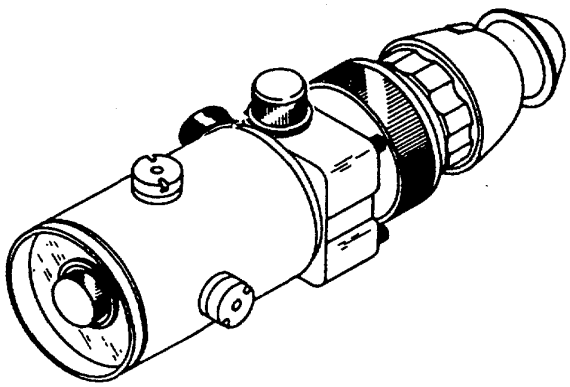
TECHNICAL MANUAL

UNIT AND DIRECT SUPPORT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) FOR NIGHT VISION SIGHT, INDIVIDUAL SERVED WEAPON AN/PVS-4 (NSN 5855-00-629-5334) (EIC: IPJ)



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HEADQUARTERS, DEPARTMENT OF THE ARMY
1 JUNE 1993

WARNING

- Lack of eyeshield cushion to absorb weapon recoil can cause facial cuts, bruises and possible loss of eyesight.

- Voltages of approximately 8,000 volts exist in the image intensifier when the equipment is turned on. The image intensifier normally will retain a residual high voltage charge. This charge must be removed when the image intensifier has been operated outside its housing.

DANGER EXPLOSION

The BA-5567/U lithium battery contains sulfur dioxide gas under pressure and should be handled in the following manner:

- DO NOT heat, puncture, disassemble, short circuit, attempt to recharge, or otherwise tamper with the batteries.

- DO NOT use two BA-5567/U batteries at the same time to operate the sight.

- Turn off the equipment if the battery compartment becomes unduly hot. If possible, wait until the batteries have cooled before removing them.

- The batteries have a safety vent to prevent explosion. When they are venting gas, you will smell gas, your eyes may become irritated, or you may hear the sound of gas escaping. When the safety vents have operated, the batteries are fairly safe from bursting, but still must be handled with care because of the heat.

- DO NOT carry batteries in pockets containing metal objects such as coins, keys etc,. Metal objects can cause the batteries to short circuit and become very hot. In the case of BA-5567/U lithium batteries a short circuit could cause them to explode.

TOXIC MATERIAL

- The image intensifier phosphor screens contain toxic materials. If an image intensifier becomes broken, be extremely careful to avoid inhalation of the phosphor screen material and do not allow it to come in contact with the mouth or open skin wounds.

- If the phosphor screen material contacts your skin, wash it off immediately with soap and water.

- If you inhale/swallow any phosphor screen material, drink a lot of water, induce vomiting, and seek medical attention as soon as possible.

- If you inhale sulfur dioxide, seek medical attention.

FIRST AID

For first aid or artificial respiration, see FM21 -1 1, First Aid for Soldiers.

TECHNICAL MANUAL

NO. 11-5855-213-23&P

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 1 June 1993

UNIT AND DIRECT SUPPORT MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST FOR NIGHT VISION SIGHT, INDIVIDUAL SERVED WEAPON AN/PVS-4 (NSN 5855-00-629- 5334) (EIC: IPJ)

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

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, DA Form 2028 (Recommending Changes to publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to Commander, U.S. Army Communications-Electronics Command, ATTN: AMSEL-LC-LM-LT, Fort Monmouth, NJ 07703-5007. A reply will be furnished directly to you.

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*** This manual supersedes TM 11 -5855-213-23P, dated 1 Dec 87 and TM 11 -5855-213-24&P, dated 12 Dec 77 including all changes.**

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HOW TO USE THIS MANUAL

Usage

You must familiarize yourself with the entire maintenance procedure before beginning the maintenance task. Read and follow all WARNINGS, CAUTIONS, and NOTES.

The End Item Code (EIC) appears on the front cover for your convenience to use on various forms.

Manual Overview

This manual contains the Maintenance Allocation Chart (MAC) in appendix B, Repair Parts and Special Tools List (RPSTL) in Appendix C, Expendable Durable Items List in Appendix D and Illustrated List of Manufactured Items in Appendix E.

Special Features

On the front cover certain section titles are boxed and at the right edge of each box is a blackened area. This blackened area matches a black mark appearing on the first page of that section in the manual.

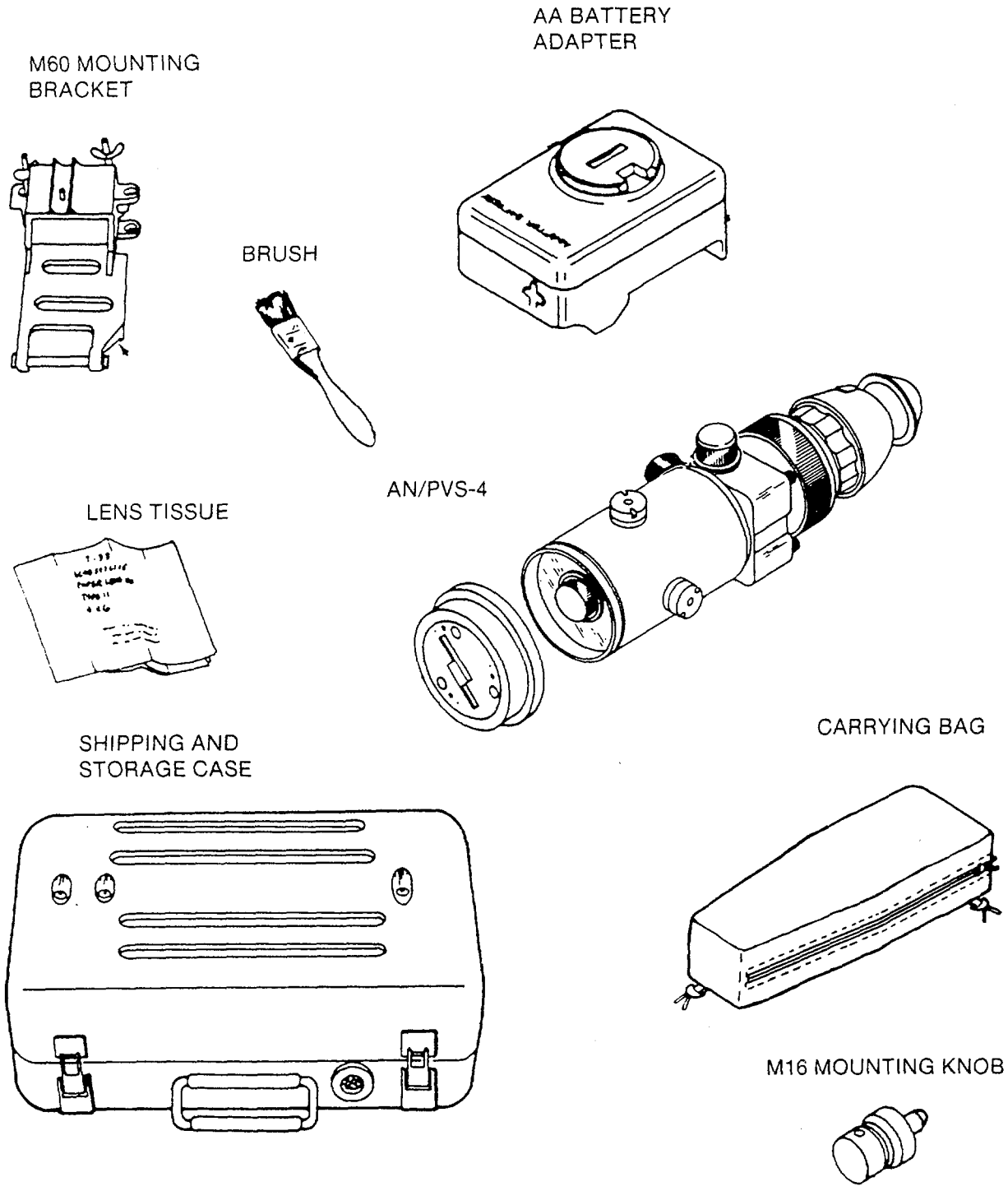

Figure 1-1. Night Vision Sight, Individual Served Weapon AN/PVS-4

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INTRODUCTION

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OVERVIEW

Chapter 1 of this technical manual is intended to give you information regarding the type of equipment, its characteristics, and the principles of operation that will help you maintain it properly.

Section 1. General Information

1-1 SCOPE

a. Type of Manual. Unit and Direct Support maintenance manual including Repair Parts Special Tools List (RPSTL).

b. Model Number and Equipment Name: AN/PVS-4 Night Vision Sight, Individual Served Weapon.

c. Purpose of Equipment: The AN/PVS-4 sight is a self contained night vision device that enables improved night vision using ambient light from the sky (moon, stars, skyglow, etc.).

1-2 MAINTENANCE FORMS RECORDS AND REPORTS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, The Army Maintenance Management System (TAMMS).

1-3 DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

For instructions on the destruction of Army electronics materiel to prevent enemy use, refer to TM 750-244-2.

1-4 PREPARATION FOR STORAGE OR SHIPMENT

Refer to Chapter 2, Paragraph 2-1 5, for instruction regarding preparation for storage or shipment of the AN/PVS-4 and Chapter 3, Paragraph 3-17 for packing and shipping the image intensifier.

1-5 OFFICIAL NOMENCLATURE, NAMES AND DESIGNATIONS

Table 1-1 Provides a cross reference of nonofficial and official terms.

Table 1-1. Nomenclature Cross-Reference List.

COMMON NAME	OFFICIAL NOMENCLATURE
Sight	Night Vision Sight, Individual Served Weapon AN/PVS-4

1-6 REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your sight needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like design or performance. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to Commander, U.S. Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-PA-MA-D, Fort Monmouth, New Jersey 07703-5007. We'll send you a reply.

1-7 WARRANTY INFORMATION

If a sight or image intensifier are covered by warranty, the items are warranted to conform to design and manufacturing requirements, to remain free from defects in material and workmanship, and to conform to performance specification. Should the sight or image intensifier fail or be suspected of not meeting the design performance specifications, the warranty claim procedures will be followed to ensure that the item is processed in a manner so as not to void or limit the warranty.

a. Verify that the failed/defective item is a warranted item, and that the warranty is still in effect for that item. All warranted items will have a warranty identification label attached indicating the warranty expiration date.

NO CORRECTIVE MAINTENANCE MAY BE PERFORMED BY THE MAINTAINER OTHER THAN THE AUTHORIZED DISASSEMBLY NECESSARY FOR DIRECT SUPPORT MAINTENANCE TO DISASSEMBLE AND SEND ONLY THE DEFECTIVE COMPONENT TO SACRAMENTO ARMY DEPOT.

b. Test the item under question to determine the type and extent of the defect. The methods for testing and measuring the actual design performance will be per the appropriate technical maintenance manual procedures. The testing for warranty conformance applies not only to initial acceptance criteria, but to the item performance for the duration of the warranty.

1-7 WARRANTY INFORMATION - Continued

c. Process the failed/defective item for shipping. The defective item(s) will be tagged to prevent improper repair or use (e.g., using DA Form 2402, Exchange Tag). DA Form 2407, Maintenance Request, shall be filled out requesting warranty action. The DA Form 2407 will include the nature of the defect (i.e., spots, excessive fixed-pattern noise) and the method used to determine the type and extent of the defect. The DA Form 2407 shall accompany the defective item shipped as describe below.

Copy 1 - Kept by the owning unit

Copy 2 and 3 - Send to:

Commander
U.S. Army CECOM
ATTN: AMSEL-PA-MS-W
Fort Monmouth, NJ 07703-50007

Copy 4 - Filed by the local warranty control office (WARCO)

Copy 5 - Stays with the item until the warranty action is completed.

NO DEFECTIVE WARRANTY ITEMS WILL BE SHIPPED DIRECTLY FROM THE FIELD TO A CONTRACTOR.

d. Notify Sacramento Army Depot. The maintainer shall notify Sacramento Army Depot (SAAD) by phone or electronic mail in the event of a failure/defect:

AUTOVON: 839-2705/3699
Commercial: (916) 388-2705/3699
DDN Address: qualqsm5@saad-emhl.army.mil

For OCONUS, an alternative method is for the local WARCO to use standard military front channel message to SAAD, or if not viable, have CECOM LAR send the data to SMD by MILNET.

The local WARCO will the send the defective item(s) to SAAD for processing of the claim. Send it to:

Sacramento Army Depot
Sacramento, CA 95813-5027
Mark for: SDSSA-QSM/WARCO

IF THE IMAGE INTENSIFIER IS THE ONLY DEFECTIVE PART OF THE AN/PVS-4, SEND ONLY THE IMAGE INTENSIFIER TO SMD.

11-8 CORROSION PREVENTION AND CONTROL (CPC)

Corrosion Prevention and Control (CPC) of Army materiel is a continuing concern. It is important that any corrosion prevention and control problems with this equipment be reported so that the problem can be corrected and improvements made to prevent the problem in the future.

While corrosion is typically associated with rusting metal, it can also include deterioration of other materials such as contacts, injection-molded plastic, and foam insert in the case. Unusual cracking, softening, swelling, or breaking of these other materials may be a corrosion problem.

1-8 CORROSION PREVENTION AND CONTROL (CPC)- Continued

If a corrosion problem is identified, report it using Standard Form 368, Product Quality Deficiency Report. Use keywords such as "corrosion", "trust", deterioration", or "cracking", to insure that the information is identified as a CPC problem. The form should be submitted to the address specified in DA PAM 738-750.

Section II. Equipment Description and Data

1-9 EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

The sight is a portable, battery-operated, electro optical instrument used for observation and aimed fire of weapons at night. It amplifies reflected light such as moonlight, starlight, and skyglow so that the viewed scene becomes clearly visible to the operator. The sight is used on the M14 and M16A1/A2 rifles, M60 machine gun, M67 recoilless rifle, M72A1 rocket launcher, M79, M203 grenade launcher and M249 squad automatic weapon. Mounting brackets are provided for each type weapon. Grenade launcher brackets have provision for super elevation.

1-10 LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

a. The sight consists of the daylight cover, objective assembly, identification plate, battery housing assembly, eyepiece assembly, eyeguard assembly, mounting adapter and image intensifier. Refer to (fig.1 -2) for the location of major components.

(1) Daylight cover - Cover is made of molded rubber and contains a light filter lens and shade system to reduce light intensity when using the sight during daylight.

(2) Objective assembly - Consists of a series of lenses (some with mirror surfaces), spacers and retainers mounted in a metal housing that is attached to the front of the battery housing by six screws. A reticle projector assembly is contained within the objective assembly, and the reticle azimuth and elevation adjustment controls are located on the outside of the housing.

(3) Battery housing - Contains system ON/OFF tube brightness and reticle ON/OFF brightness control knobs.

(4) Mounting adapter - Attached to the base of the sight and is used to secure the sight to the mounting bracket.

(5) Eyepiece assembly - Magnifies the image display on the screen of the image intensifier and focuses the image to the user's eye.

(6) Eyeguard assembly - Made of rubber and is designed to protect the operator from injury due to weapon recoil It contains internal leaves that open under pressure and close when pressure is removed so that stray light will not escape from eyepiece assembly.

b. Carrying bag - Two models of bag are available for use. One bag is made of laminated vinyl-nylon cloth and is intended for normal weather conditions and the other is made of nylon cloth and is for use in extreme cold weather area. Both bags are closed by a zipper fastener. Each bag contains six straps (two from each three D-rings) and belt fasteners to aid in carrying the bag.

1-10 LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

c. Carrying and storage case - The case is either a two piece aluminum alloy container that is fastened together by four latches or a plastic case hinged on one side and fastened on the other side by two lever clamps. Top and bottom cushion inserts made of polyethylene foam are recessed to form pockets to hold the carrying bag and accessories. An automatic two way relief valve is provided with an instruction plate which cautions the operator to press the valve core before opening the case. An instruction plate is attached to the bottom cushion that cautions the operator to remove batteries from the sight before placing the sight in the case. An identification plate is attached to the outside of the case.

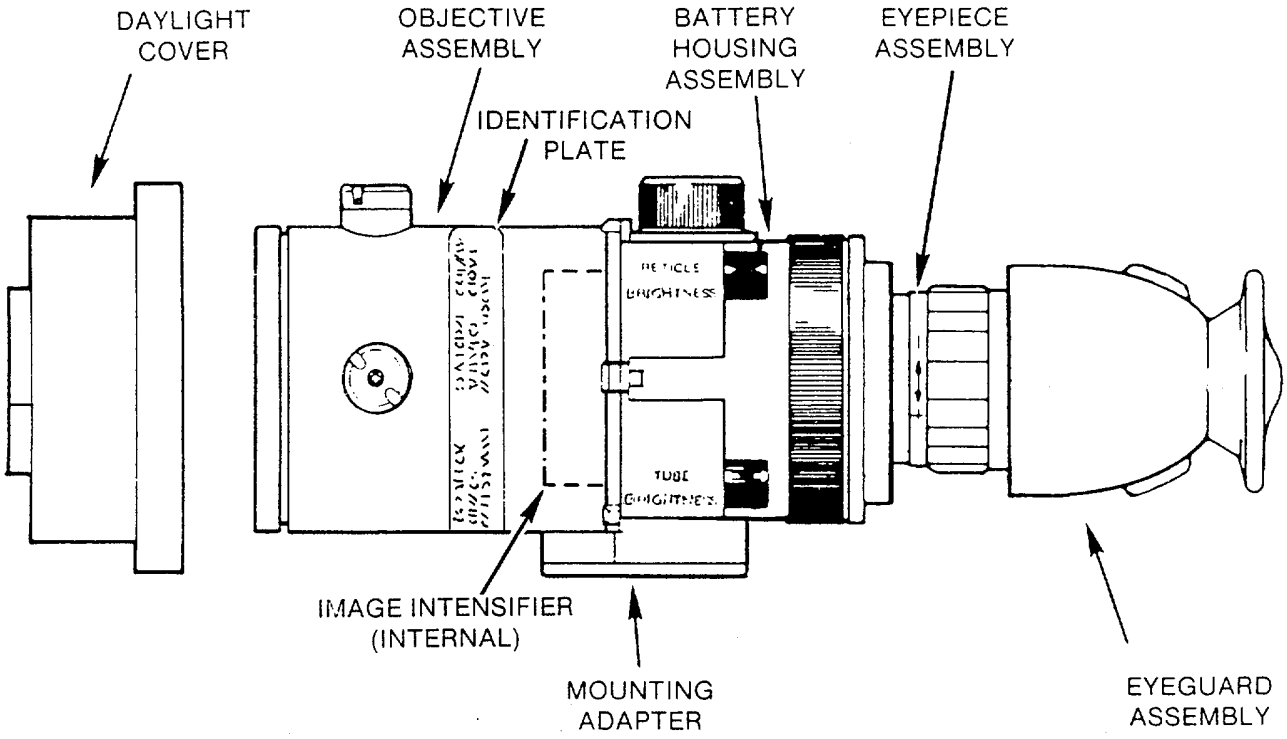

Figure 1-2 Location of Major Components.

1-11 DIFFERENCES BETWEEN MODELS

There are two configurations of AN/PVS-4 night sights. These sights are identical except one has two battery ports and one has one battery port. There are four different reticle patterns used in the sight. These patterns are used in conjunction with different individual weapons. Refer to TM 11-5855-213-10.

1-12 EQUIPMENT DATA

The following tables provide information pertaining to the operational, electrical, mechanical, optical, and environmental characteristics of the sight.

Table 1-2. Operational Adjustment Limits.

ITEM	LIMITS
Eyepiece Focus	+ 2.0 to -5 1/2 diopter
Objective lens focus	25.0 meters to infinity
Reticle Adjustment	+ or - 2.50 (in 1/4 mil increment)

Table 1-3. Electrical Data.

ITEM	DATA
Voltage Requirements	3.0 vdc Nominal
Battery, Lithium (BA-5567/U)	
Voltage	3.0 volts
Cell Life:	
100° F	32 Hrs
70°F	32 Hrs
0°F	24 Hrs
-20°F	18 Hrs
Battery, M Alkaline (BA-3058/U)	
Voltage Requirements	1.5 vdc (Two batteries required for 3.0 vdc)
Cell Life:	
100°F	50 Hrs
70°F	40 Hrs
0°F	24 Hrs
-20°F	10 Hrs

1-12 EQUIPMENT DATA - Continued

Table 1-4. Mechanical Data.

ITEM	DATA
Night sight weight	4.0 lbs

Table 1-5. Optical Data.

ITEM	DATA
Magnification	3.6X
Field of view	14.5 °
Range	400-600 meter (for man target) in starlight and moonlight.

Table 1-6. Environmental Data.

ITEM	DATA
Operating Temperature	60° F (-51 C) to + 126° F (+ 52° C)
Storage Temperature	-60° F (-51° C) to + 154 ° F (+ 68° C)
Illumination Required	Overcast Starlight to Moonlight

Section III. Principle of Operation

1-13 MECHANICAL FUNCTIONS

The mechanical functions of the sight allow for differences in the physical features of individual operators and provide for operating the system. These function includes adjustments for tube and reticle brightness, diopter focus ring and diopter indicator which adjust the focus of the eyepiece. Also includes reticle elevation adjustment actuator and reticle azimuth adjustment actuator which controls reticle adjustments up or down and right or left.

1-14 OPTICAL FUNCTIONS

Optical functions of the sight are shown in (fig. 1-3).

a. The objective lens assembly collects available light reflected from the scene in the field-of-view, magnifies the scene by a factor 3.6 and focuses the light on the cathode of the image intensifier. The light path is reflected internally by mirrors to overcome the blank spot in the center of the objective lens created by the reticle projector assembly. As the objective lens is stationary, focus of the assembly on the object in view is accomplished by varying the position of the image intensifier with respect to the lens.

b. Image Intensifier The image intensifier receives light in the form of lumninous energy, amplifies it, and projects it onto the screen of the image intensifier where it is received by the eyepiece assembly as an intensified image. The image intensifier contains an automatic gain control that provides for a steady state of scene brightness under changing light conditions. The image intensifier has a bright source protection feature that protects the image intensifier when exposed to a sudden increase in high light level such as caused by a muzzle flash.

c. Eyepiece Assembly. The eyepiece assembly magnifies the image display on the screen of the image intensifier and focuses the image to the user's eye. The assemblies are adjustable over a range from +2.0 to -5.5 diopters to accommodate for difference in user eyesight.

d. Reticle Projector. The reticle projector located in the center of the objective lens assembly projects a reticle pattern on the cathode of the image intensifier where it is combined with the viewed scene and becomes a part of the sight picture.

1-15 ELECTRICAL FUNCTIONS

a. Power source. One 3.0 volt battery (BA-5567/U) or two 1.5 volt batteries (BA-3058/U), provides power for the image intensifier and reticle projector assembly.

b. Electrical Functions. ON-OFF switch S2 (fig. 1-4) is the master control for the sight. Operation in the ON position provides power to the image intensifier and switch S1. Switching S1 to the ON position provides power to the light-emitting diode in the reticle projector assembly Brightness of the image displayed on the screen of the image intensifier is controlled by adjustment of R2 which is on the same shaft as S2. Brightness of the reticle pattern projected on the cathode of the image intensifier is controlled by adjustment of R1 which is on the same shaft as S1.

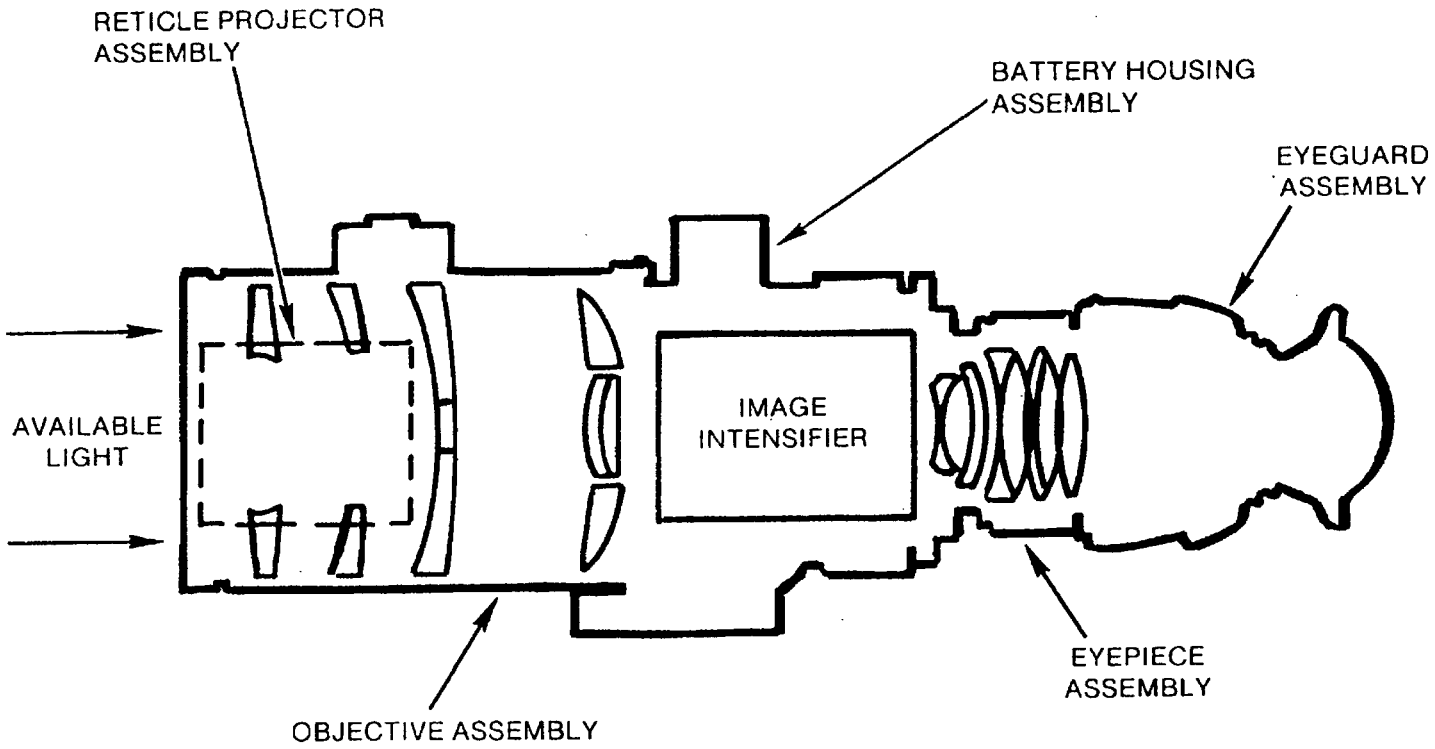

Figure 1-3. Optical Diagram

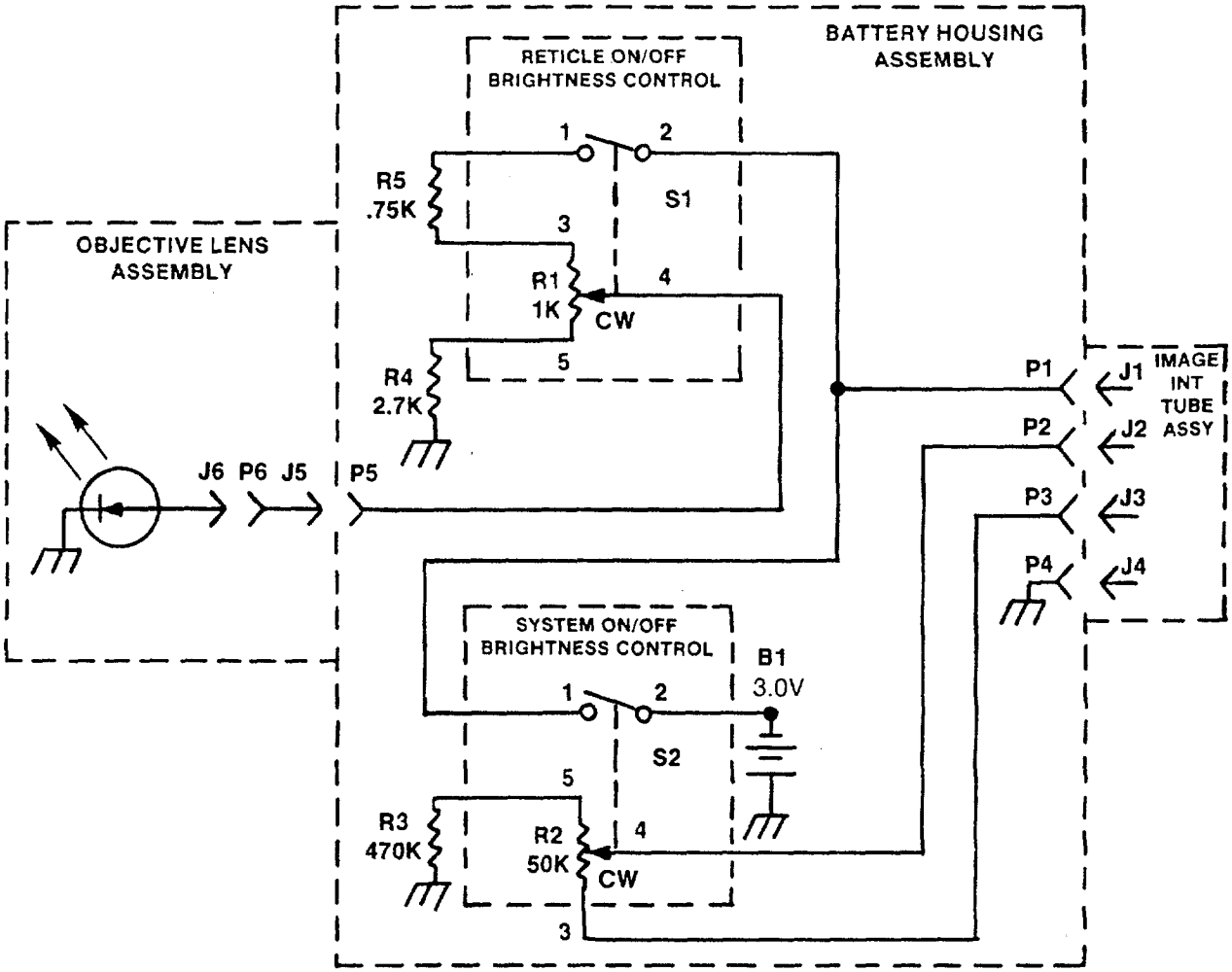

Figure 1-4. Electrical Functions, Schematic Diagram.

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OVERVIEW

This chapter contains maintenance procedures that are the responsibility of U nit Maintenance. Operation instructions and operator maintenance can be found in TM 11 -5855-21 3-1 0 and are not repeated in this chapter.

Section 1. Repair Parts, Tools, Special Tools, Test Measurement and Diagnostic Equipment TMDE), and Support Equipment.

2-1 COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE), CTA 50-970, or CTA 8-1 00, as applicable to your unit.

2-2 SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

Refer to Appendix B, the Maintenance Allocation Chart (MAC), for authorized maintenance and to Appendix C, the Repair Parts and Special Tools List (RPSTL) for information on the special tools, Test Measurement, and Diagnostic Equipment (TMDE), and support equipment required at unit maintenance. Additional instructions for a fabricated black spot test fixture are contained in Appendix E.

2-3 REPAIR PARTS

Repair parts are listed and illustrated in Appendix C, Repair Parts and Special Tools List (RPSTL) of this manual.

Section II. Service Upon Receipt

2-4 SITE AND SHELTER REQUIREMENTS

The checks and services functions, as prescribed herein, should be accomplished in the electronic repair service area. A standard electronic workbench provides an adequate working area for the sight maintenance requirements. The surface area should be free of chemicals, vapors, and emissions that may damage external parts of the sight. Normal sheltering from the elements (cold, rain, dust, etc.) is necessary. There should be provisions to perform certain service functions and specified tests in a dark room or dark area in which all places where light can enter (e.g., windows, doors, wall and ceiling joints) have been blocked. This blocking can be accomplished using either permanent or temporary shields such as tape or heavy curtains The room or area should appear dark (without the evidence of light entering the area) to the unaided eye after approximately 1 0 minutes of dark adaptation. Use a night vision device to identify and isolate the place where light enters,

2-5 SERVICE UPON RECEIPT OF MATERIAL

CAUTION

The sight is a precision electron-optical instrument so handle it carefully

a. Inspect the equipment for possible damage incurred during shipment. If the equipment has been damaged,
report the damage on SF 364, Report of Discrepancy.

b. Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in
accordance with the instructions of DA Pam 738-750.

c. Refer to DA Pam 25-30, Consolidated Index of Army Publications and Blank Forms, to determine whether there
are modification work orders (MWOs) pertaining to the equipment.

d. Upon receipt of a new AN/PVS-4 system, send the system to Direct Support maintenance for its initial servicing.

2-6 INSTALLATION

Installation instructions for attaching the sight to the individual served weapon are contained in TM 11-5855-213-10,Operator's Manual Night Vision Sight, Individual Served Weapon, AN/PVS-4.

Section II. Preventive Maintenance Checks and Services

2-7 PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE

a. General. Table 2-1 (PMCS Table) has been provided so you can keep your sight in good operating condition and ready for its primary mission.

b. Warnings and Cautions. Always observe the WARNINGS and CAUTIONS appearing in your PMCS table. Warnings and cautions appear before applicable procedures. You must observe the warnings and cautions to prevent serious injury to yourself and others, or to prevent your equipment from being damaged.

c. Explanation of Table Entries

(1) Item Number Column. Numbers in this column are for reference only. When completing DA Form 2408-30 (NVG inspection and Maintenance Record), do checks and services for the intervals listed in the sequence described in accordance with DA Pam 738-750.

(2) Interval Column. This column tells you when you must do the procedure in the procedure column. Be sure to complete the appropriate maintenance forms whenever a check, test or service is preformed.

(3) Location, Check/Service Column. This column provides the location and the item to be checked or serviced. The item location is underlined.

(4) Procedure Column. This column gives procedure you must do to check or service the item listed in the Check/Service column to know if the equipment is ready or available for its intended mission or for operation. You must do the procedure at the time stated in the interval column.

(5) Not Fully Mission Capable If: Column. Information in this column tells you what faults will keep your equipment from being capable of performing its primary mission. If you perform check and service procedures that show faults listed in this column, do not operate the equipment. Follow standard operating procedures for maintaining the equipment or reporting equipment failure.

d. Other Table Entries. Be sure to observe all special information and notes that appear in your table.

Table 2-1. Preventive Maintenance Checks and Services For AN/PVS-4

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable if:
1	90-day	Daylight Cover	Remove daylight cover. Check to see that detent is held securely by hexagonal nut. Turn knob and check rotation of shade assembly past filter lenses. Check action of detent to hold shade in position as set. Check for dirt or other foreign matter on lenses or inside cover. Tighten if necessary.	
2	90-day	Carrying and Storage Case	Remove cushion inserts and clean interior of case with a lint free cloth, dampened with water if necessary. Dry case and replace inserts. Check latches for proper operation. Check two-way relief valve for proper operation by pressing valve to insure that it will reseat itself automatically. Check to see that instruction and identification plates are present and readable. Report deficiencies to higher level of of maintenance	
3	90-day	Objective Assembly	Check to see that reticle cap is in place and tightened. Check objective lens for dirt, scratches, or other blemishes. Check to see that identification plate is attached and readable. Clean objective lens with brush and lens tissue as required.	

2-7 PMCS - Continued

Table 2-1. Preventive Maintenance Checks and Services for AN/PVS-4.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable if:
4	90-day	Battery Housing Assembly	Check for cracked housing, missing battery cap and wire spring inside battery cap. Check reticle brightness and tube brightness knob detent for position click movement. Check mounting adapter for looseness. Check battery compartment for corrosion, damage contacts, and spring tension in battery caps.	Components of battery housing are missing.
5	90-day	Eyeguard Assembly	Check for cracks, tears, cuts or other damage. Check operation of protective sleeve to insure that they are fully closed when no pressure is applied. Check to see that eyeguard is secured to eyepiece assembly. Report deficiencies to higher category of maintenance.	
6	90-day	Sight Operation	Install batteries. Check image intensifier brightness, reticle brightness, range focus and eyepiece focus for proper operation. Check to see that control knobs are secure. Remove batteries. Report deficiencies to higher level of maintenance.	Any control does not function for proper operation.
7	90-day	Mounting Bracket Assemblies	Check to see the mounting bracket for each weapon concerned is present and complete. Check for damaged threads on lever screw assembly, missing washers and wingnuts, and other evidence of damage. If mounted on weapon, check to see that it is securely attached. Report deficiencies to higher level of maintenance.	Parts for securing sight to applicable weapon are missing or damaged and prevent secure mounting of sight on the weapon.

2-7 PMCS - Continued

Table 2-1. Preventive Maintenance Checks and Services for AN/PVS-4

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable if:
8	90-day	Carrying Bag	Check bag for broken zipper fastener, torn fabric, or other evidence of damage. Wipe bag with a dry cloth. NOTE The TS-4348/UV can be used for optional testing at any time.	
9	90-day	Image Intensifier	Use the TS-4348/UV to test for resolution.	The image intensifier fails resolution check.

2-8 INSPECTION CRITERIA FOR IMAGE INTENSIFIER OPERATION

CAUTION

Keep the protective caps on the sight when it is not in use.

As directed in the PMCS table, image intensifier operation must be checked periodically. This section provides information for the sight maintenance personnel to look for, how to look for it, and how to determine if the sight needs to be repaired. These checks are to be performed in a darkened area (refer to para 24).

a. Shading. This is a defect in the image area of the lens. When shading occurs you will see a faded image. Shading always begins on the edge and moves inward (fig. 2-1). If shading is present, the image intensifier must be replaced by direct support maintenance.

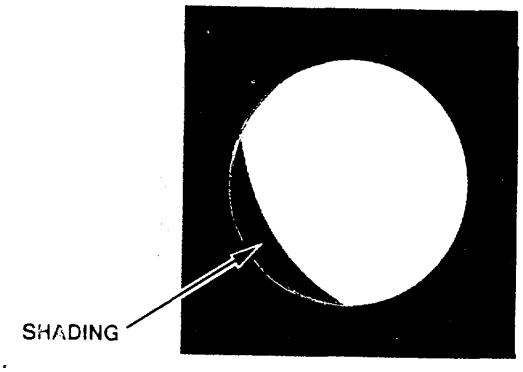


Figure 2-1 . Shading

b. Edge Glow. This is a defect in the image area (fig. 2-2). Edge glow is a bright area (sometimes sparkling) in the outer position of the viewing area. To check for edge glow, cover lens to block out all light. If the image intensifier is displaying edge glow, the bright area will still show up. If edge glow is present, the image intensifier must be replaced by direct support maintenance.

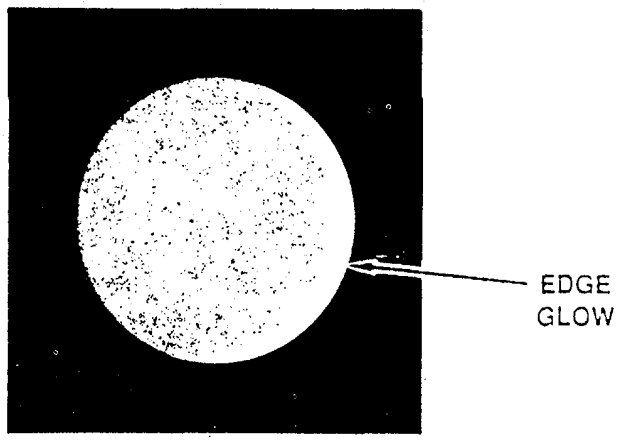


Figure 2-2. Edge Glow.

2-8 INSPECTION CRITERIA FOR IMAGE INTENSIFIER OPERATION -Continued

c. Black Spots. These are blemishes in the image intensifier or dirt or debris between the lens. Black spots are acceptable if they do not interfere with viewing the image. No action is required if this condition is present unless the spots are deemed excessive by the user and the appropriate maintenance forms and records are completed in accordance with DA Pam 738-750.

d. Emission Point. A steady or fluctuating pinpoint of bright light in the image area that does not go away or is faintly visible when all light is blocked from the objective lens of the monocular (fig 2-3). The position of an emission point within the same image area does not move. Not all emission points makes an image intensifier rejectable. Emission points are acceptable if they do not interfer with the ability to perform the mission. If found to be unacceptable, refer to a higher maintenance level.

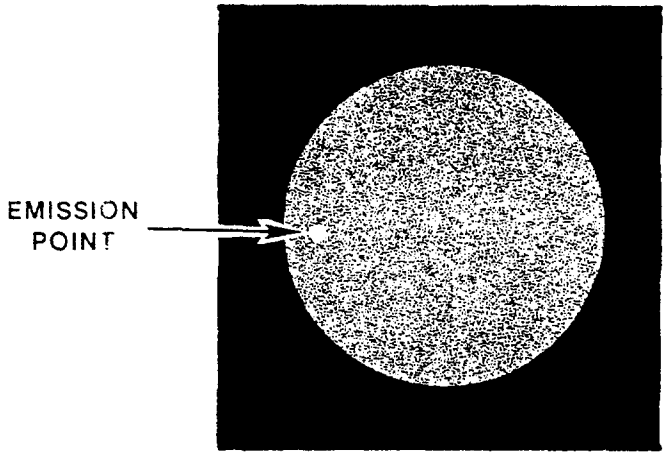


Figure 2-3 . Emission Points .

e. Fixed-Pattern Noise. This is usually a cosmetic blemish in the image area characterized by a faint hexagonal (honeycomb) pattern throughout the viewing area that most often occurs at high-light or when viewing very bright lights (fig. 2-4). This pattern can be seen in every image intensifier if the light level is high enough. This condition is acceptable as long as you can resolve the resolution target at the high-light level. If resolution cannot be resolved at high light level, refer to higher maintenance level.

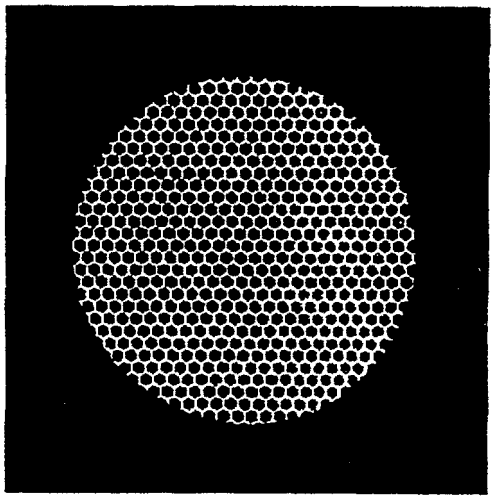


Figure 2-4 . Fixed Pattern Noise .

2-8 INSPECTION CRITERIA FOR IMAGE INTENSIFIER OPERATION - Continued

f. Chicken Wire. An irregular pattern of dark thin lines in the field of view either throughout the image area or in parts of the image area (fig. 2-5). Under the worse case condition, these lines will form hexagonal or square-wave shaped lines. These lines are caused by defective fibers that do not transmit light occurring at the boundaries of fiber bundles in the output optic of the image intensifier. No action is required if this condition is present unless the chicken wire is deemed excessive by the user and the appropriate maintenance forms and records are completed in accordance with DA Pam 738-750. Direct support maintenance must evaluate the system for further action.

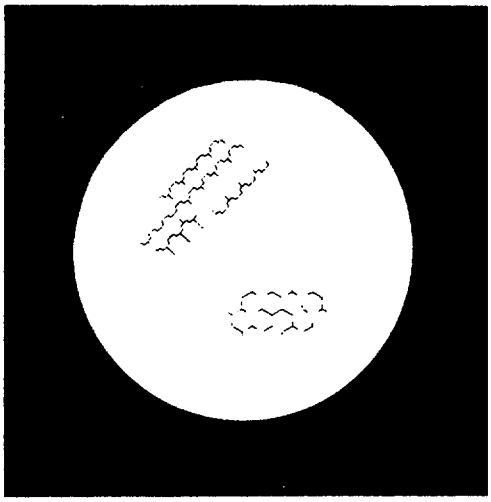


Figure 2-5 . Chicken Wire .

g. Flashing, Flickering or Intermittent Operation. The image may appear to flicker or flash. Flashing or flickering may result from improper connections, intermittent power source, or low battery. Check battery or power source, if condition continues, refer to higher level of maintenance.

SECTION IV. Troubleshooting

2-9 TROUBLESHOOTING TABLE

The purpose of troubleshooting is to identify the cause for equipment malfunction. Table 2-3 provides information pertaining to the troubleshooting procedures for unit maintenance.

NOTE

Unit maintenance personnel are not authorized to open the AN/PVS- 4 upon initial reception.

Table 2-3. Troubleshooting.

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Weak or no illumination of image intensifier.	Check to see if gain control is turned down. Batteries are weak.	Adjust ON-OFF brightness control. Replace batteries.
Blurred image.	Eyepiece lens out of focus. Objective lens is out of focus. Lenses are dirty.	Adjust eyepiece lens. Adjust focus ring. Clean objective and eyepiece lenses.
Reticle pattern is not visible.	Reticle intensity control is turned down. Batteries are weak.	Adjust reticle intensity control for clearly visible pattern. Replace batteries.
Image intensifier turned on but no image or reticle pattern.	Image intensifier failure.	Report deficiency to higher level of maintenance.
Daylight cover will not stay on, cannot be installed, or is missing.	Bent, broken or lost.	Replace daylight cover.
Eyeguard will not open and close under eye pressure.	Rubber has lost its resiliency.	Replace eyeguard.
Black spots too many or too large.	Dirt or debris in system, or defective image intensifier.	Report deficiency to higher level of maintenance.
M60 bracket will not adjust in elevation or will not retain boresight.	Defective M60 bracket.	Repair or replace M60 bracket paragraph 2-15.

2-10 IMAGE INTENSIFIER TEST USING THE TS-4348/UV

NOTE

Before using the TS-4348/UV test set, refer to TM 11-5855-299-12&P, Operator's and Unit Maintenance Manual for the Electronic System Test Set TS-4348/UV, to familiarize yourself with its operation and the warnings and cautions associated with that test equipment.

The following procedures are designed to check the performance of the image intensifier. If the image intensifier inside the monocular fails the test, send the sight to Direct Support for repair.

INITIAL SETUP

Test Facility

Dark room

Tools

Flashlight

Equipment

Test set, Electronic Systems, TS-4348/UV (Item 1, Appx B)

Materials/Parts

Lens paper, NNN-P-40
Cotton-tipped applicators
Isopropyl alcohol

HIGH-LIGHT IMAGE INTENSIFIER STABILITY AND RESOLUTION TESTS

CAUTION

The TS-4348/UV is a delicate instrument. Exercise care not to over-tighten or strip the threads on either the adapter or the test set when installing or removing the adapter. Make sure to inspect the threads for damage.

1. Clean the objective and eyepiece lenses of the sight and port of the test set by using isopropyl alcohol and cotton-tipped applicators. Moisten the applicator with the ethanol and use circular motions beginning at the center of the lenses and moving in larger circle to the outside of the lenses.

2. Install battery in sight.

2-10 IMAGE INTENSIFIER TEST USING THE TS-4348/UV - Continued

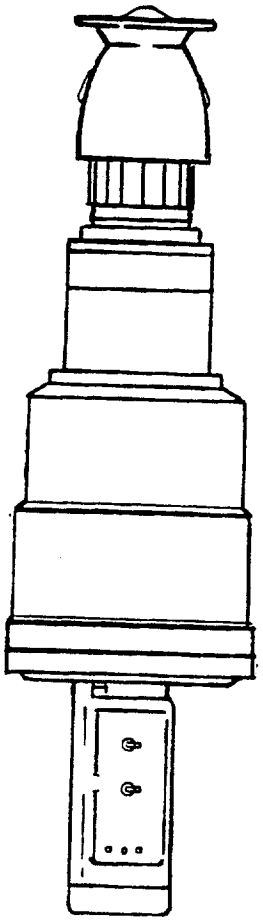


Figure 2-6. Attaching the Test Set, TS-4348/UV to the Sight.

NOTE

Test should be performed in a dark location. Allow time for dark adaptation to occur prior to conducting the test.

3. Remove resilient adapter (standard adapter) from test set.

4. Attach the test set, unit assembly with the AN/PVS-4 adapter to the sight as shown in Fig. 2-6.

NOTE

Due to the size of the night sight it is recommended that the sight be mounted or supported.

5 Select High Light test by setting the High/Low switch to High.

6 Turn on the test set. unit assembly by setting the switch II/III position to II. Check that the test set, unit assembly is operating by checking the green PWR ON light.

2-10 IMAGE INTENSIFIER TEST USING THE TS-4348/UV - Continued

7 Turn the sight on to maximum brightness. Look through the sight and view the projected test pattern supplied by the test set, unit assembly fig. 2-7. If necessary, rotate the sight in the adapter until the center of the (quarter moon shape) test pattern is within the lighted area.

8. Adjust the eyepiece focus and the objective lens focus to obtain the sharpest view of the pattern.

9. Determine the group number and element number of the smallest pattern resolvable.

10. The sight must be able to resolve Group 4, Element 4 under high light condition to pass the test.

NOTE

To successfully resolve a pattern which finds the image intensifier acceptable for use, you must be able to distinguish that the three vertical bars are in a vertical position and that the three horizontal bars are in fact horizontal. This procedure requires you to scan left and right (for the vertical bars) and up and down (for the horizontal bars) as you observe the pattern.

11. If the sight does not pass the test, refer it to a higher level of maintenance.

12. Turn off test set, unit assembly, remove sight from test set and remove battery from sight.

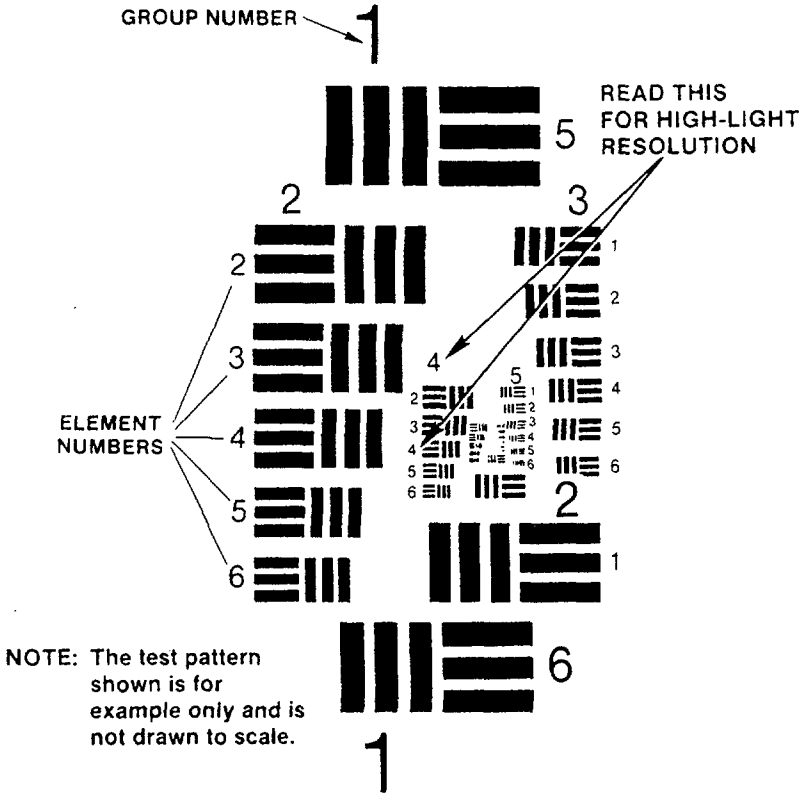


Figure 2-7. TS-4348/UV Test Set Pattern.

SECTION V. Unit Maintenance Procedures

2-11 REPLACEMENT OF DAYLIGHT COVER

Repair consists of replacing defective daylight cover. Refer to TM 11-5855-213-10 for removal and installation of daylight cover.

2-12 REMOVAL AND INSTALLATION OF EYEGUARD ASSEMBLY

The eyeguard is removed for inspection and cleaning of the eyepiece lens assembly and the eyeguard itself.

REMOVAL

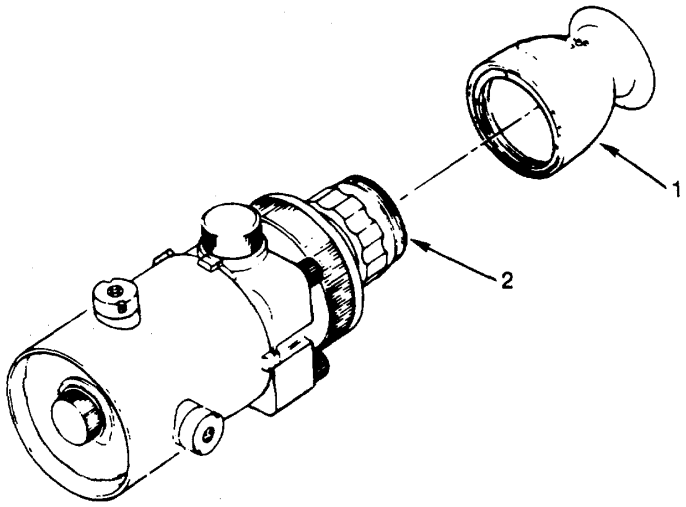
NOTE

Eyeguard assembly will rotate freely without unscrewing from eyepiece unless grasped firmly to apply pressure against the inner plastic ring.

Grasp eyeguard assembly (1) firmly where it joins the eyepiece assembly (2) and turn it counterclockwise until it is free of the sight.

INSTALLATION

Place eyeguard assembly (1) onto eyepiece assembly (2) and turn eyeguard clockwise until eyeguard assembly no longer advances on the threads.



2-13 REMOVAL, REPAIR AND INSTALLATION OF BATTERY COVER ASSEMBLY

Repair consists of replacement of defective components (battery cover, preformed packing, or battery spring).

INITIAL SETUP

Materials/Parts

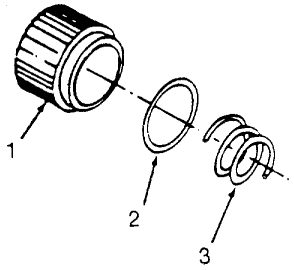
Silicone grease

REMOVAL

1. Remove battery cover (1) from sight.
2. If spring (3) is damaged remove old spring by pulling out of battery cover (1).
3. If preformed packing (2) is damaged remove and discard preformed packing (2) from battery cover (1).

REPAIR

1. Repair battery cover by replacing defective spring or preformed packing.
2. If battery cover is damaged replace entire battery cover assembly.



INSTALLATION

NOTE

Lubricate new preformed packing with silicone grease.

1. Place silicone grease over the threads of the battery cover (1).
2. Install new preformed packing (2) into the groove next to the shoulder of the battery cover base.
3. Install spring (3) inside cover (1).
4. Install battery cover (1) on sight.

2-14 REMOVAL AND INSTALLATION OF ELECTRICAL CONTROL KNOBS

This task consists of removal and installation of defective electrical control knobs.

INITIAL SETUP

Tools

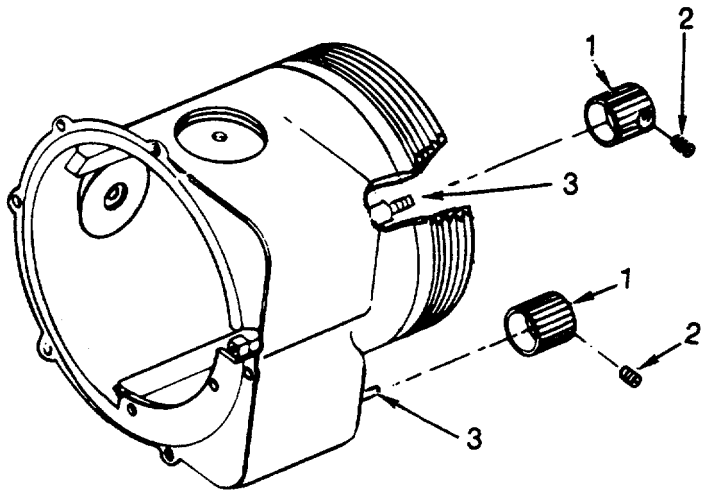
General Tool Kit, Electronic TK-1 05/G (Item 4, Appx B)

REMOVAL

Remove electrical control knobs (1) by loosening setscrew (2) and pulling the knob off of the switch shaft (3) .

INSTALLATION

Align the setscrew (2) with hole in switch shaft (3), press knob (1) onto shaft until screw (2) can be inserted and tighten.



2-15 REMOVAL, REPAIR AND INSTALLATION OF MOUNTING BRACKET ASSEMBLY, M60

Repair consists of replacement of defective components (wing nut, flat washer, leg clamp. retaining ring, washer spring tension and latch hinge pin).

INITIAL SETUP

Tools

General Tool Kit, Electronic TK-101/G (Item 3, Appx B)

Equipment Condition

The sight must be removed from the bracket to perform maintenance. Refer to TM 11-5855-213-10.

REMOVAL

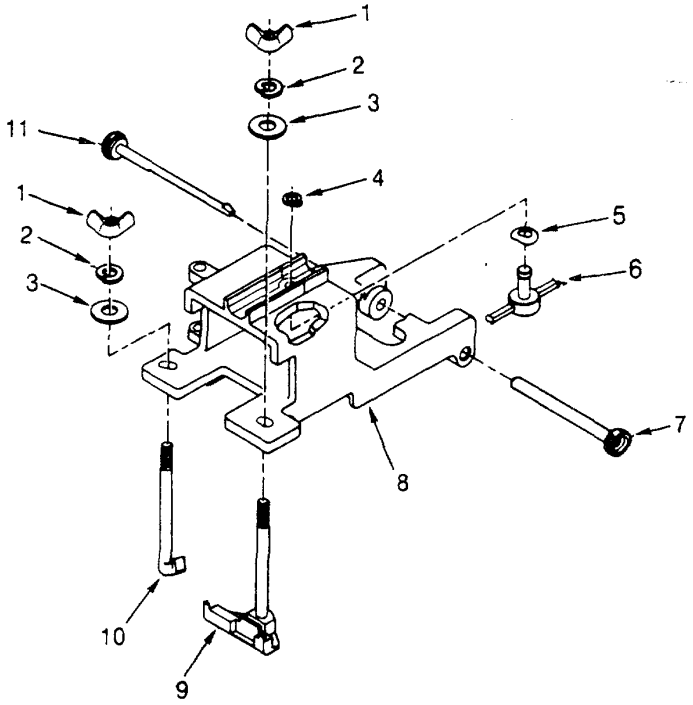
NOTE

The first two threads of the leg clamps are deformed to prevent loss of hardware. Force may be needed to remove the wingnut.

1. Remove wingnuts (1), lock washers (2), flat washers (3). and leg clamps (9, 10) from bracket (8). Withdraw clamps (9, 10) from the bottom of the bracket (8).

2. Apply pressure to tip of hinge pin latch (11) and move tip to center of straight headed pin (7) and remove hinge pin latch (11) from straight headed pin (7). Remove both pieces by pulling apart and away from the bracket.

3. Remove retaining ring (4) by using slip joint plier, straight handle pin (6) and spring tension washer (5).



2-15 REMOVAL, REPAIR AND INSTALLATION OF MOUNTING BRACKET ASSEMBLY, M60 - Continued

REPAIR

Replace defective components as necessary. If bracket is damaged replace the entire assembly

INSTALLATION

NOTE

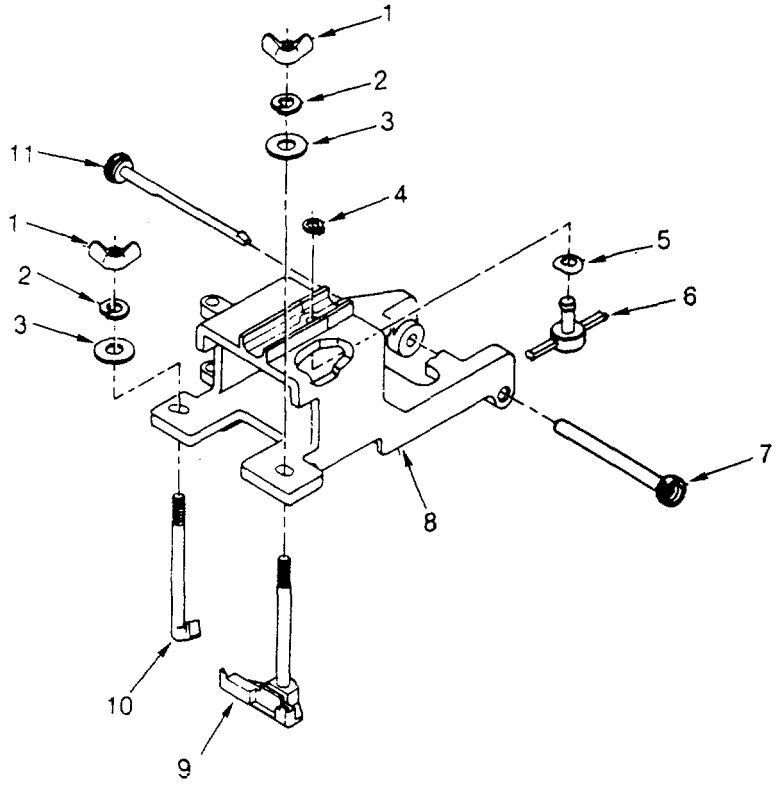
Clamp (1 0) with the shorter bottom extension is installed on the left side of the bracket as viewed from the rear.

1. Install leg clamp (9, 10) through hole in the bracket from under side.

2. Install flat washer (3), lock washer (2) and wingnuts (1) on clamps (9, 10) and hand tighten wingnuts.

3 Install straight headed pin (7) through hole in brasket and insert hinge pin latch (11) into straight headed pin (7) as shown below

4. Insert spring tension washer (5) on straight handle pin (6) and insert straight handle pin through hole in bracket from underside Install retaining ring (4) on end of straight handle pin (6).



SECTION VI. Preparation for Storage and Shipment

2-16 PACKING THE AN/PVS-4

NOTE

Before returning the sight or any component into the carrying bag and shipping/storage case, make sure they are free of dirt, dust, and moisture

1. Remove battery from the sight. Do not store the sight with batteries still in it.

NOTE

Both types of shipping/storage cases are acceptable for storing and transporting the sight.

2. Make sure the equipment and accessories are stored in the appropriate locations in the carrying case (refer to TM 11-5855-213-10, Operator's Manual for Night Vision Sight Individual Served Weapon AN/PVS-4) and secure carrying bag and shipping/storage case.

3. Return the carrying bag to the proper location in the shipping/storage case. Make sure all shipping/storage case fasteners are secured.

CHAPTER 3

DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

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Removal, Repair and Installation of Eyepiece Assembly	3-9	3-11
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OVERVIEW

Direct Support (DS) Maintenance consists of troubleshooting, testing of electrical circuitry in the battery housing assembly. installation and replacement of the reticle cell assembly, and repair of major components of the sight.

The direct support maintenance functions are listed in Maintenance Allocation Chart (MAC) (Appendix B). Equipment defects or malfunctions discovered by the direct support personnel shall be forwarded to depot maintenance for repair.

SECTION I. Repair Parts, Tools, Special Tools, TMDE, and Support Equipment

3-1 COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE). CTA 50-970, or CTA 8-1 00, as applicable to your unit.

3-2 SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

Refer to Appendix B. the Maintenance Allocation Chart (MAC), for authorized maintenance and to Appendix C, Repair Parts and Special Tools List (RPSTL) for information on Special Tools, Test Measurement, and Diagnostic Equipment (TMDE), and support equipment required at direct support.

3-3 REPAIR PARTS

Repair parts required by direct support to maintain this equipment are listed and illustrated in Appendix C, Repair Parts and Special Tools List (RPSTL) of this manual.

SECTION II. Service Upon Receipt

3-4 SITE AND SHELTER REQUIREMENTS

The requirement for site and shelter are the same as those prescribed for unit maintenance in paragraph 2-4, with the additional requirement of a clean station. The clean station is an area that has a dirt-free environment, such as a bench top, where you can repair and service the sight. Because the clean station is that where the sight is opened, exposing the inside lens surface and the optics of the image intensifier, it must be free of debris or any other material that can enter a disassembled system and contaminate it. The clean station does not need to have a flow hood.

3-5 SERVICE UPON RECEIPT OF MATERIAL

Requirements for inspecting equipment are the same as those for unit maintenance. Refer to paragraph 2-5.

SECTION III. Servicing

3-6 PRELIMINARY SERVICING

As required in the Preventive Maintenance Checks and Services (PMCS) table 2-1, the sight must receive a 180-day service that is to be performed by direct support maintenance. PMCS and focus check are to be performed on all new sights before they are placed into use.

3-7 FOCUS CHECK

Perform the following procedures for setting objective lens focus and set objective focus stop ring adjust

---

INITIAL SETUP:

Test Facility

Electronic repair services area. There is no need for a dark room to check the focus; however, the room must be dim enough to see the targets.

Tools

General Tool Kit, Electronic TK-105/G (Item 4, Appx B)

Materials/Parts

Battery (BA-5567/U)

PROCEDURE

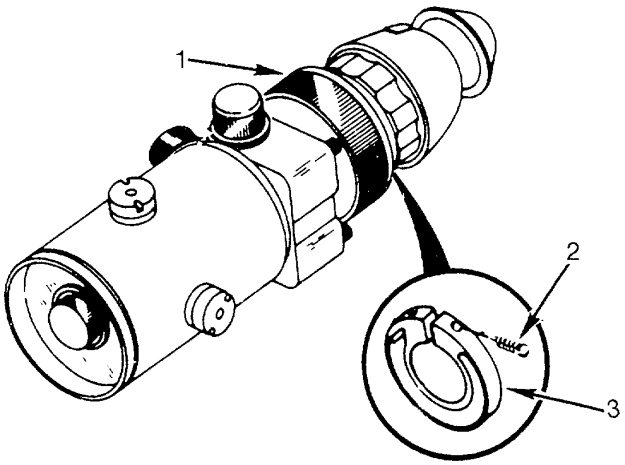
NOTE

The eyeguard must be installed prior to performing focus check.

1. Install battery in sight and turn sight ON. Rotate focus ring (1) to obtain the best image resolution at infinity.

2. Turn OFF sight and remove battery.

3. Loosen sockethead screw (2) on objective focus stop ring (3) and rotate the stop ring counterclockwise until it stops against the screw on objective focus ring. Tighten sockethead screw on objective focus stop ring (3).



SECTION IV. Troubleshooting

3-8 TROUBLESHOOTING

Table 3-1 lists common malfunctions. Perform the tests, inspections, and corrective actions in the order they appear in the table. This table cannot list all the malfunctions that may occur, all the tests and inspections needed to find the fault, or all the corrective actions needed to correct the fault. If the equipment malfunction is not listed or actions listed do not correct the fault, notify your supervisor.

Table 3-1 Troubleshooting.

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Weak or no illumination of the image intensifier.	Loose connection to image intensifier.	Check the four contacts to the image intensifier. Tighten if loose.
	Loose connection or broken wires in battery housing.	Check continuity, figure 3-1. Replace broken wires or connectors.
	Defective ON-OFF/image tube brightness control knob	Perform the S2 switch resistance measurements, paragraph 3-9. Replace S2 knob if required.
	Defective image intensifier.	Replace image intensifier.
Blurred image.	Objective lens out of focus or focus at 25 meter limits set incorrectly.	Loosen focus limits and set at 25 meters.
	Defective image intensifier.	Replace image intensifier.
	Damaged or defective objective lens assembly.	Replace objective lens assembly.
	Damaged or defective eyepiece assembly.	Replace eyepiece assembly.
No gain control of image intensifier.	Loose connection to image intensifier.	Check the four contacts to the image intensifier.
	Loose connection or broken wires between S2 and P2 (blue) S2 and P3 (yellow) wires.	Check continuity of blue and yellow wires and their connectors. Replace wires or connector if broken or loose.

3-8 TROUBLESHOOTING-Continued

Table 3-1. Troubleshooting.

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
	Defective ON/OFF tube brightness control knob.	Perform the S2 switch resistance measurements paragraph 3-9. Replace S2 if required.
	Defective image intensifier.	Replace image intensifier.
No reticle pattern	Loose connection at diode or reticle cell.	Remove diode and reticle cell. Inspect for corrosion. Reinstall cell and diode.
	Defective or missing diode or reticle cell.	Test diode for continuity. Replace diode or reticle cell if required.
	Open or loose wire within the housing.	Check for continuity figure 3-1. Replace loose connections or broken wires.
	Damaged or defective reticle projector.	Refer to higher level of maintenance.
	Defective ON/OFF reticle brightness knob.	Perform resistance check of S1 paragraph 3-9. Replace switch if faulty.
Reticle pattern present but intensity is too low or cannot be varied.	Defective ON/OFF reticle brightness control knob.	Perform the S1 switch resistance measurements paragraph 3-9. Replace S1 if required.
	Loose connection at diode or reticle cell.	Remove diode and reticle. Inspect for corrosion. Reinstall cell and diode.
	Defective diode.	Replace diode.
	Defective reticle projector assembly.	Refer to depot maintenance.
	Defective image intensifier.	Replace image intensifier.
Reticle will not adjust in azimuth or elevation.	Defective reticle projector.	Replace reticle projector lens.

3-9 ELECTRICAL TROUBLESHOOTING

Resistance Measurements checks.

Table 3-2, list troubleshooting procedures for the battery housing assembly which requires the checking of wiring and electrical components for continuity and resistance values.

Troubleshooting procedures for battery housing assembly require the checking of wiring and electrical components for continuity and resistance values. Before making resistance measurements checks, remove the image intensifier as instructed in paragraph 3-11. Resistance Measurements are given in table 3-2, refer to figure 3-1 for schematic of the sight.

NOTE

Make sure you remove the image intensifier from sight before you check resistance value.

Table 3-2. Resistance Values.

Control Setting		*Measurement*	*Proper*
S1/R1	*S2/R2*	*From To*	*Indication*
Off		Pin4 Pin5	0 ohm
Turn fully CW		Pin 4 Pin 5	1K ohm
	Off	Pin 4 Pin 3	50 K ohm
	Turn fully CW	Pin 4 Pin 3	0 ohm

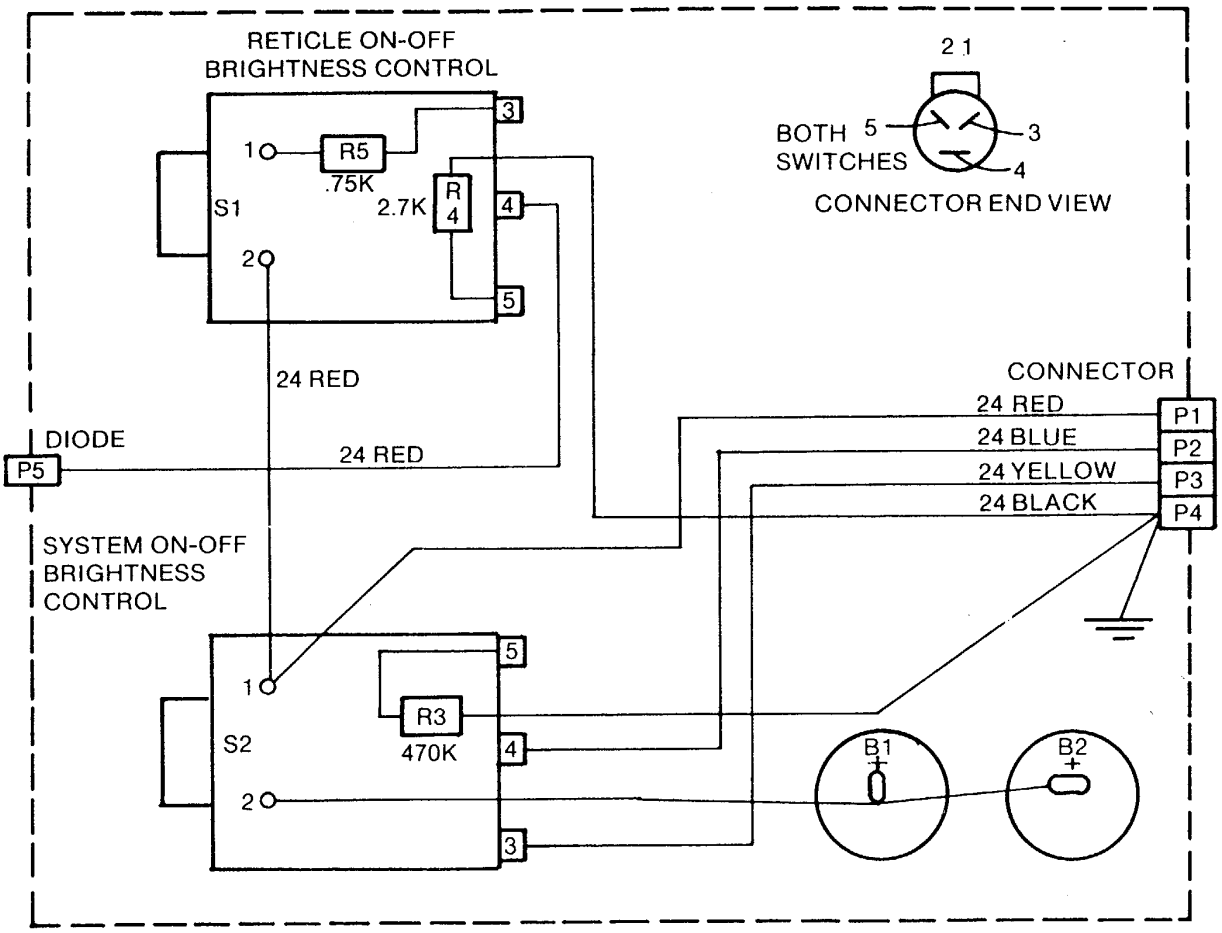


Figure 3-1. Wiring Diagram.

SECTION V. Maintenance Procedures.

3-10 REMOVAL REPAIR AND INSTALLATION OF MOUNTING ADAPTER

INITIAL SETUP

Tools

General Tool Kit, Electronic TK-105/G (Item 4, Appx B)
Toqure wrench (Item 5, Appx B)

Material/Parts

Sealing compound

REMOVAL

1. Remove two sockethead cap screws (1).

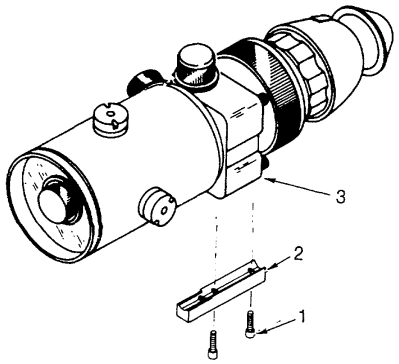
2. Remove mounting adapter (2) from battery housing (3).

REPAIR

1. Inspect mounting adapter screw threads for serviceability. Replace adapter if damaged or screw threads for securing the mount to the weapon are worn or stripped.

2. Replace screws if worn, stripped, or burred.

3. If mounting adapter is damaged replace entire assembly.



INSTALLATION

1. Position mounting adapter on battery housing (3) and apply sealing compound.

2. Install two sockethead cap screws (1) and tighten screws to 24 plus or minus 2 inch-pounds using torque wrench.

3-11 REMOVAL, REPAIR AND INSTALLATION OF EYEPIECE ASSEMBLY

This task consists of removal, inspection and replacement of preformed packing, hexagonal nut split lock ring. machine screws and objective focus stop ring.

INITIAL SETUP:

Tools

General Tool Kit, Electronic TK-105/G (Item 4, Appx B)
Spanner Wrench, (Item 6, AppxB)

Materials/Parts

Silicone grease
Cotton-tipped applicators
Finger cots
Lens paper, NNN-P-40
Denatured ethanol

Equipment Condition

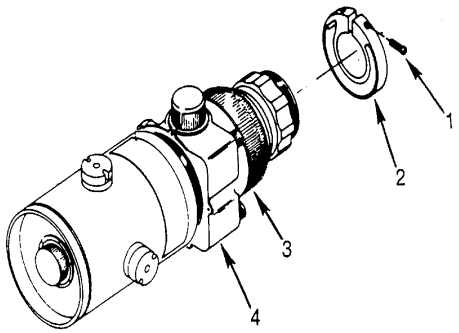
Eyeguard assembly removed, refer to paragraph 2-12.

REMOVAL

1. Loosen setscrew (1) on the objective focus stop ring (2) and remove the objective focus stop ring (2) from the eyepiece assembly.

CAUTION

The eyepiece assembly and the image intensifier are removed from the battery housing together as one piece. Do not twist the eyepiece assembly when removing from battery housing, this may result in damage to image intensifier.

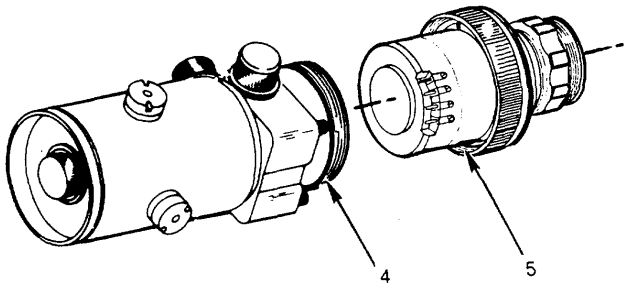


2. Rotate the objective (range) focus ring (3) counterclockwise until free of threads on the battery housing (4).

3-11 REMOVAL, REPAIR AND INSTALLATION OF EYEPIECE ASSEMBLY-Continued

NOTE

The image intensifier is guided by a groove and pin Inside the battery housing.



3 Carefully slide out eyepiece assembly with image intensifier (5) attached until completely removed from battery housing (4)

4 Loosen four setscrews (6) from the two split locking rings (7) and push segments side ways to check that they are free.

5. Grasp the objective focus ring (11) firmly and unscrew the image intensifier (5) counterclockwise until free of housing.

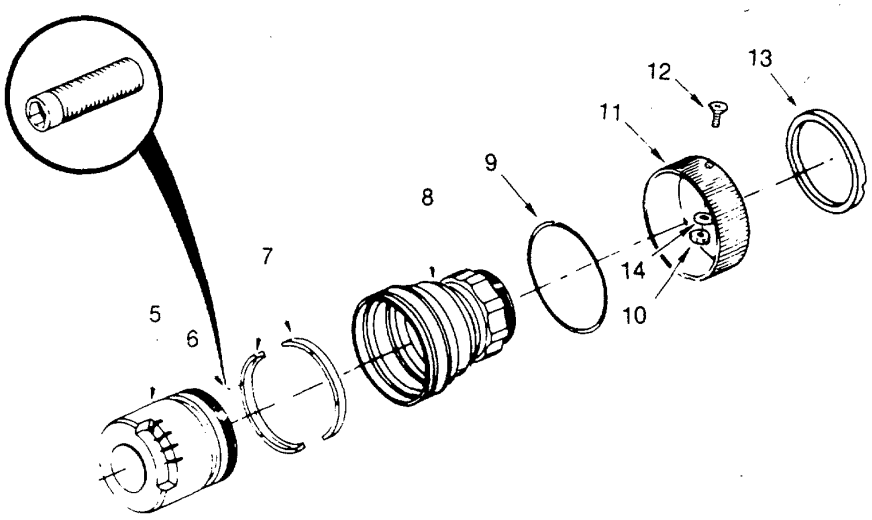
6 Remove split lockrings (7) from image intensifier (5).

REPAIR

1 Remove objective focus ring retaining nut (13) from eyepiece assembly (8) using spanner wrench Turn spanner wrench counterclockwise while firmly grasping the eyepiece assembly (8).

2 Remove the objective focus ring (11) by sliding it off the eyepiece assembly in the same direction as the objective focus ring retaining nut (13)

3 Remove and discard preformed packing (9) from groove on outer surface of eyepiece assembly near the image intensifier end.



3-11 REMOVAL, REPAIR AND INSTALLATION OF EYEPIECE ASSEMBLY-Continued

CAUTION

Do not attempt to operate image intensifier while it is outside the battery housing. Place protective dust caps over image intensifier lens to protect optical surfaces.

4 Inspect split lockrings (7) for serviceability. Replace if necessary.

5 Inspect the split lockring set scerws (6) machine screw (1 2), lockwasher (1 4) and hexagon nut (1 0). Replace if damaged or missing.

6. Inspect image intensifier (5), refer to paragraph 3-12.

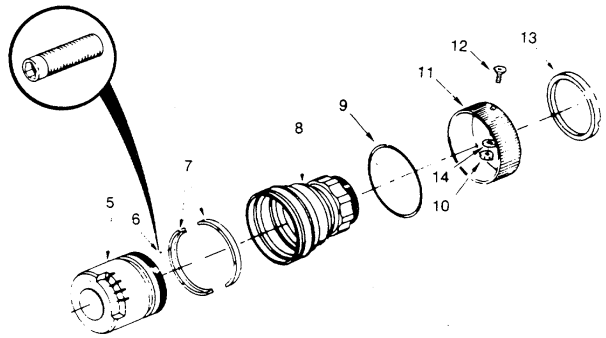
7. Apply a light coat of silicone grease on the new preformed packing (9) and install in the groove on the outside of the eyepiece assembly (8).

8 Inspect lockwasher (14) machine screw (12) and hexagon nut (10) on objective focus ring (11). Replace if loose fitting and cannot be tightened

INSTALLATION

CAUTION

Before installing the eyepiece assembly, clean and dry all optical and mating surfaces to prevent arcing and possible damage to the image intensifier.



1. Install objective focus ring (11) on eyepiece assembly (8)

2. Install objective focus ring retaining nut (13) on eyepiece assembly (8) by turning clockwise until firmly seated.

3-11 REMOVAL, REPAIR AND INSTALLATION OF EYEPIECE ASSEMBLY-Continued

CAUTION

Before installing the image intensifier and eyepiece assembly, clean and dry all optical and mating surfaces to prevent arcing and possible damage to the image intensifier. Avoid touching optical surface while installing

3 Install split lockrings (item 7, page 3-1 1) in groove around the image intensifier (5) with hexagon setscrew (6) facing away from the threaded end of the image intensifier,

CAUTION

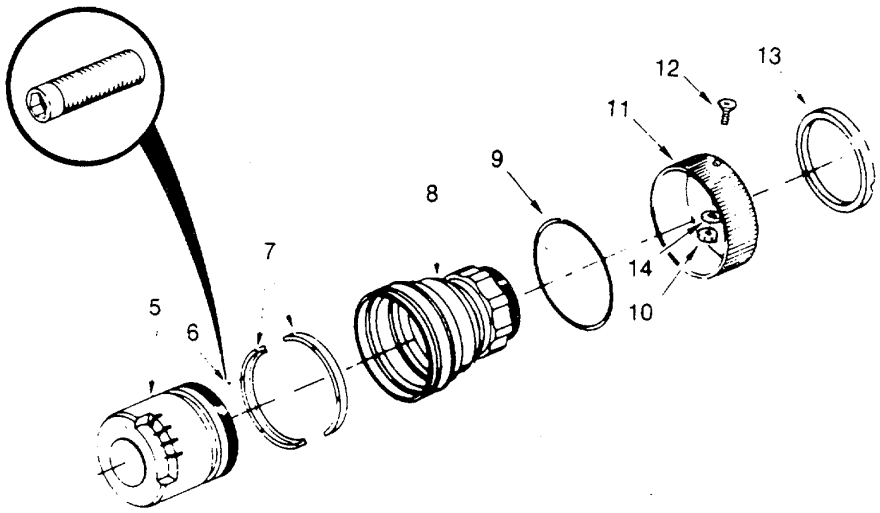
To prevent damage to image intensifier threads. position image intensifier into eyepiece, rotate image intensifier counterclockwise until you feel the threads seat into place and then turn clockwise to tighten the image intensifier.

4 Rotate image intensifier (5) clockwise into eyepiece assembly (8) until fully seated.

5 Tighten four set screws (6) in split lockrings (7).

6 Insert image intensifier into battery housing (item 11, page 3-12) by aligning the groove in the image intensifier with the pin inside the housing upper right quadrant as viewed from the rear. Press the image intensifier and eyepiece assembly (13) into the battery housing (11) until fully seated.

7 Grasp objective focus ring (12) and turn it clockwise onto battery housing (11) until the eyepiece assembly is fully secured to the housing.



3-11 REMOVAL, REPAIR AND INSTALLATION OF EYEPIECE ASSEMBLY-Continued

NOTE

Install objective focus stop ring but do not tighten until after objective tens focus is done.

8. Position objective focus stop ring (14) on eyepiece assembly and do not tighten.

9. Install eyeguard assembly, refer to paragraph 2-12.

10. Set objective lensfocus, refer to Paragraph 3-7.

3-12 REMOVAL AND INSTALLATION OF IMAGE INTENSIFIER, NIGHT VISION, MX-9644/UV

This task consists of removal, inspection and installation of image intensifier.

INITIAL SETUP:

Test Facility

Clean station in the electronic repair service area

Tools

General Tool Kit, Electronic TK-1 05/G (Item 3, Appx B)

Materials/Parts

Image Intensifier

Cotton-tipped applicators
Finger cots
Lens paper. NNN-P-40
Denatured ethanol

Equipment Condition

Eyeguard assembly removed. Refer to paragraph 2-12
Eyepiece assembly removed. Refer to paragraph 3-1 1.

REMOVA|

1. Remove image intensifier. Refer to paragraph 3-1 1 (removal of eyepiece assembly).

3-12 REMOVAL AND INSTALLATION OF IMAGE INTENSIFIER, NIGHT VISION, MX-9644/UV-Continued

INSPECT

CAUTION

Small cracks at the corners and stress points of the contact insert are unacceptable.

1 Inspect the image intensifier (old or new) for cracks or chips on the optics or cracks on the housing.

2. Inspect to ensure that the surface of both the interior eyepiece lens and the image intensifier output optic are clean. If not, clean image intensifier lens with cotton-tipped applicator moistened with denatured ethanol. Rub gently in a circular motion starting at the center and move outward with large circles.

3 If any of these inspections reveals a problem, forward image intensifier to depot level maintenance.

4. Inspect the inside of the housing to ensure locating pin is not damaged.

INSTALLATION

1. Install image intensifier. Refer to paragraph 3-11 (installation of eyepiece assembly).

3-13 REMOVAL AND INSTALLATION OF RETICLE CAP, ELECTRONIC COMPONENT AND RETICLE CELL ASSEMBLY

This task consists of removal and installation for defective components (reticle cap. electronic component and reticle cell assembly).

INITIAL SETUP

Tools

General Tool Kit, Electronic TK-105/G (Item 4. Appx B)

Materials/Parts

Reticle Cap
Electronic Component
Reticle cell assembly

Equipment condition

Daylight cover removed Refer to TM 11 -5855-213-100.

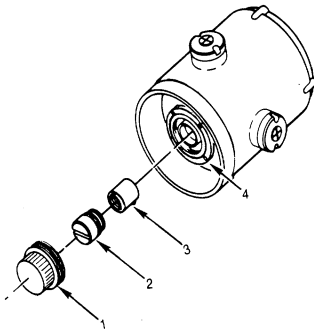
REMOVAL

NOTE

The following procedures for installation of reticle cell are the same for all reticles used in the sight

1 Remove reticle cap (1) and electronic component (2).

2 Insert a small common tool or wire into reticle cell assembly (3) so that it engages the lip or holes in the side of the cell and pull reticle cell out of the recess.



INSTALLATION

1. Install new reticle cell assembly (3) if necessary by aligning the pin at the base of the cell with the slot in the reticle retainer (4) and pressing the cell pin first into the recess until fully seated.

2 Install new electronic component (2) if necessary by screwing into the reticle cell assembly (3)

3. Install new reticle cap (1) if necessary and install daylight cover . refer to TM 11 -5855-213-1 0

3-14 REMOVAL, REPAIR AND INSTALLATION OF OBJECTIVE ASSEMBLY, 95 MM

This task consists of replacement of objective assembly (preformed packing).

INITIAL SETUP

Test Facility

Clean station in the electronic repair service area

Tools

General Tool Kit. Electronic TK-105/G (Item 3. Appx B)
Toqure wrench (Item 5. Appx B)

Materials/Parts

Preformed packing
Silicone grease

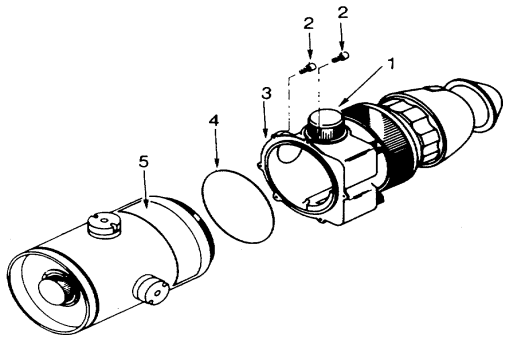
Equipment conditon

Battery cover removed Refer to TM 11 -5855-213-1 0.
Reticle cap. electronic component and reticle cell assembly removed. Refer to paragraph 3-13.

REMOVAL

CAUTION

Do not twist the objective lens and battery housing assemblies while separating one from the other to avoid damage to the diode pin and socket



1 Remove six screws (2) securing the objective assembly (5) to the battery housing (3) Separate the objective assembly from the battery housing assembly slowly by pulling apart

2 Remove and discard preformed packing (4) from the objective end of battery housing (3).

3-14 REMOVAL, REPAIR AND INSTALLATION OF OBJECTIVE ASSEMBLY, 95 MM-Continued

REPAIR

1 Repair by replacing preformed packing.

2. If objective assembly is damaged replace entire objective assembly.

INSTALLATION

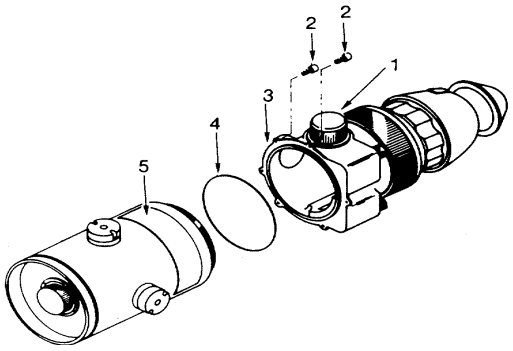
CAUTION

Clean and dry all optical and mating surfaces to prevent arcing and possible damage to the image intensifier.

1. Lubricate new preformed packing (4) with silicone grease and install on battery housing (3)

CAUTION

Objective assembly and battery housing must be properly aligned. so that the diode pin and socket will engage.



2. Align hole in the objective assembly (5) with matching hole in the battery housing (3) and secure with six new or serviceable screws (2).

3 Tighten screws (2) to 9 plus or minus 1 inch-pounds using torque wrench.

4 Install battery cover (1).

3-15 REMOVAL, REPAIR AND INSTALLATION OF BATTERY HOUSING ASSEMBLY

This task consists of removal and installation of battery housing assembly and replacement of: On-Off System Brightness Switch and Resistor, On-Off Reticle Brightness Switch and Resistor and Connector Assembly and Light Emitting Diode Connector.

INITIAL SETUP

Tools

General Tool Kit. Electronic TK-105/G (Item 4, Appx B)

Materials/Parts

RTV (Adhesive rubber)
Silicone grease
Tags
Electrial control knob
Switch
Preformed packing

Equipment Condition

Electncal control knobs removed. Refer to paragraph 2-14.
Mounting adapter removed. Refer to paragraph 3-10.
Eyepiece assembly removed. Refer to paragraph 3-1 1.
Objective assembly removed. Refer to paragraph 3-14.

---

a. On-Off System Brightness Switch and Resistor

REMOVAL

1 Remove electrical control knob. Refer to paragraph 2-14 electrical control knobs

2 Remove hexagonal nut and washer on switch shaft (Item 6. page 2-19).

3 Remove threaded support screws (1) and push connector assembly (2) aside.

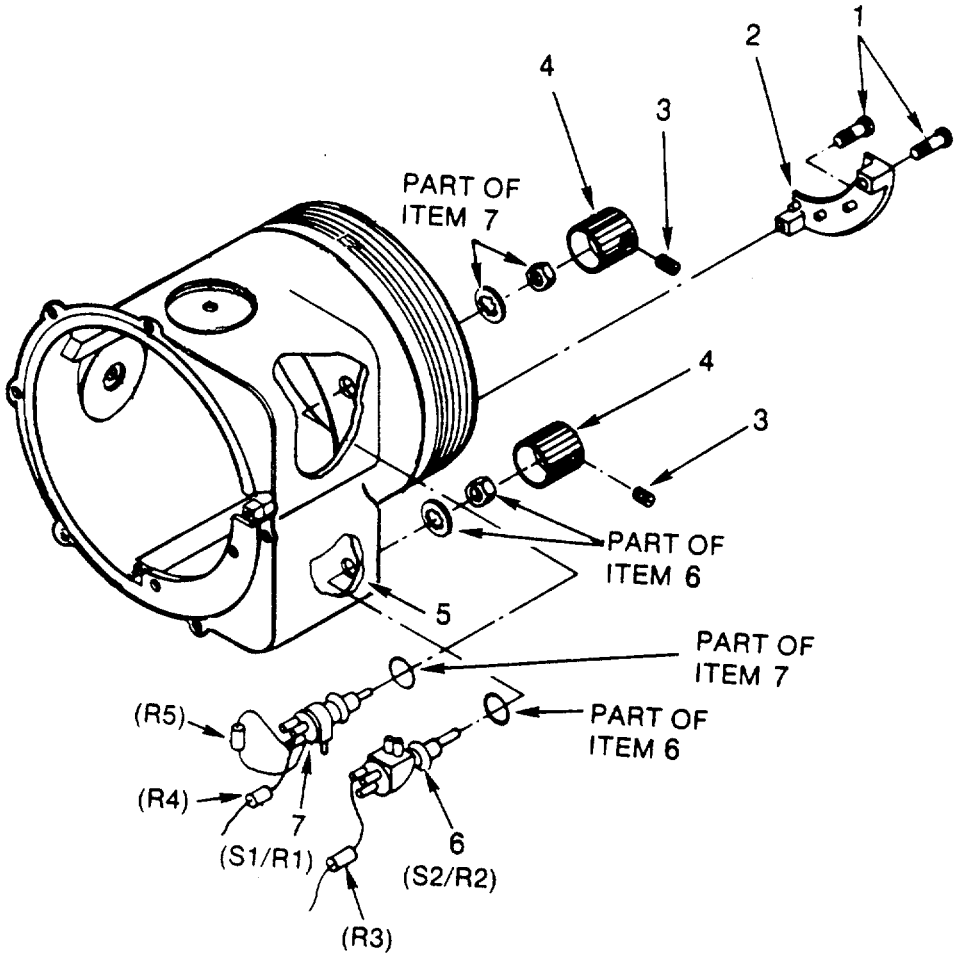
NOTE

Tag all leads before unsoldering for installation.

4 Push switch (6) up through hole in battery housing (5) until there is room to tag and unsolder leads.

5 Tag and unsolder leads from switch (6) and remove switch.

3-15. REMOVAL, REPAIR AND INSTALLATION OF BATTERY HOUSING ASSEMBLY - Continued



REPAIR

Check wiring continuity and resistance of R3. Replace R3 (470K) and wiring if necessary, refer to fig. 3-1.

3-15. REMOVAL, REPAIR AND INSTALLATION OF BATTERY HOUSING ASSEMBLY - Continued

INSTALLATION

1 Install R3 (470k) and wire.

NOTE

Make sure preformed packing is furnished with switch.

2. Lubricate preformed packing on switch (item 6, page 2-19) with silicone grease.

3. Resolder leads as previously tagged.

4. Push switch (6) down through the hole in the battery housing (5) and install connector (2) by screwing threaded support screws into holes provided in the battery housing.

CAUTION

Check routing of wiring to insure that wires are below the level of the image intensifier supporting surfaces to prevent damage when image intensifier installed.

5. Use a small amount of adhesive rubber, RTV, to secure wire to inside of battery housing (5) where necessary.

6. Install washer and hexagonal nut on switch shaft (6).

7 Install electrical control knob, refer to paragraph 3-15a.

3-15. REMOVAL, REPAIR AND INSTALLATION OF BATTERY HOUSING ASSEMBLY - Continued

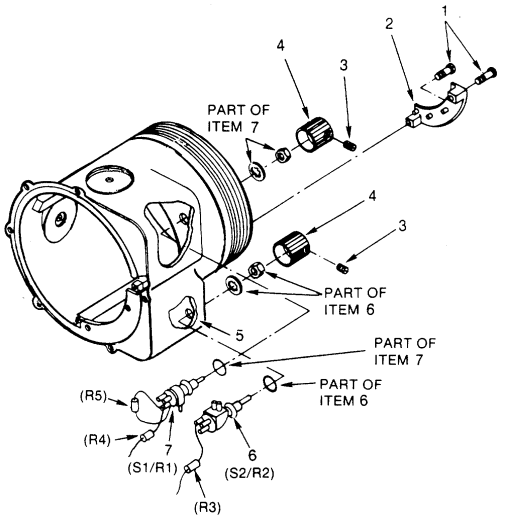
b. On-Off Reticle Brightness Switch and Resistors

REMOVAL

NOTE

Connector assembly does not require removal to replace reticle brightness switch.

Follow paragraph 3-15b to remove ON/OFF reticle brightness switch.



REPAIR

1. Check wiring continuity and resistance of R4. Replace R4 (2.7K) and wiring if necessary. Refer to fig. 3-1.

2. Check switch (1K varistor) and attach resistor R5 (0.75K). Replace if necessary.

INSTALLATION

1 Install new switch (1K varistor) (7) and attach resistor R5 (0.75K).

2. Resolder leads as previously tagged.

3 Install ON/OFF reticle brightness switch. refer to installation paragraph 3-15b.

3-15. REMOVAL, REPAIR AND INSTALLATION OF BATTERY HOUSING ASSEMBLY - Continued

c. Connector Assembly and Light Emitting Diode Connector

REMOVAL

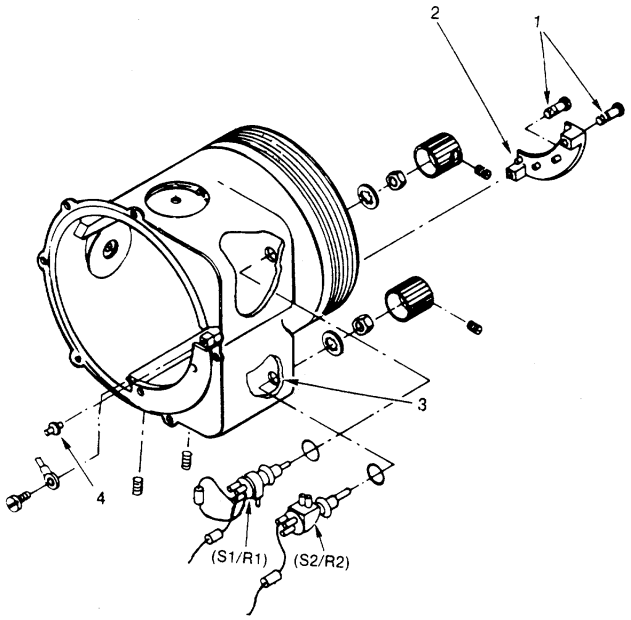
1 Remove two screws (1) from connector assembly (2) and pull connector assembly out slightly to gain acces to the terminal and wires.

2. Tag and unsolder wires from P1, P2, P3, and P4 Refer to figure 1-4.

NOTE

Heat may be necessary to remove connector.

3 Remove connector (4) to the light emitting diode by unsoldering the wire connection and unscrewing connector from the battery housing (3).



REPAIR

1 Replace connector assembly (2) and new threaded support screw (1).

2 Replace light emitting diode (LED) connector (4) if necessary.

3-15. REMOVAL, REPAIR AND INSTALLATION OF BATTERY HOUSING ASSEMBLY - Continued

INSTALLATION

NOTE

Wire P4 has a second wire that leads to the ground plug.

1. Resolder leads as tagged.

2. Install connector assembly (2) and threaded support (1) by aligning supports with threaded holes in battery housing (3) and tightening until connector assembly is fully secure.

CAUTION

Make sure LED connector is screwed fully into the housing so that it does not extend beyond the mating surface.

3. Install LED connector (4) into housing.

4. Resolder wire to connector and apply sealing compound.

SECTION VI. Preparation for Storage or Shipment

3-16. PACKING THE AN/PVS-4

Packing procedures for the sight are the same as that for unit maintenance. Refer to paragraph 2-15.

3-17. SHIPPING THE IMAGE INTENSIFIER

NOTE

Place dust caps over image intensifier ends to protect optical surfaces when shipping or storing image intensifier separately from the sight.

1. When an image intensifier has been replaced, pack the removed image intensifier assembly in the packing and shipping material in which you received the new image intensifier or equivalent packing material. The original packing of shipping material provides the appropriate protection for the image intensifier. Return the removed intensifier to depot for final evaluation and disposition.

2. If an image intensifier has been replaced and it is still under warranty, refer to paragraph 1-7 for instructions

APPENDIX A
REFERENCES

A-1. SCOPE

This appendix lists all forms, field manuals, technical manuals, and miscellaneous publications referenced in this manual.

A-2. ARMY REGULATIONS

Report of Transportation Discrepancies in Shipments	AR 55-38
Reporting of Item and Packaging Discrepancies	AR 735-11-2

A-3. DEPARTMENT OF THE ARMY PAMPHLETS

Consolidated Index of Army Publications and Blanks Forms	DA PAM 25-30
The Army Maintenance Management System (TAMMS)	DA PAM 738-750

A-4. FORMS

NVG Inspection and Maintenance Record	DA Form 2408-30
Recommended Changes to Publications and Blank Forms	DA Form 2028
Recommended Changes to Equipment Technical Manuals	DA Form 2028-2
Product Quality Deficiency Report	SF 368

A-5. FIELD MANUALS

NBC Contamination Avoidance	FM 3-3
NBC Decontamination	FM 3-5
First Aid for Soldiers	FM 21-11

160-872 0-94-3

APPENDIX A
REFERENCES - Continued

A-6. TECHNICAL MANUALS

Administrative Storage of Equipment	TM 740-90-1
Procedures For Destruction of Electronics Materiel to Prevent Enemy Use	TM 750-244-2
Defense Scrap Yard Handbook	TM 755-200
Operator's Manual For MT641 Rifle	TM 9-1005-249-10
Operator's Manual Night Vision Sight, Individual Served Weapon, AN/PVS-4	TM 11-5855-213-10
Hand Receipt Manual, Night Vision Sight, Individual Served Weapon, AN/PVS-4	TM 11-5855-213-10-HR
Operator's and Unit Maintenance Manual for the Electronic Systems Test Set TS-4348/UV	TM 11 -5855-299-12&P
Operator's, Unit, DS/GS, and Depot Maintenance Manual: Multimeter TS-352B/U	TM 11-6625-366-15

A-7. OTHER PUBLICATIONS

Battery Disposition/Disposal Handbook	TB 43-0134
Expendable Items (except Medical, Class V, Repair Parts, and Heraldic Items)	CTA 50-970
Standard Requirements for Soldered Electrical and Electronic Assemblies	MIL-STD-2000
Night Flight Techniques and Procedures	TC 1-204
Night Vision Goggle Distortion Inspection Video (VSH)	TVT 46-18
FSC Class 6135: Dry Battery Management Data	SB 11-30
Tool Kit, Electronic Equipment TK-105/G	SC 5180-91-CL-R07

APPENDIX B
MAINTENANCE ALLOCATION CHART (MAC)

SECTION I. Introduction

B-1. The Army Maintenance System MAC

a. This introduction (section I) provides a general explanation of all maintenance and repair functions authorized at various maintenance levels under the standard Army Maintenance System concept.

b. The Maintenance Allocation Chart (MAC) in section II designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component will be consistent with the capacities shown on the MAC in column (4) as:

Unit - Includes two sub column, C (operator/crew) and O (unit) maintenance.

Direct Support - Includes an F sub column.

General Support - Includes an H sub column.

Depot - Includes a D sub column.

c. Section III list the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from section II.

d. Section VI Contains supplemental instructions and explanatory notes for a particular maintenance function.

B-2. Maintenance Functions.

Maintenance functions are limited to and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel).

b. Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Operations required periodically to keep an item in proper operating condition; e.g., to clean (includes decontaminate, when required), to preserve, to drain to paint, or to replenish fuel, lubricants, chemical fluids, or gases.

d. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper position, or by setting the operating characteristics to specified parameters.

e. Align. To adjust specified variable elements of an Item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test, measuring and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Remove/Install. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

h. Replace. To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and assigned maintenance level is shown as the third position code of the SMR code.

i Repair. The application of maintenance services[1] including fault location/troubleshooting[2], removal/installation, and disassembly/assembly[3] procedures, and maintenance actions[4] to identify troubles and restore serviceability to an item by part, subassembly, module (component or assembly), end item, or system.

j. Overhaul. That maintenance effort (service/action) prescribed to restore an item to a completely service- able/operational condition as required by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

K. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (e.g., hours/miles) considered in classifying Army equipment/components.

---

[1]Services - Inspect, test, service, adjust, aline, calibrate, and/or replace.

[2]Fault location/troubleshooting - The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or unit under test (UUT).

[3]Disassembly/assembly - The step-by-step breakdown (taking apart) of a spare/functional group coded item to the level of its least component, that is assigned an SMR code for the level of maintenance under consideration (i.e., identified as maintenance significant).

[4]Action - Welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.

B-3. Explanation of Columns in the MAC, Section II

a. Column 1, Group Number. Column 1 lists functional group code numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the next higher assembly.

b. Column 2, Component/Assembly. Column 2 contains the item names of components, assemblies, sub-assemblies, and modules for which maintenance is authorized.

c. Column 3, Maintenance Function. Column 3 lists the functions to be performed on the item listed in column 2. (For detailed explanation of these functions, see paragraph B-2.)

d. Column 4, Maintenance Level. Column 4 specifies each level of maintenance authorized to perform each function listed in column 3, by indicating work time required (expressed as manhour in whole hour or decimals) in the appropriate subcolumn. This work- time figure represents the active time required to perform that maintenance function at the indicated level of maintenance. If the number of complexity of the tasks within the listed maintenance function vary at different maintenance levels, appropriate work-time figures are shown for each level. The work-time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. The symbol designations for the various maintenance levels are as follows:

C - Operator or crew maintenance
O - Unit maintenance
F - Direct Support maintenance
L - Specialized Repair Activity (SAR)[5]
H - General support maintenance
D - Depot maintenance

e. Column 5, Tools and Test Equipment reference Code. Column 5 specifies, by code, those common tools sets (not individual tools), common TMDE, and special tools, special TMDE, and special support equipment required to perform the designated function. Codes are keyed to tools and test equipment in section III.

f. Column 6, Remarks. When applicable, this column contains a letter code, in alphabetical order, which is keyed to the remarks contained in section IV.

---

[5]This maintenance level is not included in Section II, column (4) of the Maintenance Allocation Chart. Functions to this level of maintenance are identified by a work-time figure in the "H" column of Section II, column (4), and an associated reference code is used in the Remarks, and the SRA complete repair application is explained there.

B-4. Explanation of Columns In Tool and Test Equipment Requirements, Section III

a. Column 1, Reference Code. The tool and test equipment Reference code correlates with a code used in the MAC, Section II, Column 5.

b. Column 2, Maintenance Level. The lowest level of maintenance authorized to use the tool or test equipment.

c. Column 3, Nomenclature. Name of the tool or test equipment.

d. Column 4, National Stock Number. The National Stock Number of the tool or test equipment.

e. Column 5, Tool Number The manufacturer's part number, model number, or type number.

B-5. Explanation of Columns in Remarks, Section IV

a. Column 1, Remarks Code. The code record in column 6, Section II.

b. Column 2, Remarks. This lists information pertinent to the maintenance function being performed as indicated in the MAC, Section II.

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/PVS-4

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL UNIT C	UNIT O	DS F	GS H	DEPOT D	(5) TOOLS AND EQUIPMENT	(6) REMARKS
00	Night Vision Sight, Individual Served Weapon, AN/PVS-4	Inspect	0.1						
		Service	0 1						
		Repair		0.1					A
		Repair			0.4				
		Repair					4.0	1-21	
01	Night Vision Sight Assembly, SU-87/PVS-4	Inspect	0.1						
		Service	0.1						
		Test	0.1					2	
		Repair	0.1						B
		Inspect		0.1					
		Test		0.1				2	
		Repair		0.1					B, C
		Inspect			0.2				D
		Test			0.2			1 ,2	
		Repair			0.5			4, 5	
		Repair					4.0	1-21	
0101	Image Intensifier, Night Vision, MX-9644/UV	Inspect			0.1				
		Service			0.1				
		Replace			0.2				
		Repair					TBD		E
0102	Eyepiece Assembly	Inspect			0.1				
		Service			0.1				
		Replace			0.2			4	
		Repair			0.4			4, 6	F
0103	Battery Housing Assembly	Repair		0.1					G, J
		Inspect			0.1				
		Test			0.2			1	
		Replace			0.2				
		Repair			0.5			4	

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/PVS-4-Continued

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL UNIT C	UNIT O	DS F	GS H	DEPOT D	(5) TOOLS AND EQUIPMENT	(6) REMARKS
0104	Objective Assembly, 95 MM	Inspect			0.1				
		Service			0.1				
		Replace			0.2			4, 5	
		Repair			0.2			4	H
		Adjust					0.2		
		Align					0.4		
		Repair					0.7	4, 5 7 to 12, 19, 20	I
02	Mounting Bracket Assembly, M60	Remove	0.1					3	
		Inspect	0.1						
		Install	0.1					3	
		Replace		0.1				3	
		Repair		0.3				3	

SECTION III. TOOL AND TEST EQUIPMENT REQUIREMENTS FOR AN/PVS-4

TOOL/TEST EQUIPMENT REF CODE	MAINT. LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL No.
1	F, D	MULTIMETER - 3528/U	6625-00-242-5023	
2	C, O, F	TEST SET, ELECTRONIC SYSTEM, TS-4348/UV	6625-01-323-9584	
3	C, O,	TOOL KIT, ELECTRONIC EQUIPMENT, TK-101/G	5180-00-064-5178	
4	F, D	TOOL KIT, ELECTRONIC EQUIPMENT, TK-105/G	5180-00-610-8177	
5	F, D	TORQUE WRENCH (0-24 IN/LB)	5120-00-221-7971	
6	F, D	SPANNER WRENCH (FOCUS RETAINING RING)	5120-01-038-2213	AST-6069
7	D	SPANNER WRECH (LENS RETAINING)	5120-01-038-2215	ATS-6070
8	D	SPANNER WRENCH (LENS #1 & #2)	ATS-6051	
9	D	SPANNER WRENCH #1 (RETICLE PROJECTION ASSEMBLY)	5120-01-038-2217	ATS-6060
10	D	SPANNER WRENCH #2 (RETICLE PROJECTION ASSEMBLY)	5120-01-038-2218	ATS-6061
11	D	REMOVAL TOOL (LENS #1)	5120-01-038-2277	ATS-6059
12	D	RETICLE FOCUS TOOL	5120-01-038-2178	ATS-6062
13	D	SPANNER WRENCH (LENS #3)		ATS-6054
14	D	ASSEMBLY TOOL (LENS #3)		HFX-6056
15	D	SPANNER WRENCH (LENS #4)		ATS-6053
16	D	ASSEMBLY TOOL (LENS #4)		HFX-6055

SECTION III. TOOL AND TEST EQUIPMENT REQUIREMENTS FOR AN/PVS-4

TOOL/TEST EQUIPMENT REF CODE	MAINT. LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL No.
17	D	SPANNER WRENCH (LENSES #5 & #6)		AST-6052
18	D	HOLDING FIXTURE (OBJECTIVE ASSEMBLY)		HFX-6058
19	D	TOOL KIT, FIRE CONTROL PURGING NITROGEN TECHNICAL TANK	4931-00-065-1110 6830-00-264-9086	
20	D	PURGE TOOL, OBJECTIVE	PTF-6041	
21	D	SPANNER WRENCH (EYEPIECE HOUSING)	5120-01-038-2214	ATS-6117

SECTION IV. REMARKS

REFERENCE CODE	REMARKS
A	BY REPLACEMENT OF LENS DUSTING BRUSH, LENS PAPER, CARRYING BAG, M16 MOUNTING KNOB ASSEMBLY, AA BATTERY ADAPTER, AND SHIPPING AND STORAGE CASE.
B	BY REPLACEMENT OF BATTERIES
C	BY REPLACEMENT OF DAYLIGHT COVER ASSEMBLY AND EYEGUARD ASSEMBLY.
D	BY PERFORMING INITIAL INSPECTIONISERVICE.
E	RETURN TO DEOPT FOR TESTING ACCORDING TO DMWR 11 -5855-251-50-1 AND DMWR 1 1-5855-251-50-2.
F	BY REPLACEMENT OF PREFORMED PACKINGS, HEXAGONAL NUT AND OBJECTIVE FOCUS STOP RING.
G	BY REPLACEMENT OF BATTERY COVERS, PREFORMED PACKINGS AND BATTERY SPRINGS.
H	BY REPLACEMENT OF RETICLE PROJECTOR CAP, RETICLE CELL ASSEMBLY, PREFORMED PACKING, AND ELECTRONIC COMPONENT.
I	BY REPLACEMENT OF DETENT ACTUATORS. CLICKER DETENTS, OBJECTIVE LENS NO. 1, LENS 1 AND 2 RETAINER, PREFORMED PACKINGS, AND TERMINAL.
J	TIGHTENING/REPLACEMENT OF ELECRTICAL CONTROL KNOBS.

APPENDIX C
UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST

SECTION I. Introduction

C-1. Scope

This RPSTL lists and authorizes spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of unit, direct support, and general support maintenance of the AN/PVS-4. It authorizes the requisitioning, issue, and disposition of spares, repair parts and special tools as indicated by the source, maintenance and recoverability (SMR) codes.

C-2. General

In addition to Section I, Introduction, this Repair Parts and Special Tools List is divided into the following sections:

a. Section II-Repair Parts List. A list of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional group in ascending alphanumeric sequence, with the parts in each group listed in ascending figure and item number sequence. Bulk materials are listed by item name in FIG BULK at the end of the section. Repair parts kits or sets are listed separately in their own functional group within Section II. Repair parts for repairable special tools are also listed in the section.

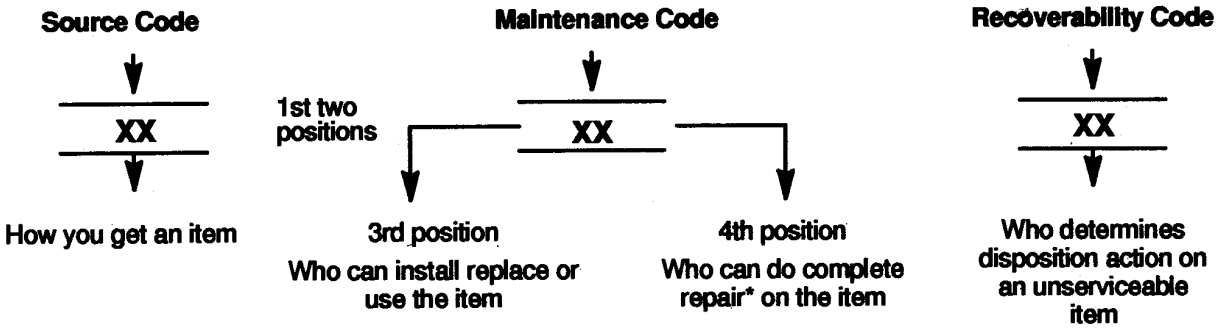
b. Section III-Special Tools List. A list of special tools, special TMDE, and other special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BII) information in DESCRIPTION AND USABLE ON CODE (UOC) column) for the performance of maintenance.

c. Section IV, Cross-Reference Indexes. A list, in National item identification number (NIIN) sequence, of all National Stock numbered items appearing in the listing, followed by a list in alphanumeric sequence of all part numbers appearing in the listings. National stock numbers and part numbers are cross- referenced to each illustration figure and item number appearance. The figure and item number index lists figure and item numbers in alphanumeric sequence and cross-references NSN, FSCM and part numbers.

C-3. Explanation of Columns (Sections II and III)

a. ITEM NO. (Column (1)). Indicates the number used to identify items called out in the illustration.

b. SMR CODE (Column (2)). The Source, Maintenance, and Recoverability (SMR) code is a 5-position code containing supply/requisitioning information, maintenance category authorization criteria, and disposition instruction, as shown in the following breakout:



*Complete Repair: Maintenance capacity, capability, and authority to perform all corrective maintenance tasks of the "Repair" function in a use/user environment in order to restore serviceability to a failed item.

(1) Source Code. The source code tells you how to get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source code following:

Code	Explanation
PA PB PC** PD PE PF PG	Stocked items; use the applicable NSN to request/requisition items with these source codes. They are authorized to the category indicated by the code entered in the 3rd position. **NOTE : Items coded PC are subject to deterioration.
KD KF KB	Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance category indicated in the 3rd position of the SMR code. The complete kit must be requisitioned and applied.

Code	Explanation
MO-(Made at unit/ AVUM Level) MF-(Made at DS/AVUM level) MH-(Made at GS level) ML-(Made at Specialized Repair Activity (SRA)) MD-(Made at Depot)	Items with these codes are not to be requested/requisitioned individually. They must be made from bulk material which is identified by the part number in the DESCRIPTION and USABLE ON CODE (UOC) column and listed in the Bulk Material group of the repair parts list in the RPSTL. If the item is authorized to you by the 3rd position code of the SMR code, but the source code indicates it is made at a higher level, order the item from the higher level of maintenance.
AO-(Assembled by unit/AVUM Level) AF-(Assembled by DS/AVIM Level) AH-(Assembled by GS Category) AL-(Assembled by SRA) AD-(Assembled by Depot)	Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the higher level of maintenance indicated by the source code. If the item is authorized to you by the 3rd position code of the SMR code, but the source code indicates it is assembled at a higher level, order the item from the higher level of maintenance.

XA - Do not requisition an "XA"-coded item. Order its next higher assembly. (Also, refer to the NOTE below.)
XB - If an "XB" item is not available from salvage, order it using the FSM and part number given.
XC - Installation drawing, diagram, instruction sheet, field service drawing, that is identified by manufacturer's part number.
XD - Item is not stocked. Order an "XD"-coded item through normal supply channels using the CAGEC and part number given, if no NSN is available.

Note: Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes, except for those source codes "XA" or those aircraft support items restricted by requirements af AR 700-42.

(2) Maintenance Code. Maintenance codes tell you the level(s) of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth positions of the SMR code as follows:

(a) The maintenance code entered in the third position tells you the lowest maintenance level authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to one of the following levels of maintenance.

Code	Application/Explanation
C	-Crew or operator maintenance done within unit or aviation unit maintenance.
O	-Unit or aviation unit category can remove, replace, and use the item.
F	-Direct support or aviation intermediate level can remove, replace, and use the item.
H	-General support level can remove, replace, and use the item.
L	-Specialized repair activity can remove, replace, and use the item.
D	-Depot level can remove, replace, and use the item.

(b) The maintenance code entered in the fourth position tells whether or not the item is to be repaired and identifies lowest maintenance level with the capability to do complete repair (i.e., perform all authorized repair functions.) (NOTE: Some limited repairs may be done on the item at a lower level of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes.) This position will contain one of the following maintenance codes.

Code	Application/Explanation
O	-Unit or (aviation unit) is the lowest level that can do complete repair of the item.
F	-Direct support or aviation intermediate is the lowest level that can do complete repair of the item.
H	-General support is the lowest level that can do complete repair of the item.
L	-Specialized repair activity (designate the specialized repair activity) is the lowest level that can do complete repair of the item.
D	-Depot is the lowest level that can do complete repair of the item.
Z	-Nonreparable. No repair is authorized.
B	-No repair is authorized. (No parts or special tools are authorized for the maintenance of a "B" coded item). However, the item may be reconditioned by adjusting, lubricating, etc., at the user level.

(3) Recoverability Code. Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the SMR code as follows:

Recoverability Codes	Application/Explanation
Z	-Nonreparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in the 3d position of the SMR Code.
O	-Reparable item. When uneconomically reparable, condemn and dispose of the item at unit or aviation unit level.
F	-Reparable item. When uneconomically reparable, condemn and dispose of the item at direct support or aviation intermediate level.
H	-Reparable item. When uneconomically reparable, condemn and dispose of the item at general support level.
D	-Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item not authorized below depot level.
L	-Reparable item. Condemnation and disposal not authorized below specialized repair activity (SRA).

Recoverability Codes	Application/Explanation
A	-Item requires special handling or condemnation procedures because of specific reason (e.g., precious metal content, high dollar value, material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

c. CAGEC (Column (3)). The commercial and government entity code is a 5-digit code which is used to identify the manufacturer, distributor, or Government agency that supplies the item.

d. PART NUMBER (Column (4)). Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or (government activity), 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.

NOTE: When you use an NSN to requisition an item, the item you receive may have a different part number from the part ordered.

e. DESCRIPTION AND USABLE ON CODE (UOC) (Column (5)). This column includes the following information

(1) The federal item name and, when required, a minimum description to identify the item.

(2) The physical security Classification. Not applicable.

(3) Items that are included in kits and sets are listed below the item name of the kit or set.

(4) Spare/repair parts that make up an assembled item are listed immediately following the assembled item line entry.

(5) Part numbers for bulk materials are referenced in this column in the line item entry for the item to be manufactured/fabricated.

(6) When the item is not used with all serial numbers of the same model, the effective serial numbers are shown on the last line(s) of the description (before UOC).

(7) The usable on code, when applicable (see C-5, Special information).

(8) In the Special Tools List section, the basis of issue (BII) appears as the last line(s) in the entry for each special tool, special TMDE, and other special support equipment. When density of equipments supported exceeds density spread indicated in the basis of issue, the total authorization is increased proportionately.

(9) The statement "END OF FIGURE" appears just below the last item description in Column 5 for a given figure in both Section II and Section lll.

f. QTY (Column (6)). The QTY (quantity per figure column) indicates the quantity of the item used in the breakout shown on the illustration figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column in lieu of a quantity indicates that the quantity is variable and the quantity may vary from application to application.

C-4. Explanation of Column (section IV)

a. NATIONAL STOCK NUMBER (NSN) INDEX.

(1) STOCK NUMBER column. This column lists the NSN by National item identification number (NIIN) sequence.

The NIIN consists of the last nine digits of the NSN (i.e., 5305-01-674-1467). When using this column to location an item, ignore the first 4 digits of the NSN. However, the complete NSN should be used when ordering items by stock number.

(2) FIG. Column. This column lists the number of the figure where the item is identified/located. The figures are in numerical order in Section II and Section III.

(3) ITEM Column. The item number identifies the item associated with the figure listed in the adjacent FIG. column. This item is also identified by the NSN listed on the same line.

b. PART NUMBER INDEX. Part numbers in this index are listed by part number in ascending alphanumeric sequence (i.e., vertical arrangement of letter and number combination which places the first letter or digit of each group in order A through Z, followed by the number 0 through 9 and each following letter or digit it like order).

(1) CAGEC Column. The commercial and government entity code is a 5-digit code which is used to identify the manufacturer, distributor, or Government agency that supplies the item.

(2) PART NUMBER. column. Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), 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.

(3) STOCK NUMBER column. This column lists the NSN for the associated part number and manufacturer identified in the PART NUMBER and FSCM column to the left.

(4) FIG. column. This column lists the number of the figure where the item is identified/located. The figures are in numerical order in Section II and Section III

(5) ITEM Column. The item number identifies the item assigned to the item as it appears in the figure referenced in the adjacent figure number column.

c. FIGURE AND ITEM NUMBER INDEX.

(1) FIG. column. This column lists the number of the figure where the item is identified/located in Section II and Section Ill.

(2) ITEM column. The item number is that number assigned to the item as it appears in the figure reference in the adjacent figure number column.

(3) STOCK NUMBER column. This column lists the NSN for the item.

(4) CAGEC Column. The commercial and government entity code is a 5-digit code which is used to identify the manufacturer, distributor, or Government agency that supplies the item.

(5) PART NUMBER column. Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), 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.

C-5. Special Information

a. FABRICATION INSTRUCTIONS. Bulk materials required to manufacture items are listed in the bulk material functional group of this RPSTL. Part numbers for bulk materials are also referenced in the description column of the line item entry for the item to be manufactured/fabricated. Detailed fabrication instructions for items source coded to be manufactured or fabricated are found in Appendix E.

b. INDEX NUMBERS. Items which have the word BULK in the figure column will have an index number shown in the item number column. This index number is a cross-reference between the National Stock Number/Part Number Index and the bulk material list in Section II.

C-6. How to Locate Repair Parts]

a. When National Stock Number or Part Number is Not Known.

(1). First. Using the table of contents, determine the assembly group or subassembly group to which the item belongs. This is necessary since figures are prepared for assembly groups and subassembly groups, and listings are divided into the same groups.

(2). Second. Find the figure covering the assembly group or subassembly group to which the item belongs.

(3). Third. Identify the item on the figure and use the Figure and Item Number Index to find the NSN.

b. When National Stock Number or Part Number is Known:

(1) Using the National Stock Number or the Part Number Index, find the pertinent National Stock Number or Part Number. The NSN index is the National Item Identification Number (NIIN) sequence (see 4.1(1)). The part numbers in the Part Number index are listed in ascending alphanumeric sequence (see 4 b). Both indexes cross-reference you to the illustration/figure and item number of the item you are looking for.

(2) Turn to the figure and item number, verify that the item is the one you're looking for, then locate the item number in the repair parts list for the figure.

C-7. Abbreviations

Abbreviations	Explanation
NIIN	National Item Identification Number (consists of the last 9 digits of the NSN)
RPSTL	Repair Parts and Special Tools List

Section II. Repair Parts List

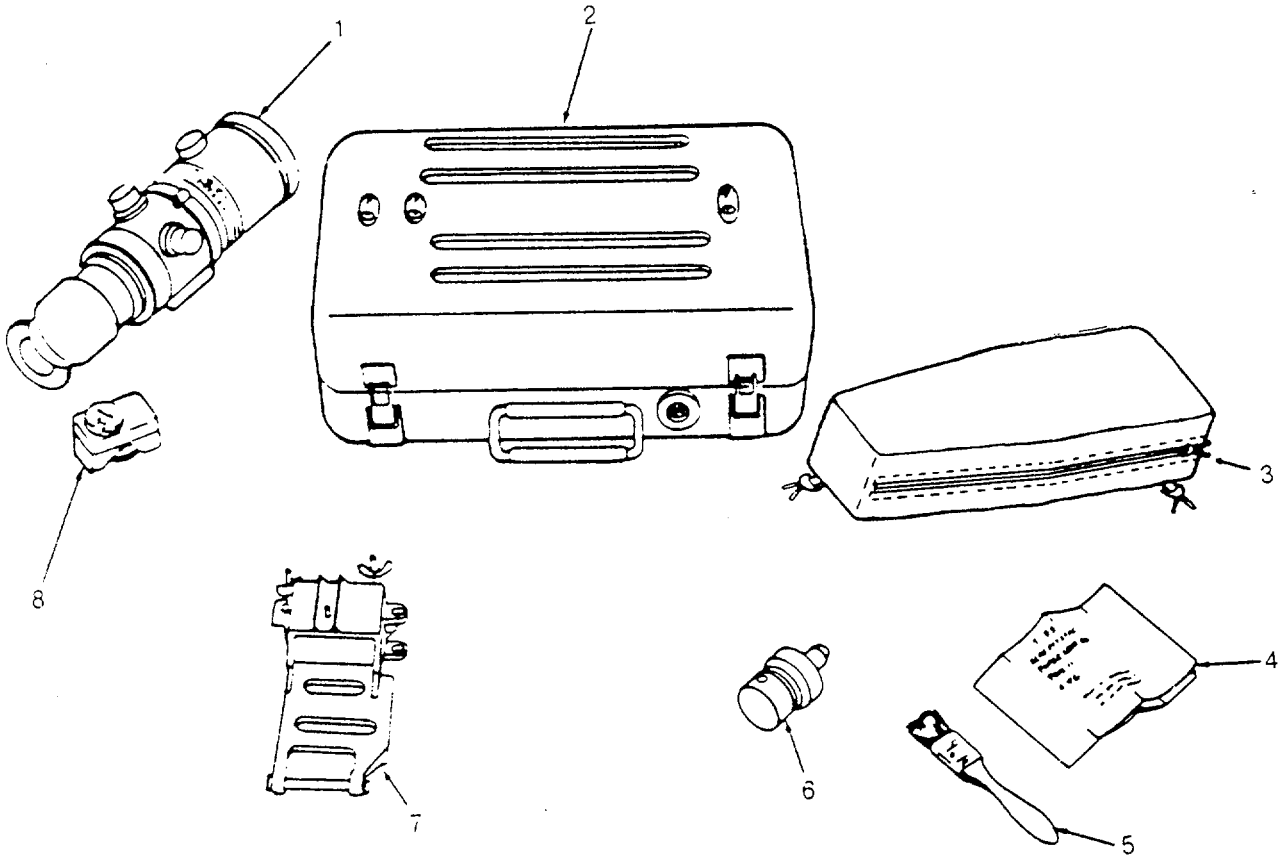


Figure C-1. Night Vision Sight, Individual Served Weapon AN/PVS-4

SECTION II

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 00 NIGHT VISION SIGHT, INDIVIDUAL SERVED WEAPON AN/PVS-4	
				FIGURE C-1	
1	PDODD	80058	SU-87/PVS-4	NIGHT VISION SIGHT (SEE FIGURE 2 FOR BREAKDOWN).	1
2	XBOZZ	80063	SM-D-850480-1	CASE,CARRYING AND S	1
3	PAOZZ	80063	SM-D-850482-2	BAG, CARRYING	1
4	PAOZZ	06650	354	PAPER,LENS	1
5	PAOZZ	94990	11-29923B37	BRUSH,DUSTIDGG LENS	1
6	PAOZZ	80063	SM-D-850500-1	MOUNTING KNOB ASSEM (MOUNTING KNOB ASSEMBLY (MI6).	1
7	PAOOO	80063	SM-D-850340-1	MOUNT,VIEWER (SEE FIGURE 6 FOR PARTS BREAKDOWN) (M60).	1
8	PAOZZ	80063	A3009873	ADAPTER ASSEMBLY-AA	1
				END OF FIGURE	

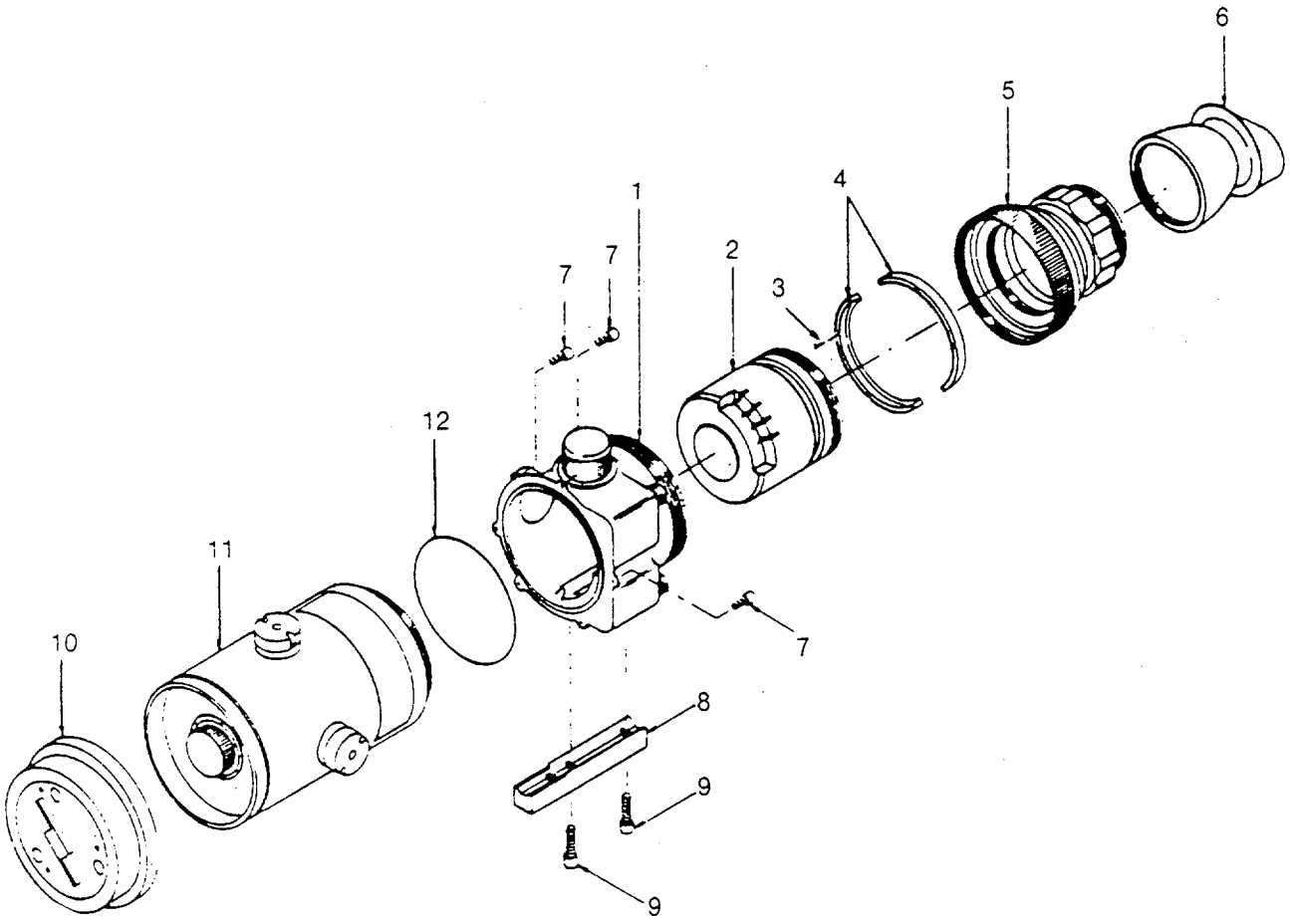


Figure C-2. Night Vision Sight Assembly SU-87/PVS-4

SECTION II

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 01 NIGHT VISION SIGHT ASSEMBLY SU-87/PVS-4	
				FIGURE C-2	
1	PAFFF	80063	SM-D-850110-1	BATTERY,HOUSING ASS (SEE FIGURE 4 FOR BREAKDOWN).	1
2	PAFZA	80058	MX-9644/UV	IMAGE INTENSIFIER,N	1
3	PAFZZ	06888	3-48UNC2A1-4	SETSCREW	4
4	PAFZZ	80063	SM-D-850312	RING,SPLIT LOCK	2
5	PAFFF	80063	SM-D-850400-1	EYEPIECE ASSEMBLY (SEE FIGURE 3 FOR BREAKDOWN).	1
6	PAOZZ	80063	SM-D-850120-1	EYEPIECE ASSEMBLY,O	1
7	PAFZZ	96906	MS16995-16B	SCREW,CAP,SOCKET HE	6
8	PAFZZ	80063	SM-D-850271-1	ADAPTER, MOUNTING	1
9	PAFZZ	80205	NAS1352-3-8P	SCREW,CAP,SOCKET HE	2
10	PAOZZ	80063	SM-D-850315-1	DAYLIGHT COVER ASSY	1
11	PAFDD	80063	SM-D-850320-1	OBJECTIVE ASSEMBLY (SEE FIGURE 5 FOR PARTS BREAKDOWN).	1
12	PAFZZ	96906	MS9021-041	PACKING, PREFORMED	1

END OF FIGURE

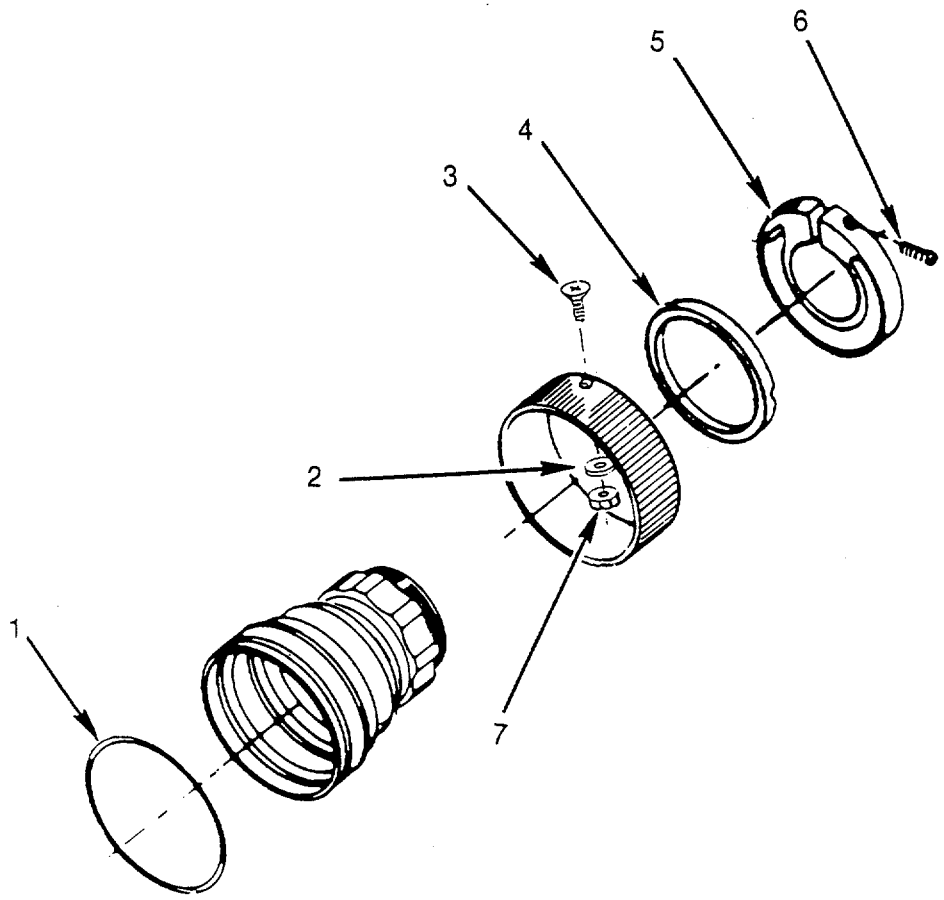


Figure C-3. Eyepiece Assembly

SECTION II

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 0102 EYEPIECE ASSEMBLY	
				FIGURE C-3	
1	PAFZZ	96906	MS9068-040	PACKING,PREFORMED	1
2	PAFZZ	96906	MS35338-135B	WASHER,LOCK.....	1
3	PAFZZ	96906	MS51959-2B	SCREW,MACHINE	1
4	PAFZZ	80063	SM-C-850426	NUT,PLAIN ROUND.....	1
5	PAFZZ	80063	SM-D-850427-1	RING,RETAINING,OPTI	1
6	PAFZZ	96906	MS16995-20B	SCREW,CAP,SOCKET HE.....	1
7	PAFZZ	96906	MS35649-224B	NUT PLAIN, HEX	1
				END OF FIGURE	

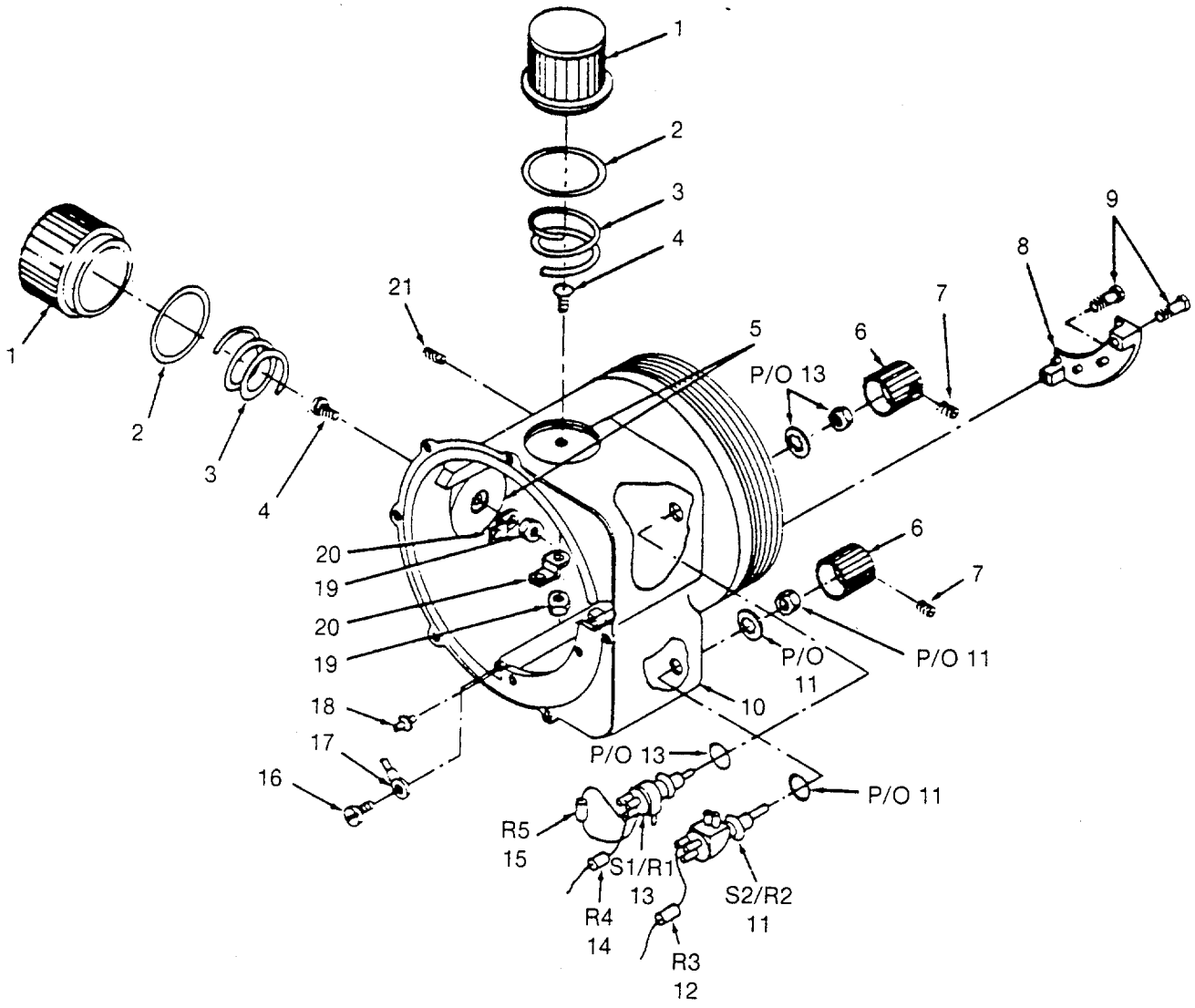


Figure C-4. Battery Housing Assembly

SECTION II

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 0103 BATTERY HOUSING ASSEMBLY	
				FIGURE C-4	
1	PAOZZ	80063	SM-C-850094	COVER,BATTERY	2
2	PAOZZ	80063	SM-B-850109-5	PACKING,PREFORMED	2
3	PAOZZ	80063	SM-C-850093	SPRING,HELICAL,COMP	2
4	PAFZZ	96906	M551957-2	SCREW,MACHINE	2
5	PAFZZ	80063	SM-C-850119	INSULATOR,DISK	2
6	PAFZZ	80063	SM-D-850116-1	KNOB	2
7	PAFZZ	88044	AN565BC4H3	SETSCREW	2
8	PAFZZ	06776	02712	CONNECTOR,PLUG,ELEC	1
9	PAFZZ	80063	SM-B-850115	SCREW,SHOULDER	2
10	PAFZZ	80063	SM-D-850112-1	HOUSING,IMAGE INTEN	1
11	PAFZZ	01121	8362	SWITCH,VARISTOR 50K	1
12	PAFZZ	81349	RCR07G474JS	RESISTOR,FIXED,COMP	1
13	PAFZZ	01121	8363	RESISTOR,VARIABLE	1
14	PAFZZ	81349	RCR07G751JS	RESISTOR,FIXED,COMP	1
15	PAFZZ	81349	RCR07G272JS	RESISTOR,FIXED,COMP	1
16	PAFZZ	96906	MS51957-1	SCREW,MACHINE	1
17	PAFZZ	96906	MS25036-143	TERMINAL,LUG	1
18	PAFZZ	06776	N-60-R1-C	TERMINAL,STUD	1
19	PAFZZ	96906	M535649-222	NUT,PLAIN,HEXAGON	2
20	PAFZZ	80063	SM-B-850461	BUS,CONDUCTOR	2
21	PAFZZ	80063	SM-B-850463	SETSCREW	1
				END OF FIGURE	

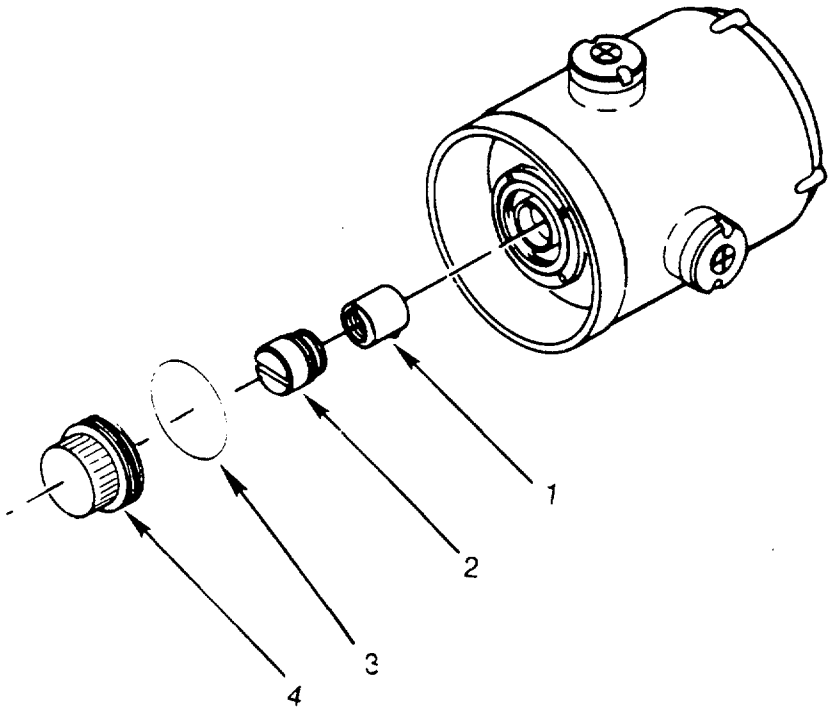


Figure C-5. Objective Assembly

SECTION II

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 0104 OBJECTIVE ASSEMBLY	
				FIGURE C-5	
1	PAFZZ	80063	SM-D-850490-7	RETICLE CELL ASSEMB (M16,M203,M79 M249).	1
1	PAFZZ	80063	SM-D-850490-2	RETICLE CELL ASSEMB (M60,M14).....	1
2	PAFZZ	80063	SM-D-850440-1	ELECTRONIC COMPONENT	1
3	PAFZZ	96906	M59021-022	PREFORMED PACKING	1
4	PAFZZ	80063	SM-D-850161	CAP,PROTECTIVE,DUST	1
				END OF FIGURE	

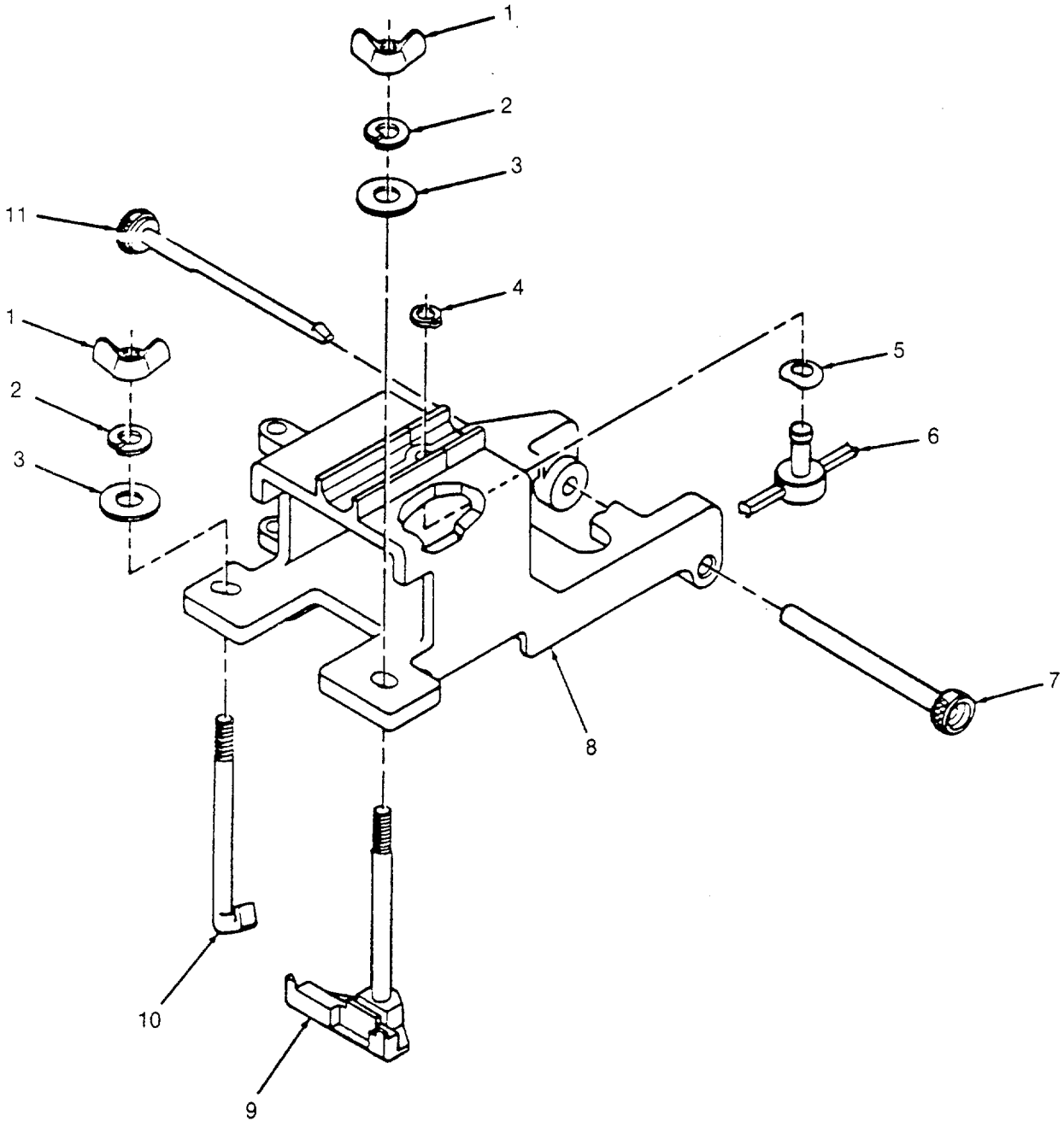


Figure C-6. Mounting Bracket Assembly, M60

SECTION II

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 02 MOUNT BRACKET,M60	
				FIGURE C-6	
1	PAOZZ	80063	SM-B-850510-1	NUT,PLAIN,WING	2
2	PAOZZ	96906	MS35338-139B	WASHER,LOCK	2
3	PAOZZ	96906	MS15795-810B	WASHER,FLAT	2
4	PAOZZ	29964	DZ2D3	RING,RETAINING	1
5	PAOZZ	80063	SM-B-850375-3	WASHER,SPRING TENSI	1
6	PAOZZ	80063	SM-C-850394-3	PIN,STRAIGHT,HEADLE	1
7	PAOZZ	80063	SM-D-850343	PIN,STRAIGHT,HEADED	1
8	XBOZZ	80063	SM-D-850342-1	BRACKET,MOUNTING	1
9	PAOZZ	80063	SM-D-850346-1	CLAMP,LEG	1
10	PAOZZ	80063	SM-C-850345	CLAMP,RIM CLENCHING	1
11	PAOZZ	80063	SM-D-850344	LATCH,HINGE PIN	1
				END OF FIGURE	

SECTION III. Special Tools List

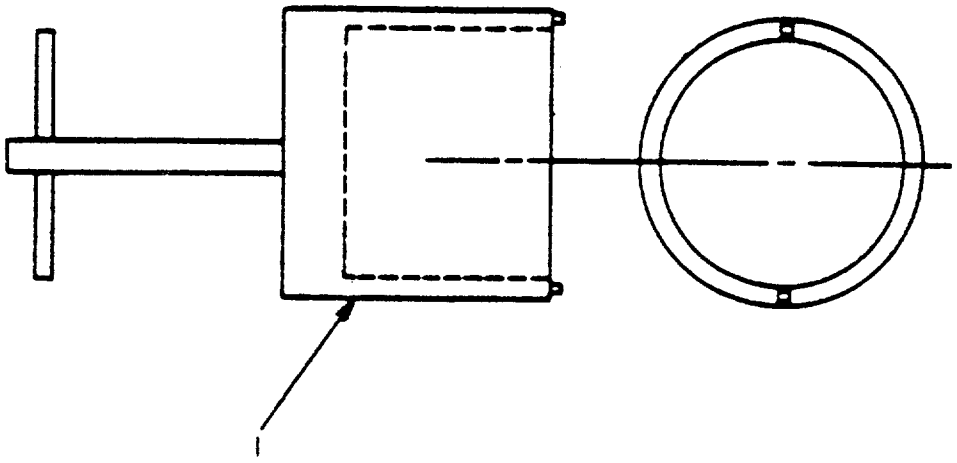


Figure C-7. Special Tools.

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 05 SPECIAL TOOLS	
				FIGURE C-7	
1	PEFZZ	83003	AST6069	SPANNER WRENCH, FOCUS RETAINING..... NUT	1
				END OF FIGURE	

CROSS-REFERENCE INDEXES

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM
5305-00-054-5635	C-4	16
5305-00-054-5636	C-4	4
5905-00-105-7767	C-4	12
5905-00-111-4727	C-4	15
5905-00-126-6696	C-4	14
5855-00-138-2386	C-2	2
7920-00-205-1427	C-1	5
5310-00-224-0746	C-3	2
6640-00-240-5851	C-1	4
5310-00-243-4764	C-6	2
5365-00-298-6564	C-6	4
5305-00-445-8771	C-3	6
5305-00-455-2508	C-3	3
5310-00-470-3000	C-6	3
5310-00-470-3089	C-3	7
5305-00-499-4959	C-2	7
5330-00-558-2330	C-5	3
5940-00-688-6005	C-4	17
5330-00-729-4655	C-2	12
5330-00-764-1787	C-3	1
5305-00-814-8899	C-4	7
5310-00-934-9738	C-4	19
5855-01-017-7366	C-1	1
5310-01-038-2163	C-3	4
5365-01-038-2164	C-2	4
5340-01-038-2165	C-6	11
5310-01-038-2205	C-6	1
5315-01-038-2206	C-6	7
5355-01-038-2207	C-4	6
5360-01-038-2224	C-4	3
5340-01-038-2241	C-5	4
5855-01-039-2830	C-1	3
5355-01-039-2834	C-1	6
5340-01-039-2839	C-6	10
5855-01-039-2840	C-6	9
5855-01-039-2842	C-3	5
1240-01-039-2847	C-2	8
5855-01-039-2850	C-2	11
6650-01-039-2853	5	1
6650-01-039-2854	C-5	1
5855-01-039-2859	C-2	6
6160-01-039-2905	C-4	1
5330-01-043-5819	C-4	2
5305-01-044-2227	C-2	9
5305-01-045-0083	C-2	3
5855-01-046-7272	C-1	7
5855-01-046-7273	C-2	5
5905-01-046-7275	C-4	13
5998-01-046-7276	C-5	2
5905-01-046-7277	C-4	11
5940-01-047-4005	C-4	18
5310-01-108-0073	C-6	5
5315-01-132-3577	C-6	6
5970-01-136-4463	C-4	5
5855-01-147-6024	C-2	1
5855-01-152-0506	C-1	8
5855-01-165-2155	C-4	10
5305-01-165-2166	C-4	21
5305-01-174-6076	C-4	9
6150-01-216-7176	C-4	20
6650-01-252-5428	C-2	10

CROSS-REFERENCE INDEXES

PART NUMBER INDEX

CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
88044	AN565BC4H3	5305-00-814-8899	C-4	7
80063	A3009873	5855-01-152-0506	C-1	8
29964	DZ2D3	5365-00-298-6564	C-6	4
96906	MS15795-810B	5310-00-470-3000	C-6	3
96906	MS16995-16B	5305-00-499-4959	C-2	7
96906	MS16995-20B	5305-00-445-8771	C-3	6
96906	MS25036-143	5940-00-688-6005	C-4	17
96906	MS35338-135B	5310-00-224-0746	C-3	2
96906	M535338-139B	5310-00-243-4764	C-6	2
96906	MS35649-222	5310-00-934-9738	C-4	19
96906	MS35649-224B	5310-00-470-3089	C-3	7
96906	MS51957-1	5305-00-054-5635	C-4	16
96906	MS51957-2	5305-00-054-5636	C-4	4
96906	MS51959-2B	5305-00-455-2508	C-3	3
96906	MS9021-022	5330-00-558-2330	C-5	3
96906	MS9021-041	5330-00-729-4655	C-2	12
96906	MS9068-040	5330-00-764-1787	C-3	1
80058	MX-9644/UV	5855-00-138-2386	C-2	2
06776	N-60-R1-C	5940-01-047-4005	C-4	18
80205	NAS1352-3-8P	5305-01-044-2227	C-2	9
81349	RCR07G272JS	5905-00-111-4727	C-4	15
81349	RCR07G474JS	5905-00-105-7767	C-4	12
81349	RCR07G751JS	5905-00-126-6696	C-4	14
80063	SM-B-850109-5	5330-01-043-5819	C-4	2
80063	SM-B-850115	5305-01-174-6076	C-4	9
80063	SM-B-850375-3	5310-01-108-0073	C-6	5
80063	SM-B-850461	6150-01-216-7176	C-4	20
80063	SM-B-850463	5305-01-165-2166	C-4	21
80063	SM-B-850510-1	5310-01-038-2205	C-6	1
80063	SM-C-850093	5360-01-038-2224	C-4	3
80063	SM-C-850094	6160-01-039-2905	C-4	1
80063	SM-C-850119	5970-01-136-4463	C-4	5
80063	SM-C-850345	5340-01-039-2839	C-6	10
80063	SM-C-850394-3	5315-01-132-3577	C-6	6
80063	SM-C-850426	5310-01-038-2163	C-3	4
80063	SM-D-850110-1	5855-01-147-6024	C-2	1
80063	SM-D-850112-1	5855-01-165-2155	C-4	10
80063	SM-D-850116-1	5355-01-038-2207	C-4	6
80063	SM-D-850120-1	5855-01-039-2859	C-2	6
80063	SM-D-850161	5340-01-038-2241	C-5	4
80063	SM-D-850271-1	1240-01-039-2847	C-2	8
80063	SM-D-850312	5365-01-038-2164	C-2	4
80063	SM-D-850315-1	6650-01-252-5428	C-2	10
80063	SM-D-850320-1	5855-01-039-2850	C-2	11
80063	SM-D-850340-1	5855-01-046-7272	C-1	7
80063	SM-D-850342-1		C-6	8
80063	SM-D-850343	5315-01-038-2206	C-6	7
80063	SM-D-850344	5340-01-038-2165	C-6	11
80063	SM-D-850346-1	5855-01-039-2840	C-6	9
80063	SM-D-850400-1	5855-01-046-7273	C-2	5
80063	SM-D-850427-1	5855-01-039-2842	C-3	5

CROSS-REFERENCE INDEXES

PART NUMBER INDEX

CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
80063	SM-D-850440-1	5998-01-046-7276	C-5	2
80063	SM-D-850480-1		C-1	2
80063	SM-D-850482-2	5855-01-039-2830	C-1	3
80063	SM-D-850490-2	6650-01-039-2853	5	1
80063	SM-D-850490-7	6650-01-039-2854	C-5	1
80063	SM-D-850500-1	5355-01-039-2834	C-1	6
80058	SU-87/PVS-4	5855-01-017-7366	C-1	1
06776	002712		C-4	8
94990	11-29923B37	7920-00-205-1427	C-1	5
06888	3-48UNC2A1-4	5305-01-045-0083	C-2	3
06650	354	6640-00-240-5851	C-1	4
01121	8362	5905-01-046-7277	C-4	11
01121	8363	5905-01-046-7275	C-4	13

CROSS REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
C-1	1	5855-01-017-7366	80058	SU-87/PVS-4
C-1	2		80063	SM-D-850480-1
C-1	3	5855-01-039-2830	80063	SM-D-850482-2
C-1	4	6640-00-240-5851	06650	354
C-1	5	7920-00-205-1427	94990	11-29923B37
C-1	6	5355-01-039-2834	80063	SM-D-850500-1
C-1	7	5855-01-046-7272	80063	SM-D-850340-1
C-1	8	5855-01-152-0506	80063	A3009873
C-2	1	5855-01-147-6024	80063	SM-D-850110-1
C-2	2	5855-00-138-2386	80058	MX-9644/UV
C-2	3	5305-01-045-0083	06888	3-48UNC2A1-4
C-2	4	5365-01-038-2164	80063	SM-D-850312
C-2	5	5855-01-046-7273	80063	SM-D-850400-1
C-2	6	5855-01-039-2859	80063	SM-D-850120-1
C-2	7	5305-00-499-4959	96906	MS16995-16B
C-2	8	1240-01-039-2847	80063	SM-D-850271-1
C-2	9	5305-01-044-2227	80205	NAS1352-3-8P
C-2	10	6650-01-252-5428	80063	SM-D-850315-1
C-2	11	5855-01-039-2850	80063	SM-D-850320-1
C-2	12	5330-00-729-4655	96906	MS9021-041
C-3	1	5330-00-764-1787	96906	MS9068-040
C-3	2	5310-00-224-0746	96906	MS35338-135B
C-3	3	5305-00-455-2508	96906	MS51959-2B
C-3	4	5310-01-038-2163	80063	SM-C-850426
C-3	5	5855-01-039-2842	80063	SM-D-850427-1
C-3	6	5305-00-445-8771	96906	MS16995-20B
C-3	7	5310-00-470-3089	96906	MS35649-224B
C-4	1	6160-01-039-2905	80063	SM-C-850094
C-4	2	5330-01-043-5819	80063	SM-B-850109-5
C-4	3	5360-01-038-2224	80063	SM-C-850093
C-4	4	5305-00-054-5636	96906	MS51957-2
C-4	5	5970-01-136-4463	80063	SM-C-850119
C-4	6	5355-01-038-2207	80063	SM-D-850116-I
C-4	7	5305-00-814-8899	88044	AN565BC4H3
C-4	8		06776	002712
C-4	9	5305-01-174-6076	80063	SM-B-850115
C-4	10	5855-01-165-2155	80063	SM-D-850112-1
C-4	11	5905-01-046-7277	01121	8362
C-4	12	5905-00-105-7767	81349	RCR07G474JS
C-4	13	5905-01-046-7275	01121	8363
C-4	14	5905-00-126-6696	81349	RCR07G751JS
C-4	15	5905-00-111-4727	81349	RCR07G272JS
C-4	16	5305-00-054-5635	96906	MS51957-1
C-4	17	5940-00-688-6005	96906	MS25036-143
C-4	18	5940-01-047-4005	06776	N-60-R1-C
C-4	19	5310-00-934-9738	96906	MS35649-222
C-4	20	6150-01-216-7176	80063	SM-B-850461
C-4	21	5305-01-165-2166	80063	SM-B-850463
C-5	1	6650-01-039-2854	80063	SM-D-850490-7
C-5	2	5998-01-046-7276	80063	SM-D-850440-1
C-5	3	5330-00-558-2330	96906	MS9021-022

CROSS REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
C-5	4	5340-01-038-2241	80063	SM-D-850161
C-6	1	5310-01-038-2205	80063	SM-B-850510-1
C-6	2	5310-00-243-4764	96906	MS35338-139B
C-6	3	5310-00-470-3000	96906	MS15795-810B
C-6	4	5365-00-298-6564	29964	DZ2D3
C-6	5	5310-01-108-0073	80063	SM-B-850375-3
C-6	6	5315-01-132-3577	80063	SM-C-850394-3
C-6	7	5315-01-038-2206	80063	SM-D-850343
C-6	8		80063	SM-D-850342-1
C-6	9	5855-01-039-2840	80063	SM-D-850346-1
C-6	10	5340-01-039-2839	80063	SM-C-850345
C-6	11	5340-01-038-2165	80063	SM-D-850344
5	1	6650-01-039-2853	80063	SM-D-850490-2

APPENDIX D
EXPENDABLE AND DURABLE ITEMS LIST

Section I. Introduction

D-1. SCOPE

This appendix lists expendable and durable items you will need to maintain the AN/PVS-4. This listing is for informational purpose only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, expandable 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 for referencing when required.

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

C - Operator/Crew

O - Unit 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 Commercial and Government Entity Code (CAGEC) parentheses followed by the part number.

e. Column (5) - Unit of Measure (U/M)/Unit of Issue (U/1). 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 as shown in the Army Master Data File (AMDF) requisition the lowest unit of issue that will satisfy your requirements.

Section II. Expendable and Durable Items List

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) (U/M)/ (U/I)
1	C	7920-00-823-9773	Towel, Shop	PK
2	C	6640-00-162-2993	Lens, Paper NNP40TYPE1	PK
3	C	7920-00-205-0565	Lens, Dust Brush	EA
4	C	6515-00-303-8250	Cotton-tipped Applicators	PK
5	C	TBD	Data Sheet	
6	C	TBD	Silicone Grease	
7	O	6810-00-753-4993	Isopropyl Alcohol	
8	O	8040-00-865-8991	RTV (adhesive rubber)	
9	O	TBD	Tags	PK
10	O	6515-00-935-1194	Finger Cots	PK
11	O	TBD	Locktite	
12	O	TBD	Sealing Compound	
13	F	6505-00-299-8095	Denatured Ethanol	

APHABETICAL INDEX

Subject — Page

A

Appendices
- A-References ... A-1
- B-Maintenance Allocation Chart ... B-1
- C-Repair Parts and Special Tools List ... C-1
- D-Expendable and Durable Items List ... D-1

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GLOSSARY

Section I. Abbreviations

DS	Direct Support Maintenance
EIR	Equipment Improvement Report
MAC	Maintenance Allocation Chart
mm	Millimeter
RPSTL	Repair Parts and Special Tools List
SF	Standard Form

Section II. Definitions of Unusual Terms

BLACK SPOTS. These are cosmetic blemishes in the image intensifier of the night sight or dirt or debris between the lens.

CAUTION - Conditions, practices, or procedures that must be observed to avoid damage to equipment, destruction of equipment, or a long-term health hazard.

CHICKEN WIRE. An irregular pattern of dark thin lines in the field of view either throughout the image area or in parts of the image area. Under worst case, these lines will form hexagonal or square-wave shaped lines. These lines are caused by defective fibers that do not transmit light occurring at the boundaries of the fiber bundles in the output optic of the image intensifier.

DARK (OR DARK AREA). A place in which there is very little light. It does not mean total darkness. Generally, this means conditions similar to a quarter-moon or starlit night.

DIOPTER. A unit of measure used to define eye correction. Adjustments to the eyepiece focus ring will provide a clearer image to the eye. It is determined as a unit of refractive power of a lens. In a lens system, such as the eyepiece lens, it is equal to the reciprocal of the focal length measured in meters.

EDGE GLOW. This is a defect in the image area produced by the night sight. Edge glow is a bright area (sometimes sparking) in the outer portion of the viewing area.

EMISSION POINT. A steady or fluctuating pinpoint of bright light in the image area that does not go away or is faintly visible when all light is blocked from the objective lens of the monocular.

EYEPIECE. Consists of an eyepiece lens cell and eyepiece focus ring. Attaches to the battery housing and adjusts for variations in the user's eyesight.

FIXED-PATTERN NOISE. This is usually a cosmetic blemish in the image area produced by the night sight. A faint hexagonal (honeycomb) pattern throughout the viewing area that most often occurs at high-light levels or when viewing very bright lights. This pattern is inherent in the structure of the fiber optics and can be seen in every image intensifier if the light level is high enough.

FLASHING, FLICKERING or INTERMITTENT OPERATION. When the image appear to flicker or flash.

IMAGE DISTORTION. This problem is evidenced by vertical objects, such as trees or poles appearing to wave or bend when viewing object vertically or horizontally.

IMAGE INTENSIFIER. An electro-optical device inside the sight that detects and amplifies ambient light to produce a visual image. It consists of a photocathode, microchannel plate, phosphor screen optic, and integral power supply.

INFINITY FOCUS. Adjustment of the object lens so that a distant object, such as a star or the point light on a distant tower, forms the sharpest image.

MICROCHANNEL PLATE. A current-multiplying optical disk that intensifies the electron image produced by protocathode.

NOTE-Essential information of special importance, interest, or aid in job performance.

OBJECTIVE LENS ASSEMBLY. This consists of an objective lens cell and an objective focus ring. It attaches to the battery housing and adjusts for variations in distance to the viewed area or object.

O-RINGS. A rubber seal used to make the assembly air tight when component parts are joined together.

PHOTOCATHODE. The input optic of an image intensifier that absorbs light energy and in turn releases electrical energy in the form of an electron image.

SHADING. This is a defect in the image area produced by the sight when the photocathode in the image intensifier is slowly dying.

WARNING-Conditions, practices, or procedures that must be observed to avoid personal injury or loss of life.

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official: Milton H. Hamilton

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The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 dekagram = 10 grams = .35 ounce
1 hectogram = 10 dekagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.356	metric tons	short tons	1.102
pound-inches	newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

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