DEPARTMENT OF THE ARMY
TECHNICAL MANUAL

TM 9-2018

(FORMERLY TM 9-290)

DEPARTMENT OF THE AIR
FORCE TECHNICAL ORDER

TO 39A-20-2

w/c1

OPERATION AND MAINTENANCE

GROUND SIGNAL PROJECTOR M1A1 HAND PYROTECHNIC PROJECTOR M9 PYROTECHNIC PISTOL AN-M8; AND PYROTECHNIC PISTOL MOUNT M1

DEPARTMENTS OF THE ARMY AND THE AIR FORCE

FEBRUARY 1954

WTM 2113

TM 9-2018
TO 11W2-9-1-101
C 1

DEPARTMENT OF THE ARMY TECHNICAL MANUAL
DEPARTMENT OF THE AIR FORCE TECHNICAL ORDER

OPERATION AND MAINTENANCE:

GROUND SIGNAL PROJECTOR M1A1; HAND PYROTECHNIC PROJECTOR M9; PYROTECHNIC PISTOL AN-M8; AND PYROTECHNIC PISTOL MOUNT M1

TM 9-2018
TO 11W2-9-1-101
CHANGES No. 1

DEPARTMENTS OF THE ARMY AND THE AIR FORCE
WASHINGTON 25, D. C., *28 October 1957*

TM 9-2018/TO 11W2-9-1-101, 8 February 1954, is changed as follows:

7. Tabulated Data

* * * * * * *

c. Pyrotechnic Pistol AN-M8 and Pyrotechnic Pistol Mount M1.

(1) *Pyrotechnic pistol AN-M8.*

* * * * * * *

Trigger pull	10½ to 14 lb

* * * * * * *

20. Extreme-Hot Weather Conditions

* * * * * * *

c. Hot-Damp and Salty Atmospheres.

* * * * * * *

(5) When the materiel * * * in paragraph 78. For storage for longer periods, see **TB ORD 623.**

* * * * * * *

TAGO 2553B—Oct. 440480°—57

LUBRICATION CHART
PROJECTOR, SIGNAL, GROUND M1A1 PROJECTOR, PYROTECHNIC, HAND, M9 PISTOL, PYROTECHNIC, AN-M8 References: TM 9-2018, ORD 8 SNL B-33, B-38, B-40
CLEANING -- Immediately after firing and on two consecutive days thereafter, thoroughly clean with CR, making sure that all surfaces are well coated. Do not wipe dry. OILING -- On third day after firing, clean with CR, wipe dry, apply a light coat of PL Special above $0^{\circ}F$ or LAW below $0^{\circ}F$. When Projector or Pistol is not being fired, clean with CR, wipe dry and oil weekly. Wipe dry before firing.
CR cleaning compound, solvent, rifle-bore cleaner PL Special -- lubricating oil, general purpose (above $0^{\circ}F$) LAW -- lubricating oil, weapons, MIL-L-14107 (below $0^{\circ}F$)

RA PD 255256A

Figure 8. (Superseded) *Lubrication chart.*

24. Special Lubrication Instructions

The lubrication procedure * * * of the projector.

a. The procedures in (1) through (4) below should be followed in order to accomplish effective lubrication and preservation of the projectors and their component parts.

* * * * * * *

(4) (Added) Before firing projectors or pistols within the 3-day cleaning period, oiling, as indicated in lubrication chart, is required.

b. (Superseded) The specific points in (1) through (3) below must be checked.

(1) The barrel must be thoroughly cleaned after firing. Swab the barrel with a lintless cloth saturated in rifle-bore cleaner solvent cleaning compound until the swabs come out clean.

(2) The firing pin and surrounding breech area must be thoroughly cleaned of any burned powder residue with rifle-bore cleaner solvent cleaning compound.

(3) All moving parts must be disassembled after firing and thoroughly cleaned in accordance with lubrication chart (fig. 8).

25. Lubrication Under Unusual Conditions

* * * * * * *

b. Extreme-Cold Weather Lubrication. When it is * * * below 0° F. Lubricate by wiping with a slightly oiled cloth, using **lubrication oil specified in lubrication chart (fig. 8).**

* * * * * * *

28. Common Preventive Maintenance Procedures

The general preventive * * * schedule (par. 29).

* * * * * * *

f. At least every * * * have been applied. A list of current modification work orders is published in **DA Pam 310–4.** If a modification * * * materiel contained herein.

40. General

a. When the trigger * * * the hammer spring. At a critical point, the projecting part of the trigger pawl engages the **bearing sleeve,** which acts to depress the nose of the trigger pawl, thus releasing the hammer to strike the firing pin.

* * * * * * *

41. Disassembly

a. Frame Group.

* * * * * * *

(9) Lift out hammer * * * and safety lever spring. Lift out **bearing sleeve.**

* * * * * * *

Figure 14, RA PD 162328A. Change the nomenclature as indicated below.

From—	*To—*
TRIGGER SLIDE 6257655	TRIGGER SLIDE 7268078
PAWL TRIP ROLLER 5299544	BEARING SLEEVE 7268077

43. Assembly

* * * * * * *

b. Frame Group.

* * * * * * *

(7) Place **bearing sleeve** on the fixed pin immediately below the trigger pawl.

* * * * * * *

Figure 17, RA PD 162331A. Change the nomenclature as indicated below.

From—	*To—*
TRIGGER SLIDE 6257655	TRIGGER SLIDE 7268078

47. General

* * * * * * *

c. (Superseded) *Categories of Technical Inspection.* In general, three categories of inspection are performed by ordnance maintenance personnel.

(1) *Inspection of materiel in hands of troops.*

(*a*) *Spot-check inspection.* A spot-check inspection is an annual inspection performed on a percentage of materiel in order to ascertain the adequacy and effectiveness of organizational maintenance and supply. Included within the scope of spot-check inspection are inspection of equipment to detect incipient failures before unserviceability occurs; inspection to ascertain the availability and use of technical and supply manuals and lubrication orders; inspection to determine the accuracy of records; authorized levels of equipment and supplies, practice of supply economy, preservation and safekeeping of tools, availability of repair parts and supplies, and knowledge of the proper procedures for requisitioning supplies and equipment and followup thereon.

(*b*) *Command maintenance inspection.* Command maintenance inspection is performed annually on at least 50 percent of materiel within a unit or organization. The purpose of the inspection is to insure adequacy and effectiveness of organizational and supply procedures; determine condition of materiel; ascertain availability and use of technical manuals, supply manuals, and lubrication orders; and determine the accuracy of records, authorized level of equipment and supplies, practice of supply economy, preservation and safekeeping of tools.

(2) *Preembarkation inspection.* This inspection is conducted on materiel in alerted units scheduled for oversea duty to insure that such materiel will not become unserviceable or worn out in a relatively short time. It prescribes a higher percentage of remaining usable life in serviceable materiel to meet a specific need beyond minimum serviceability.

(3) *Ordnance shop inspection.*

(*a*) *Initial inspection.* This is an inspection of materiel received in ordnance shops for the purpose of determining the degree of repair and parts requirement. This includes determination of modification work orders to be applied.

(*b*) *In-process inspection.* These are inspections performed in the process of repairing the materiel. This is to insure that all parts conform to the prescribed standards, that the workmanship is in accordance with approved methods and procedures, and that deficiencies not disclosed by the preliminary inspection are found and corrected.

(*c*) *Final inspection.* This is an acceptance inspection performed by a final inspector, after repair has been completed, to insure that the materiel is acceptable for return to user according to the standards established. Detailed instructions are contained in paragraphs 67 and 68.

[AG 413.77 (3 Oct 57)]

BY ORDER OF THE SECRETARIES OF THE ARMY AND THE AIR FORCE:

MAXWELL D. TAYLOR,
General, United States Army,
Chief of Staff.

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PMST Sr Div Ord Units		6-536
		6-615
		6-616

NG: State AG; units—same as Active Army.
USAR: None.
For explanation of abbreviations used, see AR 320-50.

TAGO 2553B

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TECHNICAL MANUAL
No. 9–2018
TECHNICAL ORDER
No. 39A–20–2

DEPARTMENTS OF THE ARMY
AND THE AIR FORCE

WASHINGTON 25, D. C., *8 February 1954*

GROUND SIGNAL PROJECTOR M1A1; HAND PYROTECHNIC PROJECTOR M9; PYROTECHNIC PISTOL AN–M8; AND PYROTECHNIC PISTOL MOUNT M1

***This manual supersedes TM 9–290, 18 February 1947; TO 11–15–1, 21 January 1943; TO 11–15–1A, 25 August 1945; and those portions of TM 9–1290, 18 March 1943, pertaining to materiel covered herein.**

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1. Scope

a. This manual is published for the personnel to whom this materiel (figs. 1 through 4) is issued and also for personnel responsible for performing field maintenance. It contains information on the operation and organizational and field maintenance of the materiel as well as descriptions of major units and their functions in relation to other components of the materiel.

b. A list of references, including supply and technical manuals, and other available publications applicable to the materiel is contained in the appendix.

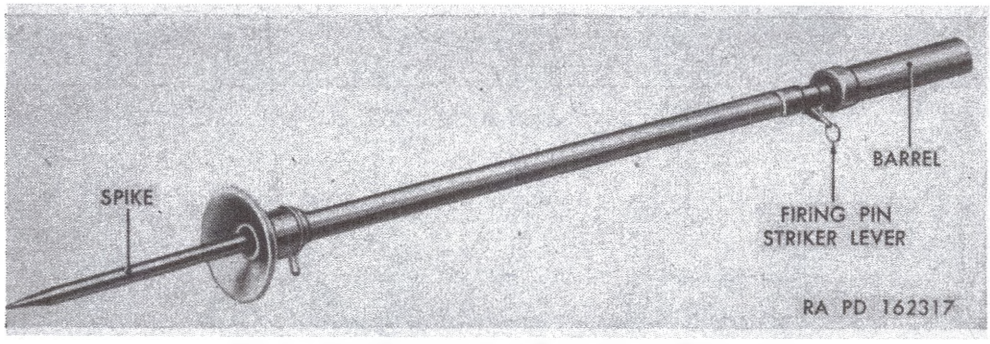

Figure 1. Ground signal projector M1A1.

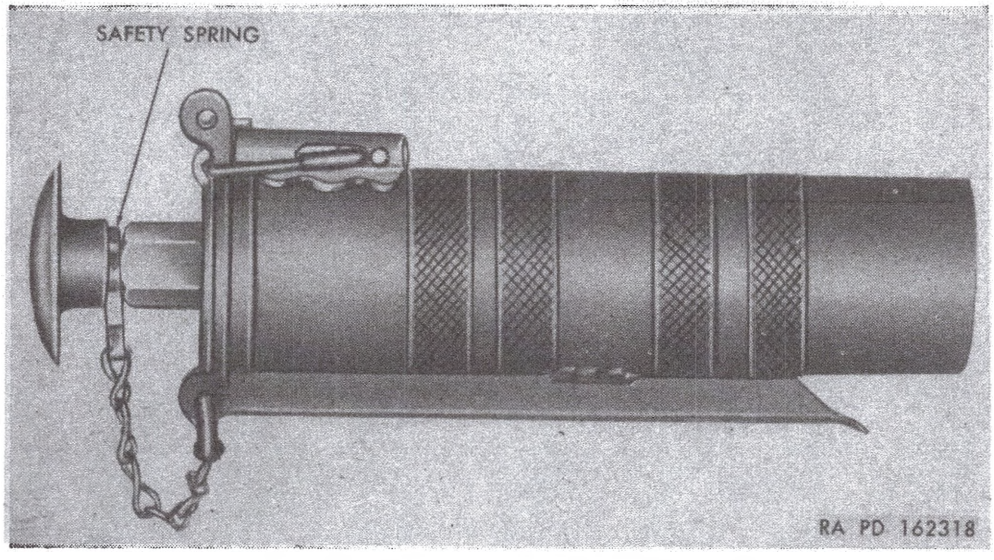

Figure 2. Hand pyrotechnic projector M9.

Figure 3. Pyrotechnic pistol AN–M8.

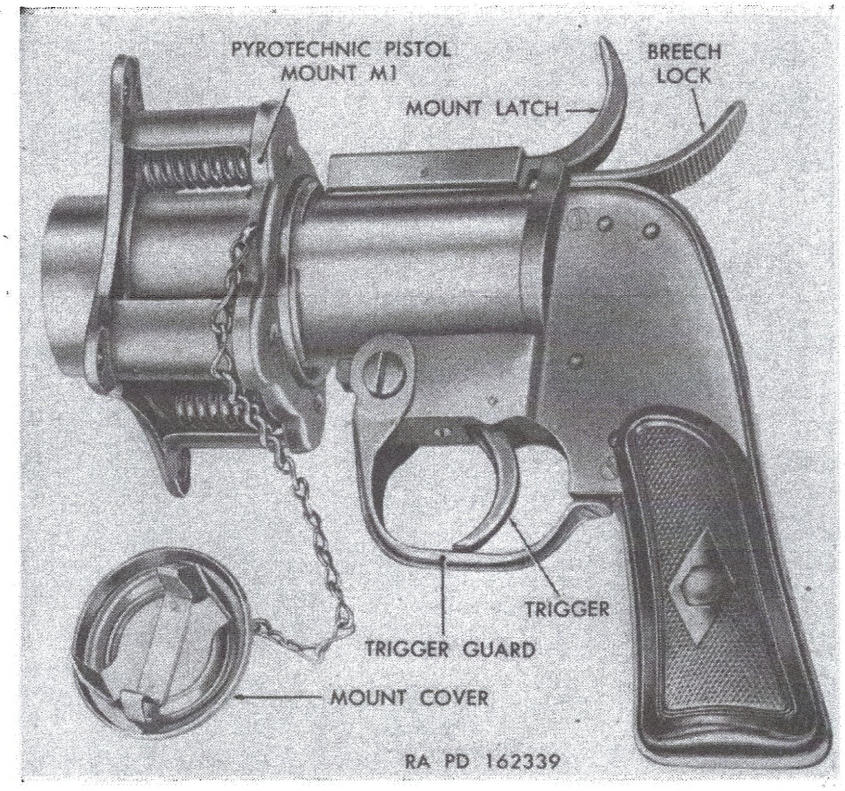

Figure 4. Pyrotechnic pistol AN–M8 and pyrotechnic pistol mount M1.

c. This manual differs from TM 9–290, 18 February 1947, as indicated in (1) and (2) below.

(1) Adds information on field maintenance.

(2) Revises information as indicated in (*a*) through (*f*) below.

(*a*) Controls.

(*b*) Preventive maintenance.

(*c*) Operation.

(*d*) Troubleshooting.

(*e*) Inspection.

(*f*) Organizational maintenance.

2. Maintenance Allocation

a. Organizational Maintenance Allocation. In general, the prescribed organizational maintenance responsibilities are reflected in the allocation of tools and maintenance parts in the appropriate columns of the current ORD 7 supply manual pertaining to this materiel. However, since no tools or spare parts are authorized the using unit, organizational maintenance is limited to the extent of disassembly prescribed in this manual for cleaning, lubricating, and preventive maintenance. The publication of these field maintenance instructions is not to be construed as authority for the performance by organizational maintenance personnel of those functions that have been restricted to field maintenance shops. In all cases where the nature of the repair, modification, or adjustment is beyond the scope or facilities of the using unit, the item will be referred to the supporting field maintenance unit.

b. Field Maintenance Allocation. The publication of instructions for complete disassembly is not to be construed as authority for the performance by field maintenance units of those functions that have been restricted to depot shops and arsenals. In general, the prescribed maintenance responsibilities will apply as reflected in the allocation of maintenance parts listed in the appropriate columns of the current ORD 8 supply manuals pertaining to the materiel. Provisions of parts listed in the depot guide column of ORD 8 supply manuals will be made to field maintenance only when the emergency nature of the maintenance to be performed has been certified by a responsible officer of the requisitioning organization.

3. Forms, Records, and Reports

a. General. Responsibility for the proper execution of forms, records, and reports rests upon the officers of all units maintaining this equipment. However, the value of accurate records must be fully appreciated by all persons responsible for their compilation, maintenance, and use. Records, reports, and authorized forms are normally utilized to indicate the type, quantity, and condition of materiel to

be inspected, to be repaired, or to be used in repair. Properly executed forms convey authorization and serve as records for repair or replacement of materiel in the hands of troops and for delivery of materiel requiring further repair to ordnance shops in arsenals, depots, etc. The forms, records, and reports establish the work required, the progress of the work within the shops, and the status of the materiel upon completion of its repair.

b. Authorized Forms. The forms generally applicable to units maintaining this materiel are listed in the appendix. For a current and complete listing of all forms, see SR 310–20–6. For instructions on use of these forms, refer to FM 9–10.

c. Field Reports of Accidents.

(1) *Injury to personnel or damage to materiel.* The reports necessary to comply with the requirements of the Army safety program are prescribed in detail in SR 385–10–40. These reports are required whenever accidents involving injury to personnel or damage to materiel occur.

(2) *Ammunition.* Whenever an accident or malfunction involving the use of ammunition occurs, firing of the lot which malfunctions will be immediately discontinued. In addition to any applicable reports required in (1) above, details of the accident or malfunction will be reported as prescribed in SR 385–310–1/AFR 50–13.

d. Report of Unsatisfactory Equipment or Materials. Any suggestions for improvement in design and maintenance of equipment and maintenance parts, safety and efficiency of operations, or pertaining to the application of prescribed petroleum fuels, lubricants, and/or preserving materials, or technical inaccuracies noted in Department of the Army publications will be reported through technical channels as prescribed in SR 700–45–5, to the Chief of Ordnance, Department of the Army, Washington 25, D. C., ATTN: ORDFM, using DA Form 468, Unsatisfactory Equipment Report. Such suggestions are encouraged in order that other organizations may benefit.

Note. Do not report all failures that occur. Report only REPEATED or RECURRENT failures or malfunctions that indicate unsatisfactory design or material. However, reports will always be made in the event that exceptionally costly equipment is involved. See also SR 700–45–5 and the printed instructions on DA Form 468.

Section II. DESCRIPTION AND DATA

4. Description

a. Ground Signal Projector M1A1 (fig. 1). This unit is a lightweight, heavy-duty, mechanically supported ground projector. It is single-loading, manually fired, and is used to project the high burst ranging ground signal M27.

b. Hand Pyrotechnic Projector M9 (fig. 2). This equipment is a small, compact, lightweight, hand-supported and hand-operated projector used in signaling from aircraft to aircraft, aircraft to ground, and ground unit to ground unit. The unit is single-loading.

c. Pyrotechnic Pistol AN–M8 and Pyrotechnic Pistol Mount M1.

(1) The pyrotechnic pistol AN–M8 (fig. 3) is a single shot, double action, breech-loading-type pistol, used for the same purposes as the projector M9 (*b* above) and utilizes the same signals as the projector M9. In addition, the pistol AN–M8 is used to project the parachute aircraft flare M9A1. When used in aircraft, the pistol is installed in the pyrotechnic pistol mount M1, which is fastened rigidly to the airplane.

(2) A canvas holder (an article of Air Force supply), for both the pistol and appropriate number of aircraft signals, is supplied and securely attached to the airplane at or near the pistol mount location. This holder is held in position by a suitable bracket or shelf (provided by the airplane manufacturer), which is equipped with the necessary snap fasteners for attaching the holder. When not required for immediate use, the pistol is usually carried in the holder, as shown in figure 5.

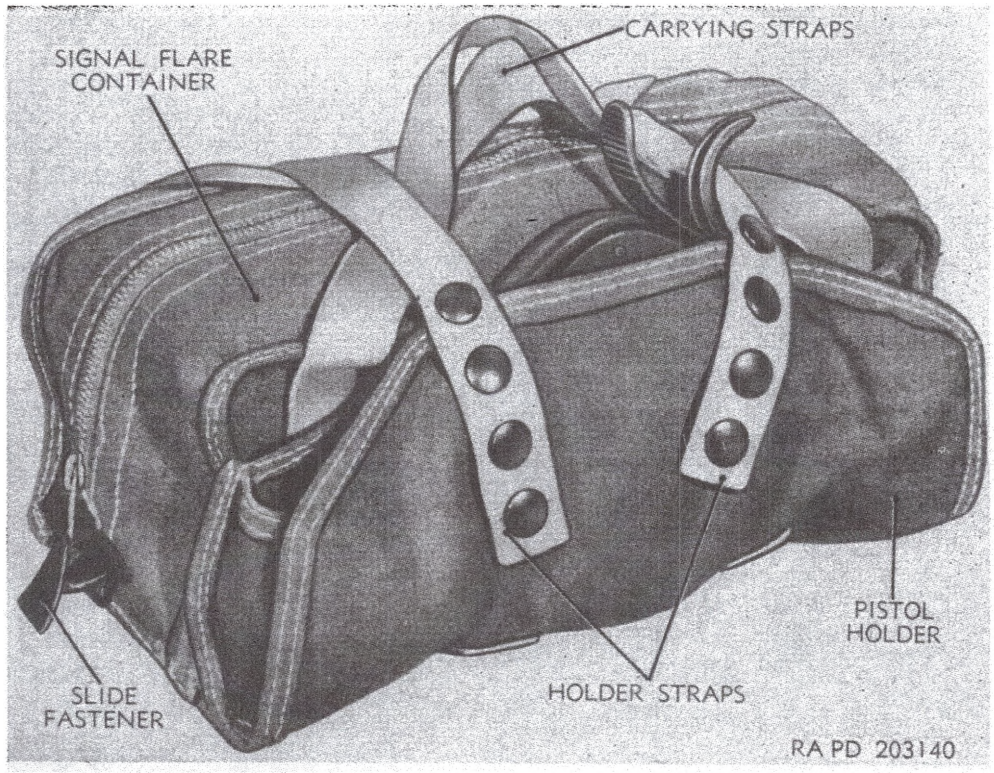

Figure 5. Pistol holder and signal container (an article of air force supply).

5. Differences Between Models

The hand pyrotechnic projector M9 and the pyrotechnic pistol AN–M8 serve the same purpose, i. e., signaling and/or production of illumination for military operations. The ground signal projector M1A1 is used for field artillery training purposes only. It projects a high bursting signal that produces a smoke puff at the top of its ascent, simulating an exploding shell.

6. Identification Information

a. Ground Signal Projector M1A1. This unit has no name, serial number, caution, or instruction plates affixed to it or stamped in it.

b. Hand Pyrotechnic Projector M9. The name and model number of the projector are stamped in the breech plate (fig. 6).

c. Pyrotechnic Pistol AN–M8 and Pyrotechnic Pistol Mount M1. The name and model number of the Pistol AN–M8 are stamped in the right-hand frame plate (fig. 3). No name or serial number is stamped on the mount M1 (fig. 7).

7. Tabulated Data

a. Ground Signal Projector M1A1.

Weight (w/support)	12.67 lb
Length (w/o support and spike)	15¾ in
Length (w/support w/o spike)	49 in
Length (w/support and spike)	57½ in
Bore:	
Diameter	1.636 in
Length	11⅝ in
Associated equipment	lanyard

b. Hand Pyrotechnic Projector M9.

Weight	1 lb
Length (overall)	8 in
Length of barrel	6 in
Diameter of bore	1.575 in

c. Pyrotechnic Pistol AN–M8 and Pyrotechnic Pistol Mount M1.

(1) *Pyrotechnic pistol AN–M8.*

Weight	2.13 lb
Length (overall)	8 in
Length of barrel	4⅛ in
Diameter of bore	1.580 in
Trigger pull	5 to 8 lb

(2) *Pyrotechnic pistol mount M1.*

Weight	1.12 lb

d. Ammunition. For information on ammunition, see table IV.

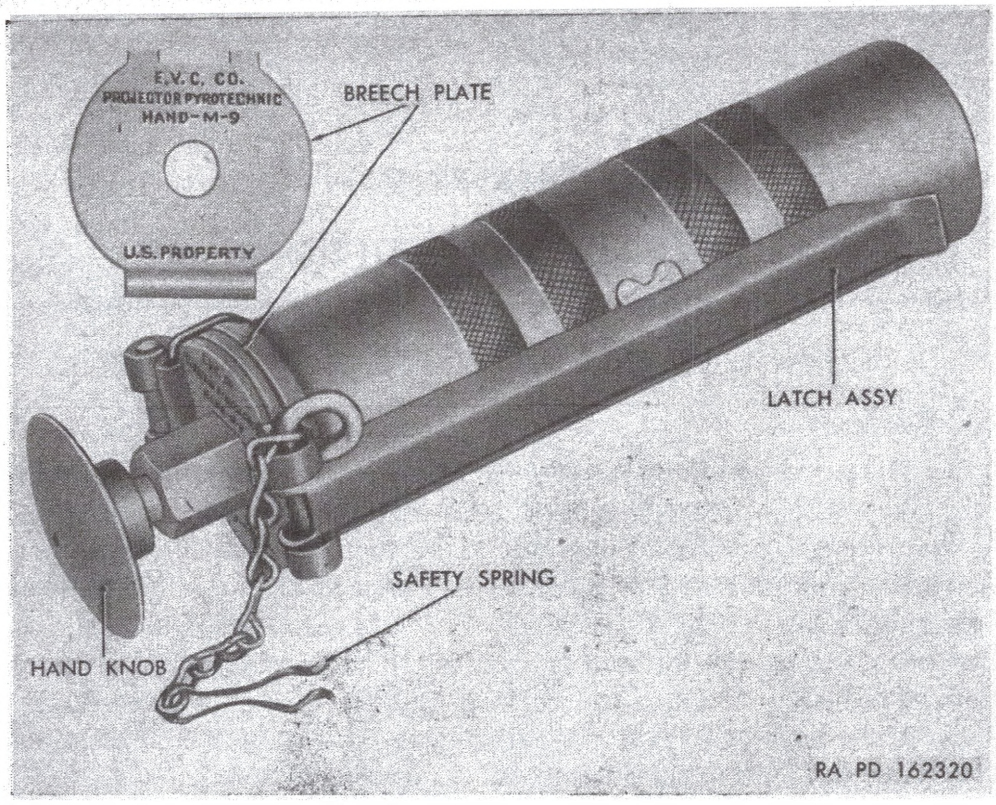

Figure 6. Hand pyrotechnic projector M9—location of name and model number.

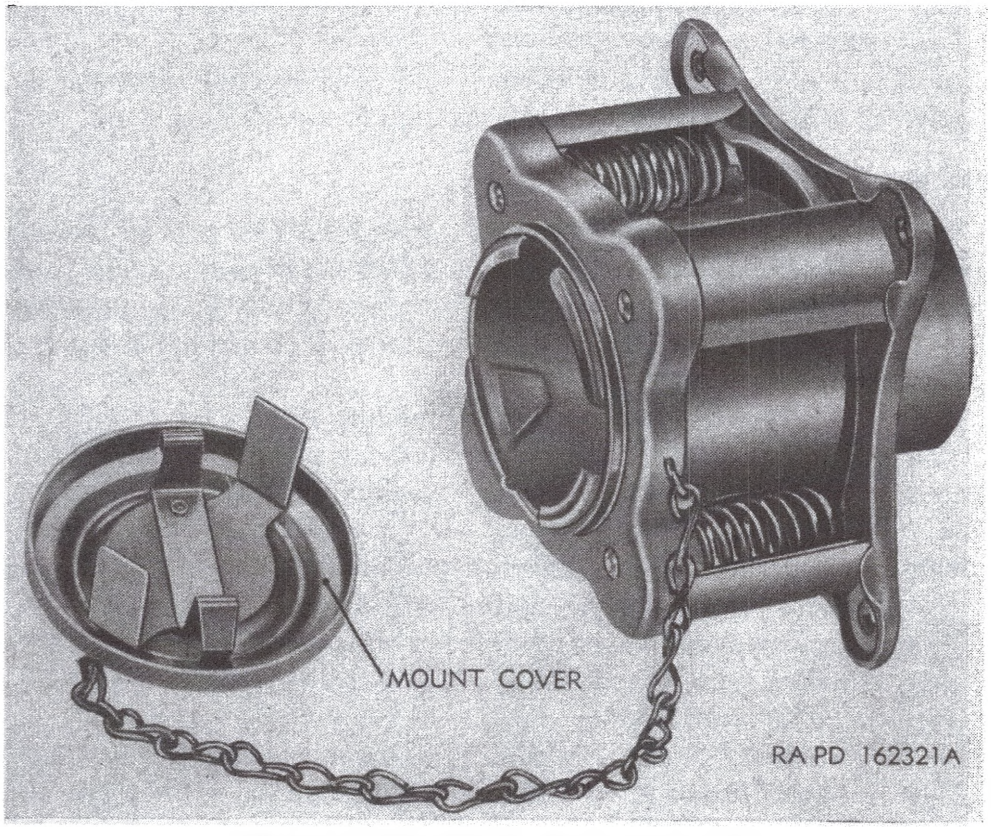

Figure 7. Pyrotechnic pistol mount M1.

CHAPTER 2

OPERATING INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF MATERIEL

8. General

a. Upon receipt of new or used materiel, it is the responsibility of the officer in charge to determine whether the materiel has been properly prepared for service by the supplying organization and to be sure it is in condition to perform any mission to which it may be assigned when placed in service. For this purpose, inspect all assemblies, subassemblies, and accessories to be sure they are properly assembled, secure, clean, and correctly adjusted and/or lubricated.

b. Make a record of any missing parts and of any malfunctions. Correct any deficiencies as quickly as possible.

c. Pay special attention to the small parts, as they are the more likely to become lost and may seriously affect the proper functioning of the material.

d. The materiel should be cleaned and prepared for service in accordance with instructions in paragraphs 9 and 10.

9. New Materiel

a. These projectors will be covered with a light rust-preventive compound. This compound is a nondrying petroleum product, but is not a lubricant and must be removed before placing equipment into service. The preservative can be removed with dry-cleaning solvent or volatile mineral spirits.

Caution: This solvent is highly inflammable. DO NOT USE NEAR AN OPEN FLAME. This cleaning solvent should be kept in safety tanks that are kept tightly closed when the cleaner is not in use.

Remove preservative as indicated in (1) through (4) below.

(1) Remove excess preservative with wiping cloths.

(2) Immerse the projector in dry-cleaning solvent or volatile mineral spirits and, using a brush, remove the preservative on the exterior surface.

(3) Disassemble the projector and swab the components with white cotton waste saturated with dry-cleaning solvent or volatile mineral spirits. Refer to (*a*) through (*c*) below for applicable paragraphs for disassembly procedures.

(*a*) Ground signal projector M1A1 (par. 33).
(*b*) Hand pyrotechnic projector M9 (par. 37).
(*c*) Pyrotechnic pistol AN–M8 and pyrotechnic pistol mount M1 (par. 41).

(4) Dry all parts thoroughly before lubricating. Lubricants will roll off metal surfaces containing any of the solvent.

b. When disassembled, check the projector carefully for broken, marred, or missing parts.

c. Lubricate the materiel (pars. 23 through 25).

d. See (1) through (3) below for applicable paragraphs for assembly procedures.

(1) Ground signal projector M1A1 (par. 35).
(2) Hand pyrotechnic projector M9 (par. 39).
(3) Pyrotechnic pistol AN–M8 and pyrotechnic pistol mount M1 (par. 43).

e. Set up the materiel and make operational checks as per the applicable paragraphs indicated in (1) through (3) below.

(1) Ground signal projector M1A1 (par. 15*a*).
(2) Hand pyrotechnic projector M9 (par. 16*a*).
(3) Pyrotechnic pistol AN–M8 and pyrotechnic pistol mount M1 (par. 17*a*).

10. Used Materiel

a. In addition to the procedures and inspections prescribed in paragraph 9, used materiel will also be checked to insure that all modification work orders, if any, have been applied.

b. A list of modification work orders is published in SR 310–20–4. If any modification work order has not been applied, the local ordnance officer must be notified promptly.

c. Carefully inspect the materiel for wear, burs, and scores.

Section II. CONTROLS

11. Ground Signal Projector M1A1

The only control on this projector is the lanyard. This lanyard is attached to the ring on the firing pin striker lever (fig. 1) and enables the projector to be fired at a safe distance from the unit. The lanyard is not an item of issue. It will be improvised, by the using unit, from field wire or shelter half rope.

12. Hand Pyrotechnic Projector M9

a. Hand Knob. The hand knob (fig. 6) at the back of the projector has the firing pin set into it. Depression of this knob causes the firing pin to strike the signal primer.

b. Safety Spring. The purpose of the safety spring (fig. 6) is to prevent accidental depression of the knob and thus firing of the projector. The spring is shown in the SAFE position in figure 2. To prevent loss of the safety spring, it is attached to the latch pin with a chain.

c. Latch Assembly. The latch assembly (fig. 6) is fitted with a plunger that snaps into the catch welded to the barrel. The purpose of this arrangement is to keep the breech closed. Pulling up on the latch assembly will cause the plunger to disengage and the breech to open.

13. Pyrotechnic Pistol AN–M8 and Pyrotechnic Pistol Mount M1

a. Breech Lock. The breech lock (fig. 4) serves to lock or open the breech. Pulling up on the lock will cause it to disengage from the frame, permitting the frame to swing downward, thereby opening the breech. When the frame is pulled upward, it closes the breech and engages the breech lock.

b. Mount Latch. The mount latch (fig. 4) is situated immediately in front of the breech lock and serves to lock the pistol into the mount.

c. Trigger. The trigger and trigger guard are shown in figure 4. The pistol is a double-action unit; that is, retracting the trigger cocks the hammer against the spring pressure and at a critical point releases the hammer to strike the firing pin.

Section III. OPERATION UNDER USUAL CONDITIONS

14. General

This section contains instructions for the mechanical steps necessary to operate the materiel under condtions of moderate temperatures and humidity. For operation under unusual conditions, see paragraphs 18 through 20.

15. Ground Signal Projector M1A1

a. Preparation of Materiel for Operation.

(1) This projector can be fired with or without the spike attached. If spike is to be used, make certain that it is properly and securely threaded into base of body assembly.

(2) Force spike (fig. 1) into the ground at the desired angle.

(3) Before loading, pull on lanyard so that the firing pin striker lever is pulled down. Release the lanyard and check to see that the striker and firing pin within the breech fall back freely, pulling up the firing pin striker lever.

(4) Carefully inspect pyrotechnics before using. Make certain to remove any mud, dirt, grease, or sand found on the signals.

b. Loading. Slowly insert the signal into the barrel, primer end first.

c. Firing.

(1) Sit, kneel, or lie so that head is well below and behind projector muzzle.

(2) Firmly grasp lower part of projector body with one hand and snap lanyard down sharply with the other.

(3) Exercise extreme care when firing through trees or similarly inflammable obstructions.

d. Unloading.

(1) Pull projector from the ground.

(2) Invert projector.

(3) Allow signal to fall out on ground.

e. Corrections of Malfunctions and Stoppages by Immediate Action Only.

(1) If signal fails to fire, make two more attempts to fire. If signal still fails to fire, wait 30 seconds to eliminate the possibility of a hangfire, then unload the weapon.

(2) Examine the signal for primer indentation due to firing pin. If indentation exists, dispose of signal and load projector with a new signal.

(3) If no indentation exists, the firing mechanism may be defective. See paragraph 31*b*.

16. Hand Pyrotechnic Projector M9

a. Preparation of Materiel for Operation.

(1) Remove safety spring (fig. 6) from SAFE position.

(2) Disengage latch assembly and open breech.

(3) Press down hand knob and note whether firing pin is forced out.

(4) Release hand knob and note whether spring action pulls the firing pin back into the firing pin guide.

(5) Replace safety spring into SAFE position between firing pin nut and bottom of hand knob.

(6) Carefully inspect pyrotechnics before using. Make certain to remove any mud, dirt, grease, or sand found on the signals.

b. Loading.

(1) With projector still open, insert signal through breech end.

(2) Make certain that the ejector protruding from the barrel engages the rim of the signal.

(3) Close the breech and engage the latch plunger in the barrel catch.

c. Firing.

(1) Hold projector barrel firmly in one hand.

(2) Direct projector away from face and other personnel in area.

(3) Pull safety spring from SAFE position.
(4) Strike hand knob sharply with palm of other hand.

Note. Firing of the signal can also be accomplished by striking the hand knob against some rigid object.

(5) Exercise extreme care when firing through trees or other obstructions.

d. Unloading.

(1) Disengage the latch from the barrel catch.
(2) Open the breech.
(3) Remove signal case from breech end of barrel.

e. Corrections of Malfunctions and Stoppages by Immediate Action Only.

(1) If signal fails to fire, make two more attempts to fire. If signal still fails to fire, wait 30 seconds to eliminate the possibility of a hangfire, and then unload the weapon.
(2) Examine the signal for primer indentation due to firing pin. If indentation exists, dispose of signal and load projector with a new signal.
(3) If no indentation exists, the firing mechanism may be defective. See paragraph 31*b*.

17. Pyrotechnic Pistol AN–M8 and Pyrotechnic Pistol Mount M1

a. Preparation of Materiel for Operation.

(1) Press up on knurled side of breech lock and open breech.
(2) Examine barrel for foreign matter or obstructions.
(3) Press back trigger and watch firing pin in its retainer. Make certain that firing pin snaps forward and back at about center postion of trigger travel.
(4) If pistol is being used in aircraft, the pistol must be installed in the pistol mount M1. This is accomplished as described in (*a*) through (*d*) below.
  (*a*) Remove the mount cover from mount.
  (*b*) Hold the pistol in position, so that the lugs on the barrel line up with the slots in the mount. Push the pistol into the mount as far as it will go.
  (*c*) Rotate the pistol about one-eighth turn or 45°, until the mount latch on the pistol barrel snaps into one of the slots on the mount.
  (*d*) The pistol can be locked in the mount in any one of four positions, each 90° apart.
(5) Carefully inspect pyrotechnics before using. Make certain to remove any mud, dirt, grease, or sand found on the signals.

b. Loading.

(1) Open the breech by pressing upward on the breech lock.

(2) Insert signal into the barrel through the breech, primer end last.
(3) Snap the breech closed.
(4) The aircraft parachute flare M9A1 must be loaded through the muzzle. Insert the flare through the muzzle until the ejector engages the groove. The parachute flare M9A1 will not pass through the mount M1, therefore must be fired freehand.

c. Firing.

(1) Squeeze back the trigger until the pistol fires.
(2) Exercise extreme care when firing through trees or similar obstruction.
(3) When firing from aircraft, make certain that the round will clear all parts of the aircraft.
(4) When the aircraft parachute flare M9A1 is to be fired, hold the pistol firmly with both hands. The weight and design of this flare causes extreme recoil when fired.

d. Unloading.

(1) Open the breech by pushing up on the breech lock.
(2) Pull the empty signal shell from the projector.

e. Corrections of Malfunctions and Stoppage by Immediate Action Only.

(1) If signal fails to fire, make two more attempts to fire. If signal still fails to fire, wait 30 seconds to eliminate the possibility of a hangfire, and then unload the weapon.
(2) In the case of the aircraft parachute flare M9A1, after two attempts to fire, unload the pistol and dispose of the flare quickly and safely.
(3) For signals other than the M9A1, examine the signal for primer indentation due to firing pin. If indentation exists, dispose of signal and load projector with a new signal.
(4) If no indentation exists, the firing mechanism may be defective. See paragraph 31*b*.

f. Removing Pistol From Mount.

Caution: Since the pistol is cocked at all times when the breech is closed, a live signal must never be left in the pistol when it is removed from the mount. Place signal in chamber only when immediate use is anticipated.

(1) To remove the pistol from the mount, pull back on the mount latch and turn the pistol, either to the right or left, approximately one-eighth turn. This permits the lugs on the pistol barrel to aline with the slots in the mount, and the pistol can then be withdrawn.
(2) Install the mount cover on the mount.

Section IV. OPERATION UNDER UNUSUAL CONDITIONS

18. General Conditions

a. In addition to the normal operating procedures described in paragraphs 14 through 17 for usual conditions, special instructions for operating and servicing the projectors under unusual conditions are contained or referred to herein. In addition to the normal preventive maintenance service, special care in cleaning and lubrication must be observed where extremes of temperature, humidity, and terrain conditions are present or anticipated. Proper cleaning, lubrication, and storage and handling of oils and lubricants not only insure proper operation and functioning but also guard against wear of the working parts and deterioration of the materiel.

b. See paragraph 25 for instructions on lubrication under unusual conditions and to the preventive maintenance schedules in paragraph 30 for checks to be made when the materiel is subjected to unusual conditions.

c. When chronic failure of materiel results from subjection to extreme conditions, report should be made on DA Form 468 (par. 3*d*).

19. Extreme-Cold Weather Conditions

a. General.

(1) Extensive preparation of materiel, scheduled for operation in extreme-cold weather, is necessary. Generally, extreme cold will cause lubricants to thicken or congeal and will cause the various construction materials to become hard, brittle, and easily damaged or broken.

(2) For description of operations in extreme cold, see FM 31–70, FM 31–71, and TM 9–2855.

Caution: It is imperative that the approved practices and precautions be followed.

b. Handling and Storage of Lubricants and Special Oils.

(1) The operation of equipment at arctic temperatures will depend to a great extent upon the condition of the oils and lubricants used in the equipment. Immediate effects of careless handling of oils and lubricants are not always apparent, but any deviation from proper handling of these products is liable to bring trouble at the least expected times.

(2) In arctic operations, contamination with moisture is the source of many difficulties. Moisture can be the result of snow getting into the product, condensation due to "breathing" of a partially filled container, or moisture condensed in a partially filled container when an item is brought outdoors from room temperature. Other impurities will also con-

taminate oils and lubricants so that their usefulness is impaired.

(3) See TM 9–2855 for detailed instructions on storage, handling, and use.

20. Extreme-Hot Weather Conditions

a. General.

(1) In hot climates, the film of oil necessary for operation and preservation will be quickly dissipated. Inspect materiel frequently, paying particularly attention to hidden surfaces, such as the bore, springs and spring seats, firing pin, and like places, where corrosion might occur and not be quickly noticed.

(2) Perspiration from the hands is a contributing factor to rusting, because it contains acid. After handling, clean, wipe dry, and restore the oil film.

(3) Since explosives are adversely affected by high temperatures, ammunition must be protected from sources of high temperatures, including the direct rays of the sun. Elements in primers and fuzes are particularly sensitive to high temperature.

b. Hot-Dry Climate.

(1) When operating in climates where sand and dust are likely to enter the bore and mechanism, the materiel should be wiped clean daily or more often and, if necessary, disassembled to the extent that all parts can have a thorough cleaning. Oiling should be kept to a minimum, as oil will collect dust, which will cause wear of the working parts. It should be applied lightly and only to the surfaces or working parts showing signs of wear. During sand or dust storms, materiel should be kept covered as much as possible.

(2) Temperature changes will cause condensation of moisture in the air on metal and cause rusting. If condensation occurs on unpainted metal parts of the weapon, wipe them dry and coat with medium preservative lubricating oil as required to prevent rusting.

c. Hot-Damp and Salty Atmospheres.

(1) Materiel should be inspected frequently when being operated in hot, moist areas.

(2) When the materiel is active, clean and lubricate the bore and exposed metal surfaces more frequently than is prescribed for normal service.

(3) Moist and salty atmospheres have a tendency to emulsify oils and greases and destroy their rust-preventive properties.

Inspect parts frequently for corrosion. Keep covers in place as much of the time as firing conditions permit.

(4) Canvas covers, leather straps, or other items, which are subject to deterioration from mildew or attack by insects or vermin, must be aired for several hours as often as possible. Mildewed canvas or leather are best cleaned by scrubbing with a dry brush. If water is necessary to remove dirt, it must not be used until mildew has been removed. If mildew is present, examine material carefully by stretching and pulling for evidence of rotting or weakening. If canvas shows weakness, it probably is not worth treatment. If not damaged, treat canvas as described in TM 9–850. *Do not fold wet canvas.*

Note. At no time is gasoline, dry-cleaning solvent, or volatile mineral spirits to be used to remove oil or grease spots from canvas. Only water and a scrubbing brush may be used to clean canvas.

(5) When the materiel is inactive, and its use is not anticipated for 180 days, it should be placed in limited storage as prescribed in paragraph 78. For storage for longer periods, see SR 743–110–1.

(6) Do not break moisture-resistant seal of ammunition container until the ammunition is to be used.

(7) Keep ammunition dry and free from mud, corrosion, or foreign matter.

CHAPTER 3

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. ORGANIZATIONAL MAINTENANCE PARTS, TOOLS, AND EQUIPMENT

21. General

No maintenance parts, special tools or equipment are issued to the using organization for maintaining the materiel.

22. Common Tools

Standard and commonly used tools having general application to this materiel are authorized for issue by T/O&E.

Section II. LUBRICATION AND PAINTING

23. Lubrication Chart

The lubrication chart (fig. 8) prescribes organizational maintenance lubrication for this materiel. Service intervals specified on

LUBRICATION CHART

PROJECTOR, SIGNAL, GROUND, M1A1
PROJECTOR, PYROTECHNIC, HAND, M9
PISTOL, PYROTECHNIC, AN-M8

References: TM 9-2018; ORD 7 SNL B-33, B-38, B-40

BORE—Immediately after firing and on three consecutive days thereafter, clean with **CR**, wipe dry and lubricate with **PL** special. When materiel is not being fired, clean with **CR** and renew oil film weekly. Wipe bore clean before firing.

MOVING PARTS—Immediately after firing and on three consecutive days thereafter, clean with **CR**, wipe dry and lubricate with **PL** special. When materiel is not being fired, clean all parts with **CR** and renew oil film weekly.

CR—CLEANER, rifle-bore

PL—Special—OIL, lubricating, preservative, special (MIL-L-644A)

RA PD 162322A

Figure 8. Lubrication chart.

the lubrication chart are for normal operating conditions and during active service.

24. Special Lubrication Instructions

The lubrication procedure in *a* and *b* below is a more detailed and complete procedure than that of the lubrication chart. Pay particular attention to the specific points made regarding different parts of the projector.

a. The procedures in (1) through (3) below should be followed in order to accomplish effective lubrication and preservation of the projectors and their component parts.

(1) All parts must be thoroughly cleaned and dried before oiling.

(2) Lubrication should be careful and sparing. This is best accomplished by using a lintless cloth that was dipped in the lubricant and then completely wrung out.

(3) All excess oil should be wiped off. Excess oil attracts grit, sand, and other foreign matter that cause excessive wear of the moving parts. This results in failures in firing and other malfunctions.

b. The specific points in (1) through (3) below must be checked.

(1) The barrel must be thoroughly cleaned after firing. Swab the barrel with a lintless cloth saturated in rifle-bore cleaner until the swabs come out clean; remove all rifle-bore cleaner; then lubricate.

(2) The firing pin and surrounding breech area must be thoroughly cleaned of any burned powder residue with rifle-bore cleaner and lubricated after cleaning.

(3) All moving parts must be disassembled after firing, thoroughly cleaned, dried, and properly lubricated.

25. Lubrication Under Unusual Conditions

a. Service Intervals. Reduce service intervals specified on the lubrication chart (i. e., lubricate more frequently) to compensate for abnormal or extreme conditions, such as high or low temperatures, prolonged periods of firing, continued firing in sand or dust, or exposure to moisture. Any one of these operations or conditions may cause contamination and quickly destroy the protective properties of the lubricant.

b. Extreme-Cold Weather Lubrication. When it is anticipated that the materiel will be operated in extreme-cold weather, it is necessary that the materiel be kept absolutely free from moisture. It has also been found that, excess oil on working parts will solidify to such an extent as to cause sluggish operation or complete failure. The materiel should be disassembled and all metal parts completely cleaned with rifle-bore cleaner before use in temperature below 0° F.

Lubricate by wiping with a slightly oiled cloth, using preservative lubricating oil special.

c. Extreme-Hot Weather Lubrication. Special lubricants will not ordinarily be required at extremely high temperatures, as lubricants prescribed provide adequate protection. However, more frequent servicing than specified in the lubrication chart (fig. 8) is necessary, because the heat tends to dissipate the lubricants.

d. Lubrication for Humid and Salt Air Conditions. High humidity, moisture, or salt air tend to contaminate the lubricant, necessitating more frequent service than specified in paragraphs 23 and 24.

e. Lubrication After Operation Under Dusty or Sandy Conditions. If firing has occurred under dusty or sandy conditions, clean and inspect all points of lubrication for fouled lubricants. Lubricate as necessary.

Note. A lubricant that is fouled by dust and sand makes an abrasive mixture that causes rapid wear of parts.

26. Painting

Instructions for the preparation of the materiel for painting, methods of painting, and materials to be used are contained in TM 9–2851.

Section III. PREVENTIVE MAINTENANCE SERVICES

27. General

Preventive maintenance services prescribed by Army regulations are a function of using organization level of maintenance. This section contains preventive maintenance services allocated to operating personnel and to the organizational maintenance personnel (mechanic).

a. Each piece of materiel should be given a general overall inspection to determine whether any obvious serious faults exist.

b. Inspect the materiel for the following:

General appearance.
Loose parts.
Rigidity of connecting parts.
Smoothness of firing mechanism action.
Broken or damaged parts.
Cleanliness.
Lubrication.

28. Common Preventive Maintenance Procedures

The general preventive maintenance in *a* through *f* below will be observed in addition to that referred to in the schedule (par. 29).

a. Rust, dirt, grit, gummed oil, and water cause rapid deterioration of internal mechanisms and outer unpainted surfaces. Particular care should be taken to keep all bearing and sliding surfaces clean and properly lubricated. Wiping cloths and rifle-bore cleaner are furnished for this purpose. All traces of corrosion should be removed with crocus cloth.

b. Loose parts will be tightened.

c. Serious damage to weapons, in many cases requiring repair and replacement of component parts, has resulted from the use of water, steam, or air from a high-pressure hose for cleaning purposes. For this reason, operating personnel are prohibited from using water, steam, or air under pressure for cleaning this materiel.

d. Each time the materiel is disassembled for cleaning or repair, carefully inspect all parts for cracks, excessive wear, rust, and like defects, which might cause malfunctions of the weapon. See paragraphs 32 through 35 for information on certain parts that when worn, damaged, or improperly adjusted cause definite malfunctions. Use this section as a guide during inspection. Thoroughly clean and properly lubricate all parts before assembly.

e. Each time the materiel is disassembled for cleaning or repair, the operations in (1) through (3) below should be performed.

(1) All burs should be removed from screwheads, threads, pins, and similar surfaces with a very fine file.

(2) All burs on flat, smooth contacting surfaces should be removed with a crocus cloth.

(3) All breaks or damages in threads should be corrected with a tap or die if available. If these tools are not available, a *spare* mating thread can be used in their stead.

f. At least every 6 months, a check will be made to see that all modifications have been applied. A list of current modification work orders is published in SR 310–20–4. If a modification has not been applied, the local armament officer will be promptly notified. No alteration or modification will be made by organizational personnel, except as authorized by official publication. As of the date of printing of this manual, no modification work orders have been published affecting the materiel contained herein.

29. Preventive Maintenance Schedules (Operator)

a. Before Firing.

Point	*Preventive maintenance*	*Detailed instructions*
Projector	Check functioning	Pars. 15, 16, and 17
Bore	Clean	Par. 24
Moving Parts	Clean and lubricate	Par. 24

b. After Firing.

Point	*Preventive maintenance*	*Detailed instructions*
Projector	Check functioning	Pars. 15, 16, and 17
Bore	Clean and lubricate	Par. 24
Moving Parts	Clean and lubricate	Par. 24

c. Weekly.

Point	*Preventive maintenance*	*Detailed instructions*
Projector	Check functioning	Pars. 15, 16, and 17
Bore	Clean and lubricate	Par. 24
Moving Parts	Clean and lubricate	Par. 24

Section IV. TROUBLESHOOTING

30. General

Troubleshooting is a systematic isolation of defective components by means of an analysis of the trouble symptoms, testing to determine the defective component, and applying the remedies.

31. Failure To Fire

Failure to fire can be caused by either a defective signal or flare, by improper seating of signal or flare, or by a defective firing mechanism.

a. Defective Signal or Flare.

(1) If the signal fails to fire, attempt to fire it two more times. If signal still fails to fire, wait 30 seconds and then unload. If the aircraft parachute flare M9A1 fails to fire, the pyrotechnic pistol AN–M8 can only be unloaded by opening the breech, depressing the ejector, and withdrawing the flare from the muzzle.

(2) If the primer is indented, load with a new signal and fire.

b. Improper Seating of Signal or Flare. If the signal or flare fails to fire in the ground signal projector M1A1, the round may not have been properly seated. If no primer indentation exists, attempt to fire another round as in *a*(1) above.

c. Defective Firing Mechanism. If failure to fire is not due to faulty signal or flare or improper seating of signal or flare, then the firing mechanism is probably faulty. Examine firing mechanism in accordance with (1) and (2) below.

(1) Check firing pin protrusion. Examine projector for foreign matter that might restrict the forward movement of the firing pin.

(2) If examination reveals broken or faulty parts, notify ordnance maintenance personnel.

Section V. GROUND SIGNAL PROJECTOR M1A1

32. General

a. The ground signal projector M1A1 consists of a long tubular body assembly (fig. 9), a breech assembly, and a spike. The breech assembly contains all of the moving parts of the unit. The free end of the breech has the barrel threaded onto it.

b. The bottom of the body assembly is flared for support on the ground. To aid in the support of the unit on soft terrain, a spike is provided. This spike is threaded into the flared bottom of the body, point outward, and is thrust into the ground up to the body flare. When on hard ground, the spike is not used and is stored by screwing it point first into the bottom of the body assembly.

c. The breech assembly houses the firing mechanism. The unit is fired by pulling down on a lanyard, which is secured to a ring inserted into the end of the firing pin striker lever assembly (fig. 9). The other end of the lever assembly is inserted through a keyway in the breech into the firing pin striker that rides within the breech. Since the lever is pivoted, pulling down on the lanyard causes the striker to move upward. The firing pin, which is threaded into the striker, is thus forced upward through a clearance hole in the breech and into the primer of the signal within the barrel.

d. Detonation of the pyrotechnic produces propellent gases, which serve also to force the striker and firing pin back to the original position. When the projector is held vertically or close to vertical, the weight of the striker is sufficient to pull it down to its original position.

33. Disassembly

a. Hold body assembly firmly and unscrew spike (fig. 9). It may be necessary to secure body in a vise and unscrew spike with a wrench. Very thin oil applied to the mated threads will ease removal.

b. Place body assembly in a vise and unscrew breech assembly.

c. Place breech in a vise and remove barrel with a wrench.

d. Remove cotter pin, push out firing pin striker lever pivot pin, and remove the firing pin striker lever assembly.

e. Turn breech on end, with the wide end up, and let striker and firing pin fall out.

34. Maintenance

Maintenance of the ground signal projector M1A1 consists of cleaning, lubricating, and stoning of parts, when necessary, to insure smooth dependable operation. Inspect parts for excess wear and serviceability. If inspection reveals unserviceable parts, notify ordnance maintenance personnel.

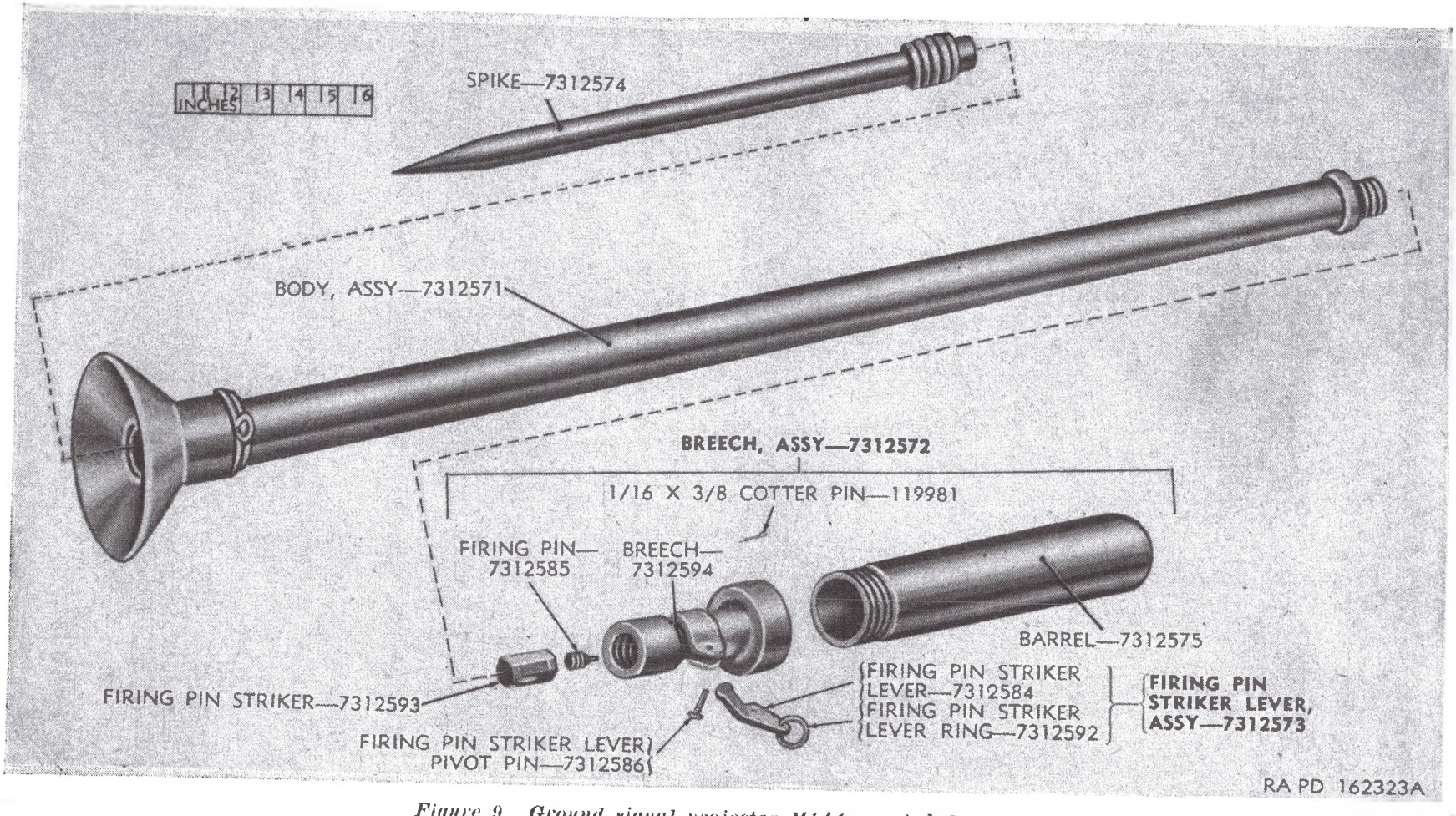

Figure 9. Ground signal projector M1A1—exploded view.

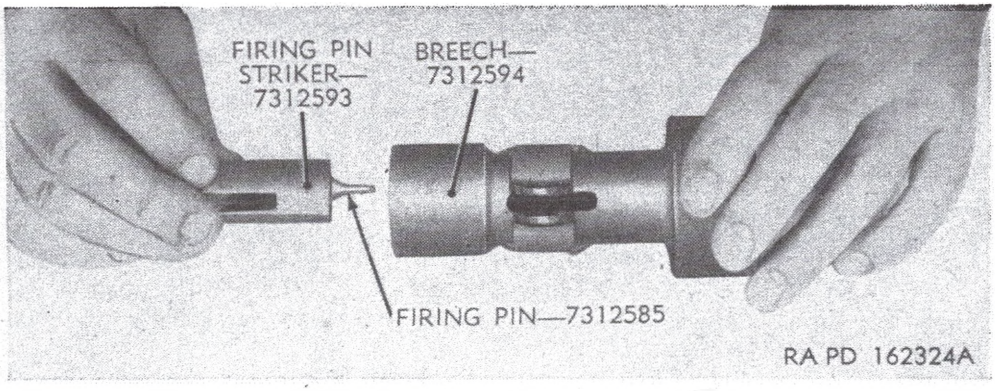

Figure 10. Proper insertion of firing pin and striker in breech—ground signal projector M1A1.

35. Assembly

a. Insert assembled firing pin striker and firing pin into smaller end of breech, with firing pin leading, and aline slot in striker with slot in the breech (fig. 10).

b. Insert free end of firing pin striker lever (fig. 9) through slot in breech and into striker slot.

c. Aline hole in lever with holes in the two holders welded onto either side of breech, and insert firing pin striker lever pivot pin.

d. Insert new $\frac{1}{16}$ x $\frac{3}{8}$ cotter pin into the protruding end of pivot pin and secure it.

e. Stand up breech with smaller opening down. Depress lever to see that firing pin protrudes from clearance hole in top of breech. When released, the firing pin should fall back easily.

f. Screw barrel into larger opening of breech as far as it will go and tighten it.

g. Screw entire breech assembly on the unflared end of body assembly.

h. Screw spike, pointed end first, into flared end of body assembly.

Section VI. HAND PYROTECHNIC PROJECTOR M9

36. General

a. This unit is a small hand-operated, hand-supported projector that consists of a barrel and breech group.

b. The breech group consists of a firing pin assembly, breech assembly, and latch assembly.

c. The signal is loaded through the breech end. Unlatching and swinging back of the breech group causes the ejector to move back in its housing on the barrel to eject the signal.

37. Disassembly

a. Unscrew firing pin nut screw from the firing pin nut (fig. 11).

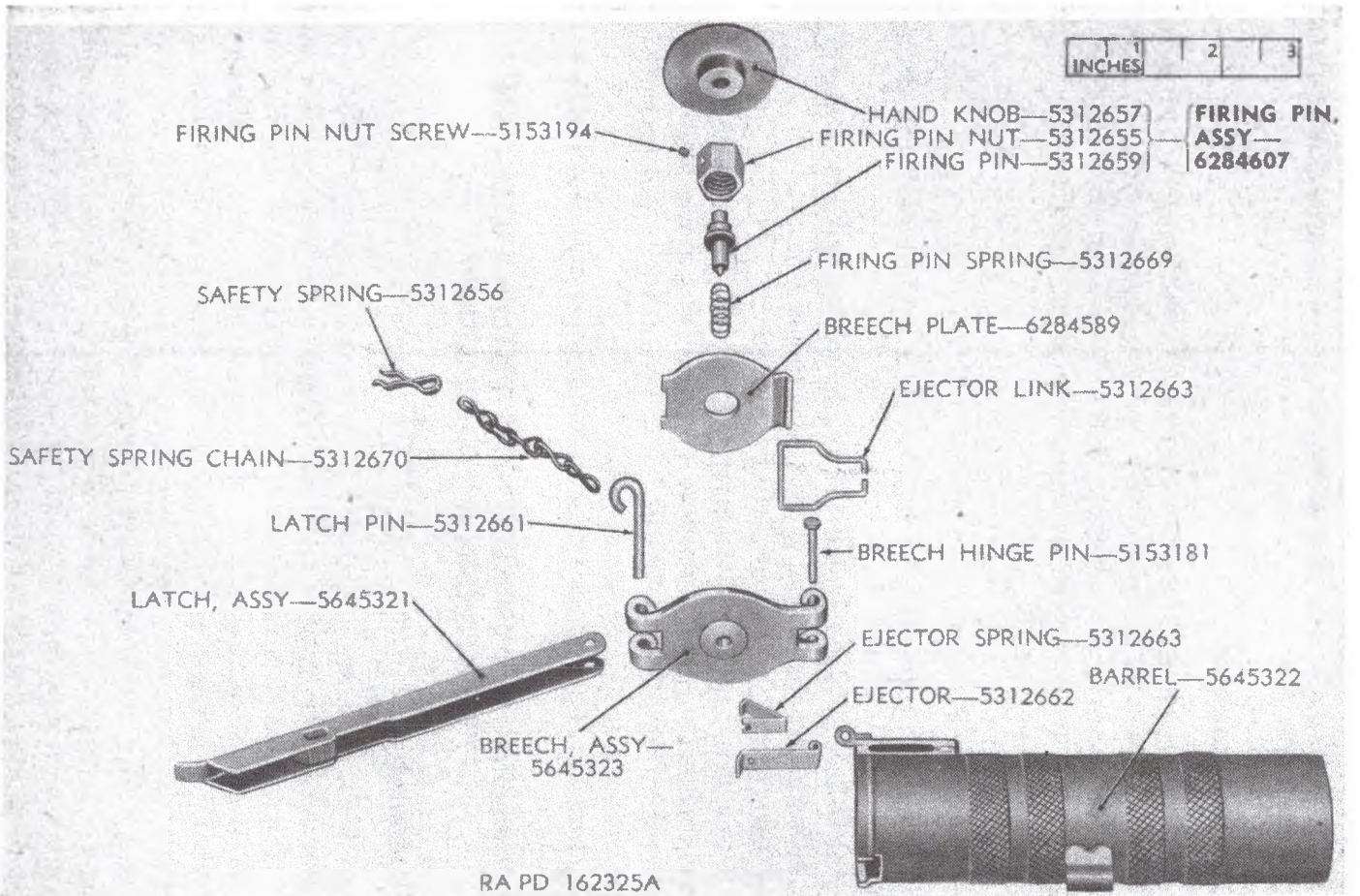

Figure 11. Hand pyrotechnic projector M9—exploded view.

b. Unscrew firing pin nut, using a 5/8-inch open-end wrench, and remove firing pin assembly and firing pin spring (fig. 11). Do not remove firing pin guide from breech, as these parts are forced together at manufacture. Remove breech plate.

Note. If maintenance or repairs necessitate further disassembly of the projector, the unit is to be referred to field maintenance personnel.

38. Maintenance

Maintenance of hand pyrotechnic projector M9 consists of cleaning, lubricating, and stoning of parts, when necessary, to insure smooth dependable operation. Inspect parts for excess wear and serviceability. If inspection reveals unserviceable parts, notify ordnance maintenance personnel.

39. Assembly

a. Place firing pin spring (fig. 11) over firing pin and in firing pin nut.

b. Place breech plate over firing pin guide, and place ejector link between the groove in breech plate and breech.

c. Insert firing pin through firing pin guide.

d. Screw firing pin nut on firing pin guide. Tighten with a 5/8-inch open-end wrench. The surface of firing pin guide should now be flush with the inside of breech. The breech plate and breech should now be securely held together.

e. Insert firing pin nut screw into firing pin nut and tighten.

Section VII. PYROTECHNIC PISTOL AN–M8 AND PYROTECHNIC PISTOL MOUNT M1

40. General

a. When the trigger (fig. 12) is depressed, the trigger slide, which is pinned to the trigger with the trigger slide pin, moves forward. The trigger pawl is pinned to the trigger slide and is spring-loaded to keep the nose raised. As the trigger slide moves forward, the nose of the trigger pawl engages the bottom of the hammer and rotates the hammer rearward against the action of the hammer spring. At a critical point, the projecting part of the trigger pawl engages the pawl trip roller, which acts to depress the nose of the trigger pawl, thus releasing the hammer to strike the firing pin.

b. When the trigger is released, the trigger slide is forced back, due to the action of the trigger slide spring. The nose of the trigger pawl is depressed when it passes under the hammer. The projection on the forward end of the trigger slide keeps the hammer from contacting the firing pin, if the trigger is partially depressed and released.

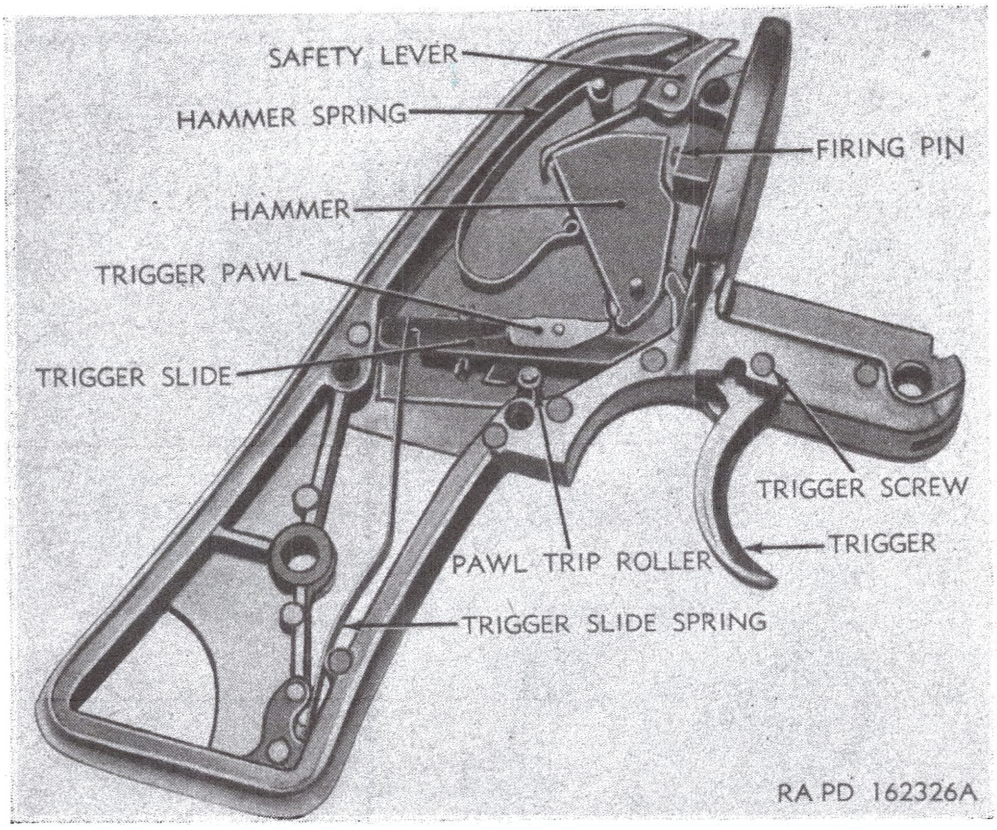

Figure 12. Internal parts of frame group—pyrotechnic pistol AN–M8.

c. The safety lever is spring-loaded in such a manner that it is forced against the hammer. The hooked end of the safety lever does not permit rearward movement of the hammer until the breech is closed and the safety lever depressed by the breech lock.

d. The ejector is held against the cartridge by the ejector spring. When the breech is opened, the ejector is forced rearward, ejecting the cartridge.

e. The pyrotechnic pistol AN–M8 is usually mounted in the pyrotechnic pistol mount M1 when used in aircraft. The mount M1 is provided with four symmetrically placed helical springs, which absorb the recoil shock. The mount is also provided with a cushioning gasket, to absorb the counterrecoil when the pistol is fired. The cover is provided for use when the pistol is removed from the mount.

41. Disassembly

a. Frame Group.

(1) Unscrew flat-head screw (fig. 13) on the under side of trigger guard.

(2) Unscrew barrel pivot stud screw from the right side of pistol below barrel.

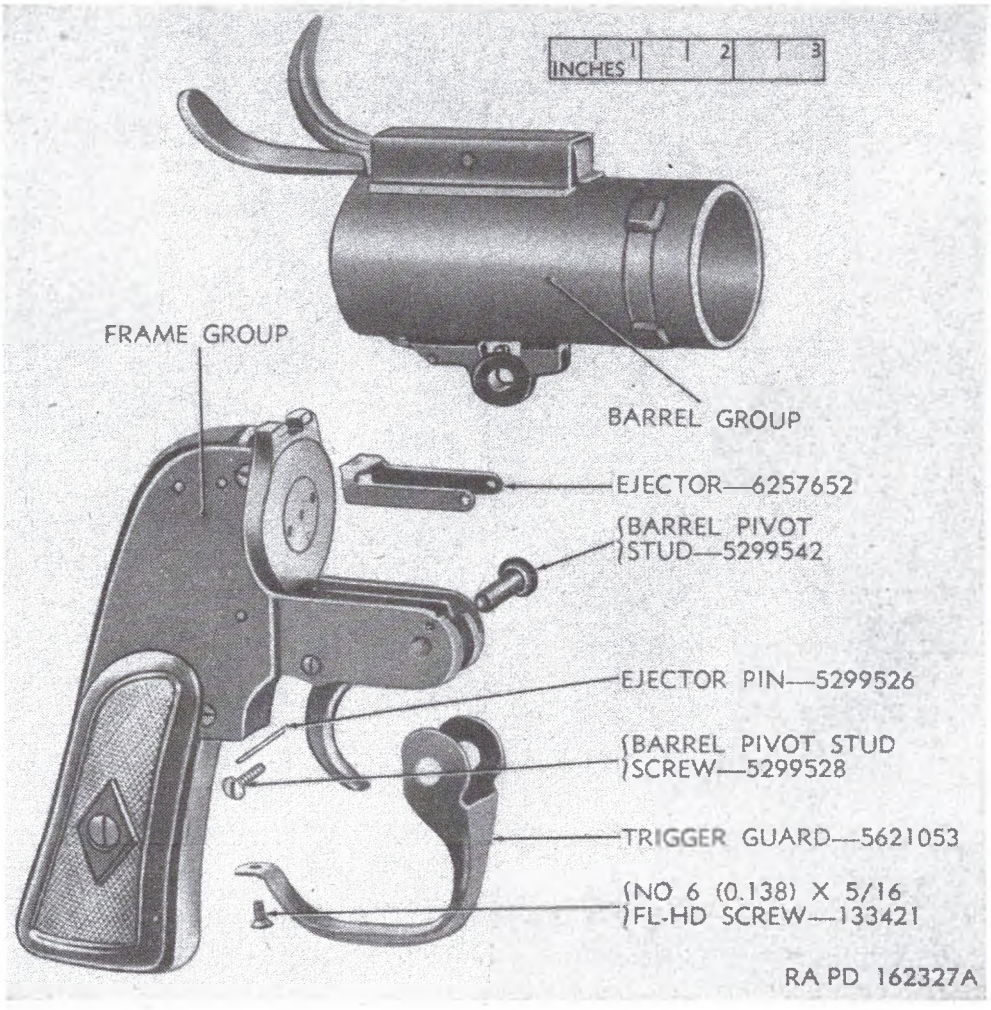

Figure 13. Pyrotechnic pistol AN–M8—partial exploded view.

(3) Remove barrel pivot stud from the left side of pistol. It may be necessary to install the screw partially and tap it, in order to dislodge the stud. Remove trigger guard.

(4) With a drift, drive out ejector pin.

(5) Pull barrel group (fig. 13) from frame group and lift ejector off the frame.

(6) Unscrew grip screw (fig. 14) from the right side of the pistol grip and remove grip stud from the left side of the pistol grip. Remove right- and left-hand grips.

(7) Unscrew three flat-head screws and trigger screw from right-hand frame plate on the right side of frame assembly. Lift off right-hand frame plate and right-hand frame plate liner.

(8) Unscrew barrel hinge spring screw, located on the under side of the frame near the trigger. Remove barrel hinge spring.

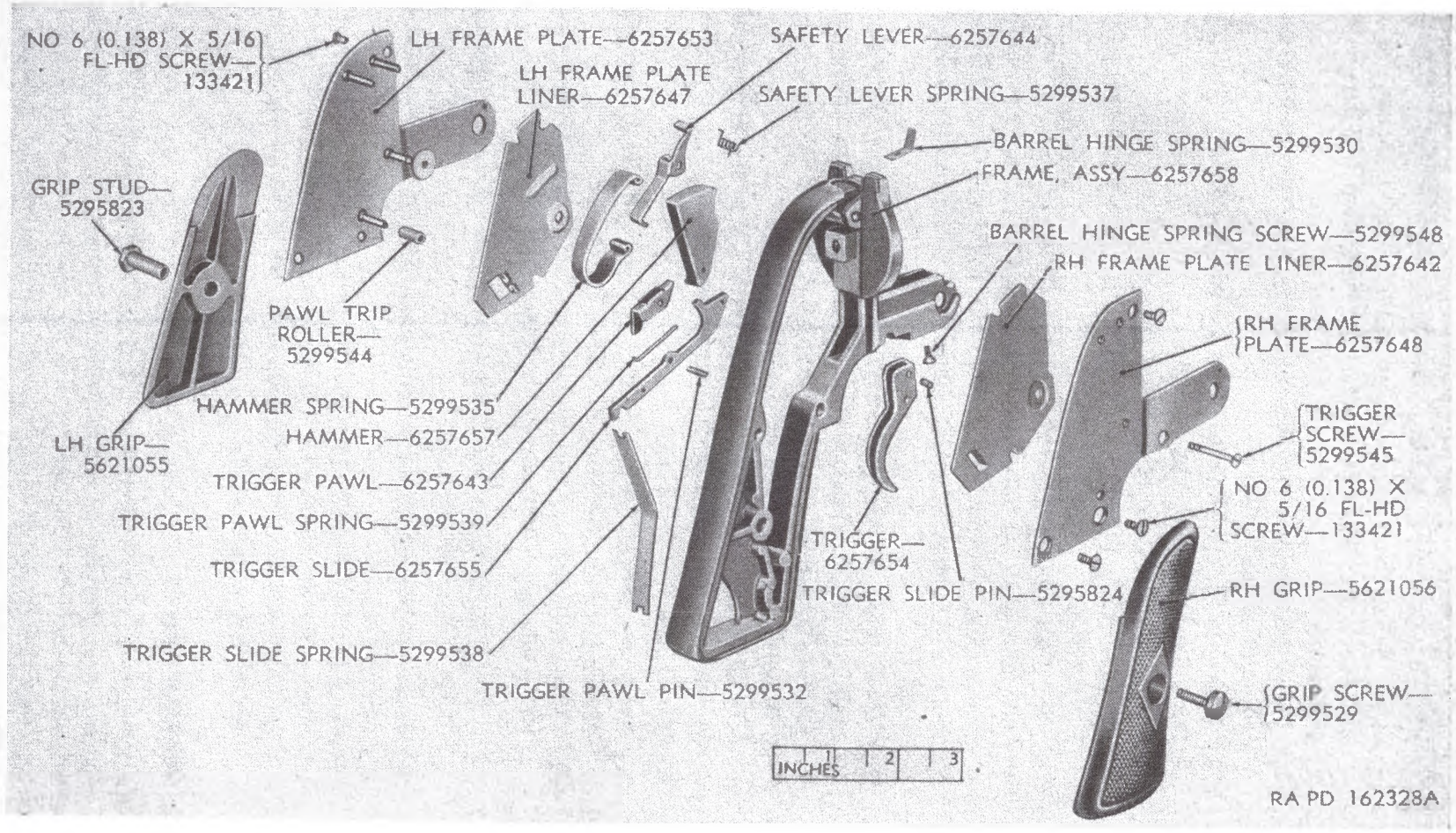

Figure 14. Frame group—exploded view.

(9) Lift out hammer spring and hammer. Slowly, lift out safety lever with safety lever spring. If possible, do not separate safety lever and safety lever spring. Lift out pawl trip roller.

(10) Turn over frame and remove three flat-head screws from left-hand frame plate.

(11) Lift off left-hand frame plate with the liner. Pry liner from the left-hand frame plate.

(12) Disengage trigger slide from trigger slide spring by pulling the back notched end of the slide upward and away from the spring.

(13) With the thumb, press out trigger slide spring.

(14) With a drift pin, force out trigger pawl pin (fig. 14). Turn frame over, and, working from the right side, carefully remove trigger pawl from trigger slide. Lift out trigger pawl spring.

(15) Push trigger upward into frame until trigger slide pin is visible. With a drift pin, force out trigger slide pin. Pull trigger downward and remove it from the frame.

(16) Remove trigger slide.

(17) If disassembly of the bushing retainer is necessary, refer the unit to ordnance maintenance personnel.

b. Barrel Group.

(1) Push out breech lock pin (fig. 15) with a drift pin, while working the mount latch and breech lock.

(2) In one hand, grasp mount latch and breech lock and *slowly* slide them out of housing on the barrel.

Note. Be careful not to allow breech lock spring and latch spring to fly out of the housing.

(3) Separate mount latch, latch spring, breech lock, and breech lock spring.

(4) Any further disassembly of this group, i. e., the removal of ejector spring or ejector spring retaining pin from housing on the bottom of the barrel, is to be referred to ordnance maintenance personnel.

42. Maintenance

Maintenance of the pyrotechnic pistol AN–M8 consists of cleaning, lubricating, and stoning of parts, when necessary, to insure smooth dependable operation. Inspect parts for excess wear and serviceability. Pay particular attention to threaded parts and springs. If inspection reveals unserviceable parts, notify ordance maintenance personnel.

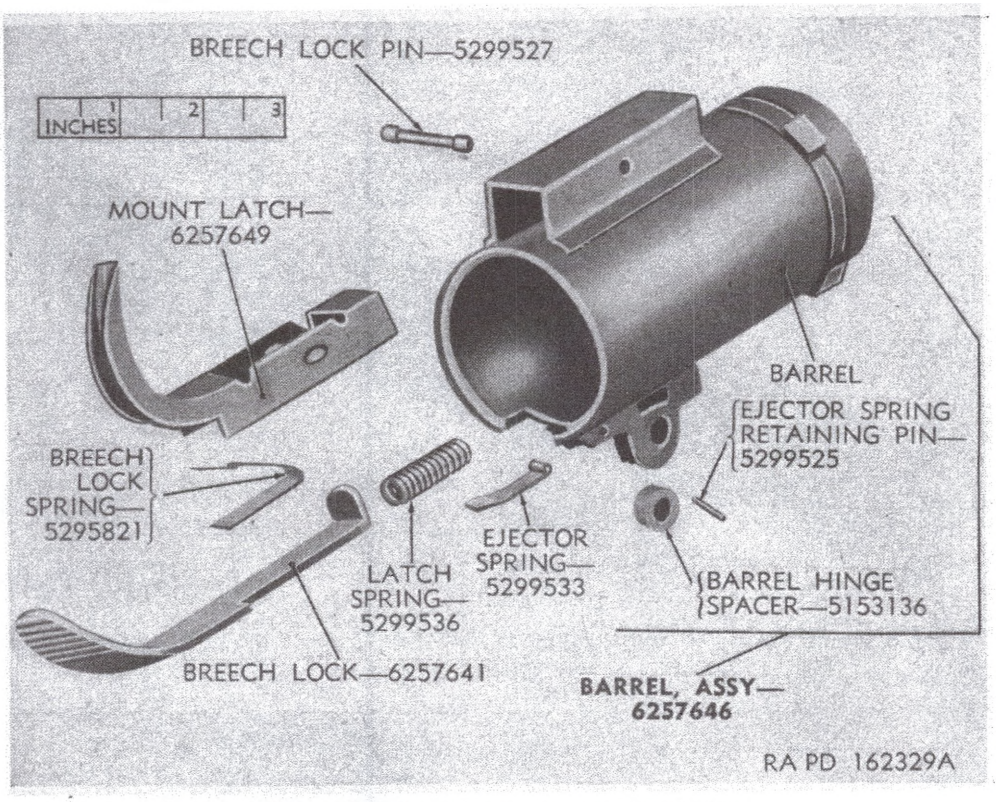

Figure 15. Barrel group—exploded view.

43. Assembly

a. Barrel Group.

(1) Place latch spring in mount latch (fig. 16), and place unknurled portion of breech lock in mount latch keyway, so that the turned up portion rests against the latch spring.

(2) Place breech lock spring in mount latch keyway between the mount latch and breech lock, with the notched spring leg forward. Carefully slip the group into housing welded on the barrel.

(3) Install breech lock pin (fig. 15). Make certain that the pin retains the breech lock in place.

b. Frame Group.

(1) Working from the right side of the frame, place trigger slide into frame, so that the pin hole in its nose is just visible above the trigger keyway in the frame.

(2) Insert trigger (fig. 17) in keyway and aline its upper hole with that of the trigger slide.

(3) Place trigger slide pin in position, and pull trigger down, so that it rests approximately in its operating position.

(4) Place trigger pawl spring in position, so that it rests above the pin hole in the middle of the trigger slide. While holding the pawl spring in position with the left hand, place

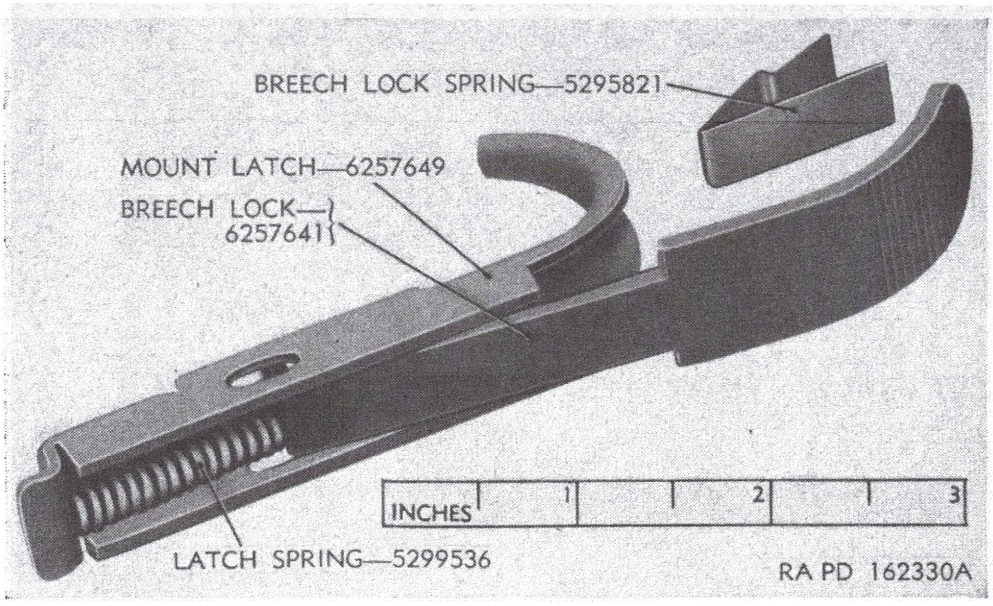

Figure 16. Proper assembly of the breech lock, mount latch, latch spring, and breech lock spring.

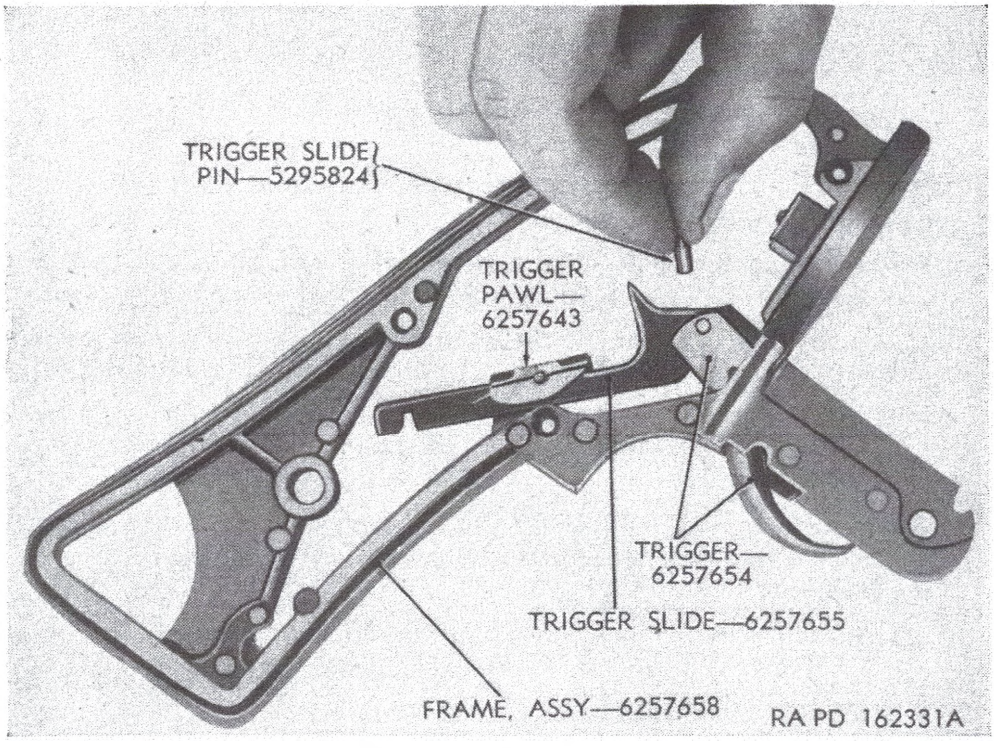

Figure 17. Assembly of trigger and trigger slide.

trigger pawl on trigger slide and over the spring. Aline pin holes in the trigger pawl with those in the trigger slide. Insert trigger pawl pin, making certain that pawl spring rests above the pin. Action of pawl spring should maintain nose of pawl in raised position.

(5) Place folded end of trigger slide spring in the notch in the handle of the frame, so that the slotted end of the spring is pressed against the back of the frame. Force trigger slide spring away from the frame, and insert trigger slide notch in the spring notch.

(6) Place left-hand frame plate liner on the left-hand frame plate. Turn frame over and place frame plate in position. Make certain that the trigger slide rides between the two hooked frame plate guides. Install the three No. 6 (0.138) x $\frac{5}{16}$ flat-head screws that fasten the frame plate to the frame.

(7) Place pawl trip roller on the fixed pin immediately below the trigger pawl.

(8) Place safety lever spring in safety lever, so that the long spring extension is at the botom of the spring coil (fig. 18). Place this safety lever and spring on frame plate pin closest to the firing pin bushing. Force this lever and spring down in position on the pin. Make certain that the long spring extension presses against the frame for support. Pull back the safety lever and test it for spring action.

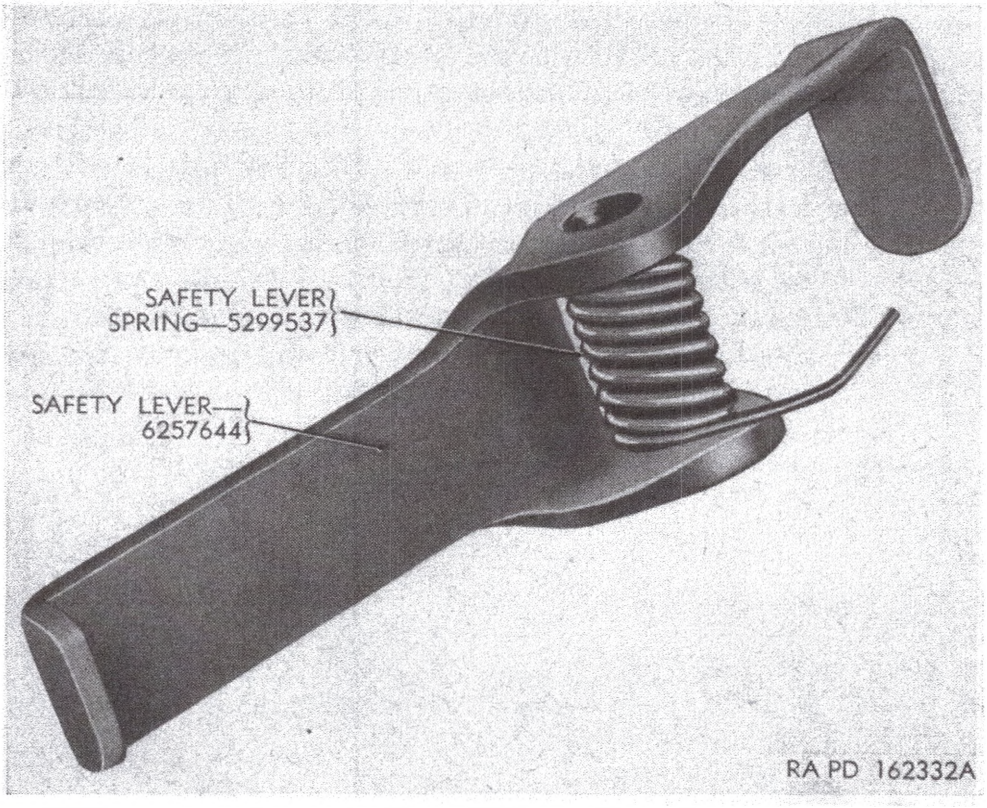

Figure 18. Proper placement of safety lever spring and safety lever.

(9) Pivot safety lever out of position, and install hammer on its fixed pivot pin. Manipulate trigger, to make certain that the trigger pawl nose engages hammer.

(10) Place hammer spring on the remaining fixed frame plate pin and press it in position.

(11) Insert barrel hinge spring in the frame keyway, so that the raised part of the spring is toward the hinge stud hole. Install barrel hinge spring screw.

(12) Place right-hand frame plate liner in position on the right side of the frame. Place right-hand frame plate in position over the liner, and press two plates down in frame. Install the three No. 6 (0.138) x 5/16 flat-head screws that retain the frame plate.

(13) Aline screw hole in the trigger with the holes in the right- and left-hand frame plates, and install trigger screw.

(14) Place right- and left-hand grips in position, and install grip stud and grip stud screw.

(15) Place ejector on the frame above the trigger, so that its legs rest between right- and left-hand frame plates (fig. 13). The pin clearance holes in the ejector legs are to be forward.

(16) Insert barrel group into the frame. Aline ejector pin holes in the frame, pin holes in the ejector legs, and eye of the ejector spring. Insert ejector pin (fig. 13) in position until flush on both sides with the frame plates. Make certain that the barrel group pivots freely and that the breech is retained in its open position by the action of the barrel hinge spring.

(17) Place trigger guard on frame. Aline two large screw holes in trigger guard with large screw hole in ejector spring housing on bottom of barrel. Insert barrel pivot stud (fig. 13) from left side of projector. If this is difficult, open breech lock and pivot barrel. Install barrel pivot stud screw.

(18) Install the No. 6 (0.138) x 5/16 flat-head screw that retains trigger guard on underside of frame.

CHAPTER 4

FIELD MAINTENANCE INSTRUCTIONS

Section I. FIELD MAINTENANCE PARTS, TOOLS, AND EQUIPMENT

44. General

Tools, equipment, and maintenance parts over and above those available to the using organization are supplied to ordnance field maintenance units for maintaining and repairing the materiel.

45. Parts, Common Tools, and Equipment

Field maintenance parts are listed in the appropriate column of the Department of the Army Supply Manuals ORD 8 SNL B–33, B–38, and B–40, which are the authority for requisitioning replacements. Parts not listed in an ORD 8 manual, but required by depot shops in rebuild operations, may be requisitioned from the listing in the corresponding ORD 9 manual and will be supplied if available when the need is substantiated. Requisitions for ORD 9 parts will contain a complete justification of requirements. Standard and commonly used tools and equipment having general application to this materiel are authorized for issue by T/A and T/O & E.

46. Special Tools and Equipment

The special tools and equipment tabulated in table I are listed in Department of the Army Supply Manual ORD 6 SNL J–12. This tabulation contains only those special tools and equipment necessary to perform the operations described in this manual, is included for information only, and is not to be used as a basis for requisitions.

Table I. Special Tools and Equipment for Field Maintenance

Item	Identifying No.	References		Use
		Fig.	Par.	
WRENCH, bushing retainer (pin type face spanner, c to c of pins ⅝ in, lgh 5 in)	6131778 (41–W–3288–233)	19	62, 65	To disassemble and assemble firing pin bushing retainer in the pyrotechnic pistol AN–M8.

Section II. INSPECTION

47. General

a. Scope. This section provides specific instructions for the technical inspection by ordnance maintenance of materiel either in the hands of troops or when received for repair in ordnance shops. It also briefly describes the in-process inspection of materiel during repair and the final inspection after repair has been completed. Troubleshooting information is incorporated wherever applicable as a normal phase of inspection.

b. Purpose of Inspection. Inspection is primarily made for the purposes of:

(1) Determining the condition of an item, i. e., serviceable or unserviceable.
(2) Recognizing conditions that would cause failure.
(3) Assuring proper application of maintenance policies at prescribed levels.
(4) Determining the ability of a unit to accomplish its maintenance and supply missions.

c. Categories of Technical Inspection. In general, five categories of inspection are performed by ordnance field maintenance personnel:

(1) *Overall inspection.* This is a periodic overall inspection performed by a contact party on materiel in the hands of troops and an inspection performed by maintenance company personnel when materiel is evacuated to the ordnance company. The inspection of materiel evacuated is more thorough and includes check and repair of minor points that would not be required in the inspection performed by a contact party.
(2) *Preembarkation inspection.* This inspection is conducted on materiel in alerted units scheduled for oversea duty to insure that such materiel will not become unserviceable or worn out in a relatively short time. It prescribes a higher percentage of remaining usable life in serviceable materiel to meet a specific need beyond minimum serviceability.
(3) *In-process inspections.* These are inspections performed in the process of repairing (field maintenance) the materiel as prescribed further in this chapter. This is to insure that all parts conform to the prescribed standards, that the workmanship is in accordance with approved methods and procedures, and that deficiencies not disclosed by the preliminary inspection are found and corrected.
(4) *Final inspection.* This is an acceptance inspection performed by a final inspector, after repair has been completed, to insure that the materiel is acceptable for return to user according to the standards established.

(5) *Spot-check inspection.* This is a periodic overall inspection performed on only a percentage of the materiel in each unit to determine the adequacy and effectiveness of organizational maintenance.

48. Technical Inspection

Warning: Before starting a technical inspection, be sure to clear the weapon. Do not touch the trigger until the weapon has been cleared. Inspect the barrel to insure that it is empty. Avoid having live ammunition in the vicinity of the work.

a. Preparatory Procedures.

(1) Check to see that the materiel has been cleaned of all corrosion-preventive compound, grease, excessive oil, dirt, or foreign matter that might interfere with proper functioning or obscure the true condition of the parts.

(2) Make an overall inspection of the materiel for general appearance, condition, operation, and manual functioning.

b. Inspection Guide. Table II is provided as a check list, to be used as a guide for the inspection of materiel in the hands of troops. The overall inspection column lists the standards denoting minimum serviceability and the next column lists the standards for preembarkation inspection.

Note. The additional column is provided for comparative information only, to show the standards that are desired when the materiel is repaired in ordnance field shops.

Table II. Inspection Guide

Point to be inspected	Overall inspection	Preembarkation inspection	Final inspection field maintenance
GROUND SIGNAL PROJECTOR M1A1			
General appearance.	Projector must be free of dents or burs.	Projector must be free of dents or burs.	Projector must be free of dents or burs and have finish intact.
Barrel	Must be free of dents.	Must be free of dents.	Must be free of dents.
Firing pin	Must not be broken or deformed.	Must not be broken or deformed.	Must not be broken or deformed.
Breech assembly	Striker must fall back under its own weight when lanyard is released.	Striker must fall back under its own weight when lanyard is released.	Striker must fall back under its own weight when lanyard is released.
Lanyard	Must be unfrayed	Must be unfrayed	Must be unfrayed.

Table II. Inspection Guide—Continued

Point to be inspected	Overall inspection	Preembarkation inspection	Final inspection field maintenance
GROUND SIGNAL PROJECTOR M1A1—Continued			
Spike	Must not be badly bent or burred.	Must be free of all deformation and burs.	Must be free of all deformation and burs. Point must be sharp.
HAND PYROTECHNIC PROJECTOR M9			
General appearance.	Projector must be free of large dents or burs.	Projector must be entirely free of burs or deformations.	Projector must be smooth and properly finished.
Latch	Must be held securely in position by plunger.	Must be held securely in position by plunger.	Must be held securely in position by plunger.
Firing pin	Must not be worn or deformed.	Must not be worn or deformed.	Must not be worn or deformed.
Ejector	Must move forward and back when the breech is open and closed.	Must move forward and back when the breech is open and closed.	Must move forward and back when the breech is open and closed.
Safety spring	Safety spring must have positive retention in SAFE position.	Safety spring must have positive retention in SAFE position.	Safety spring must have positive retention in SAFE position.
Barrel	Must be free of dents.	Must be free of dents.	Must be free of dents.
PYROTECHNIC PISTOL AN–M8			
General appearance.	Projector must be free of dents and burs.	Projector must be free of dents and burs.	Projector must be free of dents and burs; must be smooth and properly finished.
Mount latch	Nose must be unbroken and undistorted.	Nose must be unbroken and undistorted.	Nose must be unbroken and undistorted.
Ejector	Must be unbroken and undistorted.	Must be unbroken and undistorted.	Must be unbroken and undistorted. Test with dummy signal.

Table II. Inspection Guide—Continued

Point to be inspected	Overall inspection	Preembarkation inspection	Final inspection field maintenance
PYROTECHNICAL PISTOL AN–M8—Continued			
Firing pin	Must be unbroken and undistorted. Must protrude from bushing when trigger releases hammer.	Must be unbroken and undistorted. Must protrude from bushing when trigger releases hammer.	Must be unbroken, undistorted, and free of burs. Must protrude from bushing when trigger releases hammer.
Pistol grips	Must be free of cracks and chips.	Must be free of cracks and chips.	Must be free of cracks and chips.
PYROTECHNIC PISTOL MOUNT M1			
Mount cover	Must be retained securely on mount. Cover cap springs must be unbroken.	Must be retained securely on mount. Cover cap must fit tightly into recoil sleeve.	Must be retained securely on mount. Cover cap must fit tightly into recoil sleeve.
Recoil sleeve	Must be free of large dents and burs.	Must be free of large dents and burs.	Must be smooth, properly finished, and free of large dents and burs.

49. Inspection of Materiel in the Hands of Troops

Refer to TM 9–1100 for responsibilities and fundamental duties of inspecting personnel, the necessary notice and preparations to be made, forms to be used, and general procedures and methods to be followed by inspectors. Materiel to be inspected includes organizational spare parts and equipment and the stocks of cleaning and preserving materials. In the course of this technical inspection, the inspector will perform the duties described in *a* through *b* below.

a. Determine serviceability, i. e., the degree of serviceability, completeness, and readiness for immediate use, with special reference to safe and proper functioning of the materiel. If the materiel is found serviceable, it will be continued in service. In the event it is found unserviceable or incipient failures are disclosed, the deficiencies will be corrected on the spot or advice given as to corrective measures when

applicable, or, if necessary, the materiel will be tagged for delivery to and repair by ordnance maintenance personnel.

b. Check causes of mechanical and functional difficulties that troops may be experiencing and for apparent results of lack of knowledge, misinformation, neglect, improper handling and storage, security, or preservation.

c. Check on application of all authorized modifications, to see that no unauthorized alterations have been made or that work beyond the authorized scope of the unit is being attempted.

d. Instruct the using personnel in proper preventive maintenance procedures where found inadequate.

e. Check on completeness of the organizational maintenance allowances and procedures for obtaining replenishments.

f. Check conditions of storage of general supplies and ammunition.

g. Initiate a thorough report on materiel on "deadline," with reasons therefor, for further appropriate action.

h. The inspector should report to the responsible officer any carelessness, negligence, unauthorized modifications, or tampering. This report should be accompanied by recommendations for correcting the unsatisfactory conditions.

50. Inspection of Materiel Received in Field Maintenance Shops

a. Inspections. When materiel is received in field maintenance shops, they should be inspected as in paragraph 48.

b. Troubleshooting. Malfunctions, with probable causes and the necessary corrective action to be taken by the responsible ordnance personnel, are tabulated in table III. Corrective action, when completed, should meet standards prescribed in table II.

Table III. Troubleshooting

Malfunction	Probable causes	Corrective action
GROUND SIGNAL PROJECTOR M1A1		
Failure to fire	Faulty signal	See par. 15*e*.
	Worn or broken firing pin	Replace firing pin (par. 54).
Difficulty in depressing lever assembly.	Deformed lever assembly	Replace lever assembly (par. 54).
	Burs or rust in breech assembly or on striker.	Disassemble (par. 52), and remove burs and rust.

Table III. Troubleshooting—Continued

Malfunction	Probable causes	Corrective action
HAND PYROTECHNIC PROJECTOR M9		
Plunger assembly fails to lock catch on barrel.	Plunger assembly spring broken or weakened.	Replace latch assembly (par. 59).
	Barrel catch excessively worn.	Replace barrel assembly (par. 59).
Failure to fire	Faulty signal	See par. 15*e*.
	Worn or broken firing pin	Replace the firing pin (par. 59).
Failure of firing pin to retract.	Faulty firing pin spring	Replace the firing pin spring (par. 59).
	Dirt or grit in firing pin nut.	Disassemble (par. 37), clean and lubricate (par. 38).
Failure to eject	Deformed or broken ejector.	Replace ejector (par. 59).
	Broken ejector spring	Replace ejector spring (par. 59).
PYROTECHNIC PISTOL AN–M8 AND PYROTECHNIC PISTOL MOUNT M1		
Signal fails to fire	Faulty signal	See par. 15*e*.
	Worn or broken firing pin	Replace firing pin (par. 64).
Failure to eject	Deformed, broken, or worn ejector.	Replace ejector (par. 64).
	Broken ejector spring	Replace ejector spring (par. 64).
Improper functioning of mount latch.	Latch worn excessively	Replace mount latch (par. 64).
	Latch spring weak	Replace latch spring (par. 64).
Barrel does not remain locked to frame.	Lock worn excessively	Replace breech lock (par. 64).
	Breech lock spring weak	Replace breech lock spring (par. 64).
Firing pin not activated when trigger pulled.	Trigger pawl nose worn excessively.	Replace trigger pawl (par. 64).
	Trigger pawl spring weak, bent, or broken.	Replace trigger pawl spring (par. 64).
	Hammer worn	Replace hammer (par. 64).
	Hammer spring weak, bent, or broken.	Replace hammer spring (par. 64).
Pistol cannot be fitted into mount.	Mount recoil sleeve distorted.	Replace mount.

51. Preembarkation Inspection of Materiel in Units Alerted for Oversea Movement

Refer to TB ORD 385 for inspection procedures applicable to all small arms weapons in units alerted for oversea movement. See table II for inspections specifically applicable to the weapons covered in this manual.

Section III. GROUND SIGNAL PROJECTOR M1A1

52. Disassembly

a. See paragraph 33 for disassembly of the ground signal projector M1A1 permitted by organizational maintenance personnel.

b. Place firing pin striker (fig. 9) in a vise and remove firing pin.

53. Inspection

Inspect all parts for wear and serviceability. Check threaded components and sliding surfaces for burs.

54. Repair

Repair of the projector M1A1 consists primarily of replacing unserviceable parts. In addition, remove burs and refinish when necessary.

55. Assembly

a. Screw firing pin (fig. 9) in the striker and tighten with a wrench.

b. Complete assembly according to instructions given in paragraph 35.

56. Functional Test

Check to see that lever and striker operate freely and that the striker will fall to its retracted position when the projector is held upright.

Section IV. HAND PYROTECHNIC PROJECTOR M9

57. Disassembly

a. See paragraph 37 for disassembly of the hand pyrotechnic projector M9. Further disassembly should only be carried out if replacement of parts is necessary.

b. Insert a drift through hole in the back of hand knob (fig. 11) and drive out firing pin.

c. Spread end of ejector link and remove it from ejector (fig. 11). Force ejector and ejector spring out of housing on barrel.

d. Remove enough metal from the peened ends of latch pin and breech hinge pin to permit their removal. Using a suitable drift, remove these pins.

e. Unhook safety spring chain from latch pin.

f. Do not disassemble the latch or breech assemblies. If unserviceable, replace entire assemblies.

58. Inspection

Inspect all parts for wear and serviceability. Check springs for distortion. Inspect threaded components and sliding surfaces for burs.

59. Repair

Repair of the projector M9 consists primarily of replacing unserviceable parts. In addition, remove burs and refinish when necessary.

60. Assembly

a. Aline breech assembly (fig. 11) with hinge loop on barrel, and insert breech hinge pin. Peen hinge pin in place.

b. Aline latch assembly with holes in breech assembly, and insert latch pin. Engage last link of safety spring chain with loop in latch pin. Peen pin in place.

c. Place protruding lug on ejector spring in hole in ejector. Compress spring and insert these components in housing on barrel.

d. Spread ends of ejector link and engage with loop end of ejector through slots in housing.

e. Complete assembly according to instructions given in paragraph 39.

61. Functional Test

a. Open breech and depress the hand knob and note whether firing pin protrudes. Release hand knob. Firing pin should retract under pressure of firing pin spring.

b. Close breech and note whether latch assembly is retained securely in closed position. The breech should fit snugly against the rear of barrel.

c. Open breech slowly and see that the ejector moves outward as breech is opened.

Section V. PYROTECHNIC PISTOL AN–M8 AND PYROTECHNIC PISTOL MOUNT M1

62. Disassembly

a. Refer to paragraph 41 for disassembly of the pyrotechnic pistol AN–M8 permitted by organizational maintenance personnel.

b. Drive out the ejector spring retaining pin, force the ejector spring toward the rear of the barrel, and remove it (fig. 14).

c. Remove barrel hinge spacer.

d. Loosen the retainer setscrew (fig. 20) with a screwdriver. Loosen the bushing retainer, using bushing retainer wrench 6131778 (fig. 19). Push the retainer in to loosen the firing pin bushing and unscrew the bushing (fig. 20). Remove the firing pin (fig. 20) and the firing pin spring.

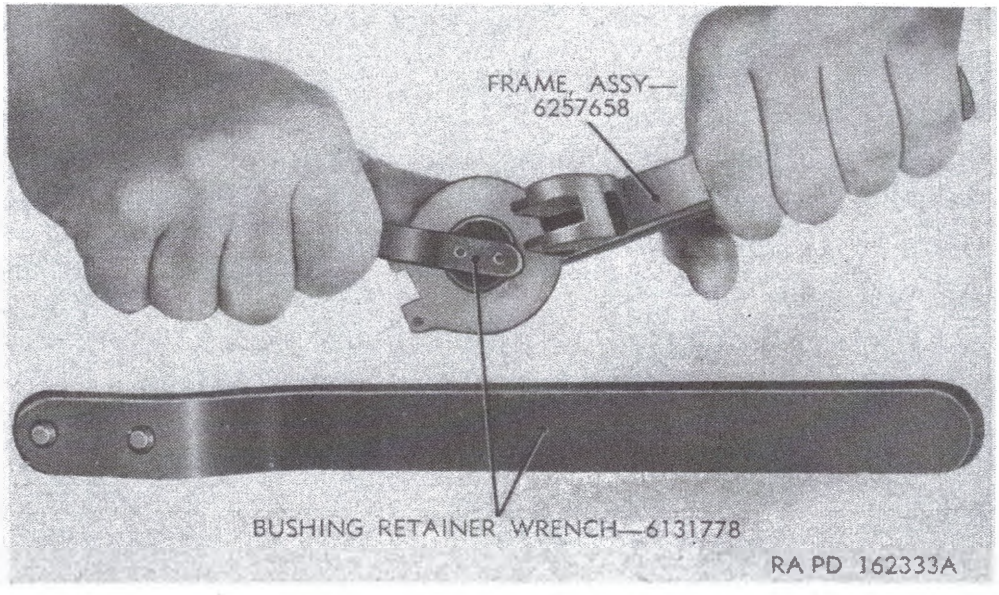

Figure 19. Removal of bushing retainer.

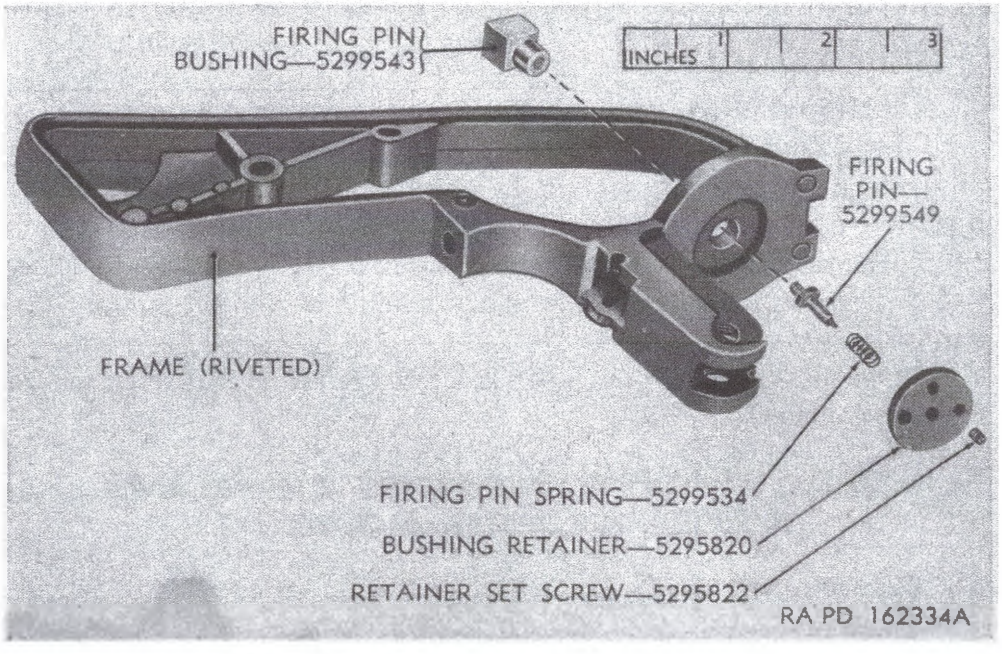

Figure 20. Firing pin and related parts—exploded view.

63. Inspection

Inspect all parts for wear and serviceability. Check threaded components and sliding surfaces for burs.

64. Repair

Repair of the pyrotechnic pistol AN–M8 consists of replacing worn or broken parts.

65. Assembly

a. Place firing pin and firing pin spring in firing pin bushing. Place these parts in position in frame, and install bushing retainer. Tighten the retainer, using bushing retainer wrench 6131778 (fig. 19).

b. Install barrel hinge spacer.

c. Force ejector spring in position from rear of barrel, with loop towards front, until loop appears in opening on barrel hinge.

d. Drive in the ejector spring retaining pin, to secure the spring. Complete assembly according to instructions given in paragraph 43.

66. Functional Test

a. With breech open, attempt to pull trigger. This should not be possible, since the safety lever should keep the hammer in its forward position.

b. Depress the safety lever with the left hand and pull trigger. Trigger should now be operative.

c. The barrel group should move freely on the barrel pivot stud and there should be sufficient clearance between the rear of the barrel and the face of the frame to allow groups to close without binding.

Section VI. FINAL INSPECTION

67. General

Upon completion of the assembly of the materiel, a final inspection of all components must be made. No materiel will be released for use by the using organization unless operation is satisfactory.

68. Inspection

Materiel repaired in a field maintenance shop for return to user must meet the requirements set forth in the last column of table II.

CHAPTER 5

AMMUNITION

69. General

Ammunition for use in pyrotechnic pistols or projectors is issued in the form of complete rounds of fixed ammunition. A complete round consists of all the ammunition components required to fire the pistol or projector once. The complete round consists of a primer, a delay element, propelling charge, and a pyrotechnic charge, all contained in a cartridge case. The term "fixed," used in connection with ammunition fired from pyrotechnic discharges, signifies that the propelling charge is fixed (not adjustable) and that the round is loaded into the discharger as a unit.

70. Classification

a. Dependent upon use or the effect produced, ammunition fired from pyrotechnic dischargers is classified as aircraft signals, high burst ranging signals, aircraft parachute flares, and flash and sound signals.

b. Aircraft signals (fig. 21) were originally intended for signaling from aircraft-to-aircraft or from aircraft-to-ground. The use of ground projectors also permits their use by ground troops. The signals are manufactured to produce, upon firing, a single colored star or two stars of the same or different colors. The double star signals are also available with a tracer element of the same color as one of the stars. The colors of stars and tracers are green, red, and yellow. Earlier models of the signals (without "A1" suffix designations) are available and are assembled inside of a paper case with a brass head; later models (with "A1" suffix designations) are assembled inside of an all aluminum case. Some of these later model signals, with brass heads and aluminum cases, may be encountered.

c. The high burst ranging ground signal M27 (fig. 22) is used in training, to simulate the high burst of artillery shell, and produces a smoke puff at the top of its rise of approximately 650 feet.

d. The aircraft parachute flare M9A1 (fig. 23) is intended for aerial reconnaissance. Upon firing, the flare case is projected from the pistol and, after a 2.5-second delay, ignited candle and parachute are expelled from the case.

e. The flash and sound signal M74 (fig. 21) is intended primarily for umpires, to simulate air burst of artillery fire for training troops.

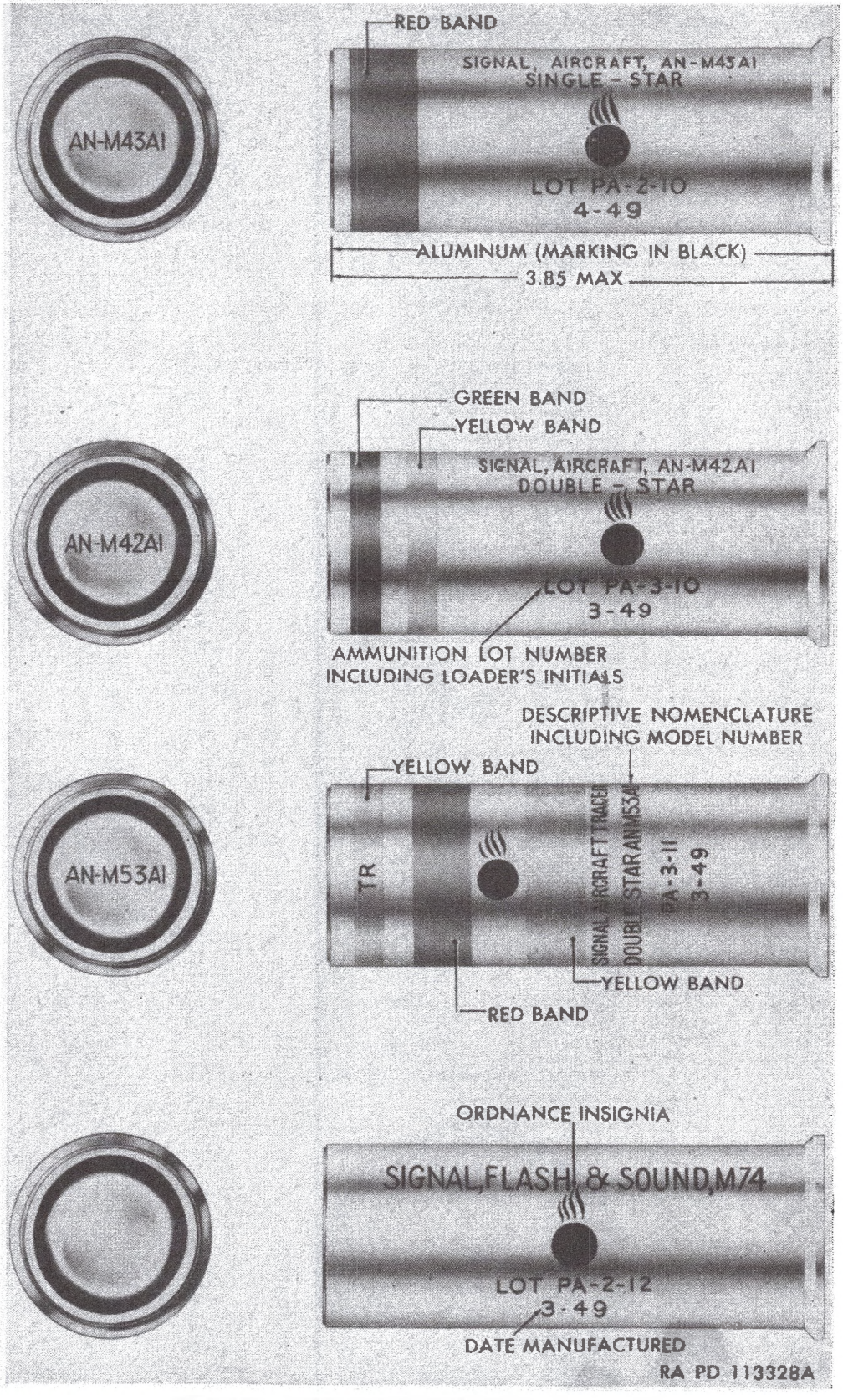

Figure 21. Aircraft and flash and sound signals.

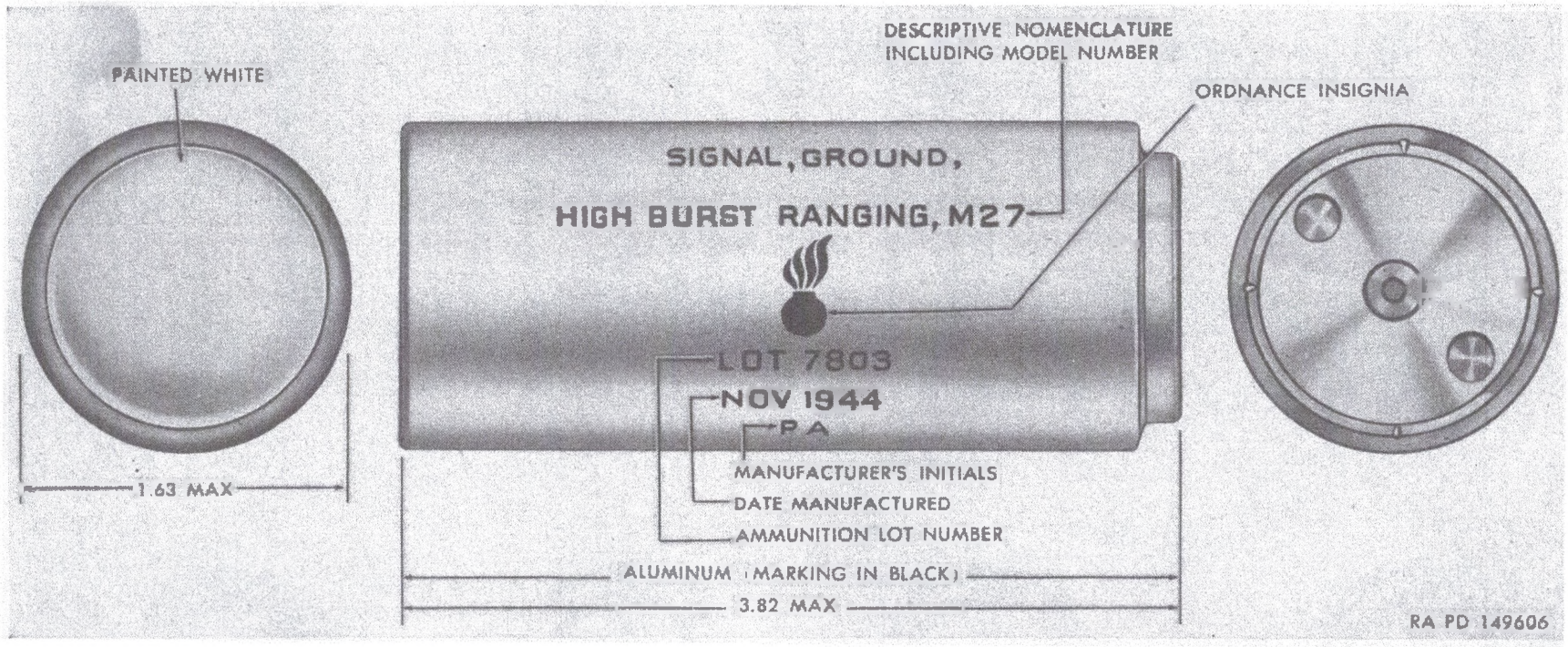

Figure 22. High burst ranging ground signal M27.

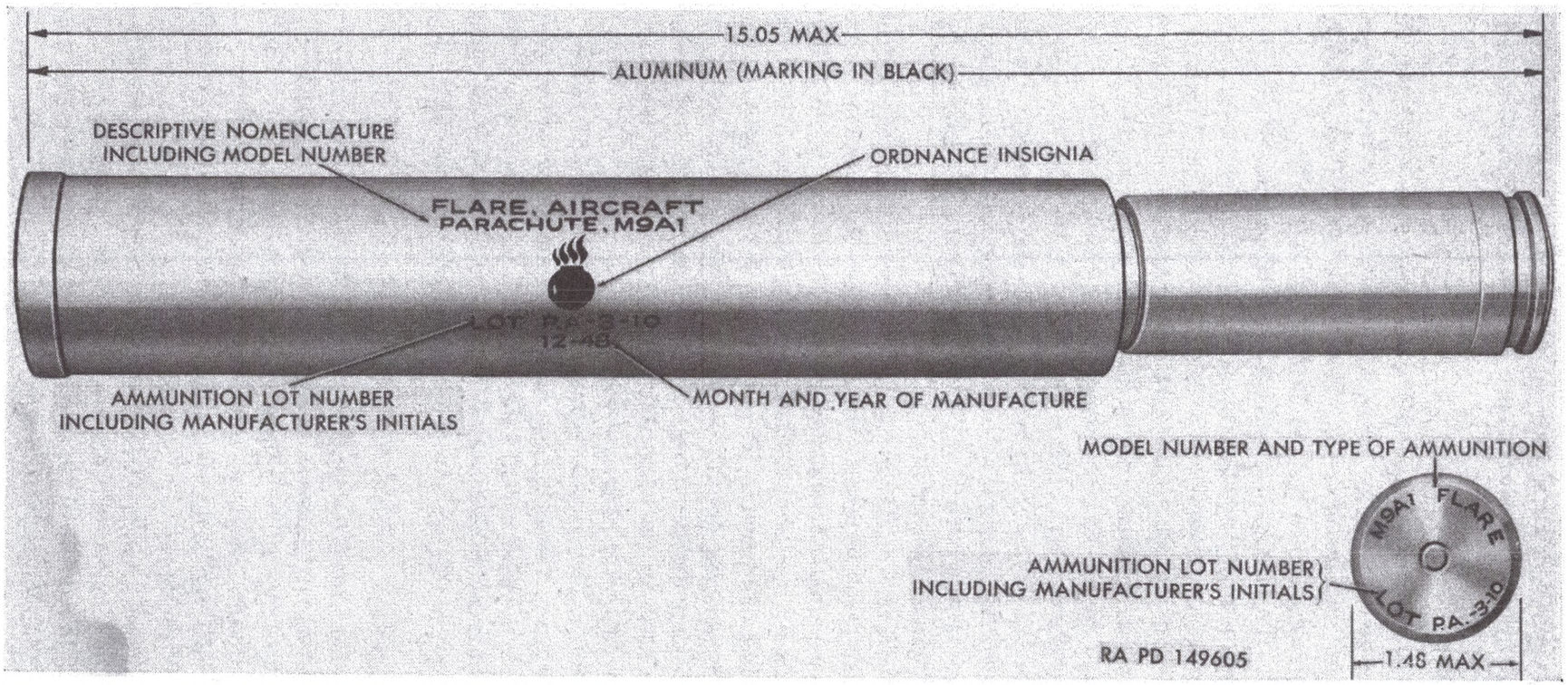

Figure 23. Aircraft parachute flare M9A1.

Signals of earlier manufacture have an aluminum body and brass base; signals of later manufacture have an all aluminum case.

71. Identification

a. General. Ammunition and ammunition components are completely identified by the painting and marking (including an ammunition lot number) on the ammunition items and on all original packing containers; refer to figures 21 through 24.

b. Model. To identify a particular design, a model designation is assigned at the time the item is classified as an adopted type. This model designation becomes an essential part of the standard nomenclature and is included in the marking on the item. The present system of model designation for a standard item consists of the letter "M" followed by an Arabic numeral, for example, "M9." Modifications are indicated by adding the letter "A" and the appropriate Arabic numeral. Thus, "M9A1" indicates the first modification of an item for which the original model designation was "M9." Items standardized for use by both Army and Navy are designated by "AN" preceding the model designation.

c. Ammunition Lot Number. When ammunition is manufactured, an ammunition lot number, which becomes an essential part of the marking, is assigned in accordance with pertinent specifications. The lot number is stamped or marked on every loaded complete round and on all packing containers. It is required for all purposes of record, including reports on condition, functioning, or accidents, in which ammunition may be involved. In any one lot of ammunition, the components used in the assembly are manufactured under as nearly identical conditions as practicable.

d. Painting. The ammunition described herein is coated with a colorless lacquer. In addition to the lacquer, aircraft signals have colored bands painted around the case, in colors corresponding to the stars and tracer assembled within. To provide a ready means of identification, the closing disk on the high burst ranging signal is painted white.

e. Marking.

(1) *On the body (stenciled unless otherwise indicated):*
Descriptive nomenclature including model number.
Ammunition lot number including the loader's initials or symbol (stamped on aircraft parachute flare).
Month and year of manufacture (stamped on aircraft parachute flare).
Ordnance insignia (stamped on aircraft parachute flare).
"TR" on aircraft signals containing a tracer.

(2) *On the base of the aircraft parachute flare case (stamped unless otherwise indicated):*

Ammunition lot number including loader's initials or symbol.
Month and year of manufacture.
Model number (stenciled).

(3) *On the head of aircraft signals (stenciled)*:
Color of star or stars (paper-cased signals only).
Model number (aluminum-cased signals only).

72. Care, Handling, and Preservation

Warning: Pyrotechnics must be handled with appropriate care at all times. The explosive elements in primers and expelling charges are particularly sensitive to undue shock and high temperature. Boxes containing pyrotechnics should not be dropped, thrown, tumbled, or dragged.

a. Ammunition is packed to withstand conditions ordinarily encountered in the field. Care must be observed to keep packings from becoming broken or damaged. All broken packings must be repaired immediately and careful attention given to the transfer of all marking to the new parts.

b. Since pyrotechnics are adversely affected by moisture and high temperature, due consideration should be given as indicated in (1) and (2) below.

(1) Do not break the moisture-resistant seal until the pyrotechnic is to be used.

(2) Store pyrotechnics in a dry, well-ventilated place, out of the direct rays of the sun, and protected against excessive or variable temperatures.

c. Do not attempt to disassemble the complete round or any of its components.

d. Before loading into the discharger, the round should be free of foreign matter, sand, mud, moisture, frost, snow, ice, oil, and grease.

e. Do not handle duds, as they are extremely dangerous. They will not be moved or touched but will be destroyed in place in accordance with TM 9–1900.

73. Authorized Rounds

The ammunition authorized for use in the pyrotechnic pistol AN–M8, hand pyrotechnic projector M9, and ground signal projector M1A1 is listed in table IV. Standard nomenclature, which is used in the listing, completely identifies the ammunition, except for ammunition lot number.

Table IV. Authorized Rounds for Pyrotechnic Pistol AN–M8, Hand Pyrotechnic Projector M9, and Ground Signal Projector M1A1

Standard nomenclature	Complete round		Burning time [1] (sec)	Candlepower
	Weight (lb.)	Length (in.)		
FOR PROJECTOR, SIGNAL, GROUND, M1A1				
SIGNAL, ground, high burst ranging, M27.	0. 42	3. 82	Instantaneous	See footnote.[2]
FOR PISTOL, PYROTECHNIC AN–M8				
FLARE, aircraft, parachute, M9A1.	2. 11	15. 05	60 to 70	60M.
SIGNAL, flash and sound, M74 (T50).	0. 34	3. 85	Instantaneous	600M (flash).[2]
FOR PISTOL, PYROTECHNIC, AN–M8 AND PROJECTOR, PYROTECHNIC, HAND, M9				
SIGNAL, aircraft, double star, green-green, AN–M39.[3]	0. 35	3. 85	10±3	20M (each star).
SIGNAL, aircraft, double star, green-green, AN–M39A1.	0. 39	3. 85	10±3	20M (each star).
SIGNAL, aircraft, double star, green-yellow, AN–M42.[3]	0. 39	3. 85	10±3	25M (green star). 12M (yellow star).
SIGNAL, aircraft, double star, green-yellow, AN–M42A1.	0. 39	3. 85	10±3	25M (green star). 20M (yellow star).
SIGNAL, aircraft, double star, red-green, AN–M41.[3]	0. 35	3. 85	10±3	25M (red star). 20M (green star).
SIGNAL, aircraft, double star, red-green, AN–M41A1.	0. 35	3. 85	10±3	25M (red star). 20M (green star).
SIGNAL, aircraft, double star, red-red, AN–M37.[3]	0. 35	3. 85	10±3	25M (each star).
SIGNAL, aircraft, double star, red-red, AN–M37A1.	0. 35	3. 85	10±3	25M (each star).
SIGNAL, aircraft, double star, red-yellow, AN–M40.[3]	0. 39	3. 85	10±3	25M (red star). 12M (yellow star)

See footnotes at end of table.

Table IV. Authorized Rounds for Pyrotechnic Pistol NA–M8, Hand Pyrotechnic Projector M9, and Ground Signal Projector M1A1—Continued

Standard nomenclature	Complete round		Burning time [1] (sec)	Candlepower
	Weight (lb.)	Length (in.)		
FOR PISTOL, PYROTECHNIC, AN–M8 AND PROJECTOR, PYROTECHNIC, HAND, M9—Continued				
SIGNAL, aircraft, double star, red-yellow, AN–M40A1.	0. 35	3. 85	10±3	25M (red star). 20M (yellow star).
SIGNAL, aircraft double star, yellow-yellow, AN–M38.	0. 42	3. 85	10±3	12M (each star).
SIGNAL, aircraft, double star, yellow-yellow, AN–M38A1.	0. 35	3. 85	10±3	20M (each star).
SIGNAL, aircraft, single star, green, AN–M45.[3]	0. 32	3. 85	10±3	30M.
SIGNAL, aircraft, single star, green, AN–M45A1.	0. 32	3. 85	10±3	25M.
SIGNAL, aircraft, single star, red, AN–M43.[3]	0. 27	3. 85	10±3	25M.
SIGNAL, aircraft, single star, red, AN–M43A1.	0. 27	3. 85	10±3	25M.
SIGNAL, aircraft, single star, yellow, AN–M44.[3]	0. 26	3. 85	10±3	15M.
SIGNAL, aircraft, single star, yellow, AN–M44A1.	0. 26	3. 85	10±3	25M.
SIGNAL, aircraft, green tracer, green-red star, AN–M55 or AN–M55A1.[4]	0. 38	3. 85	Tracer, 2.5 to 4; star, 3 to 4.5.	25M (tracer). 20M (green star). 48M (red star).
SIGNAL, aircraft, green tracer, red-red star, AN–M54 or AN–M54A1.[4]	0. 38	3. 85	Tracer, 2.5 to 4; star, 3 to 4.5.	25M (tracer). 48M (each star).
SIGNAL, aircraft, red tracer, green-green star, AN–M56 or AN–M56A1.[4]	0. 38	3. 85	Tracer, 2.5 to 4; star, 3 to 4.5.	30M (tracer). 20M (each star).
SIGNAL, aircraft, red tracer, green-red star, AN–M58 or AN–M58A1.[4]	0. 39	3. 85	Tracer, 2.5 to 4; star, 3 to 4.5.	30M (tracer). 20M (green star). 48M (red star).
SIGNAL, aircraft, red tracer, red-red star, AN–M57 or AN–M57A1.[4]	0. 39	3. 85	Tracer, 2.5 to 4; star, 3 to 4.5.	30M (tracer). 48M (each star).

See footnotes at end of table.

Table IV. Authorized Rounds for Pyrotechnic Pistol AN–M8, Hand Pyrotechnic Projector M9, and Ground Signal Projector M1A1—Continued

Standard nomenclature	Complete round		Burning time [1] (sec)	Candlepower
	Weight (lb.)	Length (in.)		
FOR PISTOL, PYROTECHNIC, AN–M8 AND PROJECTOR, PYROTECHNIC, HAND, M9—Continued				
SIGNAL, aircraft, yellow tracer, red-yellow star, AN–M53 or AN–M53A1.[4]	0. 40	3. 85	Tracer, 2.5 to 4; star, 3 to 4.5.	30M (tracer). 48M (red star). 36M (yellow star).

in—inch M—thousand
lb—pound sec—second

[1] The aircraft parachute flare M9A1, on ignition, falls at the rate of 7 feet per second. Aircraft signals fall freely.

[2] Produces a cloud of smoke.

[3] Signals not wrapped in lead foil envelopes must not be issued or used but should be destroyed by burning in accordance with TM 9-1900.

[4] "A1" modification involved substitution of a metal case for the paper case employed with the basic model.

74. Preparation for Firing

After removal from packing materials, rounds of ammunition for the weapons described herein are ready for firing. Rounds prepared for firing but not fired will be returned to their original condition and packings and be appropriately marked. Such rounds will be used first in subsequent firings, in order that stocks of opened packings may be kept to a minimum.

75. Precautions in Firing

The precautions in *a* through *h* below should be closely observed, in order to prevent injury to personnel or damage to materiel.

a. Rounds should be free of foreign matter, sand, mud, moisture, frost, snow, ice, or grease when being loaded into the weapon.

b. Rounds with cracked, dented, or deformed cases or loose closing tops should not be fired.

c. In discharging signals free hand (without pistol mount) from aircraft, or from the ground, care will be exercised to aim so that no damage results to the aircraft or friendly ground troops.

d. Overhead cover should be provided when firing. When discharging the weapon free hand (without pistol mount), the firer's body should be below the level of the muzzle of the pistol or projector.

e. When firing flash and sound signals or high burst ranging signals over the heads of troops, the weapon should not be aimed at an eleva-

tion of less than 45 degrees to insure sufficient height of burst. Personnel should not face toward the point of burst of the signal.

f. Due to the powerful recoil, two hands should be used when firing the aircraft parachute flare M9A1. Never fire this flare from a grounded aircraft.

g. Misfires will be handled in accordance with paragraph 15*e* and SR 385–310–1/AFR 50–13.

h. Appropriate precautions should be observed when firing in wooded or other areas containing objects in the line of fire. In such firing, injury to the firer or adjacent personnel may result should the signal or flare strike a branch, overhead wires, or other object that would prevent its normal flight and function.

76. Packing and Marking

a. Packing.

(1) The types and quantities of signals and flares packed in wooden boxes, as well as pertinent data, are shown in table V.

Table V. Ammunition Packing Data

Item	Packing	Dimensions (in.)	Volume (cu ft)	Weight (lb)
Aircraft parachute flare.	7/mtl cntr, 2 cntr (14 flare) /wdn bx.	17¼ x 17⅜ x 9¼	1. 59	49. 7
	1/fbr cntr M102, 25 cntr (25 flare) /wdn bx.	19½ x 15⅝ x 16⅛	2. 78	99. 7
Aircraft signals	10/ctn, 8 ctn (80 signal) /wdn bx.[1]	20 x 11½ x 12⅛	1. 60	57. 1
	12/ctn, 6 ctn (72 signal) /wdn bx.[2]	15⅝ x 13⅝ x 12⅝	1. 54	57. 8
	12/ctn, 12 ctn (144 signal) /wdn bx.[1]	28⅛ x 13⅝ x 12⅝	2. 78	92. 9
Flash and sound signal.	10/wax dipped wtrprf ctn, 10 ctn (100 signal) /wdn bx.	23⅞ x 11¼ x 11¾	1. 81	64. 3
	10/wax dipped wtrprf ctn, 8 ctn (80 signal) /wdn bx.	20⅝ x 12⅛ x 11½	1. 65	48. 9
High burst ranging signal.	2/fbr cntr M73, 50 cntr (100 signal) /wdn bx.	23⅝ x 9⅞ x 12⅝	1. 66	70. 7

bx—box
cntr—container
ctn—carton
fbr—fiber
mtl—metal
wdn—wooden
wtrprf—waterproof

[1] "A1" modification (aluminum case).
[2] Basic model (paper case).

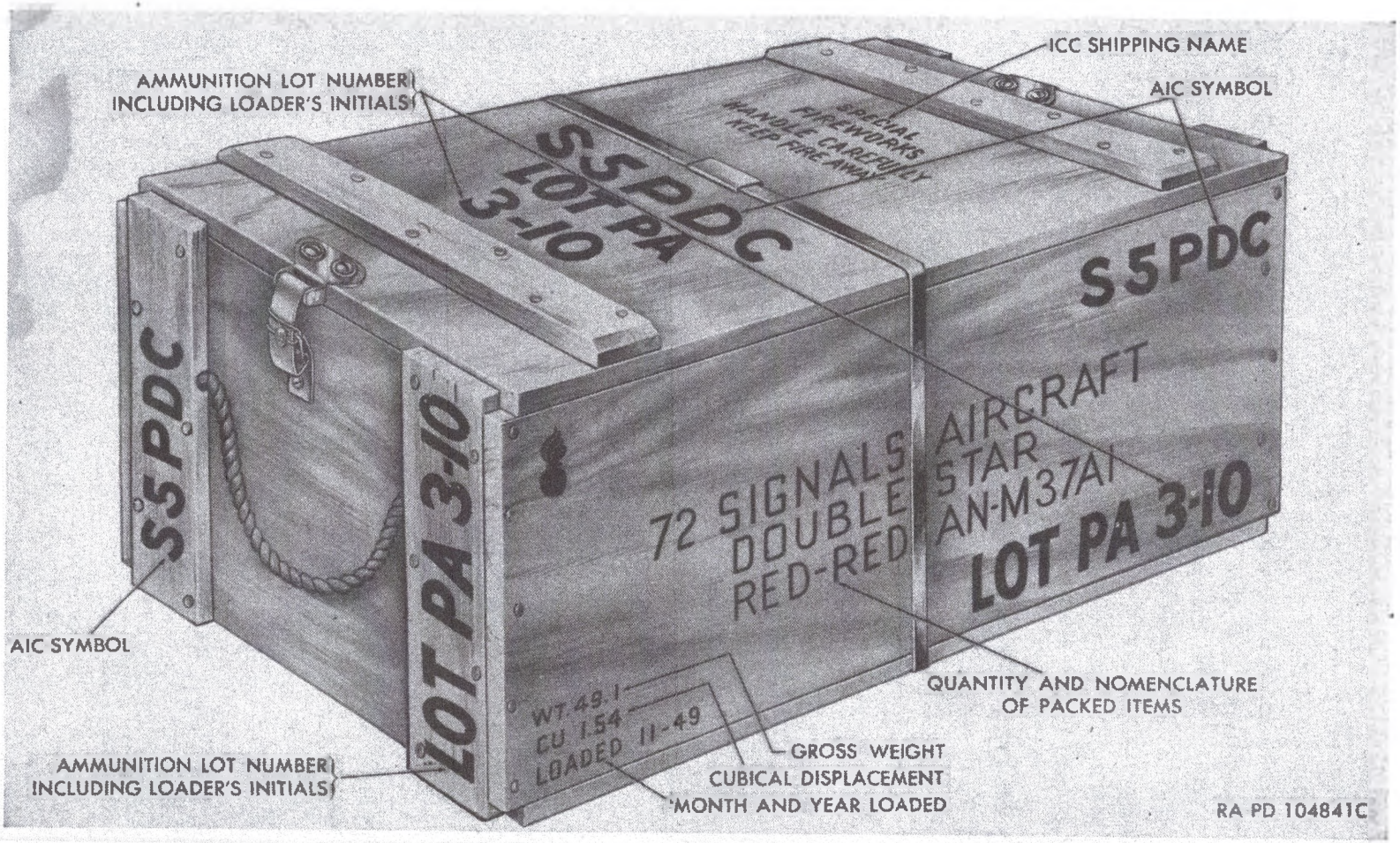

Figure 24. Packing box for aircraft signals.

(2) Complete data are published in Department of the Army Supply Manual ORD 3 SNL S–5.

b. Marking. The information in (1) through (10) below is marked in black on packing boxes of pyrotechnics (fig. 24).

(1) Interstate Commerce Commission (ICC) shipping name.
(2) Ammunition Identification Code (AIC) symbol.
(3) Ammunition lot number.
(4) Gross weight of packing box and contents.
(5) Cubical displacement of packing box.
(6) Date loaded.
(7) Quantity and descriptive nomenclature of packed items.
(8) Ordnance insignia.
(9) Name and address of box manufacturer and date manufactured.
(10) Inspector's stamp.

CHAPTER 6

SHIPMENT AND LIMITED STORAGE AND DESTRUCTION OF MATERIAL TO PREVENT ENEMY USE

Section I. SHIPMENT AND LIMITED STORAGE

77. Shipping Instructions

a. Domestic Shipping Instructions.

(1) *Preparation.* When shipping the pyrotechnic projectors or pyrotechnic pistols and mounts interstate or within the zone of interior, the officer in charge of preparing the shipment will be responsible for furnishing materiel to the carriers for transport in a serviceable condition properly processed, packaged and packed (pars. 79 and 80).

Note. Personnel withdrawing materiel from a limited-storage status for domestic shipment must not open boxes that have been previously inspected and packed. If it is determined that boxes have been opened, completely inspect the contents, to insure that they are complete and serviceable and pack in accordance with paragraphs 79 and 80.

(2) *Shipping instructions.* Materiel will be shipped in accordance with paragraph 81.

(3) *Army shipping documents.* Prepare all Army shipping documents accompanying freight in accordance with TM 38–705.

b. Oversea Shipping Instructions.

(1) *Inspection.* Inspect materiel destined for oversea use prior to shipment in accordance with TB ORD 385, to determine their completeness and serviceability. Replace any defective units.

Note. It is not normally necessary to inspect units in sealed packages, since they have been inspected for serviceability prior to packaging and during storage.

(2) *Preparation for shipment to ports.* Prepare materiel destined to ports of embarkation for oversea shipment in accordance with paragraphs 79 and 80. For oversea shipment, the exterior shipping container will be completely weatherproofed and strapped as prescribed in paragraph 80*c* and *d*.

78. Storage Instructions

a. Limited Storage Instructions.

Note. These instructions are intended for materiel being withdrawn from storage within 180 days, allowing for the possibility of the least protected storage conditions. For storage of materiel in excess of 180 days, see *b* below.

(1) *Receiving inspections.*

(*a*) Report all materiel received for storage in a damaged condition or improperly prepared for shipment on DD Form 6 in accordance with SR 745–45–5. Report of materiel received in an unsatisfactory condition (chronic failure or malfunction of the unit or equipment) will be reported on the Unsatisfactory Equipment Report DA Form 468 in accordance with SR 700–45–5.

(*b*) Immediately upon receipt, materiel that has not already been inspected and prepared for limited storage must be given a limited technical inspection and processed, packaged, and packed as prescribed in paragraphs 79 and 80. The results and classification of materiel will be recorded and packed with the unit.

(*c*) Perform a systematic inspection and replace or repair all missing or broken parts. If repairs are beyond the scope of the unit, causing the materiel to be out-of-service for an appreciable length of time, stow them in a limited-storage status and attach a tag to them specifying the repairs needed. The report of these conditions will be submitted by the unit commander for action by an ordnance maintenance unit.

(2) *Inspections during storage.* Perform a visual inspection periodically to determine general condition of boxes or cartons. If boxes or cartons have been opened or damaged and corrosion is found on any part of materiel, remove rust spots, clean, and treat with the prescribed preservatives, and pack in accordance with paragraph 80.

(3) *Storage site.*

(*a*) Personnel must carefully note the storage location, to determine whether the location is adequate for the units involved.

(*b*) Store all materiel in warehouses or under covered storage, whenever possible. Where it is found necessary to store units outdoors, cover and protect them against the elements as prescribed in TB ORD 379.

(4) *Removal from limited-storage.*

(*a*) If the materiel is not shipped or issued upon expiration of the 180-day limited-storage period, the materiel will be

removed from storage and inspected and prepared for standby or long-term storage as presented in *b* below.

(*b*) If the materiel to be shipped will reach its destination within the scope of the limited-storage period, it need not be processed upon removal from storage unless inspection reveals it to be necessary, according to anticipated in-transit weather conditions.

Note. All materiel being reissued through the depot supply system to troops within the continental limits of the United States must meet the requirements of TB ORD 385. This is NOT required for so-called reissues, exchanges, or redistribution among troop units, where the depot supply system is not involved.

(*c*) Materiel will be serviced in accordance with paragraphs 8 through 10, when it has been ascertained that it is to be placed into immediate service. Lubricate as prescribed in paragraphs 23 through 26.

(*d*) Repair and/or replace all items tagged in accordance with (1) (*c*) above.

b. Standby and Long-Term Storage.

(1) Maintenance in-storage inspection must be performed by qualified ordnance maintenance personnel.

(2) Inspection of units will preferably be performed in an area expressly set aside for that purpose or in a maintenance shop when such facilities are available at an installation.

(3) For storage in excess of 180 days, inspection, maintenance, care, and preservation of small arms materiel, see SR 743–110–1.

79. Processing, Packaging, and Packing Instructions

a. Disassembly. Prior to cleaning and preserving materiel, disassemble the components, such as grips, barrel assembly, frame assembly, etc.

b. Cleaning. Remove all shop dirt and other foreign matter from all metal surfaces (bare metal, painted, or plated) by one of the methods indicated in (1) through (3) below, whichever is applicable or available at an installation (see TM 38–230). It is of utmost importance that all parts be *spotlessly* cleaned prior to application of preservatives and packaging.

Note. During processing of items, it is imperative that cloth or synthetic rubber gloves be worn while handling items. Paint normally painted surfaces where paint has been removed or chipped in accordance with TM 9–2851.

(1) *Dip-tank method* (*metal accessories only*). Place metal parts in a metal perforated basket and submerge and agitate for approximately 1 minute in a tank containing dry-cleaning solvent or volatile mineral spirits. Remove and submerge

into a second tank containing clean solvent. Agitate for about 1 minute and remove. Submerge into a third tank containing a suppressor or fingerprint remover oil (type A) to remove all acids. Remove and dry the parts thoroughly with dry compressed air (provided with special moisture filter traps), infra-red lamps, heating oven, or by wiping the part with clean lint-free dry cloths.

(2) *Scrubbing method.* Clean all parts by scrubbing with cloths soaked in the solvent ((1) above), followed by wiping with clean, solvent-soaked cloths. When the solvent-soaked cloths used for the first scrubbing operation become too dirty for further use, discard them and use clean solvent-soaked cloths. Clean cloths must be soaked with clean solvent for the final wiping operation. Apply fingerprint remover oil (type A) and dry thoroughly as prescribed in (1) above.

(3) *Vapor degreaser method (metal accessories only).* Tanks containing a heated solution of trichlorethylene or perchlorethylene (type II) are used mostly for degreasing items that are very greasy, oily, and grimy and not readily cleaned by the dip-tank method ((1) above). Place parts in a metal perforated basket and submerge just below the vapors in the tank for about 2 or 3 minutes until all the oil or grease melts and runs off items in basket. Remove basket and apply fingerprint remover oil (type A) to items and dry thoroughly as prescribed in (1) above.

Warning: Personnel operating vapor degreasers are cautioned not to breathe the vapor fumes.

c. Application of Preservatives. Immediately after cleaning and drying (*b* above), dip the clean moisture-free projectors in the preservative bath as prescribed in (1) and (2) below. Dipping will be accomplished at the concentration, application temperature, and other conditions specified for the preservative material. Exercise extreme care to remove surface absorbed moisture before applying the preservative. During and after application of the preservative, rack the materiel in such a fashion that the protective film will be best distributed. Materiel must remain untouched for a period sufficient to allow the film to set before wrapping and packaging are performed.

(1) Dip the materiel in rust-preventive compound (soft film). Completely submerge in the bath for a sufficient period of time to insure complete covering.

(2) After removing materiel from the compound, allow excess compound to drain off prior to packaging.

d. Packaging and Packing.

(1) *Ground signal projector M1A1.* The packaging and packing data for this item is not available at the date of publication.

(2) *Pyrotechnic pistol AN–M8 and pyrotechnic pistol mount M1.*

(*a*) *Issue pack (4 x 7½ x 10—20 required).*

1. Individually wrap each pistol and mount in greaseproof barrier-material grade C, type I. Mold the wrap to conform to the countour of the item (fig. 25).

2. Construct mount and pistol supports from corrugated fiberboard as shown in figure 25.

3. Position supports in the corrugated fiberboard carton (W6c-board), and locate the wrapped mount and pistol in the supports within the fiberboard box (fig. 25).

4. Close carton and seal along the closure seam with 3-inch Kraft gummed cloth tape.

5. Apply identification label to the issue pack (nomenclature and stock number).

(*b*) *Intermediate pack (10¼ x 15½ x 20½—two required).*

1. Locate 10 issue packages ((*a*) above), each containing one pistol and mount, in a corrugated fiberboard carton (W6c-board).

2. Close carton and seal along the closure seam with water-resistant pressure-sensitive adhesive tape.

3. Overwrap carton with flexible waterproof barrier-material type C–1 and seal.

4. Apply identification label to the intermediate pack.

(*c*) *Exterior pack.*

1. Locate two intermediate packages ((*b*) above), each containing 10 issue packages ((*a*) above), within the exterior shipping container (*2* below).

2. The exterior shipping container will be constructed as a style 4 nailed wood box in accordance with instructions contained in TM 9–2854 and having characteristics listed in table VI.

Note. Before constructing a quantity of these boxes, a trial pack must be made and the dimensions of the container adjusted if necessary.

3. Container will be waterproofed for oversea shipment in accordance with paragraph 80*c*(3) and marked for shipment in accordance with paragraph 80*e*.

(3) *Hand pyrotechnic projector M9.*

(*a*) *Issue pack (2 x 2⅞ x $7^{15}/_{16}$—80 required).*

1. Individually wrap each projector in greaseproof barrier-material grade C, type I. Mold the wrap to conform to the contour of the item.

2. Position the wrapped projectors in the corrugated fiberboard carton (W6c-board) (fig. 26).

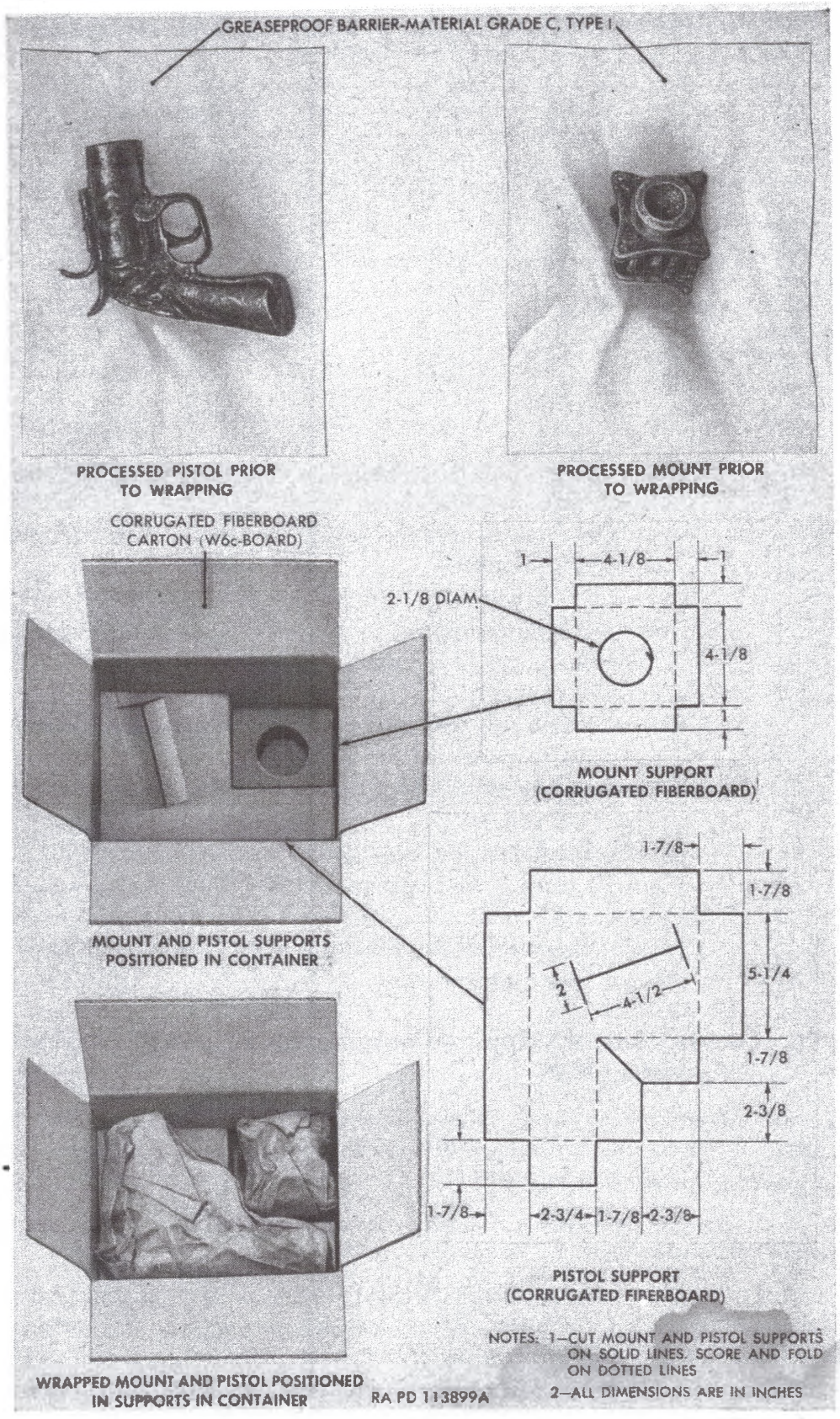

Figure 25. Method of issue packaging one pyrotechnic pistol AN–M8 and pyrotechnic pistol mount M1.

Table VI. Shipping Box Data for 20 Pyrotechnic Pistols AN–M8 and Pyrotechnic Pistol Mounts M1

Shipping data	Box dimension (in.)		Volume and weight
	Inside	Outside	
Length	31¼	34¼	
Width	20¾	21¾	
Height	10½	11½	
Bearing pressure (lb per sq ft)			23
Volume (cu ft)			5. 0
Ship tons (40 cu ft)			. 13
Shipping weight (gross lb)			123

3. Close carton and seal along the closure seam with 3-inch Kraft gummed cloth tape.

4. Apply identification label to the issue pack (nomenclature and stock number).

(*b*) *Intermediate pack (8⅜ x 6⅞ x 11¾—eight required).*

1. Locate 10 issue packages ((*a*) above), each containing one projector, in a corrugated fiberboard carton (W6c-board) (fig. 26).

2. Close carton and seal along the closure seam with water-resistant pressure-sensitive adhesive tape.

3. Overwrap carton with flexible waterproof barrier-material type C–1 and seal.

4. Apply identification label to the intermediate pack.

(*c*) *Exterior pack.* Locate eight intermediate packages ((*b*) above), each containing 10 issue packages ((*a*) above), within the exterior shipping container constructed as prescribed in paragraph 80.

80. Construction of Shipping Container for 80 Hand Pyrotechnic Projectors M9

a. Shipping Box Data. The data contained in table VII is for 80 hand pyrotechnic projectors M9 packed in a style B nailed wood cleated plywood box (fig. 26).

Note. Before constructing a quantity of these boxes, a trial pack must be made and the dimensions of the box adjusted if necessary.

b. Bill of Materials. Table VIII lists the materials required to construct one style B nailed wood cleated plywood box (fig. 26) for 80 hand pyrotechnic projectors M9. The box is designed to be constructed of group I or II lumber of standard thickness, unless otherwise noted in table VIII. If wood of other groups are used, the

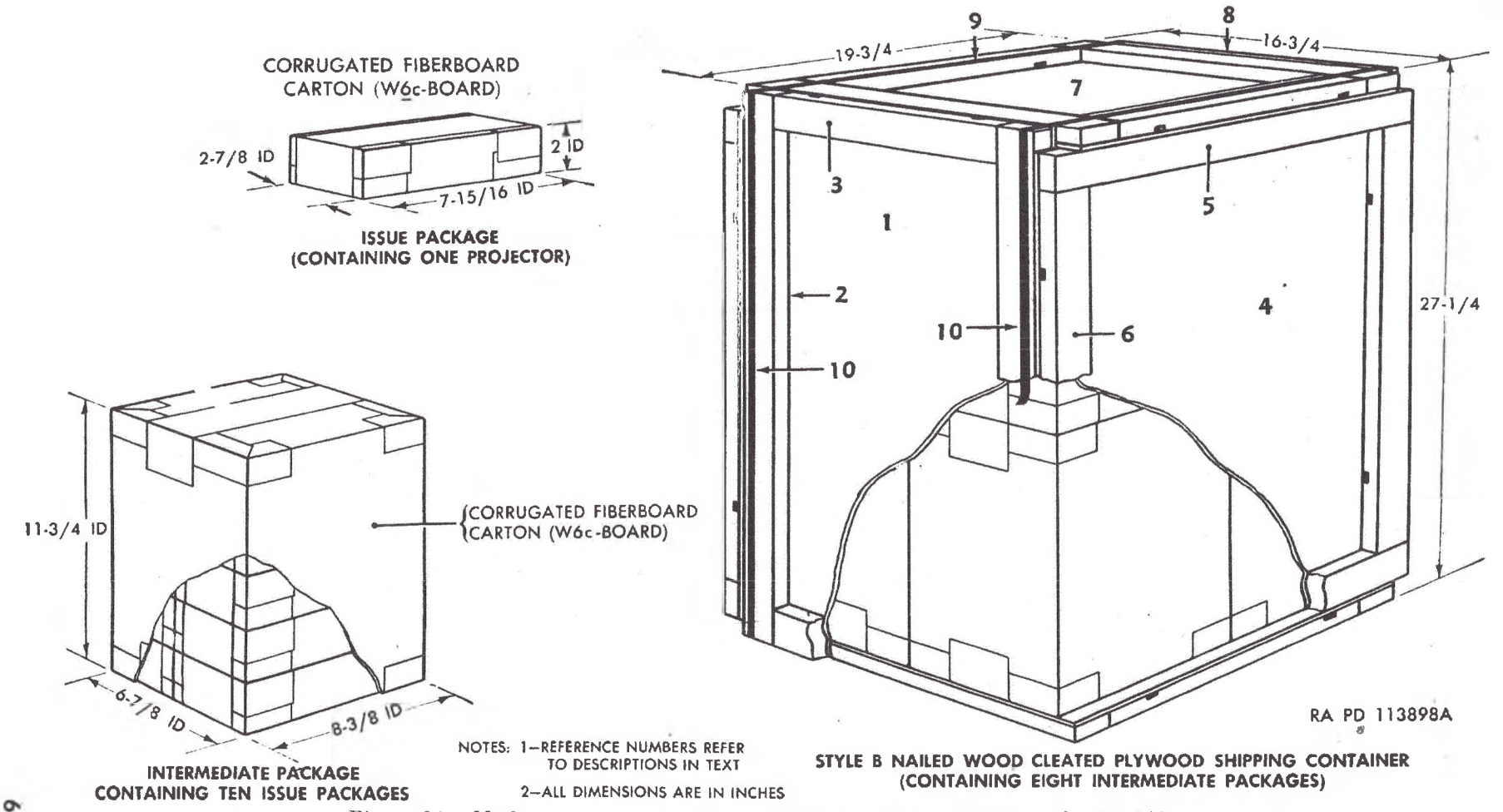

Figure 26. Method of packaging and packing 80 hand pyrotechnic projectors M19.

Table VII. Shipping Box Data for 80 Hand Pyrotechnic Projectors M9

Shipping data	Box dimension (in.)		Volume and weight
	Inside	Outside	
Length	17¾	19¾	
Width	14¾	16¾	
Height	25¼	27¼	
Bearing pressure (lb per sq ft)			71
Volume (cu ft)			5. 2
Ship tons (40 cu ft)			. 13
Shipping weight (gross lb)			165

thickness of lumber and the fastening schedule (*c* below) must be adjusted in accordance with TM 9–2854. The reference numbers are those referred to in figure 26.

c. Fastening Schedule.

(1) *Fabrication of panels.* Nail plywood to cleats with threepenny nails or equivalent staples spaced not more than 3 inches apart, stagger, and clinch. Head of nails will not be less than ¼-inch diameter.

(2) *Fabrication of box.* Nail ends, sides, top, and bottom of box together with eightpenny cement-coated nails spaced 4 inches apart along all nailing edges.

(3) *Waterproof barrier case-liner.* For oversea shipment *only*, the box will contain a flexible waterproof barrier case-liner, type L–2 (except for shipment to frigid zones). Make sure that all protruding nails are clinched and splinters removed from inside of box before installing case-liner, in order not to puncture barrier-material. Before sealing top of case-liner, apply a plywood or corrugated cover on top of units within case-liner for a firm sealing foundation. Properly seal all edges with adhesive waterproof sealing compound. Nail top of box on and apply the correct size and number of straps to exterior of box *just prior to shipment* (*e* below).

d. Strapping.

(1) Apply two steel straps (JUST PRIOR TO SHIPMENT) lengthwise of the box on edge cleats around ends, top, and bottom as shown on figure 26. Tension straps, so as to sink into the edges of the cleats. Apply strap seals and crimp seal.

(2) Staple straps to the cleats at a distance not to exceed 4 inches from the edge or face of the box with cement-coated or chemically etched staples spaced at intervals of approximately 6 inches.

Table VIII. Bill of Materials

Reference No.	Quantity reqd	Part name	Actual size (in)		
			Length	Width	Thickness
		Container ends			
1	2	End panels (group III or IV, 3-ply plywood, type II)	14¾	27⅛	3/16
2	4	Through edge cleats	27⅛	1¾	¾
3	4	Filler edge cleats	11¼	1¾	¾
		Container sides			
4	2	Side panels (group III or IV, 3-ply plywood, type II)	25¼	19⅝	3/16
5	4	Through edge cleats	19⅝	1¾	¾
6	4	Filler edge cleats	21¾	1¾	¾
7	2	Top and bottom panels (group III or IV, 3-ply plywood, type II)	17¾	16⅝	3/16
8	4	Through edge cleat	16⅝	1¾	¾
9	4	Filler edge cleat	14½	1¾	¾
10	2	Steel straps (or equivalent steel wire)	91	⅜	0. 020
	as reqd	Eightpenny cement-coated nails			
	as reqd	Flexible waterproof barrier case-liner (For oversea shipment, see par. 80c(3))			
	as reqd	Staples (for strapping)			
	2	Strap seals		⅜	
	as reqd	Threepenny nails			
		Issue package			
	80	Fiberboard boxes (W6c-board) [1]	7 15/16	2⅞	2
	as reqd	Greaseproof barrier-material grade C, type I			
	as reqd	Kraft gummed cloth tape		3	
		Intermediate package			
	8	Fiberboard boxes (W6c-board) [1]	8⅜	6⅞	11¾
	as reqd	Kraft gummed cloth tape		3	

[1] Sizes given are the interior dimensions.

e. Identification and Marking.

(1) *Domestic.*

(*a*) After the unit has been packed, the standard marking information required to identify and mark containers for domestic shipment will be printed or stenciled directly onto the shipping container with the standard nomenclature, stock number or other identifying number, quantity and size, weight (WT), cubage (CU), package number (where

required), domestic address label, caution labels and markings (where required), and date packed (month and year).

Note. When the set markings, packing lists, and special and technical data markings are necessary, they will be used and applied in accordance with specific instructions from the officer in charge.

(*b*) Do not apply labels or mark containers unless the contents have been actually inspected and properly packaged.

(2) *Oversea.*

(*a*) For shipment to ports of embarkation for oversea shipment, the container will be labeled or stenciled as prescribed for domestic shipment in (1) above and, in addition, will include the oversea address and service color markings (see SR 746–30–5).

(*b*) Each container shipped in less than carload lot (LCL) or less than truckload lot (LTL) to a port will also bear a domestic address. Old addresses and irrelevant data will be effectively removed or obliterated prior to shipment. A label not exceeding 28 square inches (yellow corners not required on label) will be used for domestic addresses. Label will be securely attached to the container and covered with water resistant label adhesive. Stenciling of domestic addresses on containers is not permitted.

81. Loading and Blocking Instructions

For general loading rules for rail shipment and methods and procedures for loading and blocking boxed items in boxcars, see TM 9–2854.

Section II. DESTRUCTION OF MATERIEL TO PREVENT ENEMY USE

82. General

a. Destruction of the ground signal projector M1A1, pyrotechnic pistol AN–M8, or hand pyrotechnic projector M9, when subject to capture or abandonment in the combat zone, will be undertaken by the using arm only when, in the judgment of the unit commander concerned, such action is necessary in accordance with order of or policy established by the army commander. When the projector or pistol is in the possession of ordnance maintenance personnel or in storage, destruction will be in accordance with FM 9–5 and applicable portions of the information in *b* through *c* below.

b. The information that follows is for guidance only. Certain of the procedures described require the use of explosives and incendiary grenades, which normally may not be authorized items of issue to the using organization. The issue of these and related materials and

the conditions under which destruction will be effected are command decisions in each case, according to the tactical situation. Of the several means of destruction, those most generally applicable are:

(1) *Mechanical.* Requires axe, pick mattock, sledge, crowbar, or similar implement.

(2) *Burning.* Requires gasoline, oil, incendiary grenades, or other flammables.

(3) *Demolition.*[1] Requires suitable explosives or ammunition.

(4) *Gunfire.*[1] Includes artillery, machine guns, rifles using rifle grenades, and launchers using antitank rockets. Under some circumstances, hand grenades may be used.

(5) *Disposal.* Requires burying in the ground, dumping in streams or marshes, or scattering so widely as to preclude recovery of essential parts.

In general, destruction of essential parts, followed by burning will usually be sufficient to render the materiel useless. However, selection of the particular method of destruction requires imagination and resourcefulness in the utilization of the facilities and hand under the existing conditions. Time is usually critical.

c. If destruction to prevent enemy use is resorted to, the materiel must be so badly damaged that it cannot be restored to a usable condition in that combat zone either by repair or cannibalization. Adequate destruction requires that all parts essential to the operation of the materiel, including essential spare parts, be destroyed or damaged beyond repair. However, when lack of time and personnel prevents destruction of all parts, priority is given to the destruction of those parts most difficult to replace. Equally important, the same essential parts must be destroyed on all like materiel, so that the enemy cannot construct one complete unit from several damaged ones.

d. If destruction by demolition or gunfire is directed, due consideration should be given to the observance of appropriate safety precautions.

83. Destruction of Ground Signal Projector M1A1, Pyrotechnic Pistol AN–M8, or Hand Pyrotechnic Projector M9

a. Method No. 1—by Mechanical Means. Using an axe, pick mattock, sledge, or other heavy implement, thoroughly smash the projector or pistol. Elapsed time: about 1 minute.

b. Method No. 2—by Burning. Place the projector or pistol on a pile of combustible. Pour gasoline over the combustible. Ignite and take cover. A hot fire is required to render the materiel useless. Elapsed time: about 3 minutes.

[1] Generally applicable only when the projector or pistol is to be destroyed in conjunction with other equipment.

Caution: When igniting gasoline, due consideration should be given to the highly inflammable nature of gasoline and its vapor. Carelessness in its use may result in painful burns.

c. Method No. 3—by Disposal. Bury the projector or pistol in a suitable hole or throw it into a stream. Elapsed time: about 2 minutes.

APPENDIX

REFERENCES

1. Publication Indexes

The following publication indexes and lists of current issue should be consulted frequently for latest changes or revisions of references given in this appendix and for new publications relating to materiel covered in this manual:

Alphabetical Index of Technical Publications	TO 00-1-2
Index of Administrative Publications	SR 310-20-5
Index of Army Motion Pictures, Kinescope Recordings, and Film Strips	SR 110-1-1
Index of Blank Forms and Army Personnel Classification Tests	SR 310-20-6
Index of Tables of Organization and equipment, Reduction Tables, Tables of Organization, Tables of Equipment, Type Tables of Distribution, and Tables of Allowances	SR 310-20-7
Index of Technical Manuals, Technical Regulations, Technical Bulletins, Supply Bulletins, Lubrication Orders, and Modification Work Orders	SR 310-20-4
Index of Training Publications	SR 310-20-3
Introduction and Index (supply manuals)	ORD 1
Military Training Aids	FM 21-8
Numerical Index of Technical Publications	TO 00-1-1
Ordnance Major Items and Combinations and Pertinent Publications	SB 9-1

2. Supply Manuals

The following manuals of the Department of the Army Supply Manual pertain to this materiel:

a. Ammunition.

Pyrotechnics, Military, All Types	ORD 3 SNL S-5

b. Destruction to Prevent Enemy Use.

Land Mines and Components; Demolition Explosives and Related Items; and Ammunition for Simulated Artillery, Booby Trap, Hand Grenade, and Land Mine Fire	ORD 3 SNL R-7

c. Maintenance and Repair.

Cleaners, Preservatives, Lubricants, Recoil Fluids, Special Oils, and Related Maintenance Materials	ORD 3 SNL K-1

Items of Soldering, Metallizing, Brazing, and Welding Materials; Gases and Related Items	ORD 3 SNL K–2
Lubricating Equipment, Accessories and Related Dispensers	ORD (*) SNL K–3
Major Items and Major Combinations of Group B	ORD 3 SNL B–1
Standard Hardware	ORD 5 SNL H–1
Special Tool Sets for Small Arms and Automatic Weapons (SNL Groups A and B)	ORD 6 SNL J–12

d. Projectors.

Pistol, Pyrotechnic, AN–M8, With Mount, Pyrotechnic Pistol, M1	ORD (*) SNL B–33
Projector, Pyrotechnic, Hand, M9	ORD (*) SNL B–38
Projector, Signal, Ground, M1A1	ORD (*) SNL B–40

(*) See ORD 1 for published manuals of the ordnance section of the Department of the Army Supply Manual.

3. Forms

The following forms are applicable to this materiel:

DA Form 9–3, Processing Record for Shipment and Storage of Vehicles and Boxed Engines (TAG)
DA Form 446, Issue Slip
DA Form 447, Turn-in Slip
DA Form 468, Unsatisfactory Equipment Report
DA Form 811, Work Request and Job Order
DA Form 811–1, Work Request and Hand Receipt
DA Form 867, Status of Modification Work Order
DD Form 6, Report of Damaged or Improper Shipment

4. Other Publications

The following explanatory publications contain information pertinent to this materiel and associated equipment:

a. Ammunition.

Ammunition, General	TM 9–1900
Ammunition Inspection Guide	TM 9–1904
Identification of Inert Ammunition and Ammunition Components	SR 385–410–1
Military Pyrotechnics	TM 9–1981
Qualifications in Arms, Qualification and Familiarization	AR 370–5
Regulations for Firing Ammunition for Training, Target Practice, and Combat	SR 385–310–1
Training Ammunition	T/A 23–100

b. Decontamination.

Decontamination	TM 3–220
Defense Against Chemical Attack	FM 21–40

c. Destruction to Prevent Enemy Use.

Explosives and Demolitions	FM 5–25

d. General.

Basic Arctic Manual	FM 31–70
Inspection of Ordnance Materiel in the Hands of Troops	TM 9–1100
Instruction Guide: Operation and Maintenance of Ordnance Materiel in Extreme Cold (0° to —65° F.)	TM 9–2855
Operations in the Arctic	FM 31–71
Ordnance Service in the Field	FM 9–5
Safety: Accident Reporting	SR 385–10–40
Small-Arms Materiel and Associated Equipment	TM 9–2200
Supplies and Equipment: Unsatisfactory Equipment Report	SR 700–45–5

e. Maintenance and Repair.

Abrasive, Cleaning, Preserving, Sealing, Adhesive, and Related Materials Issued for Ordnance Materiel	TM 9–850
Instruction Guide: Small Arms Accidents, Malfunctions and Their Causes	TM 9–2210
Instruction Guide: Welding Theory and Application	TM 9–2852
Lubrication	TM 9–2835
Maintenance of Supplies and Equipment: Maintenance Responsibilities and Shop Operation	AR 750–5
Ordnance Maintenance and General Supply in the Field	FM 9–10
Overhaul and Rebuild Standards for Small Arms Materiel	TB ORD 366
Painting Instructions for Field Use	TM 9–2851
Small-Arms Weapons in Training Centers; Basis for Return to Depot Maintenance Shops for Rebuild	SB 9–50

f. Shipment and Long-Term Storage.

Army Shipping Document	TM 38–705
Catalog of Approved Packaging Instructions for Major Items and Spare Parts for Ordnance General Supplies	PS 1000[1]
Instruction Guide: Ordnance Packaging and Shipping (Posts, Camps, and Stations)	TM 9–2854
Marking and Packing of Supplies and Equipment: Marking of Oversea Supply	SR 746–30–5
Military Standard-Marking of Shipments	MIL–STD–129[2]
Ordnance Storage and Shipment Chart—Group B	SB 9–OSSC–B
Preparation of Supplies and Equipment for Shipment: Processing of Unbored and Uncrated Equipment for Oversea Shipment	AR 747–30
Preservation, Packaging, and Packing of Military Supplies and Equipment	TM 38–230

[1] Copies may be obtained from the Raritan Arsenal Publications Division, Metuchen, N. J.
[2] Copies may be obtained from Aberdeen Proving Ground, Aberdeen, Md.

Protection of Ordnance General Supplies in Open Storage	TB ORD 379
Shipment of Supplies and Equipment: Report of Damaged and Improper Shipment	SR 745–45–5
Standards for Oversea Shipment and Domestic Issue of Ordnance Materiel Other Than Ammunition and Army Aircraft	TB ORD 385
Storage of Supplies and Equipment	SR 743–110–1

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