

~~CONFIDENTIAL~~

N-5590.9 <sup>3690</sup>

~~CONFIDENTIAL~~  
DECLASSIFIED

# EXHIBIT OF RECENTLY DEVELOPED ORDNANCE MATERIEL



REGRADED *declassified per*  
*Sec of Def memo dtd 3 May 72*  
BY AUTHORITY OF *Sub-Decision of new 4 Dec 64*  
APRIL 1945  
BY *Norm Koppen*  
*2 Jul 76*

GROUP 3 - Downgraded at 12 year intervals; not auto-  
matically declassified. GPO BTK 5200.10

DECLASSIFIED

~~CONFIDENTIAL~~

C

~~CONFIDENTIAL~~  
DECLASSIFIED

L

# AMMUNITION

~~GROUP 3 - Downgraded from CONFIDENTIAL to SECRET~~  
Previously declassified. GPO DIR 5200.10

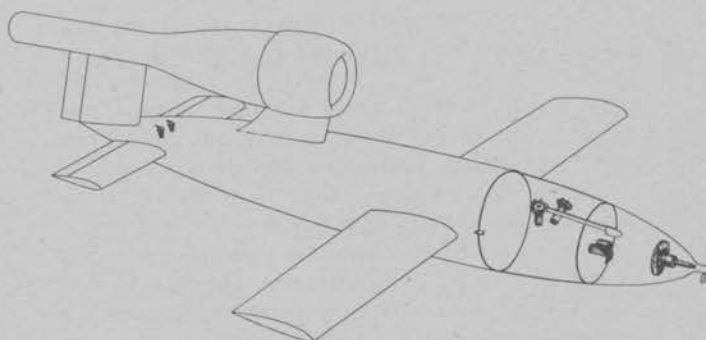
DECLASSIFIED

C

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~  
**DECLASSIFIED**  
~~CONFIDENTIAL~~

## COMPONENTS OF BOMB, ROBOT, JB-2



1. Bomb, Light Case, 2,000-lb., T9, for JB-2
2. Fuze, Bomb, T74E1 (electric)
3. Fuze, Bomb, T84 (mechanical)
4. Switch, Contact, Nose, T8
5. Switch, Inertia, T9
6. Actuator, Spoiler, T1

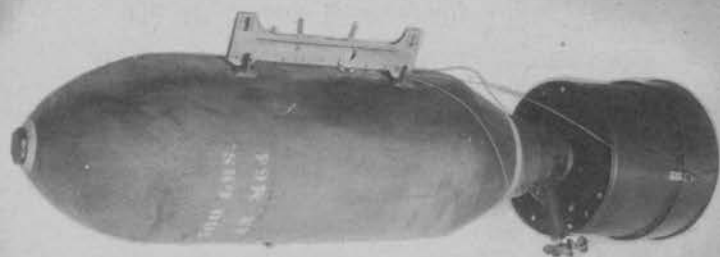
The Ordnance Department was charged with the responsibility of development of these items for Bomb, Robot, JB-2, which is an almost exact copy of the German V-1 Robot Bomb. However, largely for reasons of safety, the German design has not been followed. The German warhead was made of light-gauge steel approximately .050 inches thick, whereas the warhead developed by the Ordnance Department is made of aluminum alloy  $\frac{3}{8}$ -inch thick. The charge weight ratio of the aluminum warhead is slightly less than that of the German but it is considered safe for all normal handling and shipping while the German unit was unsatisfactory. The Fuzes T74E1 and T84 incorporate air arming features that were not present in the German design. The other items are not at great variance in design principle from the similar German components.

The JB-2 Bomb is essentially a blast weapon, and for this reason the military characteristics require that the highest blast effect possible, consistent with safety, be obtained. The warhead is loaded with Tritonal and aluminized TNT, containing by weight 80% TNT and 20% flaked aluminum.

These items are currently being procured for development and service tests.

~~CONFIDENTIAL~~  
**DECLASSIFIED**  
~~CONFIDENTIAL~~

# ANTI-RICOCHET DEVICES, M16 AND M17



**Bomb, G. P., 500 lb., AN M64A1,  
with Anti-Ricochet Device, M17**

These Anti-Ricochet Devices were developed to eliminate or control ricochet of GP Bombs when dropped from low altitudes at high speeds. Prior to the development of these devices, GP Bombs dropped during minimum altitudes tests on open targets, such as aircraft and motor parks, aircraft revetments, troop concentrations, railroads, and railway terminals were frequently ineffective due to the fact that the bomb ricocheted, came to rest and detonated from a few hundred to 1,500 feet from the original impact point. These devices break the forward motion of the bomb so that it stops at the original impact point, detonating within 8 to 15 seconds. The ballistic characteristics of a bomb equipped with the anti-ricochet devices are such that accurate bombing from low altitudes can be obtained consistently by a crew that has had a minimum of training and experience.

The military characteristics of the anti-ricochet units require that they withstand satisfactorily release from airplanes flying at speeds up to 350 miles per hour, at altitudes as low as 75 feet, with no ricochet, and not more than a 50-foot skid after impact.

Anti-Ricochet Device M16 (used with 100-lb. and 250-lb. GP Bombs) consists of:

- 1 Parachute Unit M7
- 1 Fuze Adapter M202 (with anemometer wind vane)
- 1 Bomb Tail Fuze M151, with primer detonator M16A1, 8 to 15 seconds delay
- 1 Arming Wire Assembly

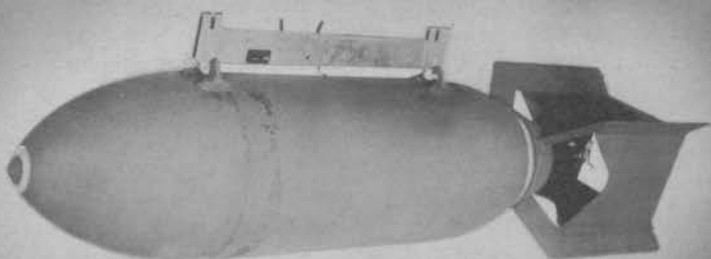
Anti-Ricochet Device M17 (used with 500-lb. GP Bomb) consists of:

- 1 Parachute Unit M6
- 1 Fuze Adapter Assembly M200 (with anemometer wind vane)
- 1 Bomb Tail Fuze M151 with primer detonator M16A1, 8 to 15 seconds delay
- 1 Arming Wire Assembly

Anti-Ricochet Devices M16 and M17 are under procurement for use in the field.

DECLASSIFIED

# BOMB, S.A.P., 2000-LB., T7 DECLASSIFIED



The development of the 2,000-lb. S.A.P. Bomb, T7, had two primary objectives:

*a.* To provide a bomb capable of penetrating reinforced concrete pillboxes and other targets of high resistance from altitudes lower than those required when using the 1,000-lb. S.A.P. Bomb AN-M59A1.

*b.* To provide a bomb which, after such penetration, would have an explosive effectiveness equivalent to that of the 1,000-lb., G.P. Bomb, AN-M65A1, or approximately twice that of the 500-lb. S.A.P. Bomb.

It is estimated that if dropped from altitudes sufficient to permit it to attain a velocity of 1,000 feet per second, the 2,000-lb. S.A.P. Bomb will be capable of perforating nearly 7½ feet of reinforced concrete or 4 inches of armor plate.

## CHARACTERISTICS

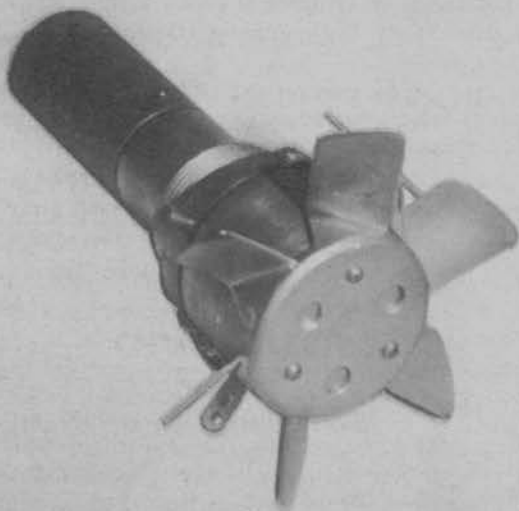
### Body

Length, over-all.....	90 in.
Diameter.....	18 <sup>5</sup> / <sub>8</sub> in.
Wall thickness.....	1 <sup>5</sup> / <sub>16</sub> in. (minimum)
Weight.....	1,450 lb.
Explosive Charge....	550 lb. cast Picratol (52% Ammonium Picrate (Explosive D) and 48% TNT)

The Bomb, S.A.P., 2,000-lb., T7 is currently undergoing tests and a quantity is scheduled for loading and issue to the Air Force.

# DECLASSIFIED

DECLASSIFIED 4  
**FUZE, BOMB, NOSE,  
M149 (T29E2)**



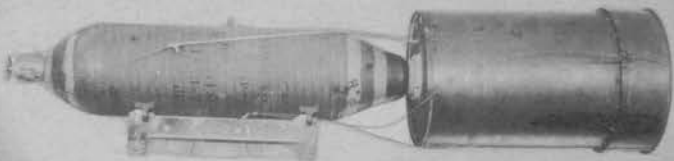
The M149 Nose Bomb Fuze was developed primarily to provide a simple fuze for general purpose bombs that would result in detonation of these bombs from altitudes of 10 to 50 feet in the air under proper conditions. The fuze is based in principle upon a British idea and involves the use of a very light firing pin mounted on a thin flexible diaphragm of the "cricket" type. With this arrangement, the fuze can either be actuated by impact or by the blast wave resulting from detonation of a nearby explosive charge. In practice, several bombs are released in a close train; the first bomb to reach the ground functions on impact, and each succeeding bomb is detonated in the air when the blast wave from the bomb preceding it reaches the M149 Fuze.

Safety features of the Bomb Nose Fuze M149 include massive construction with the firing pin recessed to such an extent that a completely armed fuze can withstand extremely severe impacts with smooth, hard surfaces such as other bombs in flight, without detonation. For maximum safety in handling, the detonator is held out-of-line with the firing pin and booster lead until several turns of the arming vanes.

Fuze, Bomb, Nose, M149 is currently in production and is being issued.

DECLASSIFIED

**DECLASSIFIED**  
**BOMB,**  
**FRAGMENTATION,**  
**340-LB., T19**



The 220-lb., M88 Fragmentation Bomb, equipped with a fin and a non-delay fuze is suitable for releasing from altitudes high enough to keep the releasing airplane out of range of the fragments. However, it is desirable in many cases to drop heavy fragmentation bombs from low altitudes such as when the target cannot be penetrated by fragments from the 20-lb. and 90-lb. fragmentation bombs. The T19 bomb consists of the M88 Fragmentation Bomb, equipped with the AN-M120A1 fuze, and a 250-inch diameter Nylon parachute, inclosed in a 12-inch diameter by 2-inch container. The parachute is made of 6½ ounce Nylon cloth, and equipped with 22 two thousand pound test Nylon shroud lines.

The military characteristics for the subject bomb are essentially the same as for the 23-lb. M40 and the 90-lb. M86 standard parachute fragmentation bombs, in that the bomb must have a rate of descent slow enough to allow the nose fuze to arm before impact, and the unit must be capable of withstanding release at speeds up to 350 miles per hour. Tests conducted so far indicate that the T19 bomb will satisfactorily meet these requirements.

The Bomb, Fragmentation, 340-lb., T19 is at present undergoing engineering tests. It is anticipated that the units will soon be ready for service tests in the near future.

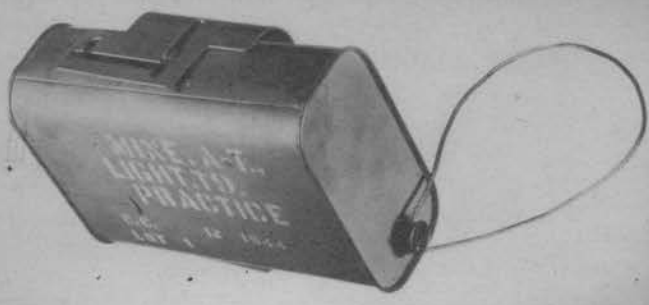
**DECLASSIFIED**

CONFIDENTIAL  
DECLASSIFIED

MINE, AT, HEAVY, PRACTICE, T8E1

MINE, AT, LIGHT, PRACTICE, T9

FUZE, CHEMICAL, MINE, AT,  
PRACTICE, T20



DECLASSIFIED



The T8E1 AT, Heavy, Practice Mine is a metallic mine similar to the high explosive M6 AT Mine and was developed at the request of ASF Headquarters for training purposes.

The T9 Antitank Light Practice Mine is also a metallic mine similar to the H.E., M7 Antitank Mine and was likewise developed for training purposes at the request of ASF Headquarters.

The T20 Chemical Antitank Mine Fuze has been developed for use in both the T8E1 and T9 Practice Mines.

## CHARACTERISTICS

### Mine, AT, Heavy, Practice, T8E1

Weight..... 20 lb. (approx.)  
Charge..... Sand filled in field  
Over-all height..... 3<sup>3</sup>/<sub>8</sub> in.  
Over-all diameter..... 13 in.  
Mine body material..... Steel  
Trip-wire connection..... Side activation well  
Anti-lifting connection..... Bottom activation well  
Carrying handle..... Concealed when emplaced  
Pressure-plate diameter..... 7<sup>1</sup>/<sub>2</sub> in.  
Operating load..... 350 ± 50 lb.  
(with T20 Practice Fuze)  
Packed... 1 mine in a metal crate 14 x 14 x 3<sup>3</sup>/<sub>4</sub> in.

### Mine, AT, Light, Practice, T9

Weight..... 4<sup>1</sup>/<sub>4</sub> lb. (approx.)  
Charge..... Inert  
Over-all height..... 2<sup>1</sup>/<sub>2</sub> in.  
Over-all length..... 7 in.  
Over-all width..... 4<sup>1</sup>/<sub>2</sub> in.  
Mine body material..... Sheet metal (terne plate)  
Carrying handle... Wire loop and plug attachable  
to activator well  
Activator Well..... End of mine suitable for all  
Corps of Engr. firing devices  
Dimensions of pressure plate..... 3<sup>5</sup>/<sub>8</sub> x 4<sup>5</sup>/<sub>8</sub> in.  
Operating load (with T20 Practice Fuze).....  
250 ± 50 lb.  
Packed..... 10 mines in metal container

### Fuze, Chemical, Mine, AT, Practice, T20

The T20 is a chemical type practice fuze which has the same dimensions and outward appearance as the high explosive chemical fuze M600. It is loaded with red phosphorus and when placed in the mine the fuze fires with a characteristic loud report and produces a characteristic smoke volume. The fuze operates like the high explosive fuze. The pressure plate of the mine exerts pressure on the piston of the fuze. A sleeve around the piston prevents its movement until the pressure becomes equal to the operating load. The sleeve then collapses suddenly and the piston breaks the acid-filled ampule, setting off the fuze.

The Mine, T8E1 is expected to be produced in quantities during the second quarter of this year.

A limited quantity of the Practice Mine T9 is now available. A requirement for larger quantities has not as yet been established.

A limited quantity of the T20 Practice Fuze is available and it is anticipated that larger quantities will be available during the second quarter of this year.

DECLASSIFIED

~~CONFIDENTIAL~~  
**DECLASSIFIED**

# **SHELL, H.E., T17E1, FOR MORTAR, 105-MM, T13**



The T17E1 shell is a 105-mm fin-stabilized mortar shell with weight as fired of 25.49 pounds when fired with Fuze PD M4A1, 1 sec. delay, and 25.84 pounds when fired with Fuze PD M4A2, 1 sec. delay. Of this weight approximately 4 $\frac{1}{4}$  pounds is TNT explosive charge. Full propellant charge consists of cartridge and four increments and round may be fired with cartridge and either one, two, three, or four increments. Range varies from approximately 200 yards to 2,000 yards depending upon number of increments used and angle of elevation of mortar. Fuze may be set either superquick or delay. Round may be used either for its fragmentation effect against troops or for demolition of light field fortifications. The round was designed to supplement the present standard mortar rounds, and provides a 105-mm size in addition to the present 60-mm and 81-mm rounds. It is particularly applicable to jungle warfare where high angle fire is desirable for shooting through trees. Packing for the round is designed for jungle use and rounds are shipped as complete rounds, two per box, with each round wrapped in moisture resisting packages. The shell has been designed for a range of approximately 6,000 yards if fired in a suitable mortar with suitable base plate. For this range additional propellant increments will be furnished with the round.

A quantity of these rounds has been produced.

~~CONFIDENTIAL~~  
**DECLASSIFIED**

**SECRET**  
**SHELL, SMOKE (WP),  
T19E2, FOR MORTAR,  
105-MM, T13**



This round is a companion round to Shell, H.E., T17E1 for 105-mm mortar. Weight of round as fired is approximately 27.73 pounds when fired with Fuze PD M4A1 and 28.03 pounds when fired with Fuze PD M4A2. The round is provided with a charge of approximately 3.62 pounds of white phosphorous which is distributed by a burster charge of tetrytol weighing approximately .35 pounds. The fuzes authorized with this round, (PD, M4A1 and PD, M4A2) are dual purpose fuzes with superquick and .015 sec. delay, but should always be set superquick when used with this round. Except for weight effect, ballistics of this round are the same as those of Shell, H.E., T17E1 and it may be fired using the same firing tables when proper allowance is made for weight zoning. Size of smoke cloud under average conditions when fired for impact on hard ground is approximately 20 yards wide by 28 yards high.

A quantity of these rounds have been manufactured.

**DECLASSIFIED**

# DECLASSIFIED

## SHELL, H.E., T26E1 FOR MORTAR, 155-MM, T25



The T26E1 shell is a 155-mm fin-stabilized mortar shell with weight as fired of 63.05 pounds when fired with Fuze, PD, M4A2 and 62.65 pounds when fired with Fuze, PD, M4A1. Of this weight approximately  $18\frac{3}{4}$  pounds is TNT explosive charge. Full propellant charge consists of cartridge and 3 increments and round may be fired with cartridge and either 1, 2 or 3 increments. Range varies from approximately 200 yards to 2,500 yards depending upon number of increments used and angle of elevation of the mortar. Fuze may be set either superquick or .1 sec. delay. Round may be used either for its fragmentation effect against troops or for demolition of light and medium field fortifications. The round was designed to supplement the present standard mortar rounds and provides a much larger and more powerful shell than the present 60-mm and 81-mm rounds. It is particularly applicable to jungle warfare where high angle fire is desirable for shooting through trees. The round is shipped unfuzed as separate loaded ammunition and must be assembled in the field. Eight shell, each provided with eye-bolt lifting plug and base thread protector are packed together in a pallet. Each fin assembly with full propelling charge is separately packed in a hermetically sealed metal can together with two Primers, Mk2A4. Each fuze is separately packed in a hermetically sealed metal can. Two fuzes and two fin assemblies are packed in a wooden ammunition box.

A quantity of these rounds have been delivered to Field Service.

# DECLASSIFIED

CONFIDENTIAL

# SHELL, SMOKE (WP), T28E2 FOR MORTAR, 155-MM, T25



This round is a companion round to Shell, H.E., T26E1 for 155-mm mortar. Weight of round as fired is 64.95 pounds when fired with Fuze, PD, M4A2 and 64.60 pounds when fired with Fuze, PD, M4A1. The round is provided with a charge of approximately 15½ pounds of white phosphorous which is distributed by a burster charge of tetrytol weighing approximately 1.0 pound. The fuzes authorized with this round, (PD, M4A2 and PD, M4A1) are dual purpose fuzes with superquick and .015 sec. delay, but should always be set superquick when used with this round. Except for weight effect, ballistics of this round are the same as those of Shell, H.E., T26E1. Size of smoke cloud under average conditions when fired for impact on hard ground is approximately 40 yards wide by 50 yards high. Burning white phosphorous is scattered over a wide area upon disruption of this shell.

It is anticipated that a quantity of these shell will be loaded in the near future.

# SHOT, FIXED, HVAP-T, 90-MM, T30E16 FOR GUN, 90-MM, M3

The Fixed Shot, HVAP-T, 90-mm, T30E16 is issued as a fixed, complete round for Gun, 90-mm, M3 mounted in Gun Motor Carriage, M36 or M36B1 and Heavy Tank, T26E3. It is a light-weight projectile, consisting of an 8-lb. tungsten carbide core, aluminum body, and windshield and a steel base tracer loaded.

This shot is 13.2 inches long and weighs 16.7 lb. The complete round is 35.9 inches long and weighs 35.9 lb. A muzzle velocity of 3,350 f/s is obtained with this shot when fired from the M3 gun. It is a special hypervelocity, armor-piercing round especially designed for attack of heavily armored vehicles. It gives greatly increased penetrative

CONFIDENTIAL  
DECLASSIFIED

DECLASSIFIED

performance up to 2,000 yards range over the standard APC-T Projectile, 90-mm, M82. At shorter ranges it is especially effective. It will penetrate all plates of the German PzKpfw V "Panther" and "King Tiger" tanks. It will defeat the glacis plate of the "Panther" at ranges up to 450 yards and that of the "King Tiger" at 100 yards range. Up to ranges of 800 yards this shot will penetrate the gun mantlet and turret front of the "Panther" tank and up to ranges of 1,700 yards the turret front of the "King Tiger" tank.

The armor penetrative ability of this shot has been compared with that of the M82 APC Shot with the following results obtained:

Range	Obliquity	M82 APC	T30E16
500	20°	5.5"	9.4"
500	30°	5.0"	7.6"
1,000	20°	5.2"	8.2"
1,000	30°	4.7"	6.8"
2,000	20°	4.5"	6.2"



Accuracy firings from the M3 gun have been conducted with the T30 design at a vertical target over a range of 2,100 yards. The extreme horizontal dispersion was 17 inches and the extreme vertical dispersion was 30 inches.

The T30E16 shot should not be considered suitable or available for general replacement of standard types of armor-piercing ammunition. Tungsten carbide is a critical material and is not currently available in greater quantities. The supply of tungsten carbide, however, is sufficient for the production of limited quantities of this ammunition for special uses.

This round is in limited procurement.

DECLASSIFIED

REF ID: A66547

DECLASSIFIED

# SHELL, FIXED, SMOKE (WP), 90-MM, T31E2 FOR GUN, 90-MM, M1, M2 AND M3



The development of a white phosphorus shell for use in the 90-mm Gun M1 was initiated by the development of the burster type T18. Firing tests conducted on this shell indicated that the burster was insufficient to properly burst the shell body and dispense the white phosphorus. A shell was then designed and developed to have similar ranging characteristics to the Shell, H.E., 90-mm, M71, with respect to both weight and shape. This design was designated Shell, Smoke (WP), 90-mm, T31E1. This design utilized an M71 H.E. Shell body, modified to take a modified 105-mm, M60 Burster Adapter, a shortened 105-mm M5 Burster casing and charge and the M57 fuze and M22 booster. The weight of the T31E1 shell, loaded and fuzed, was approximately 24.36 pounds or 1 lb. more than the M71 H.E. Shell which it was designed to simulate. The white phosphorus charge weight was 1½ lb.

Firing tests conducted on the T31E1 shell indicated that satisfactory bursting of the shell body was obtained. In a further attempt to increase the white phosphorus content and to reduce the weight a design designated as the T31E2 was prepared.

The T31E2 design differed from the T31E1 design in that the lower detonator used in the Shell, Smoke, WP, 75-mm, M64, was substituted for the M22 booster and the cavity of the M71 Shell body was enlarged to reduce the weight and increase the capacity. The T31E2 Shell, loaded and fuzed, weighs 23.38 pounds and contains 1.85 pounds of white phosphorus. Results of firing tests indicated that the T31E2 shell functions satisfactorily and simulated the M71 in flight characteristics. The average width and height of the smoke screen 20 yards and 28 yards respectively. The same firing tables are used for the T31E2 shell.

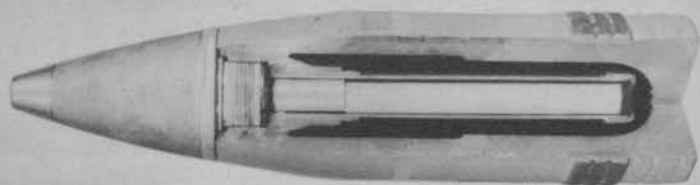
A design designated as Shell, Smoke, WP, 90-mm T31E3 was prepared in view of the fact that in production it would be desirable to produce a shell having a forged instead of a machined cavity.

Both Shell, Smoke (WP), 90-mm, T31E2 and T31E3 will use standard M57 fuzes, M19 cartridge cases, M28A2 primer and the lower detonator used in Shell, Smoke (WP, 75-mm, M6). Since the weight of the T31E2 and T31E3 Shell are identical to that of the M71 H.E. Shell, the same propellant charge can be used as is used for the M71 shell.

These projectiles are fixed for the 90-mm Gun, M1, M1A1, M2 or M3 at a chamber pressure of 38,000 lb. psi with a muzzle velocity of 2,700 f/s and have a maximum range of 19,560 yards. The weight of the complete round is 42.04 lb. and the length of the complete round is 37.44 in.

Limited procurement of the T31E3 shell has been authorized.

## **SHELL, FIXED, SMOKE (WP), T13E2, SMOKELESS, FOR 3-INCH GUNS, 15-PDR. M1902, M5 AND M7 AND 76-MM GUNS**



This ammunition was developed to fill a need for a spotting and smoke round for 3-inch and 76-mm guns which would also have some anti-personnel effect. It is necessary for this type of ammunition to have the same ballistics as the corresponding Shell, H.E., M42A1. Ballistic firing tests have shown that the firing tables for the corresponding M42A1 Shell, normal charge apply to this ammunition.

Identical metal parts and loading are used for both the 3-inch and 76-mm shell. Each takes the cartridge case, primer and propellant of the corresponding Shell, H.E., M42A1. The Fuze, P.D., M57 is used. The loaded and fuzed shell weighs 12.95 lb., and carries a WP charge of .76 lb. The fuze functions a lower detonator, which in turn detonates the 524 grain tetrytol burster. The lower detonator is confined in a detonator sleeve and held in place by a retainer. Almost all these shell will fall in Zone 2, the same as most of the M42A1 shell.

The 76-mm fixed shell T13E2 weighs 22.31 lb. and has an over-all length of 32.34 inches. It has a muzzle velocity of 2,700 f/s at a maximum chamber pressure of 43,000 psi, and has a maximum range of 14,600 yd.

The 3-inch fixed shell T13E2 weighs 24.81 lb. and has an over-all length of 34.12 inches. It has a muzzle velocity of 2,800 f/s at a maximum



CONFIDENTIAL  
DECLASSIFIED

chamber pressure of 36,000 psi, and has a maximum range of 14,500 yd.

The average smoke cloud for this ammunition is 14 yards high by 15 yards wide.

This shell is in limited procurement.

## SHELL, ILLUMINATING, 105-MM, T16



Shell, Illuminating, 105-mm, T16 was developed at request of Army Ground Forces and the Marine Corps. Its tactical use will be for illuminating of road junctions, off shore illumination, areas directly in front of our front lines to prevent infiltration, marking positions at night and similar missions. At the present time off shore illumination in some situations is being provided by Navy destroyers firing 3" and 5" Naval Ill. Projectiles. When these shell become available they can be fired from shore and thereby relieve destroyers from the mission.

This shell with Fuze, T and SQ M54 is issued as a complete round semi-fixed for 105-mm How. M2 and M2A1. At a predetermined time during flight a flare assembly consisting of a parachute assembly and an illuminant assembly is ejected from the base of the shell by an expelling charge that is initiated by the time fuze. The flare is ignited by the expelling charge and the parachute allows it to descend slowly during the time of burning of approximately 43 seconds.

### CHARACTERISTICS

Complete Round	
Length, over-all.....	32.19 in.
Weight.....	45.65 lb.
Muzzle velocity, Charge 7.....	1,460 f/s
Candle power of flare.....	240,000
Rate of descent of flare.....	35 f/s (approx.)
Optimum height of burst.....	1,600 ft.
Burning time of flare.....	43 sec. (approx.)

Production of this shell is scheduled to begin in the second quarter of this year.

CONFIDENTIAL  
DECLASSIFIED

# ADAPTER, GRENADE PROJECTION, CHEMICAL, T2E1



The T2E1 chemical grenade projection adapter is a further development of an adapter devised by U. S. forces stationed in the European Theater which permits rifle or carbine projection of standard complete round chemical burning-type hand grenades. It consists of two parts: a snap-on stabilizer assembly with a three-pronged clip, and a metal setback band. The three-pronged clip snaps on over the bottom seam of the grenade. The M15 (WP) Smoke Hand Grenade (bursting type) is not suitable for use with the T2E1 adapter, inasmuch as this grenade lacks a bottom seam for engagement with the three-pronged clip.

The adapter, when assembled to one of the burning type chemical hand grenades, is fired from the launcher in the same manner as a rifle grenade. The metal setback band is held in place around the grenade body over the safety lever by a spring. After removal of the grenade safety pin, setback (inertia) forces due to firing cause the band to slide off the safety lever toward the base of the grenade. This permits the safety lever to spring outward and the striker to ignite the fuze. The fuze ignites the grenade in approximately  $1\frac{1}{2}$  seconds.

## RANGE

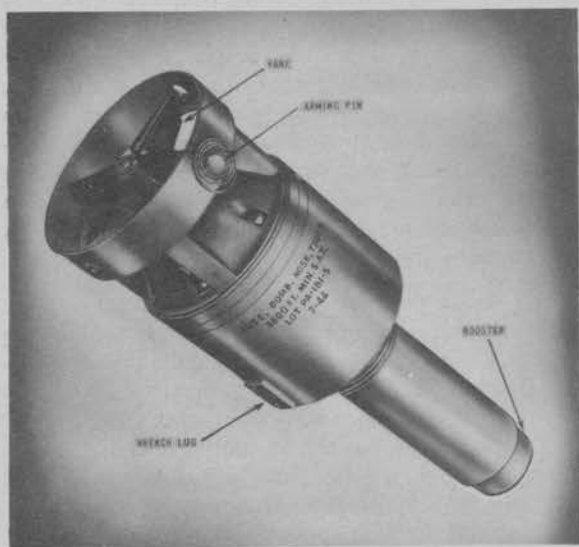
Weapon	Cartridge	Maximum Range in Yards for Most Frequently Used Hand Grenades		
		M8	M14	M16 or M18
M1 or M1903 Rifle.	M3	146	134	159
M1 or M1903 Rifle.	M3+M7	191	182	202
M1 Carbine.	M6	93	77	115

This item is being procured in limited quantities only.

DECLASSIFIED

~~CONFIDENTIAL~~  
~~DECLASSIFIED~~  
**FUZE, BOMB, NOSE, VT, T50E4**  
**3,600 FT. MINSAT**

**FUZE, BOMB, NOSE, VT, T51E1**  
**3,600 FT. MINSAT**



These VT fuzes are designed for use with general purpose, fragmentation, incendiary or chemical bombs, against ground targets, lightly armored naval vessels or aircraft. They produce air bursts on approach to a target at a distance which is most effective in obtaining maximum blast and fragmentation effect, and for dispersion of chemical agents and incendiaries. The burst is automatic on approach to target and the height is independent of release altitude or time of fall.

These VT fuzes fit into the nose-well of all standard bombs which accommodate Fuze, Bomb, Nose, AN-M103. Since they are ballistically interchangeable with Fuze AN-M103, no special bombing tables are necessary. The minimum safe air travel prior to arming (abbreviation —MinSAT)

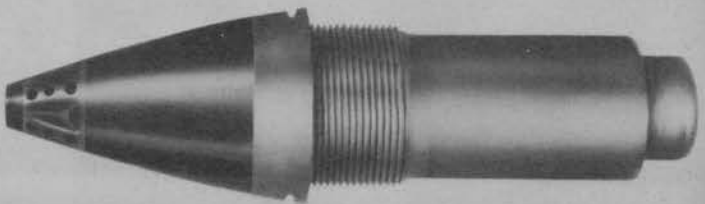
~~CONFIDENTIAL~~  
~~DECLASSIFIED~~

is stenciled on each fuze, container, and box as a part of Ordnance nomenclature. The nominal minimum safe air travel prior to arming is calibrated for the 100-lb. GP Bomb AN-M30. When the fuzes are used on larger bombs, the air travel prior to arming may be expected to be greater. Functioning of the fuzes is not affected by fog, light, and haze. Rain may increase the number of malfunctions slightly. Proper operation may be expected at temperatures from  $-40^{\circ}\text{F.}$  to  $+140^{\circ}\text{F.}$

The T50E4 Fuze is available in limited quantities.

The T51E1 Fuze is currently undergoing test experiments.

## **FUZE, VT, T80E6 FOR 75-MM AND 105-MM HOWITZER AND 90-MM AA SHELL**



This VT fuze has been designed exclusively for use against those terrestrial targets normally engaged by time fire. It provides a means of obtaining a concentration of air bursts at effective heights above the terrain, irrespective of the time of flight or distance to the target. A rolling barrage of VT-fuzed shell will follow the terrain contour automatically, maintaining effective burst height even when directed toward defiladed areas.

VT fuzes for field artillery shell are recommended for use at ranges beyond the present effective limit of time fuzes. Dispersion in burst height is considerably less than that obtained with time fuzes and actually decreases with range. In general the height of burst will be greater for flat trajectories than for high angle fire, thus maintaining optimum lethal effect against personnel on the ground. As the fuzes are ballistically interchangeable with standard time or impact fuzes, existing firing tables are applicable.

The VT Fuze T80E6 is available.

CONFIDENTIAL  
**FUZE, ROCKET, P.D., T5**



Rocket Fuze, P.D., T5 is representative of the VT-Type fuzes for use with 4.5-in. Rockets M8, M8A3, T22 and T74, and with a slight modification of rocket fins, may also be used with 4.5-in. Rockets, M8A1 and M8A2.

As used in plane-to-plane applications, Fuze, P.D., T5 functions effectively when the rocket passes within 60 ft. of aircraft, at a position which results in a maximum number of fragments being directed toward the target. This fuze contains a self-destruction element which detonates the rocket after 6 to 11 seconds flight time in case the rocket does not function on the target.

Fuze, P.D., T5 can be effectively used against ground targets. When so used, it will produce an air burst at a height most lethal to personnel and materiel without top cover.

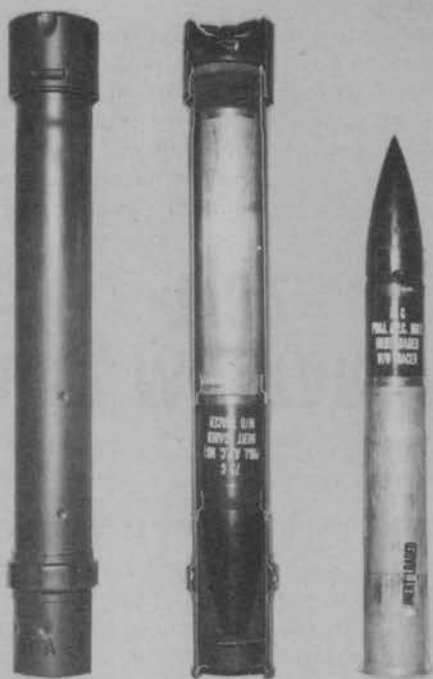
The VT Fuze T5 is available in limited quantities.

## **FUZE, MORTAR, VT, T132**

Fuze, Rocket, VT, T132, for unrotated mortar projectiles, 81-mm, 105-mm and 155-mm, is under development and small quantities are being made for experimental and engineering tests. It is expected that this fuze will greatly increase the effectiveness of mortar fire. It is anticipated that this fuze will be ready for service tests by mid-1945.

CONFIDENTIAL  
**FUZE, MORTAR, VT,  
T132**

# COMPLETE ROUND METAL AMMUNITION CONTAINERS



75-mm Metal Container, M154A1



90-mm Metal Container, M159A1

CONFIDENTIAL  
DECLASSIFIED



75-mm Metal Container, M173A1



81-mm Metal Box, M140A1

CONFIDENTIAL  
DECLASSIFIED 21

DECLASSIFIED <sup>22</sup>



57-mm Metal Container, M175A1



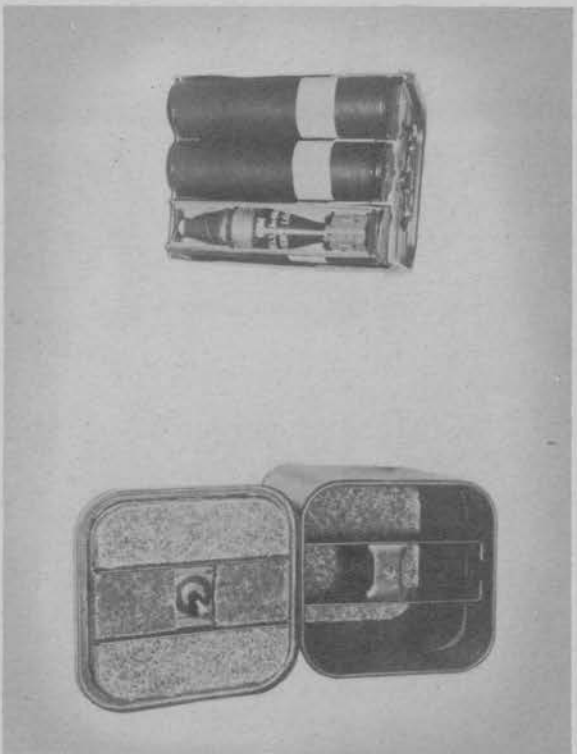
3-inch Metal Container, M158

DECLASSIFIED





105-mm Metal Container, M152A1



60-mm Metal Box, M139A1

These containers were designed and developed to supplement standard wood and fiber packing where the latter failed to give adequate protection to ammunition in case of extreme moisture and rough handling.

The containers are constructed of heavy gage sheet metal, tubular shape for one round pack and box shape for four to eight round pack. Water

DECLASSIFIED 24

tightness is obtained by means of a rubber gasket upon which pressure is maintained by means of a wing bolt in cover. Containers will withstand a maximum amount of rough handling and have passed various water tightness tests ranging from immersion in 10 ft. of water for thirty minutes to 3 ft. of water for twenty-four hours after rough handling.

Two types of packing are incorporated, namely, bare round pack and fiber container pack. Mortar and howitzer ammunition is packed first in a fiber container and then inserted in the metal container. Other ammunition eliminates the fiber container and is supported at nose, bourrelet and rotating band by means of inner rings and a steel nose support cushioned by a rubber washer.

Metal container production in 1944 was in excess of ten million and involved approximately sixty facilities. It is anticipated that production will be doubled in 1945.

DECLASSIFIED

DECLASSIFIED

# SMALL ARMS

DECLASSIFIED



# DECLASSIFIED

## RIFLE, 57-MM, T15E9 AND T15E13



The 57-mm Rifles, T15E13 and T15E9, operating on the recoilless principle, have been designed to provide an antipersonnel and antitank weapon of lighter weight and greater range and accuracy than other comparable light weight weapons.

This rifle operates on principles similar to those of a conventional gun except in the characteristics of the breech. Upon ignition of the propelling charge, a controlled amount of gas is allowed to escape to the rear, which with the forward momentum of the shell, creates equal and opposing forces within the rifle. The force exerted by the projectile in its forward passage through the tube counteracts the force of the gas escaping through Venturi openings in the breech. Hence, since these two forces are balanced, the rifle does not move appreciably. Moreover, the Venturi openings are designed to exert a rotational reaction which offsets the torque induced in the rifle by the movement of the projectile through the rifling.

The cartridge case of the round for this rifle is smaller in diameter than the interior of the chamber; it is perforated to allow radial escape of gas into the chamber and thence to the rear until controlled by the Venturi openings. The round as thus proportioned is compact and easily transported.

The rifles T15E9 and T15E13 differ only in the rifling of the tube. The rifling in the T15E9 is one turn in 25 calibers and the T15E13 is one turn in 30 calibers.

Extendable front, Handle, T3E1 and Bipod, T3E1 are provided. The latter, when folded, becomes a shoulder rest, permitting the rifle to be fired from the shoulder in standing, sitting, or kneeling positions. The front handle may be extended and the bipod unfolded to furnish three point support for prone firing. The rifle may also be mounted on the caliber .30 machine gun tripod. Sight, Front, T91 and Mount, Sight, T120E2 provide attached iron sights, the rear sight leaf being similar to the caliber .30 M1903 rifle. Telescope, Sight, T130E2 may be quickly attached to the Mount, Sight, T120E2.

### ACCESSORIES

1. Cover, T27E2
2. Cover, T38 (Muzzle and Breech)
3. Bag, Canvas, Rocket, M6 (for transporting ammunition)
4. Packboard, Plywood & straps w/buckles, quick-release & attachments, cargo
5. Mount, Tripod, Caliber .30, M1917A1

Weight (gun complete—for mounting on tripod) . . . 40.25 lb.  
 Length, over-all . . . . . 60 in.  
 Recoil mechanism . . . . . none, recoilless  
 Muzzle velocity . . . . . 1,200 f/s  
 Maximum range . . . . . 4,400 yd.  
     with Shell, H.E., 57-mm, T22  
 Type of breechblock . . . . . Interrupted lug  
 Firing mechanism . . Spring loaded hammer, floating firing  
     pin, trigger-operated sear  
 Rifling . . . . . 1 turn in 30 calibers—uniform, right hand  
 Mount . . . . . Bipod, T3E1 forms rest for shoulder firing or bipod  
     for prone firing used in conjunction w/extendable  
     front Handle, T3E1  
 Alternate Mount . . . . . Mount, Tripod, Cal. .30, M1917A1  
 Iron Sights . . Sight, Front, T91 and Mount, Sight, T120E1  
     provide iron sights when telescope is not used  
 Telescopic Sight . . . . . Direct Fire Telescope, T130E2  
 Elevation (on Mount, Tripod, Cal. .30, M1917A1) . . +65°  
 Depression (on Mount, Tripod, Cal. .30, M1917A1) . . -27°  
 Traverse (on Mount, Tripod, Cal. .30, M1917A1) . . . 360°  
 Height—in firing position (on Mount, Tripod, Cal. .30,  
     M1917A1) . . . . . 0° elevation 34 1/4 in. to top of  
     breechblock handle  
 Width—in firing position . . . 12 in. (gun and sight mounting  
     bracket, only)

This weapon is in limited procurement.

## AMMUNITION



**Cartridge, H.E., 57-mm, T22**

The H.E. Shell, T22 was developed to provide a high explosive, antipersonnel round for the 57-mm Recoilless rifle. This round is provided with a point detonating Fuze, T119E1.

The H.E.A.T., Shell, T20E2 was developed to provide a round for use against armored vehicles. It is provided with a point initiating Fuze, T123E1, and has penetrated homogeneous armor plate up to 3" at 20° obliquity.

The WP Shell, T23, was developed to provide a round for smoke screening, antipersonnel effect and for spotting. The T119E1 fuze is used with this round.

All of these rounds use a perforated steel cartridge case instead of the usual solid case. The case has a paper liner which retains the propellant charge and bursts upon ignition, allowing the release of gases through Venturi tubes in the rear of the gun. All shell have pre-engraved rotating bands in order to reduce the amount of pressure required to expel the shell from the rifle.

## CHARACTERISTICS

Shell	Shell & Fuze weight	Fuze type	Primer	Cartridge Case	Complete Round Weight	
					w/o container	w/container
H.E., 57-mm, T22 . . . . .	2.75 lb.	P.D.	Perc., T37	Steel, T1	5.30 lb.	7.12 lb.
H.E.A.T., 57-mm, T20E2 . . . . .	2.75 lb.	P.I.	Perc., T37	Steel, T1	5.30 lb.	7.12 lb.
Smoke (WP), 57-mm T23 . . . . .	2.75 lb.	P.D.	Perc., T37	Steel, T1	5.30 lb.	7.12 lb.

This item is in limited procurement.

# DECLASSIFIED

## RIFLE 75-MM, T21



The 75-mm rifle, T21 has also been designed as an antitank and antipersonnel weapon with a range and fire power comparable to a howitzer, the accuracy of small arms, and yet light enough to accompany infantry.

The T21 rifle operates on the same principles as the 57-mm recoilless rifle and fires, at normal velocity of 1,000 f/s, a standard 75-mm H.E.A.T. projectile with pre-engraved rotating band and other slight modifications. Similarly modified standard H.E. and WP projectiles are also fired at the above velocity.

Weighing but 105 pounds this rifle may be carried short distances by 2 to 4 men. It is quickly and easily mounted on the caliber .30, M1917A1 tripod mount. Provided the range is not too great, it may be used for supporting artillery fire. Maximum range is approximately 7,000 yards.

Although the T21 rifle is primarily a direct fire weapon, an elevaton quadrant, and leveling jacks to bring the pintle into a level plane, are provided.

Paracrates to allow the rifle to be dropped from airplanes are under development and it is anticipated that it will become an important addition to the equipment of airborne troops.

### CHARACTERISTICS

Weight (gun w/out sights or tripods).....	105 lb.
Length, over-all.....	81.78 in.
Recoil mechanism.....	None, recoilless
Muzzle velocity.....	1,000 f/s
Type of breechblock.....	Interrupted lug
Firing mechanism.....	Spring loaded hammer, floating pin trigger-operated sear
Rifling.....	1 turn in 22 calibers—uniform, right hand
Mount.....	Mount, Tripod, Cal. .30, M1917A1
Elevation (on Mount, Tripod, Cal. .30, M1917A1).....	+27°
Depression (on Mount, Tripod, Cal. .30, M1917A1).....	-65°
Traverse (on Mount, Tripod, Cal. .30, M1917A1).....	360°

### ACCESSORIES

1. Mount, Tripod, Caliber .30, M1917A1
2. Jacks, Leveling, T1
3. Cover, T39 (Muzzle and Breech)

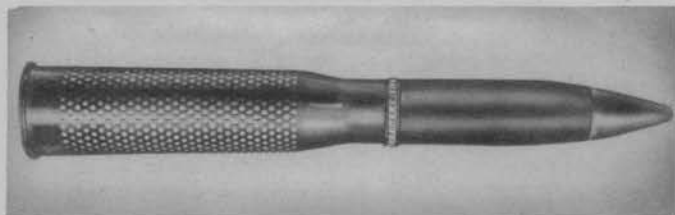
DECLASSIFIED 29

## OPTICAL FIRE CONTROL

1. Telescope, T216E2
2. Quadrant, Elevation, T13E1

This weapon is in limited procurement.

## AMMUNITION



Cartridge, H.E., 75-mm, T38

Shell similar to those for the 57-mm rifle were developed for the 75-mm T21 rifle. The Shell, H.E., 75-mm, T38 is an antipersonnel round, and the Shell, H.E.A.T., T39 is an antitank round with the ability to penetrate 4 to 4.5" of homogeneous armor plate at all ranges and at all obliquities from 0° to 60°.

The WP Shell, T23 will be used for smoke screening, antipersonnel effect, and for spotting.

The H.E. Shell uses the point detonating Fuze, M48A2, the H.E.A.T. uses the base detonating Fuze, M62, and the WP Shell uses the point detonating Fuze, M57.

These rounds also use a perforated steel cartridge case and have pre-engraved rotating bands.

## CHARACTERISTICS

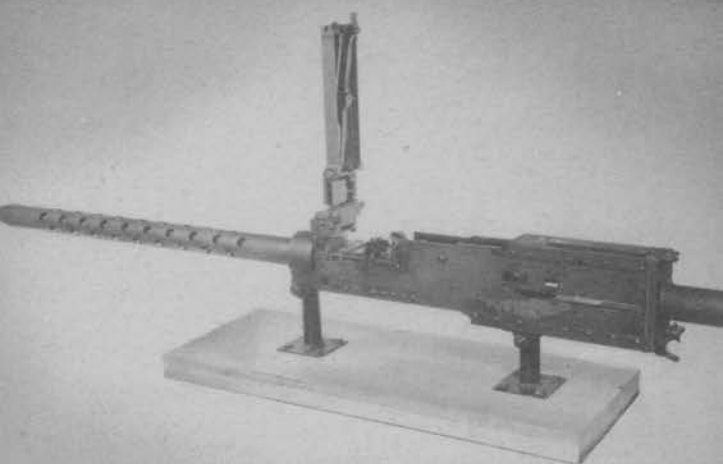
Shell	Shell & Fuze Weight	Fuze Type	Primer	Cartridge Case	Complete Rd. Weight
H.E., 75-mm, T38	14.4 lb.	P.D.	M28A2	Steel, T7	21.85 lb.
H.E.A.T., 75-mm, T39	13.08 lb.	P.D.	M28A2	Steel, T7	20.44 lb.
Smoke (WP), 75-mm, T40	15.1 lb.	P.D.	M28A2	Steel, T7	22.61 lb.

This item is in limited procurement.



**DECLASSIFIED**

# GUN, MACHINE, CAL. .50, T25E3, AIRCRAFT, BASIC



The T25E3 Machine Gun was developed to provide a high cyclic rate (1200 rpm) large caliber gun for use in combat aircraft. The extremely short time of engagement allowed by present high speed aircraft requires that as much fire as possible be delivered during this brief period. The T25E3 gun is based on the Caliber .50 Machine Gun, M2 with extensive modifications to provide reliable functioning at a cyclic rate of 1200 rpm using standard ammunition and links. Among these improvements are:

- a. Pneumatic barrel buffer in place of oil buffer.
- b. Belleville spring in bolt buffer in place of fiber discs.
- c. Recoil Booster.
- d. Breech Lock Depressors integral with side plates.
- e. Reversible Ejector to avoid the necessity of its passing between adjacent rounds in the ammunition belt.
- f. Redesigned Firing Pin, Sear, and Cocking Lever.
- g. Stellite Lined Barrel which permits long burst fire without excessive loss in accuracy.

## CHARACTERISTICS

Weight.....	62 lb.
Length.....	58 $\frac{1}{4}$ in.
Cyclic pull.....	1,200 rpm (on rigid mount)
Belt Pull.....	35 lb. (minimum)

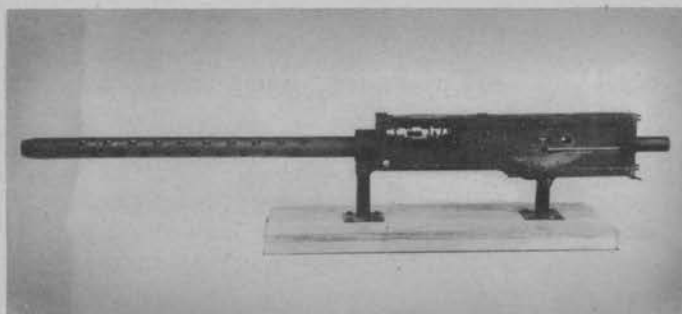
This machine gun is under limited procurement.

**DECLASSIFIED**

31

# DECLASSIFIED

## GUN, MACHINE, CAL. .50, T36, AIRCRAFT, BASIC



To provide an aircraft machine gun having a moderately (100 rpm) increased cyclic rate over the standard M2 gun, increased belt lift capacity of 30 pounds minimum, and improved ability to accommodate curving belts of ammunition being fed into the weapon. Improvements incorporated in the T36 machine gun include:

- a. Improved top cover assembly.
- b. A recoil booster.
- c. Split type holding pawls.
- d. Oil removed from oil buffer.
- e. Ejector pin of increased diameter.

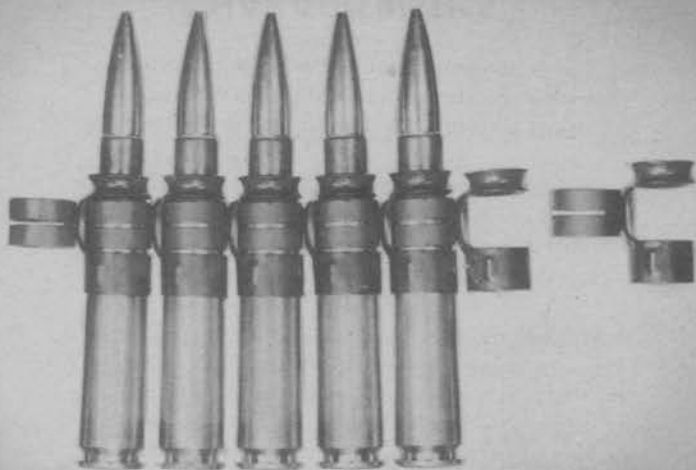
### CHARACTERISTICS

Weight.....	62 lb.
Length.....	57 $\frac{1}{2}$ in.
Cyclic Rate.....	850-950 rpm (fired from rigid Aircraft Mounts)
Belt Pull.....	30 lb. minimum

This item is under limited procurement.

# DECLASSIFIED

**DECLASSIFIED**  
**LINK, METALLIC BELT,**  
**CAL. .50, T31E2**



A flexible belt link for use in cal. .50 machine guns. Two-piece constructed to permit increased controlled flexibility without introducing new causes of possible malfunctions. Increased strength to permit use at higher belt loads and higher rates of fire. Interchangeable in use with M2 link, but slight adjustment of linking machine required for T31E2.

**CHARACTERISTICS**

Pull Test . . . . . 100 lb.  
Extraction . . . . . 10 to 25 lb.  
Twist . . . . . 12 round belt must twist 90°

This item is under limited procurement.

**DECLASSIFIED**

# GUN, SUBMACHINE, CAL. .45, M3A1



The M3A1 Submachine Gun is similar in design to the M3 Submachine Gun. In order to simplify and increase the general efficiency of the M3 Submachine Gun, the following improvements were made which resulted in the M3A1 Submachine Gun:

1. A redesigned housing assembly which eliminated the complete retracting lever assembly, pawl and retracting handle assembly.
2. A redesigned bolt with finger hole for cocking and new bottom cuts.
3. A redesigned receiver with larger ejection port opening and a new hinge with a stronger cover spring.
4. Stock equipped with a transverse bar to act as a stop when used as a cleaning rod to prevent injury to the barrel. This bar has a short stud incorporated which acts as a magazine follower depressor, thereby allowing the stock to serve as a magazine loader, eliminating the standard magazine loader accessory.
5. A supply of oil is carried within the pistol grip greatly increasing the available supply of oil and eliminating the standard oiler as on the M3 Submachine Gun. The screw cap for the oiler incorporates a stilus which serves as a drift to remove the extractor pin from the bolt.
6. Two transverse cuts are included on the barrel collar to allow the stock to be used as a wrench when the barrel is so tightly screwed into the receiver as to prevent ready disassembly.
7. The bolt assembly can be removed from the receiver without removing what was formerly the cocking lever assembly housing.

## CHARACTERISTICS

Weight .....	7.74 lb.
Over-all length .....	29.8 in.
Average cyclic rate of fire (by actual test) .....	436 rd. per min.
Type of sight .....	100 yd. fixed deep

This item is in quantity production.

DECLASSIFIED  
**LAUNCHER, ROCKET,  
M18 (M9E2)**



The M18 rocket launcher provides a two piece weapon which weighs approximately  $\frac{1}{3}$  less than the M9A1 launcher. This reduction in weight is accomplished by employing aluminum alloys in its fabrication. The M18 incorporates the new sight, reflecting which is now standard for rocket launcher of 2.36-inch caliber. Other than weight, the military characteristics of the M18 are identical with the M9A1.

### **CHARACTERISTICS**

Weight (of launcher).....	10.5 lb.
Maximum range.....	600 yds.
Muzzle velocity.....	265 f/s
Weight (of rocket).....	3.39 lb.
Length (assembled).....	62 in.
Length (folded).....	32 in.

This item is under limited procurement.

DECLASSIFIED



In order to meet the requirement for increased fire power in the carbine, a redesign of the carbine was made to permit selective semi- and full-automatic fire by means of a change lever. This increase in fire power was accomplished by modifying the M1 Carbine to include seven new additional manufacturing components: two new components to replace old, and five modified components. The principle of operation in semi-automatic fire is the same as that of the M1 Carbine. Automatic action is accomplished through independent sear release actuated through a connector operating off a cam cut on the operating slide during forward movement after locking of the bolt has been accomplished.

A new thirty round, curved, box magazine, double row type, has been developed which operates satisfactorily in the M1 or M2 Carbine. This magazine is loaded and used in the same manner as the standard magazine.

### CHARACTERISTICS

Weight . 5 lb. 3.19 oz. (M1 Carbine 5 lb. 1.85 oz.)  
Length, over-all . . . . . 35.6 in.  
Feeding Device . . . . . Magazine  
Weight of magazine . . . . 30 round, empty—.17 lb.  
30 round, loaded—.59 lb.  
Rate of fire  
full automatic . . . . . 750-775 rounds per minute  
Sight . . . . . Adjustable  
Over-all dimensions and specifications are the same as for the Carbine, M1.

This item is under quantity production.

# DECLASSIFIED ARMOR, VEST, T46



Armor, Vest, T46 (Back)



Armor, Vest, T46 (Front)

This vest was developed to provide protection from flak, equivalent to Standard Flyer's Armor, for crew members of combat type airplanes. The degree of protection is equivalent to Standard Flyer's Armor. There is an additional area protected of  $6\frac{1}{2}$  per cent with a  $12\frac{1}{2}$  per cent saving in weight.

## CHARACTERISTICS

Ballistic material Combination of aluminum plates and nylon fabric

Total weight . . . . . 14 lb., 8 oz.

Area of protection . . . . . 588 sq. in.

Equipped with emergency quick release

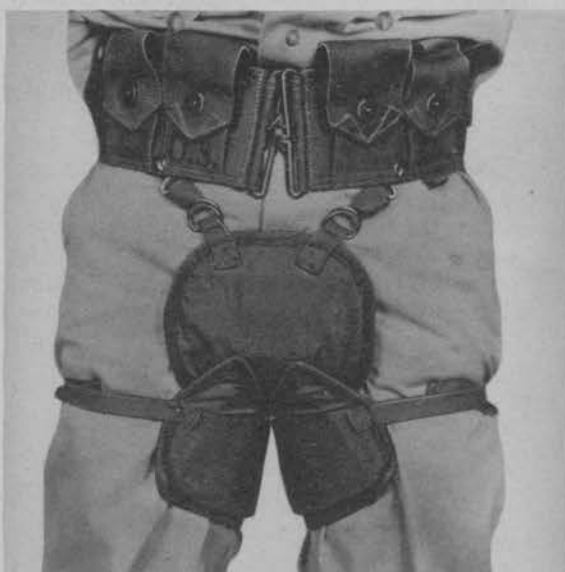
Worn over parachute harness and flyer's jacket

This item is under limited procurement.

# DECLASSIFIED

# DECLASSIFIED 98

## ARMOR, CROTCH, T16E4



The Crotch Armor T16E4 has been developed to provide dismounted troops, specifically men engaged in clearing mine fields, with protection of the genital region from flying steel fragments, wood splinters, pebbles and dirt which result from the explosion of anti-personnel mines, Schu mines, "S" mines, and similar types. Since such missiles are comparable in size to 20-mm shell fragments, the type construction employed for standard flyer's armor has been adhered to where possible.

### CHARACTERISTICS

The garment is designed with three sections: A center section for protection to the crotch, seat and groin; and two side flaps for leg protection.

The center section incorporates armor steel plates 2 in. x 2 in. arranged vertically in web pockets similar to the method employed in standard flyer's armor. This section is covered with canvas backing.

The leg flaps are constructed of multiple plies of nylon duck fabric, which of all flexible fabric materials tested to date exhibits the greatest resistance to the type of fragmentation to be encountered. However, the device does not provide the exact equivalent quantity of protection of standard flyer's armor, but approaches it to a degree practicable within the space and flexibility limitations present.

The device has no adverse effect on the operation of mine detectors and causes very little discomfort to the wearer when prodding for buried mines, even when in the kneeling position. It can be worn for considerable periods of time with a practicable degree of comfort to the wearer.

The Corps of Engineers is the Using Service.  
This item is under limited procurement.



# DECLASSIFIED HELMET, M5 (T8) CONFIDENTIAL



The Helmet, M5 has been designed specifically to provide a ballistic steel helmet to be worn by Army Air Forces personnel aboard combat type aircraft. Due to the restricted space in gun turrets, it is necessary that such helmets be of close fitting type conforming as closely as possible to the contour of the flyer's leather helmet. It is possible for the M5 to be worn in all crew positions aboard various aircraft, except for the ring sight gunner of the B-29, and the Martin upper-turret gunner of the A-20.

## CHARACTERISTICS

Compact and light weight helmet.

Manufactured of ballistic Hadfield manganese steel.

A solid bowl or casque type helmet with cut-outs at the ear flaps shaped to fit over the ear phones of the flyer's leather helmet.

Forehead area of helmet is close fitting and designed with a slope which prevents interference with the wearer's vision, or with gun sights, or with sighting equipment.

The hammock suspension on the interior of the helmet is the adjustable type to enable fitting to the head size of the wearer.

This item is under limited procurement.

DECLASSIFIED  
CONFIDENTIAL 39

**DECLASSIFIED**  
**CONFIDENTIAL** 40  
**ARMOR, EYE, T45E4**



The Eye Armor has been developed to provide protection against ocular injuries to mine sweepers from exploding anti-personnel mines.

### **CHARACTERISTICS**

- a. Made from Hadfield manganese steel, .044 in. thick plus or minus .003 in.
- b. Vision slits .040 in. wide
- c. Ballistic plate mounted in replaceable rubber frame
- d. Can be worn with Helmet, Steel, M1

The Corps of Engineers is the Using Service.

This item is currently being produced for tests by the Engineer Board.

**DECLASSIFIED**

# DECLASSIFIED

## CARTRIDGE, INCENDIARY, CAL. .50, T48



This cartridge was developed to provide a caliber .50 incendiary round effective against low grade fuels such as aviation grade kerosene employed in jet propelled type aircraft. The projectile contains 85-90 grains of incendiary mixture as compared with 35 grains in the standard M1 incendiary projectile. The projectile successfully ignites kerosene due to the large quantity of incendiary mixture and the high energy of impact.

### CHARACTERISTICS

- a. Bullet weight.....500 grains
- b. Velocity.....3,400 f/s at 78 ft.
- c. Pressure.....58,000 lb./sq. in. (max. average)
- d. Typical trajectory data (forward fire)..300 mph

Altitude (feet)	Future Range (yd.)	Time of Flight (seconds)	
		API M8	INC. T48
7000	200	.22	.19
	400	.46	.40
	600	.73	.65
	800	1.03	.94
	1,000	1.38	1.31

### IDENTIFICATION

Dark blue bullet tip, with light blue annulus to rear of dark tip.

### USING SERVICE

Army Air Forces, Navy Air Force

This item is under limited procurement.

# CARTRIDGE, ARMOR PIERCING- INCENDIARY-TRACER, CAL. .50 M20(T28)



This cartridge provides a tracer projectile with greater destructive power than present caliber .50 tracer ammunition and with ballistic characteristics matching those of the Cartridge, Armor Piercing-Incendiary, Caliber .50, M8.

## CHARACTERISTICS

- a. Ballistic characteristics are identical with those of the M8 armor piercing-incendiary projectile
- b. Length of trace equivalent to that of the M1 tracer cartridge—1,600 to 1,900 yards
- c. Penetrates  $\frac{7}{8}$ -inch homogeneous armor plate at 100 yards, normal impact
- d. Incendiary characteristics equivalent to the M8 armor piercing-incendiary projectile
- e. Reduced muzzle flash
- f. Smoke along the trajectory is less than that of the M1 tracer cartridge (this property permits more satisfactory target observation)
- g. Bullet weight—614 grains

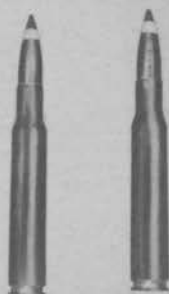
## IDENTIFICATION

Bullet tip red, with silver-colored annulus to rear of red tip.

## USING SERVICES

Army Air Forces, Army Ground Forces, Navy. This item is now standard and in quantity production.

~~CONFIDENTIAL~~  
**DECLASSIFIED**  
**CARTRIDGE, BALL,**  
**FRANGIBLE, CAL. .30,**  
**T44**



This development provides a projectile capable of being fired against armored aircraft in simulated combat. The goal has been to make available more realistic training for aerial gunners than present methods permit. The cartridge is fired in training from the rear turret of bombers at attacking P-63 fighters armored with  $\frac{1}{4}$ -inch 24 ST dural.

### CHARACTERISTICS

a. Frangible bullet

- Composition . . . Bakelite and powdered lead
- Length . . . . . 1.815 in.
- Diameter . . . . . .3085 in.
- Weight . . . . . 108 grains (approx.)
- Mean velocity . . . . . 1,320  $\pm$  30 f/s at 53 ft.
- Pressure . . . . . 3,000 lb./sq. in. (approx.)
- Penetration Must fail to penetrate  $\frac{3}{16}$ -in. sheet of 24 ST dural at 25 yd. normal impact
- Time of flight to 300 yd. (ground fire) . . . . 870 sec.
- Rate of fire in  
T9E3 Trainer M.G. . . . . 1,000-1,200 r.p.m.

### IDENTIFICATION

Bullet tip green, with white annulus to rear of green tip:

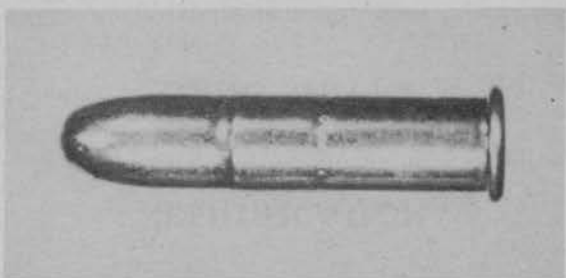
### USING SERVICE

Army Air Forces.  
The T44 cartridge is now in mass production.

**DECLASSIFIED**

DECLASSIFIED 44

# CARTRIDGE, BALL, CAL. .22, LONG RIFLE, T42



This round provides a caliber .22 cartridge with a jacketed bullet suitable for use by stranded Air Forces personnel in hunting game in jungle country. It replaces the caliber .22 unjacketed hollow point cartridge, the use of which in combat theaters has been deemed to be in violation of the Hague convention. This cartridge is employed in the caliber .22/.410 shotgun which is an item of equipment in AAF E12 and E14 jungle kits. Each kit contains 200 rounds of caliber .22 T42 ammunition.

## CHARACTERISTICS

Type. Bullet is a heeled type ball bullet with gilding metal jacket of approximately .0065-inch thickness

Weight of bullet . . . . . 40 grains

Weight of complete round . . . . . 100 grains

Cartridge type . . . . . run fire with a brass case

Velocity . . . . . 1,275 f/s at 25 ft.

Pressure . . . . . 22,000 lb./sq. in. (max.)

Accuracy. 1.7 in. mean radius at 100 yd. when fired from the caliber .22/.410 shotgun

Packing .50 rd. per cardboard carton; each carton inclosed in a waterproof, moisture-vapor-proof envelope

## USING SERVICE

Army Air Forces.

Manufacture of a quantity of rounds under limited procurement has been completed.

DECLASSIFIED

**DECLASSIFIED**

**TANK AND  
MOTOR  
TRANSPORT**

**DECLASSIFIED**





# DECLASSIFIED

## BULLDOZER, T1, FOR TRACTOR, HIGH SPEED M4



This unit was developed to provide a bulldozer for attachment to the High Speed Tractor, M4, for use in emplacing guns and preparing revetments. The bulldozer blade is attached to the tractor by linkage. The jacks and upper linkage are attached to a replacement differential cover plate, provided with the kit, and to the towing eyes. The lower push beams are attached to eyes which are welded to the belly of the tractor. The pump is connected directly to the engine crankshaft, and, with the reservoir, is located in the winch compartment. The suspension springs in the front bogies are replaced by springs used in the Heavy Tractor, M6 in order to take care of the additional weight of the blade. The complete installation may be made by 2nd echelon maintenance.

### CHARACTERISTICS

Weight—(excluding tractor) . . . . . 4,315 lb.  
Performance. Raising speed of blade 12-inch per second. Operating speed while bulldozing—1 to 4 miles per hour in creeper gear. Maximum speed of vehicle with bulldozer in carrying position—30 miles per hour. Recommended maximum speed with bulldozer attached—15 miles per hour

The Bulldozer, T1 is currently undergoing Service Tests.

# DECLASSIFIED

DECLASSIFIED 48

# TANK, HEAVY, M26



This vehicle has been developed to provide a tank with increased armor protection, fire power and mobility.

The TM26 Tank differs in many respects from the Medium Tank M4 Series. It is provided with greater armor protection and has a more powerful gun in the 90-mm Gun M3. The vehicle embodies low silhouette necessary interior space being obtained by use of wider hull. The vehicle is provided with torsion bar suspension resulting in materially improved riding characteristics over previous types of suspensions. A 24-inch wide track is provided. This vehicle employs the Ford V-8 Engine and torqmatic transmission.

## CHARACTERISTICS

Crew.....5

Weight with combat load .....92,000 lb.

### Armor

Hull, frontal upper.....4 in. at 46°

frontal lower.....3 in. at 54°

sides, forward.....3 in. at 0°

rear.....2 in.

Turret, front.....4 in.

sides and rear.....3 in.

Gun Shield.....4½ in.

### Armament

90-mm Gun, M3, with 1 Cal. .30 Machine Gun in combination mount in turret

Elevation.....-10° to +20°

Traverse.....360° by power or manually

1 Cal. .50 Machine Gun on turret for antiaircraft

1 Cal. .30 Machine Gun in bow

### Ammunition

70 rd.—90-mm

5,000 rd.—Cal. .30

440 rd.—Cal. .50

### Performance

Maximum speed.....25 mph

Grade ability.....60%

Trench crossing ability.....7 ft., 11 in.

Vertical obstacle ability.....36 in.

Fording ability.....48 in.

### Vision and Fire Control

Vision cupola on turret

6 Periscopes M6

Periscope M10F

Telescope M71C

Elevation Quadrant M9

Gunnery Quadrant M1

Azimuth Indicator M20

## COMMUNICATIONS

Provisions for Radios SCR 508, 506, AN/VRC-3 and British No. 19.

DECLASSIFIED

# DECLASSIFIED

## TANK, HEAVY, T26E4



The Heavy Tank, T26E4 is a modification of the M26 tank to mount the high velocity 90-mm Gun T15E2 in place of the 90-mm Gun M3. Changes in equilibrator, traversing mechanism, elevating mechanism, reworked ammunition stowage, and addition of weight to the turret rear for balance are the major changes required.

### CHARACTERISTICS

Crew.....	5
Weight, combat loaded.....	96,000 lb.
Armor—Same as Heavy Tank M26	
Armament	
90-mm Gun T15E2 with 1 Cal. .30 Machine Gun in combination mount in turret	
Elevation.....	-10° to +20°
Traverse.....	360° by power or manually
1 Cal. .50 Machine Gun on turret for antiaircraft	
1 Cal. .30 Machine Gun in bow	
Ammunition	
54 rd.....	90-mm
5,000 rd.....	Cal. .30
440 rd.....	Cal. .50
Performance—Same as Heavy Tank M26	
Vision and Fire Control	
Same as for Heavy Tank M26 except for reticle changes required in telescopes and periscope	
Communications	
Same as Heavy Tank M26	

This vehicle has recently been classified as Limited Procurement type.

# DECLASSIFIED

# CARRIAGE, MOTOR, 155-MM GUN, M40



This gun carriage was developed to provide highly mobile heavy artillery capable of being brought into action in the minimum of time to support a rapidly moving situation.

This vehicle consists of the standard field 155-mm Gun mounted on an armored chassis using current production M4 Series Tank components. The R975-C4 Engine, standard M4 Tank power train and 23-inch center guide track and horizontal volute spring suspension are used.

## CHARACTERISTICS

Crew . . . . . 8  
Weight, combat loaded . . . . . 83,000 lb.

### Armor

Frontal, Upper . . . . . 1/2 in. at 60°  
Frontal, Lower . Same as M4 Tank (2 1/2 in. to 4 in.)  
Sides, lower . . . . . 1 in.  
    upper . . . . . 1/2 in.  
Rear . . . . . 1/2 in.  
Gun Shields . . . . . 1/2 in. at 45°

### Armament

Gun, 155-mm, M2  
Elevation . . . . . -5° to +55°  
Traverse . . . . . 18° right and 18° left

### Ammunition

16 rd. 155-mm (144 additional rounds may be carried in accompanying M4 Tractor and M23 Ammunition Trailer)

### Performance

Maximum speed . . . . . 24 mph  
Gradeability . . . . . 60%  
Trench crossing ability . . . . . 7 ft., 8 in.  
Vertical obstacle ability . . . . . 34 in.  
Fording ability . . . . . 36 in.

### Vision and Fire Control

Vision Cupolas for driver and assistant driver  
Telescope M69E4  
Elbow Telescope T135 (M16A1F)  
Panoramic Telescope, M12  
Gunners Quadrant M1

## COMMUNICATIONS

Provisions for installation of SCR 608, 610 or 619 or British #19.

**DECLASSIFIED**  
**CARRIAGE, MOTOR,**  
**8-INCH HOWITZER,**  
**T89**



This carriage has also been produced to provide highly mobile heavy artillery capable of being brought into action in the minimum of time to support a rapidly moving situation.

This vehicle consists of the standard field 8-inch Howitzer mounted on the same chassis used for the 155-mm Gun Motor Carriage, T83, i.e., based on Medium Tank M4 Series components.

### **CHARACTERISTICS**

- Crew.....8  
Weight, combat loaded.....83,000 lb.  
Armor—Same as 155-mm Gun Motor Carriage, T83  
Armament  
8-inch Howitzer M1 or M2  
Elevation..... $-5^{\circ}$  to  $+55^{\circ}$   
Traverse..... $-18^{\circ}$  right and  $18^{\circ}$  left  
Ammunition  
12 rd.—8-inch (80 additional rounds will be carried in accompanying M4 Tractor and M23 Ammunition Trailer)  
Performance—Same as 155-mm Gun Motor Carriage, T83  
Vision and Fire Control—Same as 155-mm Gun Motor Carriage, T83 except for required reticle changes in telescopes  
Communications—Same as 155-mm Gun Motor Carriage, T83

The vehicle has recently been classified as Limited Procurement type.

**DECLASSIFIED**

**DECLASSIFIED** 52  
**TRUCK, 3/4-TON,  
COMMAND,  
WEAPONS CARRIER,  
W/WN**



This development provides a new command car to take the place of the present limited standard Command and Reconnaissance Car.

This vehicle is a converted Truck,  $\frac{3}{4}$ -ton, 4 x 4, Weapons Carrier. Side, front and back curtains are provided, with windows which can be camouflaged by dropping a paulin making it appear the same as the Weapons Carrier. Two bucket seats, a map table, and dome light are the only interior additions. The ambulance KD spring suspension is used to provide easier riding.

### **CHARACTERISTICS**

Seating capacity . . 6 plus driver and assistant driver  
Other characteristics . . Same as Truck,  $\frac{3}{4}$ -ton, 4x4,  
Weapons Carrier

Action to classify the vehicle as Standard is being processed.

**DECLASSIFIED**

DECLASSIFIED

# AIRCRAFT ARMAMENT

DECLASSIFIED





**DECLASSIFIED**  
**GUN, AUTOMATIC,  
20-MM, T31**



A requirement was established by the Using Services for a lighter, more compact 20-mm automatic aircraft gun capable of synchronized firing with either electrically primed or percussion primed ammunition.

### **CHARACTERISTICS**

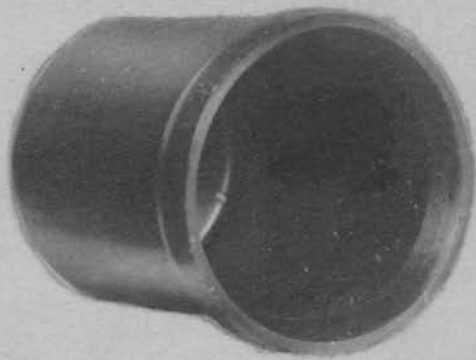
Weight, w/o accessories.....94 lb.  
Muzzle velocity.....2,750 f/s  
Length, over-all.....77.75 in.  
Rate of fire.....750-850 rds. per min.  
Type of Ammunition. AP, H.E., API, and Practice

In order to provide a satisfactory weapon for all types of operations when used by both Army and Navy Air Forces, the gun is divided into three basic types:

- a. For synchronized firing of the gun to the propeller of an airplane, the gun is equipped with a T4 forward seared bolt and a T1E1 Electric Trigger.
- b. For normal installation where synchronization is not necessary, the gun is equipped with a T5 rear seared bolt and a M4 Electric Trigger.
- c. For either synchronized or normal firing when electrically primed ammunition is used, the gun is equipped with a T1 Electric Bolt.

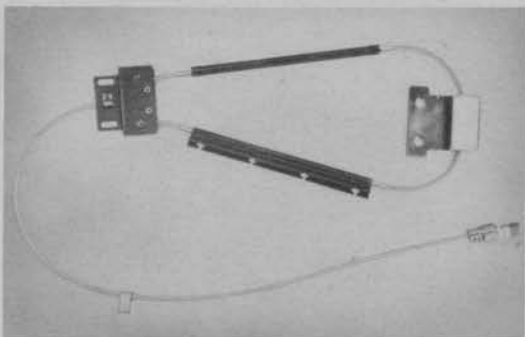
The following accessories are provided for use with the gun:

- a. Charger, Hydraulic, 20-mm, T9—9 lb. 4 oz.
- b. Cover, Muzzle, 20-mm, T304—1 oz.

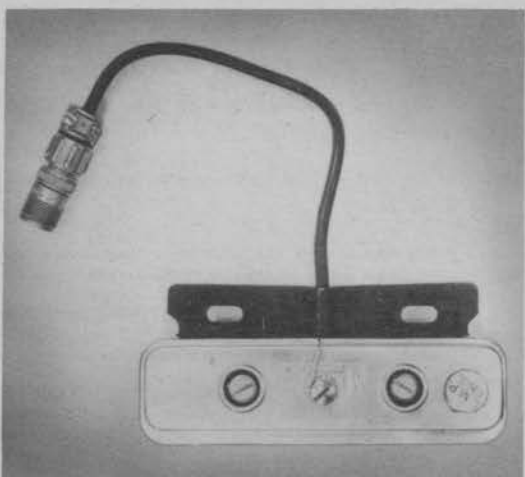


**DECLASSIFIED**

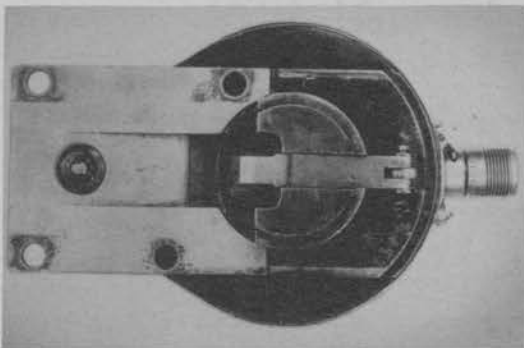
c. Heater, Gun, T2—8 oz.



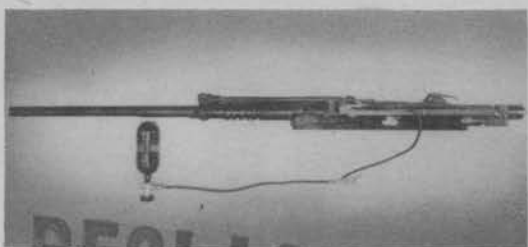
d. Trigger, Electric, 20-mm, T1E1—1 lb. 12 oz.



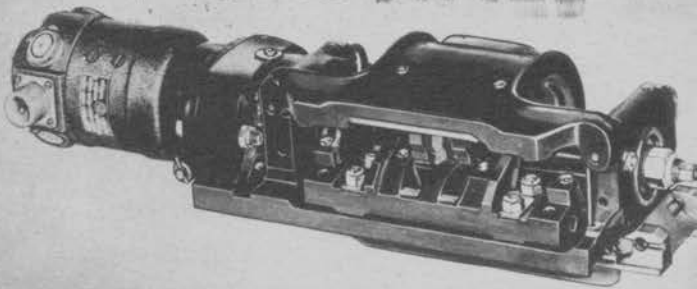
e. Trigger, Electric, 20-mm, M4—3 lb. 10 oz.



f. Charger, Pneumatic, 20-mm, T2—10 lb. 8 oz.



**CONFIDENTIAL**  
**DECLASSIFIED**



**Mechanism, Feed, 20-mm, T15**

An electric feed mechanism has been developed for use with the T31 Gun, and this item is known as "Mechanism, Feed, 20-mm, T15". Powered by an electric motor, this feeder overcomes difficulties that are inherent with every recoil type of feed mechanism and is capable of handling rounds of different lengths and also of operation when all different types of links are used. The weight of this mechanism is 14 pounds.

**DECLASSIFIED**



CONFIDENTIAL  
DECLASSIFIED

# ROCKETS

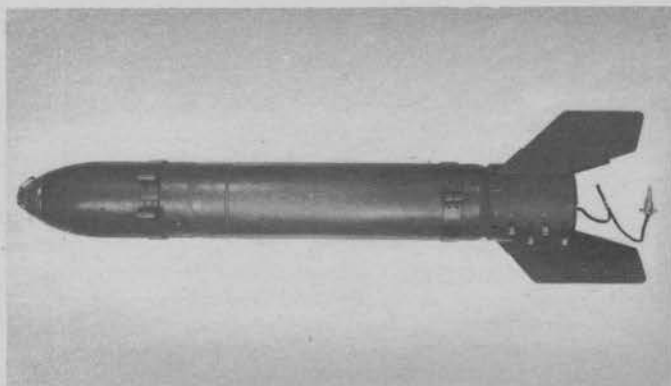
DECLASSIFIED

1900

1900

**DECLASSIFIED**

**ROCKET, H.E.,  
4.5-INCH, T22,  
w/ROCKET KIT,  
4.5-INCH,  
AIRCRAFT, T23**



The T23 Kit, consisting of fixed fins, two lug bands and a new igniter with a long cable, has been developed for modification of M8 and T22 type rockets to permit firing from zero-length rail aircraft launchers against personnel, equipment and light fortifications. The fixed fin is bolted on over the standard folding fins of the M8 or T22 Rockets, the lug bands are bolted in place around the rocket for suspension from the rail launcher and the new igniter is inserted in the motor. The Rocket and Kit completely assembled is illustrated above.

**CHARACTERISTICS**

Weight of Kit	6.0 lb.
assembled with the Rocket	45.2 lb.
Length-over-all	36.25 in.
Diameter of fins	13.25 in.
Weight of bursting charge	4.3 lb.
Fuze	P.D., M4A1 or M4A2
Weight of propelling charge	4.75 lb.
Service temperature limits	-20° to +120° F.
Maximum velocity (relative to aircraft)	750 f/s

Procurement of a sufficient number of Kits to modify present stocks of M8 and T22 rockets is in progress.

**DECLASSIFIED**

# ROCKET, H.E., 4.5-INCH, M16



The M16, formerly the T38E3 Rocket, is the basic high explosive, spin-stabilized round for use by ground troops. It is fired from multiple tube launchers such as the T66 against personnel and lightly fortified area targets. A point detonating fuze is employed which may be set for superquick or .05 second delay action. With the delay setting the round will penetrate  $\frac{3}{8}$ " armor plate or 8" of wood and detonate 10 to 20 feet beyond the penetration. An interesting feature of this round is the ignition of the propellant charge through the use of contact bands to which the igniter wires are attached.

## CHARACTERISTICS

- Weight, with fuze . . . . . 42.5 lb.
- Length . . . . . 31 in.
- Weight of bursting charge . . . . . 5.2 lb. (TNT)
- Fuze—P.D. M48A2, with Booster M21A1 or Fuze, P.D., M81
- Weight of Propelling Charge . . . . . 4.75 lb.
- Service temperature limits . . . . . -20° to +120° F.
- Maximum velocity (70° F.) . . . . . 830 f/s
- Maximum range (45° elevation) . . . . . 5,250 yd.

This rocket has recently been adopted as a Standard item and is now in quantity production and available for issue to the using troops.



**DECLASSIFIED**  
**LAUNCHER, ROCKET,**  
**MULTIPLE, 4.5-INCH,**  
**T66**



Designed for firing the 4.5-inch spin-stabilized Rockets M16 (H.E.) and T84 (WP Smoke) against personnel and lightly fortified area targets, the T66 is a 24-tube launcher mounted on a light two-wheeled carriage which can be towed by any standard military vehicle. It can be placed in firing position quickly by two men and is capable of firing the full load of twenty-four rockets at the rate of two rounds per second. A front firing support and two spades at the ends of the trails give the launcher stability during firing.

**CHARACTERISTICS**

Weight of launcher.....	1,200 lb.
loaded with 24 Rockets.....	2,200 lb.
Over-all length of launcher.....	10 ft.
Height of launcher (0° elevation).....	43 in.
Number of tubes.....	24
Length of tubes.....	36 in.
Elevation.....	0° to 45°
Traverse.....	10° right to 10° left
Telescope mount.....	T27E1
Elbow Telescope.....	M62
Instrument light.....	M42

This item is under limited procurement.

**DECLASSIFIED**

# ROCKET, H.E., 4.5-INCH, T38E7



The T38E7 is a modification of the basic Rocket M16 to adapt it to firing from the single tube launcher M12E2 and differs from the M16 Rocket in that the igniter wires in the T38E7 are brought out through the closure disc in the nozzle plate and fastened to the one end of the firing cable. A point detonating fuze is employed which may be set for super-quick or .05 second delay action. The T38E7 Rocket is packed, stored, and issued in the M12E2 Launcher and the entire assembly handled as one item of ammunition, the launcher being expendable after firing.

## CHARACTERISTICS

Weight with fuze . . . . .	42.5 lb.
Length . . . . .	31 in.
Weight of bursting charge . . . . .	5.2 lb. (TNT)
Fuze—P.D., M48A2, with Booster, M21A1 or Fuze, P.D., M81	
Weight of propelling charge . . . . .	4.75 lb.
Service temperature limits . . . . .	-20° to +130° F.
Maximum velocity (70°) . . . . .	830 f/s
Maximum range (45° elevation) . . . . .	5,250 yd.

This item is under limited procurement.

DECLASSIFIED

# LAUNCHER, ROCKET, 4.5-INCH, M12E2



This is a single shot expendable launcher consisting of a smooth-wall magnesium tube with a tripod strapped to its side. All of the other accessories, which include the firing cable and battery, are furnished inside the launcher tube. In addition to serving as the launcher for the spin-stabilized 4.5-inch high explosive Rocket T38E7, the M12E2 also serves as a packing case for the rocket by placing metal covers over the ends of the tube, which in effect, make it a water-proof container. This combination can be transported by one man into positions not accessible to heavy artillery pieces and can either be fired as a single shot weapon or several units may be set up and fired in salvo by connecting the ignition wires in parallel and then to the firing device. After setting up the launcher traverse adjustments are made by moving the tripod legs. Limited elevation adjustments can also be made by moving the tube clamp up and down on the tripod legs.

## CHARACTERISTICS

Weight of launcher.....	22 lb.
loaded with rocket.....	64.5 lb.
Over-all length of launcher.....	48 in.
Elevation for 500 yd. range.....	2.5°
Firing device.....	Dry cell, battery, or exploder

The M12E2 Launcher is in quantity production and will shortly be adopted as standard.

DECLASSIFIED

66

# DECLASSIFIED

## ROCKET, SMOKE, (WP), 4.5-INCH, T84



Designed as a companion round for the 4.5-inch spin-stabilized high explosive rocket M16, the T84 consists of the M16 rocket motor with a specially designed shell loaded with WP smoke. It is fired from multiple tube ground launchers against personnel in open areas or in lightly fortified positions. A point detonating super-quick fuze is used to give an instantaneous burst upon impact and obtain maximum dispersion of the white phosphorous.

### CHARACTERISTICS

Weight, with fuze.....	42.5 lb.
Length.....	32 in.
Weight of filler.....	6.0 lb. (WP)
Fuze.....	P.D. T36E1
Weight of propelling charge.....	4.75 lb.
Service temperature limits.....	-20° to +120° F.
Maximum velocity (70° F.).....	830 f/s
Maximum range (45° elevation).....	5,250 yd.

The T84 Rocket is in the advance stages of development and is expected to be available for issue in three to four months.

DECLASSIFIED

# DECLASSIFIED

## ROCKET, S.A.P.

### 4.5-INCH, T78



Designed for forward firing from zero-length rails mounted under each wing of an airplane, the T78 Rocket is intended for use against submarines, surface ships, and various armored vehicles and ground installations. It is considerably heavier and longer than the present 4.5" rockets for ground use and is stabilized in flight by large fixed fins. A base detonating fuze with .01 second delay is used with this round to obtain detonation of the H.E. filler after penetration.

### CHARACTERISTICS

Weight with fuze.....	98 lb.
Length.....	74 in.
Weight of bursting charge.....	2.8 lb. (TNT)
Fuze.....	B.D., T156
Weight of propelling charge.....	14.0 lb.
Service temperature limits.....	-40° to +130° F.
Maximum velocity (relative to aircraft) . .	1,000 f/s

The T78 Rocket has recently been classified as Limited Procurement and a quantity is currently being obtained for Service Test.

# DECLASSIFIED

CONFIDENTIAL  
**ROCKET H.E.,  
 4.5-INCH, T83**



Designed for forward firing from zero-length rails mounted under each wing of an airplane, the T83 Rocket is intended for use against enemy personnel and vehicles and ground installations that are vulnerable to a general purpose high explosive shell. This rocket employs the same motor and fin assembly as the 4.5" S.A.P. Rocket, T78 but differs from the latter rocket in the design of the shell which is filled with 8.8 lb. of TNT and uses a propeller arming point detonating, instantaneous fuze.

### CHARACTERISTICS

Weight with fuze.....	98 lb.
Length with fuze.....	76 in.
Weight of bursting charge.....	8.8 lb. (TNT)
Fuze.....	P.D. MK 149
Weight of propelling charge.....	14.0 lb.
Service temperature limits.....	-40° to +130° F.
Maximum velocity (relative to aircraft) . .	1,000 f/s

The T83 Rocket has recently been classified as Limited Procurement and a quantity is currently being obtained for service test.

CONFIDENTIAL  
**DECLASSIFIED**

**CONFIDENTIAL**  
**DECLASSIFIED**  
**ROCKET, CHEMICAL**  
**(CG), 7.2-INCH, T21**



This rocket is designed for use primarily with the Multiple Launcher T32 to lay down a CG chemical barrage against enemy personnel. It consists of a 7.2-inch diameter shell which contains a chemical charge of 20 pounds of CG, and a 3.25-inch diameter motor with a fixed, ring shroud type fin to provide stabilization in flight. A propeller arming, point detonating fuze and a high explosive filled burster tube are employed to obtain an instantaneous burst upon impact with ground or water. The round is shipped completely assembled except for the fuze and burster tube which are in a separate container within the crate and are assembled to the rocket prior to loading in the launcher.

### **CHARACTERISTICS**

Weight with fuze.....	51.8 lb.
Length.....	50.0 in.
Weight of filler.....	20.0 lb. (CG)
Fuze.....	Mk 147
Weight of propelling charge.....	5.25 lb.
Service temperature limits.....	10° to 120° F.
Maximum velocity.....	680 f/s
Maximum range (43° elevation).....	3,430 yd.

This round has been in production for several months as a Limited Procurement item on requirement from the Chemical Warfare Service and the Navy Department. It is in process of being adopted as a Standard item.

**CONFIDENTIAL**  
**DECLASSIFIED**

# DECLASSIFIED <sup>70</sup> LAUNCHER, ROCKET, MULTIPLE, 7.2-INCH, T32



Designed for firing the 7.2-inch T21 Chemical Rocket, the T32 is a twenty-four rail launcher which may be mounted in the cargo space of a 2½-ton 6 x 6 truck or may be set up and fired from a ground mount. A hand generator, firing box and selector box provide for electrical firing of the rockets either singly or automatically at intervals of 0.3 to 0.5 seconds. By employing a number of truck mounted launchers, it is possible to move into position and lay down a concentrated chemical barrage on a selected area within a period of 5 to 10 minutes.

## CHARACTERISTICS

Weight of launcher.....	2,608 lb.
(complete with ground support and ammunition storage rack)	
Over-all length of launcher.....	10 ft.
Number of rail sets.....	24
Length of rails.....	10 ft.
Elevation (on ground mount).....	-6° to +53°
Elevation (on truck with storage rack).....	17° to 45°
Elevation (on truck without storage rack).....	10° to 45°
Traverse.....	None

A number of these launchers have been produced under limited procurement for the Navy Department and the Chemical Warfare Service. It is being adopted as a Standard item.

# DECLASSIFIED



DECLASSIFIED

# ARTILLERY

DECLASSIFIED

1950

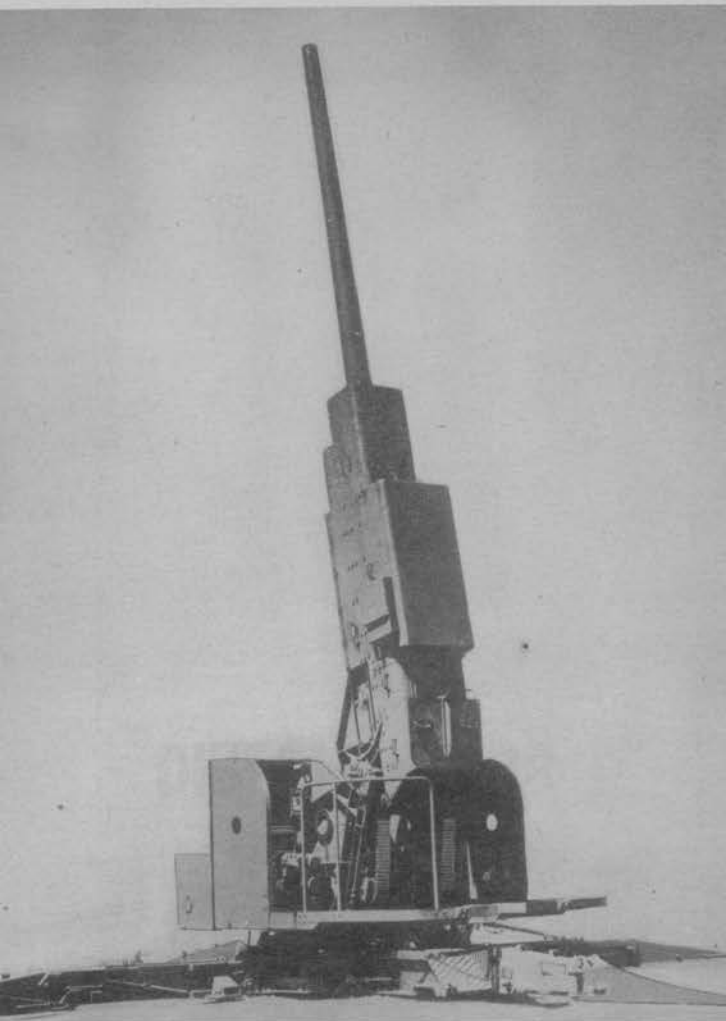
# DECLASSIFIED GUN, 105-MM, T4

Mount, Gun, AA, 105-mm, T3, Recoil Mechanism,  
105-mm, T18

Combination Fuze Setter-Rammer, T8, Torque  
Amplifier, T7

Fuze Setter, T36, Drive Controller, T13, Remote  
Control System, T14

Sighting System, T23



This weapon was developed as a study to determine whether a gun of a caliber between 90-mm and 120-mm could provide a lighter weight, more rapid firing weapon than the 120-mm, but with a ballistic performance closely approaching the 120-mm. The 105-mm caliber was selected as the largest round which was practicable to load as a complete assembled round.

The 120-mm Gun Mount M1 is used for the protection of cities and harbors. The 105-mm is more mobile and capable of being brought to the defense of forward echelons as well as cities and harbors.

The rate of fire has been increased to around 20 rounds per minute although it does not have quite the maximum effective range of the 120-mm. This weapon has a combination fuze setter and rammer.

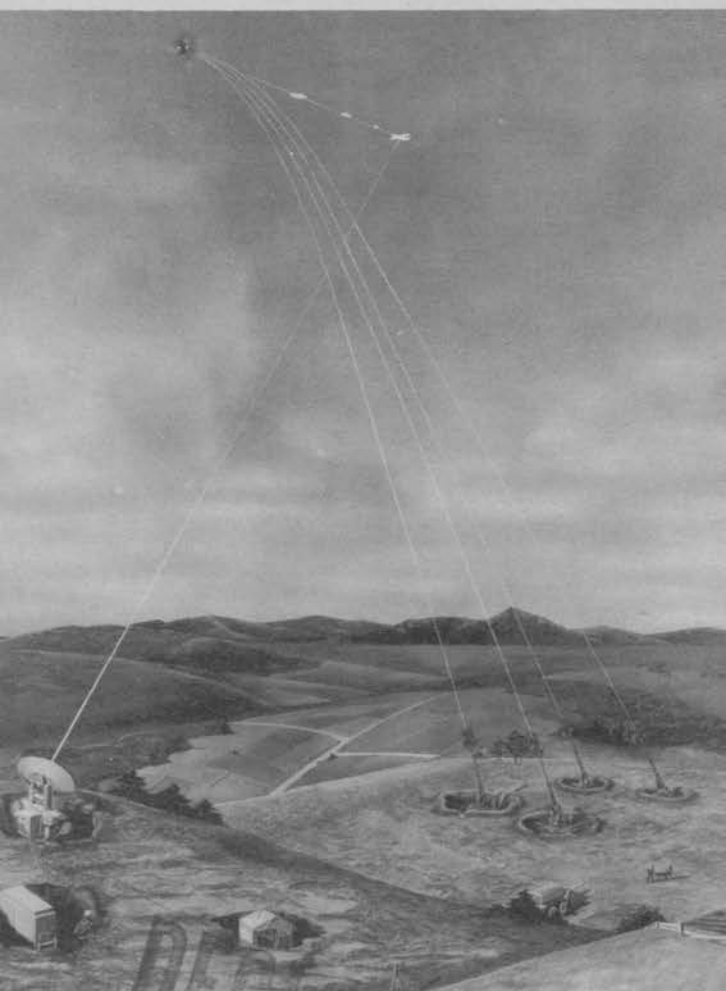
DECLASSIFIED

# DECLASSIFIED 74

## CHARACTERISTICS

Weight, complete	46,200 lb.
Weight of shell	38 lb.
Muzzle velocity	3,000 f/s
Maximum effective range, altitude	45,000 ft.
Maximum impact range, horizontal	28,000 yd.
Rate of fire	20 rd. per min.
Elevation limits	-10° to +80°
Rate of elevation	9° per second
Traverse limits	360° continuous
Rate of traverse	16° per second
Over-all length (traveling)	431 in.
Over-all width	123 in.
Over-all height	123 in.

## DIRECTOR, T38

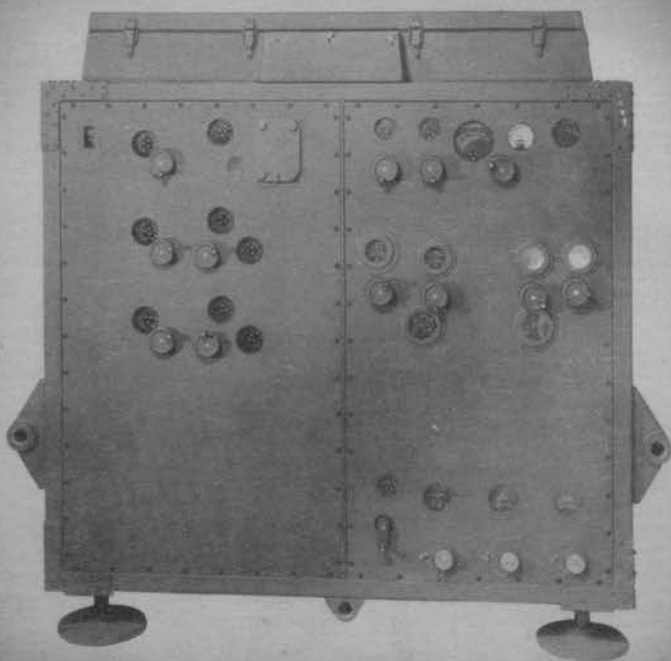


DECLASSIFIED

DECLASSIFIED



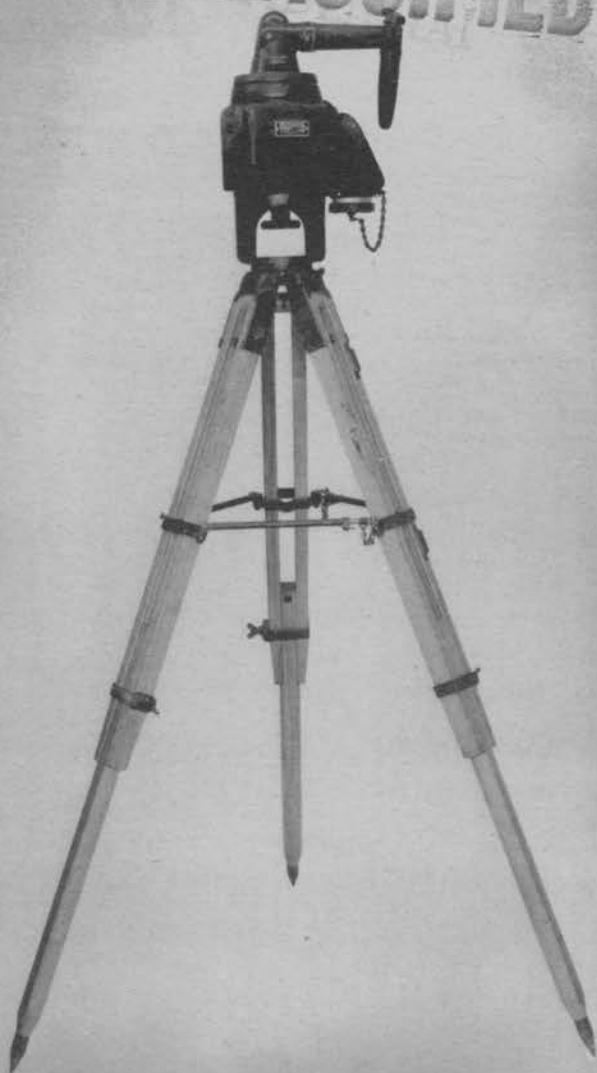
Tracker, T5



Computer, T18

DECLASSIFIED

DECLASSIFIED 76



Target Selector, T1



Remote Control Unit

DECLASSIFIED

DECLASSIFIED

The T38 Director continuously observes an airborne target and computes the correct firing data for the gun battery. The guns of the AA battery are positioned automatically in response to the signals received from the director.

The director consists of four components:

- Tracker, T5, including the Remote Control Unit
- Computer, T18
- Target Selector, T1
- Cable System, T6

Prior to engaging a target the T5 Tracker systematically scans the sky in search for targets—it is capable of detecting the presence of aircraft within a range of about 30 miles. This operation is performed entirely by the Remote Control Unit operator who observes the indications on a PPI scope (Plane Position Indicator Oscilloscope). Once the target to be engaged is selected the Remote Control Unit operator positions the tracker so that it points approximately at the target, and starts automatic tracking of the target. Once the automatic tracking is started the operator's function is reduced to that of monitoring the operations. However, when IFF is provided, the Remote Control Unit operator makes the necessary challenges to assure himself that he is not engaging a friendly plane. Also, if another tracker or surveillance set is available, its presentation can be switched to the PPI scope in the Remote Control Unit thus assisting the operator in selecting the next target.

Two operators may ride the tracker while tracking a target so as to be ready to take over with manual optical or manual radar angular tracking whenever it appears that such operations will be more effective. The Remote Control Unit operator also has aided manual range tracking available in lieu of automatic tracking.

The Target Selector, T1, is provided for the purpose of quickly sighting the T5 Tracker on a target which can be observed visually.

The Computer, T18, receives the target's present position from the tracker and from such data continuously computes the correct firing data. The computer operator's functions have been reduced to:

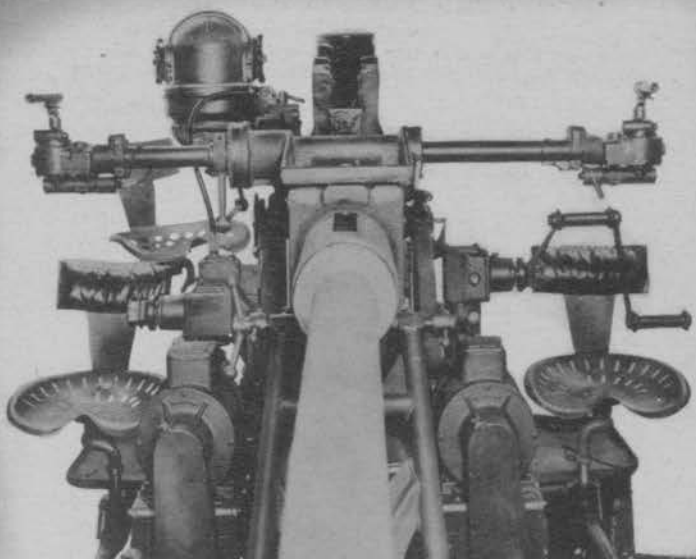
- a. Operating the smoothing circuit switch when the tracker is "on target" so as to settle the computer mechanisms quickly—a minimum settling time of six seconds is required.
- b. Observing the computer outputs and informing the battery commander when firing data is such that the "commence firing" order may be given.
- c. Reading the target speed meter and setting its reading on the fuze dead time corrector.
- d. Observing target accelerations and switching curved flight prediction into operation when it becomes apparent that the target is not flying a straight line course.

Power for the director is obtained from generating units used with AA gun batteries.

DECLASSIFIED

**DECLASSIFIED**  
**SIGHT, COMPUTING,**  
**M19 (M7E1)**

Mounted on Carriage, Gun, AA, 40-mm, M2A1



This sight was developed to equip 40-mm carriages with a sturdy AA sight utilizing the computing method of the Computing Sight, M7.

**CHARACTERISTICS**

- Speed Range—0-700 mph
- Dive Angle Setting
- Separate seat for sight operator
- Reflex type sights (not shown in illustration)
- Rugged waterproof construction

This item is expected to be available for shipment to overseas theaters in 4th quarter 1945.

**DECLASSIFIED**  
**DECLASSIFIED**



# DECLASSIFIED

## GUN, 90-MM, T13 WITH MUZZLE BRAKE, M3E1, CAR- RIAGE, GUN, 90-MM, T9E1, RECOIL MECHANISM, T39



This weapon was developed to answer the requirement for a highly mobile antitank gun weighing less than 7,000 lb. A high rate of fire, excellent accuracy, capability of going into or out of firing position very quickly, and extreme ruggedness for extensive cross country maneuverability behind a tank prime mover, were essential requisite characteristics of the weapon.

The gun fires a 24 lb. armor piercing projectile at a velocity of 2,800 f/s, and will penetrate 5.1 inches of armor plate at a range of 2,000 yd. The gun will also fire the 23½ lb. high explosive projectile in direct or indirect fire up to a range of 14,900 yd. Fire control consists of the Direct Fire 3-power Telescope, T116E2, Panoramic Telescope, M1 and Range Quadrant, M10, for indirect fire missions. The design of the carriage is novel, particularly in the following respects. The armor shield acts as the main structural member for the carriage and the high anchor point of the trails permits them to swing forward and connect together near the muzzle for traveling position. In firing position, the shield not only provides a ½-inch armor plate with a 40° obliquity,

# DECLASSIFIED

but the design also provides a maximum amount of space and protection for the gun crew. The swinging of the trails to the muzzle for traveling decreases the over-all length of the weapon from 24 to 18 feet and provides an extremely rugged unit for rough, high speed, cross country operation. The extreme firing stability of the carriage, the direct fire telescope, the one-man control of both elevation and traverse, the firing of the piece by the gunner at the elevation handwheel together with automatic breech operation permits an unusually high rate of aim of fire (20 rd/min.). A trained gun crew can go from march order to the firing of the first round in 15 seconds. In firing position there is a total traverse of 60° and it may be depressed to minus 8° and elevated to plus 20°.

### CHARACTERISTICS

- Weight, complete .....6,850 lb.
- Elevating limits..... -8° to +20°
- Traverse limits.....30° right, 30° left
- Over-all width.....85½ in.
- Over-all height.....58½ in.
- Over-all length, traveling .....225 in.
- Over-all length, firing.....292 in.
- Spades, folding or rock
- Handwheels, one-man control
- Firing mechanism, thumb control on left hand elevating handwheel
- Armor, ½ in. homogeneous plate, 40° obliquity
- Air Transport, may be disassembled into 8 loads, the largest being 2,200 lb. for the gun.

This gun is currently under test by the Tank Destroyer Board.

# DECLASSIFIED GUN, 37-MM, T33E1, MOUNT, GUN, 37-MM, T10E3, RECOIL MECHANISM, T38E5



The ballistic characteristics of the 37-mm Gun T33E1 and the ammunition were developed during the jungle warfare program of a year and a half ago. At that time, a modified M4 Gun was mounted on a Cal. .50 machine gun tripod and designated 37-mm Gun, T32 and Gun Mount, T9. A limited quantity of these weapons were produced and sent to the Pacific area. Because of the excessive weight of that materiel and the fact that the weapon hopped considerably during firing, a project was initiated to design a completely new weapon that was more stable, lighter and better adapted to packboard transport.

This weapon is intended primarily for employment against lightly constructed emplacements and against personnel at relatively short ranges. The gun fires a 1½ lb. shell, either high explosive or canister at a velocity of 1,500 f/s. It is good for effective ranges up to 2,400 yards. Fire control consists of a three-power Direct Fire Telescope, T126E1. The mount is a light weight, split trail pedestal type especially designed to be broken down into five loads weighing less than 50 lb. each, which can be readily carried on a packboard on a man's back. The total weight of the weapon is 230 lb. Its elevation is between the limits of minus 5° to plus 18° and it can be traversed a total of 45°. To obtain greater traverse, the trails may be quickly swung to a new position. In the event the gun sight is restrictive in size, the weapon can be fired with the trails telescoped.

CONFIDENTIAL  
DECLASSIFIED

**CHARACTERISTICS**

**Gun, 37-mm, T33E1**

Caliber of gun.....37-mm (1.45 in.)  
Weight of gun complete.....77.8 lb.  
Weight of projectile.....1.5 lb.  
Muzzle velocity.....1,500 ft./sec.  
Gun has quick removable breech unit to facilitate rapid  
breakdown for pack loading

**Mount, Gun, 37-mm, T10E3**

Weight of mount complete with Gun T33E1  
Recoil Mechanism T38E5 in firing position.....229 lb.  
Maximum elevation.....+18°  
Maximum depression.....-5°  
Maximum traverse.....22½° right and left  
Over-all length, firing position, trails extended.....115 in.  
trails retracted.....82 in.  
Over-all width, firing, position, at spades,  
trails extended.....94½ in.  
trails retracted.....66½ in.

**Recoil Mechanism, T38E5**

Weight of recoil mechanism.....31 lb.  
Type of recoil mechanism.....Hydro-spring  
Length of recoil.....10 to 13 in.  
Cylinder fabricated of magnesium alloy extrusion

This weapon (Gun T33E1 and Mount T10E3) is currently under test by the Infantry and Cavalry Boards.

**DECLASSIFIED**  
**HOWITZER, 105-MM,  
T9, ON CARRIAGE,  
HOWITZER,  
105-MM, T9**



This weapon was developed to provide fire-power of the conventional 105-mm Howitzer M3 with substantial decrease in weight. It uses the recoilless principle wherein a portion of the propellant gases are emitted through the breech mechanism, to counterbalance the gases and projectile propelled forward through the muzzle. The total weight of this unit is 750 lb. as compared to 3,000 lb. for the M3 materiel. The carriage is fitted with readily demountable wheels, pneumatic tired; folding tripod legs form the firing support. The weapon is towed muzzle forward using a lunette clamped at the muzzle. As is the case with all recoilless weapons, the blast at the rear presents a hazard which must be recognized. Pilot models will soon be available for Service Board tests.

**DECLASSIFIED**

## INTRODUCTION

The use of close support weapons to assist advancing infantry has increased at a rapid pace during this war. The weapons used have been developed as a supplement to artillery rather than to replace it, and the development has stressed weapons with the maximum mobility with the maximum fire power. Mortars have proven to be an ideal weapon to perform this mission.

Mortars have the basic advantage of providing infantry with firepower comparable in effectiveness to artillery, yet they have certain advantages over normal artillery such as simplicity of emplacement, ease of construction, light weight, ability to deliver a very high ratio of weight of explosive to weight of material, high angle of fire which permits firing from behind objects that would screen regular artillery, plunging fire into enemy troops dug in, relatively noiseless flight of projectile, and low muzzle blast, making location of mortar positions difficult.

To meet the requirements of modern warfare, the Ordnance Department has developed a varied mortar program to provide this type weapon for close support under the many conditions. These mortars range in size from the small 60-mm mortar fired from hand-held positions to large mortars which can be brought forward for demolition against heavy fortification.

The mortars presented in this display include those now in service as well as those in advanced stages of development.

# DECLASSIFIED

## MORTAR, 60-mm,

### T18E6

(HAND HELD MORTAR)



This mortar was developed to provide the infantryman with a weapon that can be carried and fired with the ease of small arms, yet give him fire-power enough to blast enemy gun positions and other targets which cannot be reached or demolished with the hand grenade or rifle grenade. This weapon can be fired from fox hole positions, shell holes, from the top of the ground or any other backing that may be readily available. The firing mechanism allows firing at low angles of elevation heretofore prohibited when using drop fire and allows for direct fire against targets of opportunity.

The T18E6 mortar can be removed from the small baseplate and fired from the standard 60-mm mortar mount at the same ranges as the standard mortar, and the firing mechanism can be set for drop fire in the standard manner when desired.

This mortar has been under limited procurement and has reached the combat areas in several theaters and the first reports of their use have been favorable. A shaped charge is being developed for use with this weapon which should increase its value as an antitank weapon and for piercing bunkers.

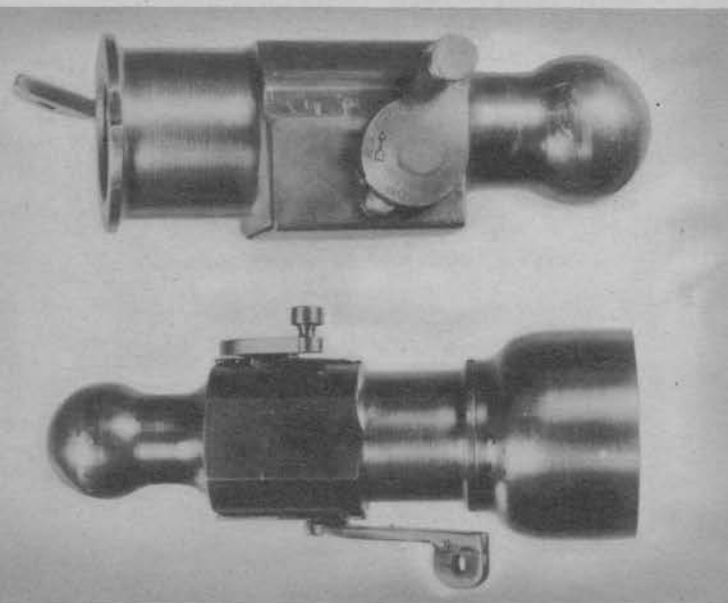
### CHARACTERISTICS

Weight, complete with baseplate and sight. 19½ lb.  
Range, using shell, H.E., M49A2,  
small baseplate . . . . . 0-816 yd.  
Range, using shell, H.E., M49A2,  
std. base and mount . . . . . 200-2,017 yd.

**DECLASSIFIED**<sup>86</sup>  
**MORTAR, 60-mm,**

**T50**

**(IMPROVED HAND HELD  
MORTAR)**



**60-mm Mortar Firing Mechanism, T50**

Although the T18E6 60-mm mortar has proven popular certain recommendations to improve ease of fire and accuracy have been made. These recommendations led to the development of the 60-mm Mortar, T50. This mortar differs from the T18E6 in the ease of firing, improved sight, and lighter weight tube without decreasing strength.

The T50 mortar has a unique firing mechanism which allows for three types of fire. It can be set for the standard drop-fire, for continuous pull fire, or for trigger fire with a minimum amount of trigger pull. It has been demonstrated that the accuracy of fire when using this light trigger pull has been increased considerably.

The improvements have been made to this mortar without increasing the weight of the weapon. The range characteristics and use of this mortar on the standard mount are the same as the T18E6 mortar.

**DECLASSIFIED**



# DECLASSIFIED

## MORTAR, 60-mm

### M2, MOUNT, M5



This 60-mm mortar is a standard item of materiel and is in use in all theaters of war.

The complete unit consists of the mortar, the bipod sight, and the base-plate. The firing mechanism on the mortar M2 is a fixed firing pin adaptable to drop firing only, but for this materiel there is a kit recommended for standardization and issue to convert to a hand-held mortar to be carried forward where the standard mortar cannot be taken. This kit consists of the baseplate T1, the firing mechanism from 60-mm mortar, T50, and the new sight, necessary for direct fire.

The Mount, M5 for this mortar has been standardized recently. The traversing mechanism as originally furnished had an exposed screw which was susceptible to wear, especially under sandy and dusty conditions. This new mechanism has the working parts totally enclosed and is considerably more stable than the older model.

### CHARACTERISTICS

Weight of complete unit 43 lb. (tube 12.8-bipod  
16.4 baseplate 10 $\frac{1}{2}$ )  
Rate of fire.....Max. 30, normal 18 rpm  
Range.....100-2,017 yd.  
Ammunition..shell, H.E., 60-mm, M49A2  
shell, Illuminating, 60-mm, M83A1  
shell, W.P., 60-mm, T6

DECLASSIFIED

**DECLASSIFIED**<sup>88</sup>

# MORTAR, 81-MM, T27, MOUNT, T27



The 81-mm Mortar, T27, is under limited procurement and was developed under the Jungle Warfare program to provide a mortar more portable than the standard 81-mm Mortar, yet fire the same projectiles. This mortar is a standard 81-mm mortar tube cut down in length to 24.5 inches and having the ball of the base cap reduced to fit the socket of the 60-mm baseplate. The mount is an adaptation of the standard 60-mm bipod having the tube clamp and traversing mechanism of the 81-mm mortar attached.

## CHARACTERISTICS

Weight, complete . . . . .	66½ lb.
Mortar . . . . .	26½ lb.
Mount . . . . .	28½ lb.
Baseplate . . . . .	10½ lb.
Range, shell, M43A1 . . . . .	100-1,616 yds.
shell, M56 . . . . .	100-1,091 yds.

**DECLASSIFIED**

DECLASSIFIED

# MORTAR, 81-MM, M1, MOUNT, M4,



The 81-mm mortar is a standard item of materiel.

The mortar as shown can be quickly broken down into three loads, the mortar, the bipod, and the baseplate of approximately 50 pounds each to form one-man pack loads for transporting over limited distances. The sight is the same as for the 60-mm mortar.

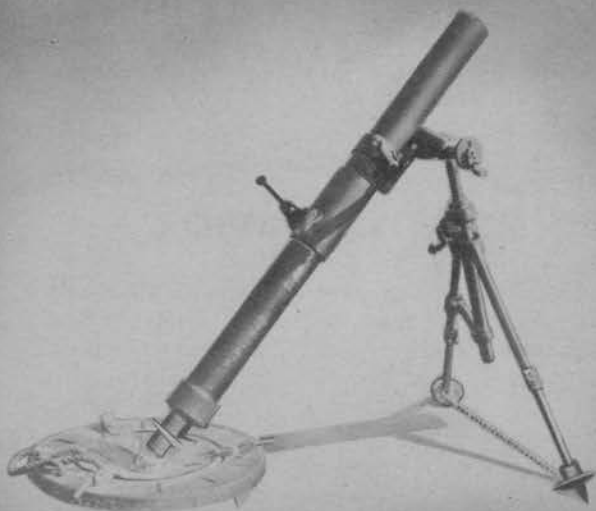
The mount incorporates a new enclosed traversing mechanism. This traversing mechanism was developed to reduce wear on the exposed traversing screw as formerly furnished.

## CHARACTERISTICS

Weight, complete.....	136 lb.
Tube.....	44½ lb.
Bipod.....	46½ lb.
Baseplate.....	45 lb.
Rate of fire	
Maximum.....	30 rpm
Normal.....	18 rpm
Range, M43A1 shell.....	200-3,290 yds.
Emergency only, M43A1 shell, 8 increments, 4,000 yds.	
Using Extension Tube, T1 and 8 increments, 4,400 yds.	

DECLASSIFIED

**DECLASSIFIED** 90  
**MORTAR, 81-MM,  
T19E9, MOUNT, T33,  
BASEPLATE, T14  
(UNIVERSAL TYPE)**



This mortar was developed to give more flexibility than the standard mortar or the short 81-mm Mortar. It was designed to be easily and quickly broken down into loads of 25 pounds or less for one-man pack, to be used as either a short mortar or a standard mortar, and to provide a firing mechanism in the base cap.

Pilot models of this mortar are now undergoing engineering tests and development is at an advanced stage. It is expected that pilot models will soon be available for service board tests.

For use as a short mortar, the center section of the baseplate and the base section of the tube only, are used. The legs of the mount have a telescoping feature which allows them to be shortened to mount on the lower section of the tube for this use. For this type mortar, there will be four loads.

As a long range mortar, the outer section of the baseplate is added and the top section of the tube is clamped to the base section. The legs are then extended and the bipod clamped to the top part of the tube for better stability. When used as a heavy mortar, there will be six loads.

The firing mechanism for this mortar is designed similarly to the firing mechanism used on the 60-mm Mortar, T50. All the internal working parts of the 60 and 81-mm firing mechanisms are interchangeable.

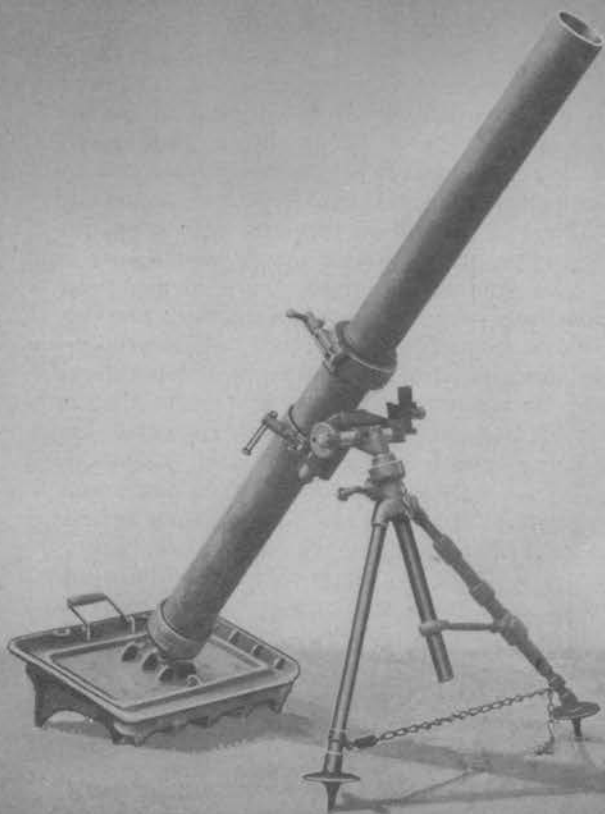
The tube and baseplate for this mortar are being made stronger than the present standard mortar and normal ranges of 4,000 yards will be obtained when used as a heavy mortar and ranges of 2,000 yards can be obtained when used as a short mortar.

**DECLASSIFIED**

DECLASSIFIED

# MORTAR, 105-MM, T13, MOUNT, T12

(2,000 YARD RANGE)



This mortar was developed under the Jungle Warfare program to provide a mortar which was as portable as the 81-mm Mortar, yet which would provide greater firepower. It is under limited procurement and has been shipped to the theaters.

In order to provide a mortar to meet these characteristics quickly, concession in range had to be made and the range is limited to 2,000 yards. The tube is made in two pieces to meet the weight limits and the bipod and baseplate are adaptations from the standard 81-mm Mortar Mounts. The baseplate is the standard baseplate as actually used with the 81-mm mortar, but the bipod has been modified by adding a clamp that will fit the larger diameter tube. The standard mortar sight is used.

## CHARACTERISTICS

Weight, complete.....	193 lb.
Mortar.....	96½ lb.
Mount.....	51.75 lb.
Baseplate.....	45 lb.
Range, Shell, H.E., T17E1.....	200 to 2,000 yd.
Shell.....	25½ lb.

DECLASSIFIED

# MORTAR, 105-mm, T13, MOUNT, T26E1, BASEPLATE, T15

(4,400 YARDS RANGE)



This mortar was a development from the Jungle Warfare mortar and is designed to withstand firing forces to give 4,400 yards range. It also combined improvements in the mount and baseplate to increase stability during firing, yet it still retains the feature of being broken down into one-man loads for packing over short distances. In order to retain this light load feature, the mount and baseplate as well as the tube are made to be broken down into two pieces each.

Engineering tests are well under way on this mortar and pilot models are being prepared for submitting to the service boards for tests.

Some of the features of this mortar which are improvements over its predecessor are the telescoping legs which enables the mortar to retain exceptional stability even at high elevations by eliminating the necessity of a long elevating screw. The elevating screw is made enclosed and is more closely fitted than would be possible with an exposed screw. All the working parts are enclosed and dust seals provided to prevent entrance of dirt and other foreign material. The shock absorbers and the baseplate are synchronized so that the mortar may fire full charge seating rounds without any preparation of the baseplate and without damage to the mount.

Another feature of this mount is that the amount of traverse has been consistently increased from approximately 75 mils right or left to 166 mils right or left on this mount.

An adjustable sight mounting is provided which enables the gunner to sight without having to level the entire mortar for each sighting.

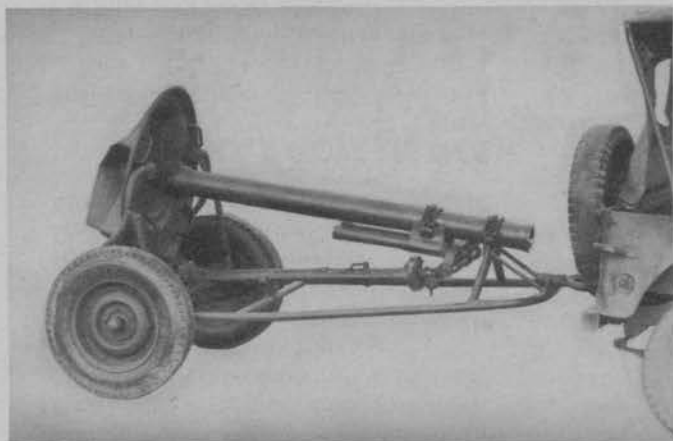
## CHARACTERISTICS

- Weight, complete. . . . . 300 lb.  
(6 loads of approximately 50 lb. each)
- Range, Shell, H.E., T17E1 . . . . . 200-4,400 yds.

**DECLASSIFIED**

# MORTAR, 105-mm, T33, MOUNT, T26, BASEPLATE, T12, CART, T12

**(6,000 YARD RANGE)**



This mortar was developed to give greater stability than mortars which of necessity have to be broken down into minimum load limits, and to give increased ranges. The cart provided assists in emplacing the mortar and also is used for transporting the mortar and mount behind a  $\frac{1}{4}$  ton C & R car.

The mount and baseplate of this mortar are made heavy enough to withstand the shock of firing to ranges of 6,000 yards with the minimum amount of emplacing of the baseplate. Tests have shown that the baseplate can be fired from an unprepared position at the full range and that after continued firing the baseplate will settle into a well seated position which is equivalent to digging the baseplate in. The stability of firing this mortar at full ranges under several types of terrain has been excellent in tests to date.

A firing mechanism is provided for this mortar. This mechanism has working parts which are similar to those provided for the firing mechanisms in the 60-mm T50 and the 81-mm T19E9 Mortars, the working parts of which are interchangeable.

Development work is continuing on this mortar and cart and efforts are being made to develop the cart so that the baseplate may be prized out of firing position quickly after firing as well as quickly emplaced from the cart.

## CHARACTERISTICS

### Weight

Mortar, mount and baseplate . . . . .	402 lb.
Mortar . . . . .	118 lb.
Mount . . . . .	124 lb.
Baseplate . . . . .	160 lb.
Cart . . . . .	317 lb.
Range, Shell, H.E., T17E1 . . . . .	200-6,000 yds.

**DECLASSIFIED**

94

# DECLASSIFIED

## MORTAR, 155-mm, T25, MOUNT, T16E2, BASEPLATE, T2E2

(2,500 YARD RANGE)



This mortar is under limited procurement and the first requirements have been shipped to the theaters. It was developed under the Jungle Warfare program to give the very maximum amount of firepower that could be man-carried. It provides a short range weapon that can be transported by men or mules to areas that heretofore were considered inaccessible to a weapon of this size. This mortar can be broken down into loads of less than 100 pounds each and fires a 64 pound projectile to ranges of 2,500 yards.

Firing tests of this mortar show that it can be fired from sandy beaches with only slight preparation and that it should prove of great value in landing operations before heavy artillery can be brought up.

### CHARACTERISTICS

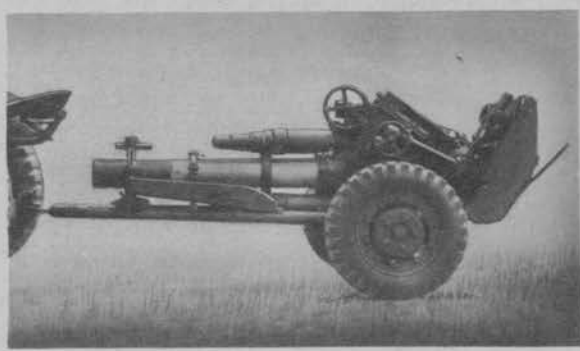
Weight, complete.....	585 lb.
Tube.....	95 lb.
Basecap and firing mechanism.....	67 lb.
Collar and shock assembly.....	94 lb.
Traversing mechanism.....	45 lb.
Bipod.....	71 lb.
Baseplate.....	197 lb.
(Center section-56, intermediate ring-74, outer ring-67)	
Range, Shell, H.E., T26E1.....	200-2,500 yd.

DECLASSIFIED



**DECLASSIFIED**  
**MORTAR, 155-mm,  
T10E5, MOUNT, T8  
WAGON,  
TRANSPORT, T18**

**(6,000 YARD RANGE)**



This mortar was developed to extend the range of the 155-mm mortar to 6,000 yards. In order to secure greater accuracy, the ammunition used is pre-engraved and the mortar is rifled. It differs from the conventional type mortar in the type of mount used including a recoil mechanism. Transport Wagon, T18, is provided for towing behind a motor vehicle.

Pilot models of this mortar are now undergoing engineering tests and range firing data is being accumulated.

**CHARACTERISTICS**

Weight, complete . . . . .	2,400 lb.
Muzzle velocity . . . . .	950 f/s
Projectile weight . . . . .	60 lb.
Maximum range . . . . .	6,500 yds.
Elevation . . . . .	35° to 80°
Total traverse . . . . .	80°

**DECLASSIFIED**  
**CONFIDENTIAL**  
**DECLASSIFIED**

DECLASSIFIED 96

# MORTAR, 10-INCH, T5E2, CARRIAGE, MORTAR, 10-INCH, T6E2, RECOIL MECHANISM, T47E1



The development of a 10-inch mortar was undertaken to provide a comparatively lightweight, highly mobile mortar for short range, high angle of fire against masonry, steel and reinforced concrete fortifications.

The weapon will be submitted to a Service Board for test in the near future. It has not been standardized or cleared for procurement.

The smooth bore Mortar T5E2 is muzzle loading and will fire a 240 lb. finned projectile at a muzzle velocity of approximately 1,000 f/s to a maximum range of approximately 9,500 yards. The recoil mechanism absorbs approximately 60% of the recoil force, the remaining 40% being taken by the large baseplate spaded into the ground. The carriage provides a total traverse of 60° and an elevating range of 45° to 80°. The rail and carrier type of loading mechanism permits loading of the mortar at any angle of elevation. The rate of fire is about one round every two minutes. The weapon can be readily and quickly placed in traveling position and towed over any terrain as a single axis trail load. The total weight is 16,000 lb.

DECLASSIFIED



**CONFIDENTIAL**  
**WAR DEPARTMENT**



**WAR DEPARTMENT GENERAL STAFF**  
**ORGANIZATION AND TRAINING DIVISION G-3**  
**WASHINGTON**

WALNO 3690

20 Apr 45

MEMORANDUM FOR COL SCHMAHL:

Subject: Recently Developed  
Ordnance Materiel

I am attaching herewith copy of a booklet which is published by the Ord Dept in connection with the recent ASF exhibit held at Ft Myer, Va.

*W. H. Van Dine*  
W. H. VAN DINE  
Lt Col, GHC  
Dep Exec, C&GSS, Ln  
*MS*

**CONFIDENTIAL**  
**DECLASSIFIED**  
**CONFIDENTIAL**

~~N - 8807~~

CONFIDENTIAL

N - 5590.9



~~CONFIDENTIAL~~

UNCLASSIFIED

28 APR 1945

POK # 1100539

~~CONFIDENTIAL~~

EXHIBIT OF RECENTLY DEVELOPED  
ORDNANCE MATERIEL