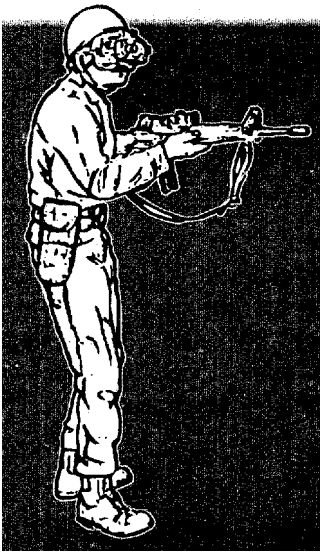
TM 11–5855–261–10

HEADQUARTERS, DEPARTMENT OF THE ARMY



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EQUIPMENT DESCRIPTION PAGE 8

OPERATING INSTRUCTIONS PAGE 21

MAINTENANCE INSTRUCTIONS PAGE 73

COMPONENTS OF END ITEM LIST PAGE 85

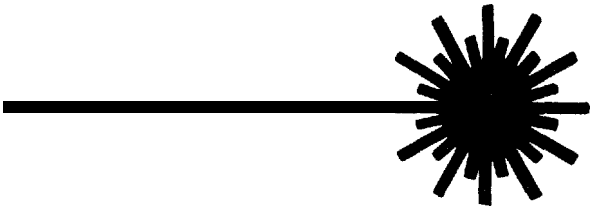
INFRARED AIMING LIGHT

AN/PAQ-4

(NSN 5855-01-107-5925)

28 MAY 1981

WARNING



Although the laser light from the aiming light is considered eye safe, you should take care to avoid possible damage to your eye by not looking directly into the lens. Be careful not to expose friendly personnel to the laser light.

The battery contains mercury and should be handled in the following manner:

1. Do not dispose in fire.
2. Do not short circuit.
3. Return batteries to Property Disposal Officer for disposal in accordance with DLSC Handbook 41601.

TECHNICAL MANUAL

No. 11-5855-261-10

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 28 May 1981

OPERATOR'S MANUAL
AIMING LIGHT, INFRARED AN/PAQ-4
(NSN 5855-01-107-5925)

REPORTING OF ERRORS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 directly to: Commander, U.S. Army Communications and Electronics Materiel Readiness Command, ATTN: DRSEL-ME-MQ, Fort Monmouth, New Jersey 07703. A reply will be furnished to you.

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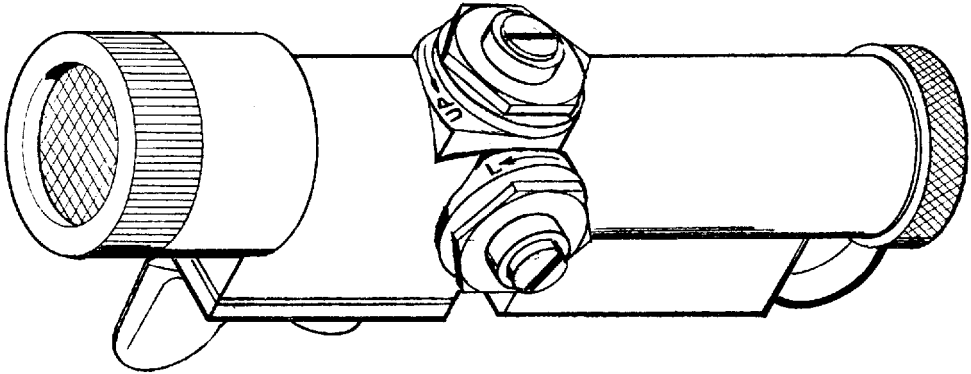


Aiming Light, Infrared AN/PAQ-4

CHAPTER 1

INTRODUCTION

Section I. GENERAL INFORMATION

1-1. SCOPE

This manual is for your use for the operation, attachment, battlesight zeroing, and maintenance of Aiming Light, Infrared AN/PAQ-4 (aiming light).

1-2. MAINTENANCE FORMS AND RECORDS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, the Army Maintenance Management System (TAMMS).

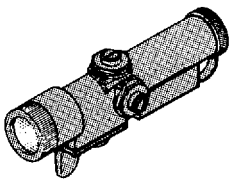
1-3. DESTRUCTION OF ARMY ELECTRONICS MATERIAL

Destruction of Army Electronics material to prevent enemy use shall be in accordance with TM 750-244-2.

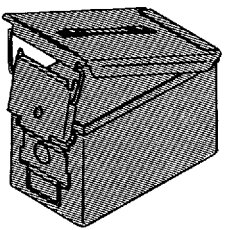
1-4. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIRs)

EIRs can and must be submitted by anyone who is aware of an unsatisfactory condition with the equipment design or use. It is not necessary to show a new design or list a better way to perform a procedure, just simply tell why the design is unfavorable or why a procedure is difficult. EIRs may be submitted on DA Form 2407. Mail directly to Commander, U.S. Army Communications and Electronics Materiel Readiness Command, ATTN: DRSEL-ME-MQ, Fort Monmouth, New Jersey 07703. A reply will be returned to you .

Equipment Used By The Operator

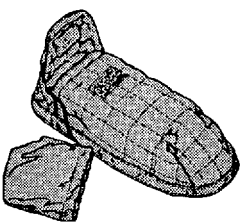


AIMING LIGHT

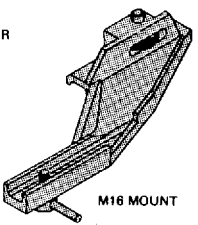


STORAGE CASE

ARCTIC ADAPTER

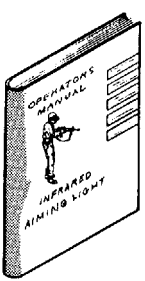


CARRYING BAG



M16 MOUNT

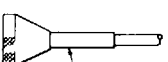
SCATTERSHIELD



OPERATORS MANUAL

BATTERIES

LENS PAPER



MANDREL

Section II. EQUIPMENT DESCRIPTION

1-5. EQUIPMENT PURPOSE, CAPABILITIES, AND FEATURES.

Purpose of Aiming Light

The aiming light increases the accuracy of your fire at night. After it is properly installed and zeroed on your weapon, and turned ON, the aiming light sends out an invisible pulsing light beam along the line of sight. The light beam can be seen only with night vision equipment such as Night Vision Goggles, AN/PVS-5, or AN/PVS-5A (TM 11-5855-239-10). Wearing your night vision goggles, you place the projected spot of light on the target and fire. The fired round should impact in the center of the spot of light on the target. You, therefore, can fire your weapon accurately at night by placing the spot of light on your target.

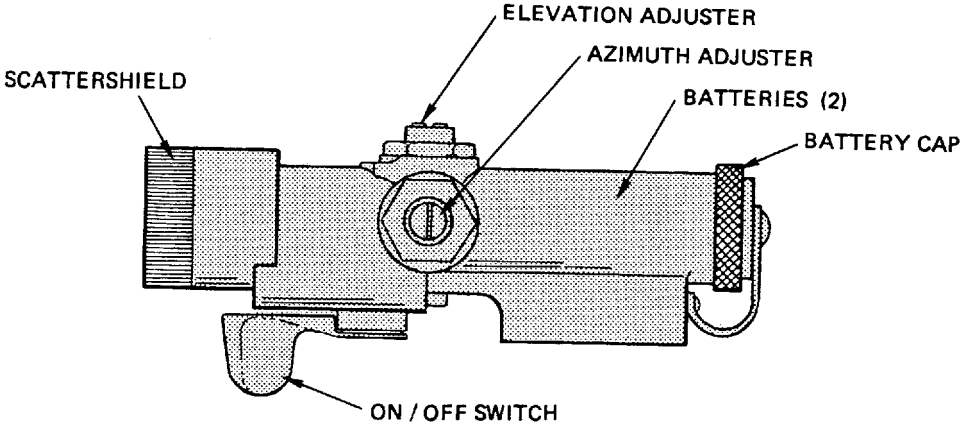
Capabilities and Features

As an operator, you will need to know about these components:

- Batteries
- Scattershield
- Azimuth adjuster
- Elevation adjuster
- ON/OFF switch
- Mounting brackets
- Low temperature adapter
- Carrying bag

You should also know these features about Aiming Light:

- Easily attached to the M16 rifle, M60 machine gun, M67 recoilless rifle, and M72 rocket launcher.
- Self-contained, battery powered
- Easy to maintain
- Lightweight and easily carried in a carrying bag
- Can be used in extreme cold to -22°F (-30°C) (with low temperature adapter to -65°F (-54°C))


ELEVATION ADJUSTER
AZIMUTH ADJUSTER
SCATTERSHIELD
BATTERIES (2)
BATTERY CAP
ON / OFF SWITCH

1-6. LOCATION AND DESCRIPTION OF COMPONENTS

BATTERIES. Two batteries provide power for the electronics. They are located in the battery case at the rear of the aiming light. The batteries are easily removed by unscrewing the battery cap.

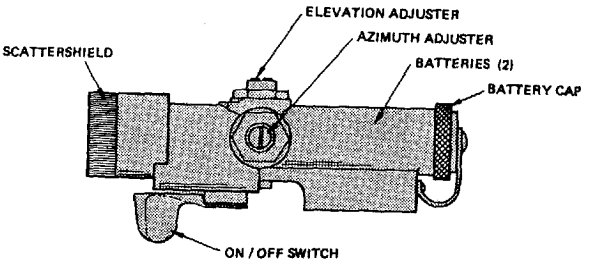
BATTERY CAP. The battery cap is attached to the body of the aiming light by a strap to prevent its loss. It protects the batteries from exposure and loss.

SCATTERSHIELD. A scattershield is located at the front of the aiming light. This shield confines the light in a narrow beam. The shield is easy to unscrew for inspection. One scattershield is provided in the equipment and a second is provided as a spare.

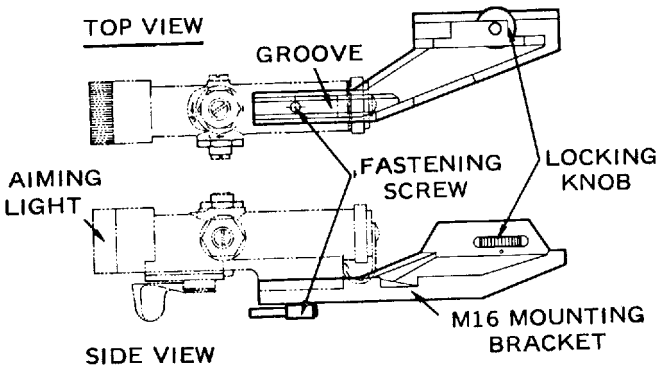
AZIMUTH ADJUSTER. An azimuth adjuster is located on the left side of the aiming light. This adjuster moves the light beam left or right to align it with the weapon barrel.

ELEVATION ADJUSTER. An elevation adjuster is located on top of the aiming light. This adjuster moves the light beam up or down to align it with the weapon barrel.

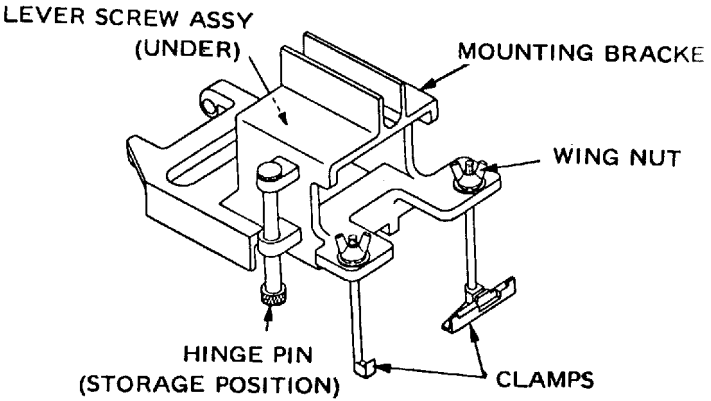
ON/OFF SWITCH. The ON/OFF switch is located on the bottom of the aiming light. The switch allows power from the two batteries to operate the aiming light.



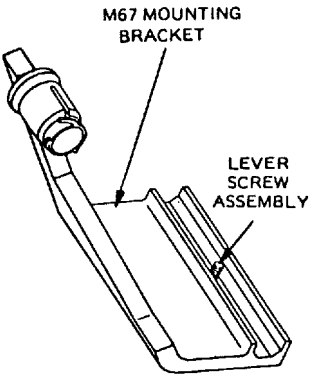
MOUNTING BRACKET, M16 RIFLE. This bracket fastens the aiming light securely to the M16 rifle.



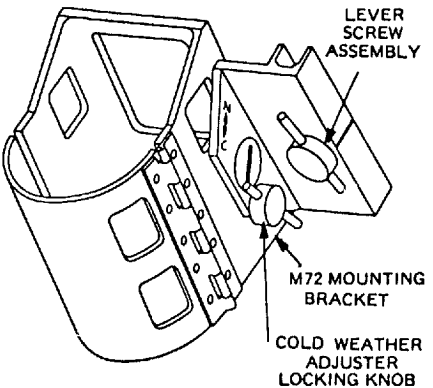
MOUNTING BRACKET, M60 MACHINE GUN. This bracket fastens the aiming light securely to the M60 machine gun.



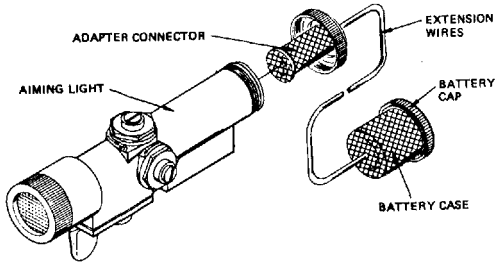
MOUNTING BRACKET, M67 RECOILLESS RIFLE. This bracket fastens the aiming light securely to the M67 recoilless rifle.



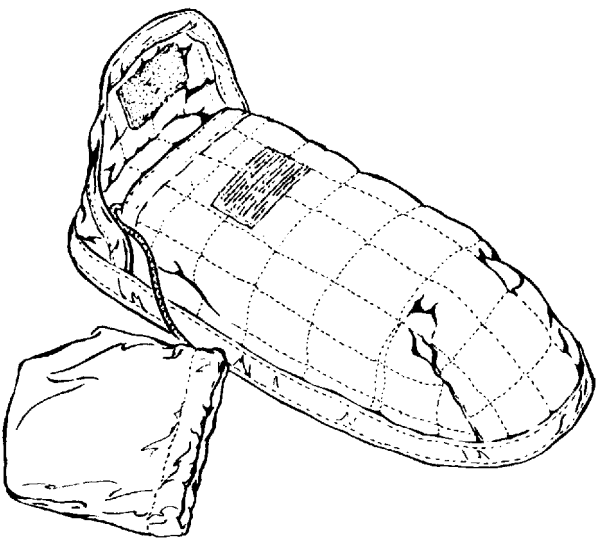
MOUNTING BRACKET M72 ROCKET LAUNCHER. This bracket fastens the aiming light securely to the M72 rocket launcher.



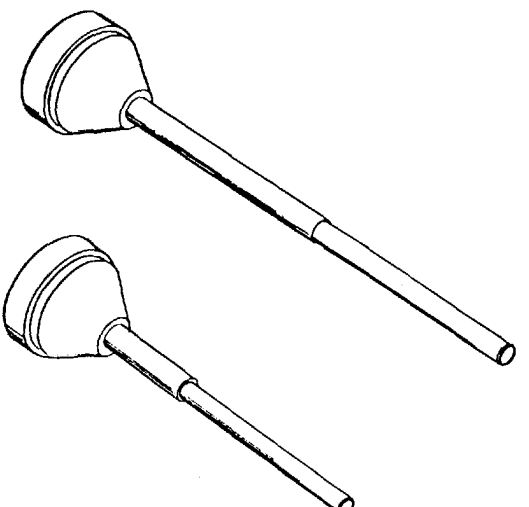
LOW TEMPERATURE ADAPTER. This adapter provides extension wires so the battery can be placed inside your clothing to keep the battery warm in extremely cold weather.



CARRYING BAG. This bag attaches to your equipment belt. Space is provided for the aiming light, a spare scattershield, four extra batteries, an M16 rifle mounting bracket, and the low temperature adapter.



ALIGNMENT MANDREL. This mandrel is used during the process of battlesight zeroing and aligning the aiming light and your weapon. There are two configurations. The shorter mandrel is approximately 5 inches (13 cm) long and is used with the M16 Rifle. The longer mandrel is used with the M60 Machine Gun and is approximately 7 inches (18 cm) long.



1-7. PERFORMANCE DATA

WEIGHT AND DIMENSIONS

Aiming Light	
Weight (with batteries)	300g (9 oz)
Length	16 cm (6.3 in.)
Width	4.25 cm (1.67 in.)
Height	5.3cm (2.1 in.)
Low Temperature Adapter	
Weight (without batteries)	57g (2 oz)
Length of Cable	75 cm (29.5 in.)

PERFORMANCE

Range	100M (109.4 yards)
Battery Life (70°F (21°C))	100 hours
Reliability	10,000 10 second operations before failure

CHAPTER 2

OPERATING INSTRUCTIONS

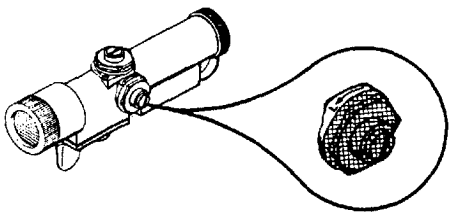
Section I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

2-1. CONTROLS AND INDICATORS.

You will need to know how to operate these controls:

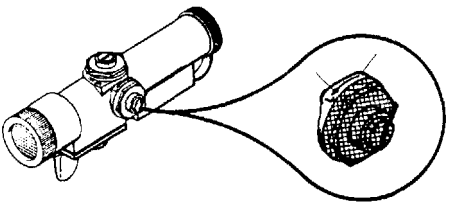
- o Azimuth adjuster
- o Elevation adjuster
- o ON/OFF switch

Azimuth Adjuster.



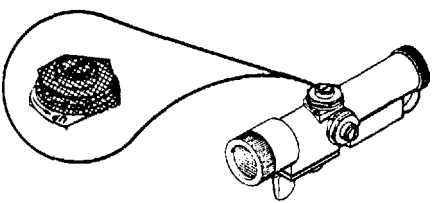
The azimuth adjuster is located on the left side of the aiming light. The adjuster can be turned by inserting a

cartridge rim, coin, or similar item, into the turn slot. An arrow labeled L for left is located on the housing near the adjuster. Turn the adjuster in the direction of the arrow to move the shot pattern left. Turn the adjuster in the opposite direction to move the pattern right.



Elevation Adjuster.

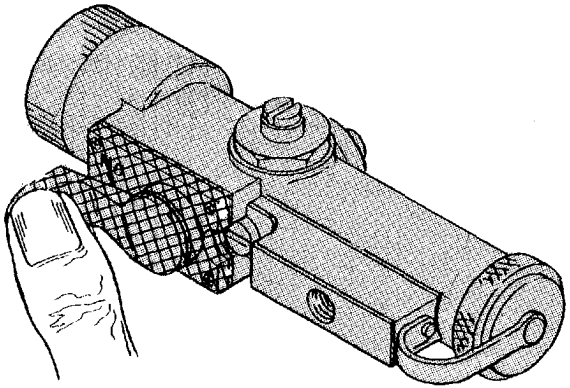
The elevation adjuster is located on top of the aiming light. The adjuster can be turned by inserting a cartridge rim, coin, or similar item, into the turn slot. An arrow labeled UP is located on the housing near the



adjuster. Turn the adjuster in the direction of the arrow to move the shot pattern up. Turn the adjuster in the opposite direction to move the shot pattern down.

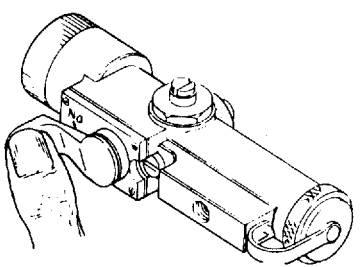
ON/OFF Switch.

The ON/OFF switch has three positions: ON, OFF and momentary. Push the switch lever fully to the right to turn the light on. The switch is held on with a detent. Push the lever back and the light will turn off. If the lever is pushed less than half way to the right, it will spring back to OFF. This is the momentary position.



NOTE

When the aiming light is mounted on the M16 rifle, it is used in the momentary position. The ON/OFF switch lever is prevented from moving to the full ON position when the lever contacts the rifle hand guard. The lever is held against the hand guard during operation by pressure from the left thumb. Release the thumb and the lever returns to OFF. For the M60 machine gun, M67 recoilless rifle, and M72 rocket launcher, the lever is pressed to full ON and held on by detent.



Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

2-2. GENERAL

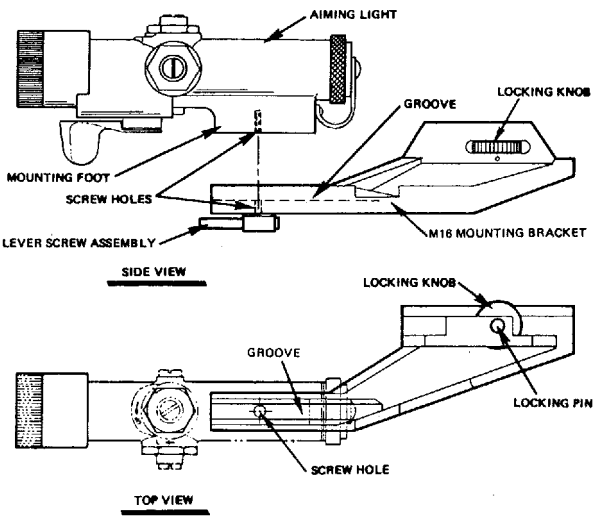
Before you operate the aiming light, always check your batteries for signs of acid leakage or bulging by making sure the battery is loose in its green plastic cover. If there is leakage or bulging, replace the batteries. Check the battery nipples and the contact in the aiming light for dirt and clean as required. If your equipment fails to operate, troubleshoot as much as allowed by the instructions given in Chapter 3. Report any problems using the proper forms as required by TM38-750. Routine checks must be performed each time the aiming light is to be installed on a weapon and used. Routine checks include checking for cleanliness and dents or cracks in the aiming light.

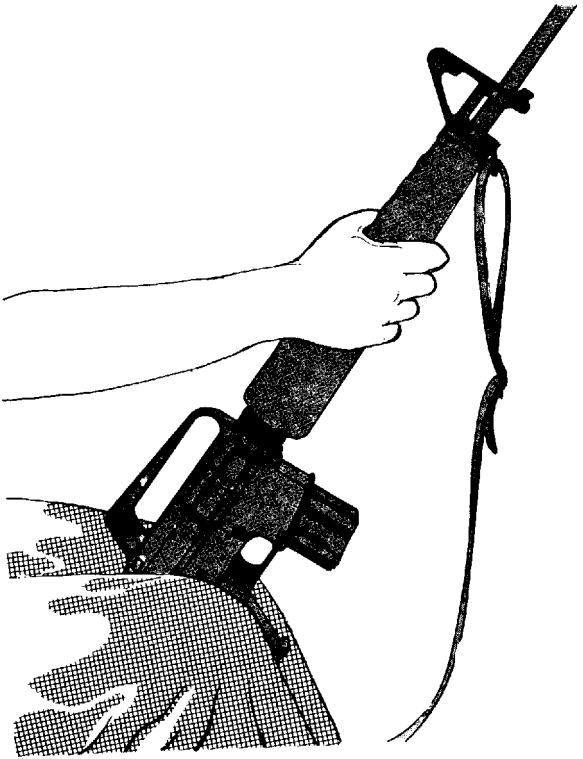
Section III. OPERATION UNDER USUAL CONDITIONS

2-3. ATTACHMENT PROCEDURES.

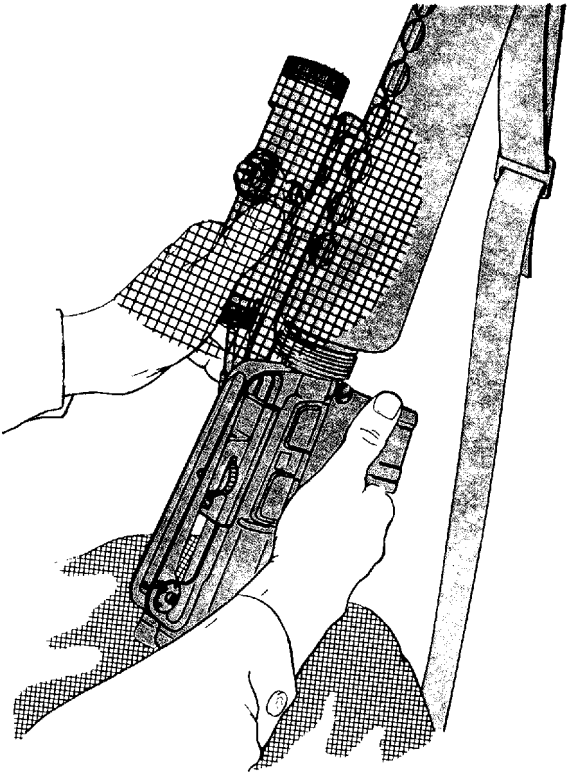
You must know how to attach the aiming light to the mounting bracket and then attach both of them to your weapon.

Procedure for Attaching the Aiming Light to M16 Rifle Mounting Bracket

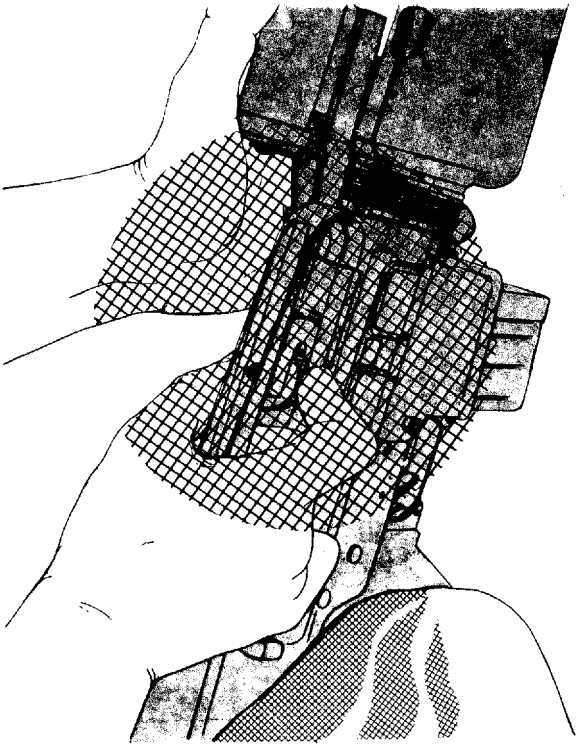




Place the M16 rifle between your knees with the barrel forward.



Insert the aiming light mounting foot into the M16 mounting bracket groove as shown.



Move the aiming light into the groove to line up the screw holes with the lever screw. Tighten the lever screw assembly.

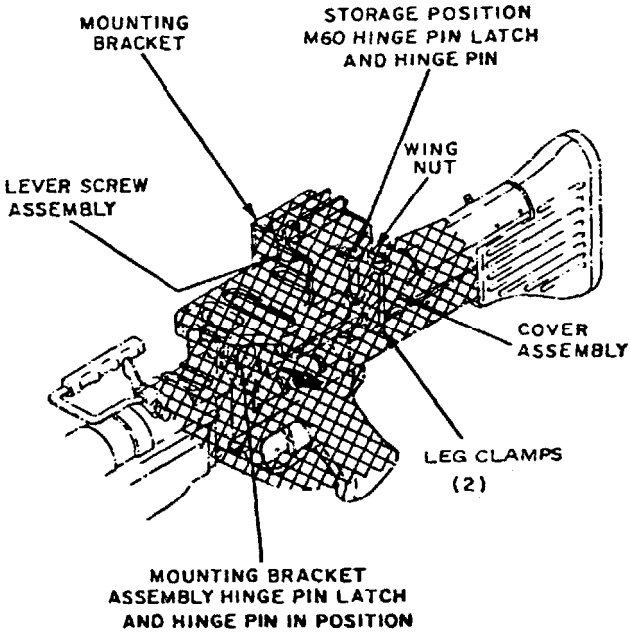
NOTE

The aiming light is attached to the M60 machine gun, M67 recoilless rifle, and M72 rocket launcher by first attaching the mounting bracket to the weapon and then attaching the aiming light to the mounting bracket.

Procedure for Attaching the Mounting Bracket and Aiming Light to the M60 Machine Gun

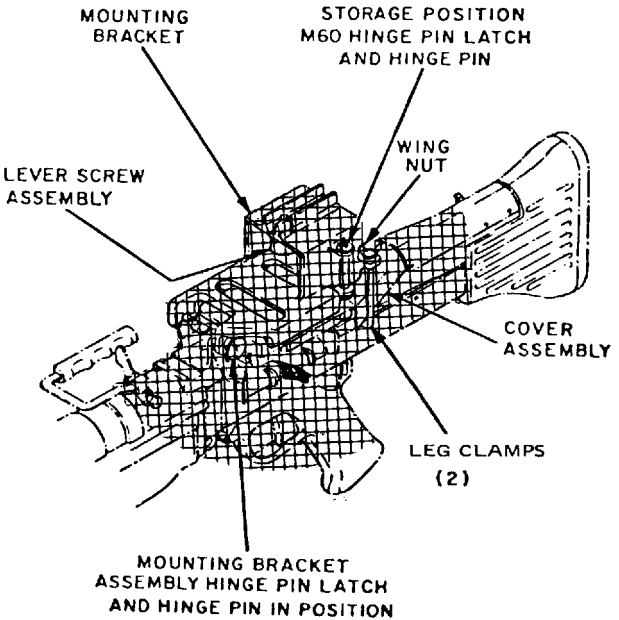
Remove the M60 hinge pin latch and hinge pin from the cover assembly by pressing on the latch (open end of pin) with an empty cartridge case and separate the latch and pin. Place the pin latch in the aiming guides on the left side of the mounting bracket and press together.

Position the mounting bracket assembly on top of the machine gun cover so that the holes in the front of the bracket align with cover assembly pin holes.



Insert the longer hinge pin supplied with the bracket through the bracket and cover assembly and secure by inserting the hinge pin latch.

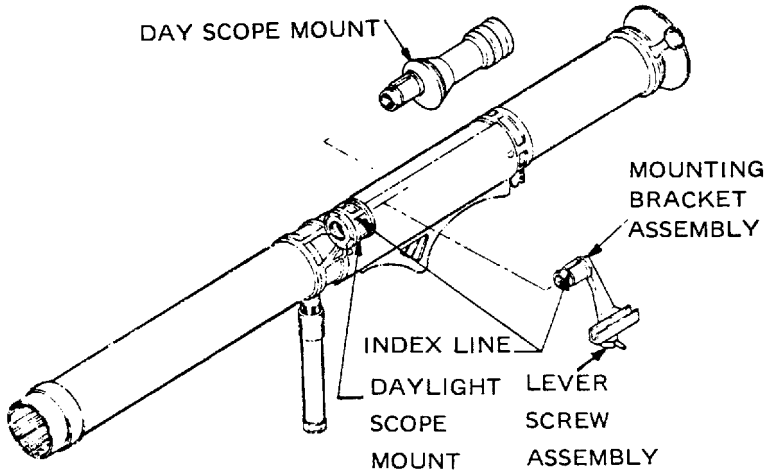
Loosen the wingnuts on both leg clamps and position the clamps under the cover assembly. Secure the mounting bracket by tightening the wingnuts firmly.


MOUNTING BRACKET
STORAGE POSITION M60 HINGE PIN LATCH AND HINGE PIN
WING NUT
LEVER SCREW ASSEMBLY
COVER ASSEMBLY
LEG CLAMPS (2)
MOUNTING BRACKET ASSEMBLY HINGE PIN LATCH AND HINGE PIN IN POSITION

NOTE

The split washer should be next to the wingnut and the flat washer next to the bracket.

Install the aiming light on the M60 mounting bracket assembly by positioning it in the groove on top of the bracket so that the screw hole on the bracket is aligned with the screw hole on the aiming light mounting foot. Tighten the lever screw assembly to secure the aiming light to the bracket. Use an empty cartridge case placed over the lever arm to increase leverage as you tighten the screw.


DAY SCOPE MOUNT
MOUNTING
BRACKET
ASSEMBLY
INDEX LINE
DAYLIGHT
SCOPE
MOUNT
LEVER
SCREW
ASSEMBLY

Procedure for Attaching the Mounting Bracket and Aiming Light to the M67 Recoil less Rifle

Remove the daylight scope, if installed, by turning it clockwise until it stops rotating. Withdraw daylight scope, allowing it to rotate slowly counterclockwise.

Position the M67 mounting bracket so that the index line on the bracket is aligned with the index line on the daylight scope mount. Press the bracket assembly into the mount while turning clockwise until the threads disengage and the bracket seats against the mount. Then rotate the bracket slowly counterclockwise until secure.

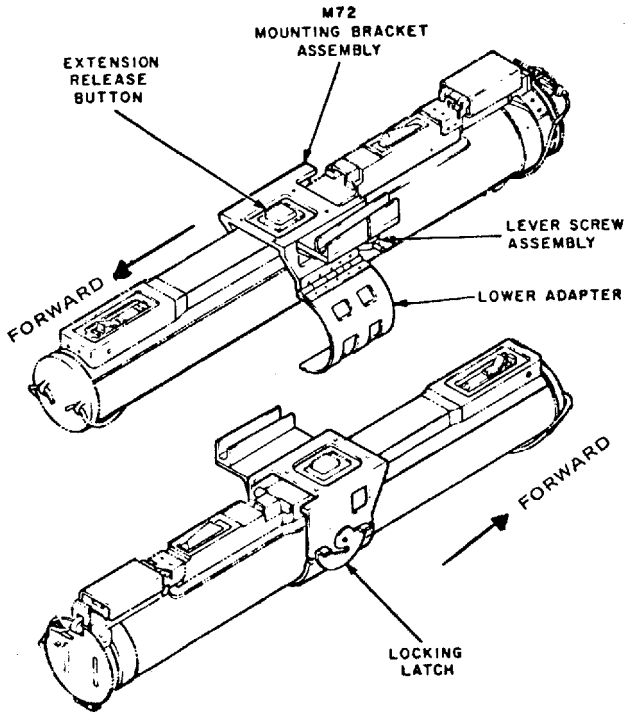
Place aiming light in groove on the bracket so that the threaded screw hole in foot of the aiming light is aligned with the lever screw assembly and tighten the lever screw assembly firmly to secure the light to the bracket.

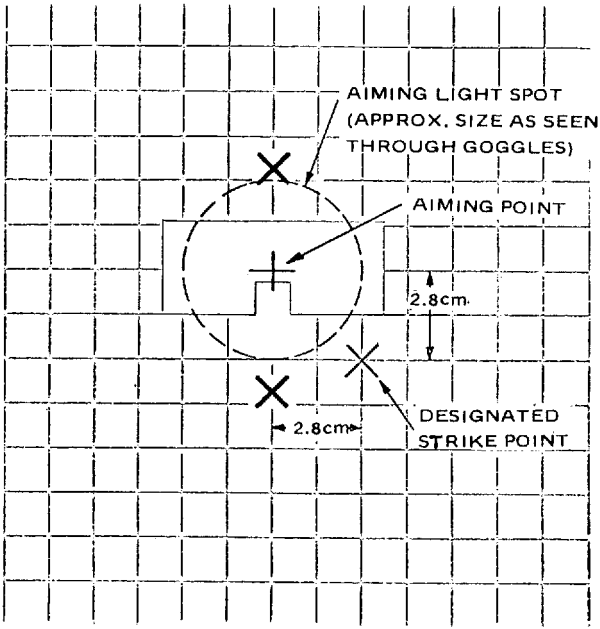
Procedure for Attaching the Mounting Bracket and Aiming Light to the M72 Rocket Launcher

Place the mounting bracket assembly on top of the rocket launcher so that the square cutout in the top of the bracket is around the extension release button.

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

Place the aiming light in groove on the bracket so that the threaded screw hole in the foot of the aiming light is aligned with the lever screw assembly. Tighten the lever screw assembly firmly.


M72
MOUNTING BRACKET
ASSEMBLY
EXTENSION
RELEASE
BUTTON
LEVER SCREW
ASSEMBLY
FORWARD
LOWER ADAPTER
FORWARD
LOCKING
LATCH


AIMING LIGHT SPOT
(APPROX. SIZE AS SEEN
THROUGH GOGGLES)
AIMING POINT
2.8cm
2.8cm
DESIGNATED
STRIKE POINT

2-4. BATTLESIGHT ZEROING PROCEDURES

You must know how to align your weapon sight with the aiming light beam after the aiming light is attached to the weapon. This must be done before going on a mission.

Procedure for Zeroing M16 Rifle with Aiming Light

NOTE

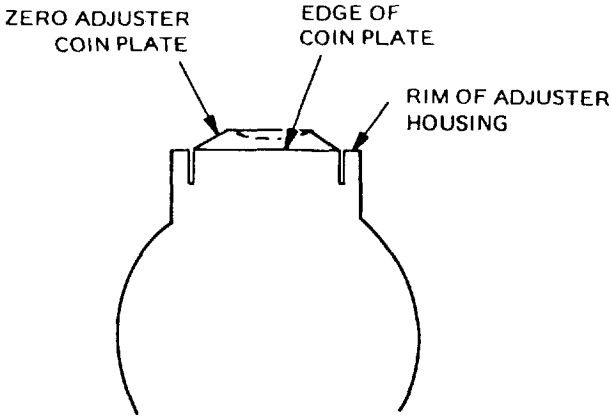
The following procedures must be done at night on a 25 meter range.

On a standard 25 meter zeroing target, mark an "X" at a spot 2.8 cm (1.1 in.) down and 2.8 cm (1.1 in.) to the right from the center of the black rectangle as shown. This is called the "designated strike point."

Place the target in the center of a type "E" silhouette at 25 meters.

Remove your aiming light from the carrying bag and make the following adjustments to set the adjusters to a neutral position:

- Using a cartridge rim or coin, set the azimuth and elevation adjusters to a zero position by adjusting the coin plate to an in-line position with the rim of the adjuster housing.
- On the azimuth adjuster located on the left side of the aiming light, turn the coin plate one half turn clockwise.
- On the elevation adjuster located on the top of the aiming light, turn the coin plate one full turn clockwise.

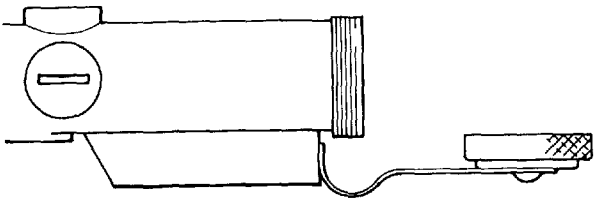


The adjusters are now in a neutral position.

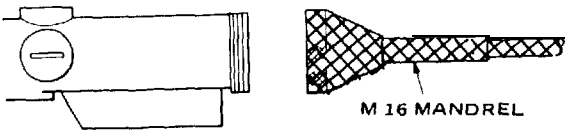
Attach the aiming light to your weapon.

Convert a second aiming light to a borelight by doing the following:

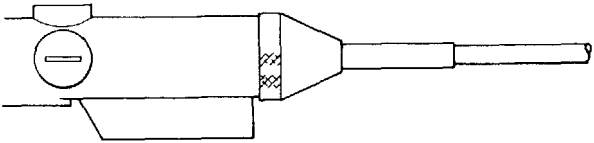
- Unscrew and remove the battery cap. Leave the batteries in place.



- Replace the battery cap with an M16 Alignment Mandrel.



o Borelight is now ready for use.



Set the borelight azimuth and elevation adjusters to a neutral position in the same way you did for the aiming light.

> **CAUTION**
>
> Make sure your weapon is clean and on SAFE before proceeding.

Insert the borelight into the barrel of your weapon.

Put on Night Vision Goggles, AN/PVS-5 or -5A, in accordance with TM 11-5855-238-10 and turn them on.

Place the switch on the borelight in the “full- on” position.

While looking through your goggles, place the borelight spot on the zero target. Sandbag or brace your weapon to hold the light steady on the target.

Without moving your weapon, slowly rotate the borelight in the barrel several full turns and watch the spot traveling in a circle on the target.

If the circle is larger than the width of the silhouette target and you cannot see it entirely, reduce its size as follows:

- Using a cartridge rim or coin, adjust the elevation adjuster on the top of the borelight one full turn clockwise.

- Check the width of the circle by rotating the boresight in the barrel of your weapon. If the circle becomes larger, adjust the elevation adjuster in the opposite (counterclockwise) direction and repeat the process until you can see the entire circle on the target.

- If full adjustment of the elevation adjuster does not make the circle small enough, repeat the process with the azimuth adjuster.

When you can see the entire circle on the target, move your weapon so the borelight is about in the middle of the circle and resecure the weapon.

Turn on your aiming light. You should now see two blinking spots on the target - one from the borelight and one from the aiming light.

Make azimuth adjustments to your aiming light as follows:

- Without moving the weapon, rotate the borelictht so the borelight spot is at the 3 o'clock position on the target and observe the distance between the borelight and aiming light spots.

- Now rotate the borelight spot to the 9 o'clock position on the

target and observe the distance between the spots.

- If the aiming light spot is equally distant from both borelight positions, no azimuth adjustments are required. If it is closer to the 3 o'clock position, make an adjustment to the azimuth adjuster of three or four clicks right. If it is closer to the 9 o'clock position, adjust three or four clicks left.

- Repeat this process until the aiming light spot is equally distant from both the 3 o'clock and 9 o'clock positions of the borelight spot.

Make elevation adjustments to your aiming light as follows:

- Without moving the weapon, rotate the borelight so the borelight spot is at the 12 o'clock position on the target and observe the distance between the borelight and aiming light spots.

- Now rotate the borelight spot to the 6 o’clock position on the target and observe the distance between the spots.

- If the distance between the spots is equal at both positions, no further adjustment is necessary. If it is closer to the 12 o’clock position, adjust the elevation adjuster three or four clicks up. If it is closer to the 6 o’clock position, adjust three or four clicks down.

- Repeat this process until the aiming light spot is equally distant from both the 12 o’clock and 6 o’clock positions of the borelight spot.

When you have made these adjustments the aiming light spot should be in the center of the circle made by rotating the borelight spot.

Turn off the borelight and remove it from the barrel of your weapon.

Using a cartridge rim or coin, adjust the azimuth adjuster of your aiming light 4 clicks right and adjust the elevation adjuster 6 clicks down. This final adjustment is to correct for the “designated strike point” on the zero target.

You are now ready to “fine tune” your aiming light by firing-in.

> **CAUTION**
>
> Be sure you have removed the boresight from your weapon before proceeding.

From a foxhole supported or prone supported firing position, turn on your aiming light and center the spot on the center of the black rectangle on the target. This is called the “aiming point.”

When instructed to “fire,” carefully fire three single rounds at the “aiming point” on the zero target.

When instructed to “check your target,” inspect the shot group and

determine the number of squares required to adjust the center of your shot group over the “designated strike point.” The required corrections can be made by turning the elevation and azimuth adjusters in the required direction at a rate of two clicks for each square on the target.

Repeat the firing-in procedure until the center of your shot group and the “designated strike point” can be covered by the lens end of a standard flashlight at the same time.

Your aiming light is now zeroed with your M16 rifle and is effective for targets out to 100 meters.

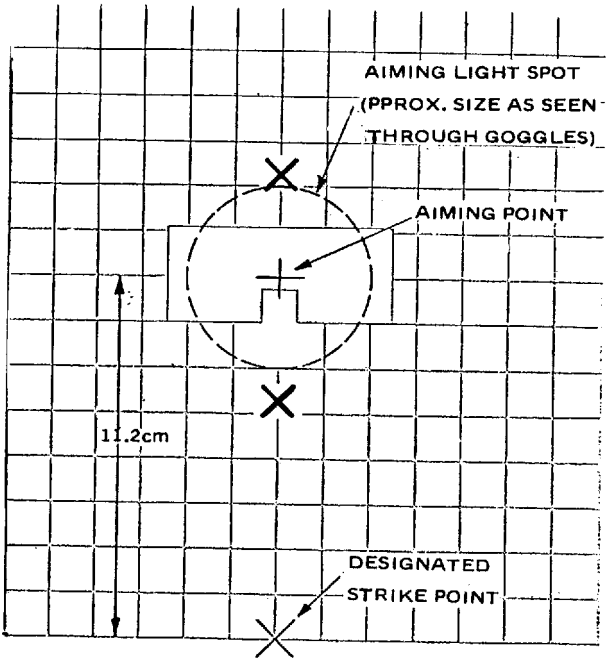
Procedure for Zeroing M60 Machine Gun With Aiming Light

NOTE

The following procedures must be done at night on a 25 meter range.

On a standard 25 meter zeroing target mark an "X" at a spot 11.2 cm (4.4 in.) directly below the center of

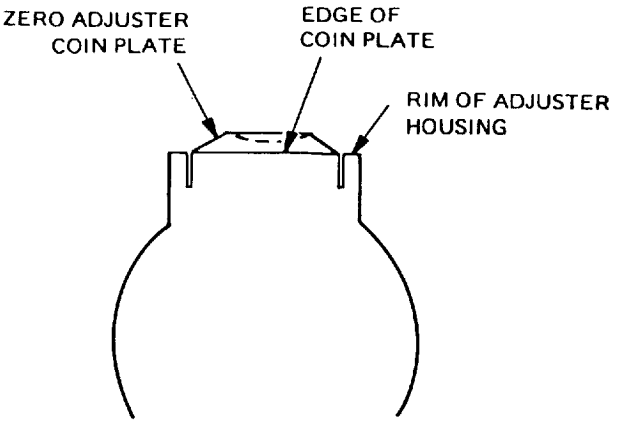
the black rectangle as shown. This is called the “designated strike point.”



Place the target in the center of a type “E” silhouette at 25 meters.

Remove your aiming light from the carrying bag and make the following adjustments to set the adjusters to a neutral position:

- Using a cartridge rim or coin, set the azimuth and elevation adjusters to a zero position by adjusting the coin plate to an in-line position with the rim of the adjuster housing.



- On the azimuth adjuster located on the left side of the aiming light, turn the coin plate one half turn clockwise.

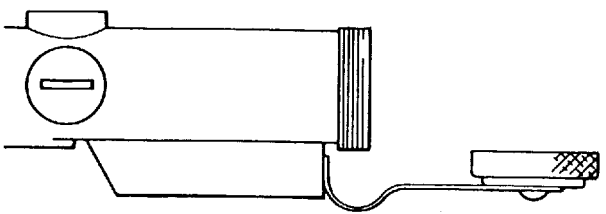
- On the elevation adjuster located on the top of the aiming light, turn the coin plate one full turn clockwise.

The adjusters are now in a neutral position.

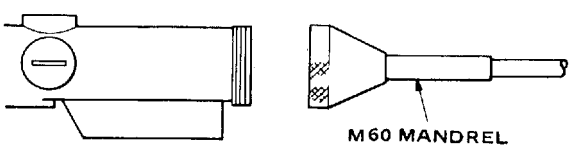
Attach the aiming light to your weapon.

Convert a second aiming light to a borelight by doing the following:

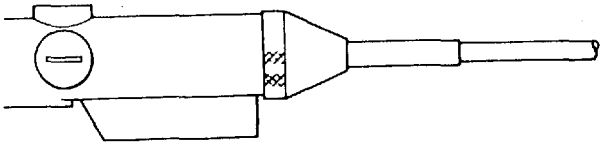
- Unscrew and remove the battery cap. Leave the batteries in place.



- Replace the battery cap with an M60 Alignment Mandrel.



o Borelight is now ready for use.



Set the borelight azimuth and elevation adjusters to a neutral position in the same way you did for the aiming light.

CAUTION

Make sure your weapon is clean and on SAFE before proceeding.

Insert the borelight into the barrel of your weapon.

Put on Night Vision Goggles, AN/PVS-5 or -5A, in accordance with TM 11-5855-238-10 and turn them on.

Place the switch on the borelight in the “full-on” position.

While looking through your goggles, place the borelight spot on the zero

target. Sandbag or brace your weapon to hold the light steady on the target.

Without moving your weapon, slowly rotate the borelight in the barrel several full turns and watch the spot traveling in a circle on the target.

If the circle is larger than the width of the silhouette target and you cannot see it entirely, reduce its size as follows:

- Using a cartridge rim or coin, adjust the elevation adjuster on the top of the borelight one full turn clockwise.
- Check the width of the circle by rotating the boresight in the barrel of your weapon. If the circle becomes larger, adjust the elevation adjuster in the opposite (counterclockwise) direction and repeat the process until you can see the entire circle on the target.
- If full adjustment of the elevation adjuster does not make the

circle small enough, repeat the process with the azimuth adjuster.

When you can see the entire circle on the target, move your weapon so the borelight is about in the middle of the circle and resecure the weapon.

Turn on your aiming light. You should now see two blinking spots on the target - one from the borelight and one from the aiming light.

Make azimuth adjustments to your aiming light as follows:

- Without moving the weapon, rotate the borelight so the borelight spot is at the 3 o'clock position on the target and observe the distance between the borelight and aiming light spots.

- Now rotate the borelight spot to the 9 o'clock position on the target and observe the distance between the spots.

- If the aiming light spot is equally distant from both borelight positions, no azimuth adjustments are required. If it is closer to the 3 o'clock position, make an adjustment to the azimuth adjuster of three or four clicks right. If it is closer to the 9 o'clock position, adjust three or four clicks left.

- Repeat this process until the aiming light spot is equally distant from both the 3 o'clock and 9 o'clock positions of the borelight spot.

Make elevation adjustments to your aiming light as follows:

- Without moving the weapon, rotate the borelight so the borelight spot is at the 12 o'clock position on the target and observe the distance between the borelight and aiming light spots.

- Now rotate the borelight spot to the 6 o'clock position on the

target and observe the distance between the spots.

- If the distance between the spots is equal at both positions, no further adjustment is necessary. If it is closer to the 12 o'clock position, adjust the elevation adjuster three or four clicks up. If it is closer to the 6 o'clock position, adjust three or four clicks down.

- Repeat this process until the aiming light spot is equally distant from both the 12 o'clock and 6 o'clock positions of the borelight spot.

When you have made these adjustments the aiming light spot should be in the center of the circle made by rotating the borelight spot.

Turn off the borelight and remove it from the barrel of your weapon.

Using a cartridge rim or coin, adjust elevation adjuster 18 clicks down.

This final adjustment is to correct for the “designated strike point” on the zero target.

You are now ready to “fine tune” your aiming light by firing-in.

> **CAUTION**
>
> Be sure you have removed the boresight from your weapon before proceeding.

From a supported firing position, turn on your aiming light and center the spot on the center of the black rectangle on the target. This is called the “aiming point.”

When instructed to “fire,” carefully fire three single rounds at the “aiming point” on the zero target.

When instructed to “check your target,” inspect the shot group and determine the number of squares required to adjust the center of your shot group over the “designated strike point.” The required corrections can

be made by turning the elevation and azimuth adjusters in the required direction at a rate of two clicks for each square on the target.

Repeat the firing-in procedure until the center of your shot group and the "designated strike point" can be covered by the lens end of a standard flashlight at the same time.

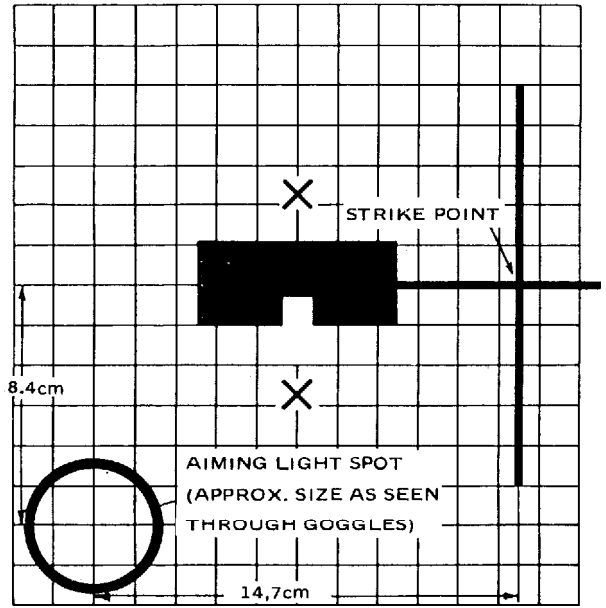
Your aiming light is now zeroed with your M60 Machine Gun and is effective for targets out to 100 meters.

Procedures for Zeroing M67 Recoil less Rifle with Aiming Light

NOTE

The following procedure must be performed at night on an M67 range at a maximum distance of 100 meters.

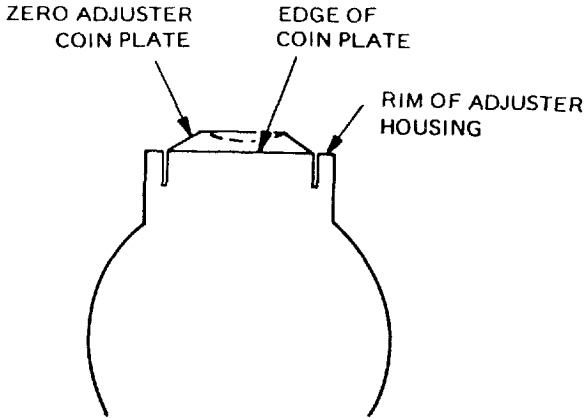
On a standard 25 meter target mark a large cross and a circle at the locations shown in this picture.



Place the target in the center of a type "E" silhouette at 12.2 meters (40 feet) down the range.

Remove your aiming light from the carrying bag and make the following adjustments to set the adjusters to a neutral position:

- Using a cartridge rim or coin, set the azimuth and elevation adjusters to a zero position by adjusting the coin plate to an in-line position with the rim of the adjuster housing.



- On the azimuth adjuster located on the left side of the aiming light, turn the coin plate one-half turn clockwise.

- On the elevation adjuster located on the top of the aiming light, turn the coin plate one full turn clockwise.

The adjusters are now in a neutral position.

Attach the aiming light to your weapon.

Boresight the M67 Recoilless Rifle in accordance with TM 9-1015-223-12 to align the bore with the strike point. Sandbag or otherwise brace the weapon to hold it steady on the target.

Put on Night Vision Goggles, AN/PVS-5 or -5A, in accordance with TM 11-5855-238-10 and turn them on.

Place the aiming light switch in the “full-on” position.

Look at the location of the aiming light spot and estimate the distance between the circle you placed on the target and the spot.

Adjust the spot to the circle. Corrections are made at the rate of 1.3 cm (0.5 in.) per click at 12.2 meters (40 feet).

NOTE

Make adjustments opposite to the directions indicated by the arrows on the aiming light because you want to move the spot not the strike point of the round.

When you have moved the spot to the circle you put on the target, you are ready to fire-in to fine tune the zeroing procedure.

Remove the zero target and the type “E” silhouette from the range and place a standard 2.3m x 2.3m target at 100 meters.

From a supported position, place the aiming light spot on the center of mass of the target and fire one practice round. Determine the distance between the aiming light spot and the strike of the round on the target. Adjust the strike point. Corrections are made at the rate of 2.5 cm (1.0 in.) per click at 100 meters.

NOTE

Follow the directions indicated by the arrows on the aiming light because you want to move the strike point of the round.

Repeat firing-in until you have obtained a good strike point. When you have, your aiming light and M67 Recoilless Rifle will be zeroed and effective for targets out to 100 meters.

Procedure for Zeroing M72 Rocket Launcher with Aiming Light

NOTE

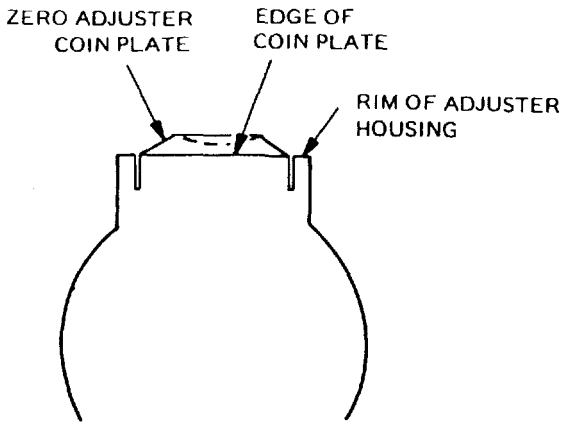
The following procedure must be performed at night on an M72 range with a target at a distance of 100 meters.

Place a standard 2.3m x 2.3m target on the range at 100 meters.

Remove your aiming light from the carrying bag and make the following

adjustments to set the adjusters to a neutral position:

- Using a cartridge rim or coin, set the azimuth and elevation adjusters to a zero position by adjusting the coin plate to an in-line position with the rim of the adjuster housing.



- On the azimuth adjuster located on the left side of the aiming light, turn the coin plate one-half turn clockwise.

- On the elevation adjuster located on the top of the aiming light, turn the coin plate one full turn clockwise.

The adjusters are now in a neutral position.

Attach the aiming light to your weapon.

Light up the target by placing a flashlight down range in front of it or by using vehicle headlights.

From a supported position, carefully aim through the daysight at the center of mass of the target. Sandbag or otherwise brace your weapon to hold it steady on the target.

Turn off the flashlight or headlights you used to light up the target.

Put on Night Vision Goggles, AN/PVS-5 or -5A, in accordance with TM 11-5855-238-10 and turn them on.

Put the aiming light switch in the “full-on” position.

Look at the location of the aiming light spot and estimate the distance between the center of the spot and the center of mass of the target.

Adjust the spot to center of mass. Corrections are made at the rate of 2.5 cm (1.0 in.) for each click at a range of 100 meters.

NOTE

Make adjustments opposite to the directions indicated by the arrows on the aiming light because you want to move the spot not the strike point of the round.

When you have moved the spot to the center of the target, you are ready to fire-in to fine tune the zeroing procedure.

From a supported position, carefully fire one practice round at the target. Determine the distance between the aiming light spot and the strike of the round on the target. Adjust the

strike point. Corrections are made at the rate of 2.5 cm (1.0 in.) per click at 100 meters.

NOTE

Follow the directions indicated by the arrows on the aiming light because you want to move the strike point of the round.

Repeat firing-in until you have obtained a good strike point. When you have, your aiming light and M72 Rocket Launcher will be zeroed and effective for targets out to 100 meters.

Section IV. OPERATION UNDER UNUSUAL CONDITIONS

2-5. OPERATION IN EXTREME CONDITIONS

EXTREME COLD

Under conditions of extreme cold (less than -22°F (-30°C)), USE the low temperature adapter to keep the batteries warm.

Unscrew the battery cap from the aiming light.

Pull the battery cap loose from retaining strap.

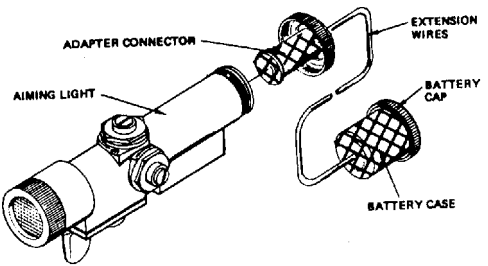
Remove batteries from the aiming light. (para. 3-4)

Install batteries in adapter battery case with battery nipples toward the cap.

Install aiming light battery cap on low temperature adapter battery case. Tighten cap finger tight.

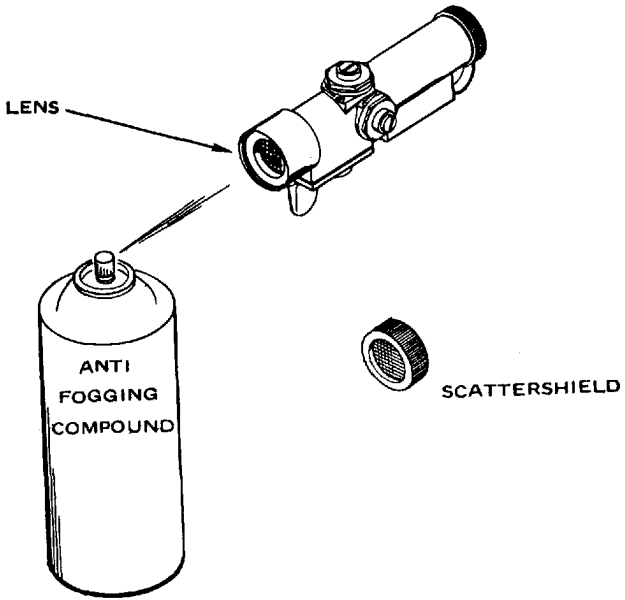
Insert the contact end of the low temperature adapter into battery case end of aiming light. Tighten the adapter finger tight.

Place the low temperature adapter battery case inside your clothing within the length of the extension wires which are 75 cm (29.5 inches.) long. This keeps the batteries warm and permits use of the aiming light in extremely cold temperatures.



FOG OR FROST

Lenses may fog over or frost, up during cold rainy weather.



Remove scattershield.

Clean lens with lens paper.

Coat lens with antifogging compound.

Shake off excess compound and allow lens to dry.

Replace scattershield.

DUSTY OR SANDY AREA

Do not point the aiming light into the wind. This keeps dust and sand from pitting or scratching the lens.

Cover as much of the aiming light as possible to prevent damage to external surfaces or controls.

Keep the carrying bag closed exept to remove or replace equipment.

RAINY OR HUMID CONDITIONS

Use antifogging compound on the lens as instructed above.

Dry the aiming light thoroughly after exposure to rain or high humidity.

Keep the carrying bag closed except to remove or replace equipment.

Do not store the aiming light in a wet or damp carrying bag.

SALT WATER AREAS

After exposure to salt water, clean the aiming light by dipping it into fresh water.

Dry all parts of the aiming light after removing all traces of salt water.

EXTREME HEAT

The aiming light can be operated at high temperatures up to 123°F (51°C).

CHAPTER 3

MAINTENANCE INSTRUCTIONS

Section I. TROUBLESHOOTING PROCEDURES

3-1. SCOPE

You are required to maintain the aiming light and support equipment in good operational condition. This chapter presents maintenance instructions needed by you to help keep your equipment in good operating order. If these instructions do not restore the aiming light to full operation, return the unit to your direct support maintenance.

3-2. PURPOSE OF TROUBLESHOOTING.

The purpose of troubleshooting is to identify the most frequent equipment malfunctions, probable causes, and corrective actions required.

3-3. TROUBLESHOOTING PROCEDURES.

Information concerning equipment real-functions and necessary corrective action you take is listed in table 3-1. The table lists the common malfunctions which you may find during the operation or maintenance of the aiming light and support equipment. You should perform the tests, inspections, and corrective actions in the order listed. This manual cannot list all malfunctions that may occur, nor all tests, inspections, and corrective actions. If a malfunction is not listed or is not corrected by listed corrective actions, notify your supervisor.

> CAUTI0N
>
> Operators are not authorized to open the aiming light except to remove and replace batteries, to remove and inspect the scattershield, and to clean the outer surface of the lens.

Table 3-1. TROUBLESHOOTING

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. INFRARED LIGHT BEAM FAILS TO COME ON		
	Step 1. Check to see if scatter-shield is completely plugged.	Clean scattershield (para. 3-5).
	Step 2. Check batteries.	Remove and replace (para. 3-4).
	Step 3. Internal failure.	Report failure to direct support maintenance.

Table 3-1. TROUBLESHOOTING (Contd)

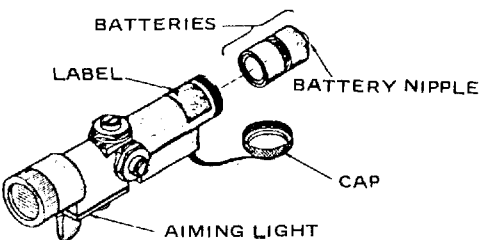
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. INFARED LIGHT BEAM APPEARS WEAK		
	Step 1.	Check to see if scatter-shield is partially plugged or honeycomb is deformed.
		Remove/clean/replace, as required (para. 3-5).
	Step 2.	Check to see if lens is dirty.
		Clean lens (para. 3-6).
	Step 3.	Check to see if lens is scratched or pitted.
		Report problem to direct support maintenance.

3-4. PROCEDURE FOR REMOVING BATTERIES

Unscrew battery cap.

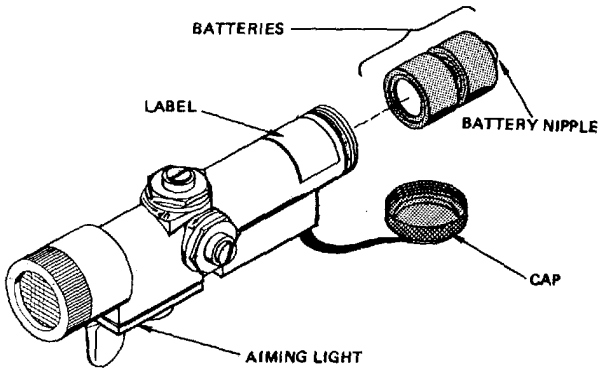
Remove old batteries.

> WARNING
>
> The battery contains mercury and should be handled in the following manner:
>
> 1. Do not dispose in fire.
> 2. Do not short circuit.
> 3. Return batteries to Property Disposal Officer for disposal in accordance with DLSC Handbook 41601.



CAUTION

Inspect new batterires for acid leaks. If acid is present, return batteries for replacement.



3-5. PROCEDURE FOR INSTALLING BATTERIES

Remove spare batteries from plastic wrap. Make sure each new battery is loose in its green cover. If it is not loose discard that battery and draw another one. If both are loose, install them with battery nipple toward cap.

NOTE

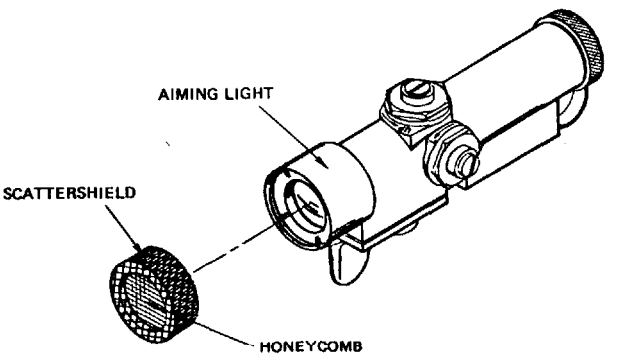
The battery nipple is negative (-).

Replace battery cap and tighten finger tight.

3-6. PROCEDURES FOR REMOVING AND INSPECTING SCATTERSHIELD

Unscrew scattershield from aiming light by turning counterclockwise.

Inspect for dented or bent honeycomb. If any such damage is found, turn scattershield in for replacement.



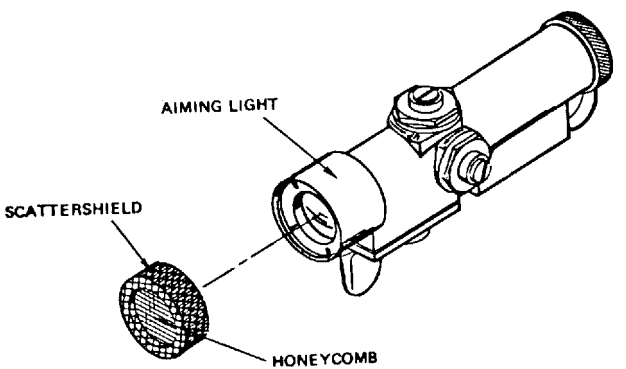
Inspect for dust or clogged-up honeycomb. If honeycomb is dusty or clogged, clear with water.

CAUTION

Do not use any mechanical cleaning devices.

NOTE

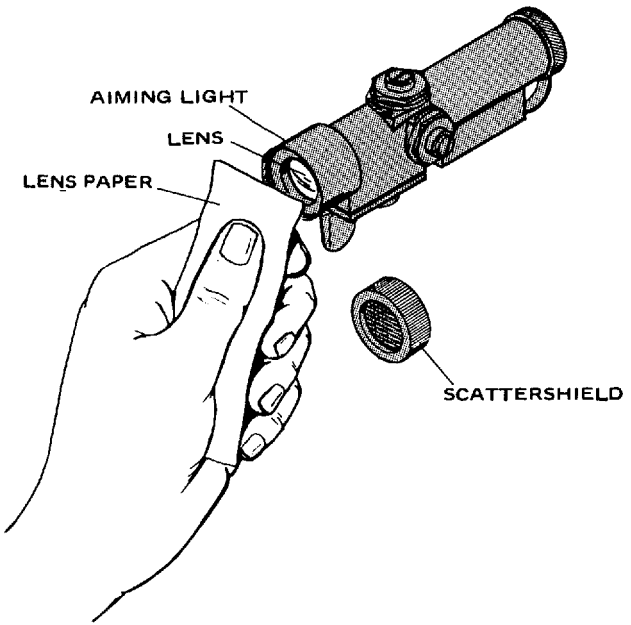
If honeycomb cannot be cleaned, return the scattershield to direct support maintenance and get a replacement.



3-7. PROCEDURE FOR INSTALLING SCATTERSHIELD

Replace scattershield and tighten finger tight.

> **CAUTION**
>
> To avoid cross-threading, insert and turn the scattershield counterclockwise a half turn then screw it in, turning clockwise.


AIMING LIGHT
LENS
LENS PAPER
SCATTERSHIELD

3-8. PROCEDURE FOR CLEANING LENS

Remove scattershield. (para. 3-5).

Clean lens with lens paper. Lens paper may be dampened with water.

Replace scattershield. (para. 3-5).

3-9. PROCEDURE FOR CLEANING CARRYING BAG

Turn upside down to remove loose particles of dirt.

Wipe clean with a clean, dry, lint-free cloth.

APPENDIX A

REFERENCES

DA Form 2407 Maintenance Request

DA Form 2028 Recommended Changes to Publications

TM 38-750 The Army Maintenance Management System (TAMMS)

TM 750-244-2 Destruction of Army Electronics Material

TM 11-5855-238-10 Operator's Manual for Night Vision Goggles AN/PVS-5 and AN/PVS-5A

TM 11-5855-261-23 Organizational and Direct Support Maintenance Manual for Aiming Light, Infrared AN/PAQ-4

TM 11-5855-261-23P Organizational and Direct Support Maintenance Repair Parts and Special Tools List for Aiming Light, AN/PAQ-4

TM 11-5855-261-10-HR Hand Receipt Manual for Aiming Light, Infrared AN/PAQ-4

APPENDIX B

COMPONENTS OF END ITEM LIST

Section I. INTRODUCTION

B-1. Scope

This appendix lists integral components of and basic issue items for Aiming Light, Infrared AN/PAQ-4 to help you inventory items required for safe and efficient operation.

B-2. General

This Components of End Item List is divided into the following secitons:

a. Section II. Integral Components of the End Item. These items, when assembled, comprise the Aiming Light and must accompany it whenever it is transferred or turned in. The illustrations will help you identify these item.

b. Section III. Basic Issue Items. These are the minimum essential items required to place the Aiming Light in

operation, to operate it, and to perform emergency repairs. Although shipped separately packed they must accompany the Aiming Light during operation and whenever it IS transferred between accountable officers. The illustrations will assist you with hard-to-identify items. This manual is your authority to requisition replacement 611, based on TOE/MTOE authorization of the end item.

B-3. Explanation of Columns

a. Illustration. This column is divided as follows:

(1) Figure Number. Indicates the figure number of the illustration on which the item is shown.

(2) Item Number. The number used to identify item called out in the illustration.

b. National Stock Number. Indicates the national stock number assigned to the item and which will be used for requisitioning.

c. Part Number. Indicates the primary number used by the manufacturer, which controls the design and characteristics of the item by means of

its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

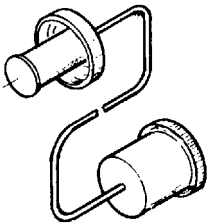
d. Description. Indicates the Federal item name and, if required, a minimum description to identify the item.

e. Location. The physical location of each item listed is given in this column. The lists are deisgned to inventory all items in one area of the major item before moving on to an adjacent area.

f. Usable on Code. Not applicable.

Quantity Required (Qty Reqd). This column lists the quantity of each item required for a complete major item.

h. Quantity. This column is left blank for use during an inventory. Under the Rcv'd column, list the quantity you actually receive on your major item. The Date columns are for your use when you inventory the major item at a later date, such as for shipment to another site.



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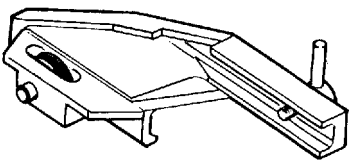

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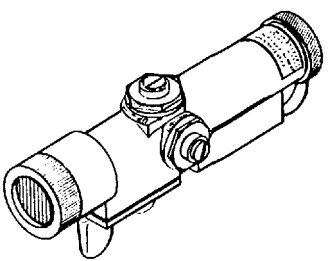

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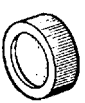

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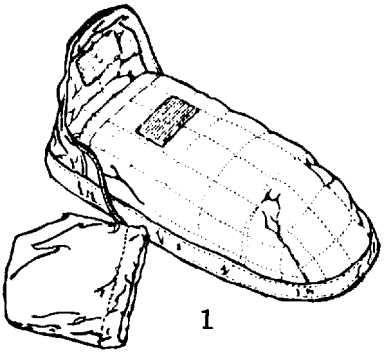
Section II. INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8) QUANTITY			
(a) Figure No.	(b) Item No.	NATIONAL STOCK NO.	PART NO.	DESCRIPTION	LOCATION	USABLE ON CODE	QTY REQD	RCV'D	DATE	DATE	DATE
B-1	1	5855-01-XXX-XXXX	80063-SM-D-808590	Low Temperature Adapter Assy.			1				
B-1	2	5855-01-XXX-XXXX	80063-SM-D-808585	Mounting Bracket, M16			1				
B-1	3	5855-01-XXX-XXXX	80063-SM-L-807920	Aiming Light, Infrared			1				
B-1	4	5855-01-XXX-XXXX	80063-SM-D-807665	Scattershield			1				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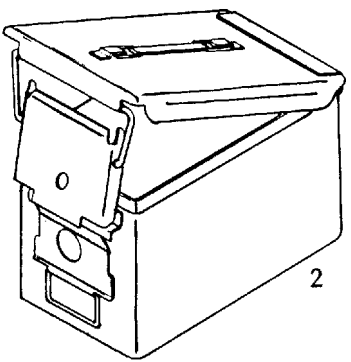
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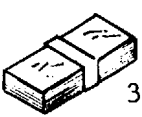
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Section III. BASIC ISSUE ITEMS

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8) QUANTITY			
(a) Figure No.	(b) Item No.	NATIONAL STOCK NO.	PART NO.	DESCRIPTION	LOCATION	USABLE ON CODE	QTY REQD	RCV'D	DATE	DATE	DATE
B-2	1	5855-01-XXX-XXXX	80063-SM-D-808603	Bag, Carrying			1				
B-2	2	5855-01-XXX-XXXX	80063-SM-E-808597	Case, Shipping and Storage			1				
B-2	3	6640-00-240-5851	NNN-P-40	Paper, Lens			1				

APPENDIX C

ADDITIONAL AUTHORIZATION LIST

C-1. Scope

This appendix lists additional items you are authorized for the support of the AN/PAQ-4.

C-2. General

This list identifies items that do not have to accompany the AN/PAQ-4 and that do not have to be turned in to you by CTA, MTOE, TDA, or JTA.

C-3. Explanation of Listing

National stock numbers, descriptions, and quantities are provided to help identify and request the additional items you require to support this equipment.

TABLE C-1. Additional Authorization List

(1) NATIONAL STOCK NO.	(2) DESCRIPTION PART NUMBER & FSCM USABLE ON CODE	(3) U/M	(4) QTY AUTH
	ALIGNMENT MANDREL ASSEMBLY, M60 SM-D-807639-1; 80063	Ea	1
	ALIGNMENT MANDREL ASSEMBLY, M16 SM-D-807639-2; 80063	Ea	1
1350-00-485-7402	*Battery BA1567/U;80058	Ea	4
5855-01-046-7272	MOUNTING BRACKET ASSEMBLY, M60 SM-D-850340-1; 80063	Ea	1
5855-01-039-2845	MOUNTING BRACKET ASSEMBLY, M67 SM-D-850350-2; 80063	Ea	1
5855-01-039-2841	MOUNTING BRACKET ASSEMBLY, M72A1 SM-D-850360-1; 80063	Ea	1
	*Dry battery listed is used with the equipment. It will not be preshipped automatically but is to be requisitioned in quantities necessary for the particular organization in accordance with SB 11-6.		

APPENDIX D

EXPENDABLE SUPPLIES AND MATERIALS LIST

D-1. Scope

This appendix lists expendable supplies and materials you will need to operate and maintain the AN/PAQ-4. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

D-2. Explanation of Columns

a. Column 1 - Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use cleaning compound, item 5, App. D").

b. Column 2 - Level. This column identifies the lowest level of maintenance that requires the listed item. (enter as applicable).

C - Operator/Crew
O - Organizational Maintenance
F - Direct Support Maintenance
H - General Support Maintenance

c. Column 3 - National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

d. Column 4 - Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the part number followed by the Federal Supply code for Manufacturer (FSCM) in parentheses, if applicable.

e. Column 5 - Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e. g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Table D-1. Expendable Supplies and Materialas List

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION PART NUMBER & FSCM	(5) U/M
1	C	6640-00-240-5851	Paper, Lens NNN-P-40, 81349	pk
2	C	6850-00-200-3297	Compound, Antifogging	cn

By Order of the Secretary of the Army:

Official:

ROBERT M. JOYCE
Brigadier General, United States Army
The Adjutant General

E. C. MEYER
General, United States Army
Chief of Staff

Distribution:

Active Army:

TRADOC (2)
DARCOM (1)
OS MAJ COMD (1)
USACC (1)
HISA (Ft Monmouth) (15)
Ft Richardson (1)
Army Dep (1) Except
LEAD (5)
SAAD (5)
TAOD (5)

NG: None

USAR: None

For explanation of abbreviations used, see AR 310-50.

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

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BE EXACT PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.

IN THIS SPACE, TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT.

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THE METRIC SYSTEM AND EQUIVALENTS

'NEAR MEASURE

. Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

'VEIGHTS

Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 lb.
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

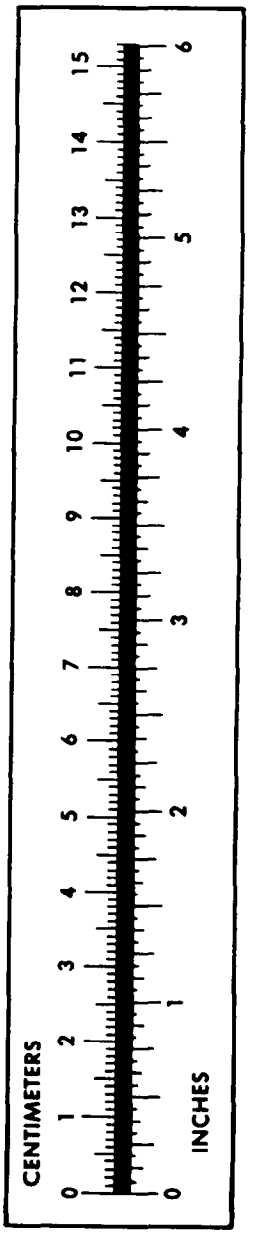
TEMPERATURE

5/9(°F - 32) = °C
212° Fahrenheit is evuivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5C° + 32 =°F

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
ıts	Liters	0.473
arts	Liters	0.946
allons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
ers	Gallons	0.264
ms	Ounces	0.035
ograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pounds-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
lometers per Liter	Miles per Gallon	2.354
meters per Hour	Miles per Hour	0.621



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