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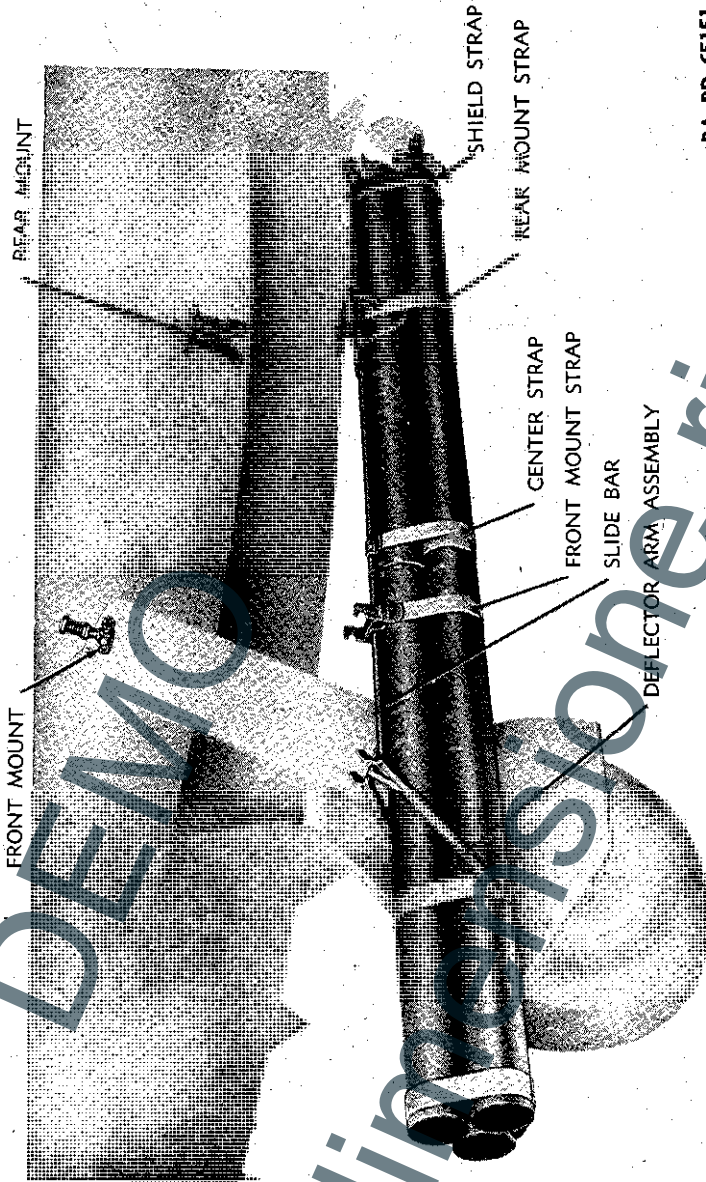
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4.5" AIRCRAFT ROCKET MATERIEL



RA PD 65151

Figure 1—4.5" Rocket Launcher M10—Dismounted

**RESTRICTED**

This Technical Manual supersedes TM 9-395, 4.5" Rocket Materiel, dated 13 September 1943, and TB 9-395-1, dated 13 May 1944.

**Section I  
LAUNCHERS**

**1. SCOPE.**

a. This manual contains a description of the 4.5" Rocket Launchers M10, M14, and M15. In addition, it contains technical information required for the identification, use, and care of the launcher and ammunition. This manual does not cover electrical wiring or switches in the plane, or the firing selector mechanism. The procurement and installation of such accessories is the responsibility of AAF.

**2. REPORTS.**

a. **Field Report of Accidents.** When an accident involving ammunition occurs during practice, the incident will be reported as prescribed in AR 750-10 by the Ordnance officer under whose supervision the ammunition is maintained or issued. Where practicable, reports covering malfunctions of ammunition in combat will be made to the Chief of Ordnance, giving the type of malfunction, type of ammunition, the lot number of the complete rounds or separate-loading components, and condition under which fired.

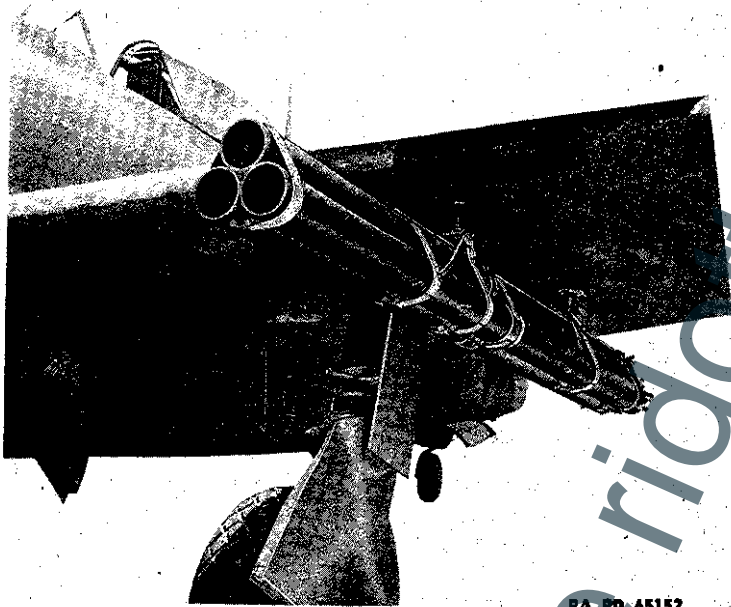
b. **Unsatisfactory Equipment Report.** Suggestions for improvement in design, maintenance, safety, and efficiency of operation prompted by chronic failure or malfunction of the weapon, spare parts, or equipment should be reported on WDAGO Form No. 468, Unsatisfactory Equipment Report, with all pertinent information necessary to initiate corrective action. The report should be forwarded to the Office of Chief of Ordnance, Field Service Maintenance Division, through command channels in accordance with instruction number 7 on the form. Such suggestions are encouraged in order that other organizations may benefit.

**3. TABULATED DATA.**

**a. Launchers.**

Model	M10	M14	M15
Material of tubes.....	Plastic.....	Steel.....	Magnesium alloy
Weight of launcher.....	80 lb.....	190 lb.....	86 lb
Length of tubes.....	10 ft.....	10 ft.....	10 ft.
Thickness of tubes.....	¼ in.....	⅜ in.....	⅜ in.

## LAUNCHERS



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**Figure 2—Launcher, Mounted—Front View****6. 4.5" ROCKET LAUNCHER M15.**

a. This model differs from the M10 in that the material of the tubes is  $\frac{3}{16}$ -inch magnesium alloy.

**7. INSTALLATION.**

a. **General.** The center strap, front and rear mount straps, and deflector arm strap are held in position by a turnbuckle screw which is tightened with a  $\frac{5}{16}$ -inch wrench to prevent the strap slipping.

b. **Tools.** The only tools required for this operation are AAF wrench 44A906 or a 6-inch adjustable wrench (or equivalent) and combination pliers.

**c. Procedure.**

(1) Inspect the launcher for obstructions inside the tubes and cracks near the muzzle or rear end. Minor flakes or blisters on the inside of the tubes will not affect operation of the launcher.

(2) Check the center strap to see that it is tight and safety-wired. Do not tamper with this strap unless it has not been safety-wired because it has been properly adjusted for tension at the factory. Changes

4.5" AIRCRAFT ROCKET MATERIEL



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Figure 3—Launcher, Mounted—Rear View

LAUNCHERS



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Figure 4—Front Mount

4.5" AIRCRAFT ROCKET MATERIEL



Figure 8—4.5" High-explosive Rocket MB

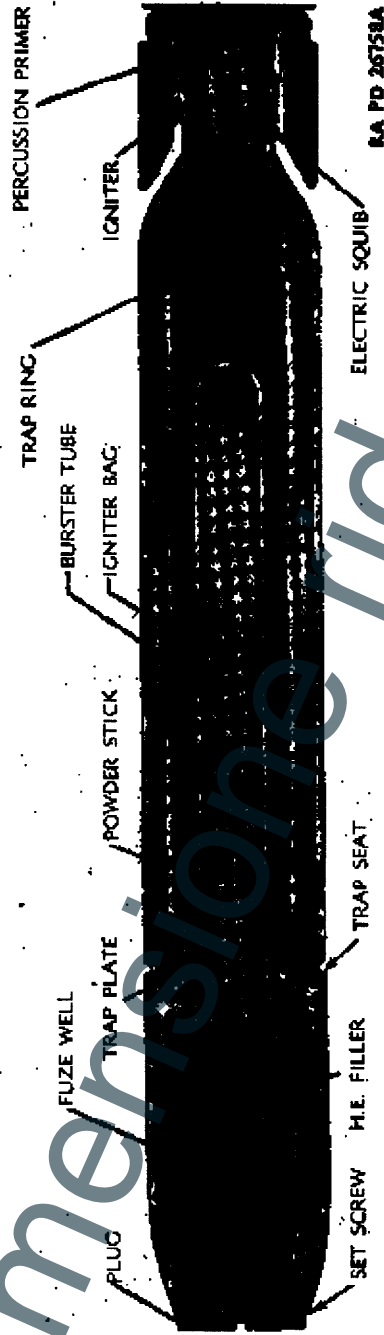


Figure 9—Rocket—Sectional View

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## ROCKETS

with each lot. Since the burning rate of smokeless powder varies with the initial temperature, the weight of each charge is adjusted so that, when fired within the temperature range specified for the rocket, excessive and dangerous pressures will not be produced.

**g. Igniter.** The igniter (figs. 9 and 12) consists essentially of a charge of black powder and an electric squib. In earlier models, the squib and black powder are contained in a plastic cup which is cemented in the nozzle opening. The leads of the squib are connected to a contact disk and a contact ring on the base of the cup (fig. 9). In combination igniters, a percussion primer is assembled in the base. In later models, the igniter is assembled in a long tube attached to the trap with the igniter wires leading to a contact plate in the nozzle. This plate has, in addition to the contact rings, a cord and plug attachment for electrical connection. When this igniter is used in the launchers equipped with spring contact arms, the plug wires should be cut close to the contact rings.

**h. Painting.** High-explosive rockets are painted olive drab and marked in yellow. Practice rocket shells are painted blue and marked in white, and the motor is painted olive drab and marked in yellow.

**i. Marking.** Rocket shells are marked with the lot number of the metal parts stamped in the metal in small figures and the loading lot number stenciled in larger figures. Practice shells have the word "INERT" stenciled on the shell. Rocket motors are marked with the metal parts lot number stamped in small figures, and the ammunition lot number stenciled in larger figures. The type and model of the rocket and the temperature limits are stenciled on the motor body.

### 14. MODIFICATIONS.

**a.** The various models and modifications of 4.5" rockets are described below (fig. 11).

**b. High-explosive Rocket M8 and Practice Rocket M9.**

(1) The original model of the 4.5" rocket has a comparatively light shell and motor. As a consequence, safe temperature ranges are narrow, and it is necessary to change the propelling charge to provide for full coverage of the temperature range. As issued, the charge is adjusted for firing at temperatures between 20°F and 90°F. The charge may be modified as described below for firing at temperatures between 50°F and 130°F. The temperature at the time of firing governs the selection of the charge. Under no circumstances should a rocket be fired at a temperature outside the range for which the charge is adjusted.



4.5" AIRCRAFT ROCKET MATERIEL

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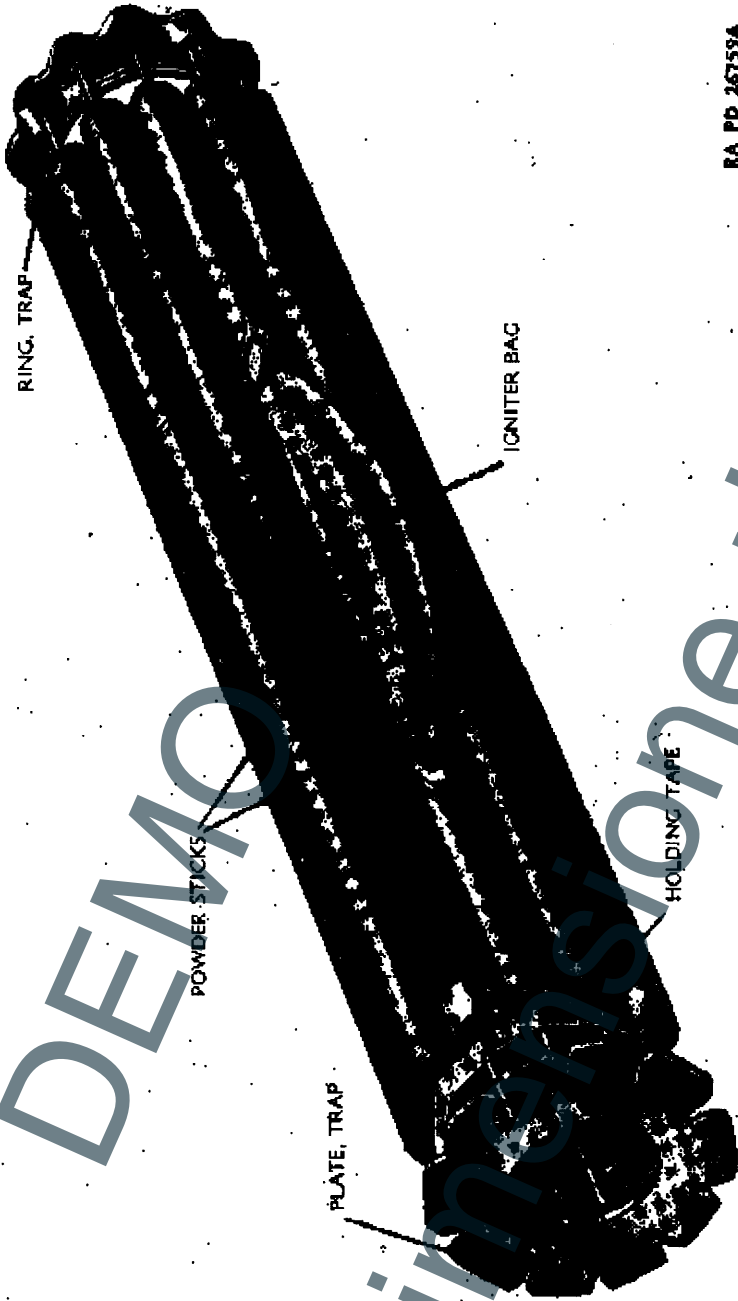


Figure 10—Trap Assembly and Propelling Charge

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ROCKETS

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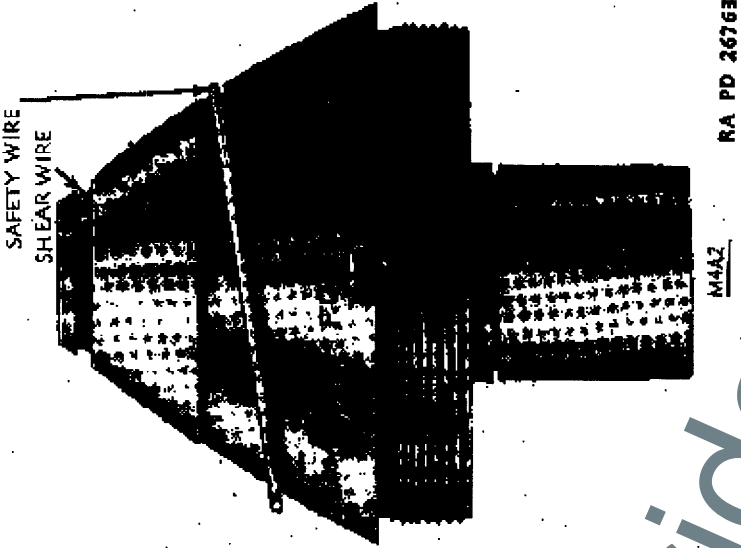


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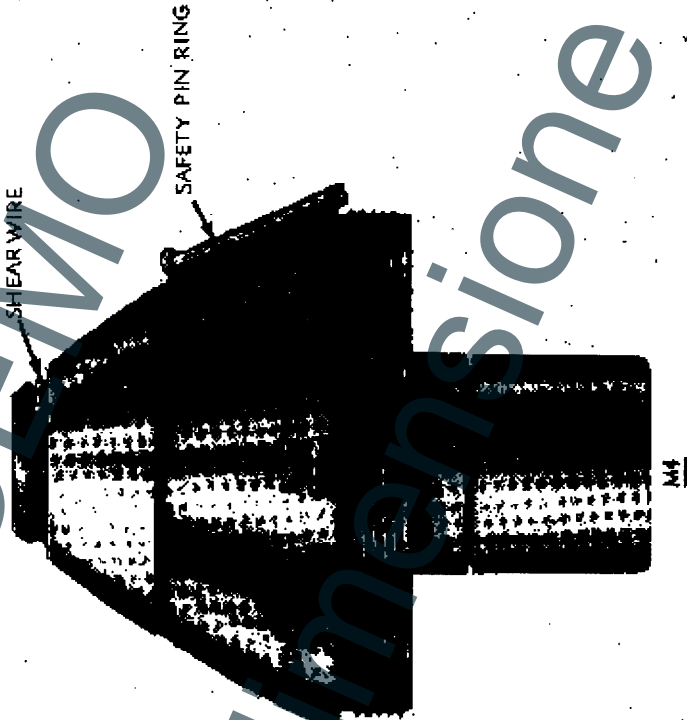
Figure 11—Rockets M9A1 and T22

4.5" AIRCRAFT ROCKET MATERIEL



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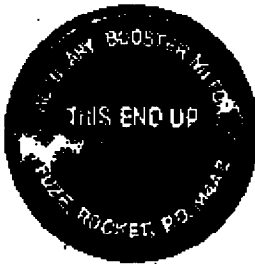
M4A2



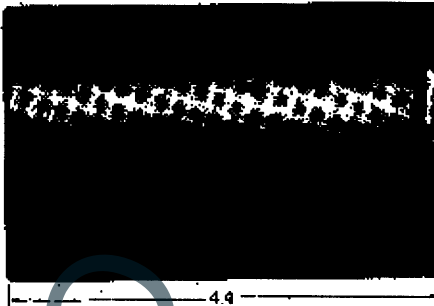
M4

Figure 13—Fuses

## ROCKETS



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4.4



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**Figure 14—Auxiliary Boosters M1 and M1A1**

back initiate arming when the rocket is fired; the third, when set-back ceases, spring action unlocks the detonator slider and moves the detonator into line in the explosive train. Note that the fuze cannot function unless the safety pin or wire is removed before firing. The Fuze M4 will arm on the set-back force resulting from 165 G acceleration. Later modifications require only 100 G. Compared with artillery and trench-mortar fuzes, this force is extremely small. The set-back force in artillery ammunition will be produced by an acceleration as great as 20,000 G and in trench-mortar ammunition by an acceleration as great as 4,000 G. Consequently, once the safety pin has been removed, rockets should be handled with extreme care.

d. **Fuze M4A1.** This fuze differs from the M4 in that a lighter set-back is required to arm the fuze. The setting pin is recessed, and a piece of scotch tape covers the nose. The setting pin is recessed in order to prevent its partial turning upon impact, as a partial turn

## 4.5" AIRCRAFT ROCKET MATERIEL

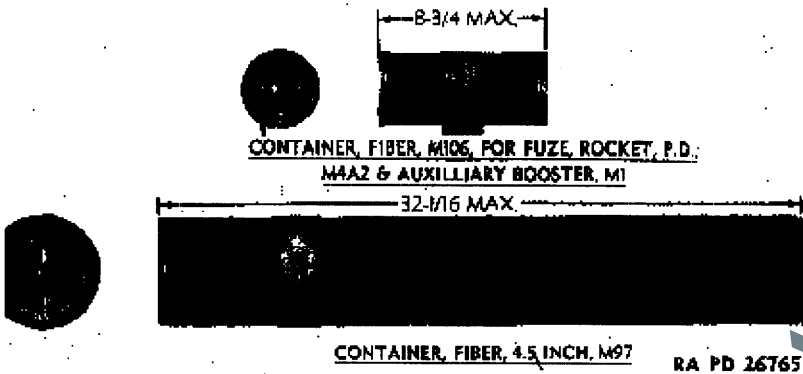


Figure 15—Fiber Containers

ould result in a dud. The tape should not be removed prior to firing, as it is required to prevent quenching of the delay element upon water impact.

e. **Fuze M4A2.** In this modification, the design of the setting pin is slightly changed so that the delay train will always function. In the earlier modifications, if the setting pin slot is not parallel with the axis of the fuze, the fuze will be a dud. This model is supplied with the Auxiliary Booster M1A1.

f. **Auxiliary Booster.** This component is required to insure high-order detonation of the bursting charge. It consists primarily of a hip-board and metal container filled with approximately 1 pound of TNT. The M1 is in the form of a cylinder with flat ends. The M1A1 contains a cup in the top to nest over the booster cup of the fuze.

#### 6. FUZE M6.

a. The dummy fuze has the same weight and contour as the service fuze. It is issued for use in the practice rocket.

#### 7. PREPARATION FOR FIRING.

a. To prepare the rocket for firing, the following steps will be carried out:

(1) Remove the rocket from its packing and inspect for serviceability. Be sure that the igniter and fin retainer are firmly in place, that fins are straight, and the rocket body is not seriously dented. Make certain that the temperature range specified for the charge covers the expected temperature at firing. If necessary, adjust the propelling charge of Rockets M8 and M9 as described in paragraph 14 b.

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