER, AERIAL DELIVERY.** A sling consisting of straps, brackets, hooks, and rings, specifically designed for transporting a TRAILER, ROCKET by helicopter.*

**SLING, ROCKET TRUCK, AERIAL DELIVERY.** A sling consisting of straps, brackets, hooks, and rings, specifically designed for transporting a TRUCK, ROCKET by helicopter.*

**SLING, SMALL ARMS.** An item made of leather, webbing, or the like, designed to be attached to a carbine, mortar, rifle, rocket launcher, shotgun, submachine gun, or the like. Used as a means of carrying a small arms weapon and/or to steady the weapon for firing.*

**SLING, WARHEAD SECTION.** A sling consisting of straps, brackets, and the like, specifically designed for hoisting a warhead section.*

**slivers.** Pieces of propellant grains of triangular cross section which remain unburned when the **web** (which see) of multiperforated grains has been burned through. Usually burning of the slivers is completed before the projectile leaves the bore of a gun; however, in the case of a rocket motor the slivers are either discharged with the exhaust gases or left in the rocket case, and the sliver loss typically represents 3 to 4 percent of the propelling charge.

**slope.** Measure of an incline, wall, or ramp in terms of the ratio of vertical rise to horizontal distance. Often expressed as a percent and termed 'percent slope.'

**slope angle.** The direction of a **flight path** expressed as an angle projected on the vertical plane.

**slope course.** A proving ground facility consisting of a large mound of earth. On the various sloping sides of this mound are built roads having different grades.

This slope course is used to measure the slope performance of military vehicles and others, including maximum speed on various grades, the most suitable gear for best performance, traction, and the holding ability of brakes.

**slope deviation.** The difference between the projection in the vertical plane of the actual path of movement of a vehicle and the planned slope for the vehicle expressed in terms of either angular or linear measurement.

**slope, flight path.** See: **angle, flight path.**

**slope of fall.** Ratio between the drop of a projectile and its horizontal movement; tangent of the **angle of fall.**

**slope, percent.** See: **slope.**

**slosh test.** A test to determine the ability of the control system of a liquid propelled missile to withstand or overcome the dynamic movement of the liquid within its fuel tanks.

**slot.** 1. A narrow opening in the side, top, bottom, or end of something, as for looking out or for poking something through. 2. *Specif.* An air gap between a wing and the length of a slat or certain other auxiliary airfoils, the gap providing space for airflow or room for the auxiliary airfoil to be depressed in such a manner as to make for smooth air passage on the upper surface. 3. Any of certain narrow apertures made through a wing to improve aerodynamic characteristics.

In sense 2, the slot associated with a slat appears only when the slat lifts away from the wing, whereas the slot associated with a slotted aileron changes its shape as the aileron is depressed. Both are called 'movable slots' or 'automatic slots.' In sense 3, the slot is sometimes called a 'fixed slot.'

**slotted-screw breechblock.** See: **breechblock, interrupted screw.**

**slow fire.** Type of firing used in instructing beginners and in record practice, in which no time limit for completing a score is set. See: **deliberate fire.**

**sludge.** Solids such as dirt, metal chips, etc., in engine oil.

**slug.** 1. As pertains to shaped charge ammunition: Massive and relatively slow-moving remnant of the collapsed metal liner, as distinguished from the jet. 2. A solid cast iron projectile used in test firing. See: **projectile, proof.**

**slush.** 1. A soft mixture of grease or oil and other materials, used for protecting the surface of metal parts against corrosion. 2. To apply slush or oil to a surface, as to the bore of a gun.

**SM** *(abbr).* 1. 'Strategic missile.' 2. Department of the Army 'Supply Manual.'

**small arm.** A gun of small caliber. Within the Ordnance Corps the term is presently applied to guns of a caliber up to and including one inch. Such hand and shoulder weapons as pistols, carbines, rifles, and shotguns are included in the term.

**small arms ammunition.** (SAA) Ammunition for use in small arms; rounds of a caliber up to, and including, 30 millimeters (1.181 inches). Cf: **artillery ammunition.**

**small arms sling.** See: **SLING, SMALL ARMS.**

**small-bore practice.** Practice in firing with small arms using caliber .22 ammunition instead of the standard service rounds.

**small of the stock.** Part of the stock of a small arms weapon ordinarily gripped by the right hand; part of the stock immediately behind the receiver and trigger assembly; pistol grip in some styles of stocks.

**SMG** *(abbr).* 'Submachine gun.'

**S-mine.** Small antipersonnel mine of the 'bounding' type, employed by the Germans during WW II.

**smkls** *(abbr)*. 'Smokeless.'

**smoke.** 1. Suspension of small liquid or solid particles in air. 2. Filling for smoke munitions such as bombs, projectiles, and grenades. 3. As part of ammunition nomenclature, signifies that the munition is intended to produce smoke of the type(s) or color(s) indicated. 4. To produce smoke. See also: **chemical agent.**

**smoke and flash deflade.** 1. Condition in which the smoke and flash of a gun are concealed from enemy observation by an intervening obstacle, such as a hill or ravine. 2. Vertical distance by which the smoke and flash of a gun are concealed from enemy observation.

**smoke blanket.** Dense concentration of **smoke** (sense 1, which see). Established over and around friendly areas to protect from observation and precision bombing. Established over enemy areas to protect attacking aircraft from antiaircraft fire.

**smoke bomb.** See **BOMB, SMOKE.**

**smoke candle.** Munition which produces smoke by vaporizing a smoke producing oil. Cf: **SMOKE POT.**

**smoke curtain.** Vertical smoke screen placed between friendly and hostile troops or installations to prevent enemy ground observation. See: **smoke screen.**

**smoke generator.** See: **GENERATOR, SMOKE, MECHANICAL.**

**smoke grenade.** See: **grenade, smoke.**

**smokeless.** (smkls) When used in cartridge or propelling charge nomenclature, indicates that the ammunition is relatively smokeless when used in the weapon for which intended.

**smokeless powder.** (SP) See: **smokeless propellant.**

**smokeless propellant.** (SP) Term used to distinguish the relatively 'smokeless' propellants from black powder which produces a heavy smoke and which they have supplanted as a propellant. More appropriate classifications are given under the term **propellant** (which see).

**SMOKE POT.** A cylindrical metal munition designed to produce smoke for screening or signalling purposes, either by combustion of a smoke producing mixture or by combustion of a fuel mixture to vaporize a smoke producing oil. It may be with or without igniting device and filling, and is not intended for throwing or for firing from weapons.*

**smoke pot, floating.** SMOKE POT that emits dense smoke when ignited and which floats on the surface of water to provide a temporary screen.

**smoke projectile.** See: **projectile, smoke.**

**smoke screen.** A screen of smoke used to hide a maneuver, force, place, or activity. Smoke screens may be generated on the ground by use of a GENERATOR, SMOKE, MECHANICAL; a grenade, smoke; or a SMOKE POT. They may also be laid down by aircraft using smoke tanks, or by artillery fire.

**smoke shell.** See: **projectile, smoke.**

**smoke signal.** See: **signal, smoke.**

**smooth-bore.** Having a bore that is smooth and without rifling. Shotguns and mortars are commonly smooth-bore.

**snake, demolition.;** See: **MINE CLEARING EQUIPMENT, MECHANICALLY POSITIONED.**

**Snark.** Name applied to an Air Force surface-to-surface, long range, strategic missile, powered by a turbojet engine. Has a combination inertial and celestial guidance system. This winged missile travels just below sonic velocity and is also known as a pilotless bomber.

**sniper.** An especially skilled rifleman, usually having special equipment, whose mission is to kill key enemy personnel.

**sniperscope.** Device combining a **snooperscope** and a carbine or other firearm, which enables the operator to see and shoot at targets in the dark.

**SNL** *(abbr)*. 'Standard Nomenclature List.'

**snooperscope.** Hand-carried device combining a source of infrared rays with a viewer, to enable the operator to see in the dark. See also: **sniperscope.**

**snorkel.** A tube or pair of tubes for air intake and exhaust that can be extended above the surface of the water for operating submerged submarines. The term is now also applied to almost any tube which similarly supplies air for underwater operation, whether it be for materiel or personnel.

**snow.** A type of interference resembling falling snow that appears on a radarscope. See: **noise.**

**snowmobile.** See: **SLED, SELF-PROPELLED.**

**snubber.** *Auto.* A mechanical device consisting essentially of a drum, spring, and friction band. Connection is made between axle and frame. The purpose is to slow the recoil of the spring and reduce jolting.

**SOCKET, FUZE SETTER.** A keyed, self-locking item, having one end designed to conform to the outer contour of a time fuze, and the other end to fit into a HANDLE, FUZE SETTER, UNIVERSAL. It is used for accurate setting of a time fuze. See also: **FUZE SETTER.***

**sodium sulfide.** Chemical used in solution with methyl alcohol to neutralize or destroy nitroglycerin.

**SOFAR** *(abbr)*. 'Sound fixing and ranging.'

**soft point.** In small arms cartridge nomenclature, indicates a bullet with a soft point, intended to spread upon striking a target with some resistance, such as the flesh of game. Not intended for, nor permitted to be used in, combat operations.

**soil trafficability.** The capacity of a soil to withstand traffic, esp. the traffic of military vehicles.

**SOLENOID, ELECTRICAL.** A item consisting of one or more coils surrounding an iron core. The coil(s) and the core are movable in relation to each other. The axial or rotary movement is a result of the magnetic flux of the coil. It is designed to convert electrical energy into mechanical energy. It does not include switch contacts.* Used for such purposes as the remote control of machine guns.

**solenoid brake.** *Elec.* **Brake in which the brake shoes** are operated by the magnetic action of a solenoid.

**solenoid coil.** See: **chronograph.**

**solid fuel.** Any fuel in a solid state. Specifically, a solid propellant as used in a ROCKET MOTOR. See: **PROPELLANT GRAIN.**

**solid propellant.** A **propellant** (which see) in a solid state, as distinguished from a liquid propellant. See

also: **PROPELLANT** (as modified); **PROPELLANT GRAIN.**

**solid rocket.** Popular term for a rocket using solid propellant.

**solvent recovery.** Process, in the manufacture of nitrocellulose propellant, by which the ether-alcohol mixture used for colloiding the nitrocellulose is recovered by evaporating and condensing the solvent.

**soman.** (GD) Pinacolyl methylphosphonofluoridate, one of the G-agents or nerve gases. A war gas. See also: **chemical agent; nerve gas.**

**sonar.** [*Sound navigation ranging.*] A method or system, analogous to radar, in which high-frequency sound waves are emitted so as to be reflected back from objects of interest, used esp. by ships for detecting underwater objects, such as submarines or mines; an apparatus used for this purpose.

**sonde.** In telemetering, the complete airborne **telemetering system** in the vehicle.

**sonic.** Of or pertaining to sound; esp. in ordnance contexts, to the speed of sound.

**sonic speed.** The **speed of sound** (which see).

**SOP** *(abbr).* 'Standing operating procedure.' Sometimes used adjectivally in the sense of 'normal,' 'usual,' or 'standard,' as in 'this condition remained SOP.' This abbreviation is pronounced letter by letter.

**sound and flash ranging.** Two distinct and separate but supplementary systems of locating enemy weapons and, secondarily, adjusting friendly counterfire by: (1) observation by sonic devices on the sound produced by the enemy weapon in firing or by the friendly projectile in exploding; or (2) visual observation of the flash produced or of the point of burst of the enemy weapon or friendly projectile. See also: **flash ranging; sound ranging.**

**sound detector.** See: **sound locator.**

**sounding rocket.** See: **rocket, sounding.**

**sound lag.** Time necessary for a sound wave to travel from its source to the point of reception.

**sound locator.** A device formerly used to detect aircraft in flight by sound.

A sound locator comprised four horns, or sound collectors (two for azimuth detection and two for elevation), together with their associated mechanisms and controls, which enabled the listening operators to determine the position and angular velocity of aircraft.

**SOUND MEASURING SET.** A complete set for making sound level measurements by deriving a visual indication relative to the intensity of the sound being measured.*

**sound ranging.** Method of locating the source of a sound, such as that of a gun report or a projectile burst, by calculations based on the intervals between the reception of the sound at various previously oriented microphone stations. See also: **flash ranging; sound and flash ranging.**

**sound ranging plotting board.** See: **PLOTTING BOARD, SOUND RANGING, *FIRE CONTROL.***

**SOUND RANGING SET.** A complete electronic set specifically designed for detecting and/or determining the range and bearing of sounds. Excludes sonar.*

**sound recording system.** *Electroacoustics.* A combination of transducing devices and associated equipment suitable for storing sound in a form capable of subsequent reproduction.

**sound reproducing system.** *Electroacoustics.* A combination of transducing devices and associated equipment for reproducing recorded sound.

**SP** *(abbr).* 'Smokeless powder; smokeless propellant.'

**space.** *Astronautics.* The region beyond the sensible atmosphere of the earth. The level at which space begins is indefinite, but some authorities place it at about 120 miles above the earth.

**spaced armor.** An arrangement of armor plate, using two or more thicknesses, each thickness spaced from the adjoining one. Used as protective device, particularly against shaped charge ammunition. Cf: **skirting plate.**

**space flight.** The science of extra-terrestrial flight of unmanned vehicles. Cf: **space travel.**

**SPACER, BATTERY, DEPTH CHARGE.** An item designed to position a battery in relation to the firing mechanism within a depth charge.*

**SPACER, OPTICAL ELEMENT.** A tubular shaped item designed to maintain a predetermined distance between optical elements, such as lenses, reticles, and the like. The bore may be straight, tapered, or counterbored, and may have annular serrations to converge or diverge light rays. The surfaces, which mate with the optics, are usually chamfered, concave, and/or have a specified finish designation in the range of 1 to 125 microinch root mean square.*

**spaceship.** Any vehicular craft designed to travel in outer space.

**space terms, interplanetary.** See: **orbits of planets.**

**space travel.** The science of extra-terrestrial flight of manned vehicles. Cf: **space flight.**

**space warfare.** Warfare conducted by use of weapons brought to bear upon earth targets from outer space.

**space weapon.** A weapon that travels through space and is directed against an enemy target whether on the ground, in the air, or in space.

**spade grip.** D-shaped handle for pointing the gun, fastened on the rear of the receiver of certain flexible automatic weapons.

**SPADE, GUN CARRIAGE TRAIL.** An item designed for attachment to the end of an artillery gun carriage trail(s), which is forced or dug into the ground to restrict movement during firing. It may be a forging, casting, or of built-up construction. Includes items which are secured to the trail(s) by means of a tapered key.*

**spall.** Fragment(s) torn from either surface of armor plate, such as might result from the impact of **kinetic energy ammunition** (which see), or the functioning of **chemical energy ammunition** (which see).

**spalling.** Production of a **spall(s)** (which see).

**spall resistance.** That property of armor which prevents the armor from projecting spalls into the fighting vehicle when struck by a projectile.

**span.** 1. The maximum dimension of an airfoil from tip to tip as of a wing, rotorblades, or a horizontal

tail, the measure of this dimension. 2. The maximum width of an aircraft from wingtip to wingtip. 3. *Specif.* Wingspan.

**spanning tray.** Removable hollowed tray on which the elements of separate loading ammunition slide when being inserted in the breech of a cannon.

**spar.** *Aeronautical* A principal spanwise member of the structural framework of an airplane wing, aileron, stabilizer, etc. It may be of one piece design or a fabricated section.*

**spare part.** In supply usage, any part, component, or subassembly kept in reserve for the maintenance and repair of major items of equipment.

**spare parts list.** List approved by designated authorities, indicating the total quantities of spare parts, tools and equipment necessary for the maintenance of a specified number of major items for a definite period of time

**spare parts set, 280 millimeter dummy projectile.** See: **BAND SET, 280 MILLIMETER DUMMY PROJECTILE.**

**spark.** The ignition fire produced in a cylinder of an internal combustion engine; the apparatus producing or controlling this fire.

**spark coil.** See: **COIL, IGNITION.**

**SPARK GAP.** An item designed to act as a switching or triggering device by means of a disruptive discharge of electricity (a spark) between the electrodes. The insulation (usually air) between the electrodes is self-restoring after passage of the spark.*

**spark knock.** The knock produced in an internal combustion engine by operation with the spark too far advanced. Cf: **detonation.**

**spark lead.** The amount of advance by which the production of the spark in cylinders of an internal combustion engine precedes the arrival of the piston at the top dead center position.

**SPARK PLUG.** An item containing two or more electrodes across which an electric spark is discharged to ignite a fuel and air mixture, primarily in internal combustion engines. Excludes GLOW PLUG and ELECTRODE.*

**sparkproof.** 1. Will not be ignited or damaged by sparks. 2. Will not generate sparks.

**spark range.** A firing range in which missiles in free flight can be photographed by the light from an electric spark which is triggered by passage of the projectile.

**Sparrow.** Name applied to a series of Navy air-to-air supersonic missiles, solid propellant powered. For use against high or low altitude targets, employing evasive tactics. A beam rider with homing radar.

**spatial.** Of or pertaining to space; occupying space; occurring in, or conditioned by, space; considered with relation to space.

**spatiotemporal.** Of or pertaining to space time; having extent and duration.

**spchgr** *(abbr).* 'Supercharger.'

**spec** *(abbr).* 'Specification.'

**special cargo.** See: **cargo classification.**

**special equipment vehicle.** Vehicle consisting of a general purpose vehicle with special body, equipment, and/or kit installed to fill a specialized role or requirement.

**special purpose item.** In supply usage, an item designed to fill a special requirement, and having a limited application.

For example, a wrench or other tool designed to be used for one particular model of a piece of machinery is a special purpose item; a special purpose vehicle can also be regarded as a special purpose item.

**special purpose vehicle.** Vehicle having special chassis, or a general purpose chassis incorporating major modifications, designed to fill a specialized requirement. All tractors (except truck tractors) and tracklaying vehicles, regardless of design, size, or intended purpose, are classified as special purpose vehicles. See: **general purpose vehicle; special equipment vehicle.**

**special test and handling equipment.** ***Maintenance and supply.*** An end item having limited application specifically designed for use in conjunction with the operation, care, calibration, or maintenance of another end item. (Materials handling equipment excepted.)

**special tools.** Types of tools and tool equipment designed to perform specific operations on specific pieces of material.

**special weapon.** Any out-of-the-ordinary modern weapon, such as an atomic, radiological, or biological weapon.

**specif.** *(abbr).* 'Specific' or 'specifically.'

**specification.** (spec) 1. *pl.* A detailed statement that sets forth the requirements or standards for a piece of equipment, a material, a service to be performed, etc. 2. *sing.* An item in such a statement. See also: **Government specifications.**

**specific density.** Mass per unit volume. In interior ballistics, specific density is usually distinguished from loading density and gravimetric density.

**specific fuel consumption.** Mass of fuel used relative to an appropriate unit of output; jet engines usually are rated in pounds of fuel per pound of thrust per hour, while reciprocating engines are rated in pounds of fuel per horsepower-hour.

**specific heats, ratio of.** See: **ratio of specific heats.**

**specific impulse.** The thrust per unit mass rate of flow produced by burning a specific fuel or fuel combination, expressed in pounds(force)-seconds per pounds(mass). Used especially in reference to a rocket propellant. It is also known as the ***performance index.***

**specific thrust.** The ratio between the thrust of a jet reaction motor and the total propellant flow rate producing the thrust.

**spectrograph.** An optical instrument designed to break up the light from a source into its constituent wave lengths and to provide a means of qualitative or quantitative study of the spectrum thus formed. The instrument essentially consists of four parts: the slit, the lenses, the dispersion system and photographic or photoelectric system.*

**spectrometer.** An optical instrument designed to break up the light from a source into its constituent wave lengths and to provide a means of qualitative or

quantitative study of the spectrum thus formed. Basically all designs consist essentially of four parts: the slit, the lenses, the dispersion system and the measurement system.*

**spectrophotometer.** An instrument for measuring transmission or apparent reflectance of light as a function of wavelength, permitting accurate color analysis or accurate comparison of luminous intensity of two sources at specific wavelengths.

**spectroscope.** An optical instrument designed to break up the light from a source into its constituent wave lengths for the observation of spectra, thus providing a means of qualitative or quantitative study of the spectrum formed. The instrument essentially consists of a slit, a lens system, a dispersion system and an observation system.*

**spectrum.** The entire range of electromagnetic radiations from the longest radio waves to the shortest cosmic rays and including the spectrum of visible light.

**speech scrambler.** See: **SCRAMBLER, AUDIO SIGNAL.**

**speed.** Time rate of motion measured by the distance moved in unit time; in rotating machinery, the revolutions per minute (rpm). Cf: **velocity.**

**speed brake.** See: **drag brake.**

**speed of sound.** The speed at which sound waves travel through a medium. See: **acoustic velocity; mach number.**

**SPEEDOMETER.** An instrument for measuring and indicating in miles per hour the speed at which a vehicle is being driven. It measures and records distance traveled by means of an odometer.*

**speed ring sight.** See: **SIGHT, LEAD COMPUTING, AUTOMATIC.**

**spherical aberration.** *Optics.* **The aberration of a lens** which results when rays of light which pass through a lens near its edge are converged to a point nearer the lens than those rays passing through the center. The effect is poor definition of the image.

**spherical coordinates.** A system for locating a point in space by the length of a radius vector from the fixed origin, the angle this vector makes with a reference plane through the origin, and the angle the projection of the radius vector on the reference plane makes with a fixed line in the reference plane.

**spigot mortar.** A mortar which propels a warhead larger than the bore of the mortar by means of a closed tube (spigot) attached to the warhead and extending into the mortar. The force of the propellant within the mortar acts upon the tube, thus propelling the warhead towards the target.

**spike.** 1. *Aerodynamics.* A sharp-pointed object designed to point into the flow stream of supersonic missiles, aircraft, or the like, for the purpose of diffusing the impact of the stream and reducing shock wave formations. 2. *Electronics.* A transient of short duration during which the amplitude considerably exceeds the average amplitude of the pulse.

**spiked armor.** Armor with spikes on the face, used as active resistance to the penetrating jet of shaped charge ammunition.

**spillover.** That portion of the air in the stream-tube which flows to the side of a ramjet intake rather than through the intake. This takes place under conditions of detached shock. Under conditions of attached or swallowed shock, there is no spillover.

**spin.** The rotation of a projectile or missile about its longitudinal axis to provide stability during flight. See also: **spin stabilization.**

**spin compensation.** Overcoming or reducing the effect of projectile rotation in decreasing the penetrating capacity of the jet in shaped charge ammunition.

**spin-decelerating moment.** *Aerodynamics.* A couple about the axis of the projectile, which diminishes spin.

**spinner rocket.** A spin stabilized rocket. See: **spin stabilization.**

**spin safe.** Said of a fuze that is safe when experiencing a rotation equivalent to that attained during flight; i.e., other arming forces are necessary to arm the fuze.

**spin stabilization.** Method of stabilizing a projectile during flight by causing it to rotate about its own longitudinal axis. Cf: **fin stabilization.**

**spiral scan.** A type of scan in which a point on the radar beam describes a spiral in space.

**spiral wrapped.** In cartridge nomenclature, indicates that the body of the cartridge case was manufactured by the process of spirally wrapping a strip of metal.

**spitback fuse.** See: **fuse, spitback.**

**spitback tube.** As pertains to shaped charge ammunition: A tube attached to the truncated apex of a liner, ordinarily extending through the explosive charge. Through this tube the detonating impulse is transmitted from the point of initiation to a detonator at the base of the explosive charge.

**splash.** 1. Term used to indicate enemy aircraft shot down, usually over water. 2. Word transmitted by a firing ship or artillery fire direction center to the spotters five seconds before the estimated time of the impact of a salvo or round. 3. **Bullet splash** (which see).

**splash lubrication.** *Internal combustion engines.* Lubrication of the parts in the crankcase and cylinder from the splashing about by the crankpin, etc., of oil in the case; called 'splash feed' or 'splash system.'

**split.** A longitudinal break in the metal of a cartridge case. It may occur before firing, due to season cracking, or at the time of firing, due to faulty material or manufacture. Cf: **rupture.**

**split field.** *Optics.* **The field of view as seen when** observing through a coincidence range finder. It is formed by uniting halves of the images produced by the two objectives. The half images are separated by the 'halving line.'

**split trail.** An artillery weapon trail composed of two rigid members hinged at the carriage. They are together in the traveling position and spread apart in the firing position. Cf: **box trail.**

**SPM** *(abbr).* 'Self-propelled mount.'

**spoiler.** A surface, which being projected into the wind stream surrounding an airfoil, disturbs the airflow with consequent loss of lift and increase of drag.

**SPOILER PLATE, DEPTH CHARGE.** An item designed to be attached to a depth charge to decrease its sinking speed.*

**sponson.** Hollow enlargement on the side of the hull of a tank, used for storing ammunition, or as a space for radio equipment or guns.

**sponson mount.** See: **MOUNT, GUN.**

**SPOOL, ANTIPERSONNEL MINE TRIP WIRE ASSEMBLY.** A plastic spool designed to hold one or more trip wire assemblies. May be fitted with device to attach spool to mine and trip lever to spool.*

**SPOOL, PLUMMET, UNDERWATER MINE.** A cylindrical shaped item with a flange at each end upon which may be wound a wire rope or the like.*

**sporting gun.** Classification of shotguns which includes those with 30-inch full choke barrels. Other classifications are riot gun and skeet gun.

**spot.** 1. To determine deviations of fire from a target by observation, in order to supply information for the adjustment or analysis of the fire. 2. To locate or espy something, as an aircraft or a troop concentration.

**spot check.** A check or inspection of certain steps in an operation, process, or the like, of certain parts of a piece of equipment, or of a representative lot of completed parts or articles. The steps or parts inspected would normally be only a small percentage of the total.

**spot jamming.** Jamming of a special channel or frequency; see: **electronic jamming.**

**spotter.** An observer stationed for the purpose of observing and reporting results of naval gunfire to the firing agency. He also may be employed in designating targets. See: **field artillery observer.**

**spotter, target.** Small black metal disk attached to a target in practice shooting to show the marksman exactly where he has hit. Usually shortened to 'spotter.'

**spotter tracer.** In cartridge nomenclature, indicates that the bullet or projectile is equipped with a tracer and contains a filler suitable for spotting purposes.

**spotting board.** Device for determining the direction and size of deviations from the target. It converts the readings of spotters into usable form for firing data.

**spotting charge.** See: **charge, spotting.**

**SPOTTING INSTRUMENT, OPTICAL.** An item for locating enemy fire and for terrestrial or celestial observation. Means for accurate measurement of azimuth and vertical angles is provided by a binocular type system with reticles. It is supported by a tribrach having a circular level, leveling plate and screws, azimuth and elevation controls, and the like, which may be mounted on a tripod or ground-shelf mount. Also has bracket to hold an instrument light for reticle illumination.*

**spotting pistol.** See: **pistol, spotting.**

**spotting rifle.** See: **rifle, spotting.**

**spread.** Extend and put in place the trail of a gun carriage.

**SPREADER SET, BALLISTIC CASE SECTION.** An item consisting of two metal devices designed to separate by force two or more ballistic case sections when used with a tool for applying leverage.*

**spring.** *Mechanical.* An elastic mechanical device designed to absorb recoil or shock, to exert tension, or store up energy, and may possess the added characteristics of a supporting, guiding or controlling member; generally manufactured from metal but may, under certain use demands, be manufactured from a combination of metal and/or other elastic materials.*

**spring counterrecoil mechanism.** In this mechanism the compression of a spring or system of springs during recoil furnishes the power to return the gun back into firing position.

**spring, elliptic.** Elliptical, semi-elliptical, and full elliptical springs are the commonest of leaf springs. The latter may consist of one or more parallel units, designated as single full elliptic, double elliptic, triple elliptic, etc. A semi-elliptic spring, or one unit, or a full elliptic comprises a number of plates or rectangular section, superposed on each other. The term elliptic spring is sometimes extended to include all forms of leaf springs. See: **SPRING, LEAF.**

**Springfield Armory.** (SA) Ordnance Corps installation, forming a part of the Ordnance Weapons Command, located at Springfield, Massachusetts. Principal development and manufacturing installation in the field of small arms. It also has special missions in connection with erosion problems and preservation of materials.

**Springfield Ordnance District.** Former Ordnance district, absorbed into **Boston Ordnance District** (which see).

**SPRING, HELICAL, COMPRESSION.** An open coiled spring, wound in various forms and from different shapes and types of materials and finished at the ends, designed to provide resistance to compression forces. Excludes springs designed for thermal actuation (springs in which the torsion forces are designed to be counteracted by changes in temperature).*

**SPRING, HELICAL, EXTENSION.** An open- or close-coiled spring, wound in various forms and from different shapes and types of materials and finished at the ends, so designed to provide resistance to pulling forces. The close coiled springs may incorporate the special feature of initial tension created between the coils when wound so that an initial load must be applied to separate them.*

**SPRING, HELICAL, TORSION.** An open- or close-wound coil spring consisting of one or more helical coils, wound from different shapes and types of material and finished at the ends, designed to exert pressure in a rotating direction around the coil axis. Excludes springs designed for thermal actuation (springs in which the torsion forces are counteracted by changes in temperature).*

**spring-hydraulic-type equilibrator.** See: **equilibrator.**

**spring, independent.** Type of springing known as 'knee action,' or a similar type in which the center section of the axle, as well as the entire axle structure, is sometimes eliminated. The load is passed from the frame to the wheel spindles by means of two or more flat or coil springs and transverse linkages.

**springing charge.** A small explosive charge used to enlarge (spring) the diameter of a borehole, or to form a chamber at the bottom of a borehole in which a larger charge may be placed.

**SPRING, LEAF.** A spring relatively thin in proportion to its length and width, when assembled with similar items forms a SPRING ASSEMBLY, LEAF.*

Classes of leaf springs include the ***half or semi-elliptic spring***, ***three-quarter elliptic spring***, consisting of a quarter elliptic on top and half-elliptic on bottom, joined at one end by a bolt; ***elliptic spring***, consisting of half-elliptic on top and half-elliptic on bottom, joined at both ends by bolts; ***three-quarter scroll elliptic spring***, consisting of quarter scroll on top and half-elliptic on bottom, joined at one end by a shackle; ***scroll elliptic spring*** (***one end***), consisting of scroll at one end on top, and half-elliptic on bottom, joined at one end by a bolt and at the other by a shackle; ***scroll elliptic spring*** (both ends), consisting of scroll elliptic on bottom, joined at both ends by shackles.

**SPRING, LOADING, BALL BEARING.** A tri-semi-elliptical spring designed primarily to take up any existing endwise play between a bearing and housing. When applied against the faces of a bearing it creates a light thrust load to the bearing.*

**spring modulus.** The additional force necessary to deflect a spring an additional unit distance. If a certain spring has a modulus of 40 pounds per inch, a 40-lb weight will compress it 1 inch, an 80-lb weight 2 inches, and so on. It is apparent that the energy stored in a spring is ½ (spring modulus × deflection$^2$).

**spring recuperator.** See: **spring counterrecoil mechanism.**

**spring, ring.** A spring composed of a series of metal rings of alternately larger and smaller diameters which bear against each other along wedge shaped or conical faces. As the spring is loaded in compression, the individual units are driven together and stressed in tension or compression.

**spring, spiral.** A spring consisting of a wire coiled in a flat spiral, or in a helix.

**SPRING, SPIRAL, TORSION.** A spring consisting of a length of material wound on itself in the form of a spiral, finished at the ends and designed to exert pressure in a rotating direction around the spring axis. The material may be of various cross-sectional shapes such as round or rectangular. Excludes springs designed for thermal actuation (springs in which the torsion forces are designed to be counteracted by changes in temperature).*

**spring-type equilibrator.** See: **equilibrator.**

**spring, volute.** A spiral or scroll-like spring. Formerly widely used on tanks. Characterized by the ability to carry a much greater load per inch deflection when loaded to capacity than when carrying normal static load. Friction between adjacent coils is high but variable with the terrain traversed, moisture, etc. Usually the friction present is sufficient to maintain freedom from pronounced pitching.

**spring wheel.** One in which, by the action of springs interposed between the shaft boss and the rim, irregular driving forces and shocks are neutralized.

**sprocket.** 1. A tooth or projection, as on a wheel, shaped so as to engage with the links of a chain. 2. A sprocket wheel; a toothed wheel adapted to drive a chain or track.

In tracklaying vehicles the drive sprockets, or track drive sprocket assemblies, are formed by bolting two sprockets (steel plates with teeth formed in their outer circumferences) to a hub (sprocket hub) which, in turn, is bolted to the flanged end of the final drive sprocket shaft. Often, the drive sprockets are interchangeable.

**sprung and unsprung weight.** Sprung weight is the weight which is carried by the springs including the frame, radiator, engine, clutch, transmission, body, load, etc. *Unsprung weight* is the weight of the various parts that are not carried on the springs such as wheels, axles, brakes, etc.

Sprung weight rides easier than unsprung weight, so car manufacturers try to reduce unsprung weight as much as possible. Sprung parts are better protected against road shocks. By mechanically linking the sprung weight and the unsprung weight to a hydraulic mechanism (hydraulic shock absorbers), the energy created by road shocks can be dissipated instead of transferred to the vehicle or its contents.

**spur gear.** See: **GEAR, SPUR.**

**Sputnik.** Name given to first man-made earth satellite, launched by Russia on 4 October 1957. The second earth satellite, launched by Russia on 3 November 1957 is sometimes called 'Sputnik II.'

**SQ** *(abbr)*. 'Superquick.'

**SQ-DEL** *(abbr)*. 'Superquick and delay.'

**square base.** Descriptive of a bullet or projectile with cylindrical base (as opposed to a boattail projectile). Also called 'flat base.' Cf: **boattail.**

**square engine.** An engine in which the stroke is equal to the diameter of the cylinder bore.

**square wave.** A wave which alternately assumes two fixed values for equal lengths of time, the time of transition being negligible in comparison with the duration of each fixed value.

**squash head.** A term used, especially by the British, for a high explosive plastic (HEP) projectile. See: **projectile, high explosive plastic.**

**squeeze bore.** See: **tapered bore.**

**squelch.** To automatically quiet a receiver by reducing its gain in response to a specified characteristic of the input.

**squib.** 1. Used in a general sense to mean any of various small size pyrotechnic or explosive devices. 2. *Specif.* A small explosive device, similar in appearance to a **detonator** (which see), but loaded with low explosive, so that its output is primarily heat (flash). Usually electrically initiated, and provided to initiate action of pyrotechnic devices and rocket propellants. See also: **SQUIB, ELECTRIC.**

**SQUIB, ELECTRIC.** An item designed for electrical firing of burning type munitions or to initiate operation of jettisoning equipment and shearing devices, or as igniters for rockets or for setting equipment in motion where a small explosive device is required. It consists essentially of a tube containing a flammable material and a small charge of powder compressed around a fine resistance wire connected to

electrical leads or terminals. Excludes CARTRIDGE, ACTUATING DEVICE.*

**SR** *(abbr)*. 'Special Regulations.'

**SS** *(abbr)*. 1. 'Spin stabilised.' 2. 'Surface-to-surface.'

**SS-10.** A French developed, wire-guided, manportable, solid propellant, antitank missile.

**SS-11.** A longer range and larger version of the SS-10. This missile may also be fired from helicopter.

**SSM** *(abbr)*. 'Surface-to-surface missile.'

**SSR** *(abbr)*. 'Spin stabilized rocket.'

**stab detonator.** See: **DETONATOR, STAB.**

**stability.** 1. *Aerodynamics.* A characteristic of a projectile, missile, or aircraft in flight that causes it, if disturbed from its condition of equilibrium or steady flight, to return to that condition; similar characteristic of a parachute and its burden. 2. *Explosives.* The property of an explosive against detonating or deteriorating under normal storage conditions.

**stability, arrow.** The partial derivatives of yawing and pitching moments with respect to angles of attack in yaw and pitch. Also called weathercock stability.

**stability derivatives.** See: **derivatives, stability.**

**stability, directional.** Stability with reference to disturbances about the normal axis of an aircraft or missile, i.e., disturbances which tend to cause yawing.

**stability, dynamic.** 1. The measure of a projectile's ability to limit yaw. 2. That property of an aircraft or missile which causes it, when its state of steady flight is disturbed, to damp the oscillations set up by the restoring forces and moments and gradually return to its original state. See also: **stability, static.**

**stability factor.** A factor which indicates the relative stability (ability to maintain a fixed attitude in flight) of a projectile under given conditions. It depends upon the moments of inertia of the projectile, its spin, and the moment of the aerodynamic force about the center of gravity. A necessary, but not sufficient, condition for stability is that the stability factor be greater than unity or negative. Stability factor is sometimes referred to as the coefficient of gyroscopic stability.

**stability, inherent.** Stability of an aircraft or missile owing solely to the disposition and arrangement of its fixed parts, i.e., that property which causes it, when disturbed, to return to its normal attitude of flight without the use of the control or the interposition of any mechanical device.

**stability, lateral.** Stability with reference to disturbances about the longitudinal axis, i.e., disturbances involving rolling or side-slipping. The term 'lateral stability' is sometimes used to include directional and lateral stability, since these cannot be entirely separated in flight.

**stability, longitudinal.** Stability with reference to disturbances in the plane of symmetry, i.e., disturbances involving pitching and variation of the longitudinal and normal velocities.

**stability, static.** That property of an aircraft which causes it, when its state of steady flight is disturbed, to develop forces and moments tending to restore its original condition.

**stability test.** Accelerated test to determine the probable suitability of an explosive material for long term storage. See: **heat tests.**

**stabilization.** Expression of the ability of a missile in flight to maintain a fixed attitude relative to the trajectory. See: **fin stabilization; spin stabilization.**

**stabilise.** To give or cause **stability** (which see).

**stabilised platform.** *Inertial guidance.* A gyroscopically stabilized platform for mounting an accelerometer (which see) to maintain it fixed either in a space or earth reference system despite changes in missile position or attitude.

**stabiliser.** 1. Any airfoil or any combination of airfoils considered as a single unit, the primary function of which is to give **stability** to an aircraft or missile. 2. A mechanism to restrict movement of tank gun in elevation and/or azimuth which would otherwise result from the vehicle pitch and roll. 3. Material added to propellant colloid to inhibit or reduce decomposition in storage.

**STABILIZER, BOMBSIGHT AND AUTOMATIC PILOT.** A gyro-operated mechanical device used in conjunction with bombsights and automatic pilots. It is designed to prevent an aircraft from departing from a condition of steady motion or, in case such a motion is disturbed, restores it to its original state of equilibrium.*

**STABILIZER, HORIZONTAL.** A fixed horizontal airfoil, forming a part of the main directional control surfaces, parallel or approximately parallel to the lateral axis of an aircraft, guided missile or rocket. The functional purpose of the horizontal stabilizer is to maintain uniformity of motion in relation to the lateral axis in flight.*

**STABILIZER, TORPEDO.** An assembled unit designed to retard and stabilize the trajectory of a torpedo in flight prior to water entry.*

**STABILIZER, VERTICAL.** A fixed vertical airfoil forming a part of the main directional control surfaces, perpendicular or approximately perpendicular to the longitudinal axis of an aircraft, guided missile or rocket. The functional purpose of the vertical stabilizer is to maintain uniformity of motion in relation to the longitudinal axis in flight.*

**stablising fin.** See: **fin.**

**stablising sleeve.** 1. *General.* A tube of fabric attached to an item to provide stabilization of the item as it moves through the air. 2. *Specif.* A cloth tube attached to an aircraft flare to hold it in proper position while it is descending.

**stable.** Having **stability** (which see).

**stable element.** *Specif.* Any instrument or device, such as a gyroscope, used to stabilize a radar antenna, turret, or other piece of equipment mounted on an aircraft or ship.

**stable oscillation.** See: **oscillation, stable.**

**stable detonation velocity.** See: **detonation.**

**stab primer.** See: **DETONATOR, STAB.**

**stack arms.** To put a number of rifles in a group, upright, with their butts on the ground. Three of them are linked together with the stacking swivels. Additional rifles are stacked leaning against this group.

**stacked charge.** See: **charge, stacked.**

**stacking swivel.** See: **SWIVEL, STACKING.**

**stadia scale.** *Optics.* Graduations on a reticle which in conjunction with a rod of definite length can be used to measure distances.

**STAFF, CLEANING, ARTILLERY.** A round wooden or metal staff with or without a metal handle and with a head unit designed for holding a piece of fabric, cotton, or the like, for swabbing the bore of a mortar or a short barrel cannon, and the like. Excludes STAFF SECTION, CLEANING, ARTILLERY.*

**STAFF SECTION, CLEANING, ARTILLERY.** A round wooden staff or metal tubing item with an integral metal coupling on one or both ends. It may be used singly or as one of two or more similar items attachable end to end. It is designed for use as a staff for attachment to and manual manipulation of a BRUSH, CLEANING, ARTILLERY, rammers, and the like. See also: **ROD, CLEANING, SMALL ARMS.***

**STAFF, SMOKE PUFF DISCHARGER.** A round item, usually of wood, with an integral metal coupling on one end. It is designed for attachment to the cup assembly of a DISCHARGER, SMOKE PUFF.*

**STAFF, TARGET MARKING.** An item designed for the hoisting and lowering of signaling disk(s) used in connection with target marking. It is generally made of wood and usually of a rectangular shape, having a slot in either one or both ends with holes drilled transversely to the slot.*

**stage.** 1. *General.* One of the successive steps or periods in an action, motion, or process; likewise, the whole of an action, motion, or process when being distinguished from one that has successive steps, as in 'a single-stage reaction.' 2. *Specif.* A period in a rocket's flight resulting from the propulsive force of one or other of its charges, as in 'two-stage rocket.' 3. A step in the movement of fluid through a compressor that uses more than one impeller. 4. In electronics, that portion of a circuit contained between the control grid of one tube and the control grid of the next adjacent tube.

**staging.** Act of jettisoning, at a predetermined flight time or trajectory point, certain missile components (engines, tanks, boosters, staging equipment and associated equipment) that are no longer needed.

**stagnation point.** A point at which moving fluid comes entirely to rest.

**stagnation temperature.** See: **temperature, stagnation.**

**stake.** To deform metal of two mating parts screwed together, by centerpunch or other means, so the parts cannot turn in relation to each other.

**STAKE, VEHICLE BODY.** A wood and/or metal post like item designed to be inserted in the stake pocket of a vehicle body to prevent the loss of cargo. It may have fittings or provisions for attaching lattice type cross pieces, panel(s), chain(s), rope(s), and the like.*

**stall.** 1. The action or behavior of an airplane (or one of its airfoils) when by the separation of the airflow, as in the case of insufficient airspeed or of an excessive angle of attack, the airplane or airfoil tends to drop; the condition existing during this behavior. 2. A flight performance in which an airplane is made to lose flying speed and to drop by pointing the nose steeply upward. 3. An act or instance of stalling. 4. Burbling, i.e., the action of airflow separation that results in a stall (sense 1). *Loose usage.*

In sense 1, the stall results from a reduction in circulation, and the airfoil changes in character from a streamlined body to a blunt body. This may occur at very low speeds or at very high speeds where turbulent separation occurs.

**standard.** (std) 1. An item of known accuracy which is established by authority as a basis for reference measurements. 2. Standard type. See: **type classification.**

**Standard A.** See: **type classification.**

**Standard Atmosphere.** Since the resistance of the air to a projectile depends upon the wind, the density and the temperature, it is convenient to assume, as a point of departure in computing firing tables, a wind, density and temperature structure for this purpose. A sort of average or representative air structure so derived is called 'a standard atmosphere.' The standard atmosphere for the United States Armed Services is the *U. S. Standard Atmosphere* which is that of the International Civil Aviation Organization (ICAO). This standard atmosphere assumes a ground pressure of 760 millimeters of mercury and a ground temperature of 15°C.

The temperature throughout the troposphere, that is, the region where turbulent mixing takes place, extending up to 11 kilometers is given by the formula

$$\text{absolute temperature } T\ (°K) = 288.16 - 6.5\ H$$

where H is the height above sea level measured in kilometers. In the stratosphere, extending from 11 kilometers to 25 kilometers, the temperature is assumed to be a constant 216.66°K. Above the stratosphere other laws are assumed.

Although the ICAO atmosphere makes no assumptions about wind structure, for firing table purposes, it is assumed that there is no wind.

**Standard B.** See: **type classification.**

**standard ballistic conditions.** Set of ballistic conditions arbitrarily assumed as standard for the computation of firing tables. See: **Standard Atmosphere.**

**Standard C.** See: **type classification.**

**standard deviation.** In the field of testing, a measure of the deviation of the individual values of a series from their mean value.

The standard deviation is expressed algebraically by the formula $\sqrt{\frac{\Sigma x^2}{N}}$ where $\Sigma$ (sigma) means the sum of, x equals the deviation from the mean, and N equals the number of scores or individuals in the distribution. For example, let us assume a distribution of 5, with scores of 2, 4, 6, 8, and 10. The mean of these scores is 6, the deviations $-4$, $-2$, 0, $+2$, and $+4$. Each squared gives 16, 4, 0, 4, and 16. The sum of these is 40, which divided by 5 makes 8. The square root of 8 is 2.82. This is the standard deviation.

Other methods of arriving at the standard deviation are used, but they go back to the formula shown.

**standard error.** The square root of the average of the squares of all the errors.

**standard inspection procedure.** Instructions furnished to a procurement inspector for guidance in determining acceptability of supplies.

**standardization.** The process of establishing by common agreement engineering criteria, terms, principles, practices, materials, items, processes, equipments, parts, subassemblies, and assemblies to achieve the greatest practicable uniformity of items of supply and engineering practices; to insure the minimum feasible variety of such items and practices; and to effect optimum interchangeability of equipment parts and components. For further information on standardization of items of materiel within the Ordnance Corps, see: **type classification.**

**standard loran.** **Loran** (which see) in which medium-frequency pulses from transmitting stations are synchronized by means of ground waves. Distinguished from sky-wave synchronized loran.

**standard magazine.** Building used to store ammunition and explosives and constructed in accordance with prescribed specifications.

**standard microphone.** *Electroacoustics.* A microphone the response of which is accurately known for the condition under which it is to be used.

**STANDARD, MORTAR MOUNT.** An adjustable one-legged device which aids in the support of a MORTAR (as modified).*

**standard muzzle velocity.** Velocity at which a given projectile is supposed to leave the muzzle of a gun. The velocity is calculated on the basis of the particular gun, the propelling charge used, and the type of projectile fired from the gun. Firing tables are based on standard muzzle velocity. Also sometimes called 'prescribed muzzle velocity.'

**standard nomenclature.** Uniform designation of items of materiel in which designating noun or phrase is given first, followed by the modifiers in reverse of the normal conversational order. Published in Supply Manuals. See: **nomenclature.**

Names and descriptions of items are now controlled and made uniform for all services through Cataloging Handbooks published by the Armed Forces Supply Support Center.

**standard pack.** Quantity of items usually packed in one container for shipment.

**standard package.** See: **standard pack.**

**STANDARD, RECOILLESS RIFLE.** An adjustable one-legged device attached to the cannon tube of a recoilless rifle to serve as a support for the weapon during firing. Excludes MOUNT, RIFLE.*

**standard trajectory.** Path through the air that it is calculated a projectile will follow under given conditions of weather, position, and materiel, including the particular fuze, projectile, and propelling charge that are used. Firing tables are based on standard trajectories. See also: **Standard Atmosphere.**

**standard type.** See: **type classification.**

**standing corrections.** *Gunnery.* Algebraic sum of position and calibration corrections in mils and tenths of seconds.

**standing-on-nines carry.** See: **carry.**

**standing operating procedure.** (SOP) 1. A fixed and approved method or procedure for accomplishing something. 2. A set of instructions setting forth the method for doing something or carrying out an operation, prescribed for those operations, tasks, or features thereof that lend themselves to a standardized procedure.

**standing waves.** See: **waves, standing.**

**standoff.** As pertains to shaped charge ammunition: The distance or spacing between the base of the liner and the target at the time of initiation. The 'built-in' standoff is represented by the spacing between the base of the liner and the impact surface of the tip of the projectile. 'Free space' is represented by the same distance at the time of functioning, allowing for the crush-up of the nose. 'Air space' is used to refer to this same spacing in underwater weapons.

**STAND, RADAR FUZE.** An item designed to support a FUZE, RADAR during assembly, disassembly and/or testing.*

**stapp.** [Named after John Paul *Stapp.*] A unit expressing rate of change of acceleration or the time derivative of force. Also known as the unit of the jolt factor. One *stapp* equals a change in acceleration of one g per second.

**star.** Pyrotechnic signal that burns as a single light.

**star gage.** An instrument for measuring bore diameters, consisting of a long rod, having a micrometer handle, and a head fitted to receive adjustable radial steel points.

**star grain.** A rocket propellant grain with an internal star-shaped characteristic cross section.

**star shell.** See: **projectile, illuminating.**

**STARTER, CLOCK, UNDERWATER MINE.** A hydrostatically operated device designed to prevent the premature operation of a clock delay mechanism in an underwater mine.*

**STARTER, ENGINE, DIRECT COMBUSTION.** An item designed to accelerate a gas turbine engine from rest to starting speed by means of gas generated by combustion of fuel and air in a combustion chamber, and thrust directly on the engine turbine through an impingement nozzle mounted in the turbine section. Consists of a combustion chamber, air and fuel system components and igniter. May include the starter tube and/or impingement nozzle.*

**STARTER, ENGINE, ELECTRICAL.** An item consisting of an electric motor and integral and associated components primarily designed to crank an internal combustion engine until it starts operating under its own power. May include facilities for manual and/or mechanical actuation.*

**STARTER, ENGINE, GASOLINE.** An item consisting of a gasoline engine and integral and associated components primarily designed to crank an internal combustion engine until it starts operating under its own power. It may include facilities for manual and/or mechanical actuation.*

**STARTER, ENGINE, GAS TURBINE.** An item designed to accelerate a gas turbine engine from rest to starter cut-off speed by means of a combustion gas driven turbine and reduction gear assembly constructed to be mounted on the engine starter drive. The combustion gas is generated from ignited liquid fuel and air in the combustion chamber or from a solid propellant cartridge attached to the combustion chamber of the starter. May have provision for

energizing the turbine by low pressure air from engine bleed or ground equipment air supply.*

**STARTER, FIRE.** An item containing flammable material, designed to start fires under adverse weather conditions where ordinary ignition methods would fail.*

**STARTER, TIMER-PROGRAMMER, GUIDED MISSILE.** A specifically designed item consisting of a solenoid and switches that start the operation of a timer and programmer unit.*

**starting mix.** In pyrotechnic devices, an easily ignited mixture which transmits flame from an initiating device to a less readily ignitible composition.

**STARTING MIXTURE, GUIDED MISSILE.** A premixed item of liquid explosive material designed for initial combustion chamber warm-up through hypergolic reaction with missile contained oxidizers. This item is used prior to the cut-in of certain primary propellant mixtures in guided missiles.* See also: **hypergolic propellant.**

**starting motor.** See: **STARTER, ENGINE** (as modified).

**static balanced surface.** See: **balanced surface, static.**

**static firing.** The firing of a rocket motor or rocket engine in a hold-down position to measure thrust and accomplish other tests.

**static gearing ratio.** The ratio of the control-surface deflection in degrees to angular displacement of the missile which caused the deflection of the control surface.

**static temperature.** See: **temperature, static.**

**static testing.** The testing of a device in a stationary or held-down position as a means of testing and measuring its dynamic reactions. Said esp. of a rocket motor as a means of measuring thrust.

**static weapon.** A weapon which is used in place, e.g., a chemical cylinder, that is used to release chemical agents from the point where it is located.

**station.** 1. General term meaning any military or naval activity at a fixed land location. 2. A separate transmitter or receiver or a combination of transmitters and receivers including the accessory equipment required for carrying on a definite radio communication service. The station assumes the classification of the service in which it operates permanently or temporarily.

**station stock level.** Maximum quantity of supplies expressed in days of supply, permitted to be on hand or due in at any time at a military installation. This level is based on actual past issues and anticipated demands. It represents the requisitioning objective.

**stator.** The portion of an electrical rotating machine which contains the stationary parts of the magnetic circuit with their associated windings, or permanent magnets. May include housing or frame.*

**stay time.** In rocket engine usage the average value of the time spent by each gas molecule or atom within the chamber volume.

**std** *(abbr).* 'Standard.'

**STE** *(abbr).* 'Society of Tractor Engineers.'

**steady state.** The condition of a system which is essentially constant after damping out initial transients or fluctuations.

**STEEL ARMOR PLATE.** A ferrous product of solid rectangular cross section, uniform throughout. Made to specific strengths for the specific purpose of arresting fire arm projectiles or fragments.*

**steel case.** In cartridge nomenclature, indicates that the cartridge case is made of steel.

**steel jacket.** In small arms ammunition nomenclature, indicates that the bullet has a steel jacket.

**steering brake.** Means of turning, stopping, or holding a tracked vehicle by braking the tracks individually.

**stellar guidance.** See: **navigation, celestial.**

**stem, arming, bomb fuse.** See: **SHAFT, DRIVE, FUZE ARMING.**

**stepped-thread (Welin) breechblock.** See: **breechblock, stepped-thread (Welin).**

**step rocket.** See: **multistage rocket.**

**stereoscope.** An optical instrument with two eyepieces designed to assist an observer in combining the images of two nearly identical pictures in order to obtain an effect of solidity or depth.*

**stereoscopic contact.** A term applied to the action of bringing the target into the same apparent distance plane as the central measuring mark of the reticle in the use of a stereoscopic height finder.

**stereoscopic power.** The gain in stereoscopic effect afforded by a magnifying binocular instrument as compared with the ability of the naked eye. This power will vary with the separation of the objectives and the power of the instrument.

**stereoscopic range finder.** Telescopic instrument that gives correct ranges when the object sighted on appears at the same distance or depth as an image or cross hair marked on its lens; stereo range finder; stereoscopic height finder.

**stereoscopic trainer.** Stereoscope used to train and test observers in the use of a stereoscope. Its lenses are marked off with a scale by which ability of the observer can be checked.

**stereoscopic vision.** Vision in depth or three dimensions due to the spacing of the eyes. This spacing of the eyes permits them to see objects from slightly different angles. They get a better impression of the shape, depth, and position of an object with relation to other objects.

**sterilizer.** Device incorporated in a munition to detonate or make inactive at a desired time.

**STERILIZER, UNDERWATER MINE.** An electrolytic device designed to limit the armed life of an underwater mine by shorting the batteries, flooding, or exploding the underwater mine.*

**stgt** *(abbr).* 'Secondary target.'

**stick.** 1. A number of aerial bombs released from an aircraft so as to fall or strike in train. When the bombs are stacked one above the other inside the aircraft, they are ordinarily released simultaneously in close train. 2. A number of paratroopers jumping singly and in succession in one pass over the drop zone. 3. A number of aerial mines, flares, or the like released singly and in succession. 4. A series of rounds fired in an automatic firearm or gun in one burst.

**sticky charge.** See: **charge, sticky.**

**sting.** A rod or type of mounting attached to, and extending backward from, a model, for convenience of mounting when testing in a wind tunnel.

**stinger.** A tail gun or tail-gun emplacement in an airplane. *Slang.*

**stk** *(abbr).* 'Stock.'

**St. Louis Ordnance District.** One of the eleven districts into which the United States is divided for purposes of industrial mobilization, procurement, contract negotiation and administration, etc., by the Ordnance Corps. Embraces the States of Colorado, Kansas, Nebraska, Missouri, Arkansas, and Oklahoma; all of the State of Texas, except the counties of El Paso, Hudspeth, Culberson, Jeff Davis, Presidio and Brewster; and the counties of Adams, Schuyler, Cass, Morgan, Macoupin, Montgomery, Christian, Shelby, Cumberland, Jasper, and Crawford, and all counties south of these in the State of Illinois. The main office is located in St. Louis, Missouri.

**St. Louis Ordnance Plant.** Ordnance Corps field installation, located at St. Louis, Missouri.

**stochastic method.** Method of analyzing data, such as results of tests, employing statistical operations.

**stock.** (stk) 1. A store or supply on hand of materiel, equipment, or other supplies. 2. See: **STOCK, GUN, SHOULDER; STOCK, ROCKET LAUNCHER, SHOULDER.**

**stock accounting.** The establishment and maintenance of formal records of materiel in stock reflecting such information as quantities, values, condition, or other information as required.

**stock control.** Process by which, through a system of records and reports, pertinent data are maintained on the quantity, location, and condition of supplies and equipment due-in, on hand, and due-out. The function of stock control is to determine the quantities of supplies and equipment available for issue and to maintain exact records of the locations of those items. The objective of stock control is the management of supply operations so that distribution can be effected with a minimum amount of supplies and equipment in the distribution system.

**STOCK EXTENSION, GUN.** A metal item formed to fit the shoulder on one end and attached on the other end, to the frame or stock of a carbine, rifle, submachine gun or the like.*

**STOCK, GUN, SHOULDER.** An item usually made of hard wood to which the barrel assembly and other parts of a shoulder-fired gun are attached. It is usually designed in one piece, but some items may have a wooden or metal section for the attachment of gun parts to which a metal STOCK EXTENSION, GUN in attached.*

**stock level for the technical service.** Quantities of supplies necessary to be on hand ready for issue to meet unpredictable fluctuations in issues, unforeseen special supply conditions, and interruption of receipts. The stock level is an objective quantity around which actual stock on hand ready for issue fluctuates. See: **theater stock level.**

**stock number.** Number assigned by a technical service to an item, principally to identify that item for storage and issue purposes.

**stockpile.** A reserve stock of materiel, equipment, raw material, or other supplies; *specif.*, a stock of an important or critical product or article stored for use in time of emergency.

**stock record account.** Record kept by an accountable officer listing all property on hand, received, and issued.

**STOCK, ROCKET LAUNCHER, SHOULDER.** A formed metal strip attached to a shoulder-fired LAUNCHER, ROCKET used to steady the weapon during aiming and firing.*

**stoichiometric.** Relating to components (of a fuel) involved in a burning process which are present in exactly the quantities needed for reaction, without an excess of any component.

**stop.** Device on a mechanism, especially on guns such as the automatic pistol, that checks the action of a moving part or that acts as a lock to prevent it from moving.

**STOP, ANTENNA.** An item designed to check the movement or action of an antenna.* Do not use if a more specific item name is available.

**STOP, FUZE SETTER.** A device designed to provide a stop for a FUZE SETTER during final adjustment of the fuze timing mechanism.*

**stoppage.** (stp) A jam in an automatic weapon; the condition of being jammed.

**STOPPER, BOTTLE.** A closure to fit within the mouth of a bottle. It is made of cork, rubber, glass and glazed ceramics, paper, or plastic.* It has other uses such as closure for practice hand grenade, M21.

**stor** *(abbr).* 'Storage.'

**storage.** (stor) *Electronic computers.* 1. Any device into which information can be introduced and then extracted at a later time. The mechanism or medium in which the information is stored need not form an integral part of a computer. 2. The act of storing information. See also: **memory.**

**storage capacity.** *Electronic computers.* The maximum number of distinguishable stable states in which a storage device can exist is a measure of its capacity. It is customary to use the logarithm to the base two of that number as a numerical measure of the storage capacity. In this case, the unit of storage capacity is a binary digit.

**storage, circulating.** A device using a delay line, or unit which stores information in a train or pattern of pulses, where the pattern of pulses issuing at the final end are sensed, amplified, reshaped and reinserted in the delay line at the beginning end.

**storage, electrostatic.** *Electronic computers.* A device possessing the capability of storing changeable information in the form of charged or uncharged areas on the screen of a cathode-ray tube.

**storage, erasable.** *Electronic computers.* Media which may hold information that can be changed; i.e., the media can be re-used; e.g., magnetic tape, drum, or core.

**storage life.** Length of time in storage, under stated conditions, during which an item will remain in serviceable condition. For small items the term **shelf life** is frequently used.

**storage maintenance.** Prevention of deterioration of material or equipment in storage due to all causes except obsolescence.

**stores.** Used instead of the term *supplies* to denote any article or commodity used by a naval ship or station, such as equipment, consumable supplies, clothing, petroleum, oils, lubricants, medical supplies, ammunition, etc. See: **supplies.**

**stp** *(abbr).* 'Stoppage'

**straddle.** 1. A **mixed salvo** (which see). 2. To lay aerial bombs about, but not on, a *target,* some falling short, others long, and others to the sides. Cf: **bracket.**

**straddle-carry truck.** See: **TRUCK, STRADDLE-CARRY.**

**strafe.** [German 'punish.'] To rake a body of troops or other persons with gunfire or rocket fire at close range and from a flying aircraft; to attack a roadway, railyard, factory, or other installation with bullets, projectiles, or rockets fired from a low-firing airplane. Cf: **rake.**

**STRAIGHTENER, MOTOR VEHICLE AXLE AND HOUSING.** A device whose basic assembly is primarily designed for holding axles, axle housings, and drive shaft housings between adjustable centers while being brought into the desired degree of alignment by the application of pressure supplied by a hand jack. It may also be used to perform other functions such as removing and replacing sleeves in housings or removing gears from shafts.*

**STRAIGHTENER, MOTOR VEHICLE FRAME.** A group of related components used in the detection and correction of distortion in motor vehicle frames.*

**strain.** *Mechanics.* Deformation or change in dimension or shape produced by the action of **stress.**

**strain gage.** See: **gage, strain.**

**strapping.** 1. An operation by which supply containers, such as cartons or boxes, are reinforced by metal straps, bands, or wire placed at specified intervals around them, drawn taut and then sealed or clamped by a machine. 2. Measurement of the circumference and height of storage tanks to determine in bulk liquid storage capacity.

**strat** *(abbr).* 'Strategic.'

**strategic.** (strat) 1. Of raw materials: Needed for the industrial support of a war effort. 2. Of or pertaining to military measures or actions taken against the enemy's war-making capacity.

**strategic material.** A material needed for the industrial support of a war effort. Cf: **critical material.**

**strategic missile.** (SM) Specifically, a missile designed for use in strategic attack.

**strategic mobility.** The capability of a unit, command, force, or thing that enables it to be readily moved in advance of engagement with hostile forces.

Antiaircraft artillery has strategic mobility, but it does not have tactical mobility. Cf: **tactical mobility.**

**strategic target.** Any installation, network, group of buildings, or the like, considered vital to a country's war-making capacity and singled out for attack.

Strategic targets include factories, stockpiles, power systems, etc. See: **strategic, sense 2.**

**stratopause.** See: **atmospheric shells.**

**stratosphere.** See: **atmospheric shells.**

**streamline.** 1. To give a smooth contour to an object, such as an airplane or bomb, so as to decrease air resistance. 2. To force a control surface into its neutral position, as in 'the airflow streamlined the rudder.' 3. A shape or contour that decreases air resistance. 4. *Technical.* The path followed by the particles of a fluid about a solid body when the fluid is moving about it. Commonly applied to a non-eddying flow of fluid.

**streamline flow.** A fluid flow in which the streamlines, except those very near a body and in a narrow wake, do not change materially with time. Some turbulence is unavoidable because the velocity of the streamlines adjacent to the moving object will be reduced, making it necessary for the same volume of air to occupy a greater cross-sectional area. This forces the streamlines to spread and then reunite behind the trailing edge, no matter how thin the moving object may be. The spreading causes eddies and turbulence but the eddies are so very small that the flow is described as 'streamline.' Cf: **laminar flow.**

**streamline form.** See: **form, streamline.**

**stream tube.** In fluid flow, an imaginary tube whose wall is generated by streamlines passing through a closed curve.

**stress.** *Mechanics.* 1. A condition existent in a body when its internal structure or surfaces resist a force that produces or tends to produce deformation in the body; molecular resistance to change in shape or size. 2. A force that produces, or tends to produce, deformation in a body, measured by the force applied per unit area. Cf: **strain.**

**stress, circumferential.** When a hollow cylinder, such as a gun tube, is subjected to internal pressure, or external pressure, or a combination of the two, the metal of the cylinder walls is subjected to stresses which, for any elementary cube of metal, may be resolved into three resultant stresses acting at right angles. These are:—*radial stress, longitudinal stress,* and *tangential or circumferential stress,* according to the direction in which acting. A stress may be either tension or compression and is usually expressed per unit area, as pounds per square inch.

**stress, longitudinal.** See: **stress, circumferential.**

**stress, radial.** See: **stress, circumferential.**

**stress raiser.** A feature of a part subjected to load which causes the stress to be higher at some point, or in an area, than it is at points near, or in areas near thereto. Thus a groove or notch with sharp corners causes the stress to be high in the corners, and failure may be expected to originate there.

**stress, tangential.** See: **stress, circumferential.**

**strike.** Concerted air attack on a single objective.

**striker.** A PIN, FIRING or a projection on the hammer of a firearm, which strikes the primer to initiate a propelling charge explosive train or a fuze explosive train. See: **explosive train.**

**striker plate.** A plate in the breech of a firearm or gun, which supports the base of the cartridge and which is pierced with a hole through which the striker or firing pin hits the primer.

**striking velocity.** **Impact velocity** (which see).

**string.** Given number of shots fired within a certain time interval.

**stringer.** *Aeronautical.* An auxiliary longitudinal member of the structural framework of a fuselage,

nacelle, empennage boom, etc., designed to stiffen and/or support the outer covering of skin by attachment to bulkheads and/or formers.* Cf: **LONGERON**.

**strip.** To disassemble a piece of equipment, such as a gun, in order to clean, repair, or transport it. See: **detail-strip; field-strip.**

**strippable filming.** Preparation of materiel for storage in a plastic water vapor barrier. The barrier is applied by air spray gun and may be removed readily by stripping off. The interior of the barrier is desiccated to maintain low relative humidity.

**stripped center of impact.** Center of the zone that would have been covered by a series of shots if no allowance had been made for adjustment correction or human error.

**stripped deviation.** Distance by which a shot would have missed the target if there had been no adjustment correction or human error.

**stripping.** Process of eliminating from firing data the corrections which had been applied and errors which had occurred in firing. Used in the analysis of any firing to determine the actual performance of any weapon with any particular lot of ammunition, and to determine distances and direction from accurate plotting on firing charts.

**stripping of rifling.** Wearing off or 'peeling' off of the lands in the bore of a gun.

**STROBOSCOPE.** A device specifically designed for observing a periodic or varying motion such as rotation or vibration, by creating the optical illusion of slowing down or stopping the motion of an object being viewed.*

**stroke.** 1. The movement of a piston in a reciprocating engine between its dead center positions; the distance of this movement. 2. *Propellant actuated devices.* The design distance for piston motion in a thruster or the sum of the motions of the tubes in a multitube PAD (up to the point where the system opens, if applicable).

**strong point.** A strongly fortified and heavily armed point in a defense system, usually supported by auxiliary armed positions.

**structurally dual networks.** *Network topology.* A pair of networks of such a nature that their branches can be marked in one-to-one correspondence so that any mesh of one corresponds to a cut-set of the other. Each network of such a pair is said to be the dual of the other.

**structurally symmetrical network.** *Network topology.* A network which can be arranged so that a cut through the network produces two pairs that are mirror images of each other.

**structure.** *Specif.* The construction or make-up of an airplane or missile, including that of the fuselage, wings, empennage, nacelles, and landing gear, but not including that of the power plant, furnishings, equipment, tanks, lines, etc. See: **airframe.**

**strut.** 1. Part of the lock mechanism in automatic pistols and revolvers that puts pressure on the hammer. 2. Brace or supporting piece, especially in an aircraft and an artillery piece.

**STYLUS, SOUND RECORDING.** An item specifically designed to inscribe a mechanical recording medium such as a disk, cylinder, film or belt for the purpose of registering sonic variations.*

**STYLUS, SOUND REPRODUCING.** An item specifically designed to follow the grooves in a mechanically recorded medium such as a belt, cylinder, disk or film for the purpose of converting the groove variations into mechanical movement.*

**sub** *(abbr).* 1. 'Submarine.' (Pronounced as a word.) 2. 'Substitute.' 3. 'Subordinate.'

**subaqueous ranging.** Detecting and locating invisible marine targets, such as enemy vessels at night, or enemy submarines, by means of sound detectors placed below the surface of the water. These instruments pick up sound vibrations and automatically register the distance and direction from which they come.

**subassembly.** Two or more parts which form a portion of an assembly or a unit replaceable as a whole, but having a part or parts which are individually replaceable. Cf: **accessory; assembly; unit.**

**subcaliber.** A caliber smaller than standard for the gun on which practice is being given.

**subcaliber aircraft rocket.** (SCAR) See: **rocket, subcaliber aircraft.**

**subcaliber ammunition.** Ammunition used with a gun or launching tube, usually in practice firing, of a smaller caliber than that which is standard for the weapon used. Subcaliber ammunition is adapted for firing in weapons of larger caliber by subcaliber tubes, interchangeable barrels, sabots, or other devices.

**subcaliber equipment.** Items of equipment, such as small guns, adapters, tubes, and accessories, used for firing subcaliber ammunition in practice drills with larger guns.

**subcaliber firing.** Practice firing of subcaliber ammunition, in connection with drills in elevating, traversing, or aiming guns of larger caliber.

**subcaliber gun.** Gun mounted on the outside and above the tube of a larger gun. It is used in practice firing of subcaliber ammunition, in connection with aiming drills with the larger gun.

**subcaliber mount.** Special mount in or on the tube of a gun, upon which a gun of smaller caliber can be attached for practice firing.

**subcaliber range.** Firing range that is used for practice firing with subcaliber ammunition. Since subcaliber ammunition cannot be used for long distances, a subcaliber range may be equipped with landscape targets and other devices which offer problems similar to those of normal fire.

**subcaliber tube.** See: **TUBE, SUBCALIBER, CANNON.**

**subcarrier frequency.** See: **frequency, subcarrier.**

**subcontract.** A contract made with a third party by one who has contracted to perform work or service, for whole or part performance of that work or service.

**subcontractor.** Any contractor who assists a **prime contractor** (which see) in fulfilling a contract. In some special contexts, also called a 'contractor.'

**subdepot.** A subsidiary depot operating under the jurisdiction of, and performing functions specified by, another depot.

**subinstallation.** *Army.* Land and the improvements thereon under the control of the Department of the Army at which functions of the Department of the Army are carried on, and which has been designated as a subinstallation by Department of the Army authority. Subinstallations are attached to installations for command and administrative purposes, although they may be located separately. See also: **activity; command installation; industrial installation; installation.**

**sublimation.** The transformation of a solid directly to the gaseous condition without passing through the liquid state.

**submachine gun.** (SMG) A type of **machine gun** (which see). A short-barreled shoulder firearm using pistol-type ammunition and capable of full-automatic fire. Sometimes called a **machine pistol** (which see).

**subminiaturisation.** See: **miniaturisation.**

**submissile.** One of several smaller missiles carried and released by a larger missile, especially in a warhead.

**Subroc.** Name given to a Navy developmental rocket-driven antisubmarine weapon. It is launched from submerged submarines into air with final track underwater. Has range of 25 miles and carries nuclear warhead.

**subroutine.** *Electronic computers.* The set of instructions necessary to direct the computer to carry out a well defined mathematical or logical operation; a subunit of a routine. A subroutine is often written in relative or symbolic coding even when the routine to which it belongs is not.

**subsatellite.** An object designed to be carried into orbit inside an artificial earth satellite but later ejected to serve a particular purpose. Example: an inflatable subsatellite to measure air density and drag.

**subsonic.** 1. *Aerodynamics.* Of or pertaining to **subsonic speed** (which see). 2. *Acoustics.* Of or pertaining to frequencies below audible frequencies. Cf: **supersonic.**

**subsonic speed.** A speed relative to surrounding fluid less than that of the speed of sound in the same fluid. See: **speed of sound.**

**substitute standard type.** Former designation of Army item of materiel less satisfactory than standard type. For present designations, see: **type classification.**

**SUM** *(abbr).* 'Surface-to-underwater missile.'

**summit of trajectory.** Highest point that a projectile reaches in its flight.

**Sunflower Ordnance Works.** Ordnance Corps field installation, located at Lawrence, Kansas.

**super bazooka.** See: **bazooka.**

**supercharge.** 1. Propelling charge intended to give the highest standard muzzle velocity, authorised for the projectile in the weapon for which intended. The term 'supercharge' is sometimes used as an identifying designation when more than one type of propelling charge is available for a weapon. 2. To force air or a fuel-air mixture into an engine by means of a supercharger. 3. To equip an engine or aircraft with a supercharger.

**supercharger.** A pump or compressor for forcing more air or fuel-air mixture into an internal combustion, reciprocating engine than it would normally induct at the prevailing atmospheric pressure.

**supercharger, vane type.** A kind of **supercharger** that has a rotor located eccentrically in a casing, with vanes attached to the rotor that slide back and forth to accommodate to the walls of the casing, the vanes catching the air at the inlet on one side of the rotor, then forcing the air around to the other side toward the outlet.

**superelevation.** An added positive angle in antiaircraft gunnery that compensates for the fall of the projectile during the time of flight due to the pull of gravity; the angle the gun or launcher must be elevated above the gun-target line.

**superhigh frequency.** (SHF) See: **frequency, electronic.**

**superquick fuse.** See: **fuse, superquick.**

**supersensitive fuse.** See: **fuse, supersensitive.**

**supersonic.** 1. *Aerodynamics.* Of or pertaining to supersonic speed. 2. *Acoustics.* Ultrasonic. (Use in this sense is not recommended.) See: **ultrasonic.**

Examples of uses in sense 1: ***supersonic missile,*** a missile designed to travel, or that actually travels, at supersonic speed; ***supersonic wind tunnel,*** a wind tunnel in which the wind travels at supersonic speed relative to an object fixed within the tunnel. Cf: **hypersonic; subsonic.**

**supersonics.** 1. That branch of aerodynamics that treats of supersonic speeds or velocities. 2. Ultrasonics. (Use in this sense not recommended.)

**supersonic speed.** A speed relative to surrounding fluid greater than that of the speed of sound. See: **speed of sound.**

**supp** *(abbr).* 'Support.'

**suppl** *(abbr).* 'Supplementary.'

**supplementary charge.** See: **charge, supplementary.**

**SUPPLEMENTARY EQUIPMENT, MAINTENANCE COMPANY.** A group of items consisting of brake band lining, oil and grease, V-belts, inner-tube repair kits, nuts and bolts, etc., for use with shop sets. It contains a large variety of expendable items and some special tools.*

**supplies.** All items necessary for the equipment, maintenance, and operation of a military command, including food, clothing, equipment, arms, ammunition, fuel, forage, materials, and machinery of all kinds. See: **stores.** For planning and administrative purposes, supplies are divided as follows:

*class I.* Supplies, such as rations, forage, and post exchange supplies, that are consumed at an approximately uniform daily rate under all conditions.

*class II.* Clothing, organizational equipment, and vehicles, including spare parts for which allowances for initial issue to individuals and organizations are fixed by tables of allowances, tables of organization and equipment, or other appropriate lists or tables, and which are not included in class II (A), IV, or IV (A).

*class II (A).* Aviation supplies and equipment for which allowances for initial issue to organizations are prescribed by appropriate tables or allowance lists.

*class III.* Fuels and lubricants for all purposes except for operating aircraft or for use as ammunition in weapons such as flame throwers.

*class III (A).* Aviation fuels and lubricants.

*class IV.* Items not otherwise classified and for which initial issue allowances are not prescribed by approved issue tables. Normally, such supplies include fortification and construction materials, special machinery and equipment, and other special supplies, as well as additional quantities of items identical to those authorized for initial issue (class II), such as additional vehicles.

*class IV (A).* Aviation supplies and equipment for which allowances for initial issue to organizations are not prescribed by appropriate tables or allowance lists, or which require special measures of control.

*class V.* Ammunition of all types (including chemical), explosives, antitank and antipersonnel mines, fuzes, detonators, and pyrotechnics.

*class V (A).* Aviation ammunition, bombs, rockets, pyrotechnics, and similar expendable accessories.

**supply.** The provision for and in furnishing of all items necessary for the equipment, maintenance, and operation of a military command, including food, clothing, equipment, arms, ammunition, fuel, forage, materials, and machinery of all kinds. The categories and echelons of supply are:

*organizational supply.* That service authorized for and performed by a using organization with respect to its own equipment. This category incorporates the first and second echelons of supply as follows:

*first echelon.* That phase of supply performed by the individual user, wearer, or operator in the acquisition of authorized initial, replacement, or replenishment supplies and equipment from unit supply.

*second echelon.* That phase of supply performed by specially trained and designated personnel of the using organization in the acquisition, distribution, and accounting for authorized initial, replacement, and replenishment supplies and equipment at the organizational level.

*field supply.* That service authorized and prescribed to be performed by designated mobile, semimobile, and fixed technical service organizations and/or installations in providing initial, replacements, and replenishment supply support to using units and to collateral field maintenance activities. This category incorporates the third and fourth echelons of supply as follows:

*third echelon.* That phase of supply performed by specially trained personnel of technical service mobile units and/or fixed installations in the determination of requirements, acquisition, accounting for, and distribution of authorized supplies and equipment to using organizations for initial issue, replacement, and replenishment and to collateral third echelon maintenance units and activities for the accomplishment of their mission.

*fourth echelon.* That phase of supply performed by specially designated and trained mobile and semimobile technical service units and/or by specially trained personnel of fixed technical service installations in determination of requirements for, acquisition, accounting for, and distribution of supplies and equipment to support third echelon supply units and activities and to collateral fourth echelon maintenance units and activities for the accomplishment of their mission.

*depot supply.* That service, paralleling maintenance, authorized and prescribed to be performed by specially trained and designated semimobile and fixed technical service organizations and/or specially trained personnel of fixed technical service installations in the determination of requirements for, acquisition, accounting for, and wholesale distribution of supplies and equipment to supported retail echelons of supply and to collateral depot maintenance activities.

**supply control.** Process by which anticipated demands for supplies are balanced against the projected availability of supplies in order that qualitative acquisition or disposal action can be initiated.

**supply economy.** The practice of conservation of material by every individual in the Armed Forces. It includes conservation, maintenance, safeguarding, recovery, repair and salvage of food, fuel, clothing, weapons, transport, and all other material.

**SUPPORT, DETONATOR CABLE COILS.** A support designed to hold two or more detonator cable coils in position to form a detonator cable coil assembly.*

**SUPPORT, GUIDED MISSILE.** A specifically designed item used to support a guided missile in its launching position on a LAUNCHER, PLATFORM, GUIDED MISSILE.*

**supporting artillery.** Artillery which executes fire missions in support of a specific unit, usually infantry, but remains under the command of the next higher artillery commander. See also: **direct support artillery; general support artillery.**

**supporting research.** See: **applied research.**

**supporting weapon.** Any weapon used to assist or protect a unit of which it is not an organic part.

**SUPPORT, RETRACTABLE, SEMITRAILER.** An assembly usually having two adjustable legs with wheels or shoes at their ends, designed to support the front of a semitrailer when disengaged from the towing vehicle or dolly. Excludes support and leveling jacks.*

**support roller.** A roller wheel used to hold up and carry the upper portion of the track to the idler or driving sprocket.

**SUPPORT, TANK COMMANDER'S CUPOLA COVER.** A metal support of various shapes and cross sections designed to frame and/or hold in position a COVER, TANK COMMANDER'S CUPOLA.*

**SUPPRESSOR, FLASH.** A device attached to the muzzle of small arms and artillery weapons to reduce the flash resulting from the secondary burning of propellant gases. It has a centrally located hole, through which the projectile passes, and a series of fins attached to the mounting ring.* See also: **flash suppressor.**

**surface, aerodynamic balanced.** See: **balanced surface, aerodynamic.**

**surface burst, atomic.** See: **atomic surface burst.**

**surface plate.** A plate having a very accurate plane surface used for testing other surfaces or to provide a true surface for accurately locating testing fixtures

It is usually mounted on three adjustable legs so that it can be accurately leveled in a horizontal plane.

**surface roughness finishes.** A system by which the acceptable deviation from a plane of the surfaces of a manufactured part can be numerically specified, based upon the average height of the 'peaks and valleys' on the surface. In Ordnance Corps practice, acceptability is determined by comparison of appearance and 'feel' with calibrated 'Ordnance Surface Roughness Specimens,' or by the use of a profilometer.

The control of surface quality applies equally to internal and external cylindrical surfaces, the faces of gear teeth, etc. The same conception of average height of imperfections applies, based upon the selection of a suitable reference line.

**surface, static balanced.** See: **balanced surface, static.**

**surface zero.** See: **ground zero.**

**surge.** A transient and abnormal rush in power or energy, as occurs in an electrical or electronic apparatus or in an engine.

**surveillance.** 1. Former terminology for **Ammunition Reliability Evaluation Program,** which see. 2. Continuous observation of an area or of fire.

**surveillance test, 65.5°C.** See: **heat tests.**

**SURVEYING SET, ARTILLERY FIRE CONTROL.** A collection of instruments and equipment such as protractors, slide rule, measuring tape and the like. Used in third order and fourth order surveying for artillery fire control.*

**survival probability.** The chance that a target will survive a given operation.

**survival weapon.** See: **RIFLE-SHOTGUN, SURVIVAL.**

**suspension.** Mechanical linkage which provides sprung or flexible support between the ground contacting members of a vehicle and the chassis or hull.

**SUSPENSION BAND, TORPEDO.** A metallic item designed to be clamped around a torpedo to provide a means of suspension when mounted on an aircraft.*

**SUSPENSION BAND, UNDERWATER MINE.** A metallic item designed to be clamped around an underwater mine to provide a means of suspension when mounted on an aircraft.*

**SUSPENSION BEAM, TORPEDO.** A metallic item designed to be bolted to the top of a torpedo to provide a means of suspension when mounted on an aircraft.*

**suspension wheels.** Wheels on the horizontal volute type suspension system, replacing the bogie wheels on some tanks. Suspension wheels support the weight of the vehicle and roll on the inner side of the track.

**sustained rate of fire.** Actual rate of fire that a weapon can continue to deliver for an indefinite length of time without seriously overheating.

**sustainer.** A propulsion system, which travels with, and does not separate from, the missile. Usually applied to a ROCKET MOTOR or ROCKET ENGINE when used as the principal propulsion system as distinguished from an auxiliary system such as the **jato unit** (which see).

**SW** *(abbr).* 'Short wave.'

**SWAB, SMALL ARMS CLEANING.** A piece of fabric, cotton or the like designed for use in the cleaning of small arms weapons.*

**SWAG** *(abbr).* 'Systems Work Assignment Group.'

**swamp buggy.** A wheeled vehicle that runs on land, mud, or through shallow water, used esp. in swamps.

**sway brace.** A brace that keeps a bomb, fuel tank, or other object from swaying.

**sweat cooling.** A technique for cooling combustion chambers or aerodynamically heated surfaces by forcing a coolant through a porous wall. Film cooling at the interface results. Also called **transpiration cooling.**

**sweep.** 1. Swift flight of a formation of combat airplanes over enemy territory. 2. Cover a wide area with gunfire. 3. Trace produced on the screen of a cathode-ray tube by linear deflection of the electron beam; time base; base line. 4. Drag of body of water to find and remove or explode mines. 5. Pass a mine detector over an area to detect any mines that may be contained therein.

**sweepback.** 1. The backward slant of a wing, horizontal tail, or other airfoil surface; the backward slant of a leading or trailing edge of an airfoil. 2. The amount of this slant, expressed as the angle between a line perpendicular to the plane of symmetry and a reference line in the airfoil.

**swell diameter.** In a body of revolution having an ogival portion, such as a projectile, the swell diameter is the diameter of the maximum transverse section of the geometrical ogive. See also: **ogive.**

**sweptback wing.** An airplane wing on which both the leading and trailing edges have sweepback, the trailing edge forming an acute angle with the longitudinal axis of the airplane aft of the root.

**swimming device.** Device attached to a vehicle to float it; provision must also be made to propel the floating vehicle through the water.

**swinging traverse.** Type of fire used against dense troop formations moving toward a machine gun position or rapidly moving targets; the traversing clamp is loosened so that a gunner makes rapid changes by exerting pressure against the pistol-grip.

**switch.** A device which completes, interrupts, or changes the connections in one or more electrical circuits by manual or mechanical actuation or as a result of changes in ambient temperature. Includes items consisting of individually separable switches which are physically interlocked (e.g., one button returns when the other is pushed), which have a common acuator, or are electrically connected. Excludes items which perform the same function by self-produced thermal action such as relays, circuit breakers, fuses or motor starters.*

**SWITCH, ANTICOUNTER MINING.** A device designed to prevent an underwater mine from being fired when subjected to a physical shock such as a near-by explosion. It opens the detonator circuit for a short period of time.*

**SWITCH, INERTIA.** A switch which is specifically designed to be actuated by an abrupt change in velocity of the item upon which it is mounted.*

**SWITCHING UNIT, YAW-PITCH, GUIDED MISSILE.** An item specifically designed to provide switching facilities to select yaw and pitch signals received from a guided missile for voltage calibration and test purposes.*

**SWITCH, MERCURY.** A switch in which mercury is used to bridge contacts by manual or mechanical actuation. Do not use if switch is fabricated with toggle or push button actuator. Includes items in which one of the contacts may be moved into the mercury pool by a permanent magnet.*

**SWITCH, PRESSURE.** A switch which is actuated by changes in pressure of any gas or liquid or by changes in a vacuum acting upon its sensing element. Excludes BAROSWITCH; SWITCH, PRESSURE-THERMOSTATIC and SWITCH, SENSITIVE.*

**SWITCH, PRESSURE-THERMOSTATIC.** A switch which is actuated by changes of pressure (vacuum) on any gas or liquid and by changes in ambient temperature. The contacts for the temperature and pressure sensitive elements may be common.*

**SWITCH, PULL.** A switch which is actuated by a device such as a pull rod or a chain which requires pulling for each action. Excludes SWITCH, SENSITIVE.*

**SWITCH, PUSH.** A switch which is externally actuated by a device such as a push rod or button, which requires pushing for each action. The action may be momentary with spring (mechanical) return. Includes items consisting of individually separable switches which are physically interlocked (e.g., one button returns when the other is pushed) which have a common actuator, or are electrically connected.*

**SWITCH, ROTARY.** A switch actuated by a definite angular rotation of the switch shaft about its axis. For such a switch having definite travel characteristics and mechanical pressure required for actuation, see: **SWITCH, SENSITIVE.***

**SWITCH, SENSITIVE.** A switch with a quick-acting mechanism designed to be actuated by a highly delicate, small movement having a definite rating of travel and mechanical pressure. Excludes SWITCH, MERCURY.*

**SWITCH, SQUIB ACTUATED.** A device which completes, interrupts, or changes the connections in one or more electrical circuits. It is actuated by means of passing an electric current through a resistance wire in physical contact with a small charge of flammable and/or explosive material.*

**SWITCH, TOGGLE.** A switch which is externally actuated by a lever and whose contacts open and close with an instantaneous (snap) action; includes items having one or more momentary positions. Includes switches (snap action) which use mercury to bridge contacts, and assemblages or complete switches (snap action) having common actuators. Excludes SWITCH, ROTARY; SWITCH, SENSITIVE.*

The toggle switch has commonly been used as a bomb-release switch when the automatic bombsight is not used, esp. in formation bombing in which each toggler drops his bombs by following the lead bombardier.

**SWITCH, TRIGGER.** A switch which is actuated by pulling a trigger. The switching device with trigger action may be a separate unit but is usually mounted or designed to be mounted in a pistol-grip handle.*

**SWIVEL AND LOOP ASSEMBLY, ARMING WIRE.** A metallic item consisting of two loops mounted on a common axis so as to permit relative rotation between the parts; designed to form part of an ARMING WIRE ASSEMBLY.*

**swivel gun.** Gun mounted on a pedestal so that it can be turned from side to side or up and down.

**SWIVEL, SMALL ARMS SLING.** An elongated D-shaped item usually mounted on an axis to permit partial rotation. It is designed to be attached to a carbine, mortar, rifle, rocket launcher, shotgun, submachine gun, or the like and accommodates a SLING, SMALL ARMS. Excludes SWIVEL, STACKING.*

**SWIVEL, STACKING.** An elongated C-shaped part usually mounted on an axis to permit partial rotation and with facilities for attachment near the muzzle end of a rifle or other shoulder fired gun. It is used for attachment to two or more other similar items to form a gun stack.*

**sympathetic detonation.** Explosion caused by the transmission of a detonation wave through any medium from another explosion.

**synchro.** [From 'synchronous.'] An electromagnetic device which is primarily used for reception or transmission of angular data.* The universal term applied to any of the various synchronous devices as the Selsyn, Autosyn, motor torque generator, mag-slip, and Siemens. Theoretically a synchro device is treated as a salient-pole, bipolar, alternating-current excited synchronous machine. The standard signal and control synchro has a two-pole, single-phase, rotor field and a Y-wound, single-phase, variable-voltage stator. The transmitter of the synchro, whose rotor is geared to, or otherwise linked with, mechanical equipment, is also called a generator, synchro-generator, or Selsyn-generator. The indicator, also called a motor, synchro-motor, or Selsyn motor, has a motor that is free to rotate, and is damped to prevent excessive oscillation before coming into correspondence with the rotor of the transmitter.

**SYNCHRO ASSEMBLY.** Two or more synchros on a common mounting or mounted on each other. Do not use this name for single synchros mounted with common synchro accessories such as pulleys, gear reduction units, starting mechanisms.*

**SYNCHRO, CONTROL TRANSFORMER.** A synchro consisting of a stator and rotor inductively coupled. The electrical output of the rotor is dependent upon both the position of the rotor and the electrical input to the stator from a transmitter synchro or a differential synchro. Does not include variable resistors, goniometers, or variable transformers.*

**SYNCHRO, DIFFERENTIAL RECEIVER.** A synchro, the rotor of which is free to turn, which will assume a position in accordance with the sum or difference of the electrical angular information received from two transmitter synchros. Does not include variable resistors, goniometers, variable transformers, or items with dials.*

**SYNCHRO, DIFFERENTIAL TRANSMITTER.** A synchro, the rotor of which is mechanically posi-

tioned for modifying electrical angular information received from a transmitter synchro and transmitting to receiver synchro or control transformer synchro electrical information corresponding to the sum of difference of the electrical input angle and its rotor position angle. Does not include variable resistors, goniometers, variable transformers, or items with dials.*

**synchronization.** 1. Adjustment of two or more instruments, mechanisms, or parts so that they operate simultaneously at the same rate or in harmony. 2. Adjustment of pointers on two instruments so that they show the same reading at any time. 3. Adjustment of a bombsight in relation to the altitude, speed, and drift of an aircraft so that the target appears stationary, centered on the cross hairs.

**SYNCHRONIZER, ELECTRICAL.** An item which aligns and/or connects two or more electrical signals with respect to time.*

**synchronous bombing.** Bombing done with certain bombsights, such as the Norden bombsight, in which the travel of the telescope, focused upon the target, is synchronized with the groundspeed of the airplane, and the course flown is determined by manual adjustment of the bombsight, the two together determining the dropping angle and correcting for drift so that the release occurs at the right instant.

**synchronous radar bombing.** A kind of radar bombing in which special airborne radar equipment containing rate and steering mechanisms is used to control the direction of flight of the bombing aircraft, solve the bombing problem, and automatically drop bombs at the proper release point.

The radar equipment used in synchronous radar bombing is an independent unit, i.e., it is not used in conjunction with an optical bombsight.

**SYNCHRO, RECEIVER.** A synchro consisting of a stator and rotor inductively coupled. The rotor is free to turn in accordance with the electrical input from a transmitter synchro or a differential synchro. Does not include variable resistors, goniometers, variable transformers or items with dials.*

**SYNCHRO, RESOLVER.** An item consisting of a stator and rotor, inductively coupled. The voltages on the rotor are sine and cosine functions of the voltage(s) on the stator and the angular position of the rotor with respect to the stator. For items of this type having an air core, see: **GONIOMETER, ELECTRICAL.** See also: **SYNCHRO, RECEIVER; SYNCHRO, TRANSMITTER; SYNCHRO, CONTROL TRANSFORMER.***

**synchroscope.** 1. Device for checking the timing of the distributor on a gasoline engine. 2. A precision oscilloscope on which recurrent pulses or wave forms may be observed, which incorporates a sweep generator producing one sweep for each pulse regardless of frequency, thus allowing no more than one cycle to be viewed.

**SYNCHRO, TRANSMITTER.** A synchro consisting of a stator and rotor inductively coupled. The electrical output of the stator into a receiver synchro, a control transformer or differential synchro is dependent upon the position of its rotor. Does not include variable resistors, goniometers, variable transformer, or items with dials.*

**synoptic weather chart.** A chart of any extended portion of the earth's surface on which are delineated the weather conditions at different points observed at the same moment of actual time.

**system.** 1. *General.* A combination of parts, assemblies and sets joined together to perform a specific operational function or functions. 2. *Electrical-Electronics.* A combination of two or more sets, generally physically separated when in operation, and such other assemblies, subassemblies and parts necessary to perform an operational function or functions.

**systematic error.** Repeated error due to faulty adjustment of an instrument or to a defect in it. Systematic errors are those which remain the same, while accidental errors, due to mechanical or other variation, change from one time to the next. Also called instrumental error. See: **center of burst error.**

**system reliability.** The probability that a system will perform its specified task under stated tactical and environmental conditions. This will include accuracy. See: **reliability.**

**systems engineering.** An engineering approach which organizes men, materials, and technologies for the purpose of developing an optimum device.

Systems engineering covers both technical and administrative coordination. The technical aspect deals with the compatibility of the physical components of a weapons system, to insure that each component fits physically, dynamically, and functionally with other components of the system. The administrative function deals with the problems of manpower utilization, procurement, scheduling, cost control, reporting, etc.

**Systems Work Assignment Group.** (SWAG) A group appointed by the Chief of Ordnance to recommend to him the assignment of weapon system managers as appropriate.

# T

**T** *(abbr).* 1. In such usage as T61, designates an experimental type item. For new designations, present Ordnance Corps practice is to use the prefix 'X' followed by 'M' and a number. When the item is standardized the 'X' is dropped. See also: **A; B; E; M; X.** 2. Chemical agent, 'T.'

**-T** *(abbr).* 'With tracer' (in combinations only).

**Table of Distances.** See: **American Table of Distances; quantity-distance tables.**

**tab, trim.** *Aeronautical.* An auxiliary airfoil usually attached to the rear of a control surface, the function of which is to trim the aircraft or missile and/or reduce the control force.

**tabun.** (GA) One of the G-agents or nerve gases. A war gas. Ethyl phosphorodimethylamidocyanidate. See also: **chemical agent; nerve gas.**

**TAC** *(abbr).* 'Tactical Air Command.'

**tac** *(abbr).* 1. 'Tactics.' 2. 'Tactical.' 3. 'Tachometer.'

**tachometer.** An instrument for measuring lineal and/or rotational speeds in units for a specified elapsed time. Excludes SPEEDOMETER.*

**tactical.** (tac) 1. Of or pertaining to tactics, i.e., to the arranging, positioning, or maneuvering of forces in contact, or near contact with the enemy so as to achieve an objective or objectives in a campaign, or battle. Applied in this inherent sense to any combat or battle situation, whether in the air or on the surface, as in 'the tactical reason for moving troops against that sector was to force the enemy to weaken his flanks,' or 'the achievement of air superiority involved the tactical capabilities of the aircraft, those of range, speed, and rate of climb.' 2. Often used in sense 1 to distinguish between 'tactical' and 'strategic' considerations. 3. Of or pertaining to combat operations, as distinguished from administrative, technical, or logistical operations. 4. Restrictively, applied to activities of surface battle-line areas only.

**tactical control radar.** Antiaircraft artillery radar of essentially the same inherent capabilities as the target acquisition radar (physically it may be the same type set) but whose function is chiefly that of providing tactical information for the control of elements of the antiaircraft artillery defenses in battle.

**tactical fire control.** The manner in which fire power is employed with regard to selection of targets, opening, suspending, or ceasing fire, and classes of fire.

**tactical missile.** (TM) A missile for use in tactical operations.

**tactical mobility.** The capability of a unit, command, task force, or the like that enables it to be readily moved while engaged in combat.

An airplane, tank, or naval destroyer each has tactical mobility. Cf: **strategic mobility.**

**tactical target.** Any physical object, person, group of persons, or position singled out for attack during the course of battle or tactical operations in order to reduce, or to destroy, the enemy's ability to sustain his combat operation.

**tactical vehicle.** Any vehicle designed for field requirements in combat and tactical operations, or for training personnel for such operations. See: **vehicle, sense 2 b.**

**tactics.** (tac) That branch of the military art or science that treats of positioning, arranging, and maneuvering of forces in combat or in a battle area; i.e., the art or science of using equipment and weapons, or using military persons or units, or using positive action or passivity—all with the purpose of achieving in a combat situation some immediate advantage or of ameliorating a disadvantage with the force or forces at hand.

**tail.** 1. The rearmost part or section of a bomb, guided missile or the like. 2. Indicates, in fuze nomenclature, that the fuze is to be used in the tail of the munition for which it is intended, and in the case of a fuze component, that the component is part of a tail fuze.

**tail assembly.** 1. The assembly of fins and/or vanes of a missile that is provided directional stability or guidance. For assemblies having fixed surfaces only, the term **fin assembly** (which see) is preferred. 2. The empennage of an aircraft.

**TAIL ASSEMBLY, PROJECTOR CHARGE.** An assembly consisting of a steel tube, designed to be attached to a projector charge and to fit over the projector spigot. The forward end of the tube carries a propelling charge, and stabilizing surfaces are attached to the rear end.

**tail fuse.** See: **fuse, tail.**

**TAILGATE, HYDRAULIC LIFTING, VEHICULAR.** A rectangular platform equipped with a hydraulic cylinder(s) and may include hydraulic pump, controls, and power take-off. It is designed to mount on a truck, trailer, or semitrailer for elevating heavy cargo and also act as a tailgate for the vehicle.*

**TAILGATE, VEHICLE BODY.** An item specifically designed to be horizontally mounted on the rear end of a vehicle body. Item must have facilities for pivoting to various positions from the top and/or bottom. Excludes TAILGATE, HYDRAULIC LIFTING, VEHICULAR.*

**tail, grab.** A device employed to secure a missile to its launcher by 'grabbing' or holding the missile tail section strong points to prevent missile motion until the desired thrust level is reached. Release is accomplished at the instant of launch. Also called missile retainer.

**tail pipe.** See: **PIPE, EXHAUST.**

**tail surface.** A stabilizing or control surface in the tail of an aircraft or missile.

**takedown.** Disassemble, as of an engine.

**takeoff assist.** An instance of giving extra thrust to an airplane or missile during takeoff through the use of a rocket motor or other device; also the device used in such a takeoff. See: **jato unit.**

**Taliani test.** See **heat tests.**

**tally-in.** 1. Itemized list of supplies received. 2. Process of recording, by appropriate marks, the number of containers or quantity of materiel received of an itemized list of items included in an incoming shipment.

**tally-out.** 1. Itemized list of the items included in an issue or shipment. 2. Process of recording, by appropriate marks, the number of containers or quantity of materiel issued or shipped of an itemized list or items included in an outgoing shipment.

**Talos.** Name applied to a Navy developed surface-to-air supersonic guided missile. Suitable for use from sea or land based launching sites. Uses a solid fuel, ramjet engine and employs beam rider guidance switching to active homing system for attack.

**tamper.** In a nuclear weapon, any substance that resists movement for a split microsecond, used so that the active materia'i may build up greater pressure behind the substance.

**TAMPING POLE, DYNAMITE.** A long straight wooden item of approximately 1½ inches to 2 inches in diameter, fabricated in sections of equal length. Generally, the forward end of the first section is equipped with a round wooden block and the other section ends provided with suitable nonsparking couplings. When assembled it is used to push and tamp dynamite into a blasting hole.*

**tampion.** See: **tompion.**

**tandem.** The fore and aft configuration used in boosted missiles, long range ballistic missiles, satellite vehicles, etc. Stages are stacked together in series and are discarded or staged at burnout of the propellant for each stage.

**tangential stress.** See: **stress, circumferential.**

**tangent ogive.** See: **ogive, tangent.**

**tangent screw.** *Mach.* 1. A worm; so called because it works tangentially on a worm wheel to which it imparts an endless motion. 2. A very fine screw giving a tangential movement for making the final adjustment to an instrument of precision, as a surveyor's transit.

**tank.** 1. A receptacle or structure, varying in design to contain a liquid or a gas. (Use with modifiers denoting kind of contained fluid, such as fuel, oil ballast and items or installations for which designed, such as aircraft and locomotives.)* 2. See: **TANK, COMBAT, FULL TRACKED.**

**tank, amphibious.** Vehicle mounting a howitzer or cannon, capable of delivering direct fire from the water as well as ashore, and used in providing early artillery support in amphibious operations. Sometimes referred to as amtank. See: **LANDING VEHICLE, TRACKED.**

**tank, assault.** A **tank, heavy** with increased fire power, used for assault purposes.

**TANK, COMBAT, FULL TRACKED.** A self-propelled, heavily armored, offensive vehicle having a fully inclosed revolving turret with one major weapon. It may mount one or more machine guns. Excludes self-propelled weapons.*

**tank damage.** See: **damage categories.**

**tank damage assessment.** Evaluation of the damage done to an armored vehicle following attack by projectiles, bombs or mines. Usually conducted under proving ground conditions to determine adequacy of vehicle design or capabilities of ammunition. See: **damage categories.**

**tank destroyer.** See **GUN, ANTITANK, SELF-PROPELLED.**

**tank ditch.** See: **antitank ditch.**

**tank dozer.** Standard tank equipped with a detachable bulldozer blade.

**tank, duplex drive.** Standard tank especially modified by attaching flotation devices, prows, and twin propellers enabling the tank to serve as amphibious tank during landing operations and the crossing of wide rivers.

**tank farm.** An area in which storage tanks are located, used for the storage of supplies and equipment including bulk solids and liquids.

**TANK, FUEL, ENGINE.** A tank specifically designed to be installed as an integral part of an engine fuel system. Excludes TANK, FUEL, AIRCRAFT; TANK, LIQUID STORAGE, METAL.*

**tank, heavy.** TANK, COMBAT, FULL TRACKED with weight from 56 to 85 tons. Cf: **tank, super heavy.**

**tank, light.** TANK, COMBAT, FULL TRACKED designed for missions requiring speed and mobility, such as missions for security and reconnaissance; up to 25 tons in weight.

**TANK, LIQUID PROPELLANT, GUIDED MISSILE.** A premetered tank designed to be mounted on a truck for transporting liquid propellants and fueling guided missiles. Specifically designed to permit complete drainage of contents.*

**TANK, LIQUID STORAGE, METAL.** A metal receptacle or structure of sturdy construction and of various shapes, the top of which may be open or closed, used for the storage of bulk liquids such as gasoline, oil, or water. The tank may be equipped with pipe fittings. Excludes tanks fabricated for use as an integral part of another system and trailer or truck mounted tanks designed for transporting liquids.*

**tank, medium.** TANK, COMBAT, FULL TRACKED of 26 to 55 tons in weight.

**tank recovery vehicle.** See: **RECOVERY VEHICLE, FULL TRACKED.**

**TANK, STORAGE, LIQUID ARGON-NITROGEN-OXYGEN.** An insulated metal tank for the storage and/or transportation of liquid argon or liquid nitrogen or liquid oxygen. It may be equipped with a vacuum pump for the insulated space and/or a liquid pump for the removal of the stored liquefied gas.*

**tank, super heavy.** Heaviest type tank for military use; tank weighing over 75 tons. Cf: **tank, heavy.**

**tank transporter.** Special purpose wheeled vehicle, or combination of vehicles, designed to transport tanks or other heavy vehicles over highway and natural terrain, and incorporating integral provisions for loading and unloading disabled vehicles without supplemental assistance. See also: **SEMITRAILER,**

**TANK TRANSPORTER; TRAILER, TANK TRANSPORTER.**

**tank turret.** See: **turret.**

**TAPE, PLOTTING.** A narrow strip of flexible material graduated and numbered so that a linear dimension greater than one foot is represented to a specified ratio by a division of the tape.*

**taper.** An airfoil feature in which either the thickness or the chord length, or both, decrease from the root to the tip.

Hence, the expressions, 'taper in plan only' and 'taper in thickness ratio only.'

**tapered bore.** Term applied to a gun with a tapered bore, and also to its ammunition. The gun bore may be tapered throughout its length or only in the muzzle section. The projectile which starts out as a light weight projectile of the larger caliber may be projected at hypervelocity in the form of a smaller caliber projectile of normal or heavy weight. The smaller caliber maintains a higher velocity than would the larger caliber (for equal weight projectiles) because of lowered air resistance. For this reason the tapered bore is sometimes used for antitank weapons. Sometimes referred to as 'squeeze bore' or 'Gerlich gun,' after its originator.

**taper in thickness ratio.** A gradual change in the thickness ratio along the wing span with the chord remaining constant.

**TAPE, SOUND RECORDING.** A thin flexible strip of nonmagnetic material coated with a processed iron oxide upon which sonic variations are recorded by magnetic means.*

**tappet.** 1. See: **TAPPET, ENGINE POPPET VALVE.** 2. A hand tool for relieving spring pressure when removing or replacing valves.

**TAPPET, ENGINE POPPET VALVE.** A cylindrically shaped metal item designed to transmit intermittent motion from the cam lobe on a shaft or cam ring to the engine poppet valve. It may be mechanically or hydraulically operating, and may include adjusting devices.*

**tappet rod.** A rod carrying a **tappet** or tappets, as one for opening or closing the valves in a steam or an internal combustion engine.

**tarage tables.** Tables used in conjunction with copper crusher gages to determine interior ballistic pressures. Tables list corresponding pressures for any measured decrease in length of the copper cylinder as a result of firing. See: **gage, copper crusher; pressures, gun.**

**tare effect.** In wind tunnel testing, the forces and moments owing to support assembly and mutual interference between support assembly and model.

**targ.** Device used with a **plotting board** to indicate changing positions of the target.

**target.** (tgt) 1. A paper or pasteboard item of square or rectangular shape designed to be fired upon from a specified range during practice or while testing an automatic firearm such as an automatic rifle, machine gun, submachine gun and the like. It is used to establish a degree of accuracy. It usually consists of a series of geometric patterns of various shapes on a common background. Excludes TARGET, BULL'S-EYE; TARGET, SILHOUETTE.* 2. A thing or place to be hit or aimed at; any point, mark, person, area, position, or physical object towards which real or simulated missiles or blows may be, or are, directed.

**target acquisition.** The detection and location of a target in relation to a known control point or datum with sufficient accuracy to permit the effective employment of appropriate weapons.

**target acquisition radar.** An antiaircraft artillery radar normally of lesser range capabilities, but of greater inherent accuracy than that of the surveillance radar, whose normal function is to acquire aerial targets either by independent search or on direction of the surveillance radar, and to transfer these targets to tracking radars.

**target analysis.** Examination of potential targets to determine their military importance, their relative priority for attack, and the capabilities of available weapons for such attack.

**target angle.** The angle at the target subtended by the observing base line.

**TARGET, BORE SIGHTING.** A paper item of square or rectangular shape designed as an aiming point to be used in bore sighting a gun to bring the axis of the barrel of a spotting pistol, spotting rifle, subcaliber rifle and/or telescope sight(s) into coaxial alignment with the center line of a cannon tube or artillery trainer barrel. It usually consists of a series of quartered circles printed on a white background with alternate quadrants printed in black. Crosses, center lines and other appropriate sighting marks may also be included.*

**TARGET, BULL'S-EYE.** An item usually of square or rectangular shape made of paper, pasteboard, or similar pliable material designed to be fired upon from a specified range during practice, or while testing firearms, to establish a degree of accuracy. It usually consists of a single centrally located inner circle, black in color, with progressively larger concentric rings around it. The area within the central circle and/or each of the concentric circles may have a number(s) printed thereon with the numerical value decreasing from the center of the circle to the outer ring. It may also have one or more similar combinations arranged in various patterns upon a common background. Excludes TARGET, ARCHERY.*

**target charge.** See: **charge, target.**

**target date.** A date aimed at for completing or beginning an action, as in 'your target date is 5 January.'

**target designating system.** A system for designating to one instrument a target which has already been located by a second instrument. It employs electrical data transmitters and receivers which indicate on one instrument the pointing of another.

**target detection.** See: **target acquisition.**

**target deviation.** Distance from point of impact or point of burst to the target; **target error.**

**target discrimination.** That quality of a guidance system which enables it to distinguish a target from its background or between two or more targets in close proximity. Cf: **target identification.**

**target echo.** Radio signal reflected by an aerial or other target and received by the radar station which transmitted the original signal.

**target error.** See: **target deviation.**

**target, flag, towed.** Flag-shaped target towed by an aircraft and used especially for air-to-air target practice; flag target. It consists of a special fabric with metal spreader bars to keep it in a vertical plane and flat while in flight. Cf: **target, sleeve, towed.**

**TARGET, GROUND, FAST-MOVING.** An item designed to be fired upon, from a specified range, during practice or while testing artillery weapons to establish a degree of accuracy. It consists of a steel frame mounted on runners and has facilities for attaching target-cloth panels. A sheave and long steel cable are provided for vehicular towing.*

**target guided missile.** See: **GUIDED MISSILE, TARGET.**

**TARGET HOLDING MECHANISM.** An assemblage for holding a target. May include means of operating and such features as pop up, hit counting, delay mechanism to permit certain number of hits or time, and delayed kill reaction to simulate the falling man.

**TARGET HOLDING MECHANISM, TRAINFIRE.** An assemblage capable of lowering a target as the result of a bullet impact, or of raising or lowering it by remote control.*

**target identification.** (TI) The act of determining the nature of a target, including whether it is friend or foe. Cf: **target discrimination; identification, friend or foe.**

**target indicating system.** System for providing a means for indicating to the tracker of an antiaircraft automatic weapon the direction of approach of a suitable target, or the approach of a new target after engagement with one target has been broken off. The operation of this system requires that the tracker slew his weapon in the indicated direction, locate his target, and begin tracking.

**target information center.** An intelligence center set up afloat or ashore for assembly, evaluation interpretation, dissemination, and coordination of target information for supporting weapons, i.e., artillery, naval gunfire, and air.

**TARGET, LANDSCAPE.** A paper or pasteboard item of square or rectangular shape designed to be fired upon from a specified range during practice or while testing an automatic rifle machine gun, and the like. It is used to establish a degree of accuracy. It usually consists of a landscape scene including houses, roads, trees, and the like. It may be a single sheet or a set of two or more matching sheets.*

**target length.** Length of a target as it appears to an observer or gunner at the moment gun is fired. Target lengths may be used as units in measuring the leads.

**TARGET, MACHINE GUN.** A target specifically designed for instruction and preliminary or record practice with a machine gun or machine gun trainer on moving and stationary targets.*

**target offset.** Horizontal angle at the target between a line from the target to the piece and a line from the target to the observation post.

**target, olympic, scoring.** See: **TARGET, SILHOUETTE.**

**target paster.** See: **PASTER, TARGET.**

**target projectile.** See: **projectile, target practice.**

**TARGET, RADAR.** An item primarily designed to be mounted on a moving object and whose reflecting properties make possible the tracking of the object by radar. May also have provisions for fixed position installation for marking objects, line demarcation, or as a navigational aid for radar-equipped aircraft and vessels.*

**target range.** Area equipped for practice in shooting at targets. Also called **range.**

**TARGET RANGING SET, GUIDED MISSILE.** A complete set used to determine target information of a guided missile remote control system. It is designed to range with high accuracy against a designated ground target, and provides means of measuring angular displacement about its azimuth and elevation bearings. Excludes items performing similar functions by use of radar.*

**TARGET ROLL.** A cylindrical roll of paper upon which is printed a series of targets of the same kind each consisting of a geometric figure(s) resembling a half circle inclosed within a rectangular shaped frame. It is usually provided with horizontal and vertical grid lines and is designed to be fired at from a specified range during the practicing with or in testing of firearms such as pistols, rifles, and the like, in order to establish a degree of accuracy. Do not use if a more specific name applies. Excludes TARGET, BULL'S-EYE; TARGET, SILHOUETTE.*

**target seeker.** A missile, as a bomb or rocket, designed as a **seeker** (which see); the device within such a missile that directs it to the target.

**target-seeking.** Of missiles: Designed or made as seekers, as in 'target-seeking bomb.'

**target selector.** Component of both a target designation system and a target indicating system. It is an off-carriage observing instrument provided for the purpose of selecting an initial or new target, and it is electrically connected to the gun mount in such a manner as to: (1) slew the gun to the approximate azimuth and elevation of a selected target (when the selector is a component of a target designating system); and (2) give the tracker an indication of the direction of approach of selected target (when the selector is a component of a target indicating system).

**TARGET SELECTOR GROUP, FIRE CONTROL.** A grouping of components which makes an auxiliary off-mount sighting unit, and is electrically connected with the on-mount fire control system. It includes a communications system.*

**TARGET SET, RADAR.** A grouping of two or more components which when used together will provide radar target facilities.*

**TARGET SET, SILHOUETTE.** Two or more TARGET, SILHOUETTE, with or without accessories, designed for marksmanship training or testing firearms.*

**TARGET, SILHOUETTE.** An item designed to be fired at from a specified range during the practicing with or in the testing of firearms such as pistols,

rifles, and the like, in order to establish a degree of accuracy. It generally consists of a single centrally located image, usually black in color and shaped to simulate the silhouette of a man in prone (head and shoulder) or kneeling position, a tank or series of tanks, and the like. It may or may not have progressively larger outlines of image around it, and may have one or more similar combinations of images arranged in various patterns or formations upon a common background. The areas between the outlines of images are usually designated by assigned numerals decreasing in numerical value from the center to outer edges. The overall shape or appearance may be square, oblong, or irregular, depending upon the simulated outline. It usually consists of paper, pasteboard or similar pliable material.*

**target sled.** Sled drawn by a cable, used to carry a moving target on a target range.

**target, sleeve, towed.** Tubular, open-ended bag which fills with air and bellies out when towed by an aircraft in flight, used as a target. Cf: **target, flag, towed.**

**target spotter disk.** See: **DISK, TARGET SPOTTER.**

**target, stationary.** See: **TARGET, MACHINE GUN**

**target, testing.** See: **TARGET, BORE SIGHTING.**

**TARGET, TRAP SHOOTING.** A dish-shaped object that is projected into the air by a mechanical device, to provide gunnery practice at moving targets. It is usually designed with a thin dome to crumble on impact of a few pellets and a heavy rim to provide fast spinning flywheel action. There may be a series of steps, or connecting strips, from the rim to the recessed dome. The connecting strips divide the target in many segments which will easily break off if hit by only a few pellets.*

**target vulnerability.** A factor considered in target selection that relates each potential target to a standard scale in terms of the degree to which it is considered vulnerable. Each target is given a scale number.

**Tarheel Ordnance Plant.** Ordnance Corps field installation, located at Burlington, North Carolina.

**tarpaulin.** See: **PAULIN.**

**Tartar.** Name applied to a Navy surface-to-air supersonic guided missile for fleet protection against aircraft. A beam rider employing solid propellant.

**TAS** *(abbr).* 'True airspeed.'

**TB** *(abbr).* Department of the Army 'Technical Bulletin.'

**TC** *(abbr).* 'True course.'

**team.** Small group of men working together to operate a gun, radio station, or the like.

**tear gas.** A substance, usually liquid, which, when atomized and of a certain concentration, causes temporary but intense eye irritation and a blinding flow of tears in anyone exposed to it. Also called a 'lacrimator.' Chloroacetophenone is a common tear gas. See also: **CHEMICAL AGENT, CHLOROACETOPHENONE; lacrimator.**

**technical channel.** Direct communication channel used by the chiefs of services within the limits and in the manner prescribed by the commander to handle routing technical reports and instructions not involving variations from command policies and directives.

**technical characteristics.** Those characteristics which pertain primarily to the engineering principles involved in producing equipment possessing desired **military characteristics.**

**technical committee.** A committee established and maintained by the chief of each developing agency to effect coordination among the developing and using agencies during research, development, test, type classification, and procurement activities. See: **Ordnance Technical Committee.**

**technical committee action.** An action (either formal or 'read-for-record') by a technical committee such as the **Ordnance Technical Committee** (which see).

**echnical control.** Control exercised by virtue of technical jurisdiction. In the case of personnel, technical control normally implies a degree of control over assignments, such as that exercised over Ordnance officers by the Chief of Ordnance.

**technical direction.** Direction exercised through a technical channel.

**technical evaluation.** The study and investigation by a developing agency to determine the technical suitability of material, equipment, or a system, for use in the military services.

**technical inspection.** Inspection of equipment and weapons to determine whether serviceable for continued use or whether repairs are necessary.

**technical intelligence.** Intelligence pertaining to foreign or enemy technological developments capable of, or having, a practical application to warfare.

Technical intelligence deals, for example, with the principles of design and operation, physical characteristics, performance, nomenclature, and operational capabilities of foreign materiel or equipment. In a broader sense, it may embrace manufacture, methods of storage and maintenance, etc.

**technical manual.** (TM) A Department of the Army publication containing detailed information on technical procedures, including instructions on the operation, handling, maintenance, and repair of equipment. Cf: **technical order.**

**technical observer.** Civilian technical expert, representing a commercial firm, who accompanies troops in the field to observe and report on the operation of mechanical equipment or armament under field conditions.

**technical order.** (TO) A Department of the Air Force publication; a counterpart of the Department of the Army technical manual (TM). Joint TM/TO's are often published for equipment and procedures common to Army and Air Force. Cf: **technical manual.**

**technical service.** A branch of the Army whose principal responsibilities are those of providing technical research and development, procurement, supply and maintenance functions. The Ordnance Corps is one of the technical services; others include Chemical Corps, Corps of Engineers, Quartermaster Corps, Transportation Corps, Army Medical Service. In contrast to *administrative service;* e.g., Adjutant General's Corps, Chaplains, and Military Police Corps. The administrative and technical services are distinguished from the *arms,* primary mission of

an *arm* being combat and combat support, e.g., Infantry, but some of the branches have primary missions in both fields; e.g., Corps of Engineers.

**technical service contract.** Type of contract in which the contractor's civilian personnel perform technical services for the Department of the Army.

**technical service depot.** Depot which receives, stores, and issues the supplies of one **technical service** of the Army, for example, an Ordnance depot.

**technical service procurement agency.** Procurement agency responsible for supervision of purchase or production of items controlled by a **technical service stock control point.**

**technical service stock control point.** Office in which records are maintained for the control of an entire stock of groups or sub-groups of items of a **technical service** depending on the number, variety and demand for end items and spare parts normally carried in stock.

**telecom** *(abbr).* 'Telecommunication.'

**telecommunication.** (telecom) 1. Communication at a distance, esp. by electrical or electronic means, such as by telegraphy, radio, television, or the like. 2. *pl.* The science or art of communicating at a distance.

**telemeter.** 1. An electric or electronic instrument that measures a quantity, as that of speed, angle of attack, temperature, or atmospheric pressure, then transmits the measurements to a distant station. 2. An instrument that measures the distance between an object and the observer, as a range finder. 3. To transmit by telemeter.

The telemeter (sense 1) is used in certain guided missiles and rockets, and scientific apparatus.

**telemeter channel.** See: **channel, telemeter.**

**telemetering.** The sequence of events of the process involved in the measuring of a quantity or quantities by **telemeter,** transmitting and recording the results to a distant station, and in some cases integrating the results with others and connecting them electronically into new impulses that in turn activate a new sequence of events.

**telemetering station.** A station that emits electronic impulses that become integrated in a telemetering system.

**telemetering system.** The complete measuring, transmitting and receiving apparatus for remotely indicating, recording, and/or integrating information.

**telemetric data analyzer.** See: **ANALYZER, TELEMETRIC DATA.**

**telemetric data receiving set.** See: **RECEIVING SET, TELEMETRIC DATA.**

**telemetric data recorder.** See: **RECORDER, TELEMETRIC DATA.**

**TELEPRINTER.** An item which receives electrically transmitted teletypewritten signals and translates these signals into printed characters on a paper roll or tape. May project the message on a screen.*

**TELEPRINTER, ELECTROGRAPHIC.** An item that transforms a serial input of electrical pulses into a printed message matrix consisting of a predisposed groupage of dots formed by electrographic deposition techniques on a surface such as plastic coated paper. For items that print actual characters and/or symbols, see: **TELEPRINTER.***

**teleran system.** A navigational system which—(a) Employs ground-based search radar equipment along an airway to locate aircraft flying near that airway; (b) Transmits, by television means, information pertaining to these aircraft and other information to the pilots of properly equipped aircraft; and (c) Provides information to the pilots appropriate for use in the landing approach.

**telescope.** A single barreled optical instrument used as an assistance to the eye or camera in viewing or photographing distant objects. The chief purposes of the item are the enlargement of the visual angle under which a distant object is seen, and a consequent magnifying of the object and/or collection and concentration of a larger beam of light rendering objects visible or more distinct. The essential parts of a telescope are the objective lens or mirror which collects the beam of light and forms the image, and the eyepiece by which the image is magnified. The barrel may be straight or may be designed so as to permit the use of reflective devices such as prisms in its optical system, or to provide viewing from the eyepiece through the barrel at an angle for specific observation purposes, and/or to provide means for a panoramic objective lens.*

**TELESCOPE, ARTICULATED.** A telescope which is affixed to a weapon to provide viewing parallel to the direction of the gun bore line. It is designed with a rigidly held eyepiece and with movable sectional tubes connected by geared joints. The angles of reflective optical elements adjust automatically to provide a line of sight through the telescope as the gun tube is elevated or depressed.*

**TELESCOPE, AZIMUTH.** A navigational telescope instrument for use with a self-synchronous alidade. It is equipped with a vertical reticle line to determine bearings.*

**telescope, azimuth tracking.** Telescope with which the course or direction of a moving target is tracked. It is a part of a director, a combined observing and computing instrument, that calculates firing data for the future position of the target.

**telescope, battery commander's.** See: **PERISCOPE, BATTERY COMMAND.**

**telescope, bore.** 1. A **BORESCOPE** (which see). 2. A telescope provided with cross-hairs, and fitted with adapters for centering accurately in the chamber of a gun, for purpose of boresighting on a distant target in proof work.

**TELESCOPE, ELBOW.** A telescope whose line of vision is bent 90 degrees.*

**telescope, elevation tracking.** Optical instrument which is used in tracking a moving target in elevation.

**telescope mount.** See: **MOUNT, TELESCOPE.**

**telescope, offset.** Telescope in which the line of sight is displaced laterally or vertically before emerging in a line parallel to the line on which it entered. This permits a periscopic effect, enabling the viewer to remain behind the protective armor of a tank or the like. See: **periscope.**

**TELESCOPE, PANORAMIC.** A telescope having a horizontally rotating head.*

**TELESCOPE, STRAIGHT.** A telescope whose line of vision is 180 degrees from the eye.*

**telescope, tracking.** Telescope used for observing a moving target and following its path.

**telescopic sight.** Gunsight equipped with a telescope. Sometimes shortened to 'scope.'

**telescoping-type equilibrator.** See: **equilibrator.**

**TELETYPEWRITER.** A printing telegraph instrument having a keyboard similar to that of a typewriter for use in transmitting messages, and having a motor-driven signal actuated mechanism for printing received messages directly. For teletypewriter without a keyboard, see: **TELEPRINTER.***

**television reconnaissance.** Reconnaissance, esp. aerial reconnaissance, in which television is used to transmit the view from the reconnoitering point to another point, either on the surface or in the air.

**teller mine.** Large land mine employed by the Germans during World War II. It was an antitank mine weighing about 15 pounds, shaped like a large plate ('teller') and was frequently booby trapped.

**temperature coefficient of pressure at constant K.** *Rocket propellant.* The relative change in pressure per degree (C or F as stated) of change in ambient temperature at a constant ratio (K) of propellant surface to throat area.

**temperature element.** The sensing component, of a temperature transmitter or direct reading indicator, which is responsive to the variations of temperature of its atmosphere.*

**temperature, impact.** The temperature in a gas after an impact which caused the conversion of a portion of the kinetic energy into heat energy, with a resultant rise in temperature from the ambient.

**TEMPERATURE INDICATING COMPOUND.** A temperature-sensitive material with predetermined melting point. It is used to indicate when a predesignated temperature is reached in such processes as heat treating, welding, and molding.*

**temperature, stagnation.** *Aerodynamics.* The temperature of the stream which would be realized by conversion of all kinetic energy of the stream into heat energy.

**temperature, static.** The temperature that would be measured by a thermometer moving with the gas at the gas velocity, and having no radiation losses.

**TEMPERING COMPOUND, STEEL.** A nonspecific chemical substance, in dry form, used in the process of tempering steel. Excludes TEMPERING OIL.*

**TEMPERING OIL.** A refined petroleum oil, or a mixture of petroleum and animal oils, used for heat treatment of metals. Excludes TEMPERING COMPOUND, STEEL.*

**template.** Pattern or form such as a thin plate or board, that is used as a guide or scale for reproducing designs on other surfaces, or for marking off graduations or distances on maps, photographs, etc.

**templet.** See: **template.**

**TENDER, MINE DIVING.** A watercraft of low magnetic permeability powered by an internal combustion engine(s) driving marine propeller(s). It is designed for recovering or disposing of live mines.*

**TENSIOMETER, DIAL INDICATING.** An instrument designed to measure the tension on cable, wire, and the like, by means of a tension indicating mechanism with a device for attaching to the material to be measured.*

**term contract.** A purchase in which the contract is made for a definite period, and against which orders may be placed from time to time for varying quantities, as necessity arises.

**terminal ballistics.** See: **ballistics.**

**TERMINAL BOARD.** An item usually consisting of insulating material, which is specifically designed to have fastened thereon or on which are fastened terminal(s), such as screws, solder lugs, solder studs, solderless connectors, clips, and the like. It is usually used for junctions or terminations of wire or cable assemblies. Does not include items as defined above with parts, such as resistors and capacitors mounted thereon.*

**TERMINAL BOX.** An inclosure which includes, mounts and protects one or more terminals and/or terminal boards. It is designed for and may include a cover and such accessories as mounting hardware, brackets, locks, and conduit fittings.*

**terminal guidance.** See: **guidance, terminal.**

**terminal velocity.** 1. The constant velocity of a falling body attained when the resistance of air or other ambient fluid has become equal to the force of gravity acting upon the body. Sometimes called 'limiting velocity.' 2. Velocity at end of trajectory, i.e., **impact velocity** (which see).

**terminated portion of contract.** That portion of a terminated contract which does not relate either to completed work or material delivered and accepted under the contract or to any continued portion of the contract.

**termination claim.** Any claim or demand by a prime contractor or subcontractor for compensation arising out of the termination of a contract or subcontract.

**ternary.** *Electronic computers.* Pertaining to the system of notation utilizing the base of 3, employing the characters 0, 1, and 2.

**TERNEPLATE.** A lightweight cold rolled ferrous product. It is flat, straight, of a uniform solid rectangular cross section throughout, and coated on both sides with terne metal, a lead-tin alloy.*

**terrain.** Ground or a tract of ground, esp. considered with respect to its extent or topography as factors in a military operation.

**terrain return.** See: **ground return.**

**terrestrial fire.** Gunfire directed against a land or water target.

**terrestrial reference guidance.** See: **guidance, terrestrial reference.**

**Terrier.** Name applied to a Navy surface-to-air supersonic guided missile for fleet defense. *Terrier I* employs solid fuel and beam rider guidance, while *Terrier II*, a longer range version, uses liquid fuel and radar homing.

**test.** 1. A procedure or action by which a device, piece of material, piece of machinery, or the like is subjected to conditions, real or simulated, that will determine its true qualities or capabilities, or its suitability for use in a particular kind of operation. 2. A procedure or action for determining, under real

or simulated conditions, the effectiveness and suitability of a system, method, or the like. 3. To subject a person, thing, method, theory, or the like to a test. See also: **engineering test; user test.**

**test ammunition.** In a general sense, any ammunition used, or intended to be used, for test purposes. Specifically, ammunition prepared for testing firearms. See also: **cartridge, test, high pressure; cartridge, test, low pressure.**

**TEST BENCH SET, FIRE CONTROL SYSTEM.** A complete electronic set for testing, by the substitution method, the components of a fire control system. The item consists of two or more test benches on which are mounted operable fire control system components, and includes provisions for the application of electrical operating power. Components of a fire control system are systematically substituted for the test bench component until the defective system component is located.*

**test, engineering.** See: **engineering test.**

**TEST EQUIPMENT, ELECTRONIC SHOP, BASE MAINTENANCE.** A collection of items such as oscilloscopes, frequency meters, signal comparators, signal generators, audio oscillators and other necessary equipment for use in testing electronic components of a guided missile remote control system in a base maintenance shop. Does not include hand tools for repair of items under test.*

**TEST EQUIPMENT, ELECTRONIC SHOP, FIELD MAINTENANCE.** A collection of items such as oscilloscopes, frequency meters, pulse generators, band pass filters, amplifier recorders and other necessary equipment for use in testing electronic components of a guided missile remote control system in a field maintenance shop. Does not include hand tools for repair of items under test.*

**TEST EQUIPMENT, GUIDED MISSILE REMOTE CONTROL SYSTEM, ORGANIZATION MAINTENANCE.** A collection of items which is a subdivision of a complete SHOP EQUIPMENT, GUIDED MISSILE REMOTE CONTROL SYSTEM, ORGANIZATIONAL MAINTENANCE. It provides assorted items of test equipment only, such as tester(s), test set(s), kit(s), oscilloscope(s), pulse generator(s), and the like. It does not contain hand tools or repair parts. Excludes ELECTRONIC SHOP GROUP (as modified).*

**TESTER, ANTIFREEZE SOLUTIONS.** An item consisting of a syringe and hydrometer designed to determine the freezing temperature of antifreeze solutions commonly used in liquid cooled engines and the like. It may be equipped with a thermometer, conversion table(s), and/or cooling system capacity chart(s).*

**TESTER, BRAKE, MOTOR VEHICLE.** A floor mounted testing unit consisting of four skidproof runways, each placed to accommodate a wheel of the vehicle being tested, complete with a recording mechanism for measuring the braking energy of the vehicle and indicating whether brakes are unequal or too weak.*

**TESTER, CENTER.** An instrument used in adjusting and locating centrally any point or hole in a piece of work operated upon in a lathe chuck or faceplate. It consists of a holder with a universal ball socket for holding an indicating rod or "wiggler."*

**TESTER, CRYSTAL.** A device specifically designed to induce the proper mechanical force necessary to measure the piezoelectrical efficiency of a crystal.*

**TESTER, CYLINDER COMPRESSION.** A device designed for testing the compression of engine cylinders.*

**tester, firing system.** An electrical device for testing the continuity or other electrical characteristics of a rocket-firing system.

**TESTER, INTERNAL COMBUSTION ENGINE.** A device consisting of two or more gages or indicators mounted in a single unit, and capable of determining two or more different mechanical performance characteristics of an internal combustion engine, or its component systems, while functioning under engine-operating conditions, by making either a single or a multiple test in order to determine one or more engine characteristics similar to the following: cylinder compression, engine oil pressure, carburetor adjustment, manifold vacuum, fuel pump pressure, and the like. It does not include permanently installed gages, or any devices designed to test electrical components or characteristics of an engine.*

**TESTER, LOW TEMPERATURE GREASE VISCOSITY.** A device designed to determine the effect of low temperature on the consistency of grease by the application of a predetermined torque to cause one revolution of an accurately lubricated bearing that has been cooled to the test temperature.*

**TESTER, LUBRICANT FRICTION.** A machine designed to provide a means for measuring the load-carrying capacity, abrasive properties, and other characteristics of lubricants.*

**TESTER, MATERIAL HARDNESS.** An instrument designed to measure the hardness of metals, plastics, rubber and other solids, by methods based on resistance to penetration by an indenter of greater hardness than the material being tested.*

**TESTER, SPRING RESILIENCY.** An apparatus, device, or instrument which is specifically designed for testing spring resiliency by subjection to the desired strain and indicating this force in units of weight. Indication may be by means of a dial, graduated scale, a pressure gage, a weighing scale, or by the graduated scale of a torque indicator wrench. The force may be applied mechanically, hydraulically, or manually. May have a fixed or adjustable platform load receiver. Excludes SCALE (as modified).*

**test height.** In a leaf spring, the camber under a load serving to test its strength, elasticity, etc.

**test, high pressure.** (HPT) Indicates, in cartridge nomenclature, that item is intended to produce a high pressure in the weapon and is to be used for test purposes. See: **cartridge, test, high pressure.**

**testing target.** Special target used in boresighting a gun. It has two marks separated by the same distance as that between the sight and the axis of the bore, so that the gun may be pointed at one mark and the sight at the other.

**TEST KIT, OIL CONDITION.** A collection of items designed for estimating fuel dilution, reaction, and solids content of lubricating oil.*

**TEST KIT, PROPELLANT CONDITION.** A collection of items such as bottle(s), gage(s), ladle(s), syringe(s), vial(s), various chemicals, and accessories required for use in determining dilution, reaction, and solids content of PROPELLANT (as modified).*

**TEST KIT, SUPPLEMENTAL, GUIDED MISSILE SHOP EQUIPMENT.** A collection of items which are supplemental in nature and intended to facilitate certain guided missile test functions not already provided for in other test sets and/or shop equipment. May include such items as jigs, test fixtures, indicators, substitute missile components and/or items, but does not include hand tools or repair parts. Excludes SHOP EQUIPMENT (as modified); TEST SET (as modified); SUPPLEMENTARY EQUIPMENT (as modified).*

**test, leapfrog.** *Electronic computers.* A program designed to discover computer malfunction, characterized by the property that it performs a series of arithmetical or logical operations on one group of storage locations, transfers itself to another group of storage locations, checks the correctness of the transfer, then begins the series of operations over again. Eventually, all storage positions will have been occupied and the test will be repeated.

**test, low pressure.** (LPT) Indicates, in cartridge nomenclature, that item is intended to produce a low pressure in the weapon and is to be used for test purposes. See: **cartridge, test, low pressure.**

**test point.** A plug-in connector to a circuit in a system or equipment to facilitate monitoring calibration, trouble-shooting, checkout, etc.

**test, service.** See: **user test.**

**test set.** *Electrical.* A single instrument or grouping of instruments, with or without accessories, designed for use in making qualitative and/or quantitative examinations of electronic or electrical items and/or equipments. Do not use if a more specific item name is available. (Use an application modifier, such as capacitor or radio.)*

**TEST SET, ACTUATOR AND ARMING SWITCH.** A test set designed to check the operation of an actuator and arming switch under simulated operational conditions.*

**test set analyzer, guided missile.** See: **TEST SET, GUIDED MISSILE TEST SET.**

**TEST SET, CALIBRATION, MISSILE TRACKING ANTENNA.** A test set specifically designed for making examinations of tracking antenna. May also provide facilities for recalibration.*

**TEST SET, DOPPLER RADAR RECEIVER.** A test set primarily designed for use in making examinations of the adjustments and operating efficiency of radar receivers which are part of moving target indicating (MTI) radar sets.*

**TEST SET, ELECTRICAL CIRCUIT, GUIDED MISSILE LAUNCHER.** A test set specifically designed for use in making examinations of electrical circuits on a guided missile launcher.*

**TEST SET, ELECTRIC SQUIB.** A test set primarily designed for use in making examinations of SQUIB, ELECTRIC.*

**TEST SET, FIRE CONTROL SYSTEM.** A test set primarily designed for use in making examinations of fire control system.*

**TEST SET, FIRING CIRCUIT, ANTIPERSONNEL MINE.** A test set specifically designed for use in making examinations of antipersonnel mine firing circuit(s).*

**TEST SET, GENERATOR AND VOLTAGE REGULATOR, AUTOMOTIVE.** A test set primarily designed for use in making examinations of low-voltage automotive generators and voltage and current regulators.*

**TEST SET, GUIDED MISSILE.** A test set primarily designed for use in making examinations of electronic components, circuits and/or electrically controlled systems within a guided missile. Excludes individual test sets designed for a single specific function.*

**TEST SET, GUIDED MISSILE ANGULAR TRACKER RECEIVER.** A test set specifically designed for use in making examinations of the receiver portion of a TRACKER, ANGULAR, GUIDED MISSILE. Excludes TEST SET, MISSILE GUIDANCE COMPONENTS; TEST SET, RADAR; TEST SET, RADIO.*

**TEST SET, GUIDED MISSILE LAUNCHER.** A test set specifically designed for use in making examinations of a guided missile launcher's performance capabilities. For items used in making examinations of electrical circuits on a guided missile launcher, see: **TEST SET, ELECTRICAL CIRCUIT, GUIDED MISSILE LAUNCHER.***

**TEST SET, GUIDED MISSILE SAFETY AND ARMING DEVICE.** A test set designed to check the operation of a SAFETY AND ARMING DEVICE, GUIDED MISSILE under simulated operational conditions.*

**TEST SET, GUIDED MISSILE TARGET RANGING SET.** A test set specifically designed for making examinations of a TARGET RANGING SET, GUIDED MISSILE. Excludes TEST SET, RADAR.*

**TEST SET, GUIDED MISSILE TEST SET.** An item specifically designed to measure the output voltages of a TEST SET, GUIDED MISSILE to localize defective circuits and/or subassemblies. Excludes PROGRAMMER, ELECTRONIC COMMAND SIGNALS; SIMULATOR-TEST ADAPTER, GUIDED MISSILE SYSTEM.*

**TEST SET, INTEGRATING ACCELEROMETER.** An instrument designed to evaluate the functioning of an integrating accelerometer. It simulates the conditions under which such accelerometers operate in order to test their timing and electrical circuits.*

**TEST SET, LEAKAGE, GUIDED MISSILE DRAINAGE EQUIPMENT.** A portable device consisting of valve(s) and coupling hoses which are connected to the defueling lines of a guided missile to supply air for leak testing the missile propulsion draining equipment. May also be used in purging the fuel and oxidizer systems after drainage.*

**TEST SET, MAGNETIC DRUM.** A test set primarily designed for use in making examinations of a magnetic drum that is the data storage facility of an electronic computer.*

**TEST SET, MISSILE GUIDANCE.** A test set specifically designed for use in making examinations of a missile guidance set only when the set is installed in the missile. See also: **TEST SET, MISSILE GUIDANCE COMPONENTS.***

**TEST SET, MISSILE GUIDANCE COMPONENTS.** A test set specifically designed for use in making examinations of the components of a missile guidance set. Tests are conducted at a distance from the launch site. See also: **TEST SET, MISSILE GUIDANCE.***

**TEST SET, RADAR FUZE.** A test set specifically designed for use in making examinations of radar fuzes.*

**TEST SET SERVO.** A test set primarily designed for making examinations of servo systems and/or components.*

**TEST SET, SERVO-SYNCHRO.** A test set primarily designed for use in making examinations of servo and synchro units.*

**TEST SET, TELEMETERING SYSTEM.** A test set which is primarily designed for use in making examinations of a telemetering system.*

**TEST SET, TIME FUZE.** A test set primarily designed for use in making examinations of a time fuze.*

**test stand.** 1. A strongly built stationary stand on which a reciprocating engine is tested. 2. A stand on which a jet engine, rocket engine, or the like is mounted for testing and measuring thrust. Also called a 'proving stand' or 'thrust stand.'

**TEST STATION, GUIDED MISSILE, SEMI-TRAILER MOUNTED.** A complete electronic test station specifically designed to perform all field tests on a guided missile prior to preparation for firing. See also: **TEST STATION, GUIDED MISSILE, TRUCK MOUNTED.***

**TEST STATION, GUIDED MISSILE STABILIZED PLATFORM, SEMITRAILER MOUNTED.** A mobile unit completely equipped with the necessary components required to test the accuracy of a guided missile gyro-stabilized platform prior to preparation for firing.*

**TEST STATION, GUIDED MISSILE SYSTEM COMPONENTS, FIELD MAINTENANCE.** A van type mobile unit housing equipment specifically designed to perform field maintenance testing of a guided missile system components. Designed to test assemblies consisting of plug in items, commonly referred to as modules or potted components, and indicates defective module(s). Equipped with spare modules for replacement and may have a self-contained power source. Provides work space and may contain heating and air conditioning units. See also: **TEST STATION, GUIDED MISSILE, TRUCK MOUNTED.***

**TEST STATION, GUIDED MISSILE SYSTEM COMPONENTS, ORGANIZATIONAL MAINTENANCE.** A van type mobile unit housing equipment specifically designed to perform organizational maintenance testing of a guided missile system components. Designed to test assemblies consisting of plug-in items, commonly referred to as modules or potted components and indicates defective assembly (ies). Equipped with spare assemblies for replacement and may have a self-contained power source. Provides work space and may contain heating and air conditioning units. See also: **TEST STATION, GUIDED MISSILE, TRUCK MOUNTED.***

**TEST STATION, GUIDED MISSILE, TRUCK MOUNTED.** A complete electronic test station specifically designed to perform all field tests on a guided missile prior to preparation for firing.*

**TEST TOOL, COLD BEND.** A tool designed to be used in a universal testing machine for making cold bend tests of metal specimens.*

**tetraethyl lead.** A liquid, $Pb(C_2H_5)_4$, used as an **antiknock** in gasoline.

**tetrahedron.** A geometric figure having four faces or sides. Applied to objects more or less resembling a tetrahedron, as (a) a kind of beach or antitank obstacle, or (b) a four-pronged device dropped on enemy roads or airfields to puncture tires.

**tetranitrocarbasole.** (TNC) An explosive material used by the Germans in pyrotechnic compositions during WW II. A crystalline material, slightly less sensitive to impact than Explosive D. Since the properties are not markedly superior to TNT or Explosive D, it is considered suitable for highly specialized uses only.

**tetryl.** 2,4,6-trinitrophenylmethylnitramine. A crystalline explosive of high sensitivity and brisance, used especially as a detonator or booster, and sometimes as a bursting charge in small caliber missiles.

**tetrytol.** A high explosive mixture of tetryl and TNT in any of several proportions which permit **melt loading (which see).**

**tgt** *(abbr).* 'Target.'

**TH** *(abbr).* 1. Chemical agent, 'thermate.' 2. Chemical agent, 'thermite.' 3. 'True heading.'

**TH1** *(abbr).* Specific composition of chemical agent, 'thermite.'

**TH2** *(abbr).* Specific composition of chemical agent, 'thermate.'

**TH3** *(abbr).* Specific composition of chemical agent, 'thermate.'

**theater of operations.** Portion of a theater of war necessary for military operations, either offensive or defensive, pursuant to an assigned mission, and for the administration incident to such military operation; theater limits are designated by competent authority.

**theater of war.** That area of land, sea, and air which is, or may become, involved directly in the operations of war.

**theater stock level.** Quantity of supplies authorised by the Department of the Army to be maintained in a theater of operations as stock on hand ready for issue.

**THEODOLITE.** A precision telescopic instrument generally used in surveying work. The optical systems for reading the circles are so designed that readings are taken at each end of the circle diameter simultaneously and automatically averaged by operation of the optical micrometer. It has a fully inclosed optical reading system including vertical and horizontal circles. It must be leveled by three leveling screws.*

**thermal conductivity.** Heat flow per unit of area per unit temperature gradient.

**thermal efficiency.** The efficiency with which a rocket engine, jet engine, internal combustion reciprocating engine, or any other engine employing heat, converts the total heat energy of its fuel into energy available for propulsion. Cf: **overall efficiency.**

**thermal resistor.** See: **RESISTOR, THERMAL.**

**thermate.** (TH) See: **CHEMICAL AGENT, THERMATE; CHEMICAL AGENT, THERMITE.**

**thermionics.** The science of converting heat energy into electrical energy.

**thermistor** See: **RESISTOR, THERMAL.**

**Thermit.** Trademarked term for CHEMICAL AGENT, THERMITE.

**thermite.** (TH) See: **CHEMICAL AGENT, THERMITE.**

**thermocouple.** A junction of two dissimilar metals in which heat energy is changed directly into electrical energy.*

**THERMOCOUPLE, CONTACT.** A thermocouple whose thermojunction is specifically designed to mount on, attach to, or touch a solid.*

**THERMOCOUPLE, HEATING ELEMENT.** *A* thermocouple which includes a resistance element designed to transfer heat of the element into its thermojunction.*

**THERMOCOUPLE, IMMERSION.** A thermocouple whose thermojunction is specifically designed to be placed or dipped within a fluid.*

**thermodynamics.** The science that treats of the mechanical action of heat, or the relationship of heat and mechanical energy, and the conversion of one into the other.

**thermojet.** Air duct type engine in which air is scooped up from surrounding atmosphere, compressed, heated by combustion, and then expanded and discharged at high velocity. See: **ENGINE, RAMJET; ENGINE, TURBOJET.**

**thermojunction.** See: **THERMOCOUPLE, HEATING ELEMENT.**

**thermometer, propellant temperature.** See: **indicator, propellant temperature.**

**thermonuclear weapon.** *Nuclear.* A nuclear weapon designed to release a significant fraction of its yield energy directly as a result of the fusion process.

**thermopile.** An instrument consisting of several thermocouples so arranged as to give, when heated, a multiplied thermoelectric current; often used for detecting very slight variations in temperature. See: **detector, infrared.**

**thermoplastic.** See: **plastics.**

**thermosetting.** See: **plastics.**

**thermosphere.** See: **atmospheric shells.**

**thermostat.** An automatic device which converts expansion of heated solids, fluids, or gases into movement and power sufficient to operate small devices. May be adjustable or set to operate at a definite temperature and/or pressure.*

**thermostat, engine water temperature.** See: **THERMOSTAT, FLOW CONTROL.**

**THERMOSTAT, FLOW CONTROL.** A thermostat which controls the flow of fluid or gases by actuating a valve or shutter for cooling or heating purposes.*

**thickened fuel.** Gasoline or a blend of gasoline and light fuel oil with THICKENER, INCENDIARY OIL added; used as an incendiary fuel in flame throwers and BOMB(S), FIRE. See also: **CHEMICAL AGENT, INCENDIARY OIL; fuel thickener; unthickened fuel.**

**THICKENER, INCENDIARY OIL.** A material which, when added to an incendiary liquid, increases the viscosity.

**thickness, profile.** See: **profile thickness.**

**thickness ratio.** The ratio of the maximum thickness of an airfoil section to the length of its chord.

**third echelon maintenance.** See: **maintenance.**

**third echelon supply.** See: **supply.**

**thirty.** Popular term for 'caliber .30 machine gun.' Usually in *pl.*, in reference to two or more such guns mounted on an aircraft, or in a multiple mount.

**Thompson submachine gun.** Caliber .45, aircooled automatic weapon that can be carried and operated by one man.

**Thor.** Name applied to an Air Force surface-to-surface land based intermediate range ballistic missile. Utilizes liquid fuel and inertial guidance.

**THP** *(abbr).* 'Thrust horsepower.'

**THREAD MILLER, AUTOMATIC.** A machine having a work spindle for the insertion of collets, chucks, or other work holding fixtures to automatically grip and release materials and a cutter spindle containing thread cutters which are designed to cut specific internal or external threads by the ring or hob type method.*

**three-dimensional flow.** See: **flow, three-dimensional.**

**throat.** The most constricted area or section of a duct, passage, or the like, as of a jet nozzle.

**throat block.** See: **choke ring.**

**throat ring.** See: **choke ring.**

**throttle.** 1. In an internal combustion engine, the valve (*throttle valve*) incorporated in or just outside the carburetor, controlling the volume of vaporized fuel charge delivered to the cylinders. 2. The pedal or lever (*throttle lever*) controlling this valve. 3. To obstruct the flow of, as steam to an engine esp. by a throttle valve; hence, to reduce the speed of, as an engine, by such means; often with *down*, as, 'he throttled down the car to twenty miles per hour.'

**throttling bar.** A wedge-shaped bar attached to the interior wall of a recoil cylinder. A rectangular notch in the recoil piston moves over the bar, forming an aperture through which the recoil oil must flow. The aperture decreases during recoil until, at the end of recoil it is completely closed, thus stopping the flow of liquid and bringing the recoiling tube to rest.

**throttling groove.** A groove of varying width or depth cut on the interior wall of some recoil cylinders to control the passage of oil, hence the recoil resistance.

**throttling rod.** A tapered rod attached to a recoil cylinder. The piston rod is hollow to receive the throttling rod during recoil, and oil is forced through the orifice around the throttling rod. As recoil proceeds the larger section of the throttling rod

comes into the throttling orifice until, at the end of recoil, the throttling rod nearly seals the throttling orifice, thus bringing the recoiling tube to rest.

**throttling valve.** *Specif.* Part of a variable recoil system. A spring-loaded valve through which recoil oil must flow during recoil. As the gun is elevated the spring pressure is increased by means of a control arm. The valve thus offers greater resistance to the flow of recoil oil and the length of recoil is reduced. In a similar manner, depressing the gun decreases the spring pressure of the valve, causes less resistance to oil flow and hence greater length of recoil.

**throw-away item.** Popular but inaccurate designation for *non-maintained item.* See: **Modern Army Maintenance System.**

**throwout.** A device for throwing a machine out of gear; in automotive vehicles, the mechanism or assemblage of mechanisms by which the driven and driving plates of a clutch are separated.

**thrust.** A force produced by a propulsion system for the normal purpose of accelerating or maintaining constant velocity of the vehicle. Deceleration may be produced by reverse thrust or by reduced thrust. Cf: **effective thrust; jet thrust; net thrust.**

**thrust augmentor.** Any contrivance used for thrust augmentation, as a venturi used in a rocket, an afterburner, etc.

**thrust coefficient.** *Aerodynamics.* A dimensionless coefficient equal to the thrust divided by the product of dynamic pressure and reference area.

**THRUSTER, CARTRIDGE ACTUATED.** An item operated by gases generated by explosion of a cartridge. The item provides thrust for opening or closing latches, hatches, and the like, and/or positioning aircraft components such as instrument panels, seats, etc., to facilitate emergency escape of personnel.*

**thrust horsepower.** The thrust of a jet engine or rocket expressed in terms of horsepower.

Thrust is converted into horsepower by the following formula: thp equals thrust pounds times aircraft speed in miles per hour divided by 375.

**thrust line.** A line along which thrust acts, such as the axis of a propeller shaft, rocket motor or rocket engine.

**thrust load.** A load or pressure parallel to or in the direction of the shaft. That is, the thrust load (on a bearing) comes directly along the axis of the bearing; as the thrust load on the wheel bearings of a motor vehicle when it is going around a curve.

**thrust output.** The net thrust delivered by a jet engine, rocket engine, or rocket motor.

**THRUST PLATE, TORPEDO.** An item designed to be used with aircraft-launched torpedoes. Its purpose is to prevent fore-and-aft motion of the aircraft from being transmitted to the torpedo during catapult takeoffs and arrested landings. It may be secured to either the aircraft or torpedo.*

**thrust-pound.** A unit of measurement for the thrust produced by a jet engine or rocket, as in '5,000 thrust-pounds.'

**thrust, specific.** See: **specific thrust.**

**thyratron.** *Electronic computers.* A hot-cathode, gas-discharge tube in which one or more electrodes are used to control electrostatically the starting of a unidirectional flow of current.

**TI** *(abbr).* 'Target identification.'

**TIE DOWN KIT, GUIDED MISSILE.** A collection of items designed to secure or restrain movement of a guided missile while erected on a LAUNCHER, PLATFORM, GUIDED MISSILE prior to launching. It may incorporate a quick release device to permit instant removal from the missile. Excludes SUPPORT, GUIDED MISSILE.*

**tie..** A horizontal layer of a column, row, or stack. Tiers are numbered in the order of their stowing from the bottom up.

**TIE ROD, STEERING.** An item designed to form a connection or link, either directly or indirectly between the steering knuckle arms. It is used to maintain alignment of the wheels and to facilitate steering of the vehicle.*

**TIE ROD, TENSIONING, THREADED END.** A steel rod having various cross-sectional shaped bodies with one right hand and one left hand integral threaded end. The ends may be internally or externally threaded. It is used to control the tension in linkage. See also: **TURNBUCKLE; TURNBUCKLE BODY.***

**tilt.** 1. *General.* The inclination of a physical object from what is considered its normal or standard position. 2. *Specif.* The inclination of an aerial camera from the vertical, measured by the angle between the camera axis and a plumb line dropped from the optical center. 3. The projection of this inclination to the photograph taken. 4. The inclination of an aircraft, winged missile, or the like from the horizontal, measured by reference to the lateral axis or to the longitudinal axis. 5. The inclination of an antenna reflector from the horizontal.

**time.** To adjust or regulate an engine, automatic weapon, or other mechanism or device so that the events in its cycle of operation occur in a proper sequence; to regulate a mechanism or device for a given rate, duration of operation, etc. Hence, timing (which see).

**time bomb.** See: **bomb, time.**

**time-change component.** A component (of an end item) which because of design limitations or safety is specified to be rebuilt or overhauled after a specified period of operation (e.g., an aircraft component).

**time constant.** In electronics, the time required for a varying quantity to reach within 1/e of its total change (approximately 63.2 percent of its total change); i.e., in a capacitor-resistor circuit, the time in seconds for the capacitor to reach approximately 63.2 percent of its full charge after a steady voltage is applied; in an inductor-resistor circuit, the time in seconds required for the current to reach approximately 63.2 percent of its final value, after a steady voltage is applied.

**time correction.** Difference between the adjusted, zero height of burst time setting and the firing table time setting for a particular horizontal range.

**time fire.** Fire in which fuzes are set to act after a fixed time interval and before impact.

**time fuse.** See: **FUSE, BLASTING, TIME.**

**time fuse.** See: **fuse, time.**

**time gain control.** See: **differential gain control.**

**time interval.** Period of time between two successive observations made on a moving target during tracking.

**TIME KIT, FUZE, GUIDED MISSILE WARHEAD.** A group of nonexplosive items consisting of mechanical timers and electric switches, which, when connected electrically to explosive fuzing components, completes the fuzing system designed to initiate a train of explosives in a guided missile warhead.*

**time of flight.** Elapsed time in seconds from the instant a projectile or other missile leaves the gun or launcher until the instant it strikes or bursts.

**time on target.** 1. Term used to describe the method of firing on a target in which various artillery units so time their fire as to assure all projectiles reaching the target simultaneously. 2. A measure of the ability of a fire control system and/or gunner to keep a weapon aimed at a moving target or to keep a weapon mounted on a moving vehicle aimed at a target. A useful evaluation of stabilizers.

**timer.** *Radar.* A device in a radar set that establishes the pulse rate and controls the timing of other elements in the set.

**TIMER, INTERVAL.** An instrument for signalling the expiration of a predetermined time. It may also have an automatic switch for control of electrical circuits.*

**TIMER, INTERVAL, TRAINING.** An item specifically designed for use in training procedures associated with assembly and/or disassembly of a weapon. It is identical in configuration to, but does not necessarily complete all the operating functions of, a TIMER, INTERVAL.*

**TIMER, SEQUENTIAL.** An item which actuates included electrical contacts and/or switches in an orderly succession, and at a predetermined interval(s), for the purpose of controlling the operation of another electrical device(s). May have provisions for manually establishing an operational sequence or cycle.*

**TIMER, STOP.** A precision instrument for measuring and indicating elapsed time periods. Not intended to be carried on the person. See also: **TIMER, INTERVAL.***

**timing.** Adjustment of a small arms weapon so that it will perform each function at a predetermined point in the cycle of operation. This adjustment aids in the elimination of stoppages caused by incorrect positioning of functioning parts of the weapons at a predetermined point in the cycle of operations. Necessity for correct timing is indicated by the fact that the cycle of operation may be repeated several hundred times per minute in automatic weapons.

**timing gears.** In internal combustion reciprocating engines, the gear train through which the crankshaft drives the camshaft and thus controls valve timing. Since the camshaft has to turn once for every two revolutions of the crankshaft, these gears must be in the ratio of 2 to 1.

**timing valve.** In gas engines with hot-tube ignition, an adjustable valve which automatically opens to permit a portion of the compressed explosive mixture to enter the ignition tube, and so cause ignition, at any desired point of the stroke.

**tin fish.** A torpedo. *Slang.*

**Tiny Tim.** A code name or nickname for a kind of large (11.75") aircraft rocket.

**tip.** *Aeronautical.* A chordwise sectional unit at the outer extremity of a multipiece airfoil.*

**tip-off.** The angular momentum acquired by a missile due to the action of gravity as its forward supports leave the launcher before the aft supports.

**tipping parts.** The assembled structure of a weapon which moves in elevation or depression about the trunnions.

**tire assembly.** The tire, inner tube or tubeless type, with accessories; and for larger vehicles, a rim separable from the wheel.

**tire, combat.** See: **combat tire.**

**TIRE GUN, PUNCTURE REPAIR.** A container of liquid rubber compound, with a plunger and a dispensing tip, used to fill and seal small punctures in pneumatic tubeless tires without removal of tire from wheel rim.*

**TIRE IRON.** A single metal bar having blade like end(s) of various shapes to insert between the rim and the bead of a pneumatic tire to remove and/or replace the tire. Excludes TIRE REMOVING TOOL.*

**TIRE, PNEUMATIC.** A ring-shaped, hollow, reinforced rubber inclosure, usually circular or elliptical in cross section, perpendicular to the ring-shaped body, with or without a distinct thread pattern. For the purpose of inflation it may have a self-contained air pressure chamber, or it may be designed to be used with a sealing rim or separate inner tube. It reduces shock and vibration.*

**TIRE REMOVING TOOL.** A unit consisting of two matched metal items, one having a drop center hook at one end. It may or may not have a flat blade on the opposite end. The other item has a flat serrated or curved blade that fits through the drop center hook end. See also: **TIRE IRON.***

**TIRE, SOLID RUBBER.** A band or hoop of rubber compound, solid, cushioned, reinforced or perforated, molded on a detachable wheel rim or designed to be mounted on a wheel. Includes tires having zero pressure air chamber(s).*

**Titan.** Name applied to a surface-to-surface intercontinental ballistic missile developed by the Air Force. Alternate to the **Atlas.** A two-stage weapon utilizing liquid fuel and inertial guidance.

**titanium tetrachloride.** (FM) See: **CHEMICAL AGENT, TITANIUM TETRACHLORIDE.**

**tjc** *(abbr).* 'Trajectory chart.'

**tk** *(abbr).* 'Tank.'

**TM** *(abbr).* 1. Department of the Army 'Technical Manual.' 2. 'Tactical missile.'

**TNB** *(abbr).* 'Trinitrobenzene' (explosive).

**TNC** *(abbr).* 'Tetranitrocarbazole' (explosive).

**TNP** *(abbr).* 'Trinitrophenol' (picric acid, explosive).

**TNT** *(abbr).* 'Trinitrotoluene' (trinitrotoluol). This

explosive is better known by its abbreviation than by its chemical name. See: **trinitrotoluene.**

**TNTBP** *(abbr).* 'Mixed TNT and black powder.'

**TNTCT** *(abbr).* 'Cast TNT.'

**TO** *(abbr).* Department of the Air Force 'Technical Order.'

**toe-in.** *Automotive.* The degree (usually expressed in fractions of an inch) to which the forward part of the front wheels are closer together than the rear part, measured at hub height with the wheels in the normal 'straight ahead' position of the steering gear. Toe-in has the effect of counteracting the tendency of the wheels to roll outward or separate as a result of camber, which see. Cf: **toe-out.**

**toe-out.** *Automotive.* The outward inclination of the wheels at the front on turns due to setting the steering arms at an angle. Cf: **toe-in.**

**toggle.** To release a *bomb* or *bombs* by the use of a toggle switch without benefit of the automatic release system of the bombsight. *Colloq.*

**toggle bolt.** See: **BOLT, TOGGLE.**

**toggle joint.** A link mechanism applied to machines of different types, such as drawing and embossing presses, stone crushers, etc., for securing great pressure.

**toggle switch.** See: **SWITCH, TOGGLE.**

**TOG method.** [*Target observer gun* method.] Method of pointing a gun by indirect laying, using the angle at the observer between a line to the target and a line to the gun.

**tolerance.** The permissible difference between the two extremes in dimension, weight, strength or other quality, which will not affect the acceptability (will not cause rejection) of an item.

**toluene.** A liquid hydrocarbon ($C_6H_5CH_3$), a raw material used in the manufacture of explosives, such as DNT and TNT.

**Tommy gun.** Trademarked name for the Thompson submachine gun. Sometimes (erroneously) applied to other submachine guns.

**tompion.** 1. Wooden plug or cover, especially for the muzzle of a gun. See: **PLUG, MUZZLE.** 2. A cover for the sight bracket of a gun when the sight is not in place. Also called tampion.

**ton.** Unit of weight or volume. 1. Weight of: a. 2,000 pounds avoirdupois, called *short ton,* common in the United States and Canada. b. 2,240 pounds, called *long ton,* common in Great Britain; and with some industrial uses. c. 1,000 kilograms (approximately 2,204.6 pounds), the *metric ton.* 2. Volume of: a. 40 cubic feet, the approximate volume of a ton of commodity to be shipped, called *measurement ton* or *ship ton.* b. 100 cubic feet of internal space for registering merchant vessels, *register ton.* c. 35 cubic feet of displacement of vessels, the approximate volume of a long ton of sea water, *displacement ton.*

**tone.** *Electroacoustics.* 1. A sound wave capable of exciting an auditory sensation having pitch. 2. A sound sensation having pitch.

**tonneau.** *Automotive.* An afterbody with sides enclosing the seat or seats, entered by a door usually at the side; also, the entire body of an automobile having such an after part.

**Tooele Ordnance Depot.** Ordnance Corps field installation, located at Tooele, Utah.

**tool.** To equip a factory or industry for production by designing, making, and integrating machines, machine tools, and special dies, jigs, and instruments, so as to achieve manufacture and assembly of products on a volume basis.

**TOOL AND EQUIPMENT KIT, PROPELLANT HANDLING.** A group of tools, such as bars, wrenches, sockets, and the like; and equipment, such as drums, hoses, scales, and the like, required to transfer liquid propellants from bulk to premetered containers.*

**TOOL KIT, ANTIAIRCRAFT ARTILLERY GUN, FIELD MAINTENANCE.** A group of tools, including gun barrel carriers, spring compressors, cartridge extractors and removers, loader lifters, boresights, wrenches, and the like, used in field maintenance of a GUN, ANTIAIRCRAFT ARTILLERY (as modified)*

**TOOL KIT, ANTIAIRCRAFT ARTILLERY MECHANIC'S.** A group of hand tools consisting of chisel(s), driftpin(s), file(s), hammer(s), punch(es), pliers, screwdriver(s), wrench(es), and the like. May include paint brush(es), hand oiler(s), padlock(s), rule(s), and sharpening stone(s). It is used for organizational maintenance of medium or heavy antiaircraft guns and antiaircraft multiple machine gun mounts.*

**TOOL KIT, AUTOMOTIVE ELECTRICAL.** A group of tools such as fixed open end wrenches, pliers, screwdriver(s), and the like. It may include ignition point file(s), and feeler gages. Used primarily in the repair and maintenance of distributors, generators, starters and for similar work.*

**TOOL KIT, BATTERY SERVICE.** A group of tools such as battery carrier, scraper, wrench and the like used for removing, installing and servicing batteries. It may contain a hydrometer.*

**TOOL KIT, BOMB CLUSTER ASSEMBLY.** A group of tools such as metal shears, pliers, screwdrivers, gages and the like used to assemble bomb clusters.* See: **cluster.**

**TOOL KIT, CARBURETOR.** A group of hand tools, with or without gages used in the assembly, repair and maintenance of carburetors.*

**TOOL KIT, ELECTRONIC ASSEMBLER, GUIDED MISSILE.** A group of hand tools, such as pliers, screwdriver(s), and wrench(es). It may include an electric soldering iron, mechanical finger, padlock, flashlight, mirror, pocket knife, and the like. It is used in guided missile organizational electronic assembling.*

**TOOL KIT, ELEVATING AND TRAVERSING MECHANISM.** A group of hand tools, such as adapter(s), clamp(s), gage(s), indicator(s), remover(s) and replacer(s), sling(s), wrench(es), and the like. Used in the maintenance of the elevating and traversing mechanism of tanks, self-propelled guns, or like vehicles.*

**TOOL KIT, ENGINE REPAIR.** A group of tools such as bushing remover(s), bearing cap remover(s), valve guide remover(s), wrenches and the like used in the repair of internal combustion engines.*

**TOOL KIT, FIELD ARTILLERY MECHANIC'S.** A group of hand tools consisting of chisel(s), file(s), hammer(s), pliers, punch(es), wrench(es), and the like. It is used in the organizational maintenance of light, medium, and heavy artillery guns and howitzers.*

**TOOL KIT, GUIDED MISSILE ERECTOR.** A group of tools, such as pullers, wrenches, extractors, cranks, and the like, specifically designed to perform maintenance on a guided missile erector.*

**TOOL KIT, GUIDED MISSILE LAUNCHER.** A group of tools such as screwdrivers, pliers, wrenches, and the like. It is specifically designed to perform maintenance on a guided missile launcher.*

**TOOL KIT, GUIDED MISSILE LAUNCHER-LOADING RACK.** A group of hand tools, such as hammer(s), handle(s), plier(s), punch(es), screwdriver(s), socket(s), wrench(es), and the like. Includes grease gun with hose assembly, hand oiler, and padlock. The kit is used in the maintenance of a LAUNCHER-LOADING RACK, GUIDED MISSILE.*

**TOOL KIT, GUIDED MISSILE MAINTENANCE.** A group of tools specifically designed to perform maintenance on a guided missile. It may include miscellaneous common tools.*

**TOOL KIT, GUIDED MISSILE PROPELLANT SERVICER.** A group of tools, such as wrenches, sleeves, keys, and the like, specifically designed to perform maintenance on a guided missile propellant servicer.*

**TOOL KIT, GUIDED MISSILE SERVICING PLATFORM.** A group of tools, such as wrenches, sockets, extractors, and the like, specifically designed to perform maintenance on a guided missile servicing platform.*

**TOOL KIT, HULL AND SUSPENSION, SELF-PROPELLED GUN.** A group of special tools containing track connecting tools, pullers, bearing replacers, spanner wrenches, and the like, used in the maintenance of the hull and suspension for full-tracked, self-propelled guns.*

**TOOL KIT, MECHANICAL ASSEMBLER, GUIDED MISSILE.** A group of hand tools, such as hammer(s), pliers, screwdriver(s), wrench(es), and the like. It includes a flashlight, mirror, mechanical finger, and padlock. It is used in guided missile organizational mechanical assembling.*

**TOOL KIT, MOTORCYCLE.** A group of hand tools, gage(s), hydrometer(s), trueing stand(s) and the like used in the maintenance of motorcycles.*

**TOOL KIT, PNEUMATIC SHOP.** A group of tools, such as crowbar(s), hammer(s), handles(s), plier(s), wrench(es), and the like. Used in the maintenance of a pneumatic shop.*

**TOOL KIT, PRESERVATION AND PACKAGING SHOP.** A group of tools, such as hammer(s), plier(s), screwdriver(s), wrench(es), and the like. Used in the maintenance of a preservation and packaging shop.*

**TOOL KIT, RECOIL MECHANISM-EQUILIBRATOR CHARGING REGULATOR.** A group of tools, such as a charging regulator and adapters, air seal extractors, pressure gage(s), safety shield, wrenches, and the like, used in charging and gaging a RECOIL MECHANISM (as modified) or an EQUILIBRATOR, CANNON.*

**TOOL KIT, ROCKET MECHANIC'S.** A collection of hand tools, such as brush(es), hammer(s), plier(s), screwdriver(s), wrench(es), and the like. It is used primarily to perform organizational maintenance of a rocket.*

**TOOL KIT, ROCKET MODIFICATION.** A group of tools such as socket wrench handles, socket wrench sockets, screwdrivers and the like used to modify rockets.*

**TOOL KIT, SNIPERSCOPE.** A group of hand tools used in the maintenance of sniperscope.*

**TOOL KIT, TIRE SERVICING.** A group of tools such as tire irons, valve holding and bending tools, wheel lug wrench, hammer(s), gage and the like for mounting and dismounting pneumatic tires. See also: **TIRE REMOVING TOOL.** Does not include tire repair tool kits.*

**TOOL KIT, TRACTOR.** A group of hand tools such as wrench(es), puller(s), driver(s), gage(s), spring compressor and the like required for maintenance and repair of tractors.*

**TOOL KIT, TRAILER-SEMITRAILER.** A group of hand tools consisting of pullers, remover(s), replacer(s), wrench(es), and the like, used in the maintenance of trailers and semitrailers.*

**TOOL KIT, TRUCK.** A group of hand tools and gages used in the maintenance of trucks.*

**TOOL KIT, TURRET MECHANIC'S.** A group of hand tools consisting of chisel(s), driftpin(s), file(s), hammer(s), pliers, punch(es), screwdriver(s), wrench(es), and the like. It may include paint brush(es), padlock(s), hand oiler(s), and sharpening stone(s). It is used for organizational maintenance of turret and tank guns.*

**top carriage.** The upper structure of a gun carriage; it supports the swing parts and moves with the cradle in traverse.

**top dead center.** The dead center position of an engine piston and its crankshaft arm when at the top of its stroke.

**top secret.** (TS) See: **defense classification.**

**toromatic transmission.** See: **transmission, toromatic.**

**torp** *(abbr).* 'Torpedo.'

**torpedo.** (torp) 1. A missile designed to contain an explosive charge and to be launched into water, where it is self-propelling and usually directable. Used against ships or other targets in the water. When designed for launching from aircraft, it is sometimes called an 'aerial torpedo.' 2. An explosive device for railroad signaling. Sense 1 is intended unless otherwise indicated. See also: **torpedo, aerial; TORPEDO, SIGNALING, RAILROAD.**

**torpedo, aerial.** 1. A **torpedo** (which see) designed or adapted to be launched from flying aircraft. 2. An aerial bomb guided through the air to its target by remote control, as a **bomb, glide** (also see). *Loose usage.*

**torpedo bombing.** The launching of a torpedo or torpedoes from an aircraft against a target in the water.

**torpedo, dummy.** See: **DUMMY TORPEDO.**

**TORPEDO MAIN ASSEMBLAGE.** A group of components consisting of an AFTERBODY AND TAIL, TORPEDO and an energy section which may be a BATTERY COMPARTMENT, TORPEDO or an AIR FLASK, TORPEDO. It may include a torpedo nose assembly but does not include a WARHEAD, TORPEDO, or an EXERCISE HEAD, TORPEDO.*

**torpedo, rocket assisted.** (RAT) A **torpedo** (which see) designed to be fired into the air by rocket and to drop into the water by parachute. Upon entering the water the torpedo seeks its underwater target by a special homing device.

**TORPEDO, SIGNALING, RAILROAD.** An item consisting of an explosive charge with means for attaching to a railroad rail. When run over by a locomotive or car wheel, the resulting explosion serves as a signal to alert the train crew.*

**torpex.** (tpx) A high explosive consisting of TNT, cyclonite, and aluminum powder, used especially in torpedoes, mines, and depth bombs.

**torque.** *Mechanics.* A moment that produces or tends to produce rotation, twisting, or torsion, as that of a propeller shift driven by a tangential force. See: **torsion.**

The *deflecting torque* of an instrument is the moment produced by the quantity measured that acts so as to cause the deflection of the pointer.

The *restoring torque* is the resultant moment acting to return the instrument pointer to a position of equilibrium, usually zero, when displaced from that position.

The *starting,* or *static, torque* of an electric motor, or the like, is the torque at standstill; for an induction motor it is the minimum torque for any angular position of the locked rotor.

The *pull-in torque* is the maximum constant torque under which a motor will accelerate from rest to approximate normal speed.

The *pull-out torque* is the maximum torque a motor will carry without an abrupt drop in speed.

**torque amplifier.** See: **AMPLIFIER, ELECTRONIC CONTROL.**

**torque arm.** In automotive vehicles, an arm to take the torque of the rear axle. At the rear it is connected with the differential case (either rigidly or by a joint) and at the front it is always joined to a cross member of the frame. It performs the same functions as a **torque tube** (which see) and serves also, in some constructions, as the means of transmitting the driving effort of the wheels to the chassis frame, leaving the springs free to take care only of vibration of the vehicle on the road. It prevents the axle housing from twisting when the power or brakes are applied.

**torque converter.** *Automotive.* A device for converting the speed and torque at the driving shaft to that required by the driven shaft. An automotive transmission which permits an engine to run at the speed which produces its greatest horsepower.

**torque, locked rotor.** See: **rotor torque, locked.**

**torque reaction.** On a shaft-driven vehicle, the reaction between the bevel pinion with its shaft (which is supported in the rear-axle housing) and the level ring gear (which is fastened to the differential housing) that tends to rotate the axle housing around the axle instead of rotating the axle shafts alone.

Protection against torque reaction can be had in the following methods (which see): **torque tube; torque arm; Hotchkiss drive.**

**TORQUE ROD, TANDEM AXLE.** A metal device designed to insure correct spacing and alignment of truck and trailer axles.*

**torque tube.** In automotive vehicles, a tube surrounding the propeller shaft to take the torque, usually a unit with the rear-axle housing at the rear but with a universal joint at the front where it is supported by a cross-frame member or by the rear end of the transmission case. See: **torque arm.**

**torque wrench.** See: **WRENCH, TORQUE.**

**torsigraph.** A torsion meter.

**torsile.** Pertaining to torsion.

**torsion.** The internal moment of a body subjected to twisting or wrenching, as by the application of torque to one end of a shaft while the other is held fast or turned in the opposite direction; the act of turning so as to create this moment. Cf: **torque.**

**torsional vibration.** Oscillatory twisting vibration in a rotational direction, which would tend to make a body mounted on one end of a shaft whip back and forth with respect to a body on the other end.

**torsion balance.** An instrument used to measure minute forces, as electrostatic or magnetic attraction and repulsion, by the torsion of a wire or filament, the angle of torsion being proportional to the amount of force exerted.

**TORSION BAR, HINGE.** A straight metal item of various cross-sectional shapes, with serrations, flats, or the like, on each end. It is designed to withstand a severe twisting action along its longitudinal axis while held fast at both ends. It is used in lieu of a hinge pin and creates tension on a hatch(es), door(s), gate(s), or the like, when in a closed or open position. Excludes TORSION BAR, SUSPENSION.*

**torsion bar equilibrator.** See: **equilibrator.**

**TORSION BAR, SUSPENSION.** A straight metal item having a solid or tubular circular cross section with serrations, flats, or the like, on each end. It is designed to withstand a severe twisting action along its longitudinal axis, while held fast at the ends. It is used in the suspension system of a vehicle to absorb road shock. See also: **TORQUE ROD, TANDEM AXLE.***

**toss bombing.** A bombing action that involves the use of centrifugal force to carry the bomb dropped away from the bomber.

**total impulse.** The product of the thrust and the time over which the thrust is produced by burning a specific fuel or fuel combination, expressed in pounds (force)-seconds. Used especially in reference to a rocket motor or a rocket engine.

**towbar.** An item which connects to a vehicle that is not equipped with an integral drawbar, for the purpose of towing or moving the vehicle. See also: **drawbar.***

**towed artillery.** Artillery weapons designed for movement as trailed loads behind prime movers or draft

animals. Some adjustment of the weapon is necessary to place it in firing position.

**towed load.** The weight of a gun, carriage, trailer, or other equipment towed by a prime mover.

**towed-target firing.** Antiaircraft practice fire against a target towed by an aircraft.

**tow target.** Target for antiaircraft fire or aerial gunnery practice, drawn behind an aircraft. See: **target, flag, towed; target, sleeve, towed.**

**toxic gas.** A war gas (which see) that produces a poisonous effect.

**toxic warfare.** Warfare in which chemicals, biological agents and atomic fission products are used to produce casualties.

**TP** *(abbr).* 'Target practice.

**TP-T** *(abbr).* 'Target practice with tracer.'

**tpx** *(abbr).* 'Torpex' (explosive).

**trac** *(abbr).* 1. 'Tractor.' 2. 'Tracer.'

**trace.** 1. *Radar.* The line on a radar screen made by the time base. 2. Path of a **tracer bullet.**

**tracer.** See: **tracer ammunition; tracer bullet; tracer mixture; TRACER, PROJECTILE.**

**tracer ammunition.** Any ammunition equipped with **tracer** (which see).

**tracer bullet.** A bullet containing a pyrotechnic mixture to make the flight of the projectile visible by day and night. Cf: **bullet, incendiary.**

**tracer control.** Adjustment of fire based on observation of trajectories of **tracer ammunition.**

**tracer control trainer.** Device used to train gunners in fire control, using **tracer ammunition.**

**tracer, dummy.** Inert filler for tracer cavity in a projectile.

**tracer, guided missile** See: **FLARE, GUIDED MISSILE.**

**tracer hump.** An optical illusion in which a hook or curvature appears in the tracer stream.

**tracer mix.** Short for **tracer mixture.**

**tracer mixture.** A pyrotechnic composition, used for loading tracers. Also called 'tracer composition.'

**TRACER, PROJECTILE.** A cylindrical item designed to contain tracer composition for the purpose of observation of fire. The projectile is equipped with the tracer element in the base of the projectile. In most small caliber antiaircraft projectiles, the tracer is used to ignite the filler and destroy the projectile should it miss the target. When empty or inert loaded, it may be used for training purposes.*

**track.** 1. Actual path of an aircraft above, or a ship on, the surface of the earth. The course is the path which is planned; the track is the path which is actually taken. 2. An aircraft's trace on a radar screen or on a plot; the aircraft that makes such a trace. 3. One of the two endless belts on which a full-track or half-track vehicle runs. 4. Metal part forming a path for a moving object; for example, the track around the inside of a vehicle for moving a mounted machine gun. 5. To observe and mark on a chart the successive positions of a moving target. 6. To keep a gun properly aimed or to point a target-locating instrument continuously at a moving target. 7. To follow a target on the ground from a moving aircraft, as done in bombing. 8. To follow or pursue an enemy.

**tracker.** An instrument, equipped with telescopes, used to continuously observe the present position of a moving target. Employed with a radar, which is used for slant range measurement, the tracker furnishes the elements of present position data required by the computer. One of the components of a director.

**TRACKER, ANGULAR, GUIDED MISSILE.** An item specifically designed for continuously and automatically tracking a guided missile in flight, utilizing coded signals from a missile to determine its angular position in relationship to an established geographical point. Data received is supplied to other component(s) of a MISSILE GUIDANCE CENTRAL.*

**TRACKER, OPTICAL.** A unit designed specifically for optically tracking a guided missile, or moving target, and for continuously transmitting and/or receiving, by electrical means, tracking data to and from other units of a ground guidance system.*

**tracker test.** The overall check of the orientation and functioning of materiel of an antiaircraft artillery gun battery. It is performed by tracking an aerial target with present position data only being transmitted.

**tracking, automatic.** The process of utilizing range data and/or angular data in such a manner as to obtain error signals, which are then used to drive devices which keep the tracking system locked on a target.

**tracking point.** A point centrally located in the outline of the target as seen by the sight operator. For aerial targets, such a point is the intersection of wing and fuselage axes.

**TRACKING STATION GROUP, GUIDED MISSILE.** A group and a subdivision of a TRACKING STATION, GUIDED MISSILE, TRAILER MOUNTED, which is not capable of performing a complete operational function but when used with other groups provides facilities for control of both the ANTENNA-RECEIVER-TRANSMITTER GROUP, TARGET TRACKING and the ANTENNA-RECEIVER-TRANSMITTER GROUP, MISSILE TRACKING.*

**TRACKING STATION, GUIDED MISSILE, TRAILER MOUNTED.** A collection of major electronic components and/or items specifically designed to provide radar operators with power control, testing and operating control facilities for operation of both the ANTENNA-RECEIVER-TRANSMITTER GROUP, TARGET TRACKING and the ANTENNA-RECEIVER-TRANSMITTER GROUP, MISSILE TRACKING. See also: **TRACKING STATION GROUP, GUIDED MISSILE** and **RADAR MISSILE TRACKING CENTRAL.***

**track in range.** To adjust the gate of a radar so that it opens at the correct instant to accept the signal from a target of changing range from the radar.

**track-laying vehicle.** Vehicle which travels upon two endless tracks, one on each side of the machine. A track-laying vehicle has high mobility and can maneuver, is usually armed and frequently armored, and

is intended for tactical use. Tanks are one type of track-laying vehicle.

**track off.** *Fire control.* Deliberate underestimation or overestimation of the predicted path of a target, in order to bring about an eventual intersection of the line of fire with the target.

**TRACK SHOE SET, VEHICULAR.** A set of replacement shoes for a tracked vehicle with attachment parts such as bolts, nuts, washers, plates, and the like. Excludes links with integral or attached shoes.*

**TRACK SHOE, VEHICULAR.** A replacement shoe for a tracked vehicle, which may include attaching parts, such as pin(s), guide(s), link(s), integral or attached shoes.*

**track wheels.** Wheels which perform the same function as suspension wheels on some tanks. See: **suspension wheels.**

**tractor.** Wheeled or track-laying vehicle designed to tow by means of pintle hook or coupling device. Cf: **TRUCK TRACTOR.**

**tractor, cargo.** Military track-laying vehicle, designed to carry cargo, as well as to perform as a tractor.

**TRACTOR, FULL TRACKED, HIGH SPEED.** A self-propelled vehicle with an operating speed of 15 miles per hour or more, deriving its traction power from two endless flexible tracks. It is primarily designed for towing or pushing heavy equipment. It may have an ammunition rack, a cargo body, a cargo platform, and/or various other attachments.*

**TRACTOR, FULL TRACKED, LOW SPEED.** A self-propelled vehicle with a maximum operating speed of less than 15 miles per hour, with or without mounted attachments and deriving its traction power from two endless, flexible tracks. It is designed for towing, pushing, grading, earth moving and various other duties depending on the attachment(s) used.*

**tractor sled train.** A train usually composed of cargo sleds and wanigans towed by tracklaying prime movers.

**tractor-trailer train.** Series of trailers connected by couplers and drawn by a tractor. Tractor-trailer trains are used in storage warehouses for moving supplies and equipment.

**TRACTOR, WHEELED, INDUSTRIAL.** A self-propelled riding vehicle with or without attachments primarily used for material handling operations; construction operations such as towing, pushing, earth moving, etc., and various maintenance operations depending upon the type of attachment(s) used. It is designed with a nonadjustable thread width. Excludes TRACTOR, WHEELED, WAREHOUSE and TRACTOR, WHEELED, AGRICULTURAL.*

**TRACTOR, WHEELED, WAREHOUSE.** A self-propelled walking or riding type vehicle with or without attachments primarily used for towing trailers and material handling operations on floors and paved surfaces in and around industrial plants, depots, warehouses and terminals. It is generally designed with a short close-coupled wheel base with side and front free of protuberances and with front and/or rear mounted bumper plates to facilitate maneuvering in narrow aisles and similar restricted areas without damage to stored stock. Includes all electrically driven tractors regardless of design. Excludes TRACTOR, WHEELED, AGRICULTURAL and TRACTOR, WHEELED, INDUSTRIAL.*

**trademark.** A distinctive name or mark, motto, device, or emblem, through which the products of particular manufacturers or the vendible commodities of particular merchants may be distinguished from those of others, normally protected by compliance with the trademark law, and registration, as at the U. S. Patent Office.

**trade-secret.** A secret formula or process not patented, but known only to certain individuals using it in compounding some article of trade having a commercial value.

**traditional bomb.** See: **bomb, conventional.**

**trafficability.** A measure of the ability of the soil (or other terrain surface) to support foot troops, animals, vehicles, or aircraft during various seasons.

**trail.** 1. In bombing, the line between the point of impact of the bomb and a point on the ground directly beneath the aircraft at the moment of impact, assuming that the aircraft stays on course after release and maintains a constant speed. 2. Rear part of a gun carriage which connects the piece with a limber or tractor. When the gun is unlimbered, the trail rests on the ground and stabilizes the piece in firing position. 3. Series of bombs dropped one after the other, instead of in a group. 4. To attach the trail of a gun to the limber.

**trail angle.** In bombing, the angle, measured in mils, between a vertical line from the aircraft to the trail at the moment of the bomb's impact and a line from the aircraft to the point of impact.

**TRAIL, CARRIAGE, ARTILLERY.** A projecting metal structure, usually fabricated of tubular or plate construction, primarily designed to stabilize the weapon and keep it from moving out of its firing position. It also serves to connect the weapon to its prime mover for transportation. It may be attached directly or indirectly to the axle or bottom carriage of the weapon.*

**trailer.** A wheeled or tracked vehicle, nonpowered, with all or most of its weight supported by its own integral wheels or tracks, designed to carry materials, supplies, or equipment and to be towed by a self-propelled motor vehicle. Excludes semitrailer.*

**TRAILER, AMMUNITION.** A trailer having a body equipped with stowage racks and/or compartments specifically designed to accommodate large caliber shells and projectiles.*

**TRAILER AND CASE, STORAGE AND TRANSPORT, ROCKET.** A specifically designed wheeled vehicle consisting of a CASE, STORAGE AND TRANSPORT, ROCKET attached to a TRAILER, ROCKET STORAGE AND TRANSPORT CASE. It is used for aerial or vehicular transport of rockets and as auxiliary equipment for a LAUNCHER, ROCKET.*

**TRAILER, BOMB.** A trailer equipped with racks specifically designed to transport aerial bombs. Excludes TRAILER, LIFT, BOMB and TRAILER, ATOMIC BOMB.*

**TRAILER, CANNON.** A trailer specifically designed to support and transport a cannon.*

**TRAILER, CARGO.** A trailer with either a box type body, a lattice type body with a closed or partially closed top, or a body having integral sides and front panel, usually with a flat loading platform. May include removable top bows and tarpaulin.*

**TRAILER, FLAT BED.** A trailer with a flat load carrying platform without sides or end gate; the platform must be of solid, one level construction suspended above the wheels and must not include a gooseneck or wheel recesses that extend through the bed. It may have beveled edge(s) to facilitate loading. See also: **TRAILER, LOW BED.***

**TRAILER, GUIDANCE CONTROL GROUP.** An insulated van type trailer designed for specific load distribution and equipped with special shock resistant mounts for mounting electronic equipment. It provides personnel operating space and is used to house and transport a GUIDANCE CONTROL GROUP, GUIDED MISSILE. It may include air conditioning and heating units. Excludes TRAILER, VAN.*

**TRAILER, GUIDED MISSILE.** A wheeled trailer primarily designed to transport one or more guided missiles. It does not contain provisions for launching.*

**TRAILER, GUIDED MISSILE BODY SECTION.** A specifically designed van type trailer equipped with shock absorbing cradles, hold-down devices, and integral jacks for transporting a guided missile body section.*

**TRAILER, GUIDED MISSILE DIRECTOR STATION.** An insulated van type trailer designed for specific load distribution and equipped with special shock resistant suspension. It provides personnel operating space and is used to house and transport a director station, guided missile. It may include air conditioning and heating units. Excludes TRAILER, VAN.*

**TRAILER, GUIDED MISSILE LAUNCHING CONTROL STATION.** An insulated van type trailer, designed for specific load distribution and equipped with special shock resistant suspension. It provides personnel operating space and is used to house and transport a control station, launching, guided missile. It may include air conditioning and heating units. Excludes TRAILER, VAN.*

**TRAILER, GUIDED MISSILE REPAIR PARTS.** A trailer with a specifically designed body for housing and transporting guided missile repair parts.*

**TRAILER, GUIDED MISSILE TEST EQUIPMENT.** An insulated van type trailer designed for specific load distribution and equipped with special shock resistant suspension. It provides personnel operating space and is used to house and transport guided missile test equipment. It may include air conditioning and heating units. Excludes TRAILER, VAN.*

**TRAILER, GUIDED MISSILE TRACKING STATION.** An insulated van type trailer, designed for specific load distribution and equipped with special shock resistant suspension. It provides personnel operating space and is used to house and transport a tracking station, guided missile. It may include air conditioning and heating units. Excludes TRAILER, VAN.*

**TRAILER, GUN CARRIAGE.** A trailer specifically designed to support and transport a gun carriage.*

**TRAILER, LIFT, BOMB.** A trailer equipped with either a mechanical or hydraulic integral lifting device designed for transporting and/or handling bombs. Excludes TRAILER, ATOMIC BOMB.*

**TRAILER, LIFT, GUIDANCE CAPSULE.** A trailer with a lifting device designed for transporting and installing a guidance capsule.*

**TRAILER, LIFT, GUIDED MISSILE.** A trailer equipped with either a mechanical or hydraulic integral lifting device, designed for transporting and/or handling guided missiles.*

**TRAILER, LOW BED.** A trailer having a flat platform(s) of two or more levels, designed to provide low loading height for transporting heavy and/or bulky objects. It must have one or more of the following characteristics: front gooseneck, wheel recesses through the bed, or the bed (excluding fenders) suspended lower than the wheel tops. See also: **TRAILER, FLAT BED.***

**TRAILER, MAINTENANCE.** A trailer equipped with a compartmented body specifically designed to house and/or transport tools, equipment and/or supplies for repair and maintenance functions, such as tire repair, cable splicing and the like. Excludes trailers complete with supplies and equipment.*

**TRAILER, MUNITIONS.** A four wheeled trailer having a flat type bed with a removable or hinged platform center section to facilitate loading or unloading with a lift truck or the like. It is designed to accommodate various adapter sets for transporting numerous types of tactical or air defense special weapons and related supplies, such as bombs, guided missiles, guns, fuel tanks, and the like. For trailers specifically designed to transport specific items, see: **TRAILER** (as modified).*

**TRAILER, ROCKET.** A trailer equipped with racks, designed for transporting rockets.*

**TRAILER, ROCKET ENGINE.** A trailer specifically constructed for transporting a ROCKET ENGINE in and around storage, shop and launching areas.*

**TRAILER, ROCKET STORAGE AND TRANSPORT CASE.** A trailer specifically designed for transporting a CASE, STORAGE AND TRANSPORT ROCKET. Excludes TRAILER, ROCKET.*

**TRAILER, STAKE.** A trailer with a body having readily removable stakes which may be tied together with chains, slats, panels and the like. May include a tailgate or loading ramp. Excludes TRAILER, LOW BED and TRAILER, FLAT BED.*

**TRAILER, TANK.** A trailer with a tank body designed for transporting water, gasoline, oil or other liquid. May include facilities for dispensing.*

**TRAILER, TANK TRANSPORTER.** A trailer primarily designed to transport tracked combat vehicles. Excludes **TRAILER, LOW BED** and commercial automobile transport trailers.*

**TRAILER-TRUCK, CARGO.** A specifically designed, self-propelled, wheeled vehicle, consisting of a trailer, with a cargo body, attached to a two-wheeled truck; the trailer or truck are not capable of functioning separately. The combination may have provisions

for powering the real wheels. It is used for transporting material and supplies. See also: **TRUCK, CARGO.***

**TRAILER-TRUCK, TANK.** A specially designed, self-propelled, wheeled vehicle, consisting of a trailer, with a tank body, attached to a two-wheeled truck; the trailer or truck are not capable of functioning separately. The combination may have provisions for powering the rear wheels. It is used for transporting fuel or other liquids. See also: **TRUCK, TANK.***

**TRAILER, VAN.** A trailer with an inclosed body which may be insulated, designed to protect cargo and equipment from the elements and pilferage and/or to provide working and/or living quarters for personnel. Excludes van type trailers equipped for specific functions.*

**TRAILER, WARHEAD, GUIDED MISSILE.** A trailer equipped with a handling and positioning device specifically designed for installing, removing and transporting a guided missile warhead.*

**trail handspike.** A long, stout handspike, used in moving the trail of a gun carriage.

**trailing edge.** *Aeronautical.* The rear section of a multipiece airfoil, usually that portion aft of the rear spar.*

**TRAIL KIT, BOMB.** A group of items designed to be attached to a bomb or fin assembly to retard flight of a bomb. May or may not include a spoiler ring.*

**trail lock.** The device at the rear end of the two trails by means of which they may be fastened together for travel.

**trail support.** Log or other object placed under a trail spade of an artillery piece to provide additional resistance to recoil.

**train.** *n.* Service force or group of service elements which provide logistical support: e.g., the vehicles and operating personnel which furnish supply, evacuation, and maintenance services to a land unit. 2. To bring something to bear upon an object, as in 'to train a gun upon a target'; also to aim or direct a radar antenna in azimuth.

**train bombing.** Bombing by releasing two or more bombs in succession from the same airplane in a single sighting operation, so as to make the bombs fall or strike in train.

**trainer.** A student-operated device designed to simulate conditions inherent in the equipment which it represents. Do not use if a more specific name is available such as COMPUTER, RANGE.*

**TRAINER, ANTIAIRCRAFT GUNNERY.** A trainer which imitates operational gunnery conditions and teaches methods and techniques of antiaircraft gunnery.*

**TRAINER, FIELD ARTILLERY.** A trainer designed for instruction in the methods and techniques of field artillery gunnery.*

**TRAINER, GUIDED MISSILE.** A trainer designed to instruct the student in the use of the equipment, and/or the various methods and techniques used in launching guided missiles.*

**TRAINER, GUN SIGHT.** A mock-up of an operational gun sight of such size and proportions as to preclude operational use.*

**TRAINER, MACHINE GUN.** A machine gun, modified by the substitution of a group of internal parts so that the weapon will utilize a smaller caliber ammunition for training purposes.*

**TRAINER, RIFLE SIGHTING.** An item used for training purposes, for giving instructions in sighting, aiming and method of adjusting sights for rifles. Generally consists of a rectangular shaped piece of cardboard, or similar material. Each face has a definite function. Usually the front face is designed to simulate the front sight and a target bull's-eye as viewed through the rear peep sight of a rifle. The bull's-eye and front sight can be manually manipulated to give a correct sight picture or to demonstrate common errors. The rear face has graduations for windage and elevation adjustments which can also be manually manipulated to demonstrate degree of correction.*

**train, explosive.** See: **explosive train.**

**training aid.** An item used by an instructor in presenting theory and principles and in familiarizing students with the equipment. It is normally used in group training. Do not use if a more specific name is available.* Cf: **training device.** Examples of training aids for which official names have been assigned are given below:

TRAINING AID, ANTIPERSONNEL MINE, RUSSIAN.
TRAINING AID, AUTOMATIC GUN.
TRAINING AID, AUTOMATIC PISTOL.
TRAINING AID, CARBINE.
TRAINING AID, GUIDED MISSILE.
TRAINING AID, INTERNAL COMBUSTION ENGINE
TRAINING AID, MACHINE GUN.
TRAINING AID, OSCILLOSCOPE.
TRAINING AID, RADAR.
TRAINING AID, RIFLE.

**TRAINING AID SET, SOVIET LAND MINE.** A collection of items used to familiarize personnel with Soviet land mines.*

**training ammunition.** Ammunition used for training persons in marksmanship, handling weapons, etc.

**training device.** A device or item of equipment designed or modified for use by the trainee in training. Distinguished from a **training aid,** which see.

**training grenade.** See: **grenade, training.**

**training guided missile.** See: **GUIDED MISSILE, TRAINING.**

**training projectile.** See: **projectile, training.**

**training rocket.** See: **ROCKET, TRAINING.**

**TRAINING SET, GUIDED MISSILE SYSTEM.** A collection of items designed to instruct students in the various functions of a guided missile firing organization, such as operation and use of equipment, guided missile prelaunch preparations, and methods and techniques peculiar to the system. Excludes TRAINER (as modified) and TRAINING AID (as modified).*

**trajectory.** The curve traced by a bullet, projectile, bomb, or other object thrown, launched, or trajected by an applied exterior force, the projectile continuing in motion after separation from the force.

**trajectory chart.** (tjc) Diagram of a side view of the paths of projectiles fired at various elevations, under standard conditions. The trajectory chart is different for different guns, projectiles and fuzes.

**transceiver.** A unit combining the radio or radar transmitter and receiver, such as is used in a transponder.

**transducer.** A device which converts the energy of one transmission system into the energy of another transmission system.

A loudspeaker and a phonograph pickup are two examples of transducers. The former changes electrical energy into acoustical energy, and the latter changes mechanical energy into electrical energy.

**transducer, active.** A transducer whose output waves are dependent upon sources of power, apart from that supplied by any of the actuating waves, which power is controlled by one or more of these waves.

**transducer, electric.** A transducer in which all of the waves concerned are electric.

**transducer, ideal.** A hypothetical passive transducer which transfers the maximum possible power from the source to the load.

In linear transducers having only one input and one output, and for which the impedance concept applies, this is equivalent to a transducer which (a) dissipates no energy, and (b) when connected to the specified source and load presents to each its conjugate impedance.

**transducer, unilateral.** A transducer which cannot be actuated at its outputs by waves in such a manner as to supply related waves to its inputs.

**transfer function.** The function relating the output of a closed-cycle servosystem to its input.

**transfer (of control) instruction.** *Electronic computers.* An instruction which (conditionally or unconditionally) causes the next instruction word to be selected from a specified memory location.

**transfer of fire.** 1. Shifting of fire from one target to another, applying the corrections for the first target to the data for the second target. In this meaning, sometimes called transfer. 2. Fire on a target, based on an adjustment on a point whose location in respect to the target is known.

**transformer.** An electrical device having no continuously moving parts, which by electro-magnetic induction transfers electrical energy from one or more circuits to one or more other circuits at the same frequency, usually with changed values of voltage and current.*

**trans-Helion.** See: **orbits of planets.**

**transient motion.** A motion that exists when a mechanical system or apparatus passes from one steady state to another.

**transient target.** See: **fleeting target.**

**TRANSISTOR.** An active **semiconductor device** with three or more electrodes. Excludes SEMICONDUCTOR DEVICE, DIODE and SEMICONDUCTOR DEVICE, PHOTO.* The transistor is similar to the vacuum tube in uses, but is itself a non-vacuum device.

**TRANSIT.** An instrument having two coaxial centers, one inside the other. A telescope is attached to the inner center and mounted in such a manner that it may be rotated in vertical or horizontal arcs. The outer center carries the horizontal scale. The telescope and horizontal circular scale may rotate about the same axis, independent of each other, or integrally, as a single unit. The scales are read visually by means of verniers. The instrument is usually leveled by means of four leveling screws. It is used for measuring horizontal, or horizontal and vertical angles. Excludes THEODOLITE.*

**transition fit.** See: **fit.**

**transition flow.** A flow of fluid about an airfoil that is changing from laminar flow to turbulent flow.

**transitory target.** A target that obtains only for a limited period of time, as in the case of a troop concentration, which may be dissipated in a short time.

**trans-Jovian.** See: **orbits of planets.**

**translating-roller.** A double-thread screw by means of which a breechblock is drawn longitudinally from its position in the breech of a large caliber gun.

**translauncher.** See: **LAUNCHER, ZERO-LENGTH, GUIDED MISSILE.**

**trans-Lunar.** See: **orbits of planets.**

**trans-Martian.** See: **orbits of planets.**

**trans-Mercurian.** See: **orbits of planets.**

**TRANSMISSION, HYDRAULIC.** A device designed to increase torque and/or change ratios between the drive and driven shaft or shafts by the medium of liquid under pressure within the unit. It may include a manual means for reversing rotation and changing speed ranges. Excludes crossdrive transmissions and transmissions with controlled differentials.*

**TRANSMISSION, MECHANICAL.** A device designed to increase, decrease and/or reverse the rotation between the drive and driven shaft or shafts. It may or may not include the shifting control mechanism which changes ratios and/or direction of rotation. Excludes cross-drive transmissions and transmissions with controlled differentials.*

**transmission, toromatic.** A semiautomatic transmission used on some tanks; it contains a compound planetary gear train with a torque converter.

**transmitter.** A device which receives or generates and/or modulates or modifies an energy impulse and converts it to another type of energy impulse to permit and/or facilitate transmission.*

**TRANSMITTER, ACCELEROMETER.** A transmitter specifically designed for both aircraft and missile application to sense the rate of change of velocity along one or more of its axes and transforms it into a signal which is applied to a fire control system, automatic flight control system, indicator(s), and the like. Excludes ACCELEROMETER, AIRCRAFT.*

**TRANSMITTER, COUNTERMEASURES.** A single component specifically designed to produce radio frequency signals to be used for countermeasures.*

**TRANSMITTER, INFRARED.** A transmitter which emits energy in the infrared spectrum. It may include facilities for amplication and/or modulation.*

**TRANSMITTER, RADAR.** A component which generates electrical signals of the proper frequency and form which when applied to an antenna will

propagate eletromagnetic waves into space, the reflected wave being utilized for radar applications. May include an integral modulator and accessories.*

**TRANSMITTER, RADIO.** A single component specifically designed to generate electrical signals of specific frequency and form, which, when fed to an antenna, will propagate radio frequency electromagnetic waves into space. May include facilities for amplification and/or integral modulator. See also: **TRANSMITTER, RADAR.***

**TRANSMITTER, RADIOSONDE.** A component which generates electrical signals of the proper frequency and form, which when applied to an antenna will propagate radio frequency electromagnetic waves into space and is designed to be used with associated equipment for automatically transmitting high altitude meteorological data from a balloon, kite, or rocket.*

**TRANSMITTER, RUDDER POSITION, GUIDED MISSILE.** A transmitter which converts mechanical energy into electrical energy for transmitting guided missile rudder position to telemetering equipment.*

**TRANSMITTER, SONAR.** A single component designed to be used in conjunction with a projector or transducer for the specific purpose of generating underwater sound energy.*

**TRANSMITTER, SUPERELEVATION.** A device used to transmit the vertical angle required to elevate the gun bore above the line of future slant range, to overcome the effect of trajectory curvature caused by gravity.*

**TRANSMITTING SET, COORDINATE DATA.** A complete set that accepts two or more coordinates such as those representing a target position, and converts them into an electrical form suitable for transmission.*

**TRANSMITTING SET, COUNTERMEASURES.** A complete electronic set for the propagation of radio frequency energy specifically designed to be utilized for countermeasures.*

**TRANSMITTING SET, INFRARED.** A complete electronic set required to operate a system designed to generate and propagate infrared frequency energy which may carry intelligence.*

**trans-Neptunian.** See: **orbits of planets.**

**transonic.** Of or pertaining to transonic speed, or to the phenomena arising when an aircraft or other body passes from subsonic to supersonic speed.

**transonic barrier.** A so-called barrier to flight encountered by a body designed for subsonic speeds when it reaches transonic speed and meets the turbulence incident to diverse degrees of compressibility. Usually called 'sonic barrier.'

**transonic range.** The range of speeds between the speed at which one point on an airplane (or other body) reaches **supersonic speed,** and the speed at which all points reach supersonic speed.

The transonic range for a particular airplane depends upon its design, but it may spread for some airplanes between approximately mach .8 and mach 1.2. See: **acoustic velocity.**

**transonic speed.** 1. A speed at which an aircraft or other body moves relative to surrounding fluid when one or more local points on the body are moving at subsonic speed at the same time that one or more other points on the body move at sonic or supersonic speed. 2. Any one of the several speeds within the transonic range of a particular aircraft. See: **transonic range.**

**transparent mirror.** A reflecting surface that may be seen through, but likewise reflects an image to the eye, as in the case of a reflector plate. Cf: **reflex sight.**

**transpiration cooling.** See: **sweat cooling.**

**trans-Plutonian.** See: **orbits of planets.**

**transponder.** Those components of IFF equipment which receive challenges and transmit replies; also used with guided missiles to check out command signals and aid in tracking.

The transponder works in conjunction with the interrogator-responser, and enables the determination of bearing or range, or of both. It consists of a receiver, which receives the signal impulses, and a responder (or transmitter) that returns signal impulses to the interrogator-responser.

**transponder beacon.** A responder beacon of a transponder.

**TRANSPONDER SET.** A complete electronic set designed to receive an interrogation signal, and which retransmits coded signals which can be interpreted by the interrogating station. It may also utilize the received signal for actuation of additional equipment, such as local indicators, servo amplifiers, and the like.*

**transporter, guided missile.** See: **TRAILER, GUIDED MISSILE.**

**transporter, shipping.** See: **BOX, METAL, SHIPPING.**

**transport guided missile.** See: **GUIDED MISSILE, TRANSPORT.**

**TRANSPORT, MAGNETIC TAPE.** A component of a data recording, processing, and/or reduction equipment, such as a computer complex, that accommodates magnetic recording tape. It consists of items, such as recording-reproducing heads, tape controls, bias generators, meters, reels, and the like, that facilitate the utilization of magnetic tape for rapid information recording and retrieval. The item does not include amplifiers, drivers, or transducers primarily designed for signal amplification or conversion; however, it may include elementary devices, such as cathode followers that insure impedance matching, noise reduction, stability, and similar functions.*

**transport vehicle.** Vehicle primarily intended for personnel and cargo carrying, excluding **combat vehicle.**

**trans-Saturnian.** See: **orbits of planets.**

**trans-Uranian.** See: **orbits of planets.**

**trans-Venusian.** See: **orbits of planets.**

**trap.** That part of a ROCKET MOTOR that keeps the propellant grain in place.

**trap mine.** Land mine designed to explode unexpectedly when enemy personnel attempt to move an object. A form of **booby trap** (which see).

**trapped fuel.** The fuel in an engine or fuel system that is not in the fuel tanks.

**TRAP, TARGET SHOOTING.** A spring operated device for hurling 'clay pigeon' moving targets through

space for shooting practice. The spring is set manually but may be released either manually or by means of an electric timer. The degree of train, or elevation, may be fixed or adjustable.*

**Trauzl test.** A test to determine the relative disruptive power of explosives. In the test a standard quantity of explosive (10 grams) is placed in a cavity in a lead block and exploded. The resulting volume of cavity in the block is compared with the volume produced under the same conditions by a standard explosive, usually TNT.

**traveling charge.** See: **charge, traveling.**

**traveling position.** Position of a weapon when ready for traveling, as opposed to **firing position.**

**travel of projectile in the bore.** Distance traveled by the projectile to the muzzle.

In the case of projectiles with rotating bands the distance is taken from the rear face of the rear band to the muzzle.

**traverse.** 1. Movement to right or left on a pivot or mount, as of a gun, launcher or radar antenna. 2. To move or point a gun, launcher, radar antenna, or the like to the right or left on its pivot. 3. In surveying or navigation, a series of straight lines running from point to point, the distances and angles being accurately known.

**traversing mechanism.** Mechanism by which a gun or other device can be turned in a horizontal plane.

**T-R box.** See: **DUPLEXER.** Common abbreviation for transmit-receive switch or tube. This switch or tube, permits the use of a single antenna on a radar for transmission and reception. The T-R box prevents the absorption of the transmitted pulse into the receiver system, thereby protecting the receiver circuit from damage, and also prevents the transmitter circuits from absorbing any appreciable fraction of the reflected echo signal. There are various types of T-R boxes, or tubes, graduating to fairly complex devices in microwave systems.

**tread.** 1. That part of a foot, wheel, tire, or gear that has contact with the surface as it moves. 2. The mark or marks made by this contact.

**TREAD RUBBER.** An uncured compound of natural or synthetic rubber, or a combination of both. It is procured in specified cross-sectional shape and size, in bulk form or cut to specific length. The material is used for recapping, retreading or sectional tread repair on a pneumatic tire, solid rubber tire, track shoe, or the like, by a vulcanizing process. For material used as filler, padding, or stripping stock, see: **PADDING STOCK, TIRE REPAIR.***

**trench knife.** See: **BAYONET-KNIFE.**

**trepanning.** The action of cutting a section from the casing of an unexploded munition so as to permit defuzing it.

**TREPANNING TOOL, MACHINE.** A combination tool consisting of a circular body, Morse taper or straight shank, either a drill or a straight pilot, and special cutters for boring and chamfering operations in metal plates or sheets.*

**TRESTLE, MOTOR VEHICLE MAINTENANCE.** A device of steel construction generally positioned under the axle of a raised motor vehicle and designed to support the vehicle at a fixed, predetermined height.*

**triacetin.** Nonexplosive gelatinizing agent used as a constituent of double base propellants. See: **gelatinizing agent.**

**trial.** An action or process by which some piece of equipment is tested. See: **test (senses 1 and 2).**

**trial fire.** Deliberate gunfire laid on a fixed point or target to determine the corrections for firing data. Trial fire is used to prepare for fire for effect. See: **registration fire.**

**trial shot.** Shot fired during **trial fire.**

**trial shot point.** Fixed point at which trial fire is directed.

**triangulation.** A method of finding a position or location by means of taking bearings with reference to two fixed points a known distance apart, thus obtaining the values of one side and all the angles of a triangle, from which the position can be computed.

**triangulation station.** A permanently marked point whose coordinates are accurately known from the precise surveys, such as those of the U. S. Coast and Geodetic Survey.

**trick.** Graduation mark on a lens or reticle.

**tridite.** Mixture of 80 percent trinitrophenol (picric acid) and 20 percent dinitrophenol. May be used as an emergency high explosive for projectile or bomb filling.

**TRIGGER.** A metallic item, part of firing mechanism of a firearm, designed to release a firing pin by the application of pressure by the finger.*

**trigger actuator.** See: **actuator.**

**trigger bomb.** See: **bomb, trigger.**

**trigger, electrical.** A mechanism to provide for remote control of the electric gun firing solenoid for automatic guns.

**trigger extension.** See: **EXTENSION, TRIGGER.**

**trigger fork.** That part of a **firing lock** which bears against the firing pin holder sleeve and is engaged to the trigger shaft so that rotation of the latter part causes the fork to force the sleeve forward and compress the firing spring.

**trigger guard.** See: **GUARD, TRIGGER.**

**trigger motor.** An electric motor on certain types of automatic weapons that operates the sear mechanism for rapid fire.

**trigger pull.** Resistance offered by the trigger of a rifle or other weapon; force which must be exerted to pull the trigger. Usually expressed in **pounds.**

**trigger pulse.** An electronic impulse that starts a train of events, as in a proximity fuze.

**trigger shaft.** The shaft which passes transversely through the breechblock and firing lock, and whose arm is actuated by the firing mechanism. Movement of the arm rotates the shaft and thus imparts movement to the trigger fork of the firing lock.

**trigger squeeze.** Method of firing a rifle or similar weapon in which the trigger is not pulled, but squeezed gradually by an independent action of the forefinger.

**trigonometric leveling.** A method of determining the difference of elevation between two points, by using the principles of triangulation and trigonometric calculations.

**trim.** 1. In electronics, denotes a small change or necessary adjustment of the tuning capacity. 2. Concerning aircraft, the attitude about all three axes at which balance occurs in rectilinear flight with free controls.

**trimonite.** High explosive used as a substitute for trinitrotoluene as a bursting charge. Trimonite is a mixture of picric acid and mononitronaphthalene.

**trinitrophenol.** (TNP) See: **picric acid.**

**trinitrotoluene.** (TNT) High explosive widely used as explosive filler in munitions and by engineers; trinitrotoluol; TNT.

**trinitrotoluol.** (TNT) See: **trinitrotoluene.**

**trip.** 1. Part of the mechanism of some firearms, released by the action of the trigger. 2. To release a lever or set free a mechanism.

**triple base propellant.** **Propellant** (which see) with three principal active ingredients, such as nitrocellulose, nitroglycerin, and nitroguanidine.

**triplet.** Three radio facilities operated as a group for the determination of positions.

**TRIP LEVER, ANTIPERSONNEL MINE.** A metallic lever, threaded at one end for attachment to the mine, with loop or holes at other end for the attachment of trip wires.*

**tripod, aiming circle,** See: **TRIPOD, FIRE CONTROL INSTRUMENT.**

**TRIPOD, FIRE CONTROL INSTRUMENT.** A device with three adjustable or nonadjustable legs, hinged, or rigidly affixed to a mounting head or plate, designed to support various types of fire control instruments. It may, or may not, include a support tube and/or a tripod head adapter.*

**tripod mount.** See: **mount, tripod.**

**TRIPOD, RIFLE MOUNT.** A three-legged device with the legs attached to a ring assembly or head. It is designed to receive an adapter to hold or support a MOUNT, RIFLE. The adapter is not included.*

**trip wire.** Wire stretched near the ground to trip foot troops. Movement of the wire may cause detonation of an attached mine.

**TRIP WIRE ASSEMBLY, ANTIPERSONNEL MINE.** A small roll of enameled wire of a specified roll diameter and length; one or both ends having performed loops of specified dimension.*

**trisonic.** Of or pertaining to speeds which may include **subsonic; supersonic; and transonic.**

**tritium.** An isotope of hydrogen of mass number 3 (symbol $H^3$ or T); a heavy hydrogen.

**tritonal.** An explosive composed of 80 percent TNT and 20 percent powdered aluminum. Developed and standardized in the United States during World War II. Can be melt loaded and is used in bombs for its blast effect.

**triton block.** Block of pressed TNT, used for demolition purposes. See: **trinitrotoluene.**

**trk** *(abbr).* 'Truck.'

**troop space cargo.** See: **cargo classification.**

**troop test.** See: **user test.**

**tropopause.** See: **atmospheric shells.**

**troposphere.** See: **atmospheric shells.**

**trt** *(abbr).* 'Turret.'

**truck.** 1. *Automotive.* A self-propelled wheeled vehicle, designed primarily to transport supplies, equipment, and/or personnel. It may be used to tow trailers or other mobile equipment. See also: **AUTOMOBILE** (as modified); **CARRIER** (as modified). Excludes TRUCK TRACTOR.* 2. Target designation term, used by tank commanders to designate any unarmored vehicle.

**TRUCK, AIRCRAFT BOMB.** A hand propelled vehicle designed to transport aircraft bombs. May include adapters for transporting rockets and/or miscellaneous items.*

**truck, amphibious.** See: **LANDING VEHICLE, WHEELED.**

**TRUCK, ARMORED.** A truck with a panel type body having armored inner panels and bullet resistant glass. Designed for the safeguarding of money and/or valuables while in transit. Excludes CAR, ARMORED.*

**TRUCK, BOMB SERVICE.** A truck, usually with a platform or cargo type body, equipped with a monorail mounting hoist or hydraulic lifting boom, designed to lift and/or transport bombs.*

**TRUCK, CARGO.** A truck with either a box type body or a body having integral sides and front panel. Usually with a flat loading platform, tailgate, removable top bows and tarpaulin.*

**TRUCK, CARGO DUMP.** A TRUCK, DUMP equipped with lattice type side extensions. It may include top bows and tarpaulin. Excludes TRUCK, STAKE; TRUCK, CARGO; and TRUCK, VAN with body tilting mechanisms.*

**TRUCK, CARRYALL.** A truck with a panel type body having windows and folding and/or removable seats designed to transport supplies and/or equipment and personnel. Excludes AUTOMOBILE, STATION WAGON.*

**TRUCK, COMMAND RECONNAISSANCE.** A truck equipped with an open body, fabric top and automobile type seats designed specifically to transport command and reconnaissance personnel in the field.*

**TRUCK, DOLLY.** A low truck with one or more wheels, rollers, or casters, having either an open or solid platform for moving heavy objects. It does not have superstructure, handles, tongues, stakes, or the like. It may have provisions to permit it to be pulled.*

**TRUCK, DUMP.** A truck with an open top metal body having an integral front panel which may include a cab protector. The metal side panels may be hinged or fitted into grooves which restrict the loss of fine materials such as sand, gravel, etc. and may have provisions for the attachment of solid side extensions. It may have either a hinged type tailgate with or without a chute opening or a sloped back. It must have a manual or power operated body tilting mechanism to facilitate discharge of its load by gravity. Excludes TRUCK, CARGO; TRUCK, FLAT BED; TRUCK, STAKE; TRUCK, VAN.*

**TRUCK, FLAT BED.** A truck with a flat load carrying platform, without sides and tail gate. It may include equipment such as A-frame and boom to facilitate the loading of heavy construction equipment, pipe, poles and the like on the truck platform.*

truck, fork lift. See: **TRUCK, LIFT, FORK.**

truck, fuel servicing. See: **TRUCK, TANK.**

truck, gantry. See: **TRUCK, STRADDLE-CARRY.**

truck, gasoline. See: **TRUCK, TANK.**

**TRUCK, GUIDED MISSILE BODY SECTION.** A hand propelled wheeled vehicle designed to transport the body section of a guided missile.*

**TRUCK, GUIDED MISSILE ELECTRONIC SHELF.** A hand propelled wheeled vehicle designed for transporting a guided missile electronic shelf before installing.*

**TRUCK, GUIDED MISSILE NOSE SECTION.** A hand propelled wheeled vehicle designed to transport the nose section of a guided missile.*

**TRUCK, GUIDED MISSILE REPAIR PARTS.** A truck with a specifically designed body for housing and transporting guided missile repair parts.*

**TRUCK, GUIDED MISSILE ROCKET MOTOR.** A hand-propelled wheeled vehicle designed to transport the ROCKET MOTOR of a guided missile.*

**TRUCK, GUIDED MISSILE TAIL SECTION.** A hand propelled wheeled vehicle designed to transport the tail section of a guided missile.*

**TRUCK, GUIDED MISSILE TEST SET.** A hand-propelled wheeled vehicle designed to transport a TEST SET, GUIDED MISSILE in and around a guided missile launching area. It may have provisions to permit it to be towed.*

**TRUCK, GUIDED MISSILE TEST STATION.** A truck with an insulated van type body, equipped with heating and air conditioning equipment, designed to provide personnel operating space and is used to house and transport a guided missile test station. Excludes TRUCK, VAN.*

**TRUCK, GUN LIFTING.** A truck equipped with hydraulic operated lifting boom, designed to be used with another vehicle of similar design to lift and transport heavy artillery.*

**TRUCK, GUN TRAIL.** A hand propelled wheeled vehicle designed to carry the trail of a gun while in the process of being loaded or unloaded from aircraft.*

**TRUCK, HAND, PLATFORM.** A hand propelled vehicle with four or more wheels. It has a fixed platform with stakes and/or handles.*

**TRUCK, HAND, TWO WHEELED.** A truck having two wheels at one end, and one or two handles at the other end. It has a steel or iron nose attached at the wheel end of the frame for use in picking up and supporting the load.*

**TRUCK, INERT GUIDED MISSILE.** A bolster type, hand propelled, wheeled vehicle capable of being towed and used to transport a guided missile, less warhead and propellants. May be equipped with both front and rear wheel steering and/or locking device(s) for maneuverability within a shop area. It includes missile handling rings and is specifically designed to permit rotation of the missile body for maintenance and inspection purposes.*

**TRUCK, LIFT, BATTERY.** A hand-propelled wheeled vehicle equipped with either a mechanical or hydraulic lifting device for installing, removing and transporting storage batteries.*

**TRUCK, LIFT, FORK.** A self-propelled wheeled vehicle equipped with a power-driven fork type elevating unit(s). It is primarily used for lifting, transporting, and stacking material.*

**TRUCK, LIFT, PLATFORM.** A self-propelled wheeled vehicle equipped with an elevating type platform. The platform elevating unit may be power-driven. Primarily designed to be used in conjunction with skid platforms (skids) for handling of skid loaded materials.*

**TRUCK, MAINTENANCE.** A truck equipped with a body specifically designed to house and/or transport tools, equipment and/or supplies for telephone and electric-line construction; setting poles or for electrical telephone, refrigeration, Ordnance repairs or the like. The body may be compartmented. May include earth auger and/or derrick. Excludes items complete with the repair equipment and supplies.*

**TRUCK, MULTISTOP DELIVERY.** A truck with a panel type body having an integral cab with full length doors enabling operator to enter and exit in an erect position, designed for door to door delivery.*

**TRUCK, PALLET, POWERED.** A self-propelled wheeled vehicle having a mechanical or hydraulic operated lifting mechanism (a framework consisting of two forks, each fork having mounted wheel(s) for support of the outer fork ends) primarily designed for horizontal handling of pallets and not intended for high elevating. The lift mechanism raises approximately 4 inches, enough to lift the pallet 2 or 3 inches above the floor for transporting purposes May be designed for riding and/or "walk along hand guiding."*

**TRUCK, PANEL.** A truck with a cab integral with a fully inclosed body usually having a flat bed and rear loading door(s).*

truck, personnel. See: **TRUCK, COMMAND RECONNAISSANCE.**

**TRUCK, PLATFORM, UTILITY.** A truck without a cab or driver's compartment, having the controls and the driver's seat mounted on the platform body. The controls may be adjustable to permit the driver to operate the vehicle while walking. It may have troop seat(s) as an integral part of the body which folds flush with the platform when not in use. It may also have all-wheel drive and selective front or all-wheel steering.* See also: **TRUCK, UTILITY.**

**TRUCK, PROPELLANT SERVICING, GUIDED MISSILE.** A truck equipped with a body specifically designed to mount liquid propellant tanks, for transporting and servicing guided missiles. Excludes TRUCK, TANK.*

**TRUCK, ROCKET.** A hand-propelled wheeled vehicle designed to transport a rocket.*

**TRUCK, STAKE.** A truck with a body having readily removable stakes which may be tied together with chains, flats, panels and the like. May include a tailgate or loading ramp.*

**TRUCK, STRADDLE-CARRY.** A self-powered wheeled vehicle with a gantry type frame designed to straddle, pick up, and transport material.*

**TRUCK, TANK.** A truck with a tank body designed for transporting water, gasoline, oil or other liquids. May include facilities for dispensing but excludes trucks with integral spray bars.*

**TRUCK, TORPEDO HANDLING.** A flat bed truck equipped with torpedo cradles and a revolving crane designed for lifting and transporting torpedoes.*

**TRUCK TRACTOR.** A self-propelled wheeled vehicle designed to tow and partially support a semitrailer by means of a fifth wheel-type coupler.*

**TRUCK, UTILITY.** A truck with an open body, usually with a fabric top and usually equipped with removable seat(s) transverse to its longitudinal axis, designed to transport light cargo.* See also: **TRUCK, PLATFORM, UTILITY.**

**TRUCK, VAN.** A truck with a cab not integral with the inclosed body, designed to protect cargo and equipment from the elements, pilferage and/or to provide working quarters for personnel. It may be insulated, have windows, lighting and/or ventilation.*

**TRUCK, WRECKER.** A truck designed primarily for the recovery of disabled vehicles and mechanized equipment.*

**true.** 1. Determined by reference to a line between the observer and the earth's axis, esp. the axis at the North Pole, as in *true bearing, true direction,* etc. 2. Conformable to a defined set of standards. 3. Corrected for error, as in *true airspeed, true altitude.*

**true airspeed.** (TAS) The actual speed of an aircraft relative to the air through which it flies, i.e., the calibrated airspeed corrected for temperature, density, or compressibility.

**true altitude.** The altitude above mean sea level. Since the pressure altimeter registers the altitude above whatever setting is set into the altimeter according to the standard pressure lapse rate, true altitude is ascertained at any given point by a setting determined by local ground-level pressure reduced to sea-level pressure. Cf: **absolute altitude; pressure altitude.**

**true azimuth.** (Zn) Azimuth measured by an angle from **true north.**

**true bearing.** A bearing measured by an angle from **true north.**

**true course.** (TC) A course indicated by an angle measured clockwise from **true north.**

**true heading.** (TH) A heading measured with respect to **true north.**

**true homing.** The process of following a course such that the true bearing of a vehicle as seen from an objective is held constant.

**true north.** The direction of the North Pole from the observer; a line showing this direction.

**truncate.** *Electronic computers.* To drop digits of a number of terms of a series thus lessening precision, e.g., the number 3.14159265 is truncated to five figures in 3.1415, whereas one may round off to 3.1416.

**trunnion.** 1. One of the two pivots supporting a piece of artillery on its carriage and forming the horizontal axis about which the piece rotates when it is elevated. 2. One of the two supporting pivots for holding an instrument on its mount.

**trunnion band.** A metal band provided with trunnions, the band being bolted about some object, esp. about an aerial bomb that requires being swung down to clear an obstacle on release from an airplane.

**trunnion bearing.** See: **trunnion support.**

**trunnion ledge.** A small shelf on the trunnion of a heavy cannon.

**trunnion support.** Supporting pivot for holding a piece of artillery on its carriage and forming the horizontal axis about which the barrel rotates when it is elevated; trunnion bearing.

**TS** *(abbr).* 1. 'Top Secret.' 2. 'Tensile strength.'

**TSQ** *(abbr).* 'Time and superquick.'

**tube.** Main part of a gun, the cylindrical piece of metal surrounding the bore. Tube is frequently used in referring to artillery weapons, and barrel is more frequently used in referring to small arms. See: **barrel.**

**tube accuracy life.** See: **accuracy life.**

**TUBE, BLEEDER, RECOIL MECHANISM.** A cylindrical item with wrenching facilities on one end and a pilot on the opposite end. The threaded central portion is designed to mate into a threaded opening in the filling valve assembly of a recoil cylinder. It is used for bleeding oil through an axial hole.*

**tube, burster.** Tube that holds the explosive charge of a **burster** (which see) in **chemical ammunition** (also see).

**TUBE, CANNON.** A cylindrical metallic item which is that part of a cannon which controls the initial direction of a projectile. The bore may be rifled and must have a diameter of more than .40 millimeters. See also: **barrel; TUBE, SUBCALIBER, CANNON.***

**TUBE, EXTENSION, BORESCOPE.** A corrosion-resisting tubular item with circular graduations in units of linear measurements engraved on the periphery. It is also engraved the full length with longitudinal line for the purpose of indexing the BORESCOPE. It is specifically designed to extend the range of the basic device to cover the various weapon lengths.*

**TUBE, FLASH.** A tubular item designed to transmit an igniting spark, flame, or the like, from a fuse and/or detonating device to an explosive.*

**TUBE, SUBCALIBER, CANNON.** A cylindrical metallic item which is mounted in the chamber of the parent weapon and may extend into the bore. It is used to reduce the caliber of larger weapons. See also: **TUBE, CANNON;*** **barrel.**

**tubular box trail.** See: **box trail.**

**tumbling.** 1. Concerning missiles and projectiles in flight, turning end-over-end about the transverse missile axis. 2. The act performed by a two-frame tree gyroscope when both frames become co-planar. Under these circumstances, the gyro wheel rotates about a diameter as well as about its polar axis, resulting in loss of control.

**TUNER, WAVEGUIDE.** An item designed to be inserted in a waveguide and which can be controlled to electrically increase or decrease its dimensions so as to minimize the standing wave ratio.*

**tungsten carbide core.** The heavy, hard core used in hypervelocity armor-piercing type projectiles.

**tunnel.** 1. Short for 'wind tunnel.' 2. A tunnel-shaped space or inclosure within an airplane, missile, or automotive vehicle.

**tunnel gun.** A gun mounted inside an airplane fuselage and firing through an aperture.

**TUNNEL SECTION, GUIDED MISSILE.** A tunnel-shaped item with integral mounting brackets, designed to cover and protect electrical cable(s), air and/or fuel line(s) mounted on the external surface of a guided missile.*

**turbine.** *Mechanical.* A mechanical device designed to utilize the latent energy of existing or generated fluid pressure directed against vanes or blades to impart motion by reaction, impulse, or both on a rotating element to do useful work.*

**TURBINE, GAS.** A form of heat engine in which rotary motion is obtained by the expansion of gases, creating kinetic energy which acts on vanes or blades set upon the circumference of a drum or ring which works within a suitable casing.*

**turbojet.** Short for 'turbojet engine,' esp. in combinations, as in *turbojet fighter.*

**turbojet engine.** See: **ENGINE, TURBOJET.**

**turbosupercharger.** A centrifugal air compressor, gas turbine driven, usually used to increase induction system pressure in an internal combustion reciprocating engine.*

**turbulence.** A condition in the airflow about a wing or other airfoil in which different velocities and pressures are laterally mixed between layers of the airflow.

**turbulent boundary layer.** A condition in the **boundary layer** when the laminar flow breaks down or when random lateral movement is superimposed on the laminar flow.

**TURNBUCKLE.** A metal loop, sleeve, or solid body with end pulls, having both ends threaded or one end threaded and the other end designed to accommodate a swivel. Items with both ends threaded shall have right hand screw threads on one end and left hand screw threads on the other. It may include lock nuts, check nuts, or jam nuts. It is designed to regulate the distance (take-up) between two points by turning. See also: **TIE ROD, TENSIONING, THREADED END.***

**TURNBUCKLE BODY.** A metal loop or sleeve having both ends threaded or one end threaded and the other end designed to accommodate a swivel. Items with both ends threaded shall have right hand screw threads on one end and left hand screw threads on the other. It is a component of TURNBUCKLE. See also: **TIE ROD, TENSIONING, THREADED END.***

**turnover.** In supply operations, relationship between the rate at which an item is shipped and the quantity on hand.

**TURNTABLE, LAUNCHER.** The rotating part of a launcher which provides facilities for precise positioning in azimuth of a guided missile or rocket prior to launching.*

**turret.** (trt) Dome-shaped or cylindrical armored structure containing one or more guns located on forts, warships, airplanes, and tanks. Most turrets are built so that they can be removed.

**turret, ball.** A turret in the shape of a ball. For example, designed to project or to be let down from the belly of an airplane, and to house the gunner. The ball turret, having guns mounted in it, rotates as the gunner brings his guns to bear. See also: **TURRET, MACHINE GUN, AIRCRAFT.**

**turret defilade.** Condition in which a tank, including its turret, is hidden from the enemy by an intervening hill or other mask.

**turret gun.** Gun mounted in a turret.

**TURRET, MACHINE GUN, AIRCRAFT.** An armored inclosure installed in an aircraft for housing the armament and related accessories. It is designed to rotate about one or more axes permitting positioning and firing of the machine gun(s) in a number of directions or angles.*

**turret mount.** See: **MOUNT, GUN.**

**turret traversing mechanism.** Device for revolving a turret.

**twenty-five percent rectangle.** A rectangle inclosing the center of dispersion or impact within which twenty-five percent of all shots fired with the same setting will fall. It is the rectangle formed by the intersection of the fifty-percent zone for deflection and the fifty-percent zone for range. See: **fifty-percent zone.**

**Twin Cities Arsenal.** Ordnance Corps field installation, located at Minneapolis, Minnesota.

**twin ignition.** See: **dual ignition.**

**twist, increasing.** Rifling in which the degree of twist increases from the origin of rifling to the muzzle; gain-twist; gaining twist. See: **rifling.**

**twist, left hand.** Rifling in which the twist is such as to impart a left hand rotation to the projectile when viewed from the origin. See: **rifling.**

**twist (of rifling).** Inclination of the spiral grooves (rifling) to the axis of the bore of a weapon. It is expressed as the number of calibers of length in which the rifling makes one complete turn. See: **rifling.**

**twist, right hand.** Rifling in which the twist is such as to impart a right hand rotation to the projectile when viewed from the origin. See: **rifling.**

**twist, uniform.** Rifling in which the degree of twist is constant from the origin of rifling to the muzzle, the path of the groove being a uniform spiral. See: **rifling.**

**twist, zero.** Rifling with no twist. Some designs have this condition at the origin of rifling for guns with increasing twist rifling. See: **rifling.**

**two-cycle engine.** See: **two-stroke-cycle engine.**

**two-dimensional flow.** See: **flow, two-dimensional.**

**two-station method.** See: **horizontal base line method.**

**two-stroke-cycle engine.** A reciprocating internal combustion engine that completes the events of a cycle in two strokes of the piston(s), i.e., one complete revolution of the crankshaft. Each upward stroke of the piston includes a compression event, and each downward stroke includes a combustion (power) event. Arrangements differ, but in general, exhaust valve(s) or port(s) are caused to open near the end of the power stroke, and the intake valve(s) or port(s) admit air or air-fuel mixture under pressure, thus eliminating separate exhaust and intake strokes used in **four-stroke-cycle engine(s).** Scavenging of exhaust gases and charging with fresh air or mixture are generally less efficient than for four-stroke cycle

engines, particularly at higher speeds. Use is usually restricted to low horsepower applications; e.g., some auxiliary power units.

**type classification.** Designations made by technical committee action to record the status of items of materiel from the standpoint of development and suitability for service use. Those designations and their definitions are as follows:

a. *Development category.*

(1) *Development type.* An item developed to meet a qualitative materiel requirement. This is further classified in the Ordnance Corps as follows:

(a) *Experimental type.* An item that is being developed or modified to meet approved military characteristics or to improve design or function.

(b) *Service test type.* An item which has performed satisfactorily in engineering tests and is authorized to be procured in limited quantity for user test, which see.

(2) *Limited production type.* An item under development for which an urgent operational requirement exists and which appears promising enough operationally to warrant the risk of initiating production of quantities in excess of those required for engineering and user test prior to completion of development, or prior to completion of test.

b. *Adopted category.*

(1) *Standard type.* The standard type designates the most advanced and satisfactory items that have been adopted for United States Army use and which are acceptable as assets to meet United States Army operational requirements. There may be more than one standard type to fulfill each requirement. The broad category of standard is subdivided into the following specific types:

(a) *Standard A.* (STD-A) Items which are preferred for operational requirements.

(b) *Standard B.* (STD-B) Items which are acceptable to fill operational requirements.

(c) *Standard C.* (STD-C) Items which are only marginally acceptable for operational requirements and will be phased out of the system as stocks of more acceptable items become adequate to meet requirements.

(2) *Limited standard type.* Items which are not acceptable for United States Army operational requirements and will not, therefore, be counted as assets against operational requirements. Items included in this category are:

(a) Those which are not acceptable to meet operational requirements of the United States Army but which are being retained to meet Military Assistance Program requirements.

(b) Those which are not acceptable to meet operational requirements of the United States Army but which are useful in training.

c. *Obsolete category.* Designation of item or assemblage which is no longer considered acceptable for United States Army use. It is not issued to troop units and at the earliest practicable date is withdrawn from service use and disposed of. In approved special cases it is retained for special requirements outside of the established Army supply program.

# U

**UAM** *(abbr)*. 'Underwater-to-air missile.'

**UDMH** *(abbr)*. 'Unsymmetrical dimethylhydrazine.'

**UDT** *(abbr)*. 'Underwater demolition team.'

**UDU** *(abbr)*. 'Underwater demolition unit.'

**UER** *(abbr)*. 'Unsatisfactory equipment report.'

**UF** *(abbr)*. 'Unit of fire.'

**UFO** *(abbr*. 'Unidentified flying object.'

**UHF** *(abbr)*. 'Ultrahigh frequency.'

**ULI** *(abbr)*. 'Underwriters' Laboratories, Inc.'

**ullage.** The volume of a propellant tank in excess of the propellant. 't is provided to allow for thermal expansion of the propellant and for accumulation of gaseous products evolved from the propellant.

**ultrahigh frequency.** (UHF) See: **frequency, electronic.**

**ultrasonic.** Of or pertaining to frequencies above those that affect the human ear, i.e., more than 20,000 vibrations per second.

Use of this term in acoustics reserves 'supersonic' for use in aerodynamics.

**ultrasonics.** That branch of acoustics dealing with **ultrasonic** frequencies.

**ultraviolet.** Outside the visible spectrum of the violet end; higher in frequency than visible light. The opposite of 'infrared.' Said of light, rays, frequencies, hence 'ultraviolet light.'

**Umatilla Ordnance Depot.** Ordnance Corps field installation, located at Hermiston, Oregon.

**umbilical cord.** A cable fitted with a quick-disconnect plug at the missile end, through which missile equipment is controlled and tested while the missile is still attached to the launching equipment or parent plane.

**unarmed.** The condition of a fuze (or other firing device) in which the necessary steps to put in condition to function have not taken place. It is the condition of the fuze when it is safe for handling, storage, and transportation. The fuze is 'partially armed' if some, but not all, of the steps have taken place.

**unauthorised item.** In supply usage, an item not authorized for storage and issue by appropriate tables of allowances.

**unclas** *(abbr)*. 'Unclassified.'

**unclassified.** (unclas; *Security*. Not classified. Not having a security classification. Said of documents, information, lectures, equipment, etc. See: **defense classification.**

**uncontrolled fragment.** See: **fragment, uncontrolled.**

**undercarriage.** Fixed or movable base on which the **top carriage** of a weapon moves.

**underspin.** Insufficient rate of spin for a projectile to give it proper stabilization. Such a projectile is said to have 'underspin' or 'understabilization.' Cf: **stabilization.**

**underwater demolition.** Destruction or neutralization of underwater obstacles (near a landing beach) which can affect the approach of landing craft. The destruction is normally accomplished by an **underwater demolition team** (which see).

**underwater demolition team.** (UDT) Naval unit organized and equipped to perform beach reconnaissance and **underwater demolition** (which see) in an amphibious operation.

**underwater obstacle.** Natural or artificial obstacle located to seaward of the highwater line, and wholly or partly submerged, which acts as a barrier or obstruction to the passage of ships, landing ships, craft, vehicles, or torpedoes. See: **beach obstacle.**

**underwater ordnance.** Munitions designed for use under water, e.g., torpedo; MINE, UNDERWATER; depth charge; etc.

**unequal section charge.** See: **charge, unequal section.**

**unexploded bomb.** (UXB) See: **bomb, unexploded.**

**unexploded ordnance.** (UXO) An object containing explosives which did not function as intended, or an object which contains some type of delay action device.

**unf** *(abbr)*. 'Unfuzed.'

**unguided.** Of a missile or other object sent through the air: Not subject to guidance or control during flight; aimed only in launching. Cf: **guided.**

**unidentified flying object.** (UFO) Name given to any reported flying object which cannot be identified. Cf: **flying saucer.**

**uniform twist.** See: **rifling; twist, uniform.**

**unilateral observation.** Observation of fire from one station only.

**unilateral tolerance method.** Method of dimensioning and tolerancing wherein the tolerance is taken all plus or minus from an explicitly stated dimension. The dimension shall represent the size or location which is nearest the critical condition (i.e., maximum material condition), and the tolerance is applied either in a plus or minus direction, but not in both directions, in such a way that the permissible variation in size or location will be away from the critical condition. Cf: **bilateral tolerance method.**

**unit.** An assembly of any combination of parts, subassemblies mounted together, normally capable of independent operation in a variety of situations. (*Note*: The size of an item is a consideration in some cases. An electric motor for a clock may be considered as a part inasmuch as it is not normally subject to disassembly.)

**unit assembly.** Assemblage of machine parts which constitutes a complete auxiliary part of an **end item**, and which performs a specific auxiliary function, and which may be removed from the parent item without itself being disassembled.

**United States Air Force.** (USAF) Official name given the air arm of the United States military forces.

According to the *Air Force Organization Act of 1951*, the USAF 'shall consist of the Regular Air

Force, the Air Force Reserve, the Air National Guard of the United States and the Air National Guard while in the service of the United States.'

**United States Armed Forces.** *Specif.* Collectively, the regular components only of the Army, Navy (including the Marine Corps), Air Force, and Coast Guard.

This term is distinguished from the **Armed Forces of the United States** (which see).

**United States Army.** (USA) The land military forces of the US, including the Regular Army, the National Guard of the United States, and the Army Reserve. Often shortened to 'Army.'

In general the United States Army shall include land combat and service forces and such aviation and water transport as may be organic therein. It shall be organized, trained, and equipped primarily for prompt and sustained combat incident to operations on land.

**United States Marine Corps.** (USMC) A corps of soldiers in the U. S. Navy. Also shortened to 'Marine Corps.'

The USMC includes land combat and service forces and organic aviation units. It is responsible for service with the fleet in the seizure or defense of advanced naval bases and for the conduct of such land operations as may be essential to the prosecution of a naval campaign.

**United States Navy.** (USN) The Naval Establishment of the United States. Often shortened to 'Navy.'

The Navy includes sea-going fleets, aviation units, the U. S. Coast Guard when operating as a part of the Navy under the provisions of law, and the U. S. Marine Corps.

In general the United States Navy shall include naval combat and service forces and such aviation as may be organic therein. It shall be organized, trained, and equipped primarily for prompt and sustained combat incident to operations at sea.

**unitized load.** A single item, or a number of items packaged, packed, or arranged in a specified manner and capable of being handled as a unit. Unitization may be accomplished by placing the item or items in a container, or by banding them securely together. A unitized load when placed on a pallet and fastened thereto, may further be referred to as a palletized load.

**unit of error.** Arbitrary measure, based on a mathematical formula, used to state the accuracy of a range finder.

**unit of fire.** (UF) A **basic load** of ammunition.

**unit of issue.** Standard or basic quantity in which an item of supply is issued.

**unit package.** In supply usage, a box, bundle, reel, drum, bottle, bale, roll, or the like containing one or more identical units of manufacture and conforming to applicable packaging directives or to standard commercial packaging practice.

**unit procurement cost.** The net basic cost paid or estimated to be paid for a unit of a particular item including, where applicable, the cost of Government furnished property and the cost of manufacturing operations performed at Government-owned facilities.

**unit replacement.** Method of repair in which a defective, worn, or damaged group of parts of a weapon or other equipment is replaced by a complete new group of parts.

**UNIVERSAL JOINT.** A flexible connection which permits rotary motion to be transmitted between two shafts located at an angle to each other. The angle between the shafts may be continually varied within certain limits; the connecting ends must have either a flange, hub or splined stub shaft; the plain portion of a splined stub shaft must not exceed the length of the splines.* If designed to transmit without a differential in speed, it is known as a constant velocity joint.

**UNIVERSAL JOINT, CONSTANT VELOCITY, AUTOMOTIVE.** A device which is a component of an AXLE ASSEMBLY, AUTOMOTIVE, DRIVING, designed to eliminate rotary fluctuations during various steering angles while at the same time transmitting rotary motion from the differential assembly indirectly to the front wheel hubs. It is usually supplied with an inner and outer shaft, but may be supplied without the inner shaft. Excludes SHAFT, AXLE, AUTOMOTIVE; UNIVERSAL JOINT and UNIVERSAL JOINT, GEARED.*

**UNIVERSAL JOINT, GEARED.** A device designed to give positive transmission of torsion regardless of shaft angle. See also: **UNIVERSAL JOINT.***

**UNIVERSAL JOINT, SOCKET WRENCH.** A connection for socket wrenches and handles. Consists of a female drive on one end and a male drive on the opposite end, of the same size, connected by a cross pin device to permit swivel up to 90 degrees.*

**unsatisfactory equipment report.** (UER) A report from the using arm or service in the field on the unsatisfactory performance of equipment, and on omissions, deletions, etc., in manuals and instructions pertaining to equipment sent to the field.

**unseen fire.** Fire which is continuously aimed at the future position of an aircraft, the aim being derived from radar sources.

**unsprung weight.** See: **sprung and unsprung weight.**

**unstable oscillation.** See: **oscillation, unstable.**

**unthickened fuel.** Blend of gasoline and light fuel oils or lubricating oils (without thickener) used as an incendiary fuel in portable flame throwers. See also: **CHEMICAL AGENT, INCENDIARY OIL; thickened fuel.**

**upgrade.** To assign a higher classification than that previously assigned. Notification to holders of the material is part of the process. See also: **defense classification.**

**uranium.** A radioactive, nuclear-fissionable element found chiefly in pitchblende.

The symbol for uranium is U; its atomic weight is 238.07 and its atomic number is 92. Three isotopes of uranium have been isolated: *U238*, which constitutes about 99.3 percent of natural uranium, *U235*, which constitutes 0.7 percent, and *U234*, which is present in natural uranium in minute amount. *U235* may be made to undergo rapid fission (see: **critical mass**); *U238* may be converted to neptunium by neutron bombardment. See: **plutonium.**

**US** *(abbr.)*. 'United States' (of America).

**USA** *(abbr.)*. 'United States Army.'

**usable rate of fire.** Normal rate of fire of a gun in actual use, measured in units of shots per minute. The usable rate of fire is considerably less than a gun's maximum rate of fire, which is a theoretical value based on the purely mechanical operation of a weapon.

**USAF** *(abbr).* 'United States Air Force.'

**USAOMC** *(abbr).* 'U. S. Army Ordnance Missile Command.'

**U. S. Army Ordnance Missile Command.** (USAOMC) A commodity command under the direction of the Chief of Ordnance which administers, controls and coordinates all missile activities assigned to the Ordnance Corps. The headquarters is located at Redstone Arsenal, Alabama. Subordinate units include the Army Ballistic Missile Agency, the Army Rocket and Guided Missile Agency, and the White Sands Missile Range.

**U. S. Army Ordnance Special Weapons—Ammunition Command.** (USAOSWAC) A commodity command under the direction of the Chief of Ordnance which administers, controls and coordinates the Ordnance Corps responsiblities pertaining to ammunition and special weapons. The headquarters is located at Picatinny Arsenal, Dover, N. J. Subordinate units include Picatinny Arsenal and the Ordnance Ammunition Command.

**USASRDL** *(abbr).* 'United States Army Signal Research and Development Laboratory.'

**USC & GS** *(abbr).* 'United States Coast and Geodetic Survey.'

**USCG** *(abbr).* 'United States Coast Guard.'

**user test.** An evaluation test conducted on materiel under development following satisfactory engineering test (which see). It is performed by the using agency to determine the suitability of the developmental materiel for military use. See also: **combined engineer user test.** User tests are of two types:

1. *Service test.* A test under simulated operational conditions to determine to what degree the item meets the military requirement as expressed in the military characteristics.
2. *Troop test.* A test where a troop unit, equipped with appropriate numbers of the item, operates under actual or simulated field conditions to test the suitability of the item and also the adequacy of the organization, doctrine, technique, training, and logistic support required for its use.

**USG** *(abbr).* 'United State Gage.'

**USGS** *(abbr).* 'United States Geological Survey.'

**using agency.** Any element of the Armed Forces having command or service functions, and requiring materiel for use in performance of its mission.

**USM** *(abbr).* 'Underwater-to-surface missile.'

**USMC** *(abbr).* 'United States Marine Corps.'

**USN** *(abbr).* 'United States Navy.'

**US of A** *(abbr).* 'Under Secretary of the Army.'

**US of AF** *(abbr).* 'Under Secretary of the Air Force.'

**USP** *(abbr).* 'United States Pharmacopoeia.'

**USPHS** *(abbr).* 'United States Public Health Service.'

**USS** *(abbr).* 1. 'United States Standard.' 2. 'United States Ship.'

**U. S. Standard Atmosphere.** See: **Standard Atmosphere.**

**U. S. survey foot.** Unit of length equivalent to 1200 meters divided by 3937. This unit of measure is longer than the international foot by six parts in ten million. It will continue to be used in the United States geodetic survey network until it becomes desirable and expedient to readjust to the international unit. Cf: **international foot.**

**UUM** *(abbr).* 'Underwater-to-underwater missile.'

**UW** *(abbr).* 1. 'Unconventional warfare.' 2. 'Underwater.'

**UXB** *(abbr).* 'Unexploded bomb.'

**UXO** *(abbr).* 'Unexploded ordnance.'

# V

**V-1.** [Abbr. of German *Vergeltungswaffe eins* Revenge Weapon One.] A German robot bomb provided with wings, a horizontal stabilizer, a vertical stabilizer, rudder and elevators, used in WW II. Also called the 'FZG-76' by the Germans, and the 'buzz bomb' by the British.

The V-1, first landed across the English Channel on 13 June 1944, was powered by a pulsejet engine mounted on its back. Its overall length was 25 feet 4 inches, and its greatest diameter was 2 feet 7 inches. This missile was provided with complicated control devices, kept on course by an automatic pilot. It had a speed of about 360 mph and a range of 150 miles, and flew at a height between 2,000 and 3,000 feet. Some 2,000 of these robot bombs were directed against England in WW II, most of them against London.

**V-2.** [Abbr. of German *Vergeltungswaffe zwei*. See preceding entry.] A large German liquid-fuel rocket, developed as a ballistic missile in WW II. Also called the 'A-4' by the Germans.

The V-2, first launched against England on 8 September 1944, developed 60,000 pounds of thrust from its rocket engine. From nose to exhaust tail, it measured 46 feet, and its diameter was about 5 feet. Shaped like an artillery projectile, it was without wings, but was subject to some guidance through movable panels built into the four tail fins and through graphite vanes extending into the exhaust stream. Launched vertically, it quickly reached a speed of 3,600 mph, then was tilted in the direction of its target. It exhausted its fuel supply of 9 tons in 60 seconds, but reached an altitude of 60 miles with a range of 200 miles, and plunged earthward at about 1,500 mph. Some 1,115 V-2's were sent across the Channel in the last months of WW II.

**vacuum brakes.** Vehicle brakes that are actuated by vacuum under the control of the operator.

**vacuum stability test.** See: **heat tests.**

**valve.** A mechanism designed to control the flow of liquids or gases either within a closed system, such as a pipeline, or between the atmosphere and a closed system. It may be manually and/or power operated, or it may be actuated by predetermined pressure and/or temperature, or a pressure and/or temperature differential.*

**VALVE, PNEUMATIC TIRE.** A metal, or metal and rubber, tubular stem with base, valve core, cap, and fittings designed to be mounted on a pneumatic tire, inner tube, or tire rim, to permit inflation.*

**VALVE, POPPET, ENGINE.** A mushroom or tulip shaped valve having a circular head with a conical face and an extended stem used to regulate the flow of incoming fuel-air mixture or air into the combustion chamber or exhaust gases from the combustion chamber of a reciprocating internal combustion engine.*

**VALVE, PRESSURE, GAS BOMB.** A metallic device specifically designed to permit the measuring of pressure in a GAS BOMB. It is assembled within the bomb body, with a partial projection to permit opening of the valve. A gage is then attached to obtain a pressure reading. The valve is not spring loaded and design does not permit variation of pressure.*

**VALVE, SOLENOID.** A valve specifically designed to control the flow of liquids or gases by means of the magnetic action of an electric coil on a movable core, or plunger, actuating the valve stem or pilot needle. The item may be equipped with a manual opening device.* Example: A solenoid valve is used to control the operation of pneumatic and/or hydraulic mechanisms in automatic weapons.

**vane.** 1. An arming vane for a FUZE, BOMB; rocket, and the like. 2. Lengthwise partition in a chemical projectile which makes the contained liquid rotate with the casing. This is necessary for accuracy in flight. See: **VANE, ARMING, BOMB FUZE; VANE, ROCKET ARMING DEVICE.**

**VANE, ARMING, BOMB FUZE.** A metallic item designed for attachment to the fuze mechanism of a bomb. The vane arms the fuze through action of the air stream created by falling of the bomb.*

**VANE, ROCKET ARMING DEVICE.** A metallic item designed to activate an arming device of a rocket by action of the air stream incident to its flight.*

**Vanguard.** Name given to project involving earth satellites during the International Geophysical Year. The project was under the control of the U. S. Naval Research Laboratory.

**vapor lock.** A stoppage or diminution in the fuel flow of an engine caused by fuel vapor accumulating in the fuel lines.

**VAR** *(abbr).* 'Vertical aircraft rocket.'

**variable recoil.** Of recoil systems: Variation of the length of recoil according to the elevation in such manner as to prevent the gun from striking the ground when fired at high angles. Cf: **constant recoil.**

**variable time fuse.** See: **FUZE, PROXIMITY.**

**variation.** Angular difference between magnetic north and true north measured east or west from true north. See: **declination.**

**varistor.** A special type of resistor which varies considerably with temperature; useful in making temperature measurements or in compensating circuits for other temperature effects.

**VARNISH, OIL.** A liquid composition of drying oil(s) and resin which is converted to a transparent or translucent hard film after application as a thin layer. It dries and sets by evaporation, oxidation and polymerization. Excludes bituminous base items. See also: **LACQUER; PAINT** (as modified) and **ENAMEL.***

**V-BLOCK.** A fixture of cast iron or steel, precision ground, having one or more V grooves machined parallel and squared with respect to the bottom, top, and ends. The block may have milled grooves on the sides to accommodate clamps which are used for holding cylindrical work.*

**V-bomb.** Either the V-1 or the V-2.

**VCP** *(abbr).* 'Vehicle collecting point.'

**VDP** *(abbr).* 'Vehicle deadlined for parts.'

**vector.** 1. An entity which has both magnitude and direction, such as a force or velocity; a line segment that represents this entity. 2. *Specif.* The translation of an object, such as an airplane or missile, from one point to another point usually in a given interval of time. 3. The line segment or direction followed in space, or to be followed, to achieve this translation, as in 'the aircraft controller signalled the missile, which followed a vector that resulted in its intercepting the rocket.' 4. A line on a chart, or a voice communication, that indicates speed and direction to achieve this translation.

**vector gunsight.** A gunsight that contains a device that computes the vector required for the bullet to follow if it is to strike its target. Used esp. in firing at moving targets.

**vector quantity.** A quantity which requires for description both magnitude and direction, such as displacement or velocity of a particle. Cf: **scalar quantity.**

**veh** *(abbr).* 'Vehicle.'

**vehicle.** (veh) 1. In essence, any contrivance or medium used to carry a load from one place to another. 2. In concrete applications: a. Any conveyance for either land or air transport, as in 'the vehicles he saw were trucks, carts, and air transports.' b. In restricted (yet common) usage: A carriage or moving support on the ground only, exclusive of aircraft and exclusive of vessels, mounted on wheels, tracks, runners, rollers, or any combination of these, used to move persons or things from one place to another, as in 'he brought into play every vehicle, vessel, and aircraft.' 3. In analysis of a weapons system, that component that constitutes the carrier, as in 'the vehicle for delivery of the bomb may be a man with a suitcase, an airplane, or a ship.'

Sense 2 b is common among ground troops. The category includes amphibious vehicles.

**vehicle cargo.** See: **cargo classification.**

**vehicle, combat.** See: **Combat vehicle.**

**vel** *(abbr).* 'Velocity.'

**velocity.** (vel) 1. **Speed** (which see). 2. Speed, or rate of motion, in a given direction and in a given frame of reference.

In many contexts no distinction in meaning is to be made between 'speed' and 'velocity' (sense 1), the choice between the words being governed by a sense of association. However, 'velocity' is normally not used in reference to movements of a person or animal; instead 'speed' is used, as in 'his speed in typing' or 'his speed in the mile was less than four minutes.' This restriction tends to carry over to inanimate objects when they are associated with man, as in 'the speed of an airplane.' On the other hand, 'velocity' appears to be preferred in reference to other inanimate objects, as in 'the velocity of the wind,' or 'the velocity of a bullet,' or 'the velocity of the electrons.' But 'speed' is often used likewise in these contexts.

In sense 2, 'velocity' is used in scientific or technical contexts. In these contexts, 'speed' denotes a scalar quantity equal only to that part of velocity that comprises its magnitude; whereas 'velocity' denotes a vector quantity that includes both magnitude and direction.

**velocity, characteristic.** The velocity attained by exhaust gases in the throat of a rocket motor. The ratio of the product of the chamber pressure and the throat area to the mass rate of gas exhaust.

**velocity decay.** See: **deceleration.**

**velocity, effective jet.** A calculated average velocity of the exhaust gases as they leave the motor nozzle.

**velocity fire.** Preparatory fire conducted to determine the velocity for a particular combination of weapon, propellant, projectile, and fuze.

**velocity, flame.** The velocity of the flame front perpendicular to its surface, relative to the unburnt gas where it is at initial conditions; under stationary conditions of one-dimensional flow, the flame velocity is equal to the mass flow of unburnt gas through a unit area of the flame front divided by the initial density.

**velocity group, Doppler.** See: **DOPPLER VELOCITY GROUP.**

**velocity head.** See: **pressure, dynamic.**

**velocity, limiting.** See: **terminal velocity** (sense 1).

**velocity modulation.** See. **modulation, velocity.**

**velocity of detonation.** See: **detonation.**

**VENTILATOR, VEHICLE STORAGE.** A device constructed of sheet metal and designed for the express purpose of providing ventilation in a combat or special purpose vehicle which requires ventilation while in storage. It is of a fixed gravity head type.*

**venturi.** [After G. B. *Venturi* (1746-1822), Italian physicist.] A constriction in a tube that causes increased velocity and consequent reduction of pressure of fluid flowing through the constriction, in accordance with **Bernoulli's principle.** In hydraulics, a venturi tube connected to a manometer provides a means of measuring flow of liquids, and in aeronautics, a venturi tube placed in an airstream provides a means of obtaining suction to operate rotor-driven instruments, such as the gyroscope of an attitude indicator, where these are not electrically driven.

**verification.** *Electronic computers.* The process of automatically checking one data typing or recording process against another for the purpose of reducing the number of human errors in data transcription.

**verification fire.** Preparatory fire to test the mechanical adjustment of guns and fire control equipment, and to measure the accuracy of corrections determined by calibration and trial fire.

**vernier.** A device, control, or scale used to obtain fine adjustment for more accurate measurement, such as a vernier control, vernier capacitor or vernier scale.

**vernier engine.** Rocket engine used to adjust the final velocity of a long range ballistic missile; also used to correct heading errors.

**vertex.** *Network topology.* See: **node.**

**vertical deflection angle.** *Fire control.* The vertical angle equal to the algebraic sum of the principal vertical deflection, and the vertical pointing correction.

*Approximate vertical deflection angle.* An approximation of the principal vertical deflection angle obtained by multiplying an instantaneous vertical angular velocity by a time of flight.

*Principal vertical deflection.* That part of the vertical deflection angle due to the change in the angular height of the target during the time of flight.

*Vertical pointing correction.* That part of the vertical deflection angle due to causes other than the travel of the target, such as the corrections due to wind, to muzzle velocity, to atmospheric density, and to vertical adjustment corrections.

**vertical deflection setting.** *Fire control.* The setting on the vertical deflection scale of the sighting mechanism of the gun, corresponding to the vertical deflection angle.

**vertical deviation.** In antiaircraft artillery, the distance between the target and the point of burst in the plane normal to the line of position along a line perpendicular to the lateral deviation.

**vertical drop.** 1. The drop of an object in trajectory or along a plumb line, measured vertically from its line of departure to the object. 2. The distance measured. Also called 'drop,' 'bullet drop,' 'gravity drop.'

**vertical hundred-percent cone.** The length of the beaten zone times the slope of fall (given in firing tables for small arms). The difference in height between the highest and lowest impact on a vertical target, or the angle which it subtends at the gun.

**vertical jump.** The difference between the **angle of elevation** and the **angle of departure.** It is positive if the angle of departure is greater than the angle of elevation.

**vertical launch.** A launch in which the missile or vehicle starts from a vertical position.

**vertical lead.** The vertical angle by which the gun must be moved from the line of position in order for the trajectory to pass through the target. It is the algebraic sum of the principal vertical deflection, the vertical pointing correction, and the superelevation.

**vertical pointing correction.** See: **vertical deflection angle.**

**vertical prediction correction.** The projection of the total prediction correction on the elevation plane through the present line.

**vertical probable error.** The product of the range probable error and the slope of fall. Values for the range probable error and the slope of fall are given in the firing tables.

**vertical stabilizer.** See: **STABILIZER, VERTICAL.**

**very high frequency.** (VHF) See: **frequency, electronic.**

**Very light.** Former terminology for a type of **signal, illumination** (which see).

**very-long-range material requirements.** Items required by operational and organizational concepts established for a period 10 years hence and beyond. See also: **long-range materiel requirements; mid-range materiel requirements.**

**very long-range radar.** Equipment whose **maximum** range on a reflecting target of one **square meter** normal to the signal path exceeds **800 miles,** provided line-of-sight exists between the **target** and the radar. See: **long-range radar.**

**very low frequency.** (VLF) See: **frequency, electronic.**

**Very pistol.** Former terminology for PISTOL, PYROTECHNIC.

**very short-range radar.** Equipment whose range on a reflecting target of one square meter normal to the signal path is less than 50 miles, provided line-of-sight exists between the target and the radar. See: **short-range radar.**

**vesicant.** Former designation for **blister gas** (which see).

**vest, armored.** See: **ARMOR, BODY, FRAGMENTATION PROTECTIVE.**

**vest, flak, protective.** See: **ARMOR, BODY, FRAGMENTATION PROTECTIVE.**

**VH** *(abbr).* 'Vickers hardness.'

**VHF** *(abbr).* 'Very high frequency.'

**vibration meter.** *Electroacoustics.* An apparatus for the measurement of displacement, velocity, or acceleration of a vibrating body.

**VIBRATOR, INTERRUPTER.** An item which interrupts direct current and produces a pulsating direct current by means of a vibrating armature which opens and closes the direct current circuit. Does not include means of rectification. Excludes items designed to be used with induction coils. See also: **INVERTER, VIBRATOR.** For item whose coil operates by means of alternating current, see: **CHOPPER, ELECTRONIC.**

**vibrometer.** Short for **vibration meter** (which see).

**Vickers gun.** Any of certain guns made or designed by Vickers' Sons and Maxim, Ltd., esp. a type of water-cooled, belt-fed machine gun of **Maxim design** having a distinctive corrugated water jacket, widely used during and after WW I for both air and ground purposes.

**Vickers hardness.** (VH) A measure of hardness of materials obtained by pressing a diamond pyramid into the sample, and microscopically measuring the length of the diagonal of indention. Cf: **Brinell hardness; Mohs hardness; Rockwell hardness; Shore scleroscope hardness.**

**video.** 1. The conversion of certain electronic impulses into wave lengths that can be seen. 2. The display or presentation of such wave lengths upon a radar or television screen. 3. Of or pertaining to the visual presentation or display on a television or radar screen, as in **AMPLIFIER, VIDEO.**

This word is a coined word formed from the Latin *videre* 'to see.' Its ending, although the same as that of the Latin *video* 'I see,' is analogous to the endings of 'radio' or 'audio.'

**video amplifier.** See: **AMPLIFIER, VIDEO.**

**Vigilant.** A British developed, wire-guided, man-portable, solid propellant, antitank missile which is launched from its carrying case.

**Viking.** A large, liquid-fuel, high-altitude, research rocket, built for the U. S. Navy. First launched 3 May 1949. (*Historical*)

**violet.** Indicates, in the nomenclature of a SIGNAL, SMOKE, GROUND, several smoke pellets which produce freely falling streamers of violet smoke at the height of the trajectory.

**viscosimeter.** See: **VISCOSIMETER, WEIGHT BALANCE; COMPARATOR, VISCOSITY, OIL.**

**VISCOSIMETER, WEIGHT BALANCE.** A device to determine the viscosity of various materials by measuring the speed attained by a cylinder or other rotor immersed in the material under the influence of a constant weight.*

**viscosity.** In a liquid, the property of internal resistance, caused by molecular attraction, that makes the liquid resist flow. See: **SAE viscosity; Saybolt viscosity.**

**viscosity comparator.** See: **COMPARATOR, VISCOSITY, OIL.**

**viscosity index.** A number given to a certain lubricating oil to indicate its performance, particularly as to change of viscosity with temperature variation, as compared with the average, of two groups of test oils.

**vision slit.** Any narrow opening or slit in armor through which to look, especially one in a tank or other armored vehicle.

**VISOR, PERISCOPE.** An item specifically designed to be attached to the viewing aperture of a periscope to exclude light, thereby aiding visibility of the image.*

**visual-aural radio range.** Any radio range that sends out signals for both visual and aural reception; applied esp. to certain types of VHF radio ranges.

**visual bombing.** Bombing done by sighting on an aiming point or points, under conditions where the aiming point or points are visible from the bombing aircraft. Distinguished from **radar bombing,** which see.

**visual bombsight.** A bombsight designed for aiming a bomb when the aiming point is visible.

**visual fire control.** Technical control of some artillery fire using an optical tracking instrument.

**visual radio range.** Any range facility the course of which is flown by visual instrumentation not associated with aural reception.

**VLF** *(abbr).* 'Very low frequency.'

**volley.** 1. Method of artillery firing in which each piece fires the specified number of rounds without any attempt to synchronize with the other pieces. 2. Burst of fire, especially a salute fired by a detachment of riflemen.

**volley bombing.** Simultaneous or nearly simultaneous release of a number of bombs.

**volley fire.** Artillery fire in which each piece fires a specified number of rounds without regard to the other pieces and as fast as accuracy will permit. Cf: **salvo fire.**

**volume control, automatic.** See: **gain control, automatic.**

**volumetric efficiency.** The efficiency with which an internal combustion piston engine draws air or an air-fuel mixture into its cylinders.

**Volunteer Ordnance Works.** Ordnance Corps field installation, located at Chattanooga, Tennessee.

**volute spring.** See: **spring, volute.**

**vomiting gas.** Any one of a group of toxic gases, such as adamsite, that causes coughing, sneezing, sometimes vomiting, and other effects. A war gas (which see).

**VT fuse.** See: **FUZE, PROXIMITY.**

**VTOL** *(abbr).* 'Vertical take-off and landing.'

**Vulcan machine gun.** A very fast firing machine gun of the Gatling type. Produced in 20- and 30-mm calibers. See: **Gatling gun.**

**vulnerable area.** *Specif.* The product of: (1) the probability of a projectile which strikes an armored vehicle causing disabling damage, and (2) the presented area of the vehicle.

**V-weapon.** Either the V-1 or the V-2.

# W

**W** *(abbr)*. Chemical agent, 'W.'

**w** *(abbr)*. 'With' (in combinations only). Often written w/.

**WA** *(abbr)*. 'Watertown Arsenal.'

**Wabash River Ordnance Works.** Ordnance Corps field installation, located at Newport, Indiana.

**Wac Corporal.** A sounding rocket for very high altitudes, developed by the Army, propelled by liquid fuel although adapted to using a solid propellant booster.

The Wac Corporal, used as a second-stage rocket in the nose of a V-2, reached an altitude of some 250 miles on 25 Feb. 1949 at White Sands Proving Ground, New Mexico.

**wad (wadding).** A felt or cardboard pad used to secure the propellant in place in cartridges. Also used for various other purposes. See also: **distance piece; distance wadding.**

**WADC** *(abbr)*. 'Wright Air Development Center.'

**wad cutter.** Bullet designed for target shooting, shaped to cut a clean hole in a paper target.

**wagon, cannon transport.** See: **TRAILER, CANNON.***

**wagon, carriage transport.** See: **TRAILER, GUN CARRIAGE.***

**wallow course.** Wide trench filled with a decontaminating chemical, usually chlorinated lime mixed with mud. Vehicles that have come in contact with chemical agents are driven or wallowed through this trench so that they can be freed from the agents. Also called mud lime slurry course.

**wall ratio.** Ratio of the outside radius of a gun, a tube or jacket to the inside radius; or ratio of the corresponding diameters.

**wanigan.** House or shelter usually mounted on a vehicle or sled, which may be placed on the ground. It is used for sleeping, cooking and eating, storage, first aid, machine shop or other special purpose; particularly adapted for use in arctic regions.

**War Department.** (WD) Between 1789 and 1947, a United States Government department, the secretary of which had cabinet status, having the responsibility of organizing, training, and maintaining the Army and conducting certain nonmilitary activities.

In the reorganization following the National Security Act of 1947, the War Department, as such, was discontinued. The Department of the Army assumed its historic functions, except for those resulting from the development of air power. These latter were assumed by the Department of the Air Force. Under reorganization, the Secretary of Defense was given cabinet status, but departmental secretaries were not given this status.

**war gas.** Toxic or irritant **chemical agent** (which see) regardless of its physical state, whose properties may be effectively exploited in the field of war.

**warhd** *(abbr)*. 'Warhead.'

**warhead.** (warhd) An item which is designed to be mounted in or on a torpedo, guided missile, rocket, bomb, or the like. It may contain or be designed to contain high explosive, nuclear, chemical, biological, or inert materials, as well as booster(s), fuze(s), and burster(s). Do not use for items which contain only nonexplosive and/or nondestructive instrumentation.*

**warhead compartment.** The section of a missile in which the warhead installation is mounted. In some cases the warhead compartment may be part of the adaption kit.

**warhead, fragmentation.** A warhead designed so that functioning of the explosive filler will destroy or reduce the utility of a target primarily by fragmentation effect.

**warhead, general purpose.** A warhead designed so that functioning of the explosive filler will destroy or reduce the utility of a target by explosive effect.

**WARHEAD, GUIDED MISSILE, CHEMICAL AGENT.** A warhead containing a chemical agent, designed for attachment to a guided missile. It may be provided with a means of bursting. Excludes atomic weapon warheads and WARHEAD, GUIDED MISSILE, HIGH EXPLOSIVE.*

**WARHEAD, GUIDED MISSILE, EMPTY.** A guided missile warhead without explosive or inert load. Excludes atomic weapon dummy warheads.*

**warhead, guided missile, exercise.** See: **EXERCISE HEAD, GUIDED MISSILE.**

**WARHEAD, GUIDED MISSILE, HIGH EXPLOSIVE.** An explosive filled metal part constituting a major payload of a guided missile. Excludes atomic weapon warheads.*

**WARHEAD, GUIDED MISSILE, INERT.** A guided missile warhead loaded with nonexplosive inert material. Excludes atomic weapon inert warheads.*

**warhead installation.** A warhead plus those additionally required items (contained in the adaption kit) that are needed to mate the warhead with a specific carrier. The additionally required items may be arming and firing systems, power supply, hardware, adapters, etc.; but owing to variations in warhead design, certain of these items might be a part of the warhead proper. A warhead installation is essentially a warhead section minus the appropriate skin section or compartment.

**warhead, rocket, chemical agent.** Rocket warhead loaded with, or designed for loading with, chemical agents. An example with item name is given below.

**WARHEAD, 4.5 INCH ROCKET, CHEMICAL AGENT.**

**warhead, rocket, dummy.** See: **DUMMY WARHEAD, ROCKET.**

**warhead, rocket, empty.** Rocket warhead without explosive filler, for practice firing. An example with item name is given below.

**WARHEAD, 3.5 INCH ROCKET, EMPTY.**

**warhead, rocket, flash-smoke.** Rocket warhead intended to produce flash and smoke upon functioning. An example with item name is given below.
**WARHEAD, 762 MILLIMETER ROCKET, FLASH-SMOKE.**

**warhead, rocket, gas.** See: **warhead, rocket, chemical agent.**

**warhead, rocket, high explosive.** Rocket warhead loaded with, or intended for loading with, high explosives. An example with item name is given below.
**WARHEAD, 66 MILLIMETER ROCKET, HIGH EXPLOSIVE.**

**warhead, rocket, inert.** Rocket warhead with inert filler for use in practice firing. An example with item name is given below.
**WARHEAD, 762 MILLIMETER ROCKET, INERT.**

**warhead, rocket, smoke.** Rocket warhead loaded with, or designed for loading with a smoke producing filler. An example with item name is given below.
**WARHEAD, 3.5 INCH ROCKET, SMOKE.**

**warhead section.** A portion of the aerodynamic configuration of a complete guided missile, rocket, or the like. It must contain a WARHEAD (as modified). It may contain an adaptation kit and the necessary bracket(s), cable(s), mounting hardware, and the like required to mount the warhead. Examples are given below with item name in each case.
**WARHEAD SECTION, 318 MILLIMETER ROCKET, HIGH EXPLOSIVE.**
**WARHEAD SECTION, 762 MILLIMETER ROCKET, CHEMICAL AGENT.**
**WARHEAD SECTION, 762 MILLIMETER ROCKET, EMPTY.**
**WARHEAD SECTION, 762 MILLIMETER ROCKET, FLASH-SMOKE.**
**WARHEAD SECTION, 762 MILLIMETER ROCKET, FRAGMENTATION.**

**WARHEAD, TORPEDO.** An item designed to contain an explosive charge and a means of detonation for attachment to a TORPEDO MAIN ASSEMBLAGE. When empty or inert loaded it may be used for training purposes.*

**warhead, torpedo, exercise.** See: **EXERCISE HEAD, TORPEDO.**

**war potential.** The capacity and capability of a country to conduct a war, with respect to political, economic, industrial, social, psychological, and military factors.

**war reserves.** That quantity of supplies, materiel, and equipment prescribed at the Headquarters, Department of the Army level which is retained for use in the event of mobilization for war.

**wash.** 1. The surge of disturbed air or other fluid resulting from the passage of something through the fluid; *specif.*, a surge of air and other gas that moves backwards and to the sides after an aircraft has passed. 2. The stream of air or other fluid sent backwards by a jet engine or a propeller.

**washboard course.** A test course for military vehicles consisting of a series of waves or convolutions having arbitrary amplitude and frequency. A common type is the so-called sine-wave course. The purpose of this course is to measure flexibility of suspension systems under extreme conditions and the strength and resistance of bodies and frames against distortion.

**WASHER, MOTOR VEHICLE.** A washer used to project streams of water or detergent solutions for cleaning motor vehicle exteriors.*

**WASHER, SOLUBLE, UNDERWATER MINE.** An item formulated of chemical ingredients molded into a prescribed shape. When dissolved it permits mechanical movement of the mechanism in which it is used.*

**WASHER, SPRING TENSION.** A piece of thin spring metal usually round in shape, with a centrally located hole, which will exert pressure axially when assembled in place.* Popularly known as Belleville spring.

**Wasserfall.** [From a German code name.] A German surface-to-air guided rocket missile of WW II. The Wasserfall used a liquid propellant. (*Historical*)

**water chest.** Box containing water for a water-cooled machine gun; water box.

**water displacement method.** A method of loading chemical munitions with white phosphorous in which the item is filled with water and the molten phosphorous is introduced below the water level, causing displacement of most of the water. The water prevents oxidation of the white phosphorous.

**water jacket.** 1. *General.* Casing designed to hold water for cooling, built around a device or mechanism that becomes heated in operation. 2. The casing about the barrel of a water-cooled machine gun. 3. The water space around the cylinders of an internal combustion engine.

**WATERPROOFING KIT, VEHICLE.** A collection of items designed to prevent water from entering functioning parts on vehicles when operating on beaches and crossing streams.*

**Watertown Arsenal.** (WA) Ordnance Corps installation, forming a part of the Ordnance Weapons Command, located at Watertown, Massachusetts. Principal development and manufacturing installation for antiaircraft artillery weapons and heavy field artillery towed weapons, except cannon and fire control. It also has special mission assignments in connection with ferrous and titanium metallurgy and materials research. Location of the Ordnance Materials Research Office (OMRO).

**water tunnel.** A device similar to a wind tunnel, but using water as the working fluid instead of air or other gas.

**Watervliet Arsenal.** (WVT) Field installation of the Ordnance Corps, located at Watervliet, New York. Engaged in the development and procurement, and associated activities, of Ordnance materiel classified as cannon.

**wave.** A swell on the surface of a liquid; anything likened to this. Applied to: **a.** A mass of air particles of relatively narrow compass having more or less like characteristics throughout, that moves as a line or front across space. **b.** A line of discontinuity in an airflow, esp. under conditions of compressibility, along which changes in pressure, velocity, temperature, density, and entropy occur, as in a **shock wave** (which see). **c.** An electric or

electromagnetic pulse. d. Any one of a succession of aircraft formations that move across, or against, a target or other point.

**wave, expansive.** An oblique wave or zone set up in supersonic flow when the change in direction of the air flow is such that the air tends to leave the new surface, such as flow around the juncture of a cone and a cylinder. This condition is called flow around a corner. The air on passing through an expansive wave or zone has lower density, static pressure, and free-stream temperature and has higher velocity and mach number.

**wave front.** *Optics.* A surface normal (at right angles) to a bundle of rays as they proceed from a source. The wave front passes through those parts of the waves which are in the same phase and go in the same direction. For parallel rays, the wave front is a plane; for rays diverging from or converging toward a point, the wave front is spherical.

**WAVEGUIDE.** An item consisting of a hollow tube of conductive material having a predetermined cross section specifically designed to guide or conduct high frequency electromagnetic energy through its interior. Does not include coaxial cable. Refers to bulk quantities only.*

**WAVEGUIDE ASSEMBLY.** An item consisting of one or more definite lengths of straight or formed, flexible or rigid, prefabricated hollow tubing of conductive material. The tubing has a predetermined cross section and is designed to guide or conduct high frequency electromagnetic energy through its interior. One or more ends are terminated.*

**wave length.** The distance traveled in one period or cycle by a periodic disturbance. It is the distance between corresponding phases of two consecutive waves of a wave train. A wave length is the quotient of velocity divided by frequency.

**WAVEMETER.** A device operating on the "absorption" principle, used to measure the wavelength or frequency of radiated electromagnetic waves, or to calibrate electronic devices which produce and/or radiate electromagnetic waves.*

**wave shaper.** Pertaining to explosives, an insert or core of inert material or of explosives having different detonation rates, used for changing the shape of the detonation wave. See also: **barrier material; lens.**

**waves, standing.** Also called stationary waves. The wave-like distribution of potential along a conductor, when electric waves are reflected from the end of the conductor to form stationary nodes and loops; a condition of equilibrium, or zero motion, at certain lines, points, or surfaces, called nodes, with regions of vibration between, produced by interference between similar wave trains traveling in opposite directions.

**waves, stationary.** See. **waves, standing.**

**WB** *(abbr).* 'Wheelbase.'

**WD** *(abbr).* 'War department.' (Historical)

**weapon.** (wpn) An instrument of combat, either offensive or defensive, used to destroy, injure, defeat, or threaten an enemy, e.g., a gun, a bayonet, a bomb, or a missile.

**weapon of mass destruction.** Nuclear, bacteriological, or other weapon capable of causing widespread death or destruction.

**weapon record book.** Record book used to keep data on the performance, maintenance, and inspection of a gun or other weapon.

**weapons carrier.** Also called 'weapons carrier truck.' See: **TRUCK, PLATFORM, UTILITY.**

**weapons system.** Two or more instruments of combat operating as a single unit of striking power in military combat. Specifically, a system in which two instruments of combat are required to perform a single mission. Weapons systems is the plural form.

**weapon system.** An instrument of combat with all related equipment, operating skills, and the direct supporting facilities and services required to enable the instrument of combat to operate as a single unit of striking power. *Note:* Singular spelling of weapon' and 'system.' Weapon systems is the plural form.

**weapon system manager.** In **Ordnance weapon system management** (which see), the ordnance officer to whom the Chief of Ordnance, U. S. Army, delegates the responsibility for coordination to provide a complete Ordnance weapon system.

**wear gage.** See: **gage, wear.**

**wear tables.** Tables indicating the decrease of muzzle velocity expected as the result of firing a certain number of equivalent rounds. Although tubes may vary considerably from the wear rate indicated in such tables, the tables may be used to correct calibration data between periods of calibration.

**Weasel.** A popular name for the cargo carrying tracked amphibious vehicle of WW II. See: **CARRIER, CARGO, AMPHIBIOUS.**

**weathercock stability.** See: **stability, arrow.**

**weather code.** A code for the transmission of weather information.

**web.** In a grain of propellant, the minimum thickness of the grain between any two adjacent surfaces is called the 'web' or the 'web thickness.' In a cord the diameter is the web, and in a single perforated grain there is but one web; but a multiperforated grain has an 'inner web' and an 'outer web.' The mean of these values is known as the 'average web.' In designs of solid or single perforated grains the propellant is entirely consumed when the web is burned through. In multiperforated grains this is not true, as 'slivers' are formed at this stage which then burn to completion.

**web range.** Range of webs prescribed for a propellant, taking into consideration manufacturing limitations. See: **web.**

**web thickness.** See: **web.**

**wedge.** *Optics.* A PRISM, OPTICAL INSTRUMENT with plane inclined surfaces. Usually the faces are inclined toward one another at very small angles. Wedges divert light toward their thicker portions. They may be circular, oblong, or square. See: **correction wedge; measuring wedge.**

**wedge charge.** See: **charge, wedge.**

**WEIGHT, ANCHOR, UNDERWATER MINE.** A weight which may be added to the underwater mine

anchor, when tidal or other conditions make its use advisable.

**WEIGHT, CASE, UNDERWATER MINE.** A weight which may be added to the underwater mine case, when conditions of planting require it.

**WEIGHT, TRIM, TORPEDO.** A metallic item specifically designed to replace the secondary battery to maintain the original center of gravity of a torpedo.*

**WEIGHT, WHEEL BALANCING.** A metal item designed to dynamically and statically balance the pneumatic tired wheels of a vehicle. The weight is usually attached to the rim by means of an integral spring steel clip.*

**weight zone.** A weight range having specified minimum and maximum weights. Artillery projectiles of 75-millimeter caliber and larger are sometimes grouped into weight zones and marked with appropriate symbols. The selection of projectiles of a single weight zone for a specific firing problem results in improved ballistic uniformity.

**WELDING MACHINE, ARC.** A group of end items and/or parts required to perform single or multiwelding and/or cutting operations, by a nonpressure (fusion) electric arc process.*

**WELDING MACHINE, RESISTANCE.** A group of end items and/or parts required to perform a pressure welding process for joining metal parts by electrical heat. It may include such parts as foot switches, transformers, mechanical and electronic heat controls, water and air cooling systems, electrode or tip holders, excluding electrodes and tips. It may have air and/or mechanically operated clamps, rocker arms or presses, and may be manually, semiautomatic or fully automatic controlled.*

**WELDING SHOP, CARGO TRAILER MOUNTED.** A group of items consisting of a WELDING MACHINE, ARC, electrodes, electric sander, machinist's vise, and the like, mounted in a TRAILER, CARGO. The complete unit provides a mobile general purpose welding outfit.*

**Welin breechblock.** See: **breechblock, stepped-thread (Welin).**

**West Virginia Ordnance Works.** Ordnance Corps field installation, located at Point Pleasant, West Virginia. Official symbol: ORDBV.

**wet engine.** An engine with its oil, liquid coolant (if any), and trapped fuel inside. Cf: **dry weight of an engine.**

**wet stowage.** Method of stowing major caliber ammunition in combat vehicles by placing it in racks surrounded by nonflammable liquid, to reduce ammunition fire hazards.

**wetted surface.** In aerodynamics, that surface of a body which comes into contact with the fluid through which the body is moving.

**WFNA** *(abbr).* 'White fuming nitric acid.'

**wheelbase.** (WB) Distance between the center of the hubs of the front and rear wheels. In vehicles equipped with bogie axles, the distance between the center of the hubs of the front wheels and a vertical line equidistant from the centers of the hubs of the center and rear wheels.

**wheeled vehicle.** Vehicle mounted on wheels as opposed to a full or partial track-laying vehicle.

**WHEEL, PNEUMATIC TIRE.** A wheel with an integral or removable rim designed to mount a pneumatic tire. Includes wheel without rims but designed to accommodate pneumatic tire rims. Does not include tire.*

**WHEEL, SOLID RUBBER TIRE.** A wheel with an integral or removable rim having or designed to mount a TIRE, SOLID RUBBER.*

**whistling.** Indicates, in nomenclature of a SIMULATOR, BOOBY TRAP, that munition emits a whistling sound in addition to a flash and report.

**white bag charge.** See: **charge, green bag.**

**white labeled cargo.** See: **labeled cargo.**

**white light.** *Optics.* Light, such as sunlight and daylight, which is composed of all the different wave lengths of the spectrum.

**white phosphorus.** (WP) See: **CHEMICAL AGENT, WHITE PHOSPHORUS.**

**white phosphorus grenade.** See: **grenade, white phosphorus.**

**White Sands Missile Range.** (WSMR) Formerly 'White Sands Proving Ground.' Field installation of the Ordnance Corps. Post Office address Las Cruces, New Mexico. Principal Ordnance Corps installation for the execution of all technical and engineering responsibilities associated with the flight testing of guided missiles, rockets, and other munitions, as assigned, for determination of engineering and flight characteristics and acceptability. WSMR operates as an agency under the U. S. Army Ordnance Missile Command.

**white star, cluster.** Indicates, in the nomenclature of a SIGNAL, ILLUMINATION, GROUND, a cluster of several freely falling white stars (lights).

**white star, parachute.** Indicates, in the nomenclature of a SIGNAL, ILLUMINATION, GROUND, a white star (light), parachute supported.

**WI** *(abbr).* 'Wrought iron.'

**width of sheaf.** Lateral interval between flank bursts or impacts.

**wild shot.** Shot which is completely out of the normal pattern of dispersion; shot whose impact is more than four probable errors, and more than six firing table probable errors from the center of impact.

**WINCH, DRUM, VEHICLE MOUNTING.** A drum winch designed to be mounted on a self-propelled motor vehicle and driven from a power take-off connected to the vehicle power train.*

**windage.** 1. The deflection of a bullet or other projectile due to wind. 2. The correction made for such deflection.

**windage jump.** In aerial gunnery, the deflection of a projectile due to **windage yaw** (which see). The crosswind force, acting on the side of the projectile, deflects it downward if it is fired to starboard, and upward, to port.

**windage scale.** Scale for adjusting a sight to allow for the effect of the wind on a bullet in flight. Also called 'wind gage.'

**windage yaw.** In aerial gunnery, the yaw produced by the relative motion of the gun and the air. The tangent of the windage yaw is the crosswind—or the component of the airspeed perpendicular to the

axis of the bore—divided by the muzzle velocity (the initial velocity relative to the gun).

**wind, ballistic.** See: **ballistic wind.**

**windchill.** The combined cooling effect of the wind and air temperature on heated bodies. The windchill is expressed in kilogram calories per square meter per hour.

**wind component indicator.** See: **indicator, wind component.**

**wind correction.** Any adjustment which must be made to allow for the effect of wind; especially, the adjustments to correct for the effect on a projectile in flight, on sound received by sound ranging instruments, and on an aircraft flown by dead reckoning navigation.

**WIND CORRECTOR, SOUND RANGING.** A device used to determine the changes in time differences between microphone stations due to the direction and velocity of the wind. It is used in conjunction with a PLOTTING BOARD, SOUND RANGING, FIRE CONTROL.*

**wind deflection.** Deflection caused by the influence of wind on the course of a projectile in flight.

**wind direction.** The direction from which the wind is blowing, expressed in azimuth.

**wind drift.** 1. Shift in the apparent position of a sound source or target observed by sound apparatus. Wind drift is caused by the effect of wind on sound waves which changes their direction and increases or decreases sound lag. 2. Amount of drift experienced by parachutists and supplies dropped by parachute.

**wind-fire angle.** The horizontal angle measured clockwise from the plane of fire to the direction from which the ballistic wind is blowing. Wind-fire angle is obtained by subtracting the azimuth of the plane of fire from the wind azimuth.

**wind gage.** See: **windage scale.**

**wind gage rule.** Simple practical rule used to allow for wind in firing the M1 or M1903 rifle. The rule is: four clicks, or one point of windage, moves the impact of the bullet four inches for each 100 yards of range.

**window.** A type of confusion reflector, consisting essentially of metal foil ribbon, but sometimes metalized only on one side. Also known as 'chaff.' Similar to, but shorter in length than 'rope.' May be dropped from planes or shot into the air in projectiles. Original use of the word 'window' appears to have been strictly a matter of code. Used as a radar countermeasure. See also: **CHAFF, COUNTERMEASURES; rope; window projectile.**

**window dispenser.** See: **DISPENSER, COUNTERMEASURES CHAFF.**

**WINDOW, OPTICAL INSTRUMENT.** A color free item of transparent or translucent material, usually optical glass, having specific light dispersive and refractive properties. This item must have two plane-parallel surfaces and is designed for use in an optical instrument to provide a barrier to foreign matter and/or permit light transmission in or to the optical system.* See also: **correction windows.**

**window projectile.** Special projectile containing 'window,' 'chaff,' or 'rope,' which is ejected in the air to confuse enemy radar. See also: **CHAFF COUNTERMEASURES; rope; window.**

**wind, relative.** The velocity of the air with reference to a body in it. It is usually determined from measurements made at such a distance from the body that the disturbing effect of the body upon the air is negligible.

**wind resolving mechanism.** Device similar to a wind component indicator, which is mounted on a deflection board or is part of a computer. It mechanically determines the range and deflection components of the ballistic wind.

**windshield.** See: **ogive, false; WINDSHIELD ASSEMBLY, FLAT, VEHICULAR.**

**WINDSHIELD ASSEMBLY, FLAT, VEHICULAR.** An item, consisting of a metal frame and section(s) of transparent material, designed for mounting in the front section of a vehicle to protect personnel from foreign matter, and to allow visibility. Excludes GLASS, LAMINATED, FLAT.*

**wind tunnel.** A chamber through which air is forced at controlled velocities, up to several thousand miles an hour, and in which airfoils, missiles, airplanes, scale models, or other objects are mounted in order to observe and study the airflow about such objects, as well as the aerodynamic effects upon them.

**wind velocity.** 1. The speed and direction in which a wind blows. 2. Wind speed. See: **Beaufort's scale.**

**wing.** (wg) 1. A general term applied to a major airfoil. 2. An airfoil on either side of an airplane's fuselage or cockpit, paired off by one on the other side, the two providing the principal lift for the airplane. 3. A rotor blade in a rotary-wing aircraft. 4. Either of the two airfoils or supporting surfaces attached to certain missiles or bombs, giving lift or giving support for gliding.

**WING ASSEMBLY, GUIDED MISSILE.** An aeronautical structure designed to maintain a guided missile in stable flight. It consists of all panels, sections, fastening devices, chords, spars, plumbing accessories and electrical components necessary for a complete wing assembly. May include control surfaces. Excludes wing panel and wing section.*

**winged missile.** A missile that has wings. Distinguished from wingless missiles, such as bullets, projectiles, certain rockets, etc.

**wing, equivalent.** In stress analysis, a wing of the same span as the actual wing, but with the chord at each section reduced in proportion to the ratio of the average beam load at that section to the average beam load at the section taken as the standard.

**wing gun.** A fixed gun mounted in the wing of an airplane.

**wing loading.** See: **loading, wing.**

**wing mean chord.** See: **chord, mean, of a wing.**

**wing panel.** *Aeronautical.* That portion of a multipiece wing section that usually lies between the front and rear spars. It may be designed to include either the leading edge or the trailing edge as an integral part, but never both, and excludes control surfaces. It never forms a complete chord of the wing.*

**wing profile.** The outline of a wing section.

**wing rib.** A chordwise member of the wing structure of an airplane, used to give the wing section its form and to transmit the load from the fabric to the spars. See: **rib.**

**wing section.** *Aeronautical.* A portion of a multipiece wing complete in a chordwise direction, excluding control surfaces.*

**wing-tip rake.** A term referring to the shape of the wing when the tip edge is straight in plan but not parallel to the plane of symmetry. The amount of rake is measured by the acute angle between the straight portion of the wing tip and the plane of symmetry. The rake is positive when the trailing edge is longer than the leading edge.

**winterisation.** The process of converting equipment, esp. by changes in accessories, instruments, or special installations, for use in cold or very cold weather, as in the arctic.

**WINTERIZATION KIT, VEHICLE.** A group of items used to prepare a vehicle for efficient operation during cold weather. It contains one or more heater(s) and necessary parts to insulate and/or inclose all or a portion of the engine compartment and/or cab and/or body.*

**WIRE, ARMING.** Wire of a size and type suitable for use in an ARMING WIRE ASSEMBLY.

**WIRE, SOUND RECORDING.** A flexible wire specifically designed to be used to record sonic variations thereon by magnetic means.*

**wire-wrapped.** Term applied to guns manufactured by wrapping wire under tension on a central tube. The wire puts the metal of the tube under compression. An outer cylinder or jacket is generally shrunk on over the wire. This method of manufacture was formerly used on many major caliber guns as it made possible a savings in weight.

**WIRING ACCESSORY KIT, ANTIPERSONNEL MINE.** A group of items consisting essentially of a six-pocket fabric carrying bag with shoulder strap, lead extensions, and a circuit tester. The lead extensions are designed to be coupled to the firing lead of the initiating element of an antipersonnel mine. The circuit tester is used to test the continuity of the firing circuit.*

**witness plate.** In the testing of antiarmor ammunition or armor plate, a plate placed behind target, usually spaced from the target to allow assessment of **beyond armor damage** (which see).

**Wizard.** Name applied to Air Force design for surface-to-air interceptor missile.

**w/o** *(abbr).* 'Without.'

**wobbulator.** A device, usually mechanical, used to frequency-modulate an oscillator for test purposes. A small trimmer capacitor rotating at constant velocity across the frequency-determining network of the oscillator is an example.

**word.** *Electronic computers.* An ordered set of characters having a meaning and considered as a unit. Digital computers commonly use a fixed word length (that is, a fixed number of characters) which is a characteristic of each computer.

**wound ballistics.** That portion of terminal ballistics specializing in the effect of bullets and fragments in wounding personnel, and in the factors producing disabling injuries. See: **casualty criteria.**

**WP** *(abbr).* Chemical agent, 'white phosphorus' (smoke).

**wpn** *(abbr).* 'Weapon.'

**WRENCH, ANTIPERSONNEL MINE SAFETY CLIP.** A nonadjustable wrench, specifically designed to position and/or remove the safety clip of an antipersonnel mine.*

**WRENCH, TORQUE.** A device designed to establish, by gage, dial or presetting, the torque in inch pounds, foot pounds, and the like, applied to a bolt, nut or the like, through the drive end.*

**Wright Air Development Center.** (WADC) Air Force center responsible for technical developments concerning aircraft and missile components. Located at Wright-Patterson AFB, Ohio.

**write.** *Electronic computers.* To introduce information, usually into some form of storage.

**WSEG** *(abbr).* 'Weapons Systems Evaluation Group.'

**WSMR** *(abbr).* 'White Sands Missile Range.'

**WVT** *(abbr).* 'Watervliet Arsenal.'

**WW I** *(abbr).* 'World War I.'

**WW II** *(abbr).* 'World War II.'

# X

**X** *(abbr)*. In such usage as XM19, designates an experimental type item. When the item is standardized, the 'X' is dropped. The use of 'X' and 'M' together as a prefix supersedes previous Ordnance Corps practice of designating experimental or test models by the single prefix 'T.' See also: **A**; **B**; **E**; **M**; **T**.

**X-axis.** 1. Horizontal axis in a system of rectangular coordinates; that line on which distances to the right or left (east or west) of a reference line are marked, especially on a map, chart, or graph. 2. Horizontal line imagined to pass through the target at right angles to the line connecting gun and target.

**X-engine.** An in-line engine with the cylinder banks so arranged around the crankshaft that they resemble the letter 'X' when the engine is viewed from the end.

**xyl'idine.** Any of certain isomeric hydrocarbon compounds having the formula $C_6H_3(CH_3)_2NH_2$, used esp. in fuels.

**XLWB** *(abbr)*. 'Extra-long wheelbase.'

**xpl** *(abbr)*. 'Explosive.'

# Y

**yaw.** 1. The angle between the direction of motion of a projectile and the axis of the projectile, referred to either as 'yaw,' or more completely, 'angle of yaw.' The angle of yaw usually varies periodically, but the mean yaw increases with time of flight in an unstable projectile and decreases to a constant value, called the 'yaw of repose,' or the 'repose angle of yaw,' in a stable projectile. See also: **stability factor.** 2. Angular displacement about an axis parallel to the normal axis of an aircraft, guided missile or the like.

**yaw acceleration.** See: **acceleration, yaw.**

**yaw damper.** A control system or device that reduces the yaw of an aircraft, guided missile, or the like.

**yaw in bore.** The maximum angle between the axis of the bore of a gun and the axis of the projectile which can occur due to the clearance between the bore diameter and the bourrelets. Cf: **balloting.**

**yaw of repose.** See: **yaw.**

**Y-axis.** 1. Vertical axis in a system of rectangular coordinates; that line on which distances above or below (north or south) of a reference line are marked, especially on a map, chart, or graph. 2. Line imagined to pass from the gun through the target, perpendicular to the imaginary horizontal X-axis which crosses it at that point.

**Y-azimuth.** Clockwise angle from grid north, to a given direction. Often called 'grid azimuth.'

**yellow.** Indicates, in the nomenclature of a SIGNAL, SMOKE, GROUND, several smoke pellets which produce freely falling streamers of yellow smoke at the height of the trajectory.

**yellow labeled cargo.** See: **labeled cargo.**

**yellow tracer.** Indicates, in the nomenclature of a SIGNAL, ILLUMINATION, AIRCRAFT, a yellow tracer light, followed by freely falling stars (lights) of indicated colors.

**Y-gun.** Two-barreled, antisubmarine gun, shaped like the letter Y, used to throw depth charges to either side of the stern of the vessel on which the gun is mounted.

**yield.** The amount of *total energy* release of blast, thermal radiation, and nuclear radiation of a nuclear detonation, measured or expressed in kilotons or megatons, terms which indicate the amount of TNT that would produce a detonation of the same *total energy*. See: **kiloton; megaton.**

**YOKE, UNIVERSAL JOINT.** A component of a UNIVERSAL JOINT which is designed to accommodate or include a spider, block and/or pi (s) of a UNIVERSAL JOINT. The opposite end must have either a flange, hub or splined stub shaft which is designed to be attached to a driving or driven member. For items with a shaft, the length from the end of the shaft to the center of the cross pin, block, or spider bearing the accommodations shall not exceed twice the length of the splines. See also: **PROPELLER SHAFT.***

**YP** *(abbr)*. 'Yield point.'

**YS** *(abbr)*. 'Yield strength.'

**Yuma Test Station.** A class I Army installation located near Yuma, Arizona, which is available to the technical services for the purpose of conducting hot weather, desert, and other type development and engineering tests of Army materiel and equipment.

# Z

**Z.** 1. *(abbr).* 'Zone.' 2. *(code)* 'Greenwich civil time.'

**Z-axis.** Theoretical vertical reference projection established at the launching site perpendicular to the X- and Y-axes.

**zenith.** The point in the celestial sphere directly overhead.

**zenith distance.** In celestial navigation, the shorter angular distance of a celestial body from the zenith measured along the vertical circle that passes through the body. Also called 'co-altitude.'

This is equivalent to the angular distance between the observer and the subpoint of the body, and may be expressed in nautical miles. When so expressed, it is not called 'co-altitude.'

**zero.** 1. *Electronic computers.* Nothing; positive binary zero is usually indicated by the absence of digits or pulses in a word; negative binary zero in a computer operating on one's complements by a pulse in every pulse position in a word; in a coded decimal machine, decimal zero and binary zero may not have the same representation. In most computers, there exist distinct and valid representation both for plus and for minus zero. 2. Sight setting for both elevation and windage for any particular range which will cause the bullet to strike the center of the target on a normal day under favorable light conditions with no wind blowing. 3. Adjust any instrument or apparatus to a zero point or to an arbitrary reading from which all other readings are to be measured.

**zero deflection.** Adjustment of a sight exactly parallel to the axis of the bore of the gun to which it is attached.

**zero height of burst.** Condition obtained when rounds fired with the same fuze setting and the same quadrant elevation result in an equal number of airs and grazes.

**zero in.** 1. To adjust the sight settings of a weapon by calibrated results of firings. 2. To adjust any device to another so that automatic synchronization results.

**zero length.** Term applied to such items as rocket launchers and rocket suspension bands to indicate that the item is designed to hold the rocket in position for launching but not to give it guidance. See: BAND, SUSPENSION, ROCKET; LAUNCHER, ZERO LENGTH, GUIDED MISSILE.

**zero-lift angle.** See: angle, zero-lift.

**zero point.** The location of the center of a burst of an atomic missile at the instant of detonation. The zero point may be in the air, or on or beneath the surface of land or water, dependent upon the type of burst, and it is thus to be distinguished from ground zero.

**zero twist.** See: twist, zero.

**ZI** *(abbr).* 'Zone of interior.'

**zip fuel.** Popular term for fuel, high energy, which see.

**Za** *(code).* 'True azimuth.'

**zone.** (Z) 1. Any tactical area of importance, generally parallel to the front, such as a fortified area, a defensive position, a combat zone, traffic control zone, etc. 2. Area in which projectiles will fall when a given propelling charge is used and the elevation is varied between the minimum and the maximum. Use of the term is generally limited to howitzer and mortar firings. 3. An altitude zone is that part of the atmosphere that lies between two specified altitudes, referred to by a code number, within which a particular line of the meteorological message is applicable.

**zone charge.** The number of increments of propellant in a propellant charge of semifixed rounds, corresponding to the intended zone of fire; e.g., zone charge 5 consists of 5 increments of propellant. See also: increment.

**zone fire.** Artillery or mortar fire that is designed to cover an area in which a target is situated.

**zone of dispersion.** Area over which shots scatter when fired with the same setting.

**zone of interior.** (ZI) 1. That part of a national territory held intact against the enemy, in which the main manpower, weapons, and equipment are generated for use of the armed forces. 2. By inference, the continental United States.

**zone, weight.** See: weight zone.

**Zuni.** General purpose rocket, for air-to-air and air-to-ground combat. A 5-inch, folding-fin, solid-propellant rocket developed by the Navy.

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# APPENDIX

## SUPPLEMENTARY TERMS

ACCOUNTABILITY. Accountability is the obligation of an individual, officially designated with respect to a specified activity, to maintain records of item balances and/or dollar values in accordance with a prescribed system showing authorized debits, credits, and available balances on hand or in use by such activity.

ACCOUNT CODE. A numerical designation assigned to each account for the purpose of segregating status of stock by broad purposes or intended use.

ACTUATOR. A device which initiates or controls the operation of a mechanism. The term implies an intermittent duty cycle for the mechanism.

ADMINISTRATIVE SUPPORT EQUIPMENT. Equipment not essential to the performance of assigned operational missions and tasks. Included are administrative and habitability equipment, such as office machines, drinking fountains, laundries, and movie projectors.

ADVICE CODE. An alphabetic/numeric code used to transmit instruction considered by the creators or requisitions to be essential to the desired supply action. Insertion of an advice code is at the discretion of the requisitioner. Advice codes are opposite to status codes in that directional flow is reversed.

AEROBALLISTICS. A term derived from *aerodynamics* and *ballistics* and dealing primarily with the motion of bodies, such as guided missiles or rockets, whose path is determined by applying the principles of both sciences, though often to different portions of the path.

AERODYNAMICS. That branch of fluid dynamics concerned with the motion of the air and other gaseous fluids and with the forces acting on solids immersed in such fluids.

AIR BURST. The explosion of a nuclear weapon in the air, above land or water, at a height greater than the maximum radius of the fireball.

AIR JET NOZZLE. A nozzle producing a jet of gas, namely air, commonly used to maintain attitude and guidance control of a missile during the spatial portion of flight. Also used to spin stabilize reentry bodies.

AMMUNITION INSPECTOR. An individual with the knowledge of the characteristics and limitations of the various types of ammunition who is specially trained in the care, handling, storage, maintenance, and renovation of ammunition. At an ordnance establishment the ammunition inspector in charge is assigned as chief of the surveillance division and is directly responsible to, and reports to, the commanding officer on all assigned responsibilities.

AMMUNITION MAINTENANCE. Does not involve the disassembly of ammunition or replacement of components, but that work performed to prevent deterioration of exterior surfaces in individual items or packages of ammunition components. Typical examples are derusting, spot painting, and processing bomb fuze cavities.

AMMUNITION MODIFICATION. The alteration of ammunition or missile items as a result of engineering changes, such as the replacement of components which does not involve the extensive facilities and equipment required for renovation. Typical examples are refuzing, deep drilling, and replacement of cartridge cases.

AMMUNITION OFFICER. Normally designated by the ordnance officer of the command. As such, he performs tasks which assist in providing adequate staff supervision of ammunition activities.

AMMUNITION TRAIN. An organization consisting of personnel and vehicles for transporting ammunition. It is synonymous with the term "truck convoy" if vehicles are loaded with ammunition.

APPARENT PRECESSION. The relative angular movement of the spinning axis of a gyroscope in relation to a line on the earth, resulting from the rotation of the earth and the property of the gyroscope to maintain its spinning axis in the same direction in space.

AREA SUPPLY SUPPORT ACTIVITY. A supply distribution activity assigned responsibility for the storage and distribution of supplies for a given geographical area.

AUDIT PACKAGE. A package containing standards and reports which are forwarded to a standards facility where calibration is performed. The completed report of this calibration (environmental conditions, techniques, etc.) is transmitted with the standard, or standards, to the point of origin for evaluation.

AVAILABILITY BALANCE CARD. An FAM card prepared for each condition reservation, installation identification, account, and stock number of an item containing identification such as item name, stock number, unit price, location, unit of measure, FIA category, and the quantitative information required such as requisitioning objective, on hand, due in, and due out.

BACK ORDER. That portion of stock requisitioned which is not immediately available for issue or delivery to the requisitioner and will be recorded as commitments for future issue.

BALLAST. A substance included in, or substituting for, the payload of a missile for the purpose of changing weight or load characteristics in order to preserve desirable aerodynamic characteristics.

BALLASTIC SHIELD. The cover through which the gun of an armored vehicle protrudes, which covers the opening in the turret for elevation and traversing.

BINDER. A material used in solid propellants to give mechanical strength to the grain.

BIT. Binary digit. A choice between two equiprobable events.

BLACK BOX. A term used loosely to refer to any subcomponent that is equipped with "connects" and "disconnects" so that it can be readily inserted or removed from a specified place in a larger system (e. g. complete missile) without benefit of knowledge of its detailed internal structure.

BREECHBLOCK. A movable steel block in the mechanism of a breech-loading *cannon* that *closes* the breech opening of the *tube* during firing.

BURNING RATE. For solid propellant fuels, the rate of burning is the linear measure (normal to the burning surface) of the propellant grain which is consumed in unit time, usually expressed in inches per second.

CALIBRATION CORRECTION CHART. A chart or graph prepared for specific test and measuring equipment to show the correction that must be applied to the indicated reading to obtain the actual value of the parameter being measured.

CALIBRATION FACILITY. That part or adjunct of an installation that provides calibration services.

CALIBRATION INTERVALS. The maximum permissible interval within which a test set or standard must be calibrated. Calibration intervals are specified in the calibration section of the applicable technical publication.

CALIBRATION LOOP. An operation wherein certified standards are transported to one or more locations for the purpose of certifying the accuracy of reference standards or test equipment, and are returned to their points of origin.

CAPITAL OR "OTHER" EQUIPMENT. Nonexpendable supplies on hand or in use at a fixed installation (post, arsenal, shop, proving ground, etc., as contrasted to being in the hands of troops in the field).

CAPITAL PROPERTY (FIXED ASSETS). Consists of real property, installed building equipment, and nonexpendable supplies (equipment) which meets criteria a and b below and/or is so designated in an Army supply manual.

a. Useful life of more than 1 year.
b. Value of $100.00 or more, per item.

CATALYST. A substance causing a reaction between two or more substances, itself remaining unchanged.

CENTERING SLOPE. A tapered portion near the forward end of a cannon tube chamber which passes the projectile and alines it with the bore.

CENTER OF GRAVITY (c.g.) a. In aerodynamics, a reference point at which static mechanical balance of the configuration occurs.
b. The balance point of an item. To be considered when lifting it.

CENTRIFUGAL FORCE. A radially outward force experienced by an observer in a reference frame that is rotating at an angular velocity with respect to an inertial frame.

CERTIFICATION. The action taken by a responsible calibration facility to attest to the accuracy of a calibrated item.

COLLIMATION. The process of adjusting an instrument (optical) or device so that its reference axis is alined in a desired direction with a predetermined tolerance.

COMBAT LOAD. Supplies and equipment prescribed to be taken into combat for a specific operation for a period of time during which resupply will not be available. The term may apply to a weapon, a vehicle, an individual, or an organization.

COMMENCEMENT OF RIFLING. That portion of the forcing cone where the lands reach maximum height.

COMMUNICATIONS NETWORK. A system consisting of a number of designated stations connected with one another by any means of communication.

COMPARISON CHECKING. That operation performed, using calibrated test and measuring equipment, to detect and/or adjust any variation in uncalibrated test and measuring equipment.

COMPUTER. A device which can accept information, and supply information, and in which the supplied output information is derived from the accepted input information by means of a process of logic; i.e., any systematic process of deviation which is demonstrably free from self-contradiction.

CONCENTRIC RECOIL MECHANISM. A hydrospring type recoil mechanism used in turret artillery in which the entire mechanism surrounds the cannon. See *hydrospring recoil mechanism.*

CONDITIONAL SUBSTITUTE ITEM. An item recommended to the requisitioner for issue in lieu of requisitioned item and which, in the judgment of the supplier, will serve the intended purpose for which the original item was requested.

CONDITION RESERVATION CODE (CRC). A one-digit code designating the physical condition of stock or the reservation of stock.

CONDITION RESERVATION CODE NO. 1. Serviceable—suitable for immediate unlimited use.

CONDITION RESERVATION CODE NO. 2. Suitable for immediate limited use. (Applies only to those items currently designated by the appropriate stock control point for limited purpose usage; i.e., tank track, limited to domestic issue.)

CONDITION RESERVATION CODE NO. 3. Suitable for use after minor processing or repair and/or addition of missing attachments of components. (Limited to those items which can be made serviceable through maintenance in storage funds.)

CONDITION RESERVATION CODE NO. 4. Serviceable — reserved for assembly. (Applies only to assembled sets and items or tools, accessories, and equipment being held for assembly and physically segregated in storage.)

CONDITION RESERVATION CODE NO. 5. Unclassified items which have been identified by stock number and item name but not examined for condition.

CONDITION RESERVATION CODE NO. 6. Unserviceable, economically reparable.

CONDITION RESERVATION CODE NO. 7. Unserviceable (economically reparable). An item in unserviceable condition, but economically reparable, which has been placed on program execution directive or scheduled for rebuild within the next 90 days.

CONDITION RESERVATION CODE NO. 8 Unserviceable, not economically reparable. (Prescribed for use in depot stock accounting only, not to be stock status reported.)

CONDITION RESERVATION CODE NO. 9. Items reserved for special reporting under specific direction of the Chief of Ordnance.

CONEX. A reusable shipping container designated to worldwide surface and water movement of suitable military supplies and equipment.

CONSUMPTION RATE. Consumption rate is the average quantity of an item expended or consumed during a given time interval, expressed in quantities per applicable basis. Typical basis of consumption rates are pounds per weapon per day, pounds per man per day, and quantities per 1,000 men per month.

CONVERTER. A device or part of a computer which changes the language of information from one form to another in order to make it available or acceptable to another machine or device.

COORDINATE. A coordinate is one of a set of numbers used to locate a point relative to a system of axes.

COORDINATE SYSTEM. A set or system of reference axes, commonly situated so that they are mutually perpendicular at a common point.

COUNTERBALANCE. A spring-loaded device which aids in opening and closing a breechblock while at its loading angle.

CREDITABLE RETURNS. Materiel returned by customers to stock fund inventory for which credit is required to be granted based upon the allowable value of materiel.

CREDIT BALANCE. A minus quantity reflected on the stock record for a specific item.

DAILY ACTIVITY RECORD. A listing prepared daily during the process of preparing new availability balance cards, indicating for each item the opening balance, the individual debits and credits to this balance identified by document number, and the closing balance.

DAY OF SUPPLY The ammunition day of supply is the estimated quantity of conventional ammunition required per day to sustain operations in an active theater. It is expressed in terms of rounds per weapon per day for ammunition items fired by weapons, and in terms of other units of measure for bulk allotment ammunition items. It is used by the Department of the Army, based on recommendations by theater commanders, in establishing theater ammunition stockage objectives and supply levels. The basis is applied to weapons authorized to be in the hands of all troops in the theater, beginning with their arrival in the theater. The ammunition day of supply includes the percentage of ammunition by types for both ordnance and chemical ammunition items. When the term "ammunition day of supply" is used to express either quantities on hand or ammunition available to support tactical operations, it must be qualified in terms of each type of weapon or item. For example, "10 days' supply for the 81-mm mortar; 6 days' supply for the 105-mm howitzer; 15 days' supply for all other weapons and items," rather than the general statement that 15 days' supply is available. The day of supply may vary in each theater to conform to experience, type operation, or plan. In a new theater, the Department of the Army ammunition day of supply as published in SB 38-26 will be used as a basis for initial stockage until such time as experience provides a firm basis for change. Theater commanders must make continuous studies of expenditures and recommend necessary changes, bearing in mind that increases in the day of supply may result in increases in production rates and may require additional manufacturing facilities. Normally, a time lag of 4 to 12 months occurs between recommendations and the resultant receipts in the theater. Decreases in the requirement must also be reported promptly to permit reduction in procurement rates and release of manpower and facilities to meet other requirements. The term "day of supply" does not apply to special ammunition.

DEMAND CODE. A mandatory entry made by the initiator of a requisition or a supply directive of a single alphabetic character to indicate, to the management element of a distribution system, whether the demand is recurring or nonrecurring.

DEPOT AUTHORIZED STOCKAGE LIST. A list of all items appearing on the current stockage lists of each Army post, camp, and station supported by the depot, plus those active items defined in paragraph 4,205 of ORDM 3-2.

DEPOT DEMAND STOCKAGE LIST. A list of all demand supported items included on authorized stockage lists of directly supported supply echelons, except those authorized for local acquisition by lower echelons, plus requisitioned items meeting the frequency criteria at the depot, of six demands (except special weapons for which the requirement is three demands) during the previous 360 days.

DEPOT SUPPORT. That support mission which provides the reserve of supply and supply potential which is required to insure an uninterrupted flow of supplies into the combat zone. This support mission is provided by fixed-type units operating in the COMMZ or the zone of interior.

DETAIL CARD. An EAM card used to record each individual transaction affecting the depot's stock accounting or reporting activities, providing a medium for mechanical posting of stock records and subsequent analysis of transactions.

DEW POINT. The temperature at which the actual content of water vapor in the atmosphere is sufficient to saturate the air with water vapor.

DIFFERENTIAL. A device which produces an output substantially in proportion to the rate of change of the inputs.

DIGITAL CONVERTER. A computer accessory which converts digital information to analog form.

DIGITIZE. To render an analog measurement of a physical variable into a numerical value, expressing the quantity in digital form.

DISPLACEMENT. A vector or a value representing the change in position of a missile relative to a plane of reference.

DISPOSAL. The act of getting rid of excess or surplus property under proper authority. Disposal may be accomplished by, but is not limited to, transfer, donation, sale, abandonment, or destruction but does not include redistribution.

DOCUMENT IDENTIFIER. A code (three digits) that identifies the basic type of administrative action, the specific subtype of supply transaction, and related modifying instructions. This code is used on each type of supply and movement documents within and between supply and distribution systems.

DOCUMENT NUMBER. A 14-digit number (nonduplicative) constructed so as to identify the military service, requisitioner, requisition date, and serial number.

DOMESTIC REQUISITION. A demand for supply placed on a designated technical service supply point within CONUS by CONUS organization or installation, or within an oversea command by an oversea organization or installation.

DRAG. A resistive force exerted in a direction opposite to the direction of motion and parallel to the relative airstream.

DRUM, MAGNETIC. A rotating cylinder on whose magnetic material coating, information is stored in the form of magnetized dipoles, the orientation or polarity of which is used to store binary information.

DUE IN. Quantity of materiel which has been placed on order but has not been received.

DUE OUT. Quantity of materiel which is desired by service organizations but for which no stock on hand exists.

DYNAMETER. An optical dynameter is a small telescope or magnifier equipped with a micrometer and used in the precise measurement of the exit pupil and eye distance of other optical instruments.

EARTH-FIXED REFERENCE. A system oriented at some point on the earth and maintaining its original position relative to the plane of the horizon. Also referred to as a system "slaved to the earth."

ELECTROMAGNETIC SPECTRUM. A chart or graph showing the relation of all known electromagnetic waveforms classified by wavelength. The visible light spectrum occupies an extremely minute portion of the electromagnetic spectrum.

EMERGENT RAY. In optics, the term applied to a ray of light leaving a dense medium as contrasted with the entering or incident ray.

ENCODER. A device for converting information available in analog form into a form suitable for processing by a digital computer.

ENTRANCE PUPIL. The real image formed by all lenses or optical elements preceding the eyepiece; also used as a term to denote the aperture of the objective.

EQUIVALENT FULL CHARGE (EFC). The primary round of ammunition for a particular cannon producing a bore wear factor of 1.00. All other rounds in that particular cannon are rated in wear according to that EFC round. Used to forecast tube wearout and new tube requirements. Formerly FSR (full service round).

ERROR SIGNAL RATIO. Changes in gains of error signals for a desired correction, considering, for example, changes in missile velocity, changes in the density of the medium through which movement occurs.

ETCHING. The marking of a surface by acid, acid fumes, or a tool. A process extensively used in the manufacture of reticles.

EXCEPTION DATA. Specific instructions for which no codes or combination of codes have been assigned. These instructions are written in the "Remarks" blocks of the requisition card. Identification to the supplier of exception data being shown on the requisition will be by the third digit of the document identifier code.

EXCESS PROPERTY. Excess property is property under control of a Federal agency which is not required for its needs and the discharge of its responsibilities. To be classified excess property, property of the Department of the Army, Navy, and Air Force must be determined to be excess by the heads of all three departments.

EXHAUST VELOCITY. The velocity at which a propelling fluid or gas is discharged from a thermal (rocket) engine.

EXPANSION RATIO. The ratio of the pressure at a point just outside the rear lip of an exhaust nozzle to the pressure in the combustion chamber.

EXPENDITURE. An expenditure is the consumption of ammunition by an organization. For purposes of record with certain exceptions (nuclear weapons and designated missile items) ammunition is considered as expanded when issued to the user. Special ammunition is considered expended when a delivery unit notifies a supporting ordnance special ammunition unit and the fire direction center of this fact.

FIA CATEGORY CODE. This code consists of five digits which identify the stock manager, the funding and current cataloging status, the supply classification group, and, as required, a subdivision of the Federal supply classification group for management purposes.

FIELD STORAGE UNIT (FSU). A group of ammunition stacks located a sufficient distance from adjacent FSU's to provide reasonable protection against the spread of fire, detonation, or contamination.

FILTER, BAND-PASS. An electrical network which passes a band of frequencies between two particular frequencies.

FLIGHT PATH. The path of the center of gravity of a missile, usually with reference to the earth.

FOCAL LENGTH. The distance from the principal focus (focus of parallel rays of light) to the surface of a mirror or the optical center of a lens.

FOCAL PLANE. A plane (through the focal point) perpendicular to the principal axis of a lens or mirror.

FOCAL POINT. The point to which rays of light converge or from which they diverge when they have been acted upon by a lens or mirror.

FOLLOWUP. A single line inquiry as to the action taken on a requisition previously submitted.

FOLLOWUP ANSWER. A reply to a requisitioner's followup or to a request for cancellation.

FORCE/ACTIVITY DESIGNATOR. A Roman numeral designating a unit, organization, or installation performing a function or mission; a body of troops, ships or aircraft, or a combination thereof; a function, mission, project, or program, including military assistance programs (MAP).

FORECAST OF AVAILABILITY. Forecast of availability is defined as an estimate made and forecast concerning availability of supplies for an ensuing period. Normally it is expressed in terms of an available supply rate which will be obtainable for this ensuing period.

FORMAL ACCOUNTABILITY. Refers to the obligation to maintain formal records. All property is subject to formal accountability unless specifically exempted by regulations or specific instructions of the Department of the Army.

FREE FLIGHT. The flight of a guided missile or rocket after thrust termination.

FRICTION. The resistance to relative movement of two surfaces in contact with one another.

FULL SERVICE ROUND (FSR). See EFC.

GHOST IMAGE. A hazy second image caused by reflection sometimes seen in observing through a telescope.

GIMBAL LOCK. The malfunction of a two-axis gyroscope in which the normally orthogonal gimbals become coincident in the same plane.

GRAVITY. The attraction of the earth on other particles or bodies, producing an acceleration of 32.17 feet per second on the surface of the earth.

GUIDED MISSILE. An unmanned vehicle moving above the earth's surface, whose trajectory or flight path is capable of being altered by a mechanism within the vehicle.

GYROSCOPE, NORTH-SEEKING. A gyroscopic instrument for indicating or establishing direction. Its operation is based on a self-nulling system whereby earth rotation is a rate input dependent upon the latitude of the instrument. It then tends to nullify this input by alining the spin axis, thereby establishing a direction.

GYROSCOPE PRECESSION. An effect manifested by a rotating rigid body when a torque is applied to it in such a direction that the orientation of the axis of rotation would change in the absence of angular momentum. The motion of the axis is at right angles to the direction of the torque, provided rotor speed and applied torque are constant.

HEAVY ROCKETS. Any rocket-type weapon, without guidance equipment, which is 318-mm in diameter or over.

HUMAN ENGINEERING. The art or science of designing, building, or equipping a guided missile system to the anthropometric, physiological, or psychological requirements of a person.

IDEAL BURNING. Burning of solid propellants so that the thrust and chamber pressure remain essentially constant throughout the burning time.

IGNITER. A device used to initiate combustion. More specifically, a device which initiates burning of a propellant in a rocket combustion chamber.

INACTIVE ITEM (NICP). Any item for which less than six valid demands (except special weapons items, where the requirement is three valid demands) have been placed on the entire depot system during the previous 360 days, irrespective of the quantity requested in each demand, and which has not been justified by the national maintenance point for stockage.

INDUCTIVE PICKUP. A device used to interpret motion as an electrical signal.

INERTIAL FRAME OF REFERENCE. A reference free from all space motion, providing a space-fixed zone for the absolute measurement for the events of mechanics.

INFORMAL ACCOUNTABILITY. Refers to the obligation to maintain informal records, other than a stock record account, for certain classes of property under conditions specified in regulations of specific instruction of the Department of the Army. Such records, as well as formal records, are subject to such examination by auditors or others as may be authorized or required by Department of the Army instruction.

INITIAL SOURCE OF SUPPLY. The point to which requisitions are sent by requisitioners for supply or approval and necessary action. This point may be a depot, national inventory control point, supply/stock control point, head of technical service, or procurement office.

INSTALLATION IDENTIFICATION CODE. A two-digit numerical number and/or a single alphabetic symbol that identifies an installation of the Ordnance supply system.

INSTALLED BUILDING EQUIPMENT. (Formerly installed personal property.) Those items of equipment and furnishings, including materials for installation thereof, which are required to make the facility usable and are affixed as a permanent part of the structure; these items will include plumbing fixtures and equipment; fixed heating, ventilating, cooling, air-conditioning, electrical, and fixed fire protection systems; elevators and escalators; overhead-crane runways; laboratory counters; cabinets and similar fixed equipment. Excluded are machine tools, production equipment, and their foundations.

INTEGRATING CIRCUIT. A circuit whose output waveform is the time integral of one or more input waveforms.

INTEGRATION. The process of finding a single function with respect to variable inputs.

INTERLOCK. A safety device which interrupts mechanical, electrical, or hydraulic circuits to prevent their operation until certain correct conditions exist.

INTERPUPILLARY DISTANCE. The distance between the centers of the pupils of the eyes. It is generally stated in millimeters. It varies with the individual.

"IN THE CLEAR" ADDRESS. The narrative description of the shipping address code.

INTRATHEATER. Any transaction or action occurring totally within the theater boundaries.

INVENTORY CONTROL POINT. An organizational unit or activity within the supply system of a military service which is assigned the primary responsibility for the integrated materiel management of a group of items, either the responsibility of a particular service or for the Defense Department as a whole.

INVERTER, STATIC. Electrically, a device for changing direct current into alternating current. A static inverter uses no moving parts, operating on the principle of a crystal oscillator frequency being divided, phase-shifted, and amplified, then regulated to the necessary voltage and frequency requirements.

ISSUE GROUP. A relative sequential grouping of priority designations for the assignment of priority delivery dates and processing times.

ISSUE PRIORITY DESIGNATOR (IPD). The numeric entry made by the initiator of a requisition which relates to the mission of the requiring activity (force/activity designator) and the urgency of the need (urgency of need designator).

KEY DOCUMENT NUMBER. The document number of the line item in a shipment having the earliest required delivery date.

LATERAL COORDINATE. A guidance measuring parameter perpendicular to the plane of the trajectory.

LATERAL SUPPLY. Lateral supply may be defined as a supply action whereby adjacent Ordnance organizations assist each other by releasing parts and supplies to each other as critical needs arise for items temporarily out of stock in the requesting unit or at the normal point. Usually this is practiced in order to remove major items from deadline status, to relieve a critical supply shortage, or in an unforeseen emergency.

LATITUDE. The angular distance of a point on the earth from the equator, either north or south.

LEVEL(S) OF SUPPLY. A general supply term used for planning purposes and in the control of supply operations for expressing quantities of materiel authorized or directed to be held in anticipation of issue demands. It is expressed in days of supply, or in certain cases, in specific units of quantity. In the singular the term "level of supply" is invariably qualified with a descriptive word or phrase. The following definitions include certain specific levels of supply as well as other terms closely related to and necessary for consideration with levels of supply:

a. *Operating level of supply.* The quantities of materiel required to sustain operations in the interval between requisitions or the arrival of successive shipments. These quantities should be based on the established replenishment period (monthly, quarterly, etc.).

b. *Order and shipping time.* The time elapsing between the initiation of stock replenishment action for a specific activity and the receipt by that activity of the materiel resulting from such action. Order and shipping time is applicable only to materiel within the supply system, and is composed of two distinct elements:

(1) *Order time.* The time elapsing between the initiation of stock replenishment action and submittal of requisition or order. The time elapsing between the submittal of requisition or order and shipment of materiel by the supply activity.

(2) *Shipping time.* The time elapsing between the shipment of materiel by the supplying activity and receipt of materiel by the requiring activity.

c. *Procurement leadtime.* The time elapsing between the initiation of procurement action and the receipt into the system of materiel purchased as a result of such action. Procurement leadtime is applicable to materiel to be obtained from any source outside the procuring department or by manufacture within the department.

d. *Requisitioning objective.* The maximum quantities to be maintained on hand and on order to sustain current operations. It will consist of the sum of stocks represented by the operating level, safety level, and the order and shipping time or procurement leadtime as appropriate.

e. *Safety level of supply.* That quantity (in addition to the operating level) of materiel required to permit continued operations during minor interruptions of normal replenishment or unpredictable fluctuations in supply demand.

f. *Stockage objective.* The maximum quantities of materiel to be maintained on hand to sustain current operations. It will consist of the sum of the stocks represented by the operating level and the safety level.

g. *Strategic reserve.* That quantity of materiel which is placed in a particular geographic location due to strategic considerations or in anticipation of major interruptions in the supply distribution system. It is over and above the stockage objective.

LIFT-OFF. (First motion.) The first indication of motion of the missile from its launcher, completing the physical separation between the two.

LIGHT RAY. The term applied to the radii of waves of light to indicate the direction of travel of the light. Light rays are indicated by arrows and lines.

LONGITUDE. The angular distance of a point on the earth from the prime meridian, either east or west.

MACH. A unit of speed equal to the velocity of sound in a given medium.

MACH NUMBER. The ratio of the speed of a traveling body to the speed of sound for a given medium.

MAGNETIC AMPLIFIER. A saturable reactor-type of device capable of amplifying, controlling, or serving as a mixing computer, delivering an analog output.

MAGNETIC BRAKE. A friction brake controlled by means of an electromagnet (solenoid). Used in conjunction with slip-clutches, can isolate various computer stages or fix a shaft position.

MAGNETIC NORTH. The direction indicated by the north-seeking element of a magnetic compass when influenced only by the earth's magnetic field.

MAGNETIC TAPE. A ferromagnetic impregnated tape, used for storing information by varying the magnetic properties.

MAGNIFICATION. The increase in the apparent size of an object produced by an optical element or instrument.

MAINTENANCE EXCHANGE STOCK. End items of equipment authorized by heads of technical services for stockage at installations and/or activities, which are required for replacement of unserviceable items of equipment when immediate repair of the unserviceable equipment cannot be accomplished by the field maintenance activity.

MAINTENANCE FLOAT. Those end items of equipment authorized by the ordnance officer for stockage by field maintenance units, which are required for replacement of like unserviceable items of equipment when immediate repair of the unserviceable equipment cannot be accomplished by the field maintenance unit.

MAJOR INTRANSIT NUCLEAR INCIDENT. Any incident which results in a nuclear explosion, or which subjects nuclear materiel or components containing nuclear materiel to excessive shock or fire.

MANDREL. A mold used for shaping the inner configuration of a solid propellant grain.

MARGINAL RAYS. Rays of light near the edge of the field of a lens.

MARINEX. A water express service for priority shipments. Cargo in this category is given preferential handling at all intransit points and is top-stowed aboard fast ships for priority discharge at ports of destination.

MARK SENSING. The automatic conversion to punched-hole form of data-marked EAM cards with electrographic lead or ink.

MATERIEL RELEASE CONFIRMATION (MRC). A notification from a shipping activity advising the originator of a materiel release order of the positive action taken on his order.

MATERIEL RELEASE DENIAL. A notification from a shipping activity advising the originator of a materiel release order of the negative (warehouse refusal) action taken on his order.

MATERIEL RELEASE ORDER (MRO). An order issued by an accountable supply distribution activity directing a nonaccountable shipping activity within the same supply distribution complex to release and ship materiel.

MATRIX. An array of circuit elements; e.g., diodes, wires, magnetic cores, relays, etc., which are capable of performing a specific function (e.g., conversion from one numerical system to another).

MAXIMUM ORDINATE. The perpendicular distance from the surface of the earth to the highest point of a trajectory.

METHOD OF EXPRESSING DATES. All dates will be expressed in four digits. This will consist of the last digit of the calendar year followed by a three-digit day of the year (numeric day of the year); for example: 12 January 1964 would be written 4012. The 4 is the last digit of the year and the 012 represents the 12th day of the year. The day of the year is indicated on each page of all standard Government-issue desk calendars.

MICRON. One-thousandth part of a millimeter.

MINOR INTRANSIT NUCLEAR INCIDENT. Any incident which results in damage to the transporting carrier sufficient to delay the movement or require reloading of the nuclear materiel to another carrier, but which does not expose the materiel to hazardous conditions.

MINOR NONEXPENDABLE SUPPLIES. Consists of nonexpendable supplies, the unit standard price of which is $10 or less.

MINUTE OF ARC. Unit of angle, one-sixtieth part of a degree.

MISSILE GUIDANCE SYSTEM. A group of components which measures the position of a guided missile with respect to its target or center of gravity, and causes changes in the flight path as required. Some of the system elements may be on the ground at the launch point, en route to the target, or airborne within the missile.

MISSILE RESPONSE. The time interval between generation of an error signal and initiation of a maneuver to correct the causitive error.

MOBILE SUPPLY POINT. Consists of ammunition which has been placed on motor vehicles or on railcars and is readily available for rapid displacement in support of a designated combat force. Mobile supply points are usually established to support a fast-moving situation.

MODULE. A combination of components within a package, or so arranged that they are common to one mounting, that provides a complete function of functions necessary for subsystem or system operation.

MOMENT OF FORCE. The effectiveness of a force to produce rotation about an axis. Pitch, roll, and yaw as applied to the missile are force moments (also known as torque).

MOMENTUM. The product of the mass of a body and its linear velocity.

MONOCULAR. Pertaining to vision with one eye. A term applied to optical instruments requiring the use of only one eye.

MOTOR CASE. (Chamber) In solid propellant rocket application, the pressure container or bottle containing the propellant to which is attached the nozzle.

MULTIPACKED CONTAINER. A container enclosing two or more items assigned different numbers.

MUNITIONS OFFICER. An officer assigned to a branch or service other than Ordnance who is designated to supervise the ammunition supply activities of his unit. This may be the unit S4 or another officer designated as his agent. Ordinarily, a munitions officer is the ammunition supply representative for the user.

NATIONAL INVENTORY CONTROL POINT (NICP). An organizational unit or segment within the overall supply system of a technical service to which the head of the technical service has assigned primary responsibility of a particular technical service or for the Department of Defense as a whole.

NATURAL FREQUENCY. That frequency at which a body or system will vibrate if displaced and allowed to oscillate freely.

NAUTICAL MILE. The distance subtended on the equator by an angle of one minute of arc drawn from the center of the earth.

NEWTON'S LAWS. The laws pertaining to motion: (1) Every body continues in its state of rest or of uniform motion in a straight line unless acted upon by some outside force. (2) Change of motion is proportional to force applied and takes place in the direction of the line of force. (3) To every action there is an equal and opposite reaction.

NO-BACK. A safety device which presents a reverse flow of power through the manually operated part of a gear train when the remainder is being power operated. Prevents output from driving input.

NOZZLE. The "pinched" or restricted area of a rocket engine, often referred to as the thrust-producing restriction.

NUCLEAR ORDNANCE ITEMS. Assemblies, equipment, components, and parts which are peculiar in design to nuclear weapon programs.

NUCLEAR WEAPONS. An instrument of combat which utilizes nuclear energy as the principal means for inflicting damage upon an enemy.

OBJECTIVE CAP. A protective device, usually made of leather, which is placed over the objective end of the instrument when the instrument is not in use.

OBLIGATED STOCKS. Obligated stocks are stocks earmarked or set aside for specific purposes; e.g., special projects or programs, civilian aid, authorized reserves, etc. Such stocks are usually established on a quantitative basis and are in addition to levels of supply.

OPERATIONALLY DEADLINED. When repairs required to return a major item to operational status are beyond the capabilities of local maintenance facilities or when replacement parts required to return the item to operational status are not available from local sources.

OPERATIONAL MISSILE. A missile that, in contrast to a research and development missile, can be used against an enemy target; a "weaponized" system.

ORDNANCE CLASS IV SUPPLIES. Those items which are used or consumed by a class IV project. Basically, all ordnance general supplies which are shipped to a theater of operations are class II unless specifically shipped for a class IV project.

ORDNANCE DEMAND STOCKAGE LIST (ODSL). The master authorized stockage list is synonymous with the worldwide stockage list and will be composed of all items appearing on distribution and key depot authorized stockage lists, plus those active items defined in paragraph 4,205 of ORDM 3-2, which do not appear on any depot stockage list.

ORIFICE. An opening through which a fluid or gas may discharge; may be fixed or adjustable.

OTHER EQUIPMENT. Consists of supplies which do not meet the criteria of "capital property" but cannot be classified as "expendable."

OVERSEA REQUISITIONER. The authorized activity within an oversea command that submits requisitions direct to CONUS.

PARTIAL STORAGE MONITORING. A periodic inspection of nuclear weapon major assemblies or components consisting mainly of observation of humidity, temperatures, and visual damages or deterioration during storage prior to and upon the completion of being moved.

PASSING ORDER. An order used to pass an erroneously routed requisition to the appropriate depot or distribution point, and to pass a requisition from one distribution system to another.

PBAA. Abbreviation for polybutydiene acrylic acid used as a solid propellant in some missiles.

PECUNIARY LIABILITY. Refers to a personal, joint, or corporate monetary obligation to make good any loss, damage, or destruction of property resulting from fault or neglect. Pecuniary liability also may result under conditions stipulated in a contract or bond.

PENDULUM, AIR-BEARING. A gravity-sensitive leveling device using a pendulous mass as the sensing element supported by an air bearing.

PICKOFF. A device for converting mechanical motion into an electrical signal proportional to the mechanical motion.

PITCH. The movement of an airframe or missile about its center of gravity so that the nose moves up or down in the plane of the flight path.

PITCH PROGRAM. A preset channel of information applied to the missile servo system to initiate pitch or "tiltover" to a vertically launched missile.

PLANOGRAPH. (Noun) A graphic representation of storage space which may be used to depict assignment of space warehouse layout, or availability of space.

PORT DESIGNATOR. A three-position numeric code identifying a specific surface terminal or geographic area or location for discharge of cargo.

POWERPACK. (a) Armament—The power source of a hydraulic system in turret artillery. (b) Automotive—The engine and transmission of a vehicle.

PRECHARGE PRESSURE. The gas pressure in an accumulator before it is charged with oil.
See *Accumulator*.

PREPARATION FOR OVERSEA MOVEMENT (POM) REQUISITION. A requisition submitted to fill shortages reported by units for oversea movement.

PRIORITY DELIVERY DATE (PDD). The maximum standard terminal date for normal order and shipping time required for a supply system to effect delivery of items to a requisitioner.

PRISM, PORRO. A triangular optical prism having one 90° and two 45° angles. Light enters perpendicular to the hypotenuse, and, after two internal reflections, leaves by the same face.

PROPELLANT, SOLID. A missile propellant in the form of a molded or extruded solid containing a homogeneous mixture of oxidizer and fuel.

PROPELLANT, UNRESTRICTED. A propellant grain wherein combustion takes place on more than one planar surface.

PROPERTY RECORD AND PROPERTY ACCOUNT. These are general terms referring to any record of property, formal or informal; they are inclusive, not only of stock record accounts but also of company and station property books, clothing, and equipage records, hand receipt records, or any other systematized files of property records.

PULLOVER GAGE. A device for measuring the vertical bore diameter of a cannon tube near its forcing cone to determine the amount of bore erosion.

PULSE. A variation of a constant quantity; this variation is characterized by a rise and decay and has a fixed-time duration.

PUPIL. The dark center of the eye; it is the aperture through which light enters the eye.

PURCHASE REQUEST. A document prepared by a depot, national inventory control point, and/or separate office requesting procurement of materiel.

RANGE. The distance from a launching point to a target. It may be measured along the surface of the earth or a chord connecting the two points.

RANGE COORDINATE. A theoretical projection constructed mutually perpendicular to the cross range coordinate and slant altitude coordinate along which the slant range accelerometer is oriented and measured.

REACTION. The force exerted by the supports or bearings on a loaded mechanical system. As a result of a rocket engine burning, the exhaust velocity of the gas imparts a velocity to the missile through the supporting structure.

REAL PROPERTY. Consists of lands and interests therein, leasehold buildings, and improvements and appurtenances thereto. It includes piers, docks, warehouses, rights of way and easements, whether temporary or permanent, underground conduits and associated manholes, utilities systems and parts thereof, and all other improvements permanently attached and ordinarily considered real estate. It does not include machinery, equipment, fixed signal communications system, etc., which may be served or removed from buildings without destroying the usefulness of the structures.

RECEIVING ACTIVITY. An activity which physically receives, tally's-in, inspects, and accepts materiel for a requisitioner.

RED TAG. DA Form 9-111 (Unserviceable Test Instrument or Standard) which is attached to an unserviceable test instrument or standard, indicates that repair is required. The tag consists of a pink frontal sheet, a carbon paper throwaway insert, and a red cardboard backing. The cardboard backing remains attached to the instrument or standard until such time as the corrective action has been completed. The pink frontal sheet is furnished to the responsible property or maintenance officer and serves as a memorandum of action required.

RED TAGGED ITEM. An item not meeting required specifications when checked by a calibration team and therefore considered unsatisfactory for use until repaired and recalibrated.

REENTRY. The return of a missile or nose cone into the sensible atmosphere.

REJECTION. Status resulting from a decision by the supplier that positive supply action cannot be taken for a definite reason.

REPORTING PERIOD. The time interval between successive ammunition reports. The period is set, by administrative orders, according to the situation.

REQUEST FORM. The form used to submit a request for parts and supplies and parts.

REQUIRED DELIVERY DATE (RDD). The calendar date when materiel is required by the consignee.

REQUISITION. A request for supplies from an authorized requisitioner.

REQUISITIONER'S CODE. An alphabetic/numeric code locally assigned to each nonaccountable requesting activity. This code must not duplicate those assigned to accountable installations/activities.

RESOLVER. A device used to convert or exchange data from one system to another.

RESPONSE. A quantitative expression of the output of a device or system as a function of the input.

RESPONSIBILITY. Responsibility is the obligation of an individual for the proper custody, care, and safekeeping of Government property entrusted to his possession or under his supervision.

a. *Command responsibility.* Commanding officers are required to insure that the property of their command, both serviceable and otherwise, is properly safeguarded, accounted for, and administered.

b. *Direct.* Applies to individual to whom property is entrusted to their possession.

RETROFIT. The modernization of nuclear weapons and components, and related equipment, by retroactive change to materiel. Retrofit orders, retrofit program, and retrofit supplies are examples of the use of this term.

ROCKET ENGINE. A type of propulsive device which develops thrust independently of the medium in which it operates.

ROCKET, MULTISTAGE. A rocket or rocket missile having two or more thrust-producing units each used for different stages of the rocket's flight.

RO/RO TRAILER. An Army-owned highway semitrailer or wheeled vehicle moving military cargo in the roll on/roll off service between CONUS depots, vendor plants, and designated oversea consignees.

ROUTING IDENTIFIER. A three-position code that identifies a specific supply and distribution organization as to its military service or governmental ownership, and its geographical location.

SALVAGE APPRAISAL OFFICER. A specially trained officer assigned to a shipping installation who remains on alert status from time of loading of the carrier until its receipt by the consignee.

SECONDARY SOURCE OF SUPPLY. Any source of supply upon which a referral order, supply directive, or purchase request is placed by an initial source of supply.

SEMICONDUCTOR. An electrical conductor having a resistivity in the range between those of metals and insulators (neither a good conductor nor a good insulator).

SERVICEABLE SUPPLIES. New or used items which are in condition for issue or which may be placed in such condition through processing from storage, installing accessories, and servicing.

a. *Serviceable group A.* New or used supplies possessing original appearance and serviceability and ready for immediate issue.

b. *Serviceable group B.* All other supplies which qualify as serviceable.

SERVICEABILITY STANDARDS. Standards which materiel must meet prior to issue.

SERVOMECHANISM. A combination of devices for controlling a source of power in which the output (or some function thereof) is fed back and compared to some reference at the input; the difference of this comparison being an error signal used to effect the desired control.

SHIPMENT. A line item or group of line items packed, marked, and documented for movement to a single consignee as identified by the requisitioner, supplementary address, and project codes. A shipment is normally limited to a single transportation conveyance.

SHIPMENT DETAIL CARD. An RAM card used to transmit shipping information to the OSA only.

SHIPMENT PLANNING. The accumulation and analysis of shipping data for subsequent scheduling of selection, packaging, and movement activities.

SHIPMENT STATUS. Positive advice of shipment including date of shipment, mode, bill of lading, airway bill number, etc., as applicable.

SHIPPING ADDRESS CODE (SC). A six-position alphabetic/numeric code depicting an "in-the-clear" address of individuals or activities authorized to direct, ship, or receive materiel, documentation, and/or billing.

SHIPPING ADDRESS DIRECTORY. A listing of each "in-the-clear" address for which a shipping address code has been assigned.

SHIPPING ADDRESS FILE. A file maintained in shipping address code sequence in the card format specified.

SPECIAL AMMUNITION SUPPLY POINT (SASP). A supply installation from which issues of complete rounds of missiles and heavy rockets, to include conventional and nuclear weapon warheads and propellants, nuclear demolitions, and nuclear artillery shells, are made directly to supported using units.

SPIN STABILIZATION. A technique for stabilizing missiles, usually reentry bodies, during final phase of flight, in which a slow spin is imparted to eliminate dispersion due to misalinements.

STABILITY. The adherence of a missile to its desired attitude during a flight, being most important in the very early low-velocity periods of flight.

STABILIZED PLATFORM. A space-fixed reference framework often used to mount guidance accelerometers so that they may integrate and thus yield positions and velocities from an unchanging reference plane. A stabilized platform can also be employed to determine missile attitude using transducers to measure relative position between the missile and platform. A stabilized platform is a basic requirement for an inertial guidance system.

STANDARDS, LOCAL. Standards of various levels, with accuracy certified by higher level standard, which are established by installations or appropriate authority for reference purposes in support of local operations and assigned missions.

STANDARDS, NATIONAL REFERENCE. Standards maintained by the National Bureau of Standards (Washington, D. C., and Boulder, Colo.) which constitute the highest level of accuracy and the legal basis for measurements in the United States.

STANDARDS, PRIMARY REFERENCE. The source of the most accurate measurements within the Ordnance Corps calibration system, the accuracy of which is known and stated. These standards are certified by, or directly derived from, the National Bureau of Standards and are housed in an adequately controlled environment.

STANDARDS, PRIMARY TRANSFER. Those standards with accuracy certified as a result of comparison to primary reference standards. They are used to certify the accuracy of subordinate standards.

STANDARDS, SECONDARY REFERENCE. Those standards with accuracy certified as a result of comparison to primary standards. They are used to certify the accuracy of subordinate standards and are housed in an adequately controlled environment.

STANDARDS, SECONDARY TRANSFER. Those standards with accuracy certified as a result of comparison to secondary reference standards. They are used to certify the accuracy of test or measuring equipment.

STATE CODE. A two-digit prefix which designates the state in CONUS or the foreign fiscal station number for overseas (AR 37-102-1).

STATION CODE. The depot, direct support unit, or station code assigned by the oversea commander or CONUS major commander (AR 37-102-1).

STATISTICAL SAMPLING INVENTORY METHOD. Physical inventory by exception of selected items to establish and maintain an agreement between stocks on hand and the recorded quantitative balance with minimum.

STATUS CODE. A code used to transmit status information from the inventory manager and/or supply source to the creator of a requisition or the consignee. Status codes are the opposite of advice codes in that directional flow is reversed.

STOCK LEVEL. See *level of supply*.

STOCKPILE CONFIGURATION. The individual nuclear weapon components and assemblies, packaged as prescribed by appropriate technical publications, required to construct a major nuclear weapon assembly into the configuration in which it is fired.

STOCK RECORD ACCOUNT. A basic formal record showing, by item, the receipt and disposal of property, the balance on hand and such other identifying or stock control data as may be required by property authority. Such account is maintained on prescribed forms and by or under the supervision of an accountable officer. Stock record accounts may be maintained manually or by prescribed accounting records.

STOCK SELECTION. The process of gathering and consolidating into one or more centralized assembly areas, the supplies to the shipped and/or the positive identification of stocks that will be placed into the carrier conveyance directly from the storage location.

STORAGE INSPECTION OF NUCLEAR WEAPONS, MISSILES, AND HEAVY ROCKETS. Nondestructive tests applied at prescribed time intervals to nuclear weapon components to insure that the components will function as intended. Tests are not applied to a weapon as a whole.

STORAGE MONITORING OF NUCLEAR WEAPONS, MISSILES, AND HEAVY ROCKETS. A periodic inspection applied to nuclear weapon major assemblies or components, missiles, and heavy rockets to ascertain whether any damage or deterioration has occurred since the previous inspection. Storage monitoring is more frequent and less comprehensive than storage inspection.

STRATA INVENTORY. The statistical sampling on a scheduled basis of each stratum dependent upon error rate as previously determined by statistical sampling inventory.

STRATUM. A segment of the total items stored within an installation established by a specific storage area.

SUBSONIC. Less than the speed of sound, or less than mach number one.

SUPERCHARGE PRESSURE. The initial priming pressure to fill a hydraulic system.

SUPPLIES. Consists of all raw materials, commodities, manufactured articles, means of transportation, unit assemblies, and units of machinery or equipment procured, stored, or issued for the Army which have not become real property. Supplies are further classified as being expendable or nonexpendable. However, an item of supply may be accounted for as expendable or nonexpendable depending upon the use of which it is issued. For instance, an otherwise nonexpendable item might be expended and lose its separate identity when supplies to be merged with a set, kit, or major assembly.

SUPPLY CONTROL. Supply control is the process by which, through a system of reports, computations, and evaluations, all data pertaining to an item of supply is assembled, and culminates in the balancing of all demands for the items against all assets of the items, resulting in definitive supply action leading to either budget estimates and procurement, disposal or allocation.

SURPLUS PROPERTY. Excess property not required for the needs and discharge of the responsibilities of all Federal agencies.

TELEMETRY. The complete measuring, transmitting, and receiving for remotely indicating, recording, and/or integrating information.

TERMINAL VELOCITY. In aeroballistics, the greatest speed a body attains under ideal conditions at the end of operation of its propulsive phase; also impact velocity.

THERMAL. Of or pertaining to heat.

THROAT. In rocket or jet engines, the most restricted part of an exhaust nozzle.

THRUST. The force acting on a rocket motor due to the reaction caused by the expulsion of matter at high velocity.

THRUST, AVERAGE. Total impulse developed by a particular rocket engine, divided by total burning time.

THRUST DECAY. The process by which rocket engine thrust decreases to zero as a result of terminating thrust by a cutoff signal voluntary burnout.

THRUST TERMINATION. Ending rocket engine thrust either intentionally by a cutoff signal or by allowing exhaustion of propellant through maximum burning time; cutoff or burnout.

THRUST TERMINATION PORTS. Sealed ports incorporated in the forward end of a solid propellant motor bottle which are blown out to neutralize the effects of forward thrust. The ports are blown by a cutoff signal sent to detonating devices.

TRAJECTORY, ACTUAL. The path described by a missile during an actual flight.

TRAJECTORY, BALLISTIC. The path traveled by an object with an initial velocity and free to fall through space or the atmosphere.

TRAJECTORY DATA. Measurements relating to the flight path of a missile; i.e., velocity, acceleration, displacement, attitude data, etc.

TRAJECTORY (FLIGHT PATH). The path of a missile from firing point to detonation or impact.

TRAJECTORY, IDEAL. The theoretical flight path of a missile, usually the basis for trajectory calculations.

TRAJECTORY, STANDARD. The predicted flight path of a missile, taking into consideration all possible disturbing factors that might be developed or encountered during the flight.

TRAJECTORY, ZERO "G." The flight path of a missile that produces a condition where centripetal gravitational attraction of the earth is nullified by inertial (centrifugal) forces.

TRAJECTORY, ZERO LIFT. A flight path in which the control system acts to maintain a condition of *no* aerodynamic lift on the missile.

TRANSCEIVER. Equipment for card-to-card transmission by way of telephone or telegraph wires.

TRANSDUCER. An electrical device, usually an inductive type, which translates motion or displacement into a proportional electrical signal, normally a voltage; a position indicator.

TRANSISTOR. An electronic device for amplification and/or control consisting of a semiconducting material to which contact is made by two or more electrodes which are usually metal points or surfaces soldered to the semiconductor. It has the capability of performing many of the functions of a vacuum tube.

TURRET ARTILLERY. A general term used to refer to both tanks and self-propelled vehicle armament.

TYPE OF CARGO CODE. A two-digit numerical code to distinguish types of cargo and labels required for shipment of this materiel.

UNCAGING. The removal of a restraining device which locks a gimbal system when not in operation. Uncaging can be accomplished manually or automatically, depending on the application.

UNSERVICEABLE SUPPLIES. Items which do not qualify as serviceable, grouped as follows:

a. *Unserviceable group C.* Supplies which are unserviceable and economically reparable.

b. *Unserviceable group D.* Supplies which are unserviceable and not economically reparable.

URGENCY OF NEED DESIGNATOR. An alphabetic letter which relates to the urgency of need as determined by a requisitioning activity using the criteria prescribed by the materiel issue priority system.

VALIDITY CHECK. A test of a specific data field or columns in a punched card document to determine whether the punched information is within the prescribed standard limits as appropriate for the card document being tested.

VALVE, BLEED. A valve controlling the voluntary discharge of air or fluid used to drain a system or to remove unwanted air or fluids from the system.

VALVE, RELIEF. A hydraulic or pneumatic system element designed to limit the pressure to a maximum safe value.

VALVE, SERVO. An electrically operated or controlled hydraulic or pneumatic valve which itself is part of a servosystem; usually the signal receiving device in the servosystem.

VECTOR. A quantity possessing magnitude, direction, and sense.

VELOCITY, CUTOFF. The velocity of a missile when thrust is terminated; a critical determinant as applied to range.

VENT. The hole through the obturator for travel of the primer flame. Any hole bored through the wall of an object to allow a passage.

VOUCHER. An instrument used to evidence a transaction in a property account. Normally there are four types of vouchers:

a. *Adjustment voucher.* Used to bring the balance-on-hand figures as shown on the stock record cards into agreement with the quantities actually on hand.

b. *Credit voucher.* Lists article to be dropped from a property account; decreases balance on hand.

c. *Debit voucher.* Lists articles to be picked up on a property account; increases balance on hand.

d. *Wash voucher.* Is not posted to stock record.

WAREHOUSE DENIAL. An advice by storage division that the quantity of a specific item in storage is less than the quantity ordered to be shipped.

WEAPONS LIST. A list of weapons authorized and on hand within tactical or other units employed in a combat role. It includes hand-carried weapons, towed artillery, and weapons mounted on wheeled or tracked vehicles. A current list of weapons is maintained by the ammunition officer at each echelon of command. Weapons lists usually are obtained from major items or materiel status reports submitted by lower echelons of command to higher echelons of command. In this connection, use of proper and accurate nomenclature cannot be overemphasized. Erroneous nomenclature will cause shipment of the wrong ammunition. If the wrong ammunition is shipped, it not only causes a waste of transportation and the man-hours involved, but may result in the loss of combat efficiency of the using unit and, in some instances, be serious enough to cause tactical defeat.

WEB (THICKNESS). In unrestricted-burning solid propellant rocket grains, the minimum distance which can burn through, as measured perpendicularly to the burning surface.

WORD. In digital computer applications, an instruction, a number, or an arbitrarily coded quantity.

X-AXIS. A theoretical reference projection, established at the launcher, lying in the plane of the trajectory and in the target direction.

YAW. Angular displacement about an axis perpendicular to the longitudinal axis of the missile, causing the missile to turn crosswise, left or right, in flight.

Y-AXIS. A theoretical reference projection perpendicular to the local horizontal at the launching point.



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