

CHAPTER 2

M72-SERIES LAW, OPERATION AND FUNCTION

This chapter provides information on and technical data for the M72-series light antitank weapon (LAW). It also discusses the characteristics, nomenclature, functioning, and operation of the LAW.

2-1. DESCRIPTION

The M72-series LAW is a lightweight, self-contained, antiarmor weapon consisting of a rocket packed in a launcher (Figure 2-1, page 2-2). It is man-portable, may be fired from either shoulder, and is issued as a round of ammunition. It requires little from the user—only a visual inspection and some operator maintenance. The launcher, which consists of two tubes, one inside the other, serves as a watertight packing container for the rocket and houses a percussion-type firing mechanism that activates the rocket.

a. **Outer Tube.** The trigger housing assembly (which contains the trigger assembly) is on the upper surface of the outer tube. So are the trigger arming handle, front and rear sight assemblies, and the launcher's rear cover.

b. **Inner Tube.** The inner tube telescopes outward toward the rear, guided by a channel assembly that rides in an alignment slot in the outer tube's trigger housing assembly. The channel assembly also houses the firing pin rod assembly, which includes a detent lever assembly. The detent lever assembly moves under the trigger assembly in the outer tube, locking the inner tube in the extended position and cocking the weapon. All this must occur before the weapon can be fired.

c. **Rocket.** The rocket is a percussion-ignited, fin-stabilized, fixed munition. It is attached by the igniter to the inside of the launcher. The rocket consists of a 66-mm HEAT warhead, a point-initiating, base-detonating fuze, and a rocket motor. Six spring-loaded fins are attached to the rear of the rocket motor. These fins are folded forward along the motor when the rocket is in the launcher. When ignited, the propellant in the rocket motor burns completely, producing gasses about 1,400°F (760°C). The gas pressure pushes the rocket toward the target and exits to the rear of the launcher as the backblast.

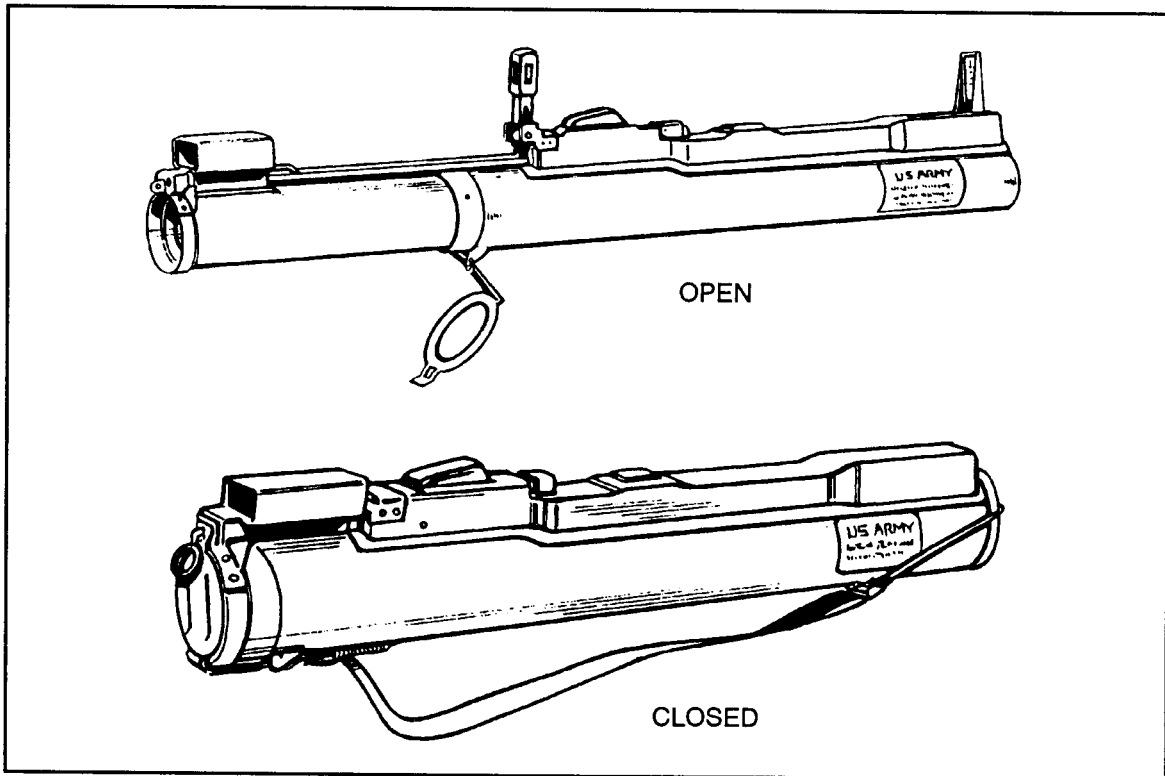


Figure 2-1. The M72A2 or M72A3 LAW.

2-2. TECHNICAL DATA

The following data apply to the M72A2 and M72A3 LAWs:

a. Launcher.

- Length (Extended) Less than 1 meter (34.67 inches)
- Length (Closed) 0.67 meters (24.8 inches)
- Weight (Complete M72A2) 2.3 kg (5.1 pounds)
- Weight (Complete M72A3) 2.5 kg (5.5 pounds)
- Firing Mechanism Percussion
- Front Sight Reticle graduated in 25-meter range increments
- Rear Sight Peep sight adjusts automatically to temperature change

b. Rocket.

- Caliber 66 mm
- Length 50.8 cm (20 inches)
- Weight 1.8 kg (2.2 pounds)
- Muzzle Velocity 144.8 mps (475 fps)
- Minimum Range (Combat) 10 meters (33 feet)
- Minimum Arming Range 10 meters (33 feet)
- Maximum Range 1,000 meters (3,300 feet)

Maximum Effective Ranges

- Stationary Target 200 meters (660 feet)
 - Moving Target 165 meters (541 feet)
- (Beyond these ranges, there is less than a fifty percent chance of hitting the target.)

2-3. AMMUNITION

The M72-series LAW is issued as a round of ammunition. It contains a nonadjustable propelling charge and a rocket. Every M72-series LAW has an integral high-explosive antitank (HEAT) warhead. The warhead is in the rocket's head (or body) section. The fuze and booster are in the rocket's closure section. The propellant, its igniter, and the fin assembly are in the rocket's motor. No inert versions are available (Figure 2-2). Appendix B provides information about appropriate gunnery training devices and ammunition. Although the M72-series LAW is mainly used as an antiarmor weapon, it may be used with limited success against secondary targets such as gun emplacements, pillboxes, buildings, or light vehicles. (Chapter 6 provides more information about combat techniques.)

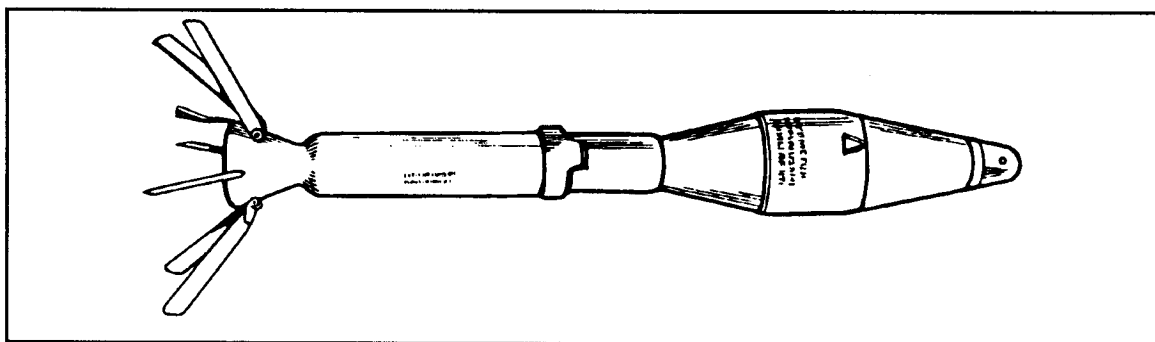


Figure 2-2. High-explosive antitank rocket (ammunition).

a. **Description.** The 66-mm HEAT rocket warhead consists of a tapered, thin-gauge steel body. When it explodes, the force and heat of the explosive focus into a small but powerful gas jet. This directional jet penetrates the target and, if the target is a vehicle, sprays molten metal inside. If the jet hits an engine or ammunition, it may start a fire or cause an explosion. Figure 2-3 shows how the warhead penetrates 300 millimeters of rolled homogeneous steel armor.

(1) **Impact.** The nose cone crushes; the impact sensor activates the fuze.

(2) **Ignition.** The ogive crush switch activates the electric detonator. The booster detonates, initiating the main charge.

(3) **Penetration.** The main charge fires and forces the warhead body liner into a directional gas jet that penetrates armor plate.

(4) **After-armor effects (spalling).** The projectile fragments and incendiary effects produce blinding light and destroy the target's interior.

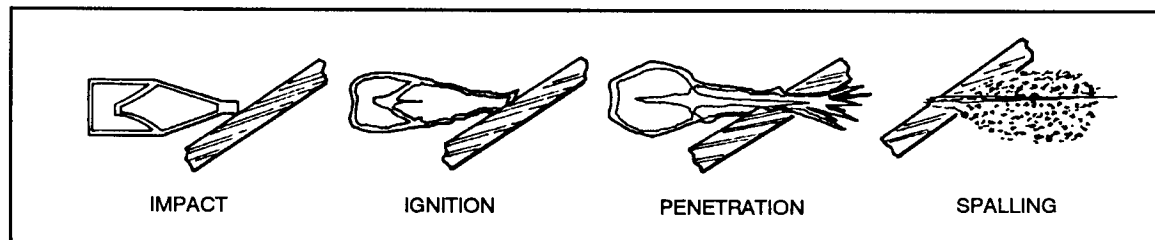


Figure 2-3. Effects of M72-series LAW warhead.

b. **Characteristics.** The head of the round is olive drab stenciled in yellow. The M412 fuze is dropsafe and boresafe. Its minimum arming distance is about 33 feet (10 meters). Six stabilizing fins are attached as part of the motor. As the rocket clears the launcher, springs force open the fins, which stabilize the rocket in flight.

c. **Packaging.** Five complete M72-series LAWS are packaged within a fiberboard inner pack for a total weight of 12.5 kilograms (27 1/2 pounds). Three inner packs are then placed in a wire-bound wooden box, the gross weight of which is 54.5 kilograms (120 pounds) (Figure 2-4).

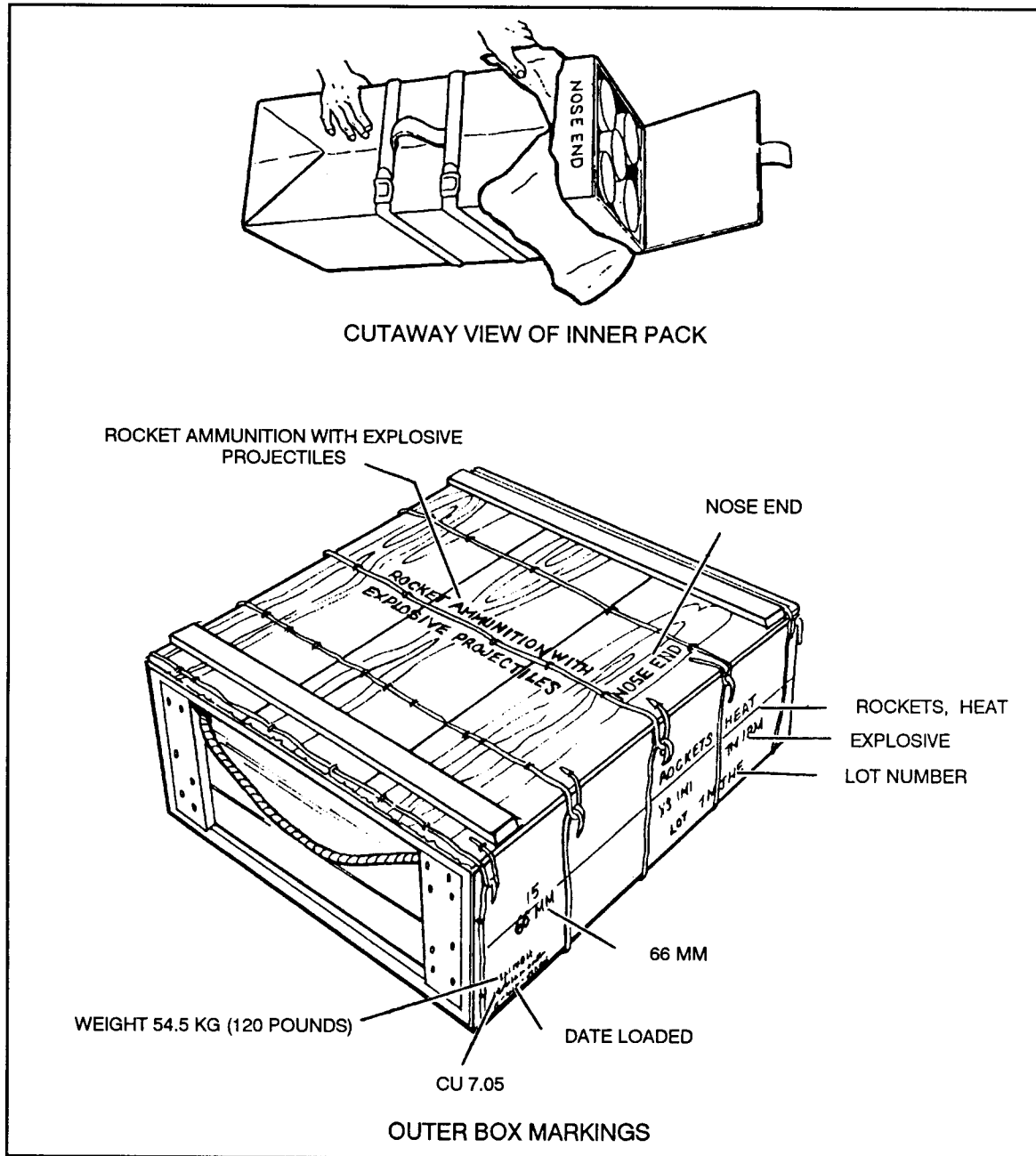


Figure 2-4. Packaging for M72-series LAW.

2-4. INSPECTION

Because the M72-series LAW is issued as a round of ammunition rather than as a weapon, inspection is limited to a visual examination of the sealed unit.

- Inspect the launcher's overall condition before preparing the launcher for use.
- Check the body for dents, cracks, or bulges.
- Check the rubber boots covering the trigger bar and barrel detent for tears or punctures.
- Ensure the arming handle is present and on SAFE and that the pull pin is in place.
- Check the data plate for the phrase, W/COUPLER (Figure 2-5).

DANGER
IF THE M72A2 LAW DOES NOT STATE "W/COUPLER" ON ITS DATA PLATE, TURN THE WEAPON INTO THE UNIT AMMUNITION SECTION.
THE COUPLER PREVENTS THE INNER AND OUTER TUBES FROM SEPARATING AND POSSIBLY CAUSING PREMATURE DETONATION.

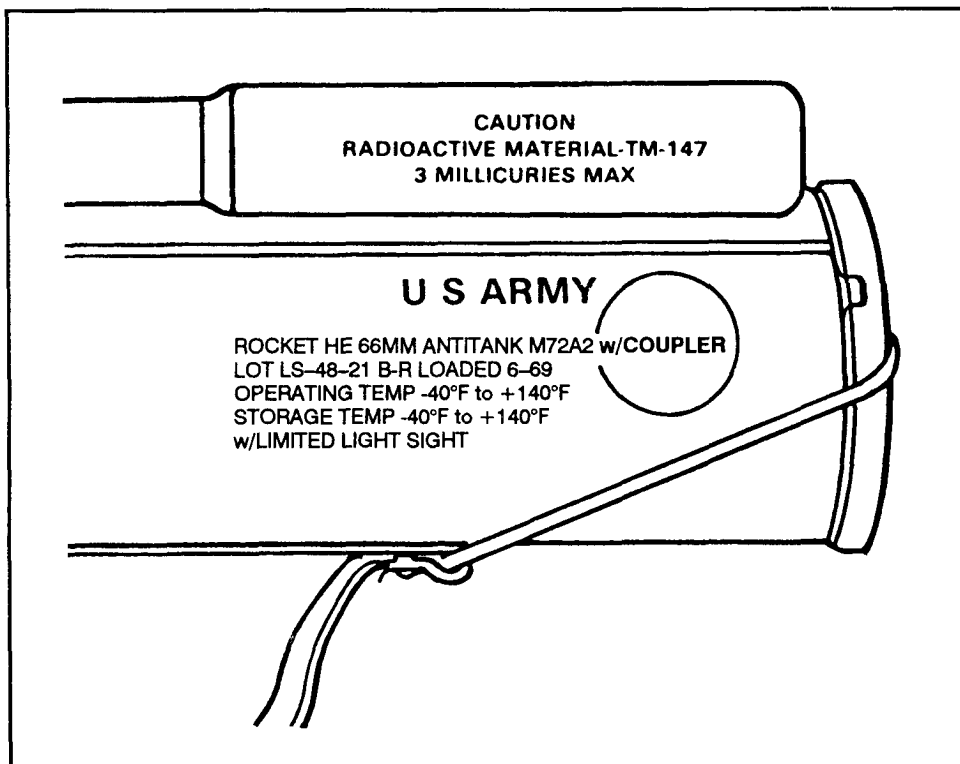


Figure 2-5. Launcher data plate.

2-5. FIRING MECHANISM

The firing mechanism includes the trigger arming handle, the trigger assembly, and the firing pin rod assembly (Figure 2-6).

a. **Trigger Arming Handle.** The trigger arming handle is located forward of the trigger bar and has two positions: SAFE and ARM. Leave the trigger arming handle on SAFE until the launcher is in the correct firing position (Figure 2-7). To press the trigger, you must first pull the arming handle forward and lock it in the ARM position.

b. **Trigger Assembly.** The trigger assembly is on the top rear of the outer tube. To fire the launcher, press downward on the trigger bar.

c. **Firing Pin Rod Assembly.** The rear sight cover and the firing pin housing are on the top of the rear of the inner tube. Inside the housing, the primer and the firing pin rod are aligned (Figure 2-8, page 2-8). Pressing the trigger bar releases the tension on the firing pin rod assembly, allowing the firing pin to strike the center of the primer.

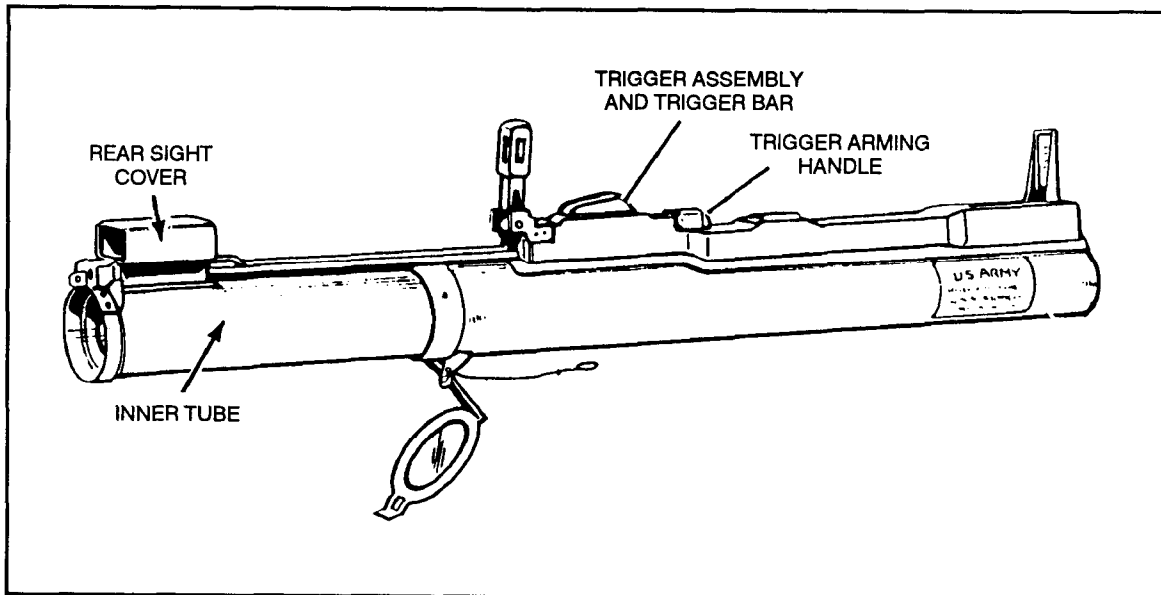


Figure 2-6. Firing mechanism.

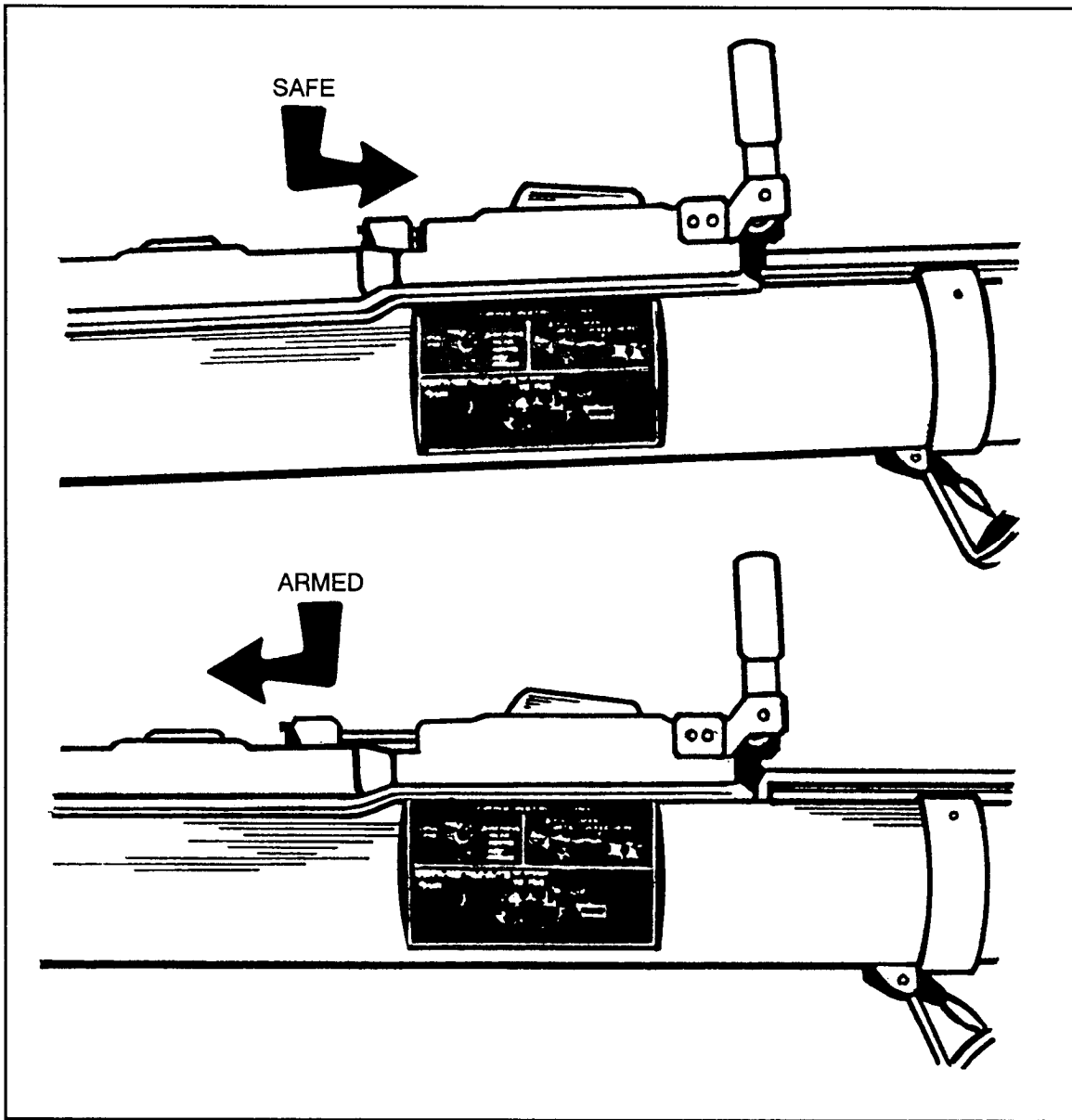


Figure 2-7. Trigger arming handle.

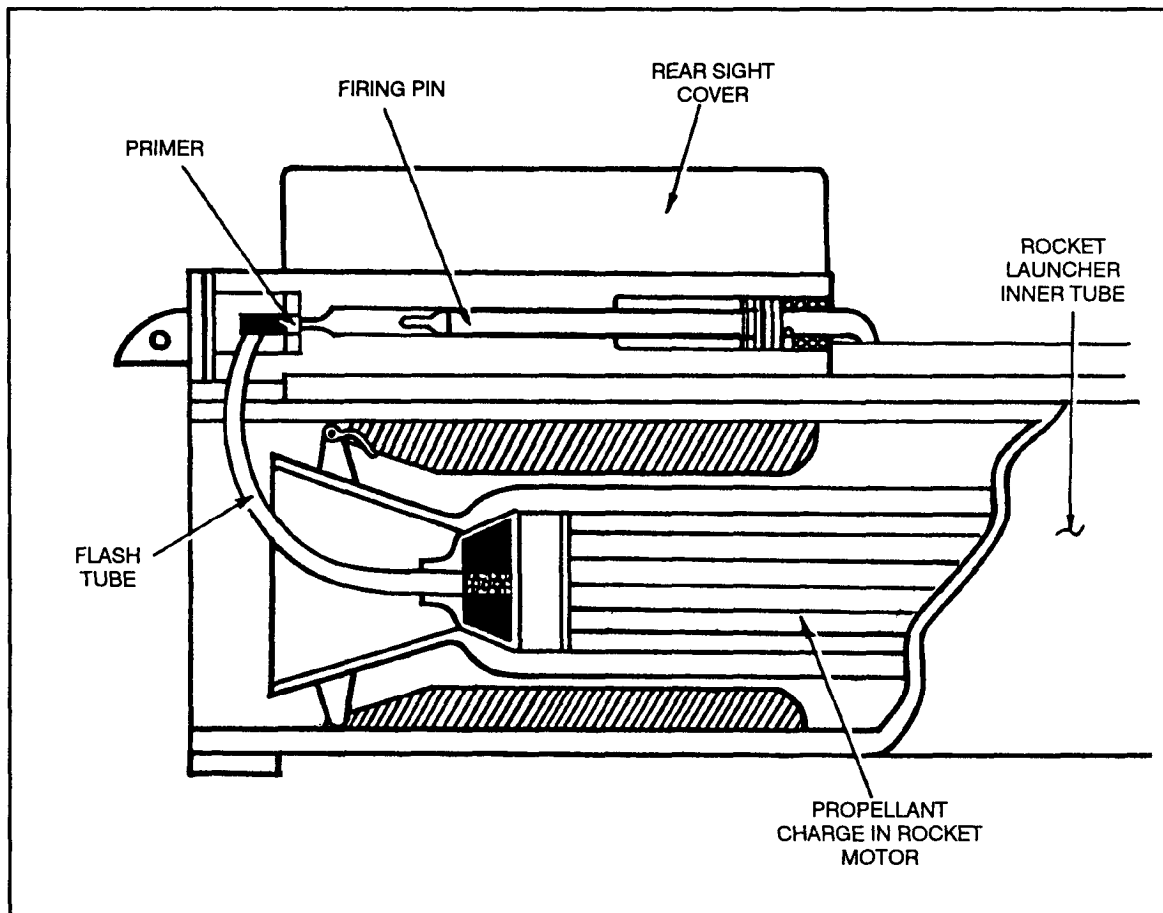


Figure 2-8. Firing pin, primer, and propellant charge.

2-6. SIGHTS

This paragraph discusses the front and rear sights and their proper use.

a. **Front Sight, M72A2 and M72A3 LAWs.** The front sight has a raised vertical range line marked with ranges from 50 to 350 meters in 25-meter increments (Figure 2-9). Two curved stadia lines are etched on the front sights. Do not use the stadia lines on this sight to estimate range, because they are inaccurate. Lead indicators are located on either side of the stadia lines to help you engage moving targets. On the M72A3, use the front sight illuminated range marks at the 100-meter and 150-meter points to help you engage targets in low light.

WARNING
DO NOT TOUCH THE RANGE MARKS; THEY ARE ILLUMINATED WITH PROMETHIUM, WHICH IS MILDLY RADIOACTIVE.

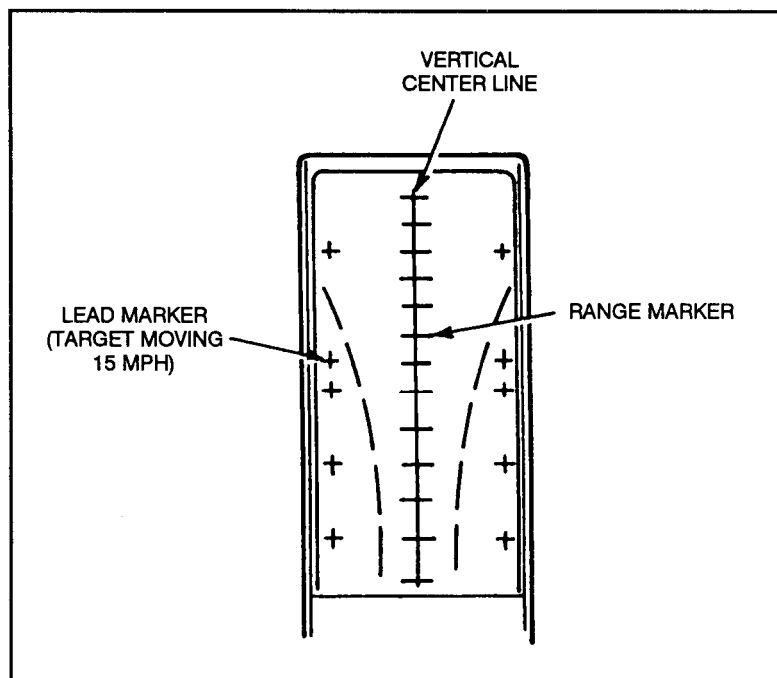


Figure 2-9. Front sight, M72A2 and M72A3 LAWs.

b. **Rear Sight, M72A2 and M72A3 LAWs.** The rear sight consists of a steel bracket with a rubber boot and plastic peep sight. This sight automatically adjusts to changes in temperature (Figure 2-10), which means that its settings are unaffected by temperature.

c. **AN/PVS-4 Nightsight.** This nightsight is issued with various accessories, including a bracket that, when mounted on an M72-series LAW, will allow you to use an AN/PVS-4 on the LAW. However, this works only if DS maintenance has already installed an M72A1 reticle in the AN/PVS-4. Though the reticle was developed for the M72A1 LAW, you can also use it with the other M72-series models. To mount the M72A1 bracket assembly on the LAW—

(1) Place the bracket assembly on top of the rocket launcher (Figure 2-11) so that the square cutout in the top of the bracket fits over the extension release button.

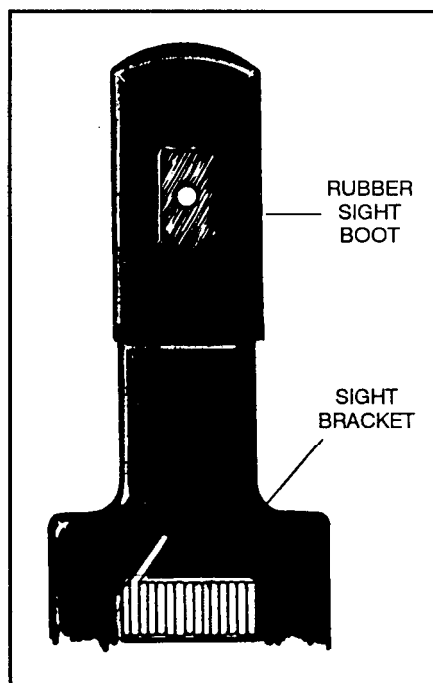


Figure 2-10. Rear sight, M72A2 and M72A3 LAWs.

(2) Swing the lower adapter section up and under the rocket launcher and secure it by turning the locking latch clockwise to fully engage the latch shoulder screw.

(3) Place the sight in the groove on the bracket and align the threaded screw hole in the base of the sight with the lever screw assembly. Tighten the lever screw assembly firmly.

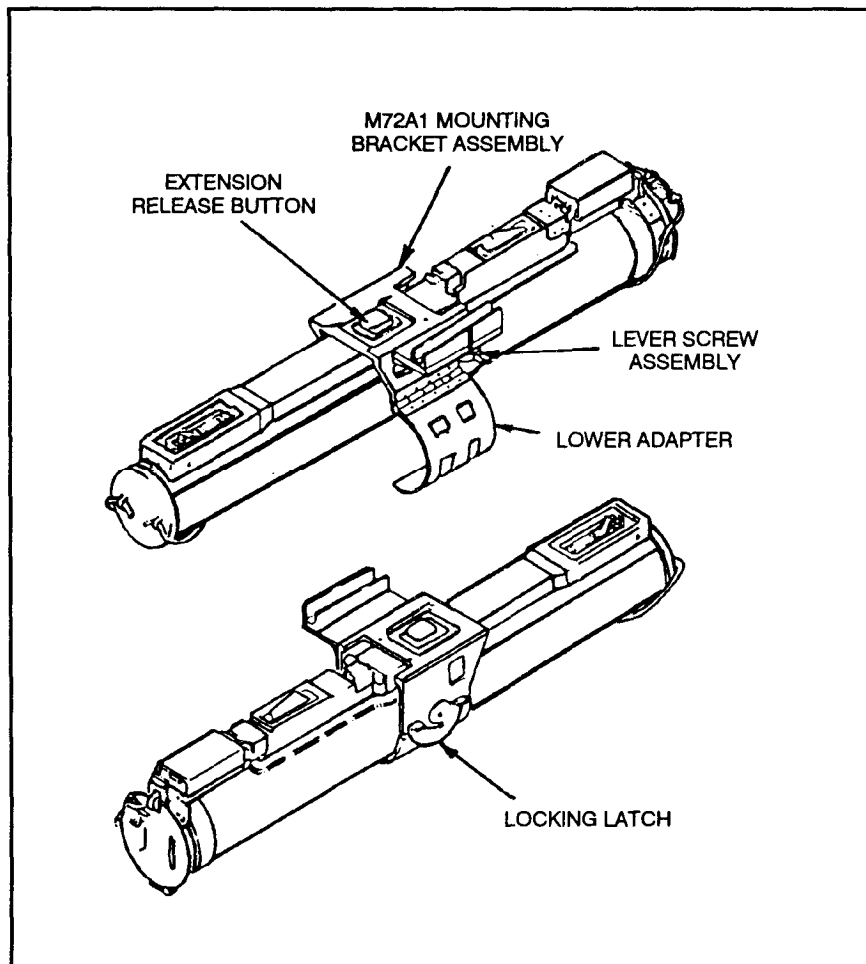


Figure 2-11. Installing M72A1 mounting bracket assembly.

(4) Use the M72A1 reticle to estimate the range to a 20-foot target such as a tank viewed from the side (Figure 2-12). Place the sight so that the rear and front of a flanking target fit between the curved vertical lines (Figure 2-13). When you read the range from the scale, note that the width of the tank is about one-half the tank's length. This means you can estimate the range to a target, whether it is headed straight toward you or straight away from you, by placing its sides between the curved vertical lines and halving the range shown at that point. The bottom of each vertical line in the center of the reticle corresponds to an additional 25 meters. The length of a horizontal line represents 5 mils, and the spaces between lines represent 5 mils.

Use the stadia lines to estimate range only when using the AN/PVS-4's M72A1 reticle pattern.

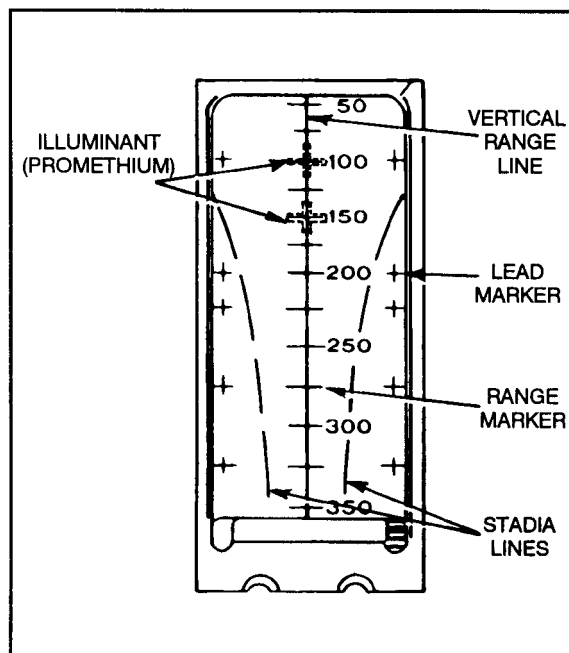


Figure 2-12. M72A1 reticle.

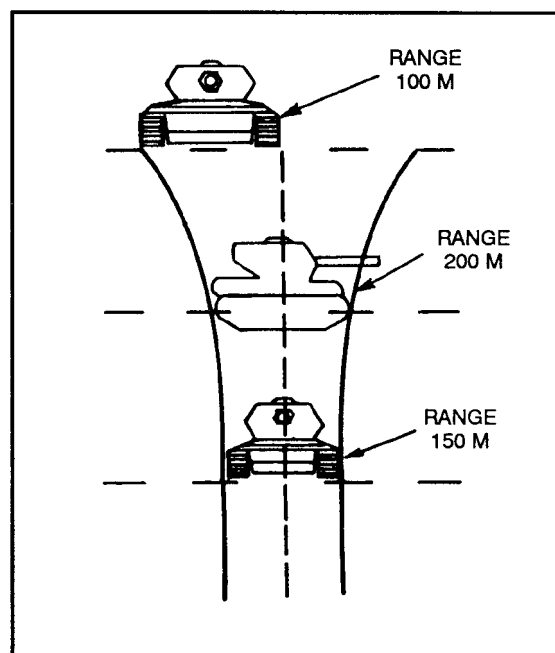


Figure 2-13. Using M72A1 stadia lines to engage targets.

(5) Align the nightsight's reticle pattern to the LAW sights only once. After that, you can move the nightsight from LAW to LAW without having to realign it each time (Figure 2-14, page 2-12). To align the sight reticle pattern to the LAW sights, place a target at 25 meters. Install the mounting bracket and sight, and select a stable firing position for the LAW. Turn both the TUBE BRIGHTNESS and RETICLE BRIGHTNESS knobs ON. Align the 200-meter range mark on the daysight with the aiming point on the target. Without moving the LAW, adjust the nightsight reticle so that its 200-meter range mark coincides with an aiming point 6.3 centimeters left and 3.5 centimeters above-the target aiming point.

DANGER
 IF YOU CANNOT FIND AN EMPTY LAUNCHER TO USE TO ALIGN THE NIGHTSIGHT, YOU MAY USE AN UNFIRED MUNCHER, BUT THIS IS EXTREMELY DANGEROUS.

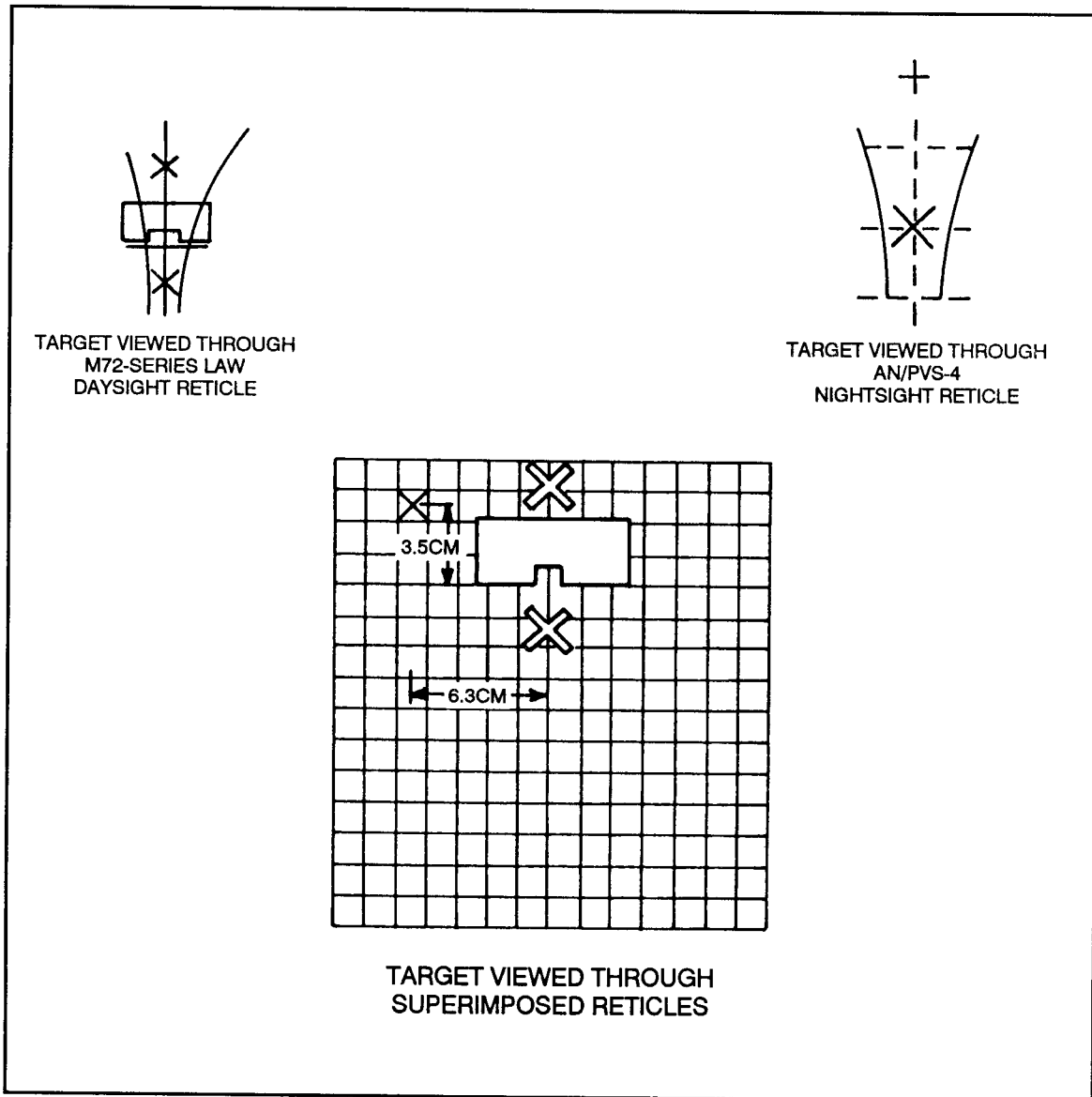


Figure 2-14. M72A1 alignment target for the AN/PVS-4.

2-7. OPERATION AND FUNCTION

Before preparing the launcher for use, the firer inspects its overall condition.

a. To extend the rocket launcher—

(1) Remove the pull pin and rotate the rear cover downward so the front cover and adjustable sling assembly can fall free (Figures 2-15 and 2-16). Do not discard the sling assembly until after you fire the rocket.

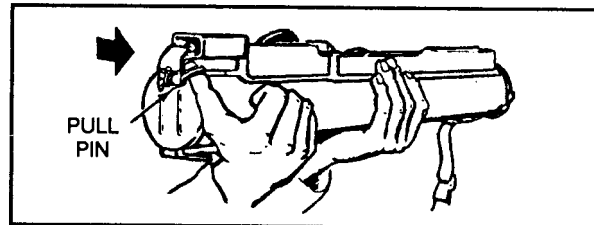


Figure 2-15. Removing the pull pin.

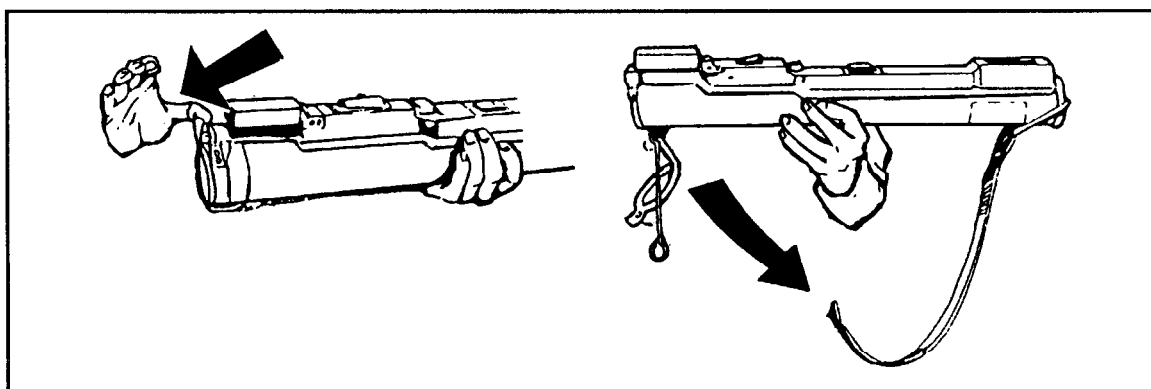


Figure 2-16. Removing the front cover and the adjustable sling assembly.

(2) With your firing hand, grasp the rear sight cover; with your nonfiring hand, grasp the launcher forward of the barrel detent. Pull your hands sharply in opposite directions to extend the launcher (Figure 2-17). To ensure the launcher is fully extended and locked, try to close it (Figure 2-18, page 2-14).

b. To fire the rocket launcher, raise it slightly above shoulder level, rotate your body under it, and place it on your shoulder. *Check the backblast area*, pull the trigger arming handle to the ARM position, aim the launcher, and depress the rubber boot on the trigger bar firmly to ensure the launcher fires (Figure 2-19, page 2-14). (If the trigger arming handle will not remain in the ARM position, the launcher is not fully extended.) Press the trigger bar causes the firing pin to strike the primer, which ignites the black powder in the flash tube, which in turn ignites the propellant in the rocket motor.

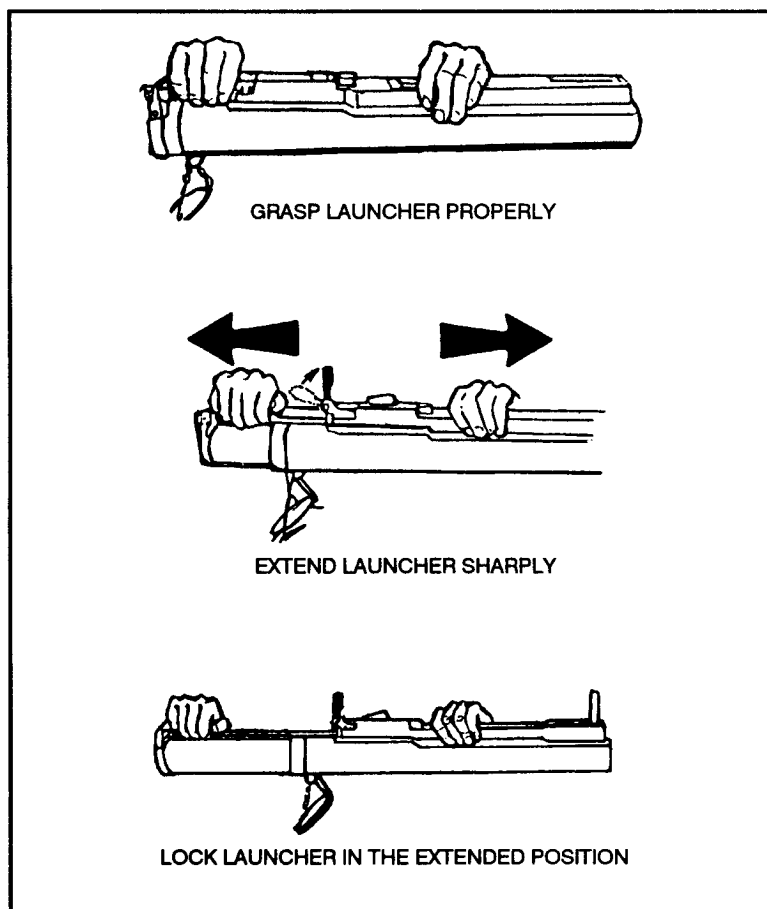


Figure 2-17. Extending the launcher.

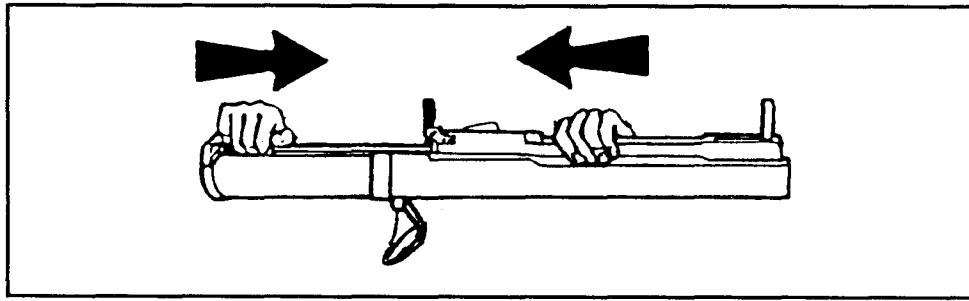


Figure 2-18. Ensuring launcher is locked in the extended position.

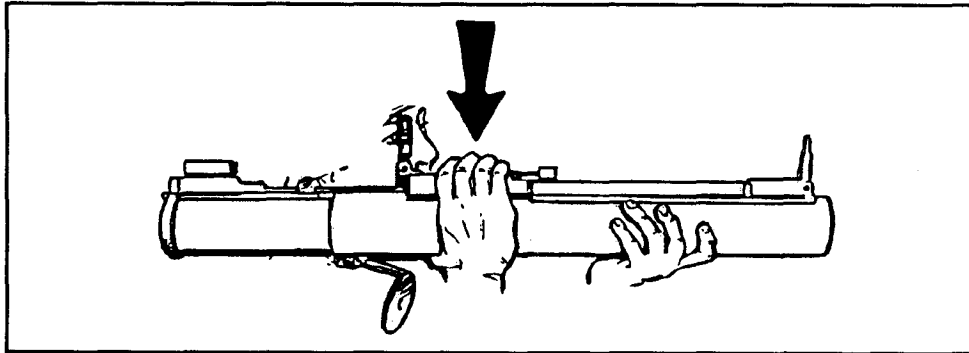


Figure 2-19. Firing the launcher.

DANGER
 WHEN OPERATING THE LAW, KEEP IT POINTED DOWNRANGE. ENSURE YOUR WHOLE BODY IS CLEAR OF THE MUZZLE AND REAR OF THE MUNCHER, AND ENSURE THE BACKBLAST AREA IS CLEAR.

2-8. MISFIRE PROCEDURES

A misfire is a complete failure to fire caused by a procedural or mechanical failure. Which misfire procedures should be used depends on whether the firer is in a combat or training environment.

- a. **Causes.** A misfire is usually caused by one of the following factors:
- The launcher may not be fully extended.
 - The trigger arming handle may not be armed.
 - The firing mechanism or the propelling charge explosive train may be faulty.

WARNING
 KEEP YOUR WEAPON POINTED TOWARD THE TARGET.

- b. **Combat Environment.** If a misfire occurs in combat—
- (1) Squeeze the trigger again immediately.

- (2) If the launcher still fails to fire, place the trigger arming handle on SAFE.
- (3) Partly collapse the launcher, then extend it to cock it again.
- (4) Place it on your shoulder, check the backblast area again, then arm, aim, and fire.

(5) If the LAW still fails to fire, squeeze the trigger again and return the trigger arming handle to SAFE. Collapse the launcher, set it aside, and try another one. As soon as you can, dispose of the misfired LAW in accordance with SOP.

c. **Training Environment.** If an M72A2, M72A3, or M190 subcaliber device misfires on a live-fire training range—

- (1) Squeeze the trigger again.
- (2) If the launcher still fails to fire, keep the launcher on your shoulder, announce “Misfire,” and wait 10 seconds. Place the trigger arming handle on SAFE.
- (3) Move the launcher from your shoulder and wait one minute.
- (4) Extend the launcher to cock it again, check the backblast area, place the launcher back on your shoulder, pull the arming handle to the ARM position, aim, and squeeze the trigger bar.
- (5) If the launcher again fails to fire, wait 10 seconds before returning the trigger arming handle to the SAFE position.
- (6) Keep the launcher trained on the target area at least one minute; **DO NOT** collapse the launcher.
- (7) Move the launcher to a safe area and dispose of it IAW unit SOP.

2-9. RESTORATION TO CARRYING CONFIGURATION

If the launcher is prepared to fire, but then is not fired, it should be returned to the carrying configuration by reversing the preparation procedure. After the launcher has been prepared for firing, it is no longer watertight. Therefore, when carrying the launcher, sling it over either shoulder with the muzzle (forward) end down. Only the rocket and rocket motor ignition system are waterproof.

- a. Return the trigger arming handle to the SAFE position.
- b. Remove the launcher from your shoulder, depress the barrel detent, collapse the launcher tube, and guide the front and rear sights into position.
- c. Close the rear cover, replace the cover pull pin, and replace the sling assembly.

WARNING
TO PREVENT INJURY, REMOVE YOUR THUMB FROM THE DETENT AFTER
COLLAPSING THE LAUNCHER 1/2 TO 1 INCH.