CHAPTER 2
MECHANICAL TRAINING

Section I. DISASSEMBLY AND ASSEMBLY

6. General. *a.* The purpose of mechanical training is to give the operator a knowledge of the basic functioning, controls, and adjustable parts of the Starlight Scope so that he will understand its operation and be able to properly care for it.

b. The operator is authorized to disassemble the Starlight Scope *only* to the extent described in paragraph 7.

c. Even though detail disassembly is not authorized, this should not preclude teaching the operator the nomenclature of the component parts and accessories.

d. The Starlight Scope should be disassembled and assembled only when necessary for instruction or maintenance.

7. Disassembly.

Caution: **Before releasing the shipping container's latches, turn the core of the relief valve as instructed on the side of the shipping container. This valve will release any internal pressure in the shipping container that may have built up during storage or shipment.**

a. Shipping Container.

(1) Place the shipping container flat on the ground or table and raise the latches to remove the lid from the bottom of the container.

(2) Remove the Starlight Scope and accessories from the container.

(3) The top and bottom foam contour liners are force-fitted into the shipping container. There are no screws or bolts holding them in place. The liners are removed by forcefully pulling them from the shipping container.

b. Starlight Scope. The operator is authorized to remove the objective lens cap, focusing knob and locking lever, azimuth and elevation adjustment knobs, battery cap, rubber eyeshield, and the telescope mount assembly.

(1) The objective lens focusing knob is removed by using the allen wrench and unscrewing the socket head screw located in the center of the knob. Lift the knob from the collet (fig. 4).

(2) Remove the locking lever from the collet by turning counterclockwise (fig. 4).

(3) The azimuth adjustment knob is removed by using the allen wrench to loosen the socket head screw located on the side of the knob. Lift the knob from the sight plate (fig. 5).

(4) The elevation adjustment knob is removed as described in (3) above (fig. 6).

(5) Remove the battery cap from the battery housing by turning in a counterclockwise direction (fig. 9).

(6) The rubber eyeshield is removed by forcefully pulling it from the eyepiece assembly (fig. 7).

(7) Remove the two locking screws which secure the telescope mount assembly to the main housing (fig. 8).

Note. A screwdriver is required for this operation.

8. Assembly. The sequence in which the disassembled parts are assembled is not important; however, during training the operator should use the reverse procedure of disassembly.

a. Starlight Scope.

(1) Aline the telescope mount assembly with the mounting studs on the base of the main housing and secure with the two locking screws.

(2) Replace the rubber eyeshield on the eyepiece assembly.
(3) Replace the battery cap on the battery housing.
(4) Position the elevation and azimuth adjustment knobs onto the sight plate and secure by tightening the socket head screws.
(5) Replace the locking lever to the collet and turn until finger tight. Unthread the locking lever ½-turn to provide the required movement for locking and unlocking action.
(6) Seat the focusing knob onto the collet and secure with the socket head screw.

b. Shipping Container.

(1) Insert foam liners in top and bottom of shipping container. Make certain the cutouts in the top and bottom match so that the lid will close when the Starlight Scope and accessories are installed.
(2) Replace the Starlight Scope and accessories in the shipping container.
(3) Aline the lid with the bottom of the shipping container and secure with latch and latch clasps.

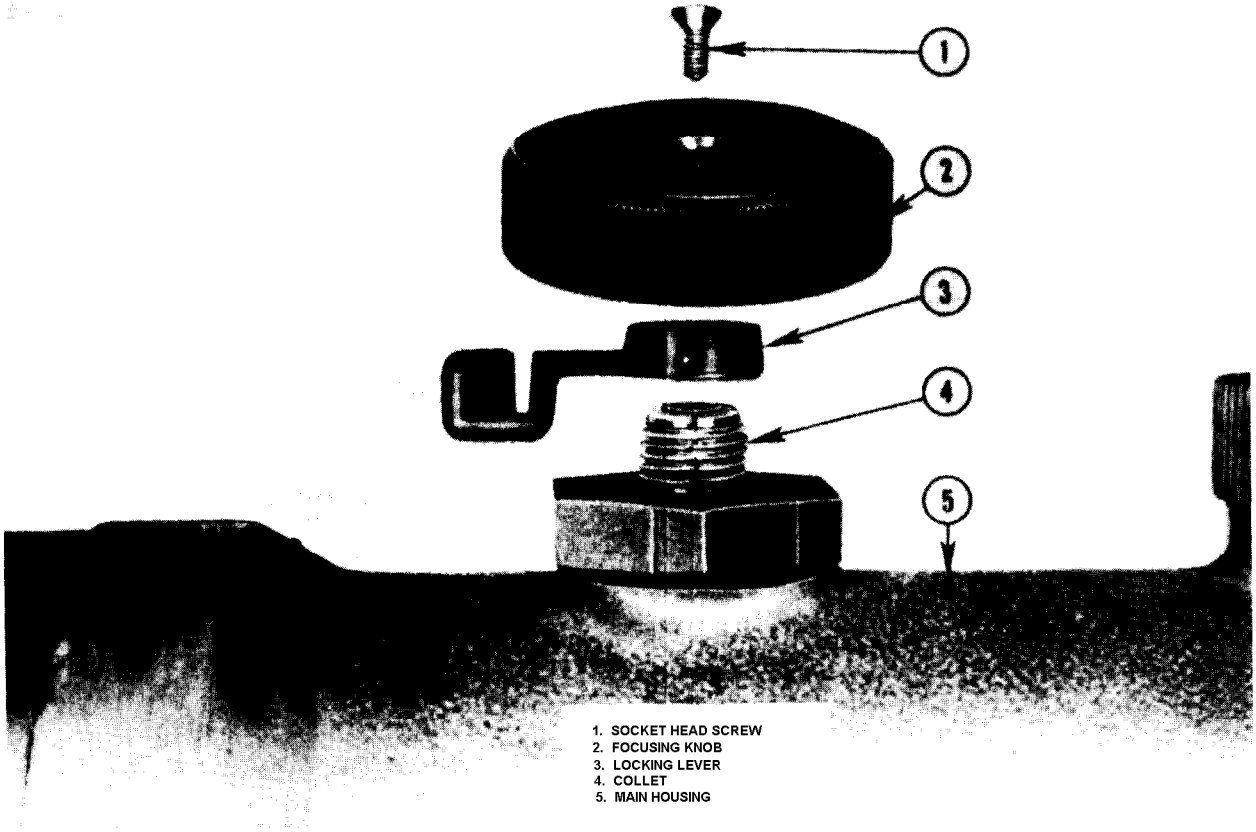
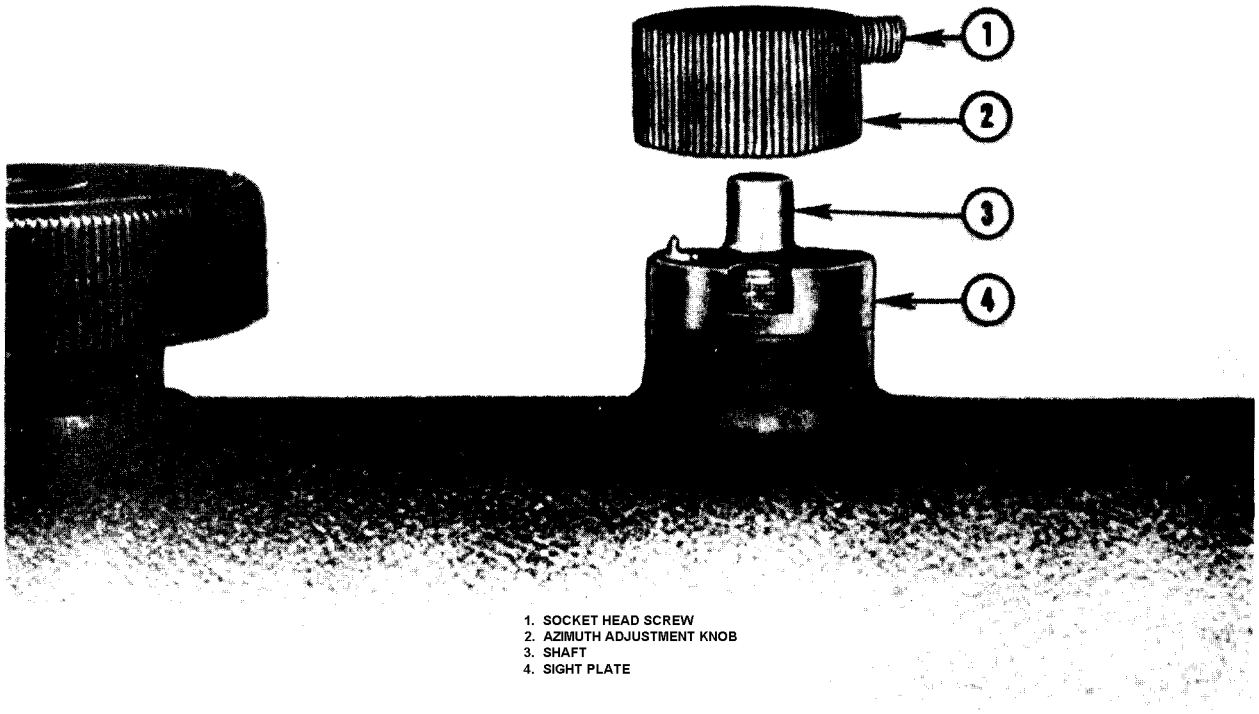


Figure 4. Removal of focusing knob and locking lever.



1. SOCKET HEAD SCREW
2. AZIMUTH ADJUSTMENT KNOB
3. SHAFT
4. SIGHT PLATE

Figure 5. Removal of azimuth adjustment knob.

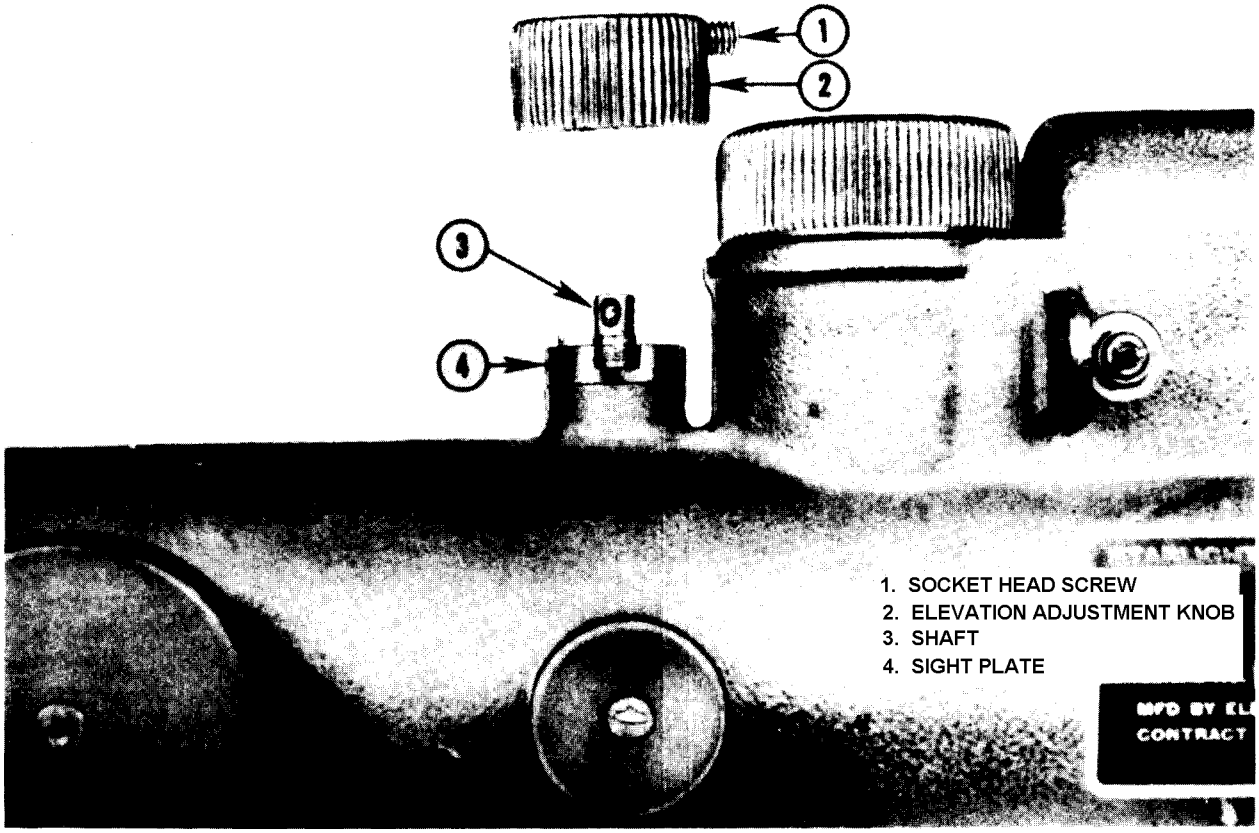
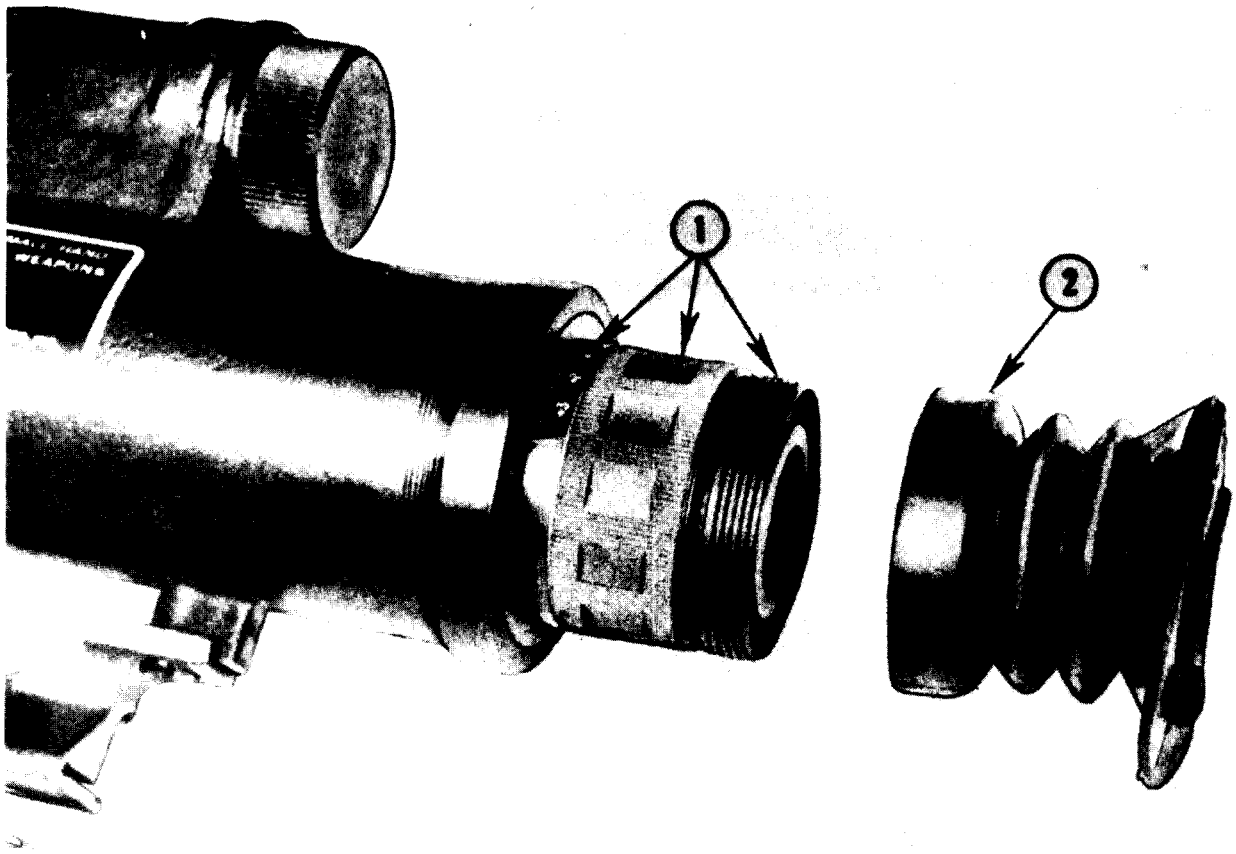
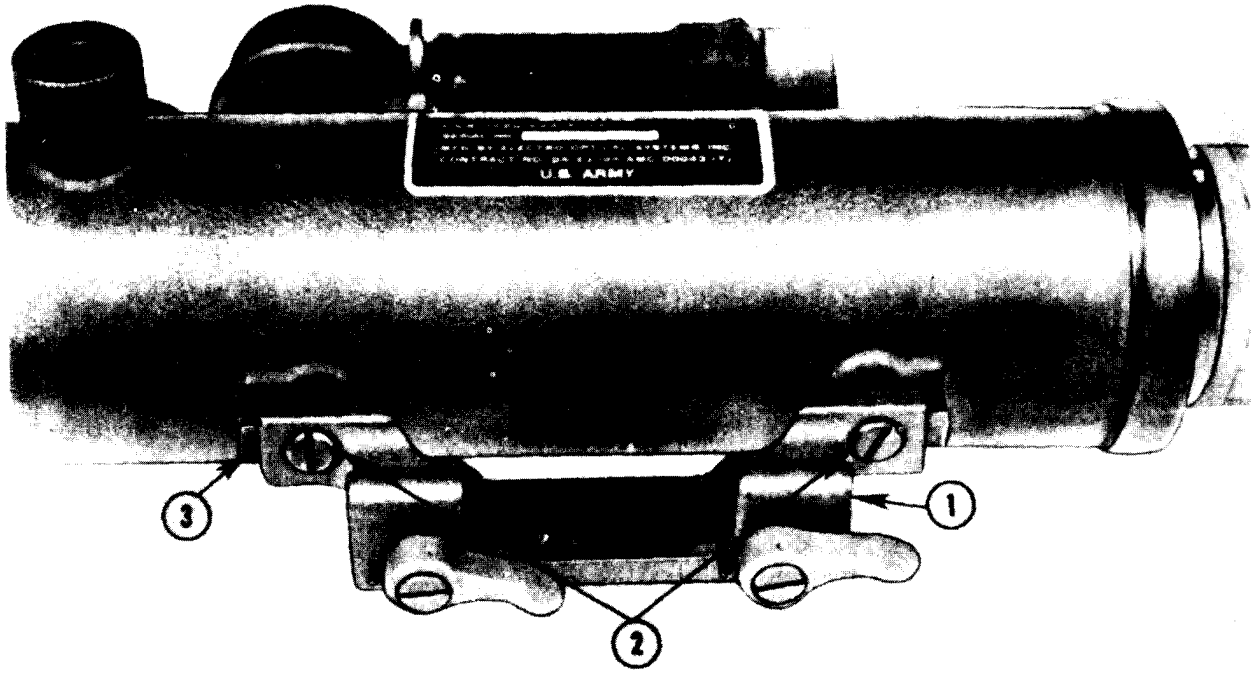


Figure 6. Removal of elevation adjustment knob.



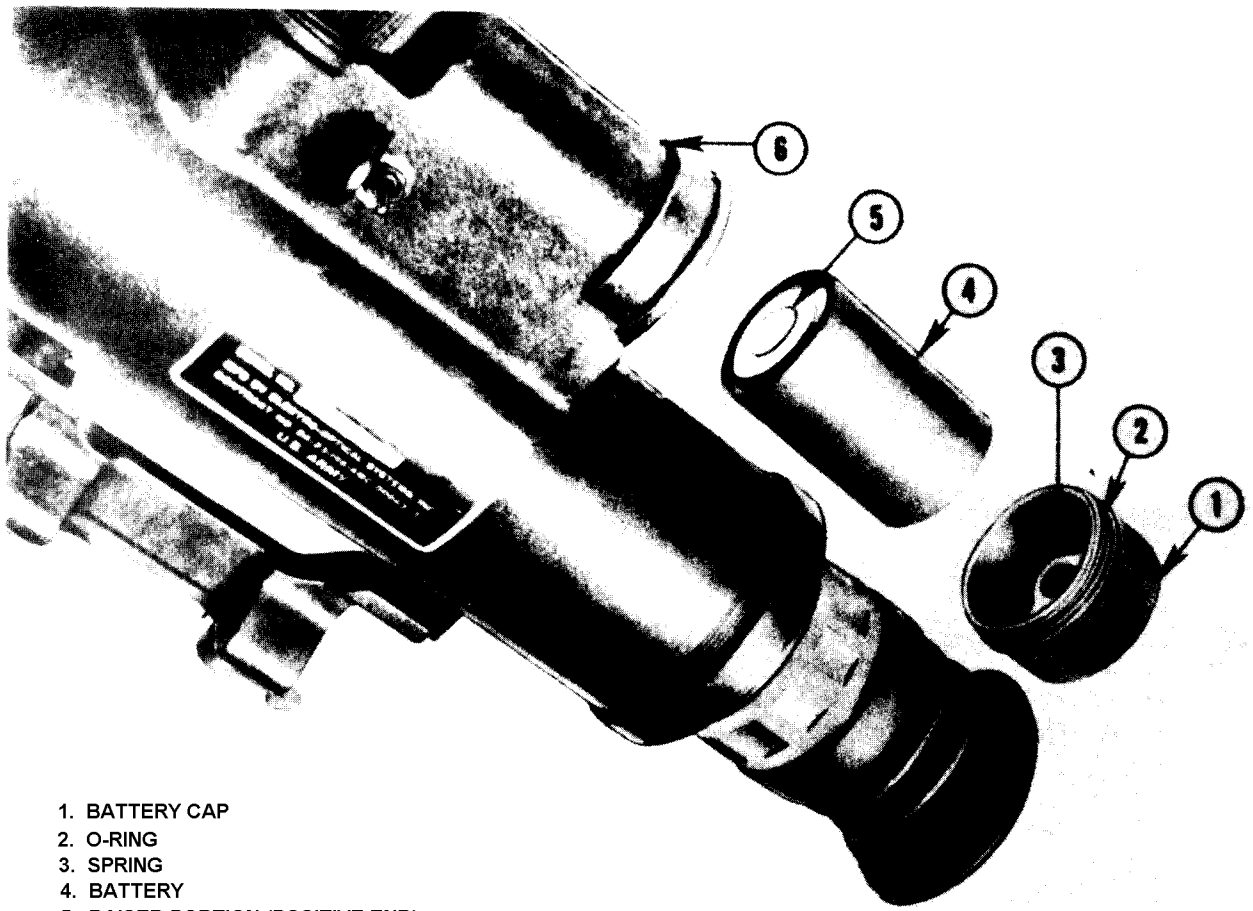
1. EYEPIECE ASSEMBLY
2. RUBBER EYEPIECE

Figure 7. Removal of rubber eyeshield.



1. TELESCOPE MOUNT ASSEMBLY
2. LOCKING SCREWS (2)
3. MOUNTING STUD (2)

Figure 8. Removal of telescope mount assembly.



1. BATTERY CAP
2. O-RING
3. SPRING
4. BATTERY
5. RAISED PORTION (POSITIVE END)
6. BATTERY HOUSING

Figure 9. Installation of battery.

Section II. OPERATION AND FUNCTIONING

9. Operation. *a. General.* The Starlight Scope, although designed to function under the most rugged conditions, is a precision electro-optical instrument and must be handled carefully.

b. Precautions. To prevent damage to the equipment and injury to himself, the operator should observe the following safety precautions:

(1) The contents of the mercury battery are highly irritable to the eyes and oral and nasal tissues; therefore, caution must be exercised when handling and discarding the batteries. To prevent explosion, the battery should not be disposed of by fire. Batteries should be disposed of by burying, or dumping them into a large body of water.

(2) When the image intensifier tube is inadvertently exposed to intense light, it will automatically cut off to prevent burning out the tube and to protect the operator's eye. Continuous exposure of an activated tube to intense light should be avoided.

(3) The Starlight Scope should never be aimed directly at the sun (image intensifier tube ON or OFF) since it will result in a complete failure of the tube.

(4) When operating the Starlight Scope, care must be taken in the viewing procedure. If the rubber eyeshield is not positioned around the eye and against the face, visible light emitted from the eyepiece assembly will "leak" around the eyeshield, illuminating the operator's face.

c. Preoperational Inspection.

(1) Open the shipping container as described in paragraph 7a(l) and remove the Starlight Scope.

(2) Visually inspect all external parts, surfaces, and threads for dust, cracks, chips, or other damage. Visually examine the objective lens assembly and eyepiece assembly for lens fogging or other signs of moisture. Operate the focusing and adjustment knobs to determine their operability.

(3) Check the telescope mount assembly to insure it is secured to the main housing. Inspect lock knobs for freedom of movement. Examine guide groove for burrs, cracks, or any other damage that would prevent mounting.

(4) During daylight operations, insure the lens cap is properly positioned over the objective lens assembly.

d. Installation of Battery.

(1) Insure control switch is in OFF (center) position.

(2) Remove. battery cap as described in paragraph 7 *b* (5).

(3) Insert battery, positive end first, into the battery housing (fig. 9). To identify the positive end, note the (+) or (–) markings on opposite ends of the battery. Should it be necessary to install a battery during the hours of darkness, the positive end can readily be identified by feeling for the "raised portion" located on the positive end of the battery.

(4) Replace the battery caps as instructed in paragraph 8 *a* (3).

e. Operational Sequence. A definite sequence should be used when placing the Starlight Scope in operation. This sequence should be continuously stressed with the new operator until it become second nature and automatic. To place the Starlight Scope in operation during the hours of daylight (the lens cap must be positioned over the objective lens) or darkness:

(1) Position the rubber eyeshield around the eye so as to prevent the visible light emitted from the eyepiece assembly from illuminating other areas of the face.

(2) Move the control switch to the ON (passive reticle) position. If the reticle pattern is not visible, move and hold the control switch in the reticle CHARGE position. Normally, a 5-second charge is sufficient to activate the reticle. Return control switch to the ON position.

(3) Focus the eyepiece assembly by rotating the eyepiece focus ring until the reticle pattern is sharp and clear.

(4) Point the Starlight Scope at a distant target. *After insuring the objective lens focusing knob locking lever is in the unlocked position,* rotate the focusing knob until the image being viewed is clear and sharp. To retain a clear and sharp image, the operator must make an objective lens focal adjustment whenever the range between the Starlight Scope and the target changes.

(5) After operation, return the control switch to the OFF position and remove the rubber eyeshield from the eye.

Caution: **When removing the "non-secure" rubber eyeshield from the eye, the operator must exercise care to prevent the visible light from illuminating his face or l portion of his body. When the Starlight Scope is turned off, visible light will continue to be emitted from the eyepiece assembly for a few moments.**

f. Extreme Cold. A low temperature adapter assembly is provided as a special accessory to the Starlight Scope to permit operation in temperatures as low as –65° F. The assembly is installed (fig. 10) to the Starlight Scope as follows:

(1) Insure the control switch is in the OFF position.

(2) Remove the battery cap and battery from the battery housing.

(3) Insert the low temperature adapter tube into the battery housing and turn the tube cap clockwise until secured.

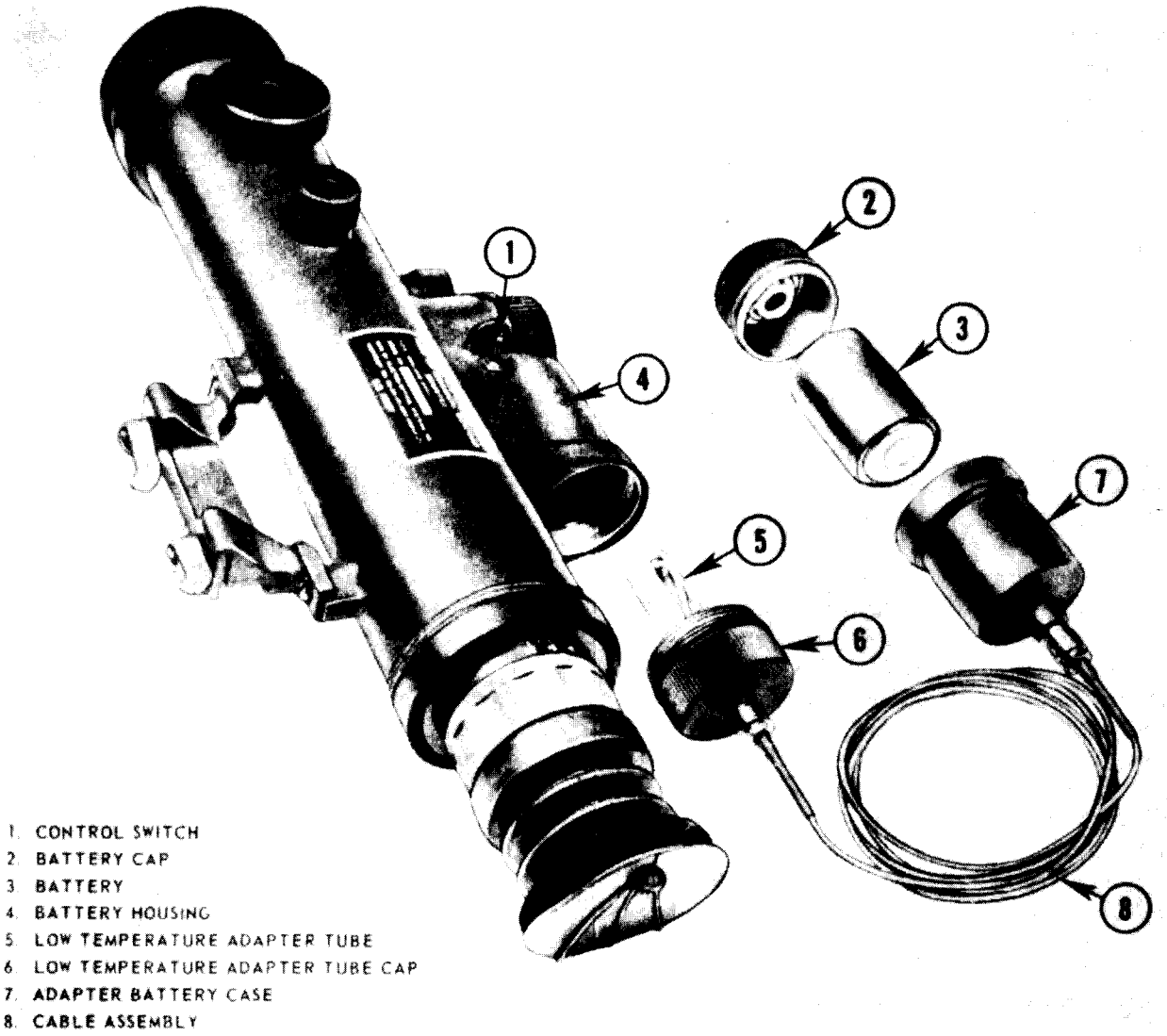


Figure 10. Installation of low temperatures adapter assembly.

(4) Insert the battery, positive end first, into the adapter battery case. Secure with the buttery cap from the Starlight Scope.

(5) The battery and adapter buttery case are carried inside the operator's clothing for protection against extreme low temperatures.

(6) Once the low temperature adapter assembly has been installed, the Starlight Scope is operated in the normal manner. The lenses may have a tendency to fog and frost up in cold weather and will require frequent clearing. The operator should avoid breathing into the rubber eyeshield as this will increase the fogging and frosting of the eyelens.

g. Extreme Heat. The Starlight Scope is designed for operation without damage at temperatures up to +125° F.

h. Dusty or Sandy Conditions. The lens will require frequent cleaning when the Starlight Scope is operated in dusty or sandy areas. The operator should first remove most of the accumu-

lated dust or sand with the lens cleaning brush, then use the lens tissue for thorough cleaning of the lenses.

i. Rainy or Humid Conditions. The Starlight Scope is capable of satisfactory operation in rainy or humid conditions.

Caution: **To prevent corrosion or deterioration, thoroughly dry all parts of the Starlight Scope after exposure to rain or high humidity.**

10. Functioning. For reasons of clarity and to preclude discussions of a classified nature, only the basic functioning of the Starlight Scope is described in this training circular.

a. Power Supply. When the control switch is moved to the ON position, the 6.75-volt battery furnishes power to the oscillator. The oscillator receives this 6,75 voltage and increases it to 2,800 volts. The increased voltage is transmitted to the multiplier plate of the image intensifier tube. The multiplier plate insures that each stage of the three-stage image intensifier tube receives the required voltage for operation.

b. Objective Lens Assembly. The objective lens assembly, utilizing the ambient light of the night sky, focuses an image of the scene being viewed onto the front face (cathode) of the image intensifier tube. Under nighttime illumination conditions, this image is very dim and not visible to the naked eye.

c. Image Intensifier Tube. The image intensifier tube receives the dim image and transmits it to the screen (anode) at the rear of the tube. In so doing, the brightness of the image is amplified to such a degree it can be seen with the naked eye.

d. Eyepiece Assembly. The eyepiece magnifies and focuses the image, enabling the operator to view the amplified image displayed on the anode of the image intensifier tube.

e. Sight Reticle. The sight reticle pattern (fig. 3) is composed of eight reticle beads. Positioned in the center of each bead is a small dot of phosphor. The phosphor, when subjected to radiation, gives off light. The intensity of light radiation striking the phosphor determines the use of the PASSIVE or CHARGED reticle.

(1) When the control switch is moved to the ON passive reticle position, light radiation from the night sky entering the Starlight Scope through the objective lens strikes the phosphor dots causing them to illuminate. Under moonlight rind / or starlight conditions, light radiation is intense enough to illuminate the phosphor dots.

(2) When operating the Starlight Scope under low light level conditions (no moonlight or starlight), the intensity of light may not be sufficient to activate the phosphor dote. To compensate for this, the operator moves the control switch to the reticle CHARGE position, turning on the sight reticle lamps. The intensity of light emitted by the lamp is sufficient to charge the phosphor dots. It may be necessary to maintain the reticle CHARGE position of the control switch for a few seconds to provide an adequate charge to the phosphor dote (switch is spring loaded and automatically returns to the OFF position when pressure is released). After charging, the control switch must be manually returned to the ON position to resume operation.

Caution: **When charging the reticle, the operator should insure the lens cap is positioned over the objective lens to prevent the visible light, emitted by the sight reticle lamp, from being detected.**

Section III. INSTALLATION

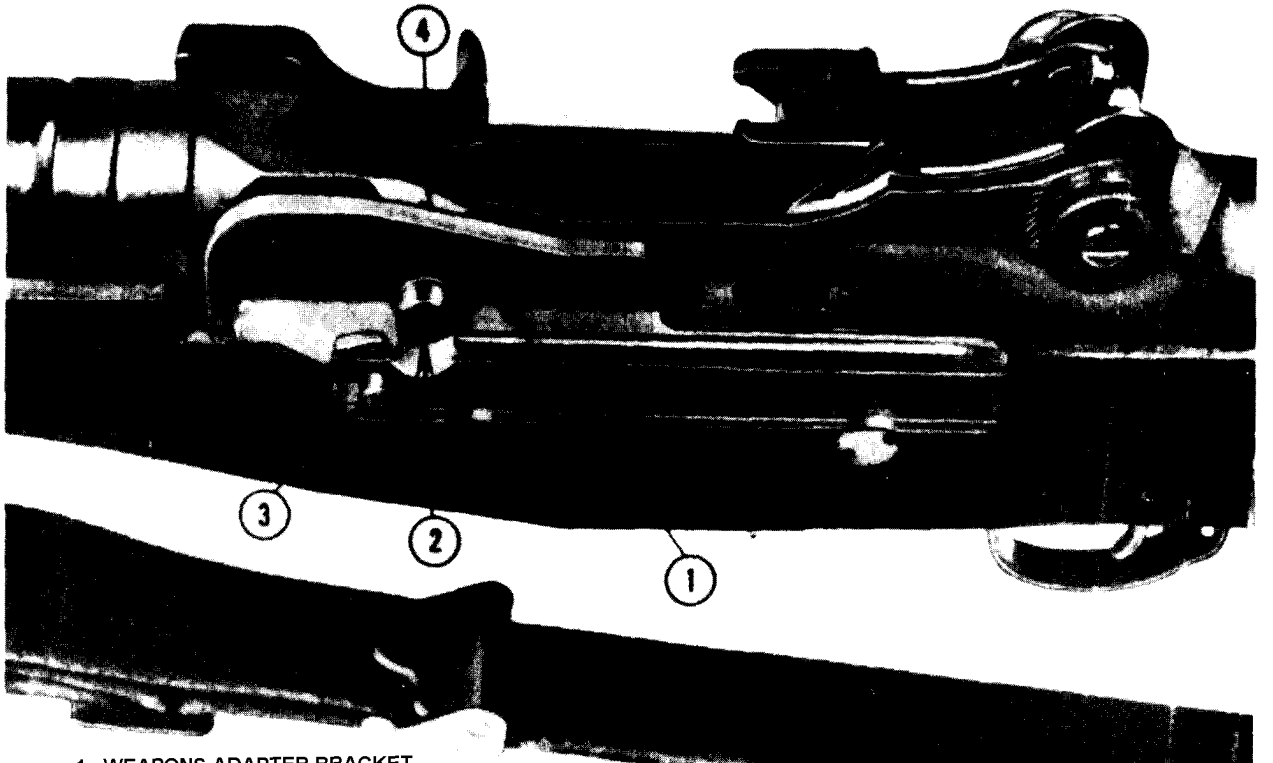
18. Weapons Adapter Brackets. *a. M414 or M14A2 Rifle.* Aline the weapon adapter bracket with the groove and screw recess on the left side of the receiver (fig. 11). Secure the bracket to the receiver by tightening the socket head screw of the bracket with the allen wrench.

b. XM16E1 Rifle. Unthread the wingnut to the threadstop on the screw of the weapon adapter bracket (fig. 12). Pull tab away from the bracket and slide the mounting ear under the carrying handle of the rifle. Position the slotted groove in the hose of the bracket over the top of the receiver group inside the opening of the carrying handle. Firmly tighten the wingnut until the tab is pulled tightly against the carrying handle and bracket.

c. M72 Light Antitank Weapon. Position the weapon adapter bracket on the tube of the weapon so that the bracket notch and location stops engage the front of the firing mechanism. Swing the hinged lower clamp around the bottom of the tube, and engage and secure the dial lock latch (fig. 13).

d. 90-mm Recoilless Rifle M67. Position the backup plate of weapon adapter bracket against the inside of the M103 sight mounting bracket (fig. 14). Place the mounting pad of the bracket against the left side of the M103 sight mounting bracket so that the screw holes in the mounting pad mate with the screw holes in the backup plate. Install and tighten the three socket head screws with the allen wrench.

e. M60 Machinegun. The weapon adapter bracket for the M60 machinegun consists of n saddle block and a sight, adopter bracket (fig. 15).



1. WEAPONS ADAPTER BRACKET
2. SOCKET HEAD SCREW
3. PIN STOP
4. GROOVE

Figure 11. Installation of weapon adapter bracket to the M14 or M14A2 rifle.

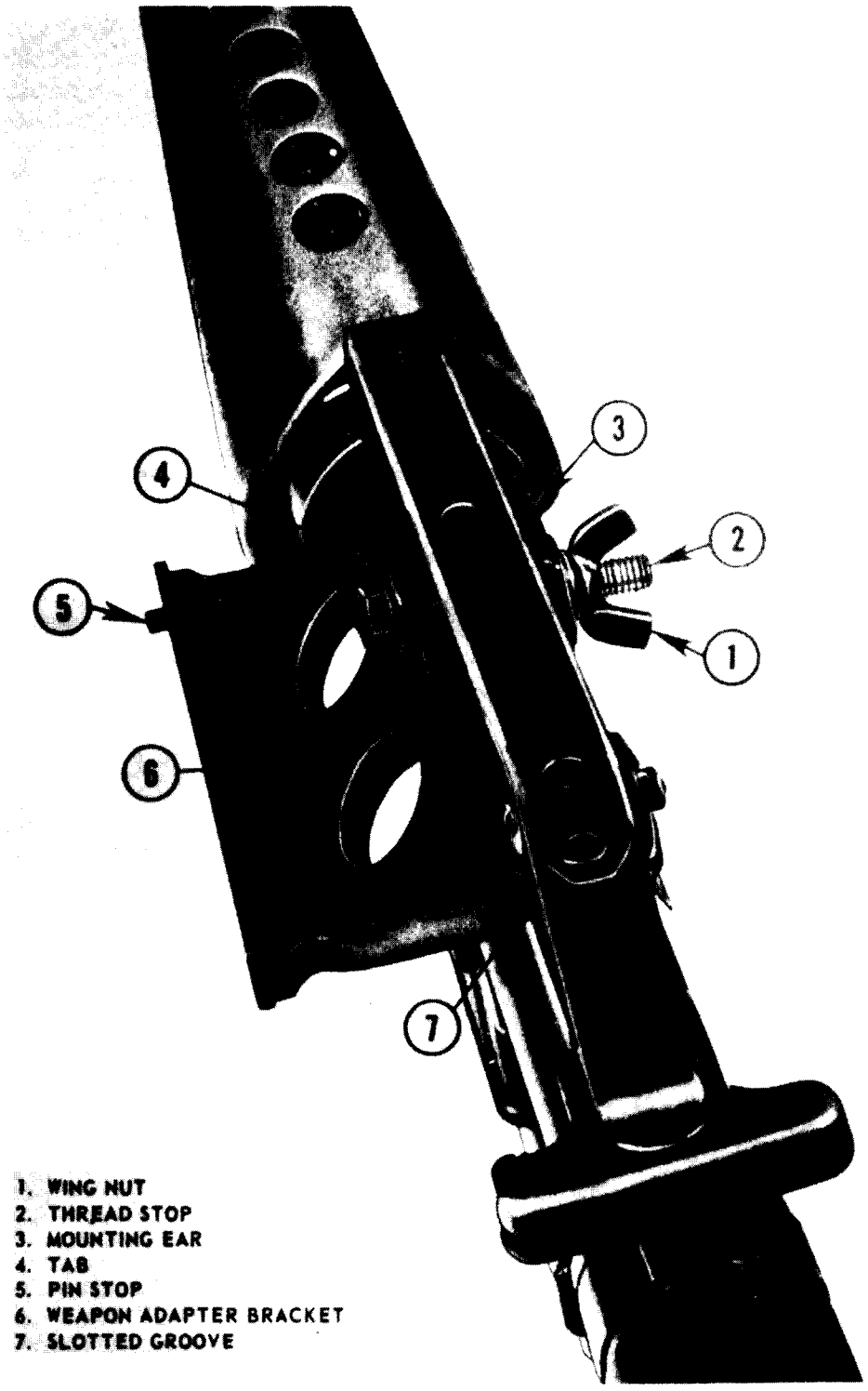


Figure 12. Installation of weapon adapter bracket to the XM16E1 rifle.

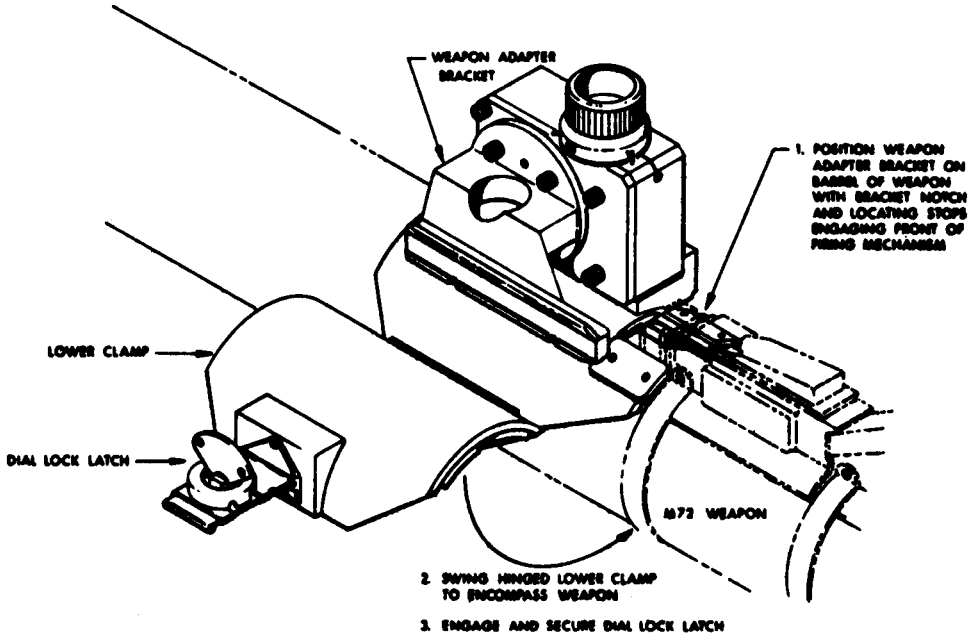


Figure 13. Installation of weapon adapter bracket to the M72.

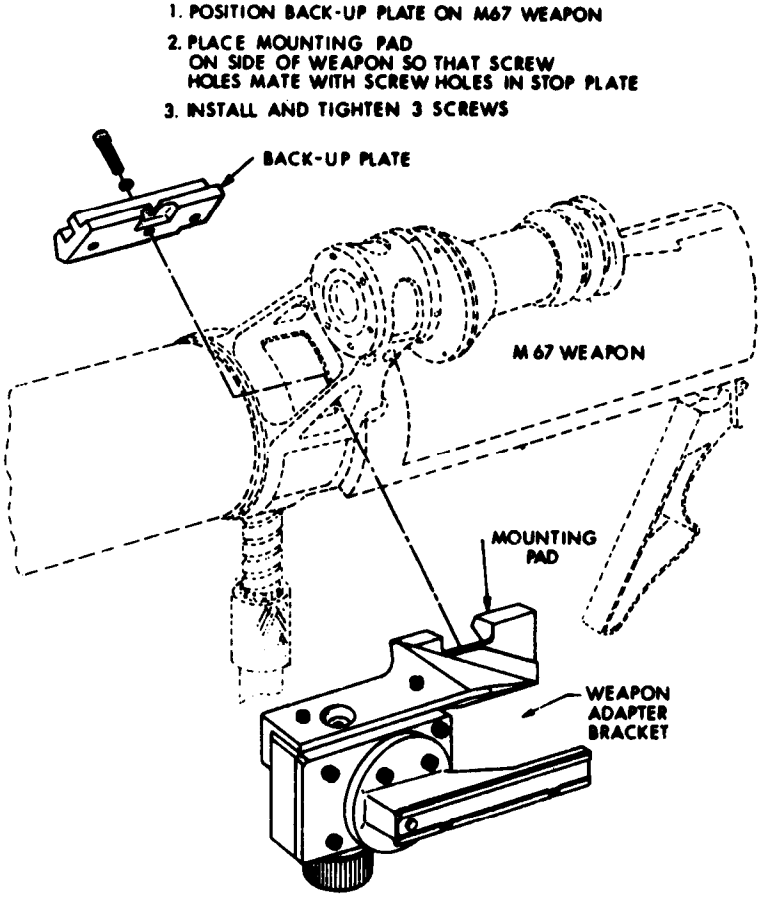


Figure 14. Installation of weapon adapter bracket to the 90-mm recoilless rifle M67.

To install the saddle block to the M60 machinegun, refer to figure 16 and mount as follows:

(1) Clear the M60 machinegun as outlined in FM 23-67.

(2) Remove barrel group (1, fig. 16).

(a) Cock the weapon.

(b) Place safety (1) on the SAFE position.

(c) Raise barrel lock lever (2).

(d) Pu11 barrel group (3) straight forward and remove.

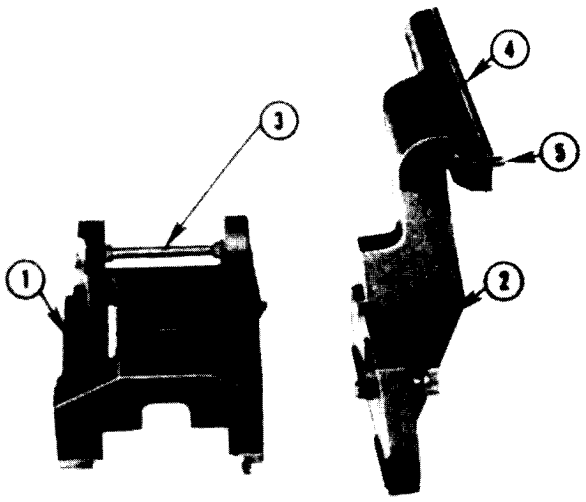
Caution: **With the barrel group removed, do not allow the bolt to go forward as this will cause damage to the cam roller on the bolt.**

(3) Remove forearm assembly (①, fig. 16). Insert nose of cartridge into the latch hole in the bottom of forearm assembly (4). Apply pressure to the cartridge, releasing the forearm latch; raise the rear of the forearm assembly slightly and remove it to the front (5).

(4) Remove barrel lock lever and barrel locking shaft (②, fig. 16).

Caution: **The detent plunger (6) and detent spring (7) are under spring tension. Before removing lock pin (8), place hand over top of barrel lock lever (9) to prevent loss of parts upon removal of lock pin. Insure barrel lock lever is in vertical position.**

(a) Remove lock pin (8), detent pin (1O), detent spring (7), and plunger (6) from barrel lock lever (9).



1. SADDLE BLOCK
2. SIGHT ADAPTER BRACKET
3. SADDLE LOCK SHAFT
4. GUIDE RAIL
5. PIN STOP

Figure 16. Weapon adapter bracket for the M60 machinegun.

(b) Withdraw barrel lock shrift (11) from left side of receiver group and remove barrel lock lever.

(5) Installation of saddle block (③, fig. 16).

(a) Loosen four set screws (13) and (14) (two set screws are located on each side of the saddle block). Remove saddle lock shaft from saddle block (15).

(b) Place saddle block in position on weapon (12), insuring the half moon recess on left side of the saddle block is seated under the windage knob or the rear sight.

(c) Replace barrel lock lever and insert saddle lock shaft (from the left side of the machinegun) into its recess in the saddle block (15). Insure the half moon cut on the saddle lock shaft is positioned down when replacing the shaft.

(d) Reassemble barrel lock lever (reverse procedure given in paragraph (4) above) onto the saddle lock shaft.

(e) Tighten four set screws (13) and (14) and tighten saddle block screw (16).

Note. Since the saddle block will not interfere with normal operation of the machinegun, it should not be removed aftcr installation. Install the sight adaptcr bracket whenever the Starlight Scope is to be used.

(6) Sight adapter bracket installation (④, fig. 16).

(a) Plato sight adapter bracket (19) in place against saddle block (12).

(b) Install and tighten lock washer (17) and screw (18) through sight adapter bracket into saddle block.

(c) Replace forearm assembly and barrel group by reversing procedure given in (2) and (3) above.

f. 40-mm Grenade Launcher M79. The weapon adapter bracket for the M79 is not being produced currently. A discussion of the correct mounting procedures is withheld pending receipt and testing of the item.

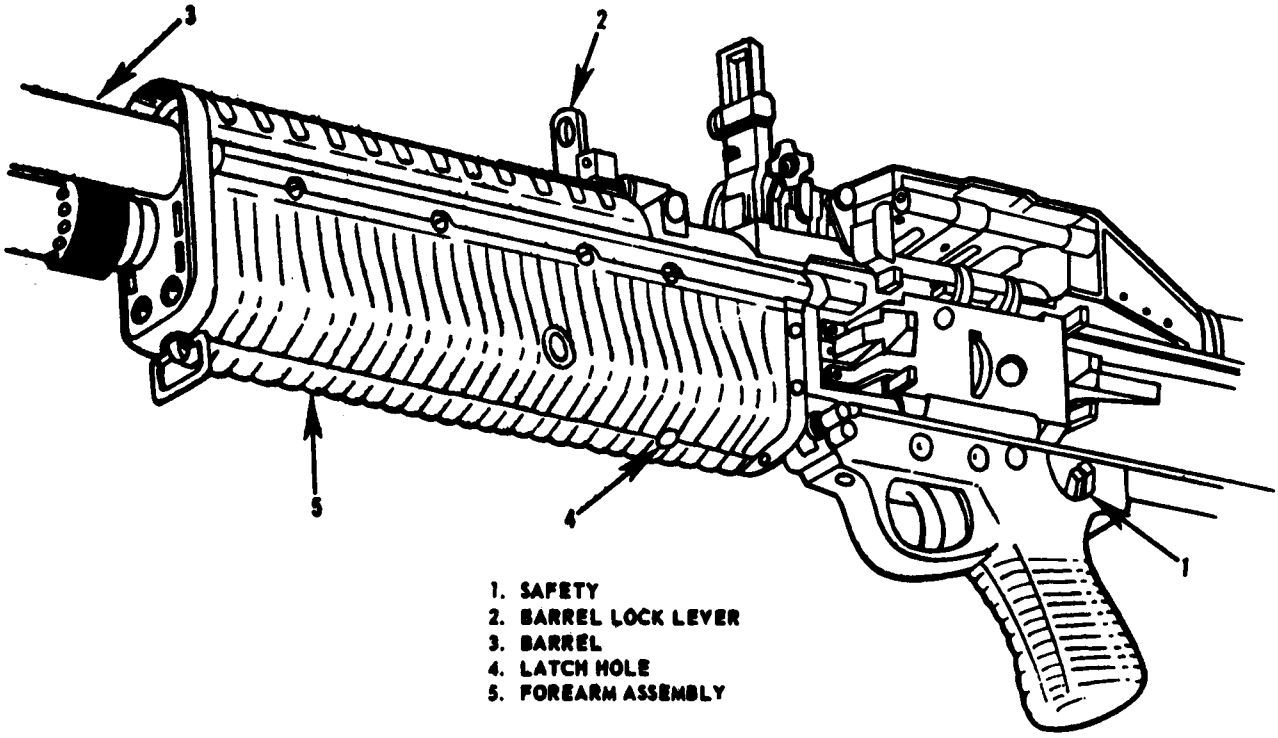
12. Starlight Scope. *a. General.* Regardless of which weapon the Starlight Scope is employed with, the procedure for mounting to the weapons adapter brackets are the same. Each weapon adapter bracket has an identical guide rail (fig. 17) which mates with the telescope mount assembly of the Starlight Scope.

b. Mounting. The Starlight Scope is mounted to the weapon adapter bracket as follows:

(1) Rotate lock knobs of the telescope mount assembly forward (toward objective lens) until they come to stop on the pins Iocated on the assembly,

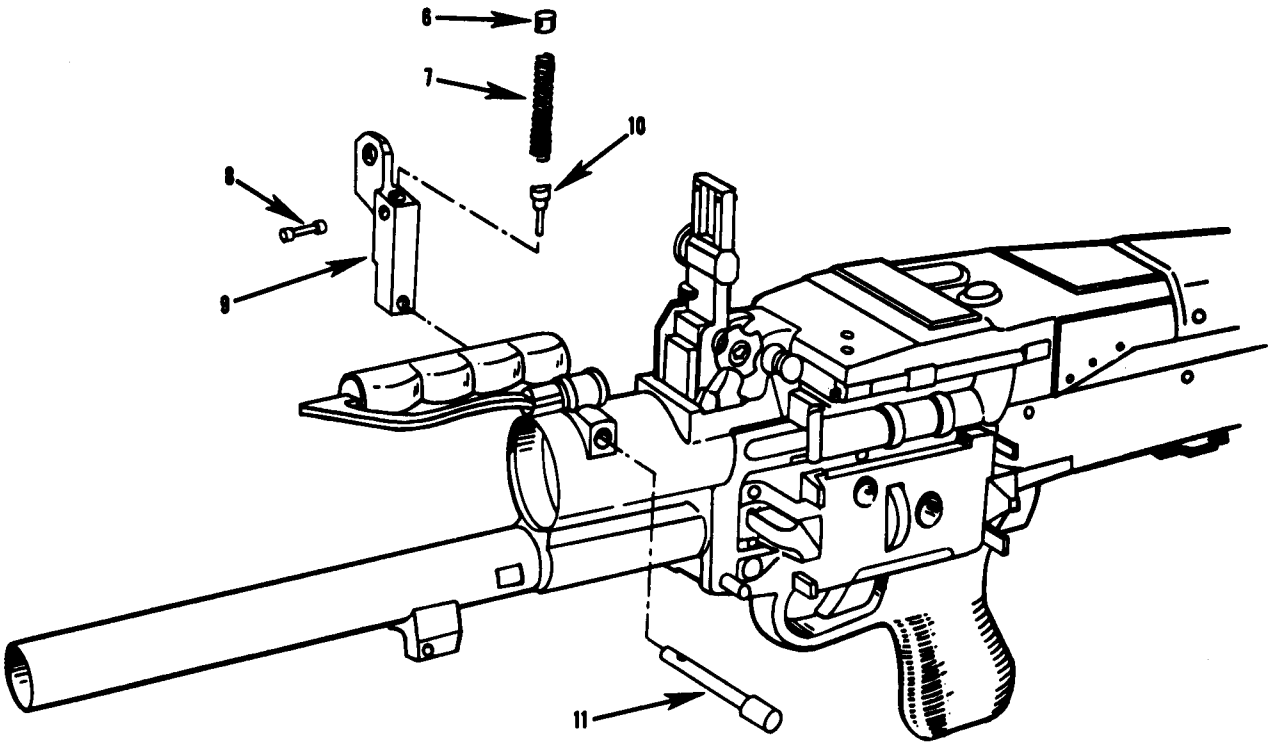
(2) Slide the telescope mount assembly onto the guide rail of the weapons adapter bracket from the rear until positioned against the pin stop of the guide rail.

(3) The Starlight Scope is locked to the weapons adapter bracket by rotating the two locking knobs of the telescope mount assembly in a rearward direction.



① *Removal of barrel group and forearm assembly from the M60 machinegun*

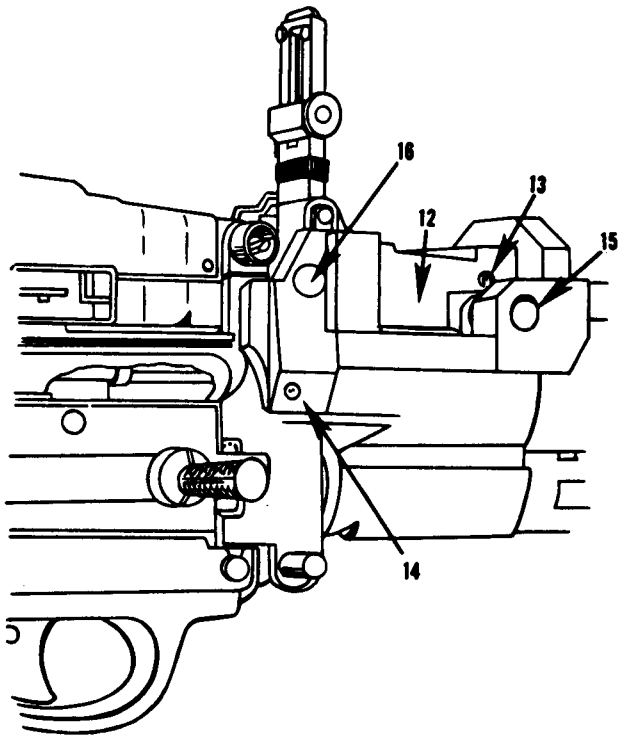
Figure 16. Attaching the bracket to the M60 machinegun.



6. DETENT PLUNGER
7. DETENT SPRING
8. LOCK PIN
9. BARREL LOCK LEVER
10. DETENT PIN
11. BARREL LOCK SHAFT

③ *Removal of barrel locking lever and barrel locking shaft from the M60 machinegun*

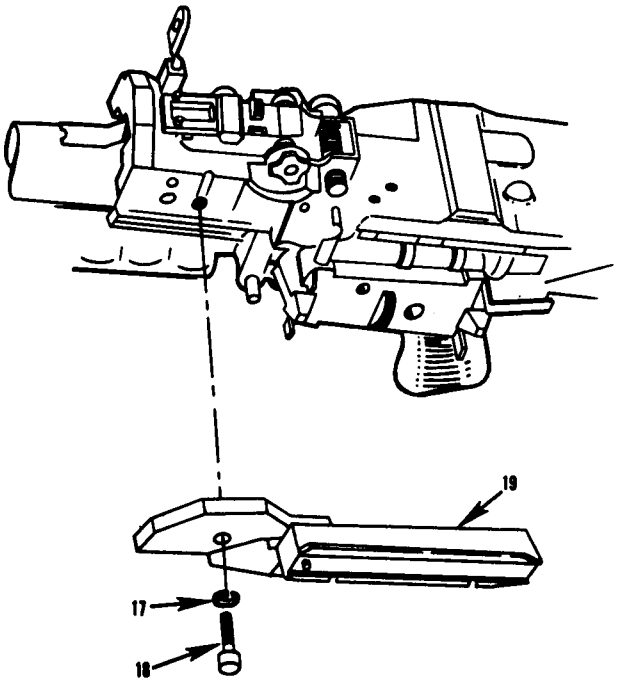
Figure 16.—Continued.



12. SADDLE BLOCK
13. SET SCREWS
14. SET SCREWS
15. SADDLE LOCK SHAFT RECESS
16. SADDLE BLOCK SCREW

③ *Installation of saddle block to the M60 machinegun*

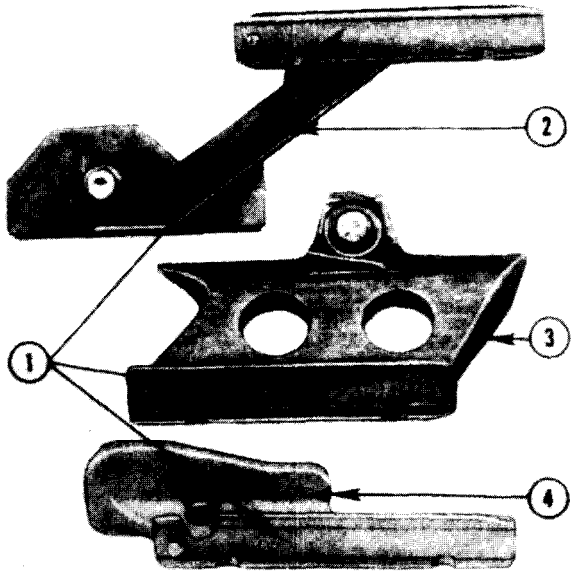
Figure 16.—Continued.



17. LOCK WASHER
18. SOCKET HEAD SCREW
19. SIGHT ADAPTER BRACKET

④ *Installation of sight adapter bracket to saddle block*

Figure 16.—Continued.



1 GUIDE RAIL
2 SIGHT ADAPTER BRACKET FOR M60 MACHINEGUN
3 WEAPONS ADAPTER BRACKET FOR XM16E1 RIFLE
4 WEAPONS ADAPTER BRACKET FOR M14 OR M14A2 RIFLE

Figure 17. Weapons adapter brackets showing guide rail.

Section IV. MAINTENANCE, TROUBLESHOOTING, AND DESTRUCTION

13. General. This section contains information on maintenance, troubleshooting, and destruction. The discussion on maintenance is confined to that information necessary for the operator to maintain the Starlight Scope. For information concerning organizational and higher echelons of maintenance see TM 11-1090-268–15.

14. Tools and Equipment. The wrenches, batteries, and other accessories contained in the shipping container, with the exception of a screwdriver, provide the tools and equipment necessary for operator maintenance. A screwdriver is required to disassemble the telescope mount assembly from the main housing.

15. Care and Cleaning. *a. General.* To insure the Starlight, Scope is ready for operation at all times, inspect it systematically to discover and correct defects before serious damage or failure results. Note defects during operation and insure appropriate corrective action is taken upon completion of operations. All defects, deficiencies, and corrective action taken will be recorded on DA Form 2404 (Equipment Inspection and Maintenance Worksheet) at the earliest opportunity.

b. Special Instructions.

(1) Clean exposed glass surfaces of the objective lens and eyepiece lens by removing loose dirt with the lens brush and then clean the glass surfaces with lens tissue. Dampen lens tissue with water if necessary (distilled water if available).

(2) Clean all exposed metal surfaces on the Starlight Scope and low temperature adapter assembly with a cloth. Dampen cloth with water if necessary.

(3) No lubricating materials are required by the operator for maintenance of the Starlight Scope.

c. Daily Preventive Maintenance. The operator must perform the following daily preventive maintenance services:

(1) Inspect and service the shipping container

for dirt, dents, holes, damaged latches, latch clasps, missing parts, identification and instruction plates, and for movability of pressure relief valve. If unserviceable, replace the shipping container.

(2) Remove the Starlight Scope and accessories from the shipping container and inspect top and bottom liners for tears, dirt accumulation, and water-soaked condition. Remove loose dirt with a soft brush and clean with a damp cloth. Remove wet liners and allow to dry. Replace liners if damaged.

(3) Inspect and service canvas carrying case for holes, tears, dirt, and water-soaked condition. If damaged or mildewed, replace canvas carrying case.

(4) Inspect and service main housing of Starlight Scope for dents, cracks, and loose or missing parts. Tighten loose parts and report missing parts or damaged main housing to organizational maintenance.

(5) Inspect and service objective and eyepiece lenses for dirt, dust, cracks, scratches, and signs of fogginess or moisture. If lenses are scratched, cracked, and fogginess or moisture appears to be within the objective or eyepiece assembly, report condition to organizational maintenance.

(6) Inspect objective lens focus knob and locking lever for dirt, free operation, positive locking action, or damage. Remove *only* the focus knob and locking lever if dirty or damaged. Clean the focus knob and locking lever and reassemble to the collet. Replace damaged knob or lever and reassemble. Report faulty operation of focus knob or locking lever to organizational maintenance.

(7) Inspect the azimuth and elevation adjustment knobs for dirt, damage, and freedom of operation. Remove *only* the azimuth or elevation adjustment knobs if dirty or damaged. Clean dirty knob and reassemble. Replace damaged knob and reassemble. Report faulty operation to organizational maintenance.

(8) Inspect battery for corrosion, leakage, or other damage. Dispose of a defective battery.

(9) Remove battery cap from battery housing and inspect and service for dirt, cracks, dents, and damaged battery spring or O-ring. Replace damaged battery cap, spring, or O-ring. Install new battery and reassemble battery cap.

(10) Inspect exterior of oscillator cap for dirt, cracks, and dents. *Do not* remove oscillator cap from oscillator housing. Clean outside surfaces only. Report damaged oscillator cap to organizational maintenance.

(11) Although the operator is not authorized to remove the oscillator cap, it is possible to check the functioning of the oscillator. Move the control switch to the ON position and listen for operating hum which is audible if oscillator is working. If operating hum cannot be heard, report condition to organizational maintenance.

(12) With control switch in the ON position, look into the eyepiece and inspect for operation of the image intensifier tube. *Do not attempt removal of the image tube from the main housing.* Return control switch to the OFF position. Report all failures or malfunctions of image tube to organizational maintenance.

(13) Inspect telescope mount assembly for cracks, breaks, dents, dirt, and operability of locking knobs. Service and replace as required,

(14) Inspect rubber eyeshield for dirt, oil, cracks, flexibility, and other damage. Remove eyeshield if dirty or damaged. Clean with a clean, wet cloth. Replace damaged eyeshield and assemble new eyeshield onto the eyepiece assembly.

(15) Insuring the control switch is in the OFF position, remove the lens cap and inspect for dirt, obstructed holes, cracks, or other damage. Clean with wet cloth and reassemble to objective lens assembly, Replace damaged lens cap and reassemble.

16. Troubleshooting. This paragraph provides information useful in diagnosing and correcting

unsatisfactory operation or failure of the Starlight Scope. Each trouble symptom stated is followed by a list of probable causes of the trouble. The possible remedy recommended is described opposite the probable cause. Since the operator is limited to only minor corrective actions, most corrective measures will be performed at organizational or higher support levels.

TROUBLESHOOTING GUIDE

Probable cause	*Possible remedy*
a. Objective Lens Will Not Focus.	
(1) Damaged eccentric shaft.	(1) Report to organizational maintenance.
(2) Damaged focus knob.	(2) Replace focus knob.
(3) Damaged objective lens assembly.	(3) Report to organizational maintenance.
b. Eyepiece Assembly Will Not Focus.	
(1) Damaged eyepiece focus ring	(1) Report to organizational maintenance.
(2) Dirt or sand accumulated around focus ring.	(2) Clean area around focus ring.
c. Weak or No Illumination of Imaae Intensifier Tube.	
(1) Weak or defective battery	(1) Replace battery.
(2) Defective oscillator	(2) Report to organizational maintenance.
(3) Defective image intensifier tube.	(3) Report to organizational maintenance.
(4) Defective control switch	(4) Report to organizational maintenance.
(5) Loose battery cap	(5) Tighten battery cap.
(6) Defective battery cap spring	(6) Replace battery cap spring.
(7) Defective oscillator cap and/or assembly	(7) Report to organizational maintenance.
d. Image Blurred.	
(1) Objective lens dirty or fogged	(1) Clean lens.
(2) Eyepiece lens dirty or fogged	(2) Clean lens.
(3) Objective lens out of focus	(3) Adjust by rotating focus knob.
(4) Eyepiece out of focus	(4) Adjust by rotating eyepiece focus ring.
(5) Weak battery	(5) Replace battery.
(6) Defective oscillator	(6) Report to organizational maintenance.
(7) Defective image intensifier tube	(7) Report to organizational maintenance.
(8) Defective objective lens assembly	(8) Report to organizational maintenance.
(9) Defective eyepiece assembly	(9) Report to organizational maintenance.
e. Focusing Knob Will Not Rotate.	
(1) Dirt or sand accumulated around focusing knob.	(1) Clean focusing knob.
(2) Locking lever dammed	(2) Replace locking lever.
(3) Collet damaged	(3) Report to organizational maintenance.
f. Control Switch Will Not Detent.	
(1) Defective control switch	(1) Report to organizational maintenance.
g. Elevation or Azimuth Adjustment Knob Will Not Rotate.	
(1) Dirt or sand accumulated around knob. . . .	(1)
(2) Defective adjustment assembly	(2) Report to organizational maintenance.
h. Reticle Will Not Adjust.	
(1) Defective azimuth or elevation adjustment knob assembly.	(1) Report to organizational maintenance.

TROUBLESHOOTING GUIDE—Continued

Probable cause	*Possible remedy*
i. Reticle Lamp Will Not Illuminate.	
(1) Defective reticle lamp	(1) Report to organizational maintenance.
(2) Defective power switch	(2) Report to organizational maintenance.
(3) Weak or defective battery	(3) Replace battery.
j. Low Temperature Adapter Assembly Will Not Operate.	
(1) Wrong polarity of battery in adapter . . . . . battery case.	(1) Reverse position of battery.
(2) Defective or weak battery	(2) Replace battery.
(3) Defective cable assembly	(3) Report to organizational maintenance.
k. Starlight Scope Will Not Mount on Weapon.	
(1) Dirt or sand between mounting grooves.	(1) Clean telescope mount assembly.
(2) Telescope mount assembly damaged.	(2) Replace telescope mount assembly.
(3) Damaged weapn adapter bracket	(3) Replace weapon adapter bracket.
(4) Damaged lock knobs	(4) Replace telescope mount assembly.

17. Destruction To Prevent Enemy Use. *a. General.*

(1) Destruction of the Starlight Scope and related material, when subject to capture or abandonment in the combat zone, will be undertaken by the using unit when, in the judgment of the unit commander, such action is necessary in accordance with the unit's mission, or policy established by the commander concerned. If at all possible, the Starlight Scope should be evacuated.

(2) When the commander concerned considers it necessary, he orders the Starlight Scope's destruction to prevent one or more of the following:

(a) Capture by the enemy.

(b) Abandonment in the combat zone.

(c) To deprive enemy intelligence agencies knowledge of its existence, functioning, or exact specifications.

b. Principles of Destruction.

(1) Destruction should be as complete as possible within limitations of time and equipment. In any event, the most important parts are destroyed or evacuated. The same essential parts are destroyed or evacuated in all units to prevent the enemy from constructing one complete Starlight Scope from several damaged ones.

(2) Personnel are trained in the prescribed methods of destruction.

(3) The issue and use of special equipment, such as incendiary grenades, are command decisions and depend on the tactical situation.

(4) Methods described are listed in the order of their effectiveness. Follow the sequence in which the steps are given.

c. Methods of Destruction.

(1) *Destruction by burning.* Stand the Starlight Scope on end, preferably in a hole, with the objective lens up. Position a thermate grenade on the objective lens and pull the pin. Insure that the grenade has destroyed the optics and image intensifier tube.

(2) *Destruction by weapons fire.* Place the Starlight Scope on end, preferably in a hole, with the objective lens up. Fire one or more rounds into the Starlight Scope through the objective lens. Insure that the round(s) penetrates completely through the objective lens, reticle lens, image intensifier tube, and the eyepiece assembly.