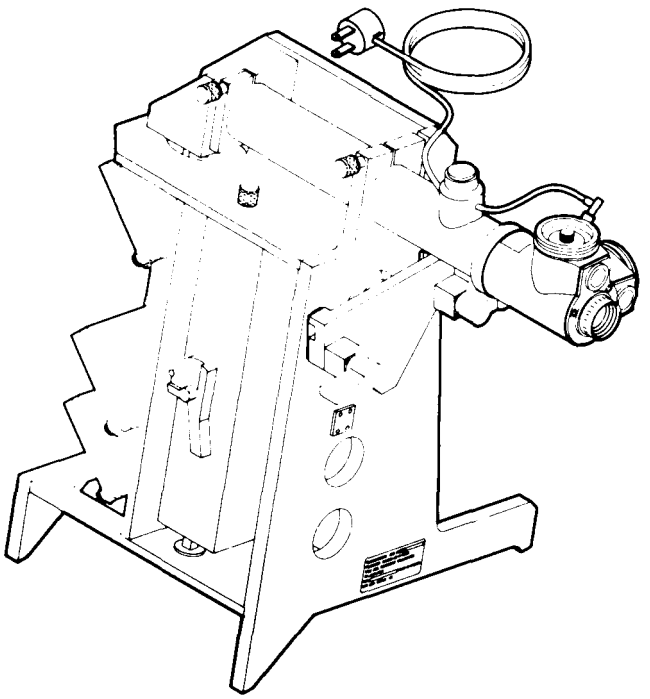
TECHNICAL MANUAL

OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE MANUAL

FOR



TEST SET, BORESIGHT COLLIMATOR, TS-3784/TAS

This copy is a reprint which includes current pages from Change 1.

HEADQUARTERS, DEPARTMENT OF THE ARMY
DECEMBER 1985

Alcohol will burn. Use only in a well-ventilated area, away from heat and open flame.

WARNING

RADIATION HAZARD

Anti reflective coating on all infrared optics contains slightly radioactive thorium fluoride. Potential hazard may result from ingestion (swallowing or inhaling) of this coating material. Dispose of broken lenses and optics in accordance with AR 385-11.

INSERT LATEST CHANGED PAGES. DESTROY SUPERSEDED PAGES

LIST OF EFFECTIVE PAGES

NOTE: The portion of the text affected by the changes is indicated by a vertical line in the outer margins of the page. Changes to illustrations are indicated by miniature pointing hands. Changes to wiring diagrams are indicated by shaded areas.

Dates of issue for original and change pages are:
Original. . 0..10 December 1985
Change 1.. 15 June 1988
TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 114 CONSISTING OF THE FOLLOWING:

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*ZERO in this column indicates an original page.

TECHNICAL MANUAL
No. 9-5855-286-14

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 10 December 1985

OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE MANUAL FOR

TEST SET, BORESIGHT COLLIMATOR TS-3748/TAS (NSN 5855-01-161-8964)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS You can help improve this manual. If you find any mistakes, or if you know of away to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, U.S. Army Missile Command, ATTN: AMSMI-LC-ME-PMS, Redstone Arsenal, AL 35898-5238. A reply will be furnished to you.

*This manual supersedes TM 11-5855-286-14&P, except Appendix C, 31 August 1983.

HOW TO USE THIS MANUAL

1. Take a few minutes to look through this Manual. We've designed this manual so that it will be easy for you to find and perform the procedures you need.

2. If the Boresight Collimator Test Set needs repair and you know what's wrong with it, here's what you do:

   a. Turn to the index and check for a paragraph on the component you want to remove and replace.

   b. Turn to the paragraph. Under the paragraph title, you'll find the tools, materials, and equipment condition needed to perform the procedure. If there are no tools or materials needed, it will also be noted here. If you have more than one of a specific type of tool (for example, two different screwdrivers), the text will indicate which tool to use in the necessary steps. If there is no equipment condition needed to prepare the Boresight Collimator Test Set for the removal procedure, it will be noted that the Boresight Collimator Test Set is assembled.

   c. To remove the bad component, follow the removal procedure.

   d. To install the new component, perform the replacement procedure. The Boresight Collimator Test Set should now be ready to operate.

   e. Perform the troubleshooting procedures paragraph 3-8 to verify repair of the Boresight Collimator Test Set.

3. If the Boresight Collimator Test Set needs repair and you don't know what's wrong with it, you go to the troubleshooting procedures. Troubleshooting procedures are written in the flow chart style. Each set of instructions is written in a box and the boxes are connected by arrows. By following the arrows, you can work your way through the procedure. The chart on the following page tells you what the various boxes mean.

HOW TO USE THIS MANUAL (CONT)

3. (Cent)

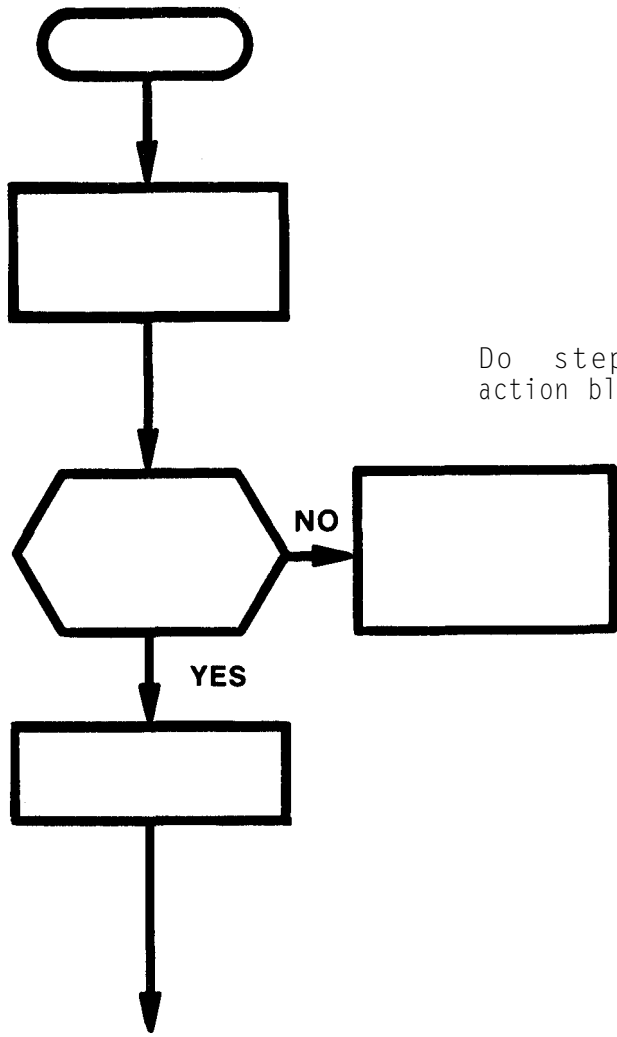
Beginning and end of procedure.

Do instruction before looking for an indication.

Look for a "YES" or "NO" indication. For a "NO" indication, go to corrective action block.

Do steps following "YES" indication.

Go to next page and continue the procedure.



Do steps in corrective action block.

Go to next page

After performing a step in a corrective action block, return to the beginning of the procedure and perform the procedure again. If you branch into the same corrective action block, perform the second step, and so on. The troubleshooting procedure has been successfully performed when you go from "START" to "END OF TASK" without branching into a corrective action block.

CHAPTER 1

INTRODUCTION

CHAPTER OVERVIEW

This chapter is an introduction to the Test Set, Boresight Collimator TS-3784/TAS (Boresight Collimator Test Set). The chapter is divided into three sections. Section I contains general information on the Boresight Collimator Test Set. Section II contains description and data for the Boresight Collimator Test Set and lists equipment used with the Boresight Collimator Test Set. Section III contains principles of operation for the Boresight Collimator Test Set.

CHAPTER CONTENTS

Section I. GENERAL INFORMATION

SECTION CONTENTS

1-1. SCOPE

Type of Manual: Operator, Organizational, Direct Support, and General Support Maintenance.

Model Number and Equipment Name: Test Set, Boresight Collimator TS-3784/TAS

Purpose of Equipment: The Boresight Collimator Test Set is used for testing and alinement of the boresight collimator.

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

Destruction of Army electronics materiel to prevent enemy use shall be in accordance with TM 750-244-4-2.

1-4. ADMINISTRATIVE STORAGE

Refer to TM 740-90-1 for instructions pertaining to administrative storage.

1-5. NOMENCLATURE CROSS-REFERENCE LIST

Official nomenclature for items and parts of the Boresight Collimator Test Set are listed in the Repair Parts and Special Tools List (RPSTL), TM 9-5855-286-24P. The following cross-reference list covers those items having common names that differ from the official nomenclature.

TM NOMENCLATURE	OFFICIAL NOMENCLATURE
Boresight Collimator Test Set	Test Set, Boresight Collimator TS-3784/TAS
Container Case	Boresight Collimator Test Set Case
Wedge Window Tool	Wrench, Spanner

1-6. ABBREVIATIONS

AZ	Azimuth
EL	Elevation
GLLD	Guidance Laser Locator and Designator
I R	Infrared
MULE	Modular Universal Laser Equipment
TOW	Tube-Launched, Optically-Tracked, Wire-Command Link
TMDE	Test, Measurement and Diagnostic Equipment

1-7. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIRs)

If your equipment 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 the design, put it on an SF 368 (Quality Deficiency Report). Mail it to us at Commander, U.S. Army Missile Command, ATTN: AMSMI-QA-QC, Redstone Arsenal, AL 35898-5290. We'll send you a reply.

1-8. ALINEMENT

Refer to Chapter 3 for alinement procedures.

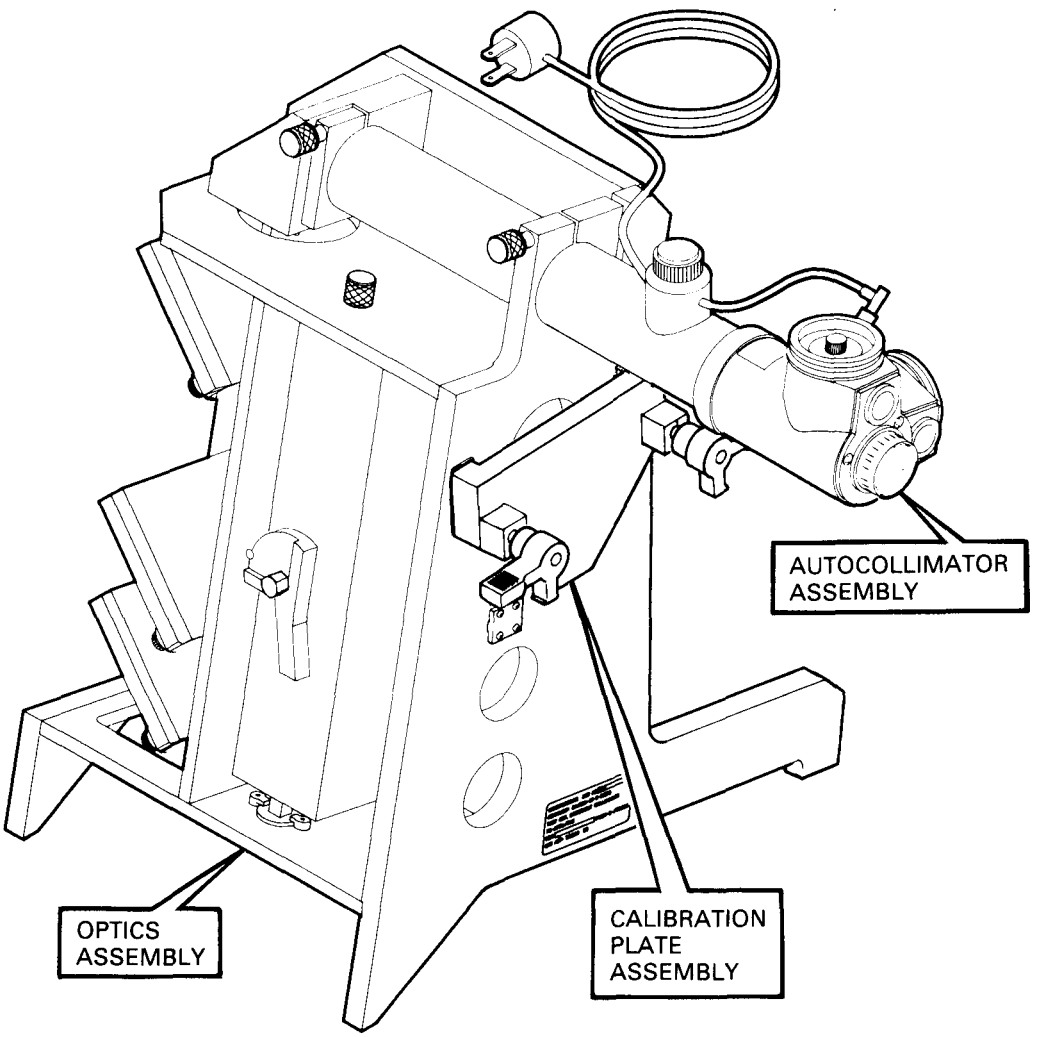
Section II. EQUIPMENT DESCRIPTION AND DATA

1-9. SCOPE

This section describes the equipment characteristics, capabilities, features, differences, and other data.

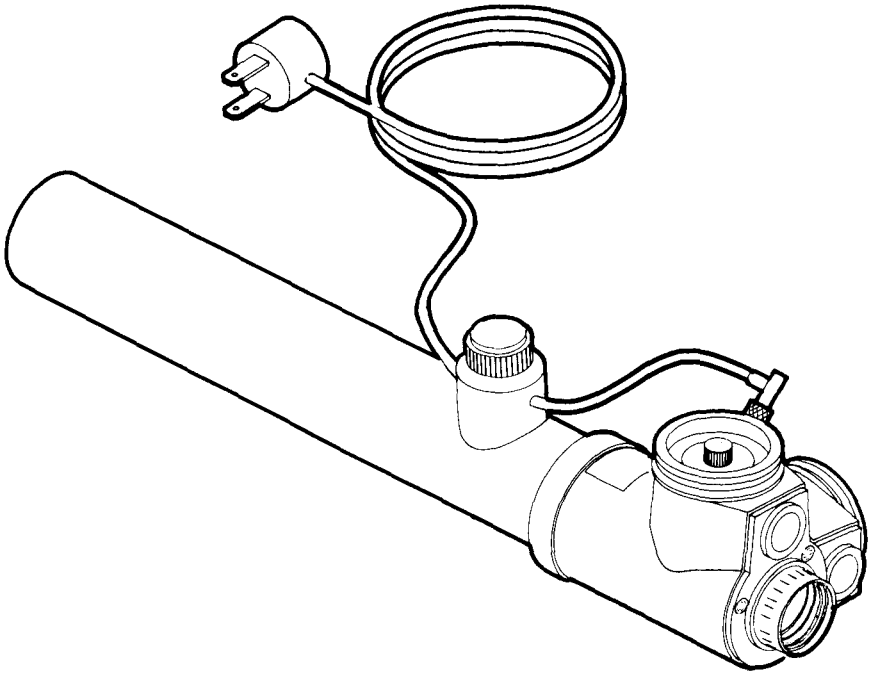
1-10. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

The Boresight Collimator Test Set and major components are shown below.



1-11. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES (Sheet 1 of 2)

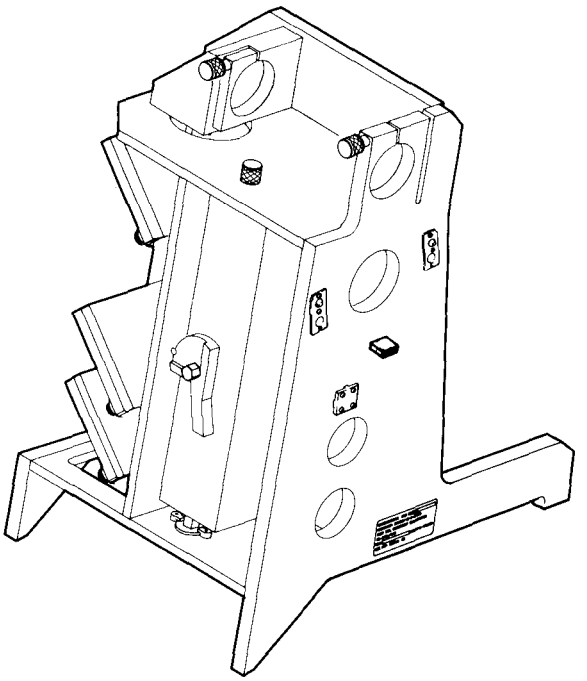
a. Autocollimator Assembly



The autocollimator assembly provides a collimated source of light for alinement of the Boresight Collimator Test Set and for testing and alinement of the boresight collimator.

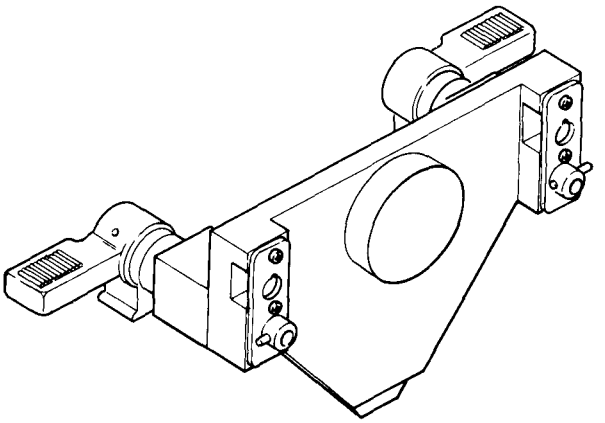
1-11. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES (CONT) (Sheet 2 of 2)

b. Optics Assembly.



The optics assembly provides mating surfaces for the autocollimator assembly and boresight collimator and contains the optics for optical path selection.

c. Calibration Plate Assembly



The calibration plate assembly provides a return path for alinement of the upper (split) mirror assembly.

1-12. EQUIPMENT DATA

Table 1-1 provides power data for the Boresight Collimator Test Set.

Table 1-1. EQUIPMENT DATA

Electrical power source	Provided by transformer/rheostat/ power cord
Voltage required	103.5 to 126.5 V ac, 50 to 60 Hz, single phase
Technical characteristics	
Autocollimator assembly	
Focal length	43.00 inches (109.22 cm)
Magnification	38X
Light source	Variable intensity 6 V ac lamp
Size	18.75 inches (47.63 cm) long, 2.25-inch (5.72 cm) barrel diameter, 4.125-inch (10.480 cm) typical eyepiece assembly diameter
Weight	9.25 pounds (4.19 kg) maximum
Power provided by transformer/ rheostat/power cord	103.5 to 126.5 V ac, 50 to 60 Hz, single phase. Power cord approximately six feet (1.83 m) in length
Optics assembly	
Size	11.83 inches (30.85 cm) long, 6.90 inches (17.53 cm) wide, 22.00 inches (55.88 cm) high
Weight	53.75 pounds (24.38 kg), maximum
Case	
Size	27.25 inches (69.22 cm) long 18.50 inches (46.99 cm) wide 18.88 inches (47.96 cm) high
Weight	42.00 pounds (19.05 kg), maximum
Test Set	
Weight total	105.00 pounds (47.62 kg), maximum

1-13. TRANSPORTATION DATA

Table 1-2. TRANSPORTATION DATA

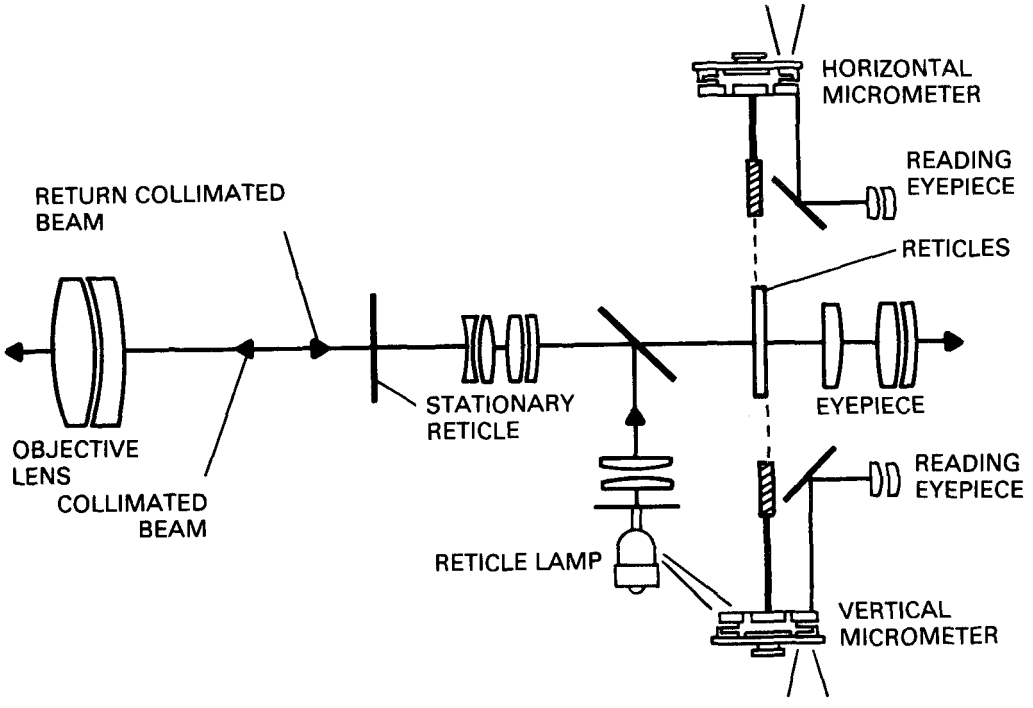
	Length in. (cm)	Width in. (cm)	Height in. (cm)	Volume cu ft (m^3)	Weight lb (kg)
Boresight Collimator Test Set in Case	18.63 (47.32)	28.63 (72.72)	19.00 (48.20)	5.86 (0.60)	105.00 (47.62)

Section III. PRINCIPLES OF BORESIGHT COLLIMATOR TEST SET OPERATION

1-14. SCOPE

A description of the major parts and controls and an explanation of the principles of operation of the Boresight Collimator Test Set are provided in the following paragraphs.

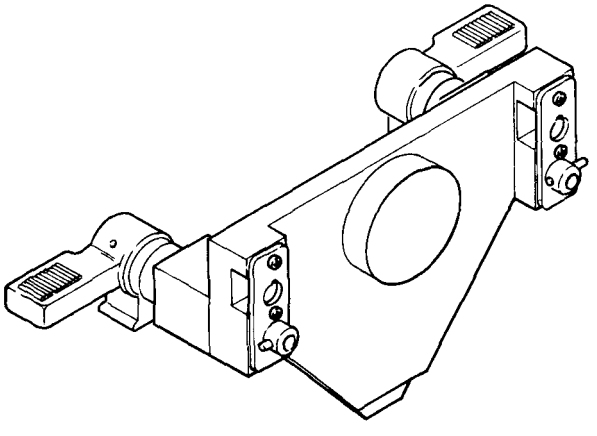
1-15. OPTICAL FUNCTION



OPTICAL PATH

a. Optical functions of the optics assembly provide a selection of optical paths for testing and alinement of the boresight collimator and for alining the Boresight Collimator Test Set. Optical baffles and mirrors contained in the optics assembly provide a variety of optical paths. If an optics baffle is absent, that aperture is open. If the baffle is present, that aperture is closed. If the reference mirror is present, it is positioned in the vertical position.

b. The calibration plate assembly provides the optical path for alinement of the upper (split) mirror.



1-16. OPTICAL PATHS SELECTION (Sheet 1 of 5)

Table 1-3 lists the Boresight Collimator Test Set control configurations that provide the optical paths available for selection. An explanation of the column heads of table 1-3 follows:

Optical Paths

This column refers to unit or subassembly of unit that will be tested by control configurations listed in succeeding columns.

Optics Baffles

a. "OPEN" indicates that aperture controlled by optics baffle is clear for passage of light.

b. "CLOSED" indicates that aperture controlled by optics baffle is not clear and light cannot pass.

NOTE

Use extra care when changing position of the reference mirror. Any vibration may cause misalinement of mirrors.

Reference Mirror

c. "OUT" indicates that the reference mirror is positioned in the "OUT" position and apertures are clear for passage of light from boresight collimator.

d. "IN" indicates that the reference mirror is positioned in the "IN" position and apertures are not clear for passage of light from boresight collimator.

Reticle Lamp

e. "ON" indicates rheostat has been adjusted for viewing stationary reticle reflected image.

f. "OFF" indicates rheostat has been turned fully counterclockwise for reticle lamp minimum intensity.

1-16. OPTICAL PATHS SELECTION (CONT) (Sheet 2 of 5)

Table 1-3. TEST SET CONTROL CONFIGURATIONS

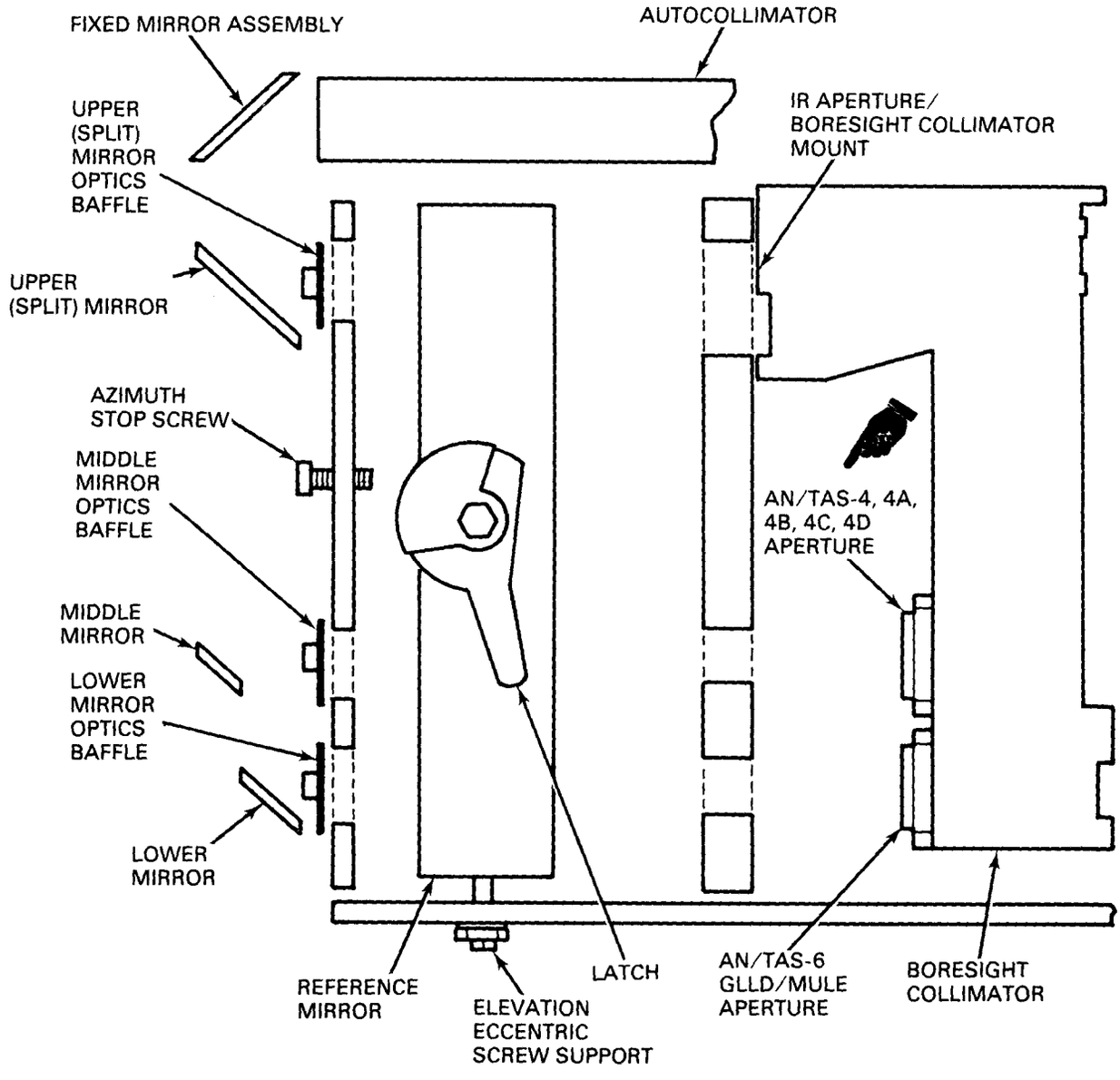
Optical Paths	Optics Baffles			Reference Mirror	Reticle Lamp
	Upper (Split) Mirror Optics Baffle	Middle Mirror Optics Baffle	Lower Mirror Optics Baffle		
1. Upper (split) mirror/calibration plate assembly	OPEN	CLOSED	CLOSED	OUT	ON
2. Reference mirror	OPEN	CLOSED	CLOSED	IN	ON
3. Middle mirror	OPEN	OPEN	CLOSED	IN	ON
4. Lower mirror	OPEN	CLOSED	OPEN	IN	ON
5. Infrared	OPEN	CLOSED	CLOSED	OUT	OFF*
6. AN/TAS-4,4A,4B,4c,4D	CLOSED	OPEN	CLOSED	OUT	OFF*
7. AN/TAS-6/GLLD/MULE	CLOSED	CLOSED	OPEN	OUT	OFF *

* Reticle lamp may be left ON at very low intensity to improve visibility of autocollimator assembly reticle if visibility of boresight collimator target is not impaired.

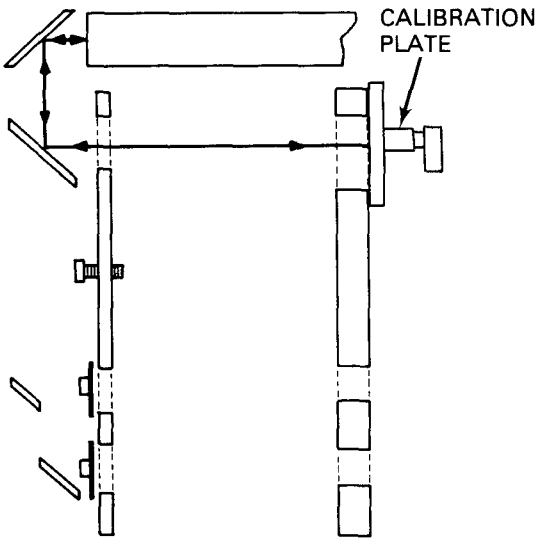
Optical paths 1 through 4 provide for alinement of the Boresight Collimator Test Set. The upper (split) mirror/calibration plate path 1 uses the calibration plate assembly to aline the upper (split) mirror to the autocollimator assembly. The reference mirror path 2 alines the reference mirror to the upper (split) mirror. The middle mirror path 3 alines the middle mirror to the upper mirror. The lower mirror path 4 alines the lower mirror to the upper mirror.

Optical paths 5 through 7 provide for test and alinement of the boresight collimator. Path 5 provides for test and alinement of the IR window of the boresight collimator. Path 6 provides for test and alinement of the AN/TAS-4, 4A, 4B, 4C, 40 visible light window. Path 7 provides for test and alinement of the AN/TAS-6/GLLD/MULE visible light window.

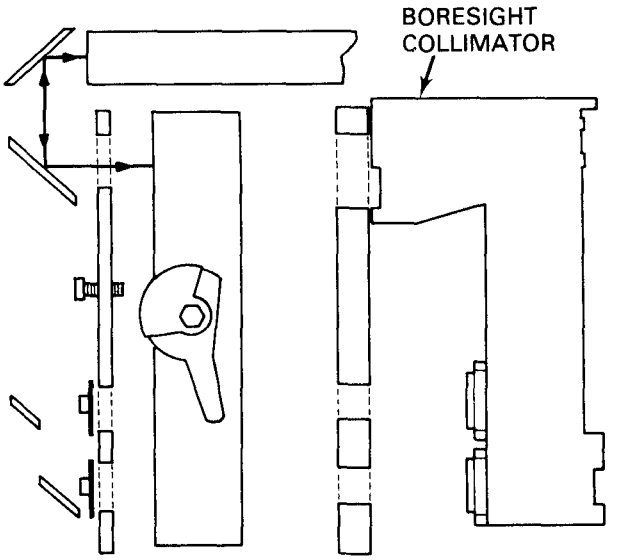
1-16. OPTICAL PATHS SELECTION (CONT) (Sheet 3 of 5)



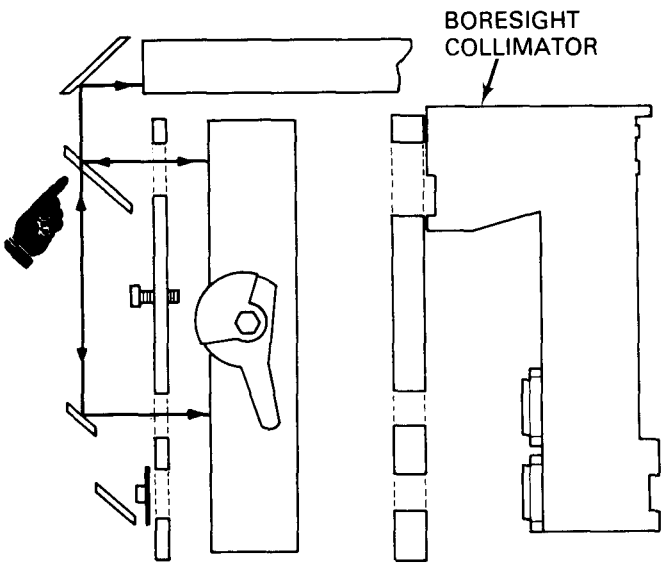
1-16. OPTICAL PATHS SELECTION (CONT) (Sheet 4 of 5)



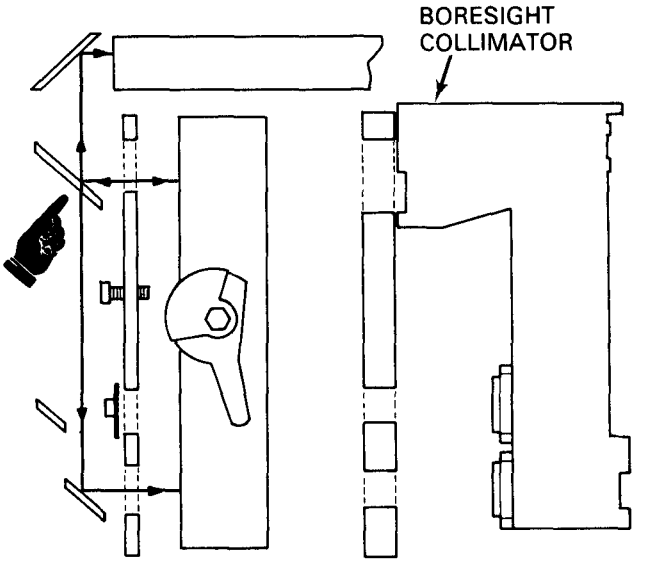
(1)
UPPER (SPLIT) MIRROR/
CALIBRATION PLATE PATH



(2)
REFERENCE MIRROR PATH

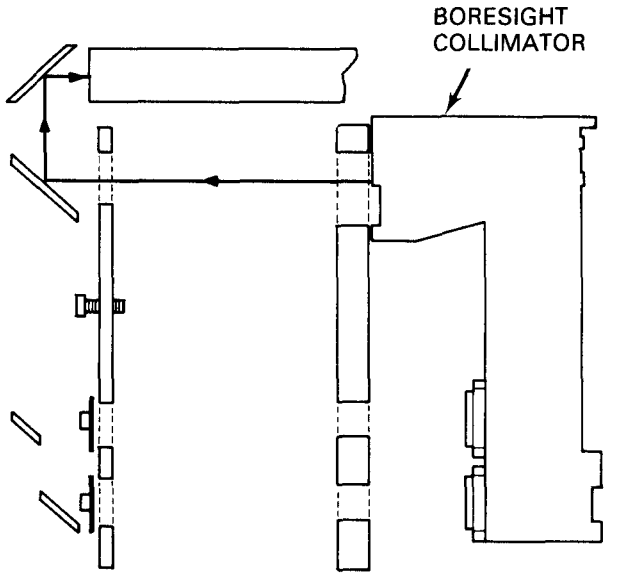


(3)
MIDDLE MIRROR PATH

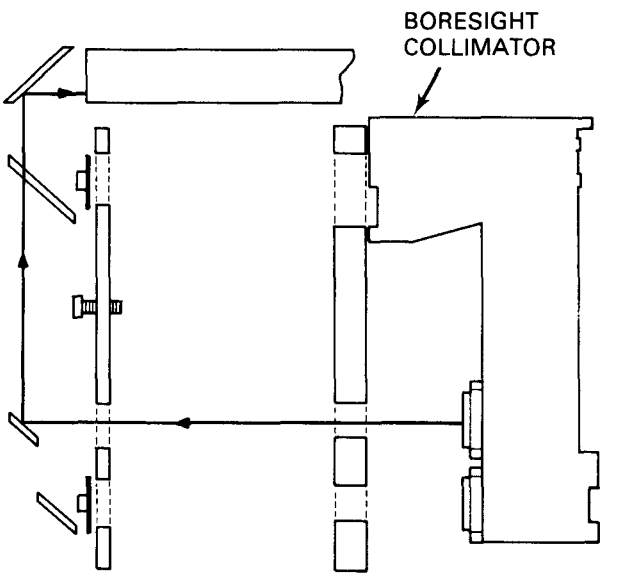


(4)
LOWER MIRROR PATH

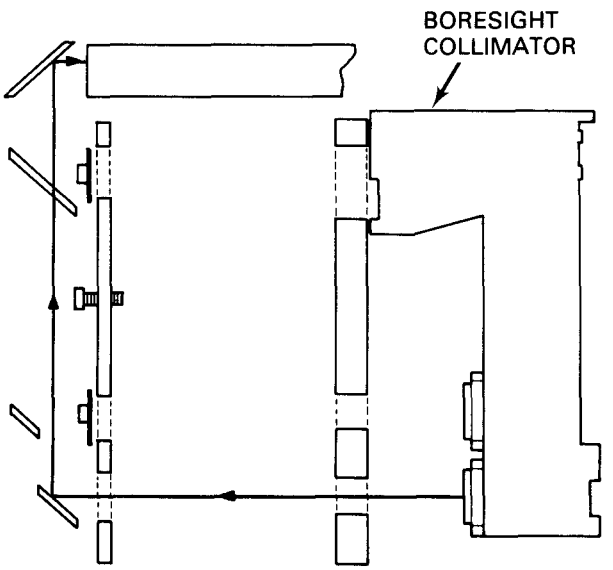
1-16. OPTICAL PATHS SELECTION (CONT) (Sheet 5 of 5)



(5)
INFRARED PATH
(INFRARED WINDOW REMOVED FOR
ALINEMENT WITH VISIBLE LIGHT)



(6)
AN/TAS-4, 4A, 4B, 4C, 4D PATH



(7)
AN/TAS-6/GLLD/MULE
PATH

CHAPTER 2

OPERATING INSTRUCTIONS

CHAPTER OVERVIEW

This chapter tells the operator how to operate and maintain the Boresight Collimator Test Set. A description of the Boresight Collimator Test Set controls and indicators is also given.

CHAPTER CONTENTS

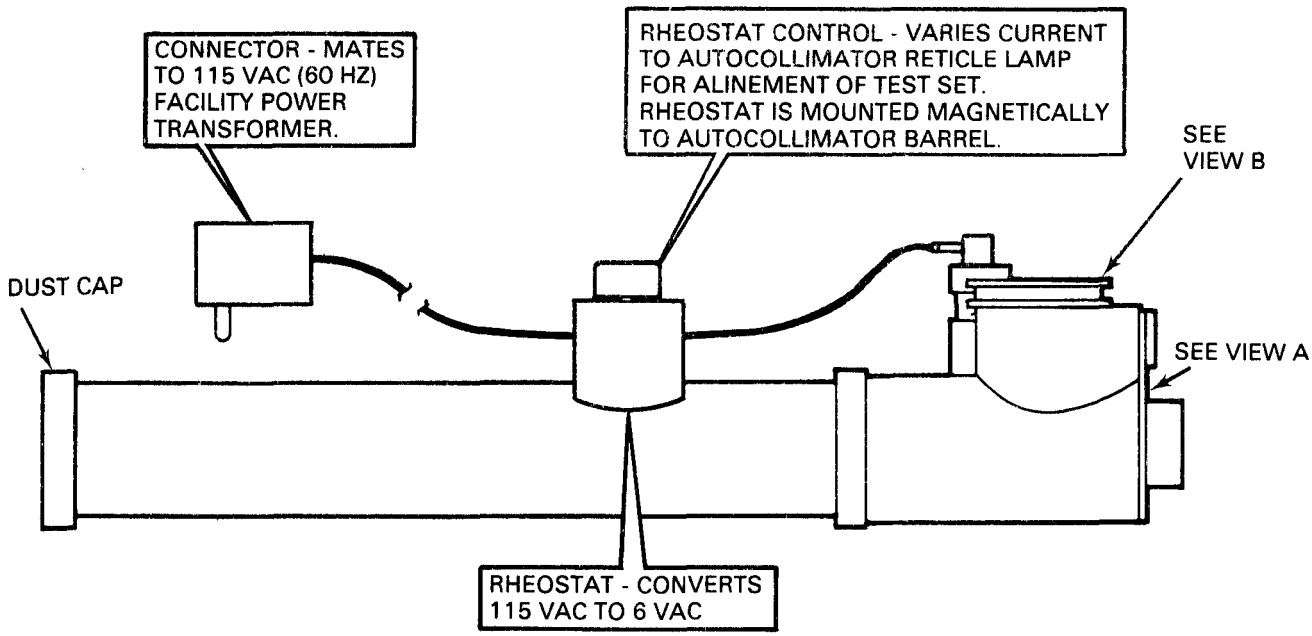
Section I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

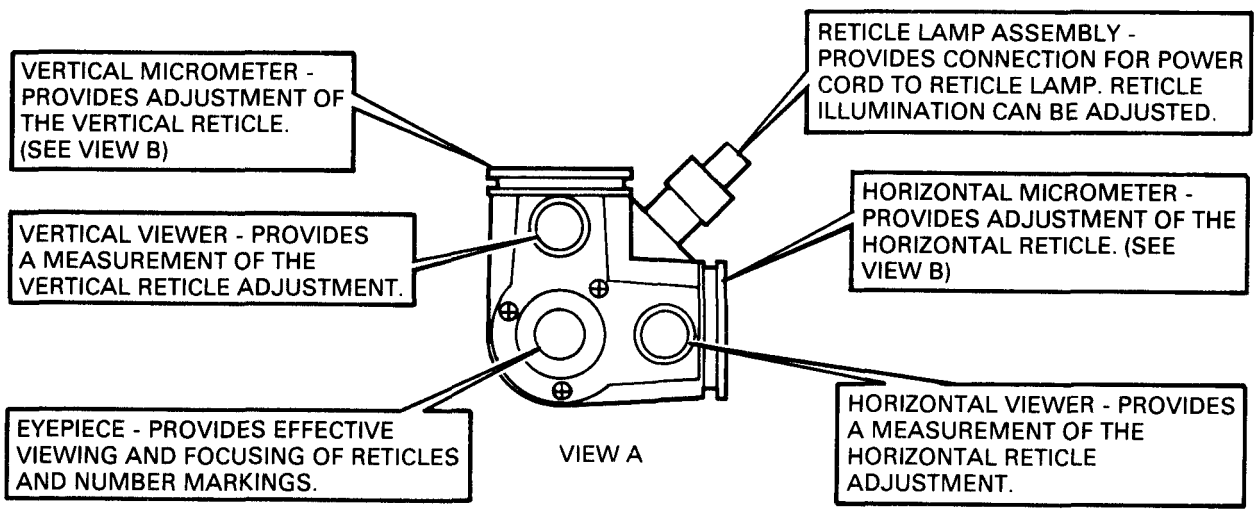
SECTION CONTENTS

2-1. SCOPE

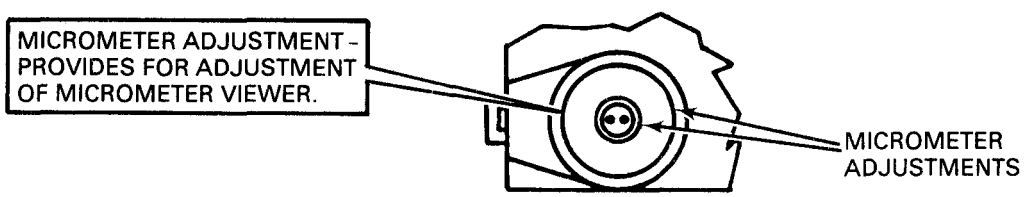
This section provides a description of Boresight Collimator Test Set operating controls.

2-2. DESCRIPTION AND USE OF OPERATOR'S BORESIGHT COLLIMATOR TEST SET CONTROLS AND INDICATORS (Sheet 1 of 4)



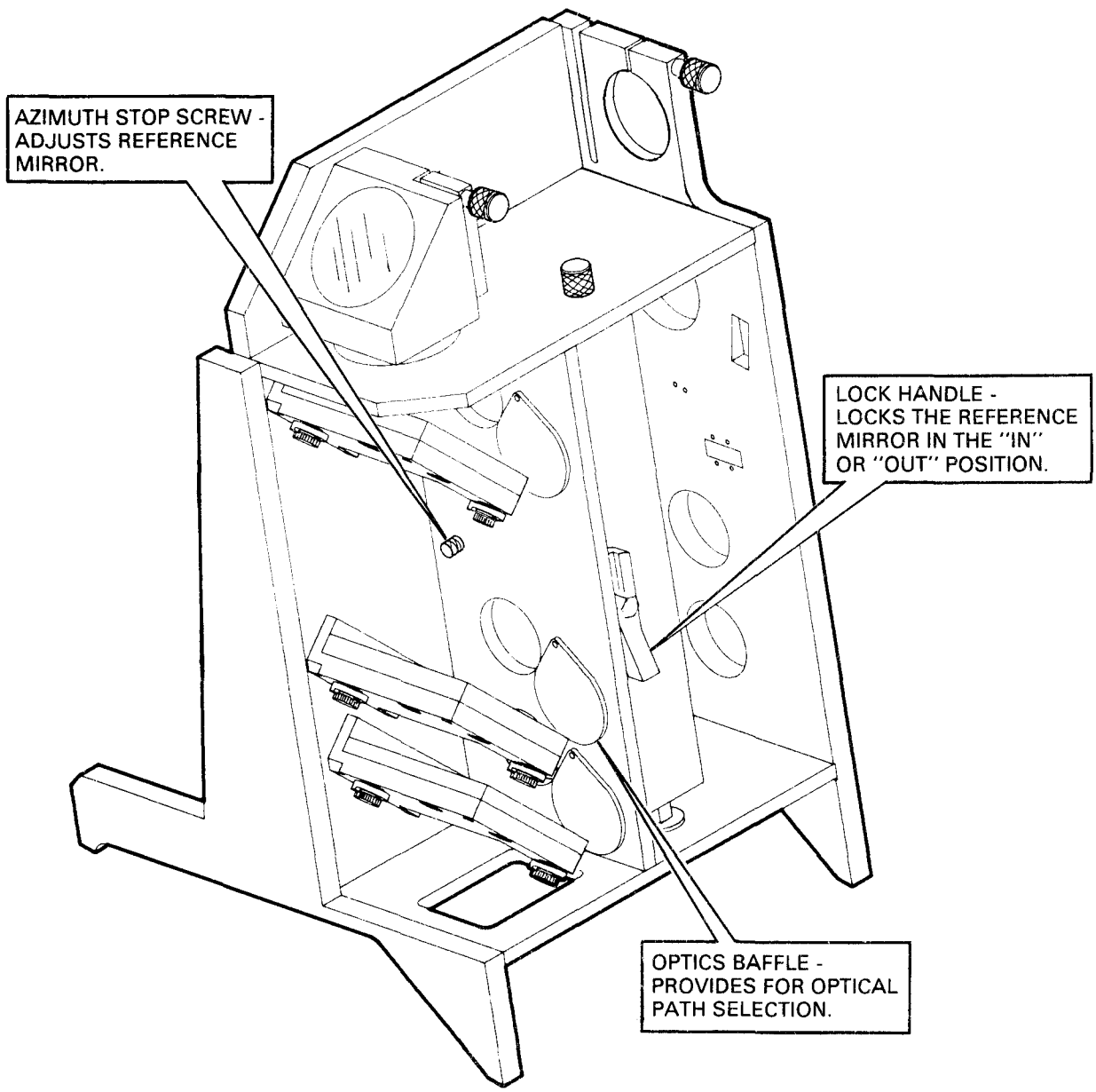


VIEW A

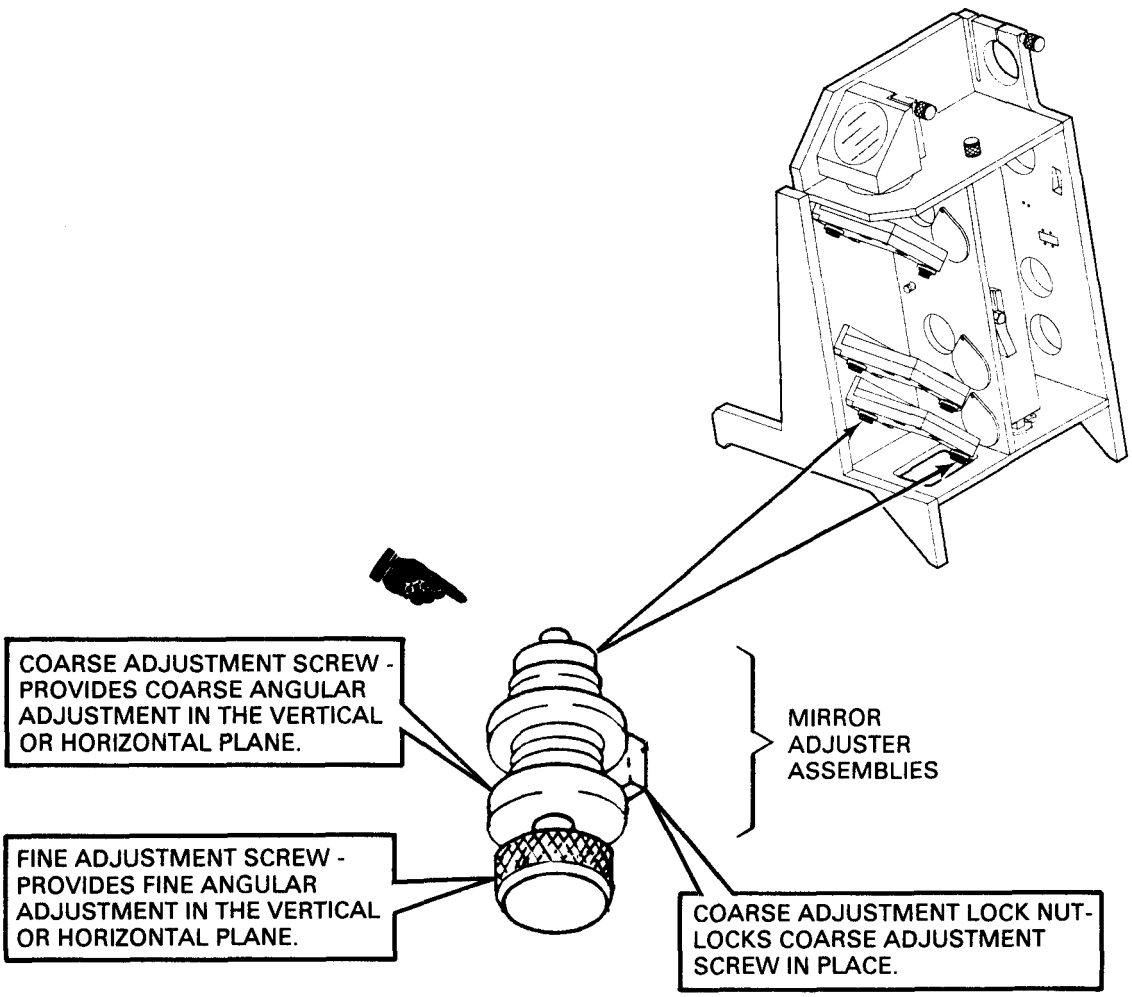


VIEW B

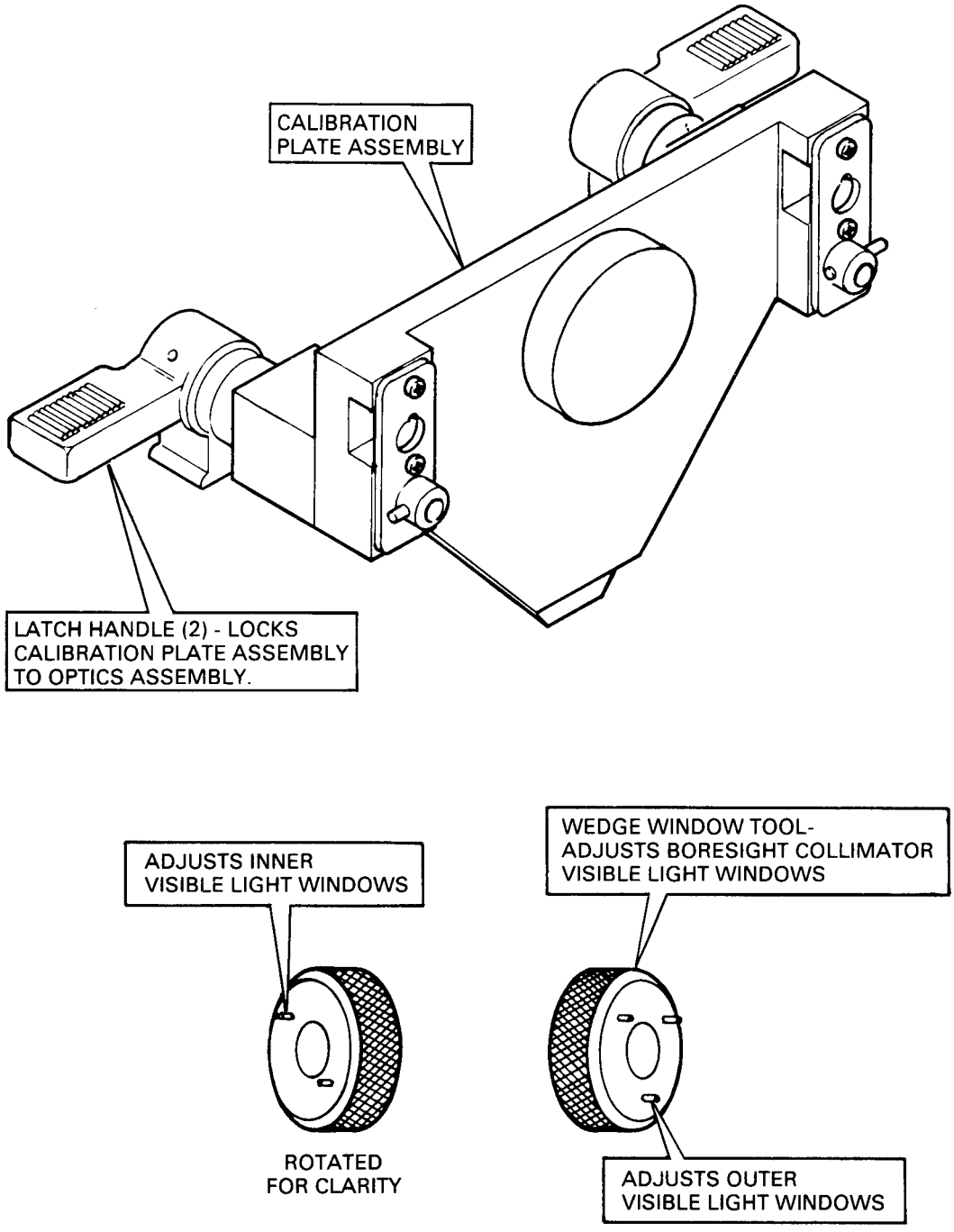
2-2. DESCRIPTION AND USE OF OPERATOR'S BORESIGHT COLLIMATOR TEST SET CONTROLS AND INDICATORS (CONT) (Sheet 2 of 4)



2-2. DESCRIPTION AND USE OF OPERATOR'S BORESIGHT COLLIMATOR TEST SET CONTROLS AND INDICATORS (CONT) (Sheet 3 of 4)



2-2. DESCRIPTION AND USE OF OPERATOR'S BORESIGHT COLLIMATOR TEST SET CONTROLS AND INDICATORS (CONT) (Sheet 4 of 4)



Section II. SERVICE UPON RECEIPT OF MATERIEL

2-3. SCOPE

This section covers the required service upon receipt to insure that the Boresight Collimator Test Set is complete and operational.

2-4. SERVICE UPON RECEIPT CHECKLIST

The operator will perform the receiving inspection to determine whether the equipment is complete and ready to use. When handling, inspecting, and maintaining the equipment, observe the following instructions:

a. Make an initial inventory when the equipment is received. Note any missing items and report them promptly.

b. Check national stock numbers, part numbers, and serial numbers to make sure that the correct items were received.

c. Check that all modification work orders published against the equipment have been incorporated.

d. Inspect container for loose or missing hardware and cracks. Screws, latches, and handles must be in place and tight. There shall be no visible cracks in the case or cover.

e. Inspect Boresight Collimator Test Set for loose or missing hardware. Optics baffles and mirror assemblies must be in place and have no loose or missing hardware.

f. Inspect mirror assemblies. There shall be no cracks or scratches on mirror surfaces. The lock handle shall secure reference mirror tightly in place.

g. Inspect optics baffles for proper operation. When the optics baffles are operated to open or close aperture, they should remain in the position selected.

h. Inspect autocollimator eyepiece for damage. There shall be no cracks or scratches in objective or eyepiece and autocollimator lens cap shall be in place.

2-4. SERVICE UPON RECEIPT CHECKLIST (CONT)

i. Check all tags and stenciled information for correctness and completeness.

j. Perform a visual inspection of Boresight Collimator Test Set components by doing the preventive maintenance checks and services for your equipment. These procedures are located in Section III of this chapter.

k. Perform necessary cleaning in accordance with the procedures given in paragraph 2-8.

l. Report any deficiencies using applicable reports, records and forms. See DA PAM 738-750.

m. Do not force levers, knobs, switches, or controls beyond their mechanical stops .

n. Do not make any adjustments or repairs to Boresight Collimator Test Set unless specifically authorized by the maintenance allocation chart (MAC). If a component cannot be adjusted or repaired in accordance with authorized procedures, refer the problem to the supporting organization.

o. Use only those tools and equipment items authorized for performance of maintenance as specified in the MAC.

Section III. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

SECTION CONTENTS

2-5. SCOPE

This section tells how to do the preventive maintenance checks and services (PMCS) required for the Boresight Collimator Test Set. PMCS represent the minimum number of essential checks. Before you begin the PMCS, keep in mind the following general information which is just as important as the specific checks.

a. Before operating any equipment, do all the before (B) PMCS. Be sure to keep in mind all CAUTIONS and WARNINGS.

b. While operating any equipment, do all the during (D) PMCS. Be sure to keep in mind all CAUTIONS and WARNINGS.

c. After operating any equipment, do all the after (A) PMCS.

d. Once every six months, while equipment is in service, do all semiannual (S) PMCS .

e. Once a year, while equipment is in service, do all annual (A) PMCS.

f. If your equipment fails to operate, report any deficiencies using the proper forms. See DA PAM 738-750.

2-6. EXPLANATION OF COLUMN ENTRIES USED IN PMCS

B - Before D - During A - After S - Semi-Annually A - Annually

(1)	(2) Interval					(3)	(4)
Item No.	B	D	A	S	A	Item to be inspected Procedure	Equipment is not ready/available if:
1	•					Container Check exterior of container for cracks in case and for loose or missing hardware. Check for cleanliness (para 2-8).	Cracks or other obvious damage exists in container.

1 Column 1, Item No. Column 1 numbers the checks and services to be performed in chronological order. This column will also be used as a source of item numbers for the "TM Number" column on DA Form 2404, Equipment Inspection and Maintenance worksheet, in recording results of PMCS.

2 Column 2, Interval. Column 2 specifies the intervals at which the PMCS will be performed. A dot (•) in any "Interval" column indicates when you are to perform that PMCS. The letters indicate the interval as follows:

B - Before operation
D - During operation
A - After operation
S - Once every six months (semi-annually)
A - Once a year (annually)

3 Column 3, Item to be inspected Procedure. Column 3 identifies the part of the equipment to be checked and the procedures for performing the check.

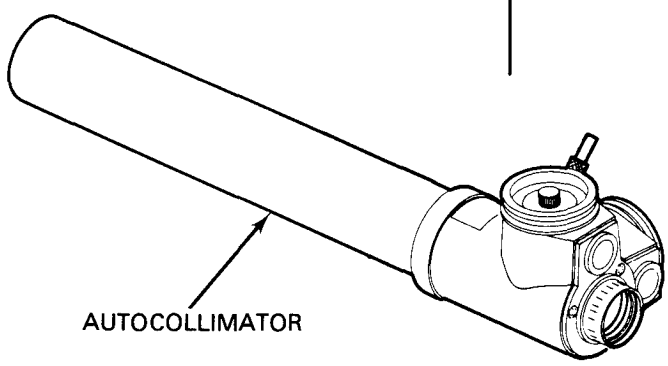
4 Column 4, Equipment is not ready/available if: Column 4 contains the criteria which will cause the equipment to be unable to perform its primary mission.

2-7. BORESIGHT COLLIMATOR TEST SET PREVENTIVE MAINTENANCE CHECKS AND SERVICES (Sheet 1 of 5)

Table 2-1. Boresight Collimator Test Set Preventive Maintenance Checks and Services

B - Before D - During A - After S - Semi-Annually A - Annually

Item No.	Interval B	D	A	S	A	Item to be inspected Procedure	Equipment is not ready/available if:
1	•		•			Container Case Check exterior of container for cracks in case and for loose or missing hardware. Check for cleanliness (para 2-8).	
2	•		•			Autocollimator a. Check for damaged or missing parts.	Autocollimator has damaged or missing parts.
						b. Observe that controls and indicators function properly. Mechanical action of each control should be smooth and free of binding. Tighten loose controls as required. Replace reticle lamp as required.	Unable to make adjustments due to locked or jammed controls.

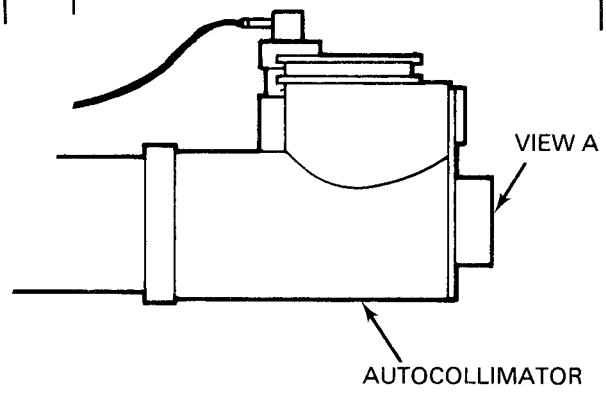


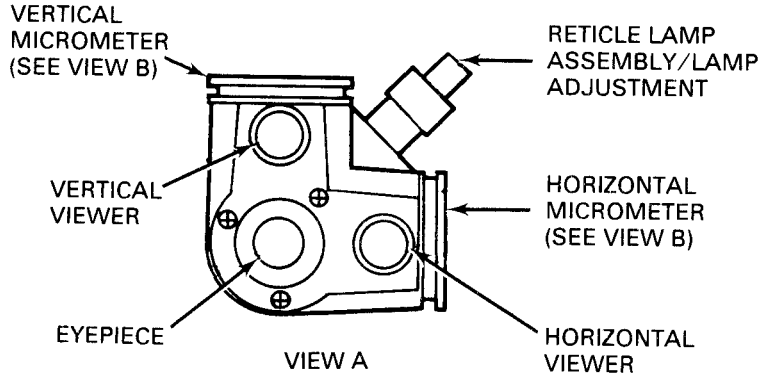
2-7. BORESIGHT COLLIMATOR TEST SET PREVENTIVE MAINTENANCE CHECKS AND SERVICES (CONT) (Sheet 2 of 5)

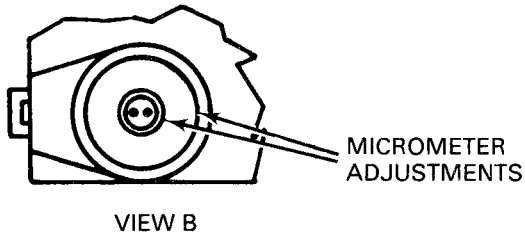
Table 2-1. Boresight Collimator Test Set Preventive Maintenance Checks and Services (Cont)

B - Before D - During A - After S - Semi-Annually A - Annually

Item No.	Interval B	D	A	S	A	Item to be inspected Procedure	Equipment is not ready/available if:
2 (Cont)	•		•				





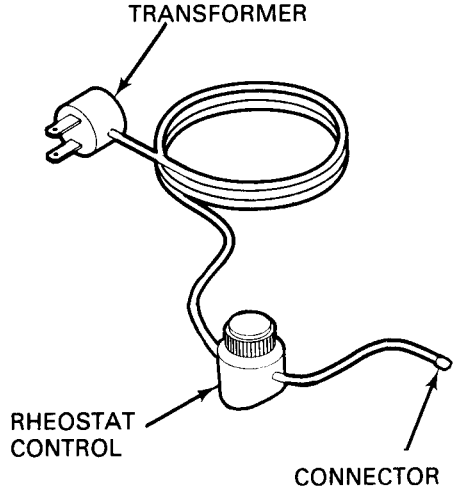


2-7. BORESIGHT COLLIMATOR TEST SET PREVENTIVE MAINTENANCE CHECKS AND SERVICES (CONT) (Sheet 3 of 5)

Table 2-1. Boresight Collimator Test Set Preventive Maintenance Checks and Services (Cont)

B - Before D - During A - After S - Semi-Annually A - Annually

Item No.	Interval B	D	A	S	A	Item to be inspected Procedure	Equipment is not ready/available if:
3	•		•			Cord Assembly Power Supply Check transformer/rheostat/ power cord for signs of mechanical damage such as chafed, cracked, or frayed insulation. Check connectors for bent or broken pins.	Bare wire exposed due to chafed or frayed insulation. Connector is cracked or broken and cannot be used.

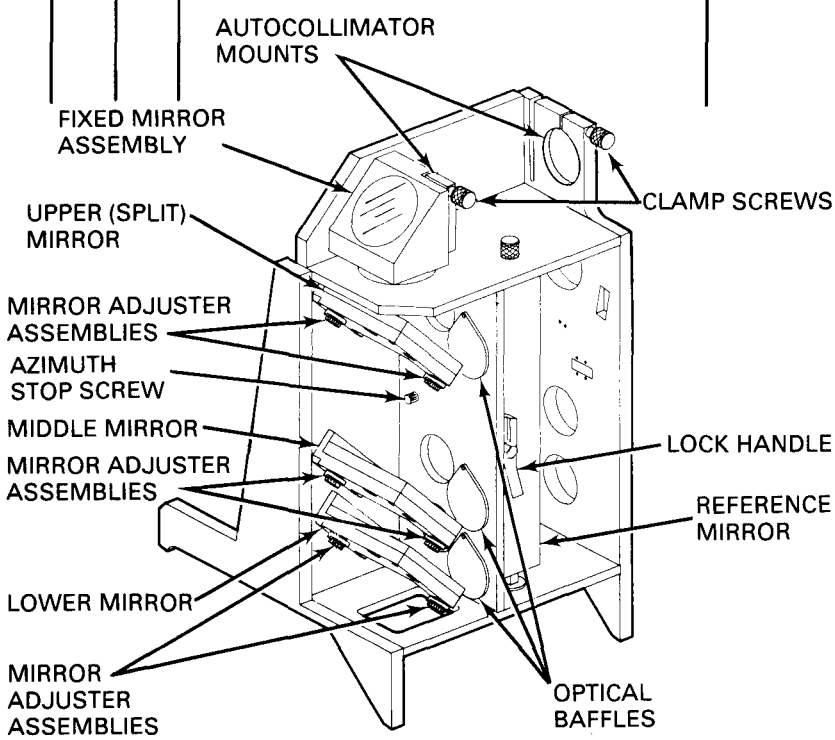


2-7. BORESIGHT COLLIMATOR TEST SET PREVENTIVE MAINTENANCE CHECKS AND SERVICES (CONT) (Sheet 4 of 5)

Table 2-1. Boresight Collimator Test Set Preventive Maintenance Checks and Services (Cont)

B - Before D - During A - After S - Semi-Annually A - Annually

Item No.	Interval B	D	A	S	A	Item to be inspected Procedure	Equipment is not ready/available if:
4	•		•			Optics Assembly Inspect mirror surfaces for damage such as deep scratches, cracks, and chips. Inspect for cleanliness (para 2-9) and check mirror adjuster assemblies for easy operation.	Mirror surface cracked or otherwise damaged badly enough to distort reflected images. Mirror adjuster assemblies inoperative. Azimuth stop screw not adjustable.

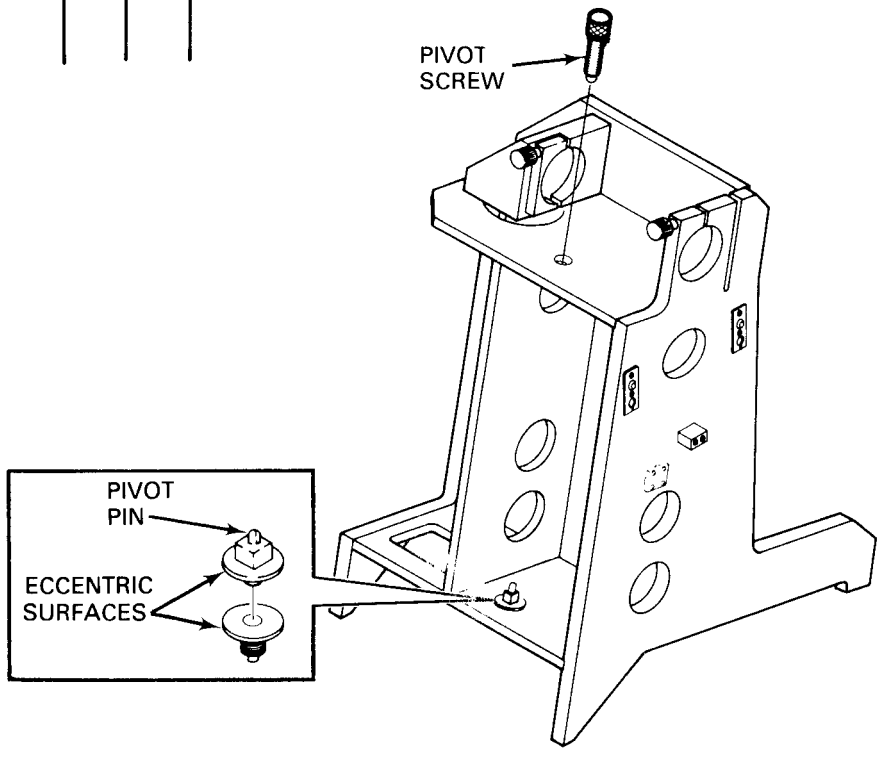


2-7. BORESIGHT COLLIMATOR TEST SET PREVENTIVE MAINTENANCE CHECKS AND SERVICES (CONT) (Sheet 5 of 5)

Table 2-1. Boresight Collimator Test Set Preventive Maintenance Checks and Services (Cont)

B - Before D - During A - After S - Semi-Annually A - Annually

Item No.	Interval B	D	A	S	A	Item to be inspected Procedure	Equipment is not ready/available if:
5				•		Reference Mirror Pivot Pins Inspect surfaces between the fine eccentric and coarse eccentric and pivot pins for wear. Check for presence of lubrication (para 3-2).	Reference mirror does not rotate smoothly on eccentrics and pivot pins.



2-8. GENERAL EQUIPMENT CLEANING

TOOLS:
None

EQUIPMENT CONDITION:
Assembled

MATERIALS:
Cotton pad (Item 2, Appendix D)
Detergent (Item 3, Appendix D)

Remove dirt, grease, and fungus using a cotton pad (Item 2, Appendix D) moistened with a solution of detergent (Item 3, Appendix D).

END OF TASK

2-9. CLEANING OPTICAL SURFACES (Sheet 1 of 2)

TOOLS:
None

EQUIPMENT CONDITION:
Assembled

MATERIALS:
Detergent (Item 3, Appendix D)
Cotton pad (Item 2, Appendix D)
Methyl alcohol (Item 1, Appendix D)

CAUTION

To avoid scratches, do not rub cleaning solution on optical surfaces.

NOTE

Reference mirror assembly must be removed from optics assembly (para 3-13) for cleaning.

A. Prepare a cleaning solution of mild detergent (Item 3, Appendix D) and potable water, mixed per directions on detergent (Item 3, Appendix D) container.

CAUTION

Wiping motion should be in one direction only. Do not rub. Discard cotton pad (Item 2, Appendix D) after each wipe.

B. Gently apply cleaning solution to optical surfaces with clean cotton pad (Item 2, Appendix D) and allow 1 to 3 minutes soak time.

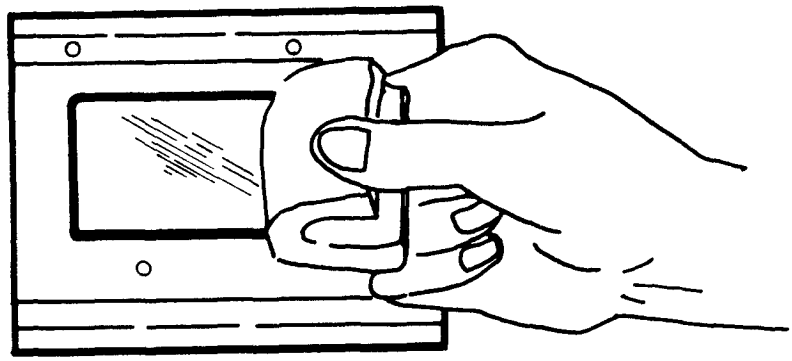
c. Rinse surfaces with potable water.

D. Gently dry by wiping in one direction with clean cotton pad (Item 2, Appendix D).

E. Repeat steps B thru D until contamination is removed.

GO TO NEXT PAGE

2-9. CLEANING OPTICAL SURFACES (CONT) (Sheet 2 of 2)



ALCOHOL WILL BURN

- Keep methyl alcohol (Item 1, Appendix D) away from heat and open flame.
- Use only in well-ventilated area.

F. Moisten cotton pad (Item 2, Appendix D) with methyl alcohol (Item 1, Appendix D) and wipe with light pressure.

G. Gently wipe dry with clean cotton pad (Item 2, Apendix D).

END OF TASK

Section IV. OPERATION UNDER USUAL CONDITIONS

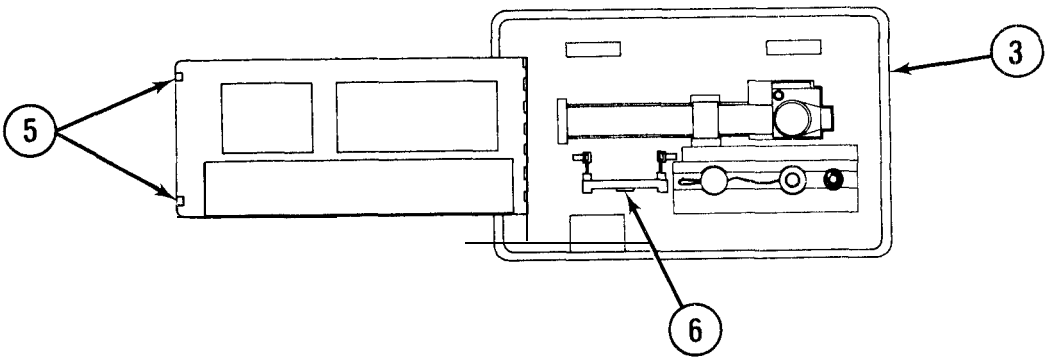
2-10. SCOPE

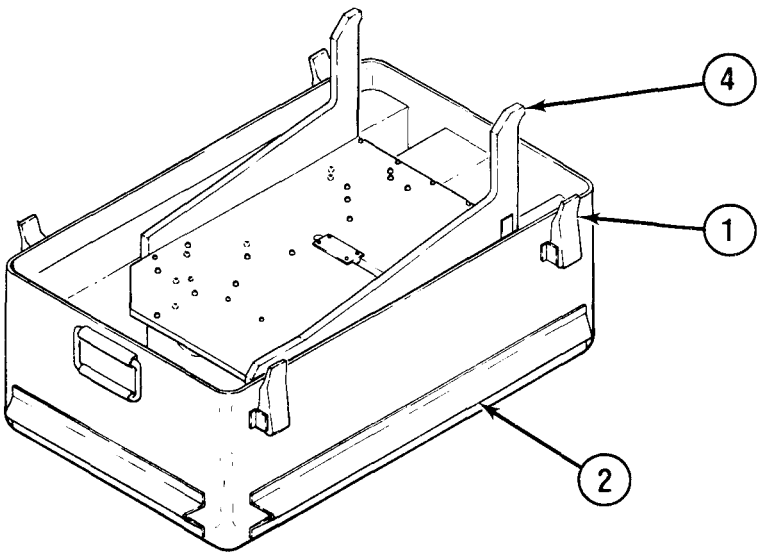
This section contains procedures for setup, operation, and stowage of the Boresight Collimator Test Set. Boresight collimator must be alined in accordance with these procedures every 180 days.

NOTE

The reference mirror locking lever must be left in the unlocked position (horizontal) at all times when alining the test set or the boresight collimator. When allowed to be in the locked position, the strain of the latch rod will cause the test set to be out of alinement. The locking lever, however, is to be used when storing the test set.

2-11. SETUP PROCEDURES (Sheet 1 of 4)





NOTE

The Boresight Collimator Test Set must be placed on a stable and secure work surface.

A. Release four latches (1) on container case (2) and remove container case cover (3).

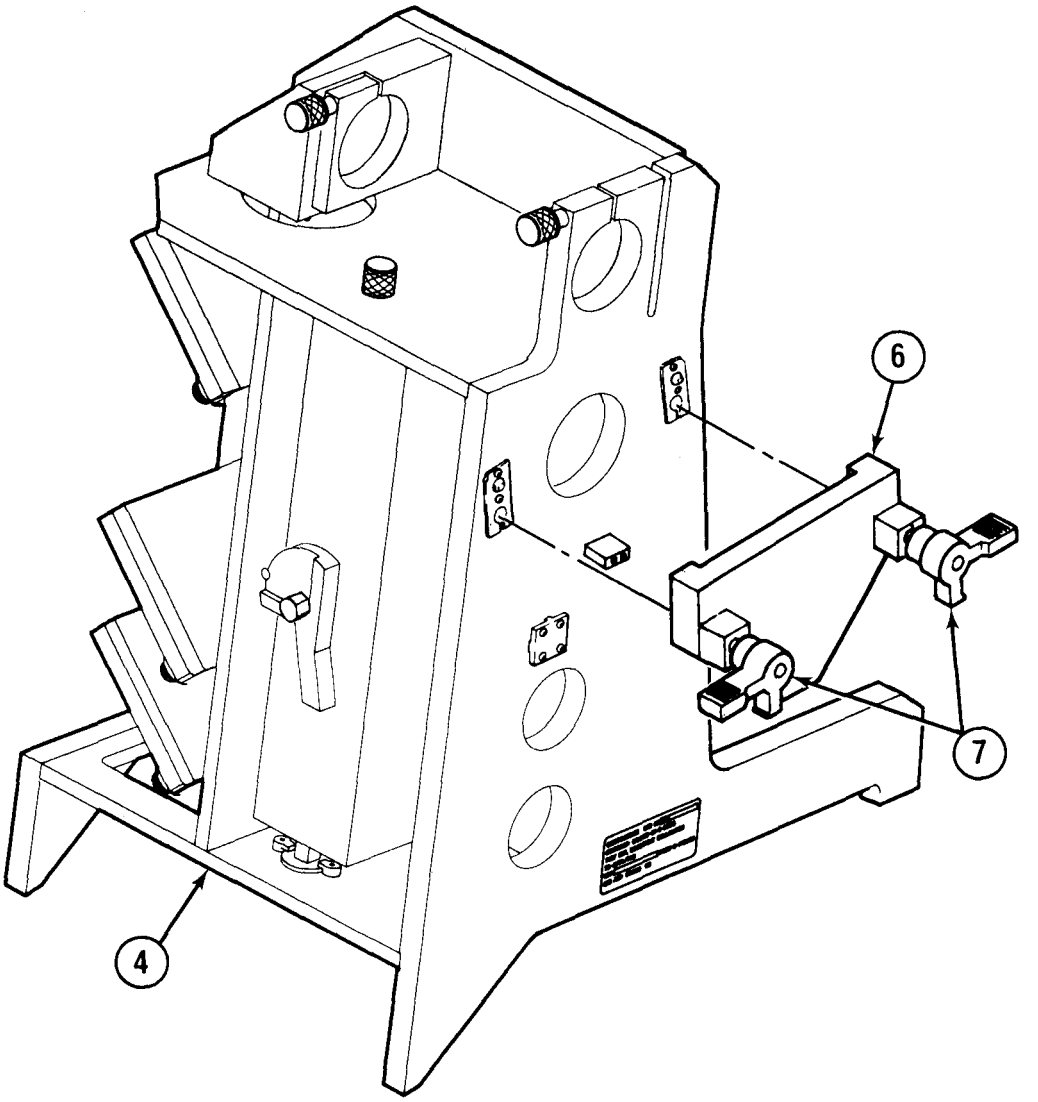
B. Remove optics assembly (4) from container case (2) and stand assembly upright on work surface.

c. Release two inner lid latches (5) and open lid.

D. Remove calibration plate assembly (6) from container case cover (3).

GO TO NEXT PAGE

2-11. SETUP PROCEDURES (CONT) (Sheet 2 of 4)



E. Mount calibration plate assembly (6) on optics assembly (4) and secure by pushing in and turning two latch handles (7).

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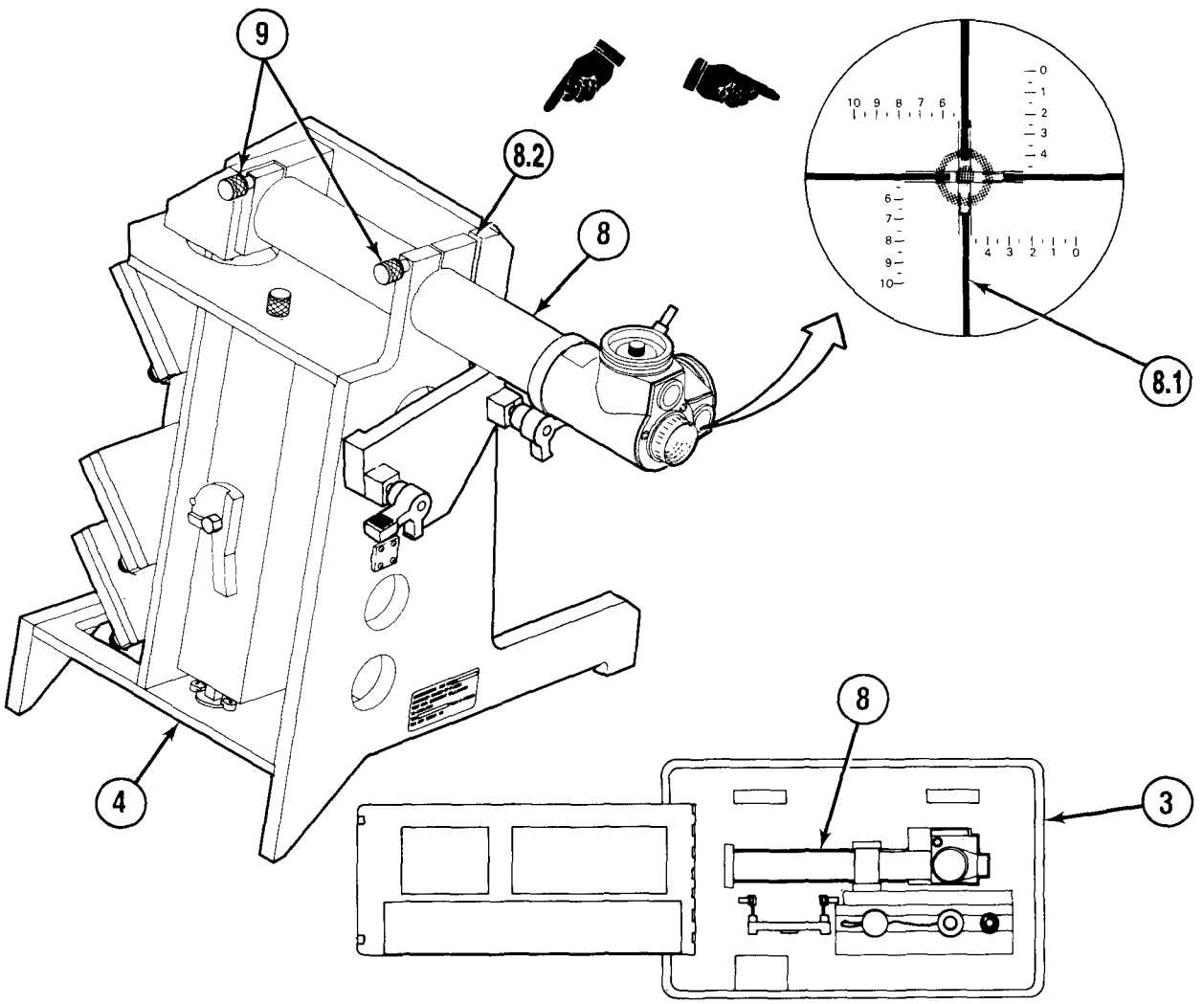
2-11. SETUP PROCEDURES (CONT) (Sheet 3 of 4)



F. Remove autocollimator (8) from container case cover (3).

NOTE

Insure that autocollimator (8) vertical reticle (8.1) is aligned with slot (8.2) in optics assembly (4).

G. Loosen two clamp screws (9) and carefully slide autocollimator (8) into optics assembly (4) until it seats as shown.

H. Tighten two clamp screws (9).

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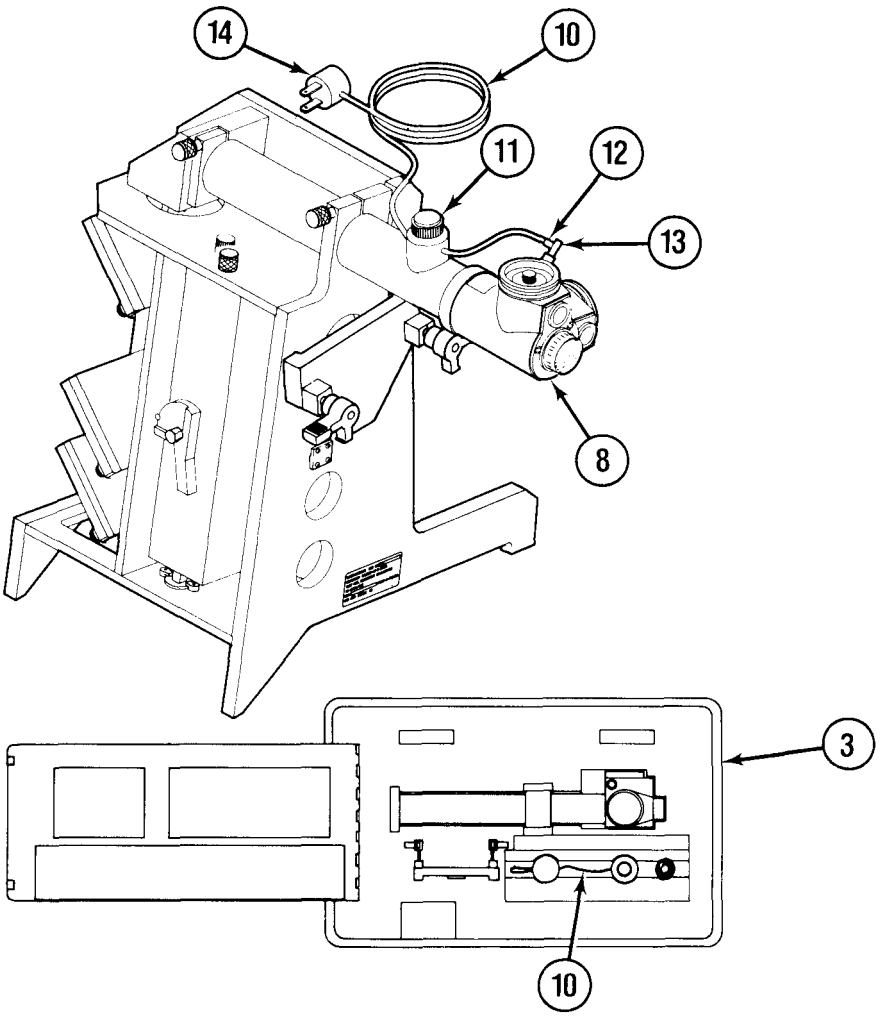
2-11. SETUP PROCEDURES (CONT) (Sheet 4 of 4)



I. Remove power cord assembly (10) from container case cover (3).

J. Affix rheostat control (11) to autocollimator (8).

K. Connect power cord connector (12) to reticle lamp jack (13).

L. Turn rheostat control (11) fully counterclockwise.

M. Connect power cord assembly connector (14) to 115 V ac, 50 to 60 Hz, single-phase power.

N. Perform Boresight Collimator Test Set alinement (para 3-19).

END OF TASK

2-12. OPERATION AND ALINEMENT OF BORESIGHT COLLIMATOR (Sheet 1 of 9)

TOOLS:

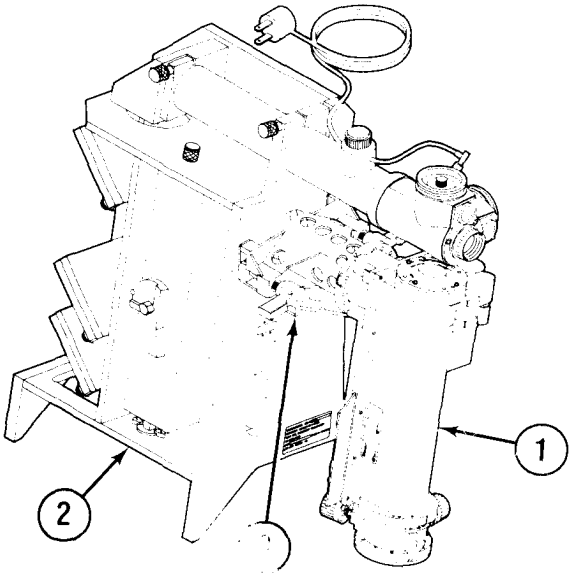
Wedge window tool
No. 1 cross-tip screwdriver

MATERIALS:

None

EQUIPMENT CONDITION:

Perform setup procedures (para 2-11)
IR window removed (TM 9-5855-885-24)
Boresight collimator configured in the AN/TAS-4 position (TM 9-5855-885-24)
Power applied to boresight collimator (TM 9-5855-885-24)



NOTE

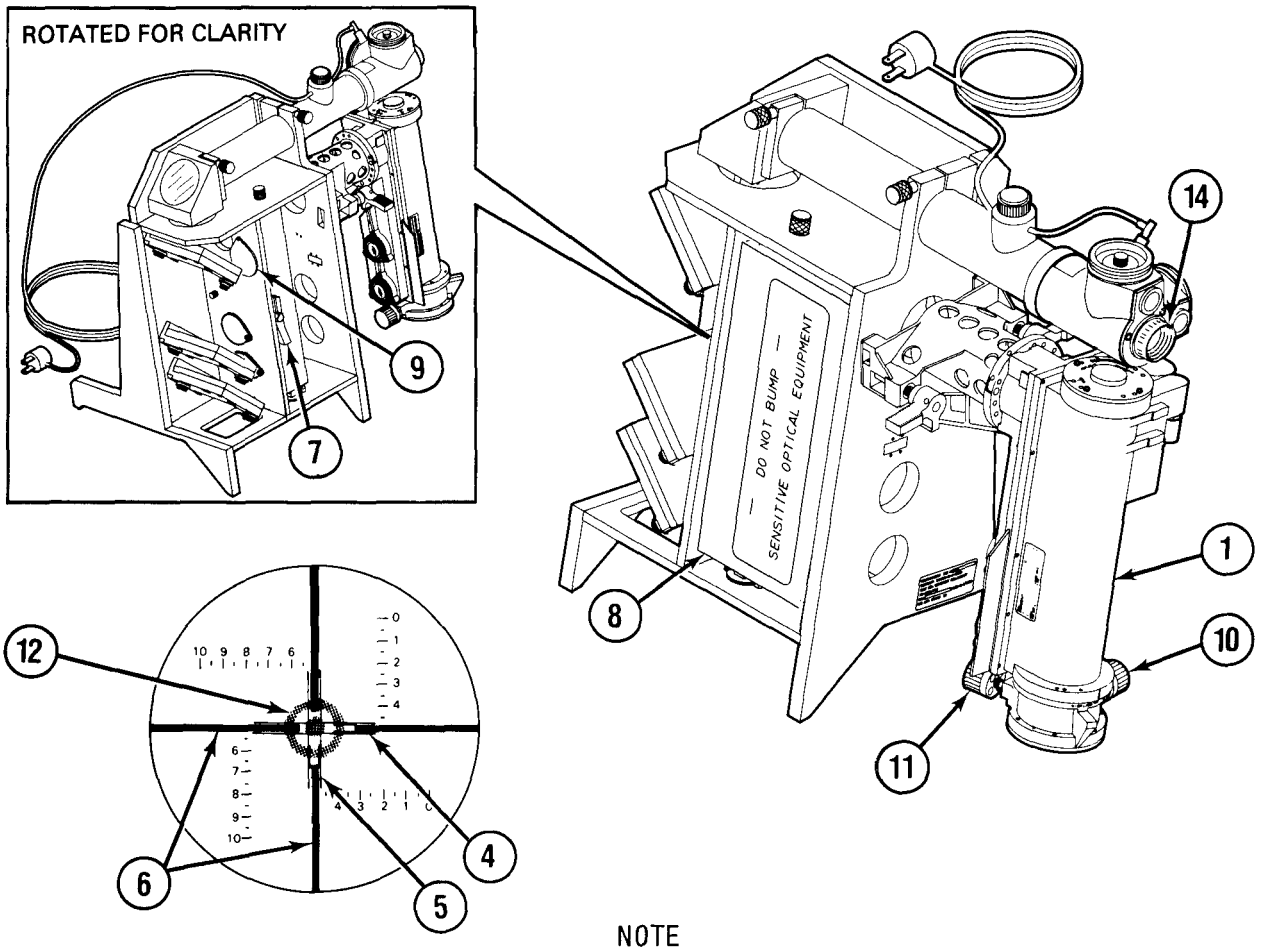
Before performing alinement, place Boresight Collimator Test Set on a sturdy table. To prevent misalinement, do not bump Boresight Collimator Test Set while operating.

A. Place boresight collimator (1) on Boresight Collimator Test Set (2).

B. Secure boresight collimator (1) by pushing in and turning two latch handles (3).

GO TO NEXT PAGE

2-12. OPERATION AND ALINEMENT OF BORESIGHT COLLIMATOR (CONT) (Sheet 2 of 9)



NOTE

At this point in the procedure, it is necessary to verify that the Boresight Collimator Test Set is properly alined. To do this, place the reference mirror in the IN position but do not latch in place. Close the two lower baffles and open the upper baffle. Open the lower baffles one at a time and ensure that the reflected images are superimposed. If all the reflected images are superimposed as described in paragraph 3-19, Boresight Collimator Test Set is alined.

GO TO NEXT PAGE

2-12. OPERATION AND ALINEMENT OF BORESIGHT COLLIMATOR (CONT) (Sheet 3 of 9)

c. Center the horizontal reticle (4) and vertical reticle (5) with the stationary reticle (6).

D. Move reference mirror (8) to the OUT position, but do not latch with locking lever (7).

E. Deleted

F. Set upper (split) mirror optical baffle (9) to the OPEN position. Set all other optical baffles to the CLOSED position.

G. Looking through eyepiece (14), use AZ control knob (10) and EL control knob (11) to center boresight collimator target (12) on stationary reticle (6).

H. While rotating the AZ control knob (10) clockwise, count and record the number of turns required to reach the end of travel.

I. Using AZ control knob (10) and EL control knob (11), center boresight collimator target (12) on stationary reticle (6).

J. While rotating the AZ control knob (10) counterclockwise, count and record the number of turns required to reach the end of travel.

K. Using AZ control knob (10) and EL control knob (11), center boresight collimator target (12) on stationary reticle (6).

L. If either adjustment is less than 2.8 turns, replace boresight collimator (1).

M. While rotating the EL control knob (11) clockwise, count and record the number of turns required to reach the end of travel.

N. Using AZ control knob (10) and EL control knob (11), center boresight collimator target (12) on stationary reticle (6).

o. While rotating the EL control knob (11) counterclockwise, count and record the number of turns required to reach the end of travel.

P. If either adjustment is less than 2.8 turns, replace boresight collimator (1).

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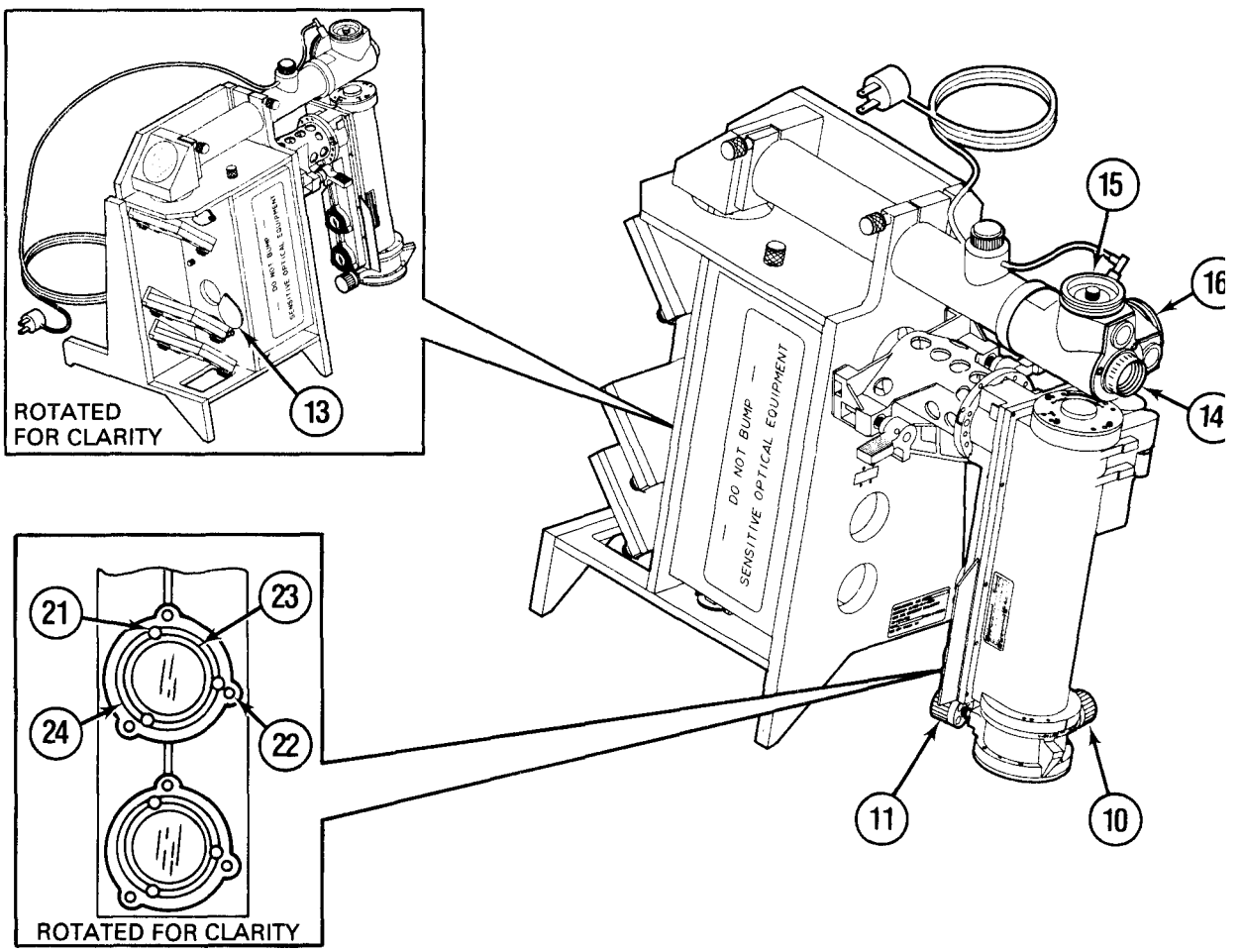
2-12. OPERATION AND ALINEMENT OF BORESIGHT COLLIMATOR (CONT) (Sheet 4 of 9)



Q. Using AZ control knob (10) and EL control knob (11), center boresight collimator target (12) on stationary reticle (6).

R. Set middle mirror optical baffle (13) to the OPEN position and all other optical baffles to the CLOSED position.

S. Looking through eyepiece (14), use large outer vertical micrometer control (15) and large outer horizontal micrometer control (16) to center horizontal reticle (4) and vertical reticle (5) on boresight collimator target (12).

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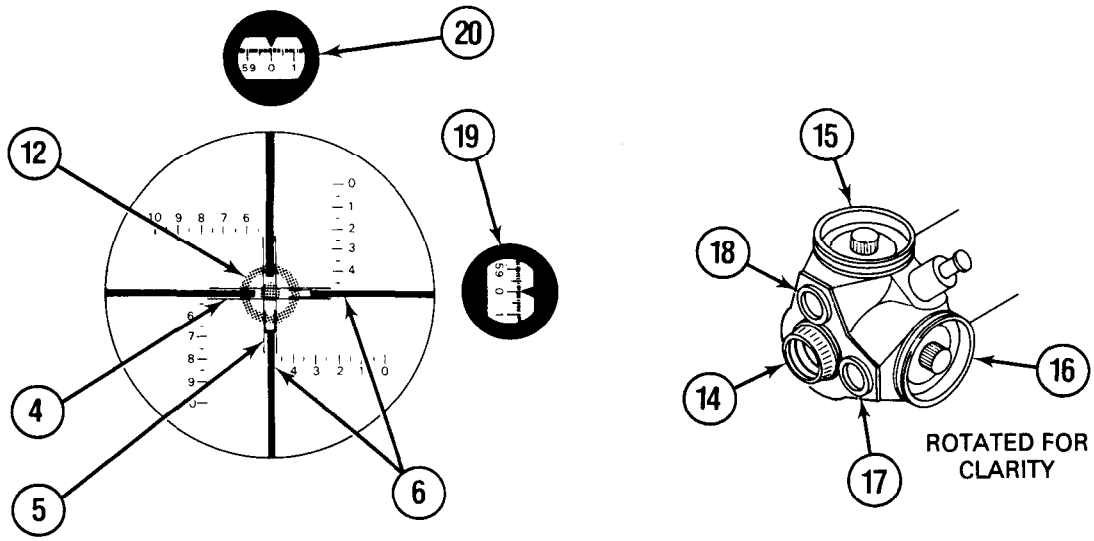
2-12. OPERATION AND ALINEMENT OF BORESIGHT COLLIMATOR (CONT) (Sheet 5 of 9)



T. On autocollimator assembly, look first through horizontal viewer (17) and then through the vertical viewer (18). The horizontal scale (19) and the vertical scale (20) should indicate between 56.5 arc-seconds and 3.5 arc-seconds. If correct go to step Z, if incorrect continue with step U.

Adjust large outer vertical micrometer control (15) and large outer horizontal micrometer control (16) until horizontal scale (19) and vertical scale (20) indicate between 59.9 arc-seconds and 0.1 arc-second.

v. Using No. 1 cross-tip screwdriver, loosen three screws (21) and three screws (22) securing the inner AN/TAS-4, 4A, 4B, 4C, 4D visible light window (23) and the outer AN/TAS-4, 4A, 4B, 4C, 4D visible light window (24).

w. Using wedge window tool, adjust inner and outer AN/TAS-4, 4A, 4B, 4C, 4D visible light windows (23) and (24) until the boresight collimator target (12) is as close to the center of the stationary reticle as possible.

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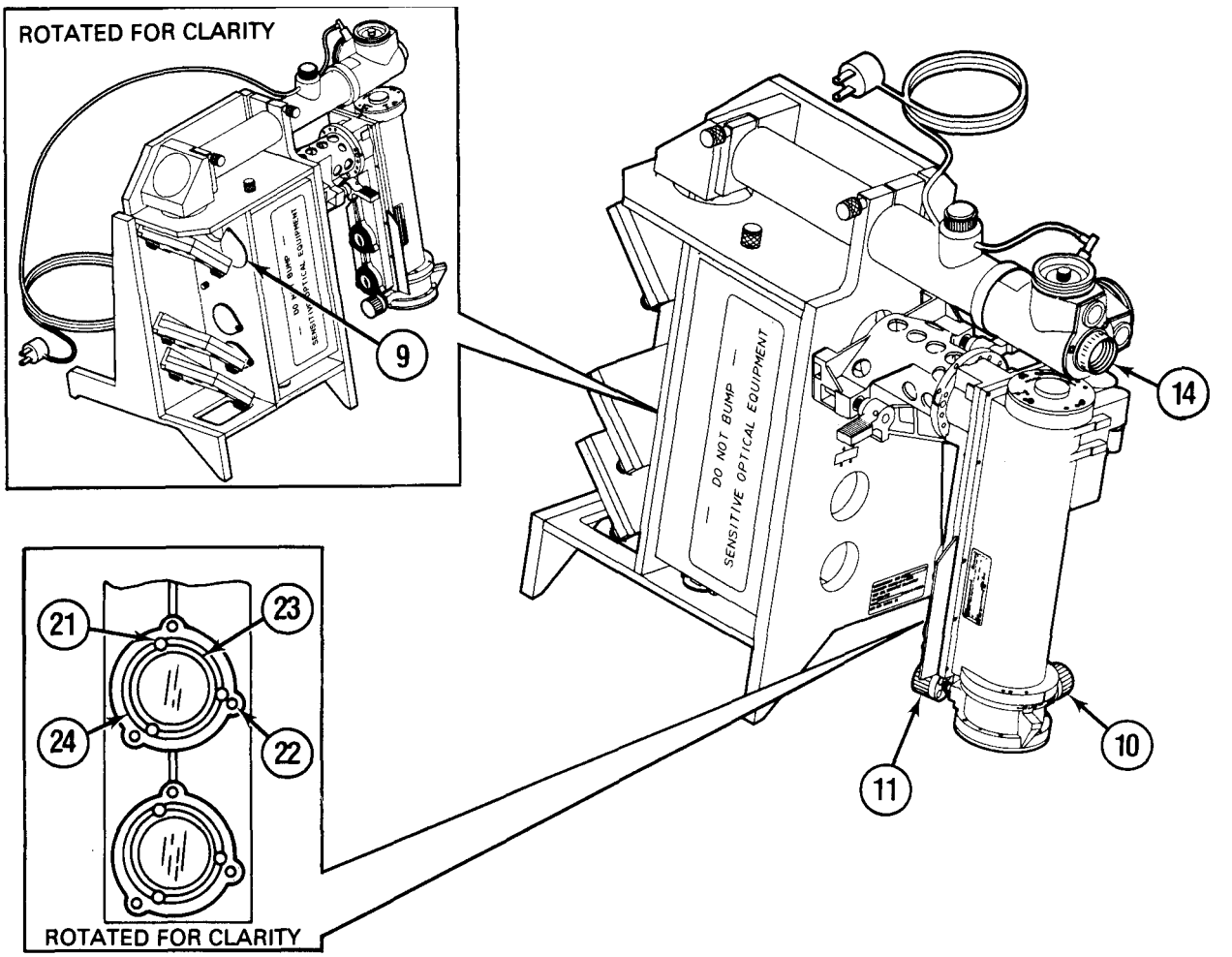
2-12. OPERATION AND ALINEMENT OF BORESIGHT COLLIMATOR (CONT) (Sheet 6 of 9)



x. Repeat steps S through W until target is between 56.5 arc-seconds and 3.5 arc-seconds of center.

Y. Tighten three screws (21) to secure inner AN/TAS-4, 4A, 4B, 4C, 4D visible light window (23), and tighten three screws (22) to secure outer AN/TAS-4, 4A, 4B, 4C, 4D visible light window (24).

Z. Set upper (split) mirror optical baffle (9) to the OPEN position. Set all other optical baffles to the CLOSED position.

AA. Look through eyepiece (14) and verify that the boresight collimator target (12) is centered on stationary reticle (6). If not, use AZ control knob (10) and EL control knob (11) to center the boresight collimator target on the stationary reticle and repeat steps R through Y.

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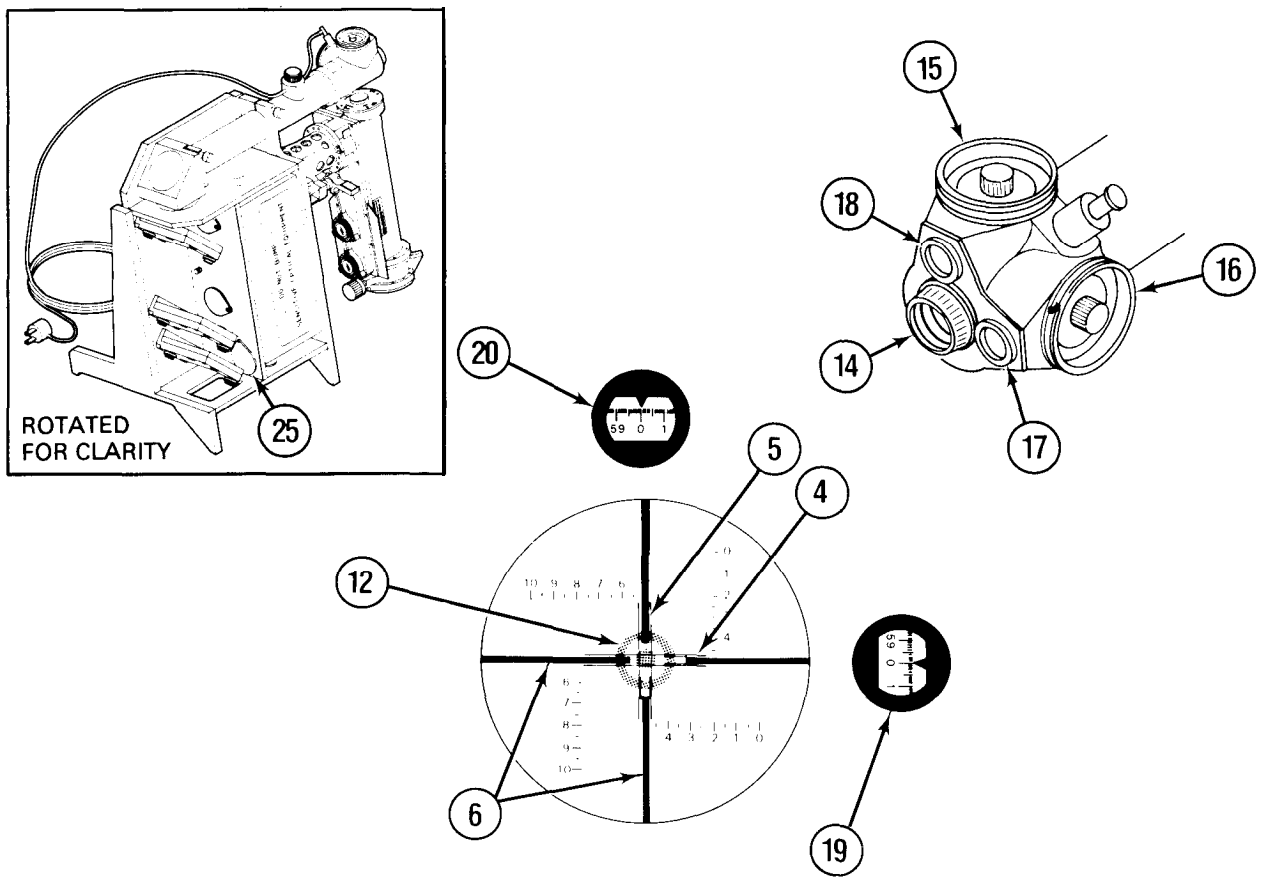
2-12. OPERATION AND ALINEMENT OF BORESIGHT COLLIMATOR (CONT) (Sheet 7 of 9)



AB. Set lower mirror optical baffle (25) to the OPEN position. Set all other optical baffles to the CLOSED position.

AC. Looking through eyepiece (14), use large outer vertical micrometer control (15) and large outer horizontal micrometer control (16) to center horizontal reticle (4) and vertical reticle (5) on boresight collimator target (12).

AD. On autocollimator assembly, look first through horizontal viewer (17) and then through the vertical viewer (18). The horizontal scale (19) and the vertical scale (20) should indicate between 56.5 arc-seconds and 3.5 arc-seconds. If correct go to step AJ, if incorrect continue with step AE.

AE. Adjust large outer vertical micrometer control (15) and large outer horizontal micrometer control (16) until horizontal scale (19) and vertical scale (20) indicate between 59.9 arc-seconds and 0.1 arc-second.

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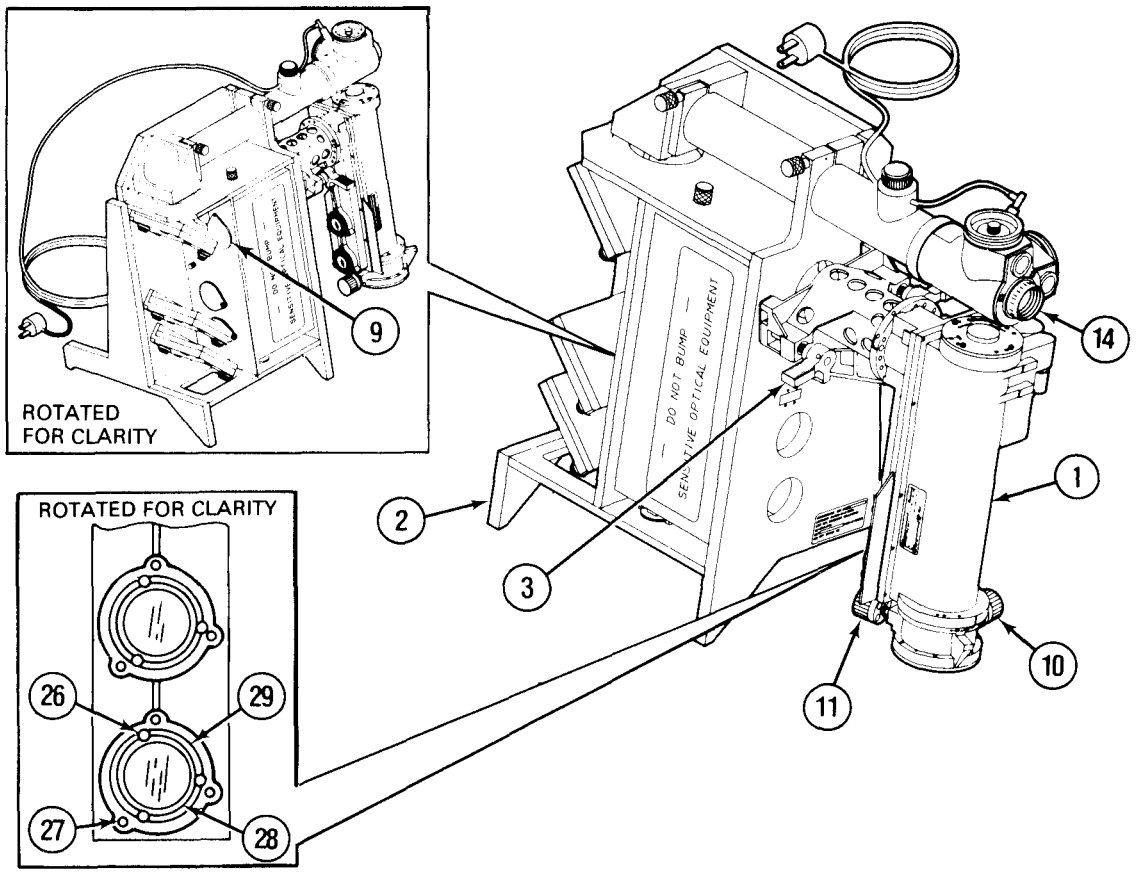
2-12. OPERATION AND ALINEMENT OF BORESIGHT COLLIMATOR (CONT) (Sheet 8 of 9)



AF. Using No. 1 cross-tip screwdriver, loosen three screws (26) and three screws (27) securing the inner AN/TAS-6/GLLD/MULE visible light window (28) and the outer AN/TAS-6/GLLD/MULE visible light window (29).

AG. Using wedge window tool, adjust inner and outer AN/TAS-6/GLLD/MULE visible light windows (28) and (29) until the boresight collimator target (12) is as close to the center of the stationary reticle (6) as possible.

AH. Repeat step AC through step AG until target is between 56.5 arc-seconds and 3.5 arc-seconds of center.

AI. Tighten three screws (26) to secure inner AN/TAS-6/GLLD/MULE visible light window (28), and tighten three screws (27) to secure outer AN/TAS-6/GLLD/MULE visible light window (29).

AJ. Set upper (split) mirror optical baffle (9) to the OPEN position. Set all other optical baffles to the CLOSED position.

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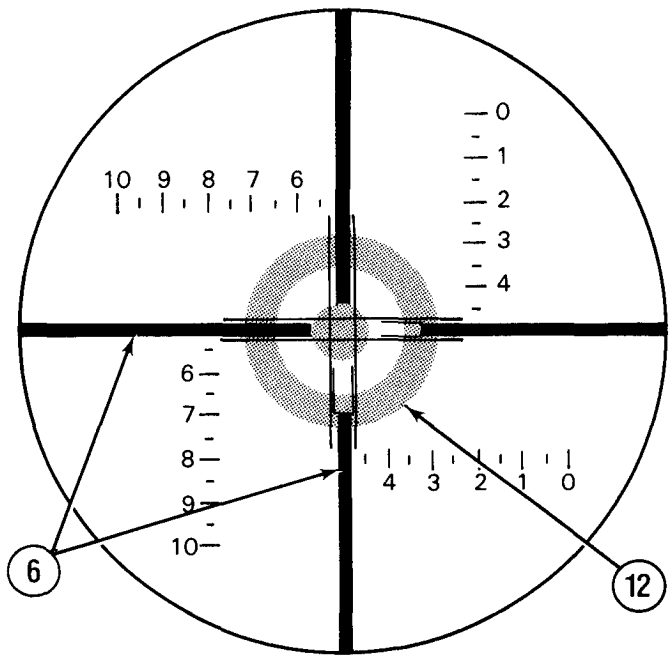
2-12. OPERATION AND ALINEMENT OF BORESIGHT COLLIMATOR (CONT) (Sheet 9 of 9)



AK. Look through eyepiece (14) and verify that the boresight collimator target (12) is centered on stationary reticle (6). If not, use AZ control knob (10) and EL control knob (11) to center the target on the stationary reticle and repeat steps AB through AI.

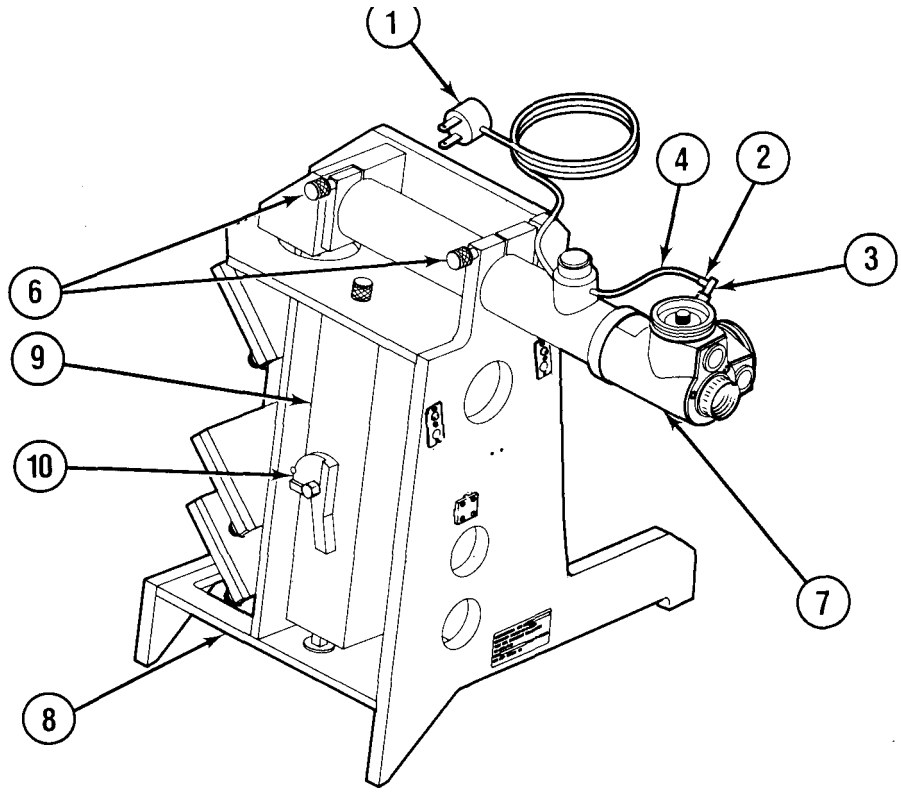
AL. Release two latch handles (3) on boresight collimator (1) and remove it from the Boresight Collimator Test Set (2).

AM. Install boresight collimator IR window (TM 9-5855-885-24).

AN. Return boresight collimator to proper configuration (TM 9-5855-885-24).

END OF TASK

2-13. STOWAGE PROCEDURES (Sheet 1 of 2)



A. Disconnect power cord assembly connector (1) from 115 V ac, 50 to 60 Hz, single-phase power.

B. Disconnect power supply cord connector (2) from reticle lamp jack (3).

C. Remove power supply cord assembly (4).

D. Store power supply cord assembly (4) in container case cover (5).

E. Loosen two clamp screws (6) and remove autocollimator (7) from optics assembly (8).

F. Store autocollimator (7) in container case cover (5).

G. Verify reference mirror (9) is secure and latch (10) is locked.

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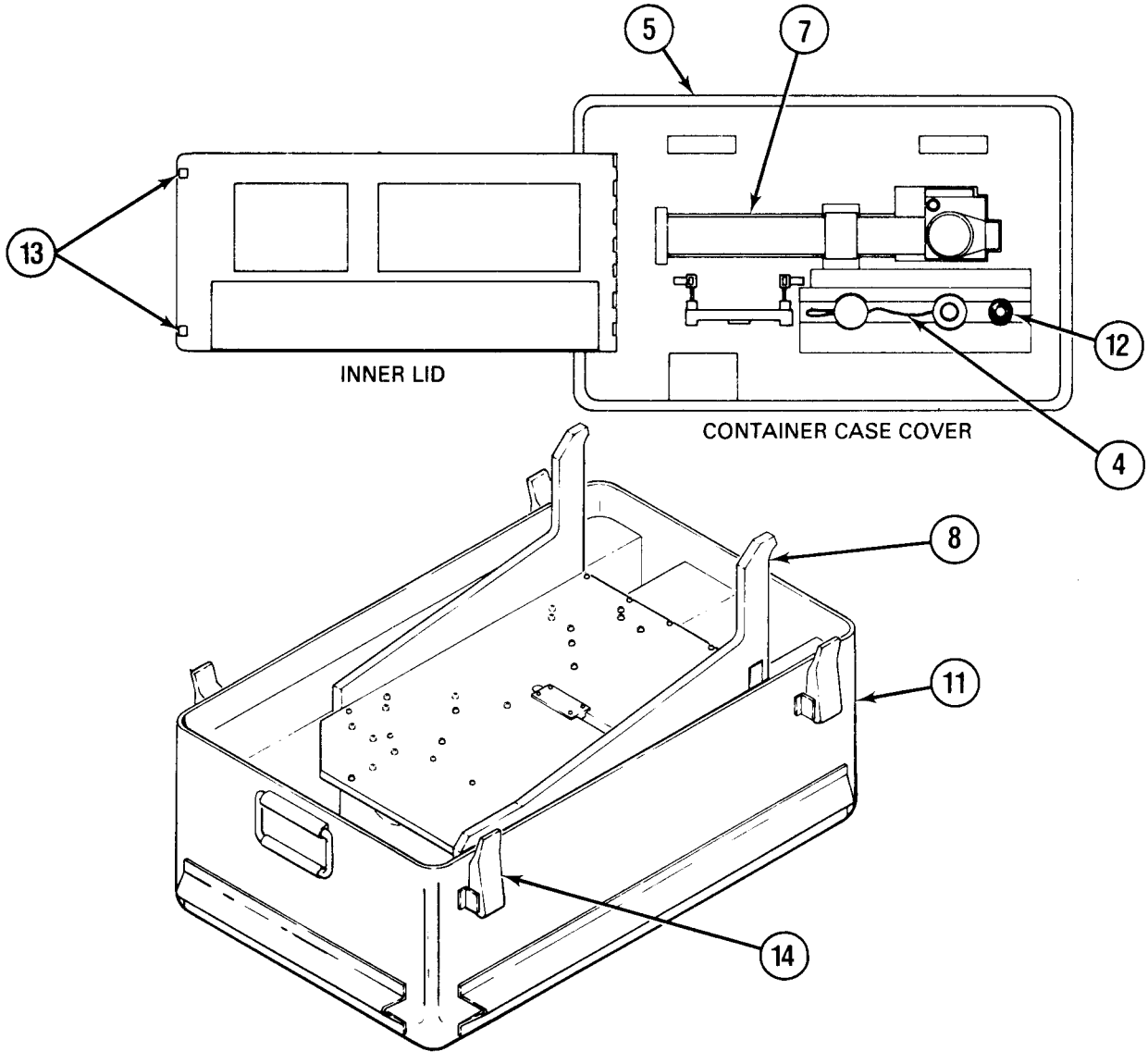
2-13. STOWAGE PROCEDURES (CONT)
(Sheet 2 of 2)



H. Store optics assembly (8) in container case (11).

I. Store wedge window tool (12) in container case cover (5).

J. Close inner lid and secure two inner lid latches (13).

K. Place container case cover (5) on container case (11) and secure using four latches (14).

END OF TASK

Section V. OPERATION UNDER UNUSUAL CONDITIONS

2-14. SCOPE

The operational procedures covered in this chapter will be used when operating the Boresight Collimator Test Set under unusual conditions.

2-15. COLD WEATHER

NOTE

- Extreme changes from cold to warm areas, such as moving the equipment from the cold into a heated area will cause condensation to form, particularly on mirrors and lens.
- To maintain operating efficiency under cold weather conditions, operate the equipment in a heated area.

A. When cold equipment is brought into a warm area, allow equipment to reach room temperature.

CAUTION

To remove condensation from Boresight Collimator Test Set mirrors and lenses, use a clean, dry cotton cloth or tissue pad. Use gentle wiping motions in one direction. Do not rub. Wait for the condensation (if any) on the reference mirror to evaporate. Cleaning of the reference mirror requires removal of the reference mirror (para 3-13).

B. Wipe off condensation before putting equipment into operation.

END OF TASK

2-16. TROPICAL CLIMATE

In tropical climates moisture conditions are more acute than normal. Ventilation in closed areas is usually very poor, and high humidity can cause condensation to form on equipment. To maintain operating efficiency under these conditions perform the following procedures:

A. Wipe the equipment with a clean, dry cloth to remove any condensation.

B. Inspect connectors and clean as necessary before making connections.

c. Turn electrical equipment on once a day to eliminate moisture.

END OF TASK

2-17. DESERT CLIMATE

When the Boresight Collimator Test Set is operated in desert climates, sand, dust, or dirt will reach moving parts and cause binding of controls. Foreign particles in connectors may cause faulty operation. To help keep foreign particles out of equipment:

A. Make operating area as dust-proof as possible using available materials.

B. When equipment is not in use, secure lens cap on autocollimator assembly and cover equipment with any suitable cover.

END OF TASK

CHAPTER 3

BORESIGHT COLLIMATOR TEST SET MAINTENANCE INSTRUCTIONS

CHAPTER OVERVIEW

This chapter contains direct support and general support maintenance instructions for the Boresight Collimator Test Set. Common tools and equipment; special tools; test, measurement, and diagnostic equipment (TMDE); support equipment; and repair parts are identified in Section II. Information pertaining to troubleshooting the Boresight Collimator Test Set is in Section III. Section IV contains Boresight Collimator Test Set maintenance procedures. Adjustment and alinement procedures are in Section V.

CHAPTER CONTENTS

Section I. BORESIGHT COLLIMATOR TEST SET LUBRICATION

3-1. SCOPE

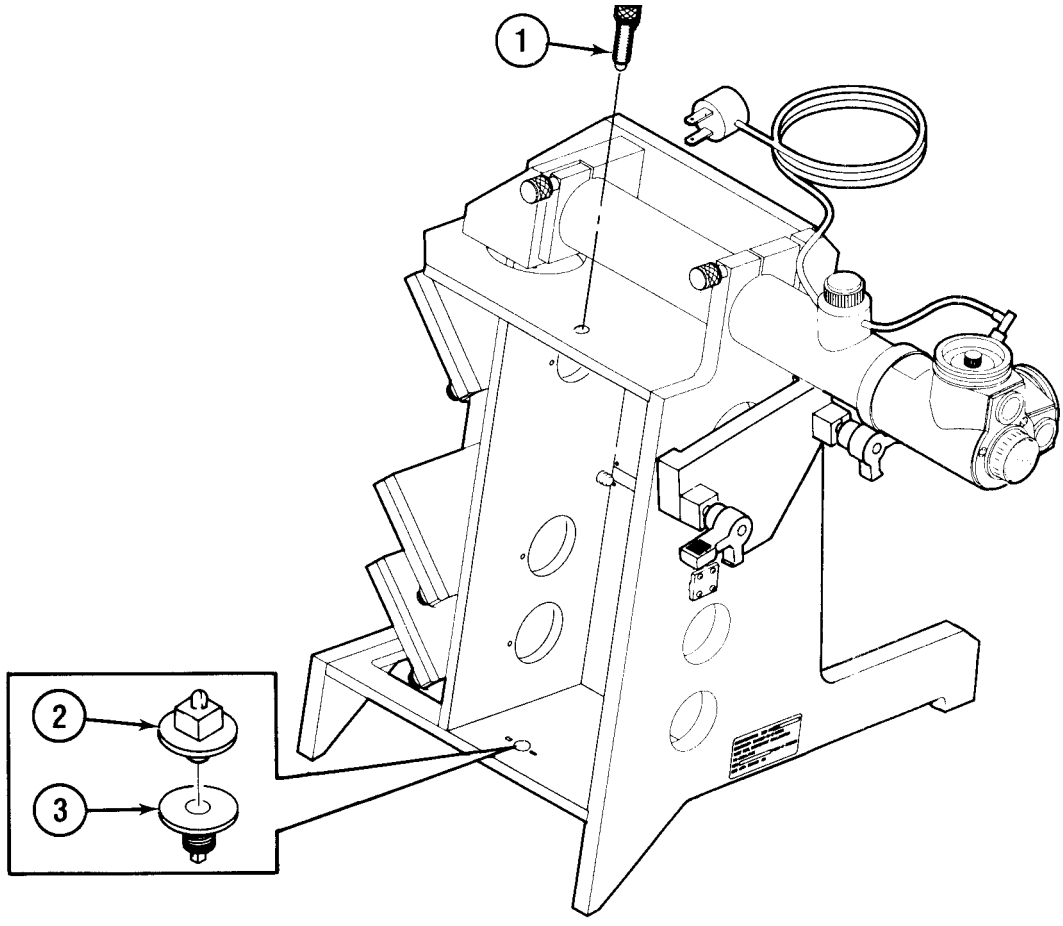
This section contains the procedure for the lubrication of the Boresight Collimator Test Set.

3-2. LUBRICATION PROCEDURE

TOOLS:
None

MATERIALS:
Molybdenum grease (Item 4, Appendix D)

EQUIPMENT CONDITION:
Reference mirror assembly, pivot screw, eccentric support screw, and eccentric pivot removed (para 3-13)



A. Deleted

B. Apply a small amount of grease (Item 4, Appendix D) to the surfaces between the eccentric support screw (2) and the eccentric pivot (3).

C. Install reference mirror assembly, pivot screw, eccentric support screw, and eccentric pivot (para 3-13).

END OF TASK

Section II. COMMON TOOLS AND EQUIPMENT, SPECIAL TOOLS, TEST MEASUREMENT AND DIAGNOSTIC EQUIPMENT (TMDE), SUPPORT EQUIPMENT, AND REPAIR PARTS

3-3. SCOPE

This section lists the common and special tools and test equipment needed to maintain the Boresight Collimator Test Set.

3-4. COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

NOMENCLATURE	NATIONAL STOCK NO.
Tool Kit, Guided Missile Maintenance	5180-00-179-3574

3-5. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

No special tools are required for maintenance of the Boresight Collimator Test Set.

3-6. REPAIR PARTS

Repair parts are listed and illustrated in the Repair Parts and Special Tools List (RPSTL), TM 9-5855-286-24P.

Section III. BORESIGHT COLLIMATOR TEST SET TROUBLESHOOTING

3-7. SCOPE

This section contains troubleshooting procedures for the Boresight Collimator Test Set.

3-8. BORESIGHT COLLIMATOR TEST SET TROUBLESHOOTING PROCEDURES (Sheet 1 of 3)

This paragraph provides troubleshooting for the Boresight Collimator Test Set

NOTE

- Follow steps in order given in the procedures. Do not skip any steps.
- When you enter the "NO" chain, perform the procedure and/or repairs as instructed in the corrective action block.
- Unless otherwise specified, after performing the corrective action of the "NO" chain, always return to the "START" of the procedure you were checking. When more than one corrective action may be required, perform the first corrective action, return to "START", and repeat the procedure. If the problem still exists, perform the next corrective action and repeat.
- If corrective action contained in this manual does not remedy the malfunction, turn Boresight Collimator Test Set in through normal channels of supply.

3-8. BORESIGHT COLLIMATOR TEST SET TROUBLESHOOTING PROCEDURES (CONT)
(Sheet 2 of 3)

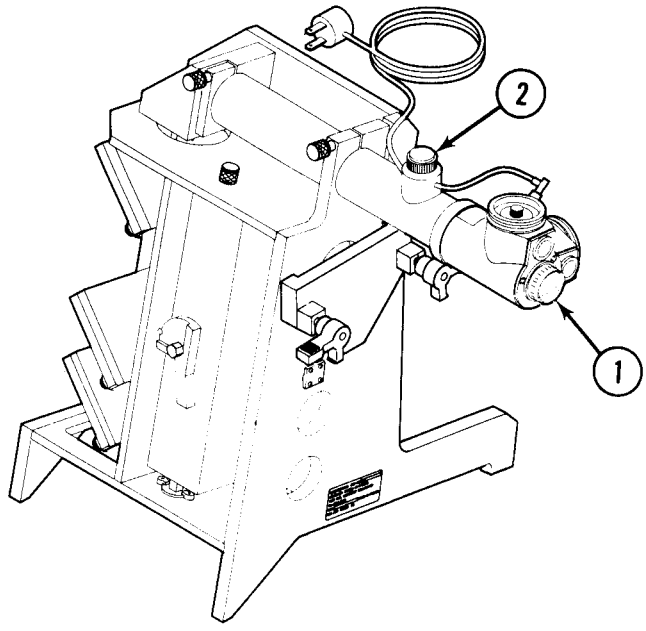
START

STEP 01

Perform Boresight Collimator Test Set setup procedures (para 2-11).

STEP 02

While looking through auto-collimator assembly eyepiece (1), turn rheostat control (2) clockwise.



Does reticle illuminate?

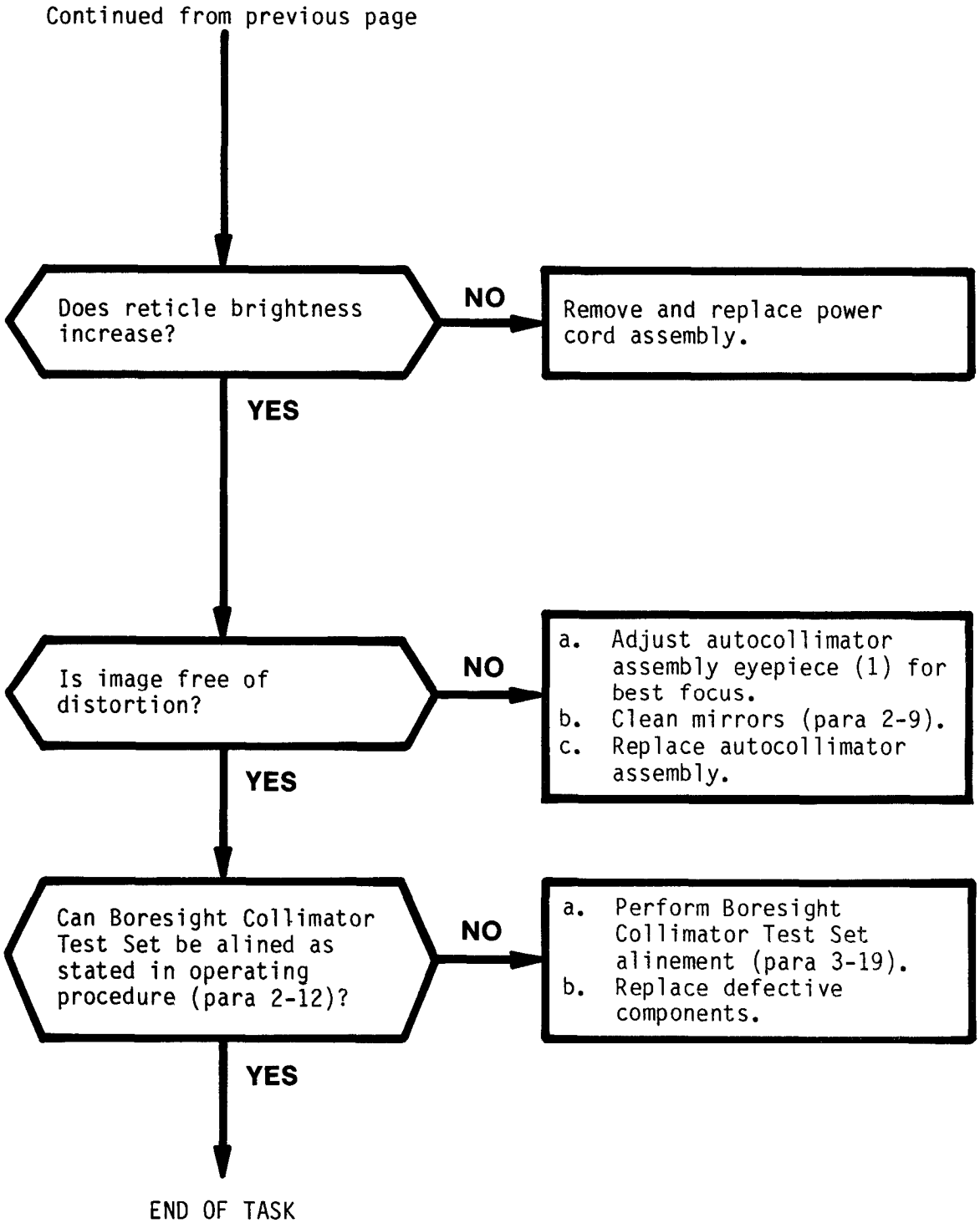
NO

a. Remove and replace miniature lamp (para 3-10).
b. Replace power cord assembly.

YES

Go to next page

3-8. BORESIGHT COLLIMATOR TEST SET TROUBLESHOOTING PROCEDURES (CONT)
(Sheet 3 of 3)



Section IV. BORESIGHT COLLIMATOR TEST SET MAINTENANCE PROCEDURES

3-9. SCOPE

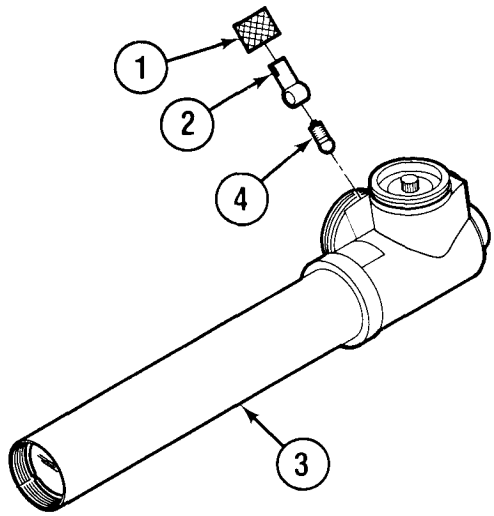
This section contains component removal and replacement procedures for the Boresight Collimator Test Set.

3-10. REMOVAL AND REPLACEMENT OF MINIATURE LAMP

TOOLS:
None

EQUIPMENT CONDITION:
Power cord assembly removed

MATERIALS:
None



STEP 1 REMOVAL

A. Unscrew and remove lamp housing cap (1).

B. Pull light socket assembly (2) from autocollimator (3).

C. Unscrew miniature lamp (4) from socket assembly (2).

STEP 2 REPLACEMENT

A. Screw miniature lamp (4) into light socket assembly (2).

B. Insert light socket assembly (2) into autocollimator (3).

C. Position lamp housing cap (1) over light socket assembly (2) and screw onto autocollimator (3).

D. Install power cord assembly (steps I through L, para 2-11).

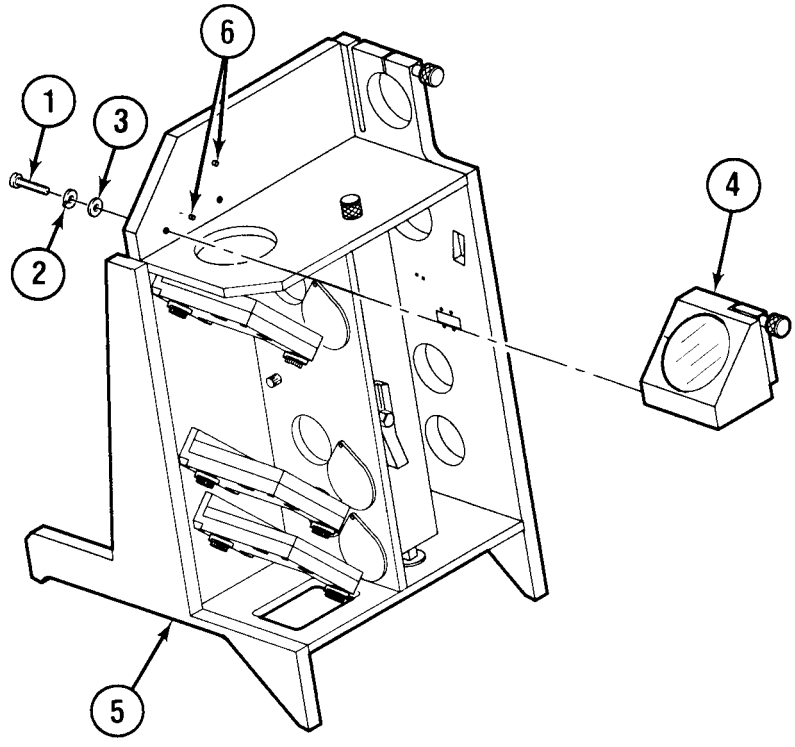
END OF TASK

3-11. REMOVAL AND REPLACEMENT OF FIXED MIRROR ASSEMBLY (Sheet 1 of 2)

TOOLS:
No. 2 cross-tip screwdriver

EQUIPMENT CONDITION:
Autocollimator assembly removed

MATERIALS:
None



STEP 1 REMOVAL

CAUTION

Take care to avoid damage to mirror surfaces during this procedure. Insure that fingerprints are not allowed to remain on mirrored surfaces after completion of this procedure.

A. Remove three screws (1), three lockwashers (2), and three flat washers (3) securing fixed mirror assembly (4) to optics assembly (5).

B. Remove fixed mirror assembly (4).

GO TO NEXT PAGE

3-11. REMOVAL AND REPLACEMENT OF FIXED MIRROR ASSEMBLY (CONT) (Sheet 2 of 2)

STEP 2 REPLACEMENT

A. Position fixed mirror assembly (4) on guide pins (6).

B. Install three flat washers (3), three lockwashers (2), and three screws (1).

C. Install autocollimator assembly (steps F through H, para 2-11).

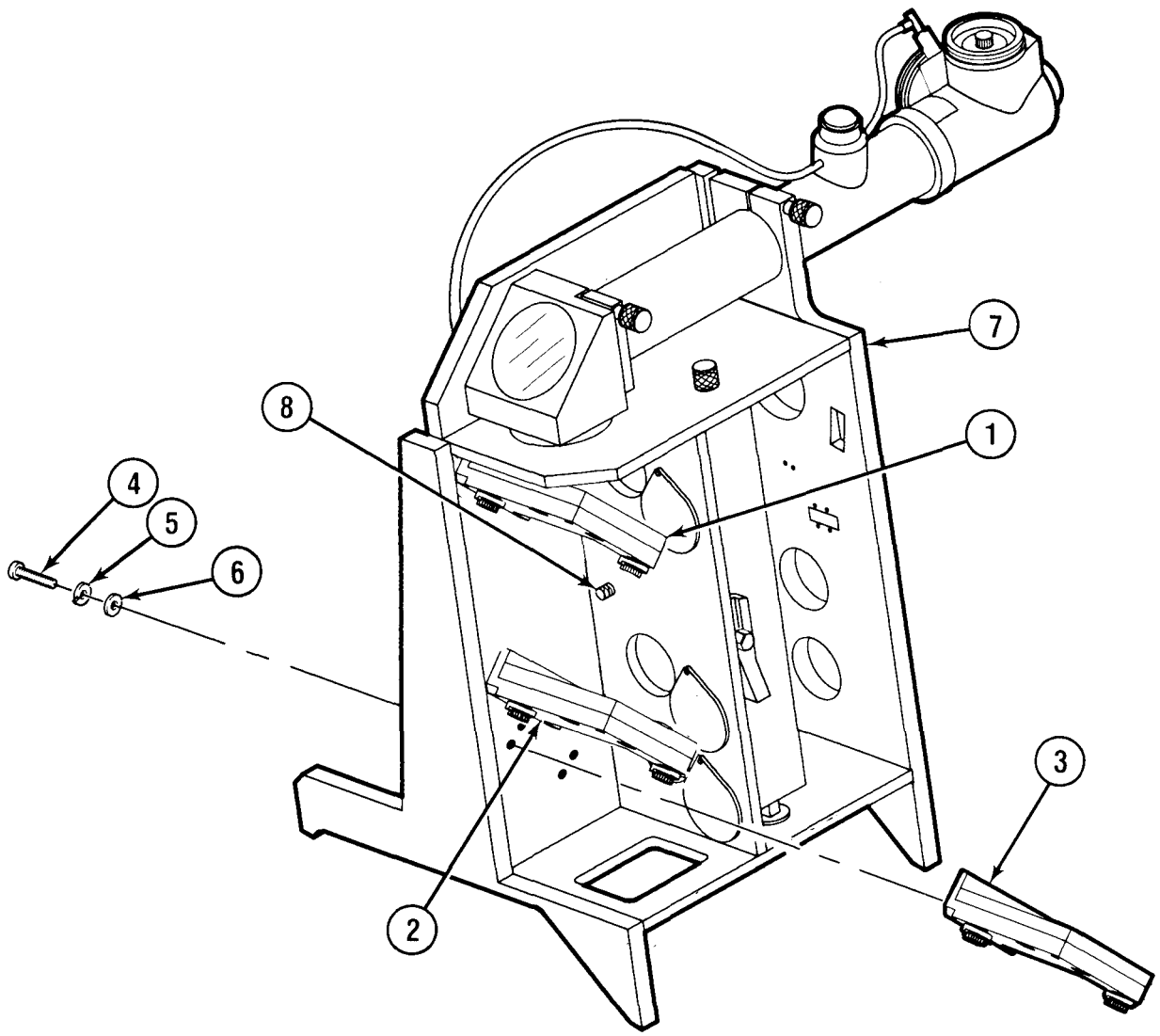
END OF TASK

3-12. REMOVAL AND REPLACEMENT OF UPPER (SPLIT), MIDDLE, AND LOWER MIRROR ASSEMBLIES AND AZIMUTH STOP SCREW (Sheet 1 of 2)

TOOLS:
No. 2 cross-tip screwdriver

EQUIPMENT CONDITION:
Assembled

MATERIALS:
None



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3-12. REMOVAL AND REPLACEMENT OF UPPER (SPLIT), MIDDLE, AND LOWER MIRROR ASSEMBLIES AND AZIMUTH STOP SCREW (CONT) (Sheet 2 of 2)

STEP 1 REMOVAL

CAUTION

Take care to avoid damage to mirror surfaces during this procedure. Insure that fingerprints are not allowed to remain on mirror surfaces after completion of this procedure.

NOTE

Upper (split) mirror assembly (1), middle mirror assembly (2) and lower mirror assembly (3) are removed in the same way. Only the lower mirror assembly is covered in this procedure.

A. While supporting lower mirror assembly (3), remove four screws (4), four lockwashers (5), and four flat washers (6).

B. Remove lower mirror assembly (3) from optics assembly (7).

C. Remove azimuth stop screw (8) from optics assembly (7) .

STEP 2 REPLACEMENT

A. Install azimuth stop screw (8) on optics assembly (7).

B. Position lower mirror assembly (3) on optics assembly (7).

C. While supporting lower mirror assembly (3), install four flat washers (6), four lockwashers (5), and four screws (4).

D. Perform Boresight Collimator Test Set alinement (para 3-19).

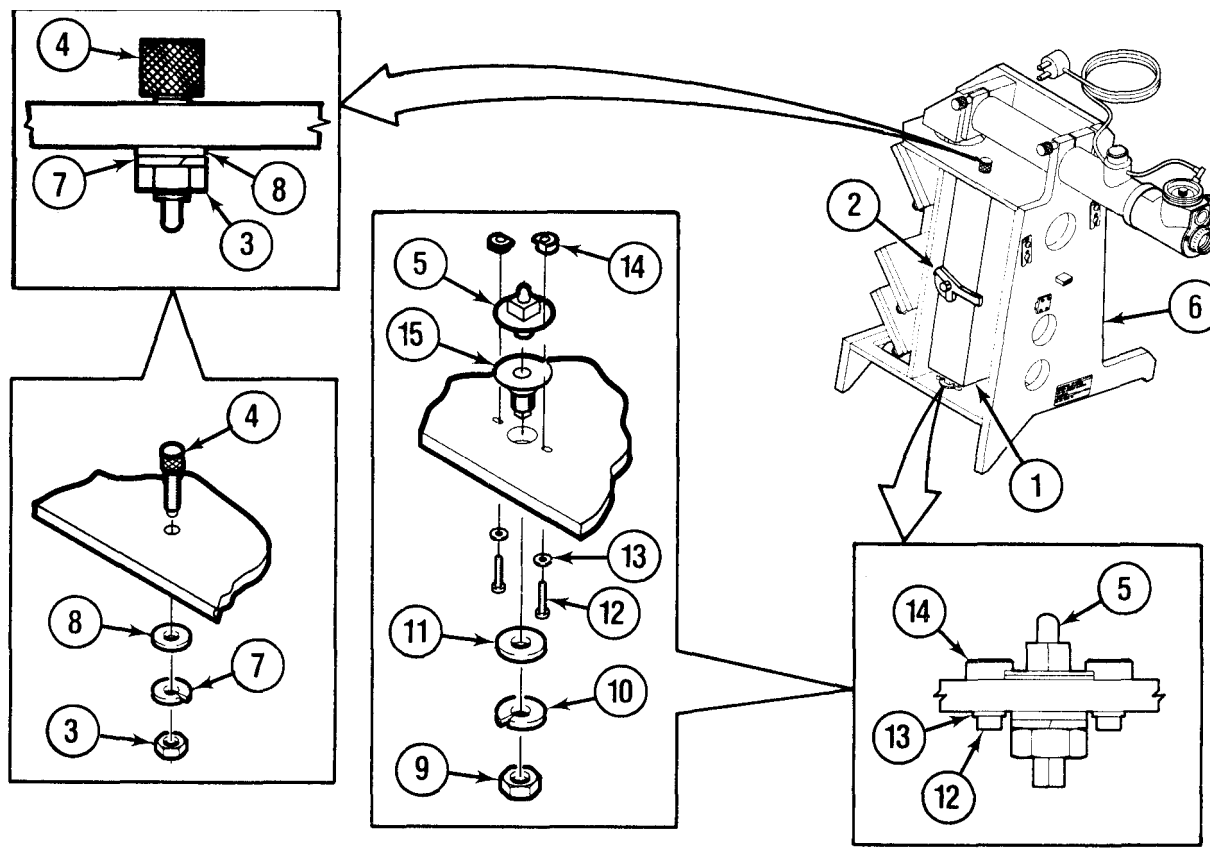
END OF TASK

3-13. REMOVAL AND REPLACEMENT OF REFERENCE MIRROR ASSEMBLY, PIVOT SCREW, ECCENTRIC SUPPORT SCREW, AND ECCENTRIC PIVOT (Sheet 1 of 2)

TOOLS:
9/16-inch open-end wrench

EQUIPMENT CONDITION:
Assembled

MATERIALS:
None



STEP 1 REMOVAL

CAUTION

Take precautions to avoid damage to reference mirror surface during this procedure. Insure that fingerprints are not allowed to remain on mirror surfaces after completion of procedure.

A. Position reference mirror (1) as shown, with latch (2) in unlocked position.

GO TO NEXT PAGE

3-13. REMOVAL AND REPLACEMENT OF REFERENCE MIRROR ASSEMBLY, PIVOT SCREW, ECCENTRIC SUPPORT SCREW, AND ECCENTRIC PIVOT (CONT) (Sheet 2 of 2)

B. While supporting reference mirror assembly (1) loosen nut (3) and pivot screw (4).

C. Lift reference mirror assembly (1) off eccentric support screw (5) and remove from optics assembly (6).

D. Remove nut (3), lockwasher (7), flat washer (8), and pivot screw (4) from optics assembly (6) .

E. Remove eccentric pivot lock nut (9), lockwasher (10), and flat washer (11).

F. Remove two screws (12), two flat washers (13), two clinching rim clamps (14), the eccentric pivot (15), and the eccentric support screw (5) from the optics assembly (6).

STEP 2 REPLACEMENT

A. Install eccentric support screw (5), eccentric pivot (15), two clinching rim clamps (14), two flat washers (13), and two screws (12) in the optics assembly (6).

B. Install flat washer (11), lockwasher (10), and lock nut (9) on eccentric pivot (15).

c. Install pivot screw (4), flat washer (8), lockwasher (7) and lock nut (3) on optics assembly (6).

D. Position reference mirror assembly (1) in optics assembly (6), resting on eccentric support screw (5).

E. Support reference mirror assembly (l), and slowly turn pivot screw (4) until reference mirror assembly (1) moves freely and with no wobble. Tighten lock nut (3) to secure pivot screw (4).

F. Perform Boresight Collimator Test Set alinement procedure (para 3-19).

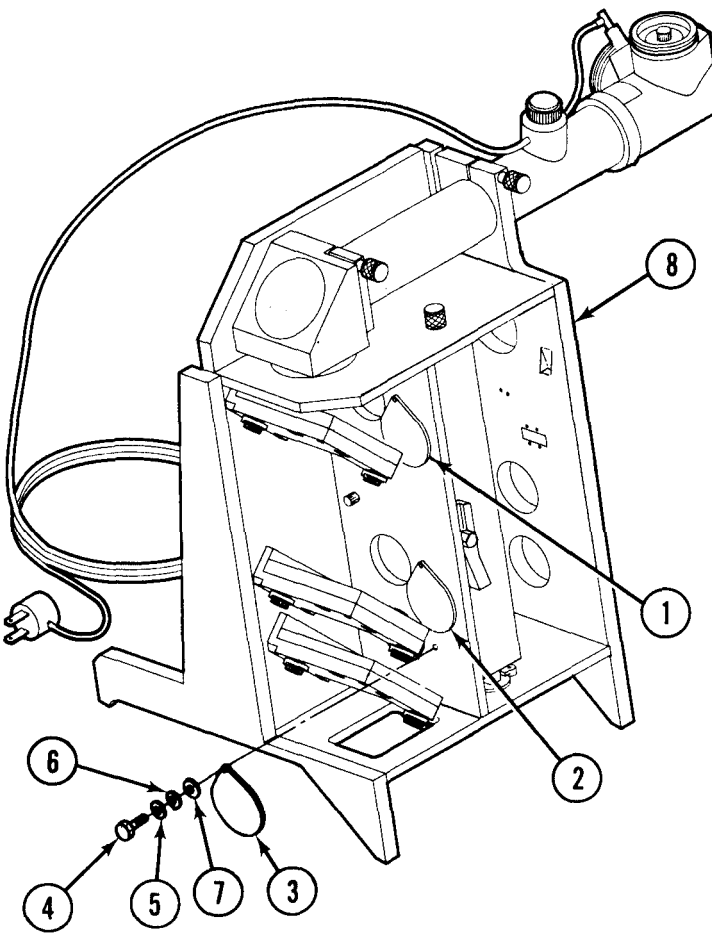
END OF TASK

3-14. REMOVAL AND REPLACEMENT OF UPPER (SPLIT), MIDDLE, AND LOWER OPTICAL BAFFLES (Sheet 1 of 2)

TOOLS:
3/8-inch flat-tip screwdriver

EQUIPMENT CONDITION:
Assembled

MATERIALS:
None



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3-14. REMOVAL AND REPLACEMENT OF UPPER (SPLIT), MIDDLE, AND LOWER OPTICAL BAFFLES (CONT) (Sheet 2 of 2)

NOTE

Upper (split) optical baffle (1), middle optical baffle (2), and lower optical baffle (3) are removed in the same way. Only the lower optical baffle is covered in this procedure.

STEP 1 REMOVAL

Remove screw (4), spring tension washer (5), flat washer (6), spring tension washer (7), and lower optical baffle (3) from Boresight Collimator Test Set (8).

STEP 2 REPLACEMENT

Install lower optical baffle (3), spring tension washer (7), flat washer (6), spring tension washer (5), and screw (4) on Boresight Collimator Test Set (8).

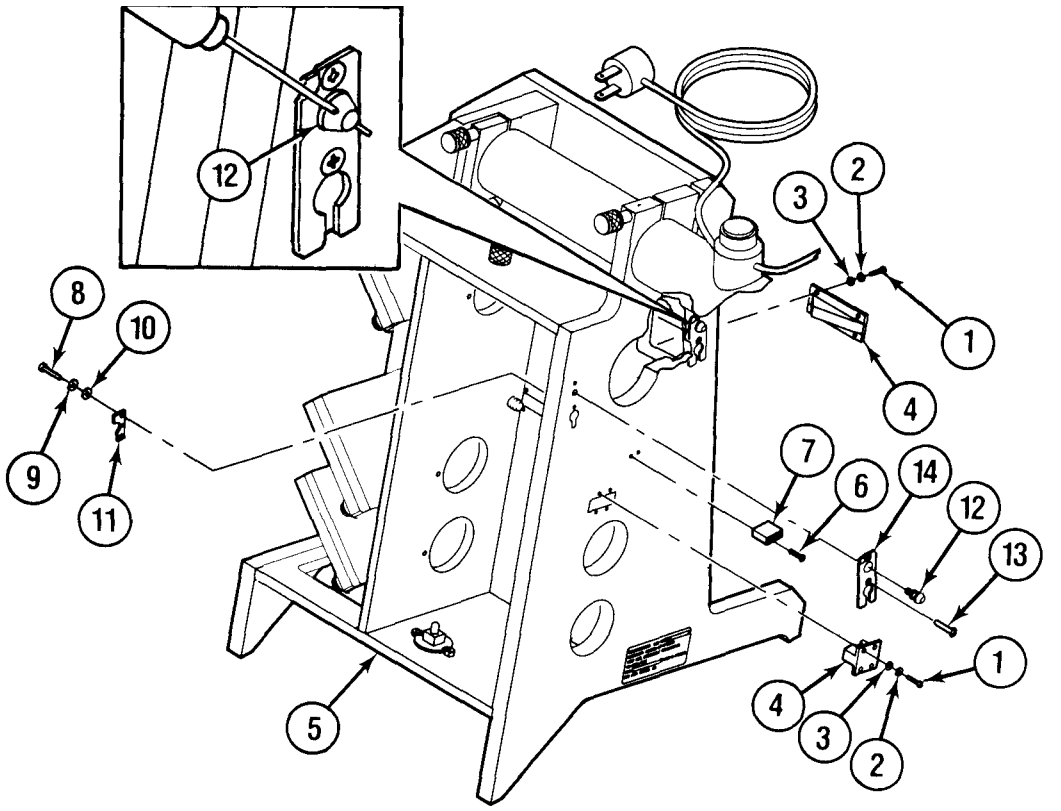
END OF TASK

3-15. REMOVAL AND REPLACEMENT OF SHAFT RECEPTACLE, WEAR PAD MOUNT, WEAR PLATE, AND AFOCAL WEAR PLATE (Sheet 1 of 2)

TOOLS:
No. 1 cross-tip screwdriver
0.070-inch punch

EQUIPMENT CONDITION:
Reference mirror removed (para 3-13)

MATERIALS:
None



STEP 1 REMOVAL

A. Remove four screws (1), four lockwashers (2), and four flat washers (3) from shaft receptacles (4).

B. Remove two shaft receptacles (4) from optics assembly (5).

c. Remove two screws (6) from wear pad mount (7).

D. Remove wear pad mount (7) from optics assembly (5).

GO TO NEXT PAGE

3-15. REMOVAL AND REPLACEMENT OF SHAFT RECEPTACLE, WEAR PAD MOUNT, WEAR PLATE, AND AFOCAL WEAR PLATE (CONT) (Sheet 2 of 2)

E. Remove two screws (8), two lockwashers (9), and two flat washers (10) from wear plate (11) and remove wear plate (11) from optics assembly (5).

F. Use punch to remove boresight collimator afocal screw (12) from optics assembly (5).

G. Remove two screws (13) from afocal wear plate (14).

H. Remove afocal wear plate (14) from optics assembly (5).

STEP 2 REPLACEMENT

A. Install afocal wear plate (14) on optics assembly (5).

B. Install two screws (13) and secure afocal wear plate (14).

C. Use punch to install boresight collimator afocal screw (12) in optics assembly (5).

D. Install wear plate (11), two flat washers (10), two lockwashers (9) and two screws (8).

E. Install wear pad mount (7) and two screws (6) on optics assembly (5).

F. Install shaft receptacles (4), four flat washers (3) , four lockwashers (2) and four screws (1) in optics assembly (5).

G. Install reference mirror (para 3-13).

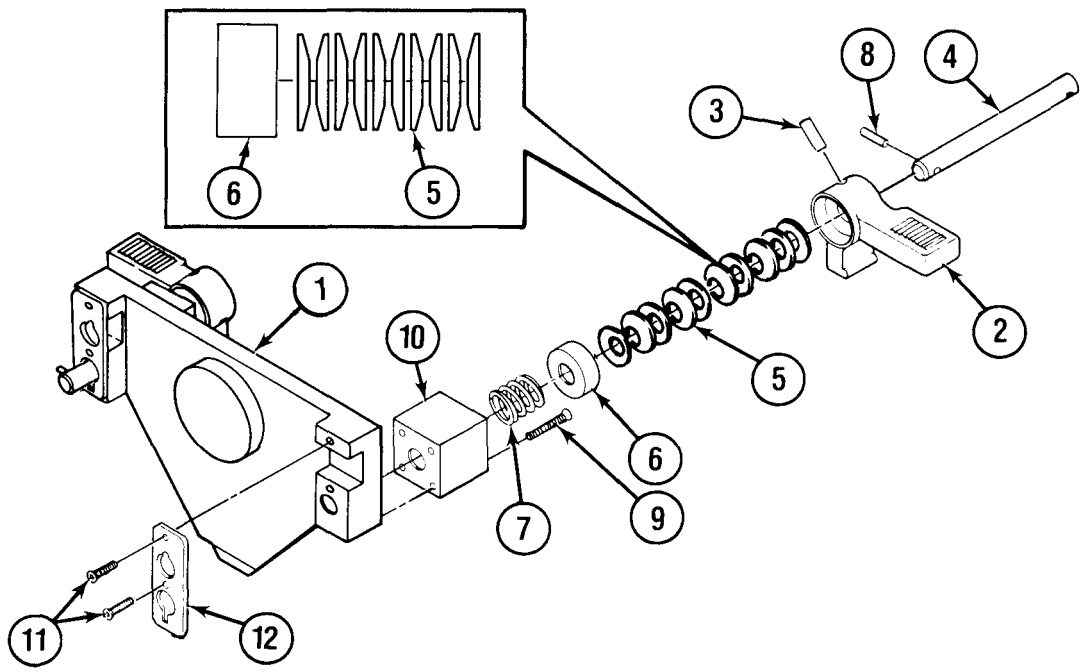
END OF TASK

3-16. REPAIR OF CALIBRATION PLATE (Sheet 1 of 2)

TOOLS:
1/8-inch punch
8-ounce ball-peen hammer
Slip-joint pliers
No. 1 cross-tip screwdriver

EQUIPMENT CONDITION:
Assembled

MATERIALS:
None



STEP 1 REMOVAL

CAUTION

To prevent damage to calibration plate assembly (1), support latch handle (2) securely when driving pin (3) from shaft (4).

A. Using ball-peen hammer and punch, drive out pin (3) securing latch handle (2) to shaft (4).

B. Remove latch handle (2) from shaft (4).

GO TO NEXT PAGE

3-16. REPAIR OF CALIBRATION PLATE (CONT) (Sheet 2 of 2)

NOTE

Note position of spring washers (5).

C. Remove 10 spring washers (5), spring cup (6), and spring (7) from shaft (4).

D. Remove shaft (4) from calibration plate assembly (1).

E. Using ball-peen hammer and punch, drive pin (8) out of shaft (4).

F. Remove four screws (9) and remove plate spacer (10) from calibration plate assembly (1).

G. Remove two screws (11) and remove wear pad (12) from calibration plate assembly (1).

STEP 2 REPLACEMENT

A. Position wear pad (12) on calibration plate assembly (1).

B. Install two screws (11).

C. Position plate spacer (10) on calibration plate assembly (1).

D. Install four screws (9).

E. Install pin (8) in hole in shaft (4) and tap with ball-peen hammer until end of pin (8) extends between 1/8 inch and 1/4 inch above shaft (4).

F. Install shaft (4) in calibration plate assembly (1).

G. Install spring (7) and spring cap (6) on shaft (4).

H. Install 10 spring washers (5). Place cupped surface of first spring washer so that it faces spring cap (6). Place additional spring washers in pairs with cupped surfaces facing each other, then place final spring washer with cupped surface facing latch handle (2).

I. Install latch handle (2) on shaft (4) and position latch handle (2) to aline hole with hole in shaft (4).

J. Using slip-joint pliers, install pin (3) through holes in latch handle (2) and shaft (4).

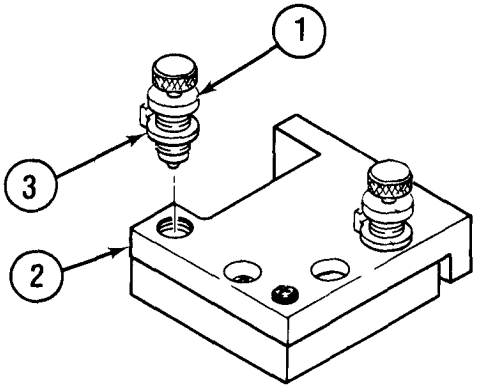
END OF TASK

3-17. REPAIR OF MIRROR ASSEMBLY (Sheet 1 of 3)

TOOLS:
No. 2 cross-tip screwdriver

MATERIALS:
None

EQUIPMENT CONDITION:
Upper (split), middle, or lower mirror assembly removed (para 3-12)



STEP 1 REMOVAL

CAUTION

Take care to avoid damage to mirror surfaces during these procedures. Insure that fingerprints are not allowed to remain on mirror surfaces after completion of this procedure.

NOTE

- Upper (split), middle, and lower mirror frame assemblies and mirror adjuster assemblies are removed in the same way. Only the lower mirror frame and mirror adjuster assemblies are shown in this procedure.
- Count and record the number of lower mirror adjuster assembly (1) threads that extend beyond mirror adjuster support (2).

A. Loosen lower mirror adjuster assembly coarse adjustment lock nut (3).

B. Unscrew lower mirror adjuster assembly (1) from mirror adjuster support (2).

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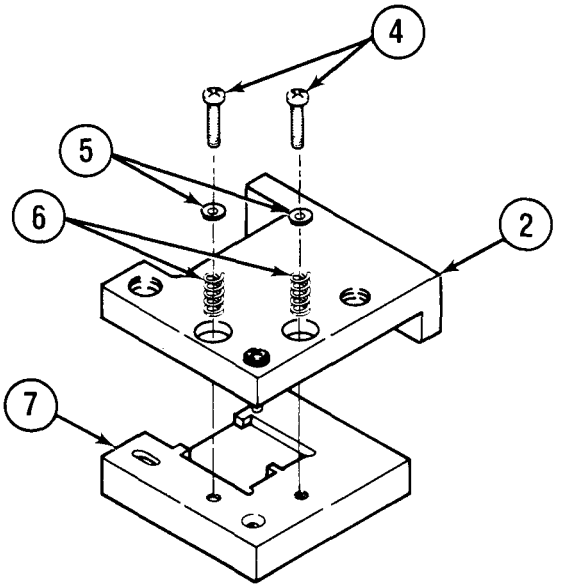
3-17. REPAIR OF MIRROR ASSEMBLY (CONT) (Sheet 2 of 3)



C. Remove two screws (4), two flat washers (5), and two springs (6) securing lower mirror frame assembly (7) to mirror adjuster support (2).

D. Remove lower mirror frame assembly (7) from mirror adjuster support (2).

STEP 2 REPLACEMENT

CAUTION

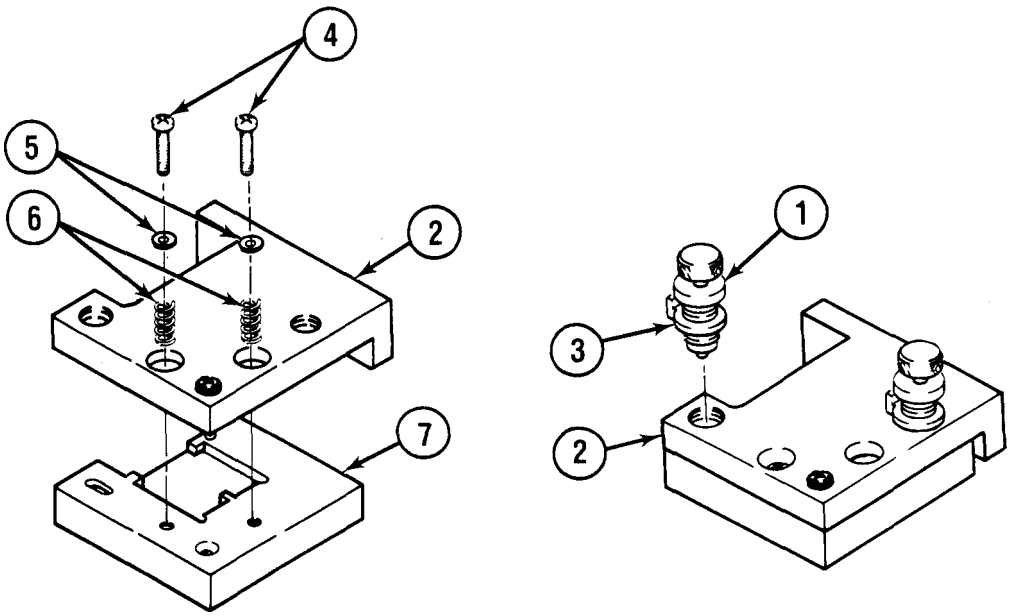
Take care to avoid damage to mirror surfaces during these procedures. Insure that fingerprints are not allowed to remain on mirror surfaces after completion of this procedure.

A. Position mirror adjuster support (2) on lower mirror frame assembly (7).

B. Secure lower mirror frame assembly (7) to mirror adjuster support (2) using two springs (6), two flat washers (5), and two screws (4).

GO TO NEXT PAGE

3-17. REPAIR OF MIRROR ASSEMBLY (CONT) (Sheet 3 of 3)



c. Screw lower mirror adjuster assembly (1) into mirror adjuster support so that the number of threads recorded extends beyond the mirror adjuster support (2).

D. Tighten lower mirror adjuster assembly (1) coarse adjustment lock nut (3).

E. Install upper (split), middle, or lower mirror assembly on Boresight Collimator Test Set (para 3-12).

F. Perform Boresight Collimator Test Set alinement (para 3-19).

END OF TASK

Section V. ADJUSTMENT AND ALINEMENT PROCEDURES

3-18. SCOPE

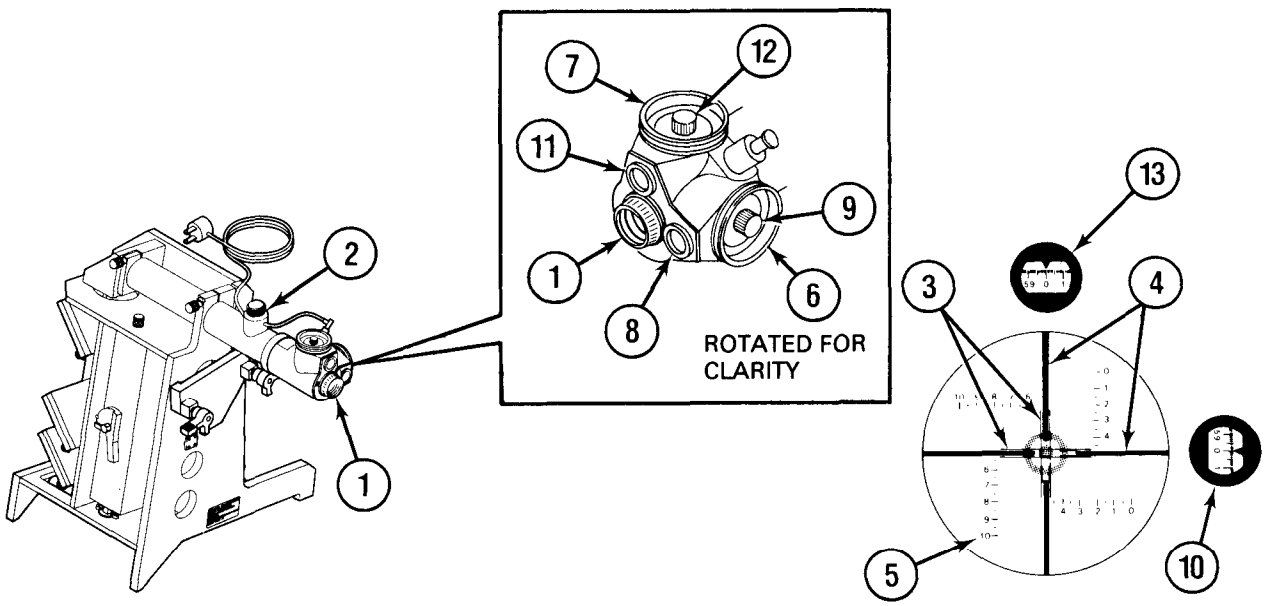
This section contains the Boresight Collimator Test Set alinement procedures.

3-19. BORESIGHT COLLIMATOR TEST SET ALINEMENT (Sheet 1 of 14)

TOOLS:
3/32-inch socket-head screw-key
1/4-inch open-end wrench
1/2-inch open-end wrench
3/4-inch open-end wrench
Connector pliers

MATERIALS:
None

EQUIPMENT CONDITION:
Setup procedures performed (para 2-11)
Boresight collimator configured in the AN/TAS-4 position (TM 9-5855-885-24)



CAUTION

If the Boresight Collimator Test Set cannot be properly alined, turn in through normal channels of supply.

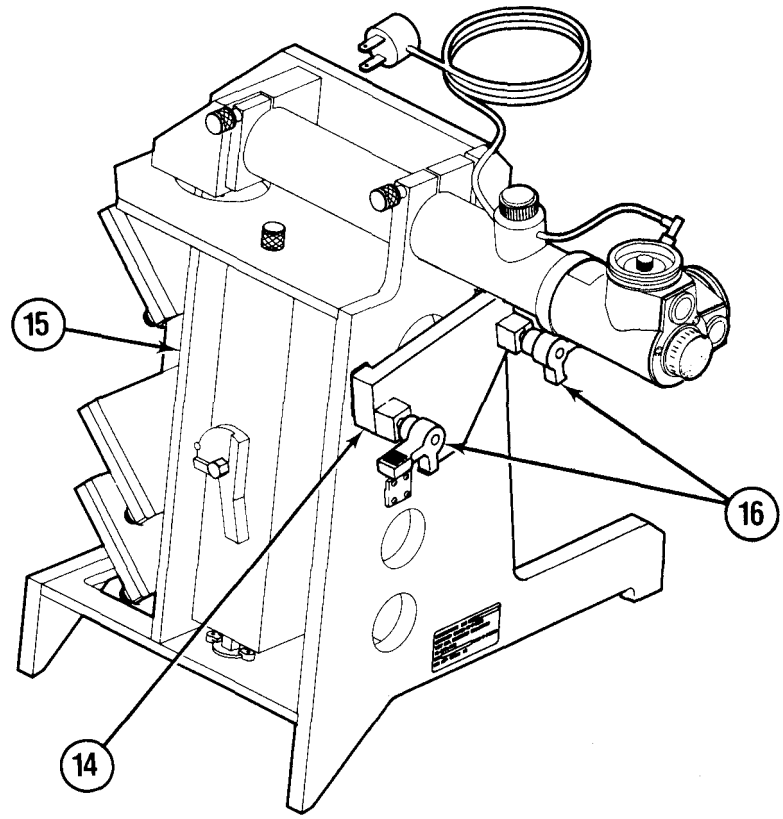
A. Looking through eyepiece (1), turn rheostat (2) clockwise until horizontal and vertical reticles (3) are visible and stationary reticle (4) is illuminated.

B. Turn eyepiece (1) until the number markings (5) and the stationary reticle (4) are in focus.

C. Using large outer micrometer controls (6) and (7), adjust horizontal and vertical reticles (3) until centered on the stationary reticle (4).

GO TO NEXT PAGE

3-19. BORESIGHT COLLIMATOR TEST SET ALINEMENT (CONT) (Sheet 2 of 14)



D. Looking through horizontal viewer (8), hold small center control (9) and turn large outer micrometer control (6) until the horizontal indicator (10) reads between 59 arc-seconds and 1 arc-second.

E. Looking through vertical viewer (11), hold small center control (12) and turn large outer micrometer control (7) until the vertical indicator (13) reads between 59 arc-seconds and 1 arc-second.

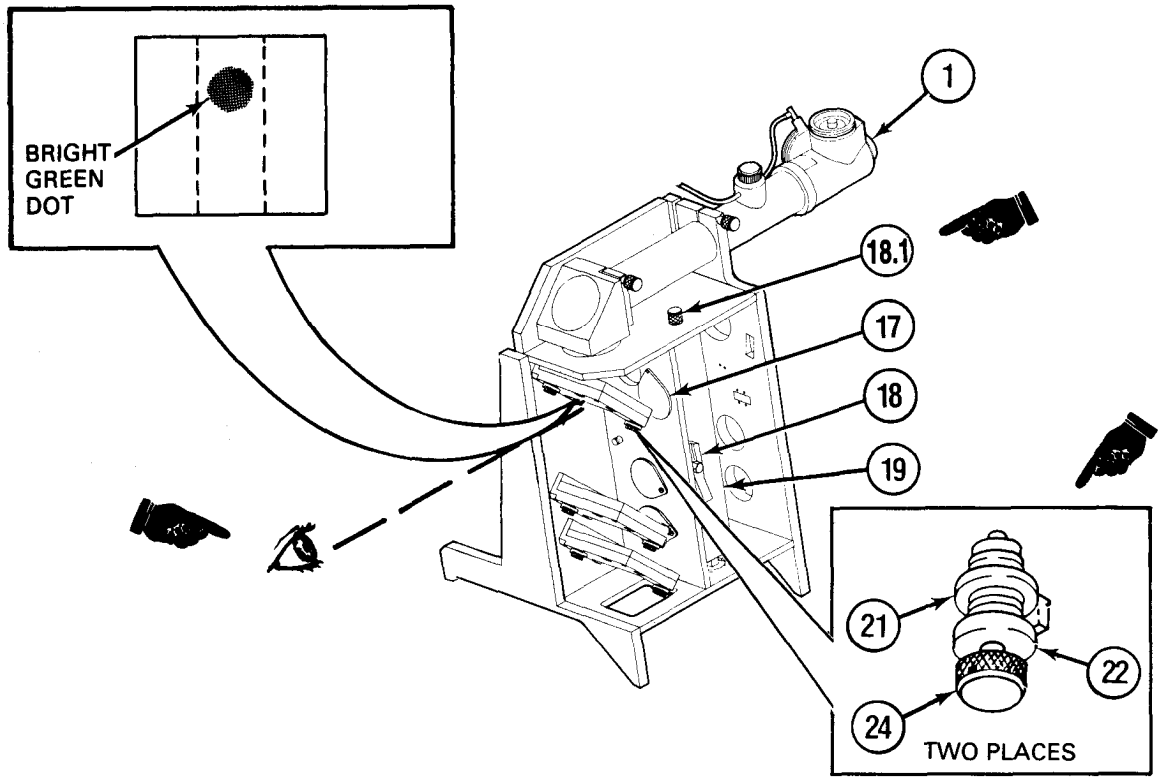
F. Repeat steps C, D, and E until the horizontal and vertical alinement is maintained.

G. Place calibration plate assembly (14) on Boresight Collimator Test Set (15).

H. Secure calibration plate assembly (14) by pushing in and turning two latch handles (16).

GO TO NEXT PAGE

3-19. BORESIGHT COLLIMATOR TEST SET ALINEMENT (CONT) (Sheet 3 of 14)



I. Set upper (split) mirror optics baffle (17) to the OPEN position and all other optical baffles to the CLOSED position.

J. Release mirror locking lever (18) and tighten pivot screw (18.1) so that reference mirror (19) will stay in any position without use of locking lever (18).

K. Move reference mirror (19) to the OUT position. (Do not use locking lever (18) to lock mirror in place).

L. Looking through eyepiece (1), view stationary reticle (4) and its reflected image (20) . If the reflected image is not seen go to step M. If the reflected image is seen go to step Q.

M. When viewing as shown, look for bright green dot. Loosen coarse adjustment screw lock nuts (21) and adjust coarse adjustment screws (22) to center bright green dot. This step will insure that the reflected image can be seen.

N. Deleted

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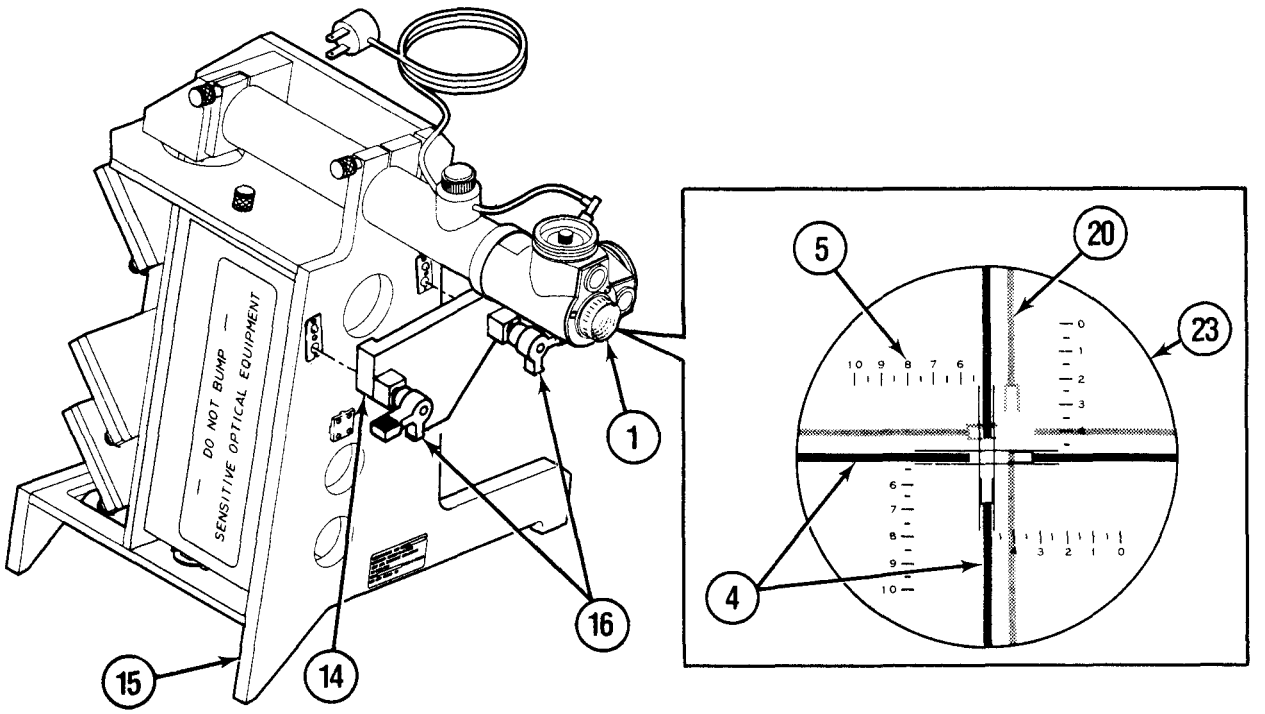
3-19. BORESIGHT COLLIMATOR TEST SET ALINEMENT (CONT) (Sheet 4 of 14)



O. Looking through eyepiece (1), use coarse adjustment screws (22) to adjust elevation setting and azimuth setting of the reflected image (20) to read between 4 arc-minutes and 6 arc-minutes on the number markings (5).

P. Tighten coarse adjustment screw lock nuts (21).

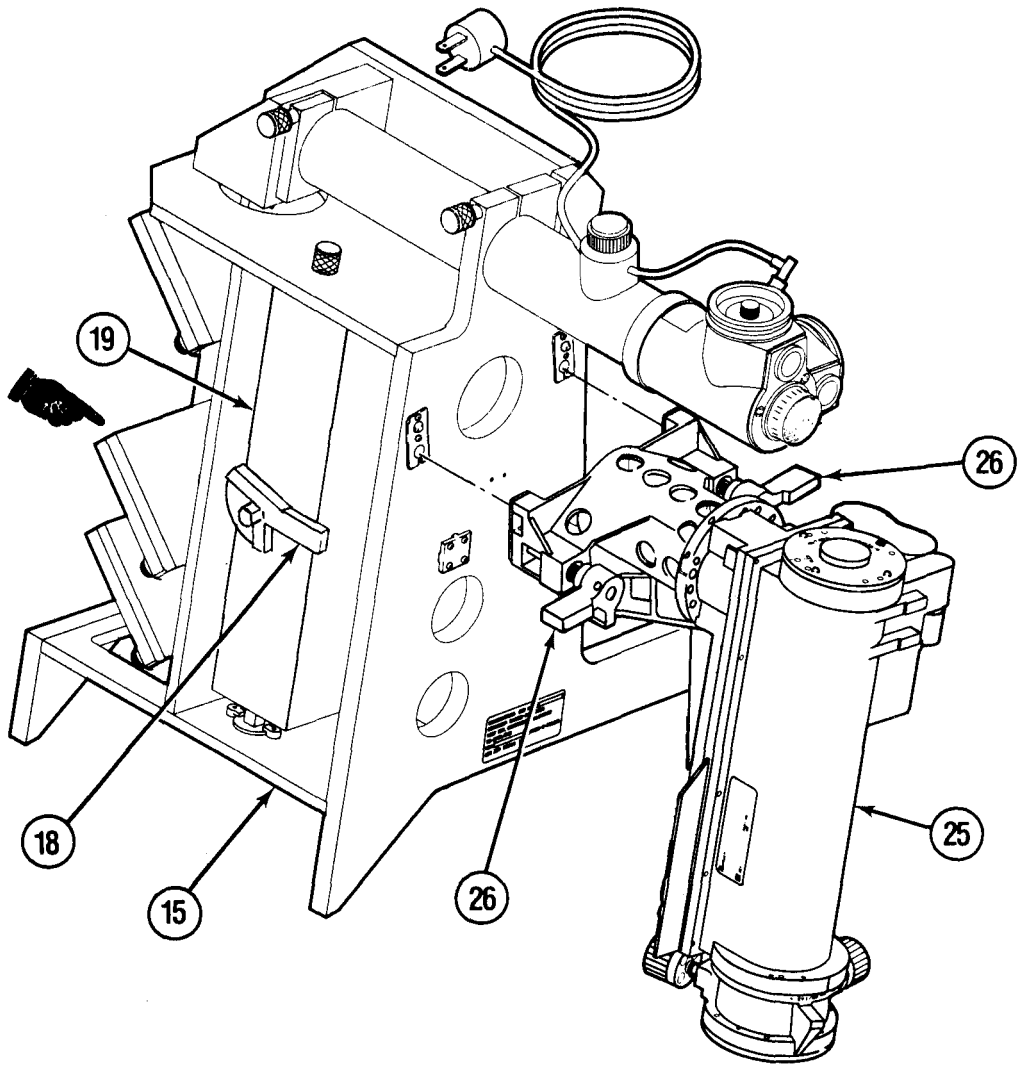
Q. Looking through eyepiece (1), use fine adjustment screws (24) to adjust elevation and azimuth of the reflected image (20) until it is alined with the stationary reticle (4).

Be careful not to scratch the calibration plate mirror.

R. Release latch handles (16) on calibration plate assembly (14) and remove from Boresight Collimator Test Set (15). Return calibration plate assembly (14) to container case cover.

GO TO NEXT PAGE

3-19. BORESIGHT COLLIMATOR TEST SET ALINEMENT (CONT) (Sheet 5 of 14)



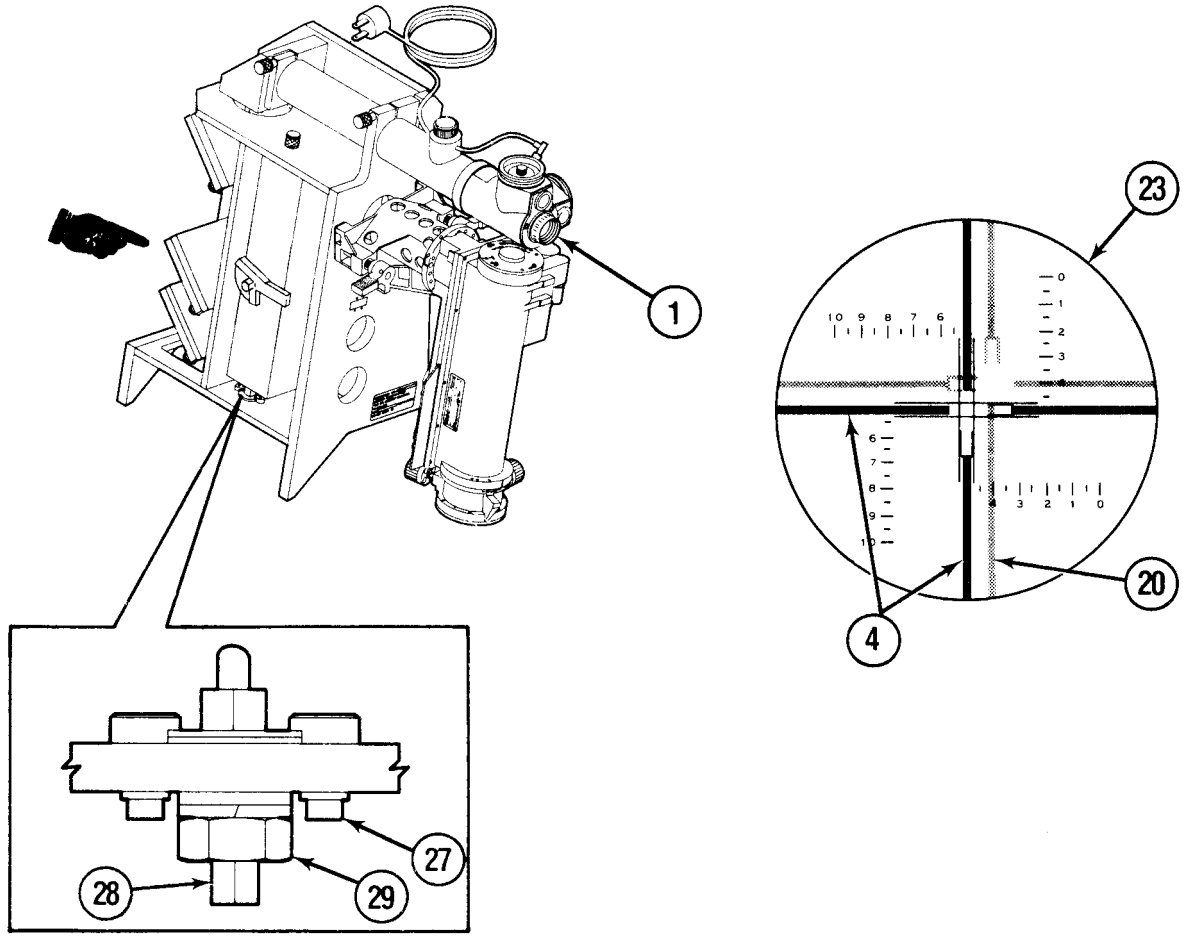
S. Place boresight collimator (25) on Boresight Collimator Test Set (15) and secure by pushing in and turning two latch handles (26).

T. Move reference mirror (19) to the IN position (Do not use locking lever (18) to lock mirror in place).

U. Looking through eyepiece (1), insure that reflected image (20) is visible.

GO TO NEXT PAGE

3-19. BORESIGHT COLLIMATOR TEST SET ALINEMENT (CONT) (Sheet 6 of 14)



V. If reflected image (20) is visible, go to step AA.
If reflected image (20) is not visible, precede to next step.

W. Loosen two screws (27) on coarse elevation eccentric pivot (28).

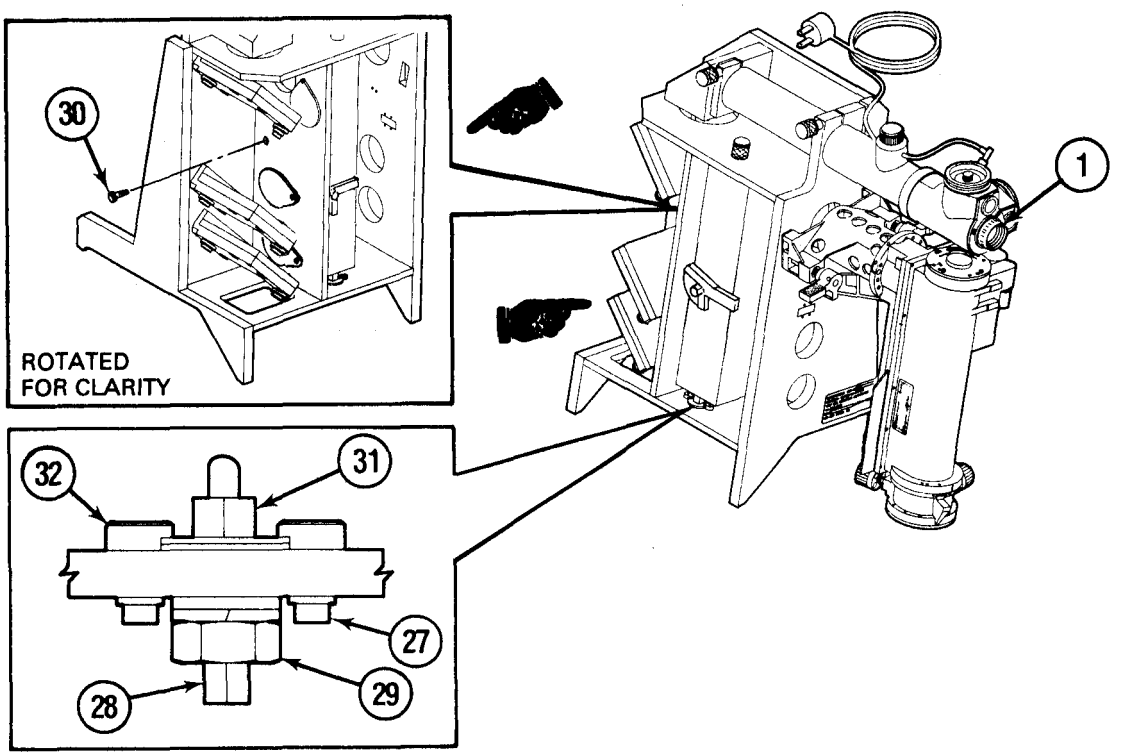
NOTE

To insure that reflected image (20) is seen passing through field-of-view (23), make all adjustments slowly.

X. Using 3/4-inch open-end wrench, loosen coarse elevation eccentric pivot lock nut (29).

GO TO NEXT PAGE

3-19. BORESIGHT COLLIMATOR TEST SET ALINEMENT (CONT) (Sheet 7 of 14)



Y. Looking through eyepiece (1), alternately adjust the azimuth stop screw (30) and, using 1/4-inch open-end wrench, adjust coarse elevation eccentric pivot (28) until reflected image (20) is seen in field-of-view (23)

NOTE

Insure that rim clamps (32) engage fine elevation eccentric support (31) as shown.

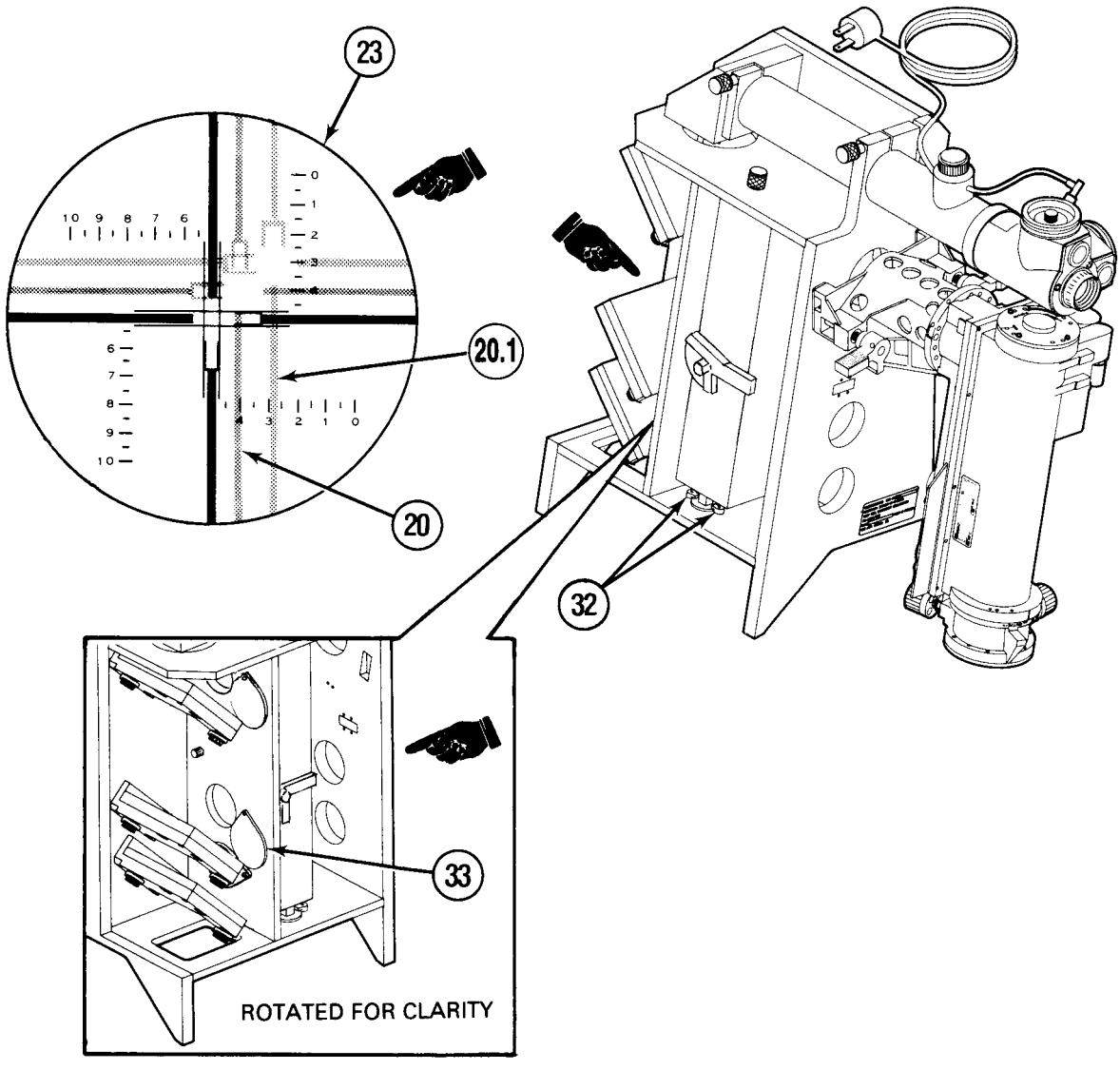
Z. Use 1/4-inch open-end wrench to hold coarse elevation eccentric pivot (28) while using a 3/4-inch open-end wrench to tighten coarse elevation eccentric pivot locknut (29). Tighten two screws (27).

AA. Set middle mirror optical baffle (33) to the open position.

AB . Looking through eyepiece (1), insure that second reflected image (20.1) from middle mirror is visible along with first reflected image (20) from upper (split) mirror.

GO TO NEXT PAGE

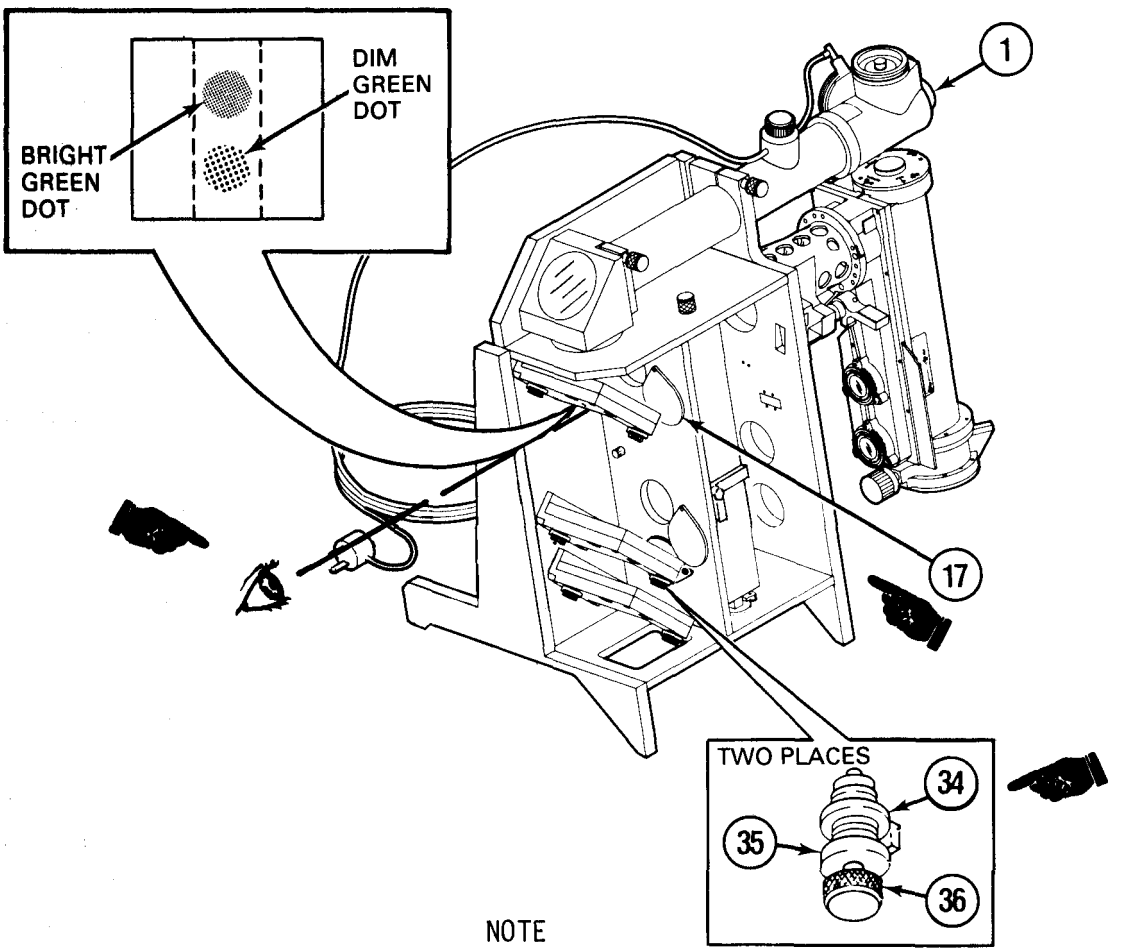
3-19. BORESIGHT COLLIMATOR TEST SET ALINEMENT (CONT) (Sheet 8 of 14)



AC. If second reflected image [from middle mirror] (20.1) is visible and alined with reflected image from upper mirror, go to step AH. If second reflected image is not visible and alined with reflected image from upper mirror, proceed to next step.

GO TO NEXT PAGE

3-19. BORESIGHT COLLIMATOR TEST SET ALINEMENT (CONT) (Sheet 9 of 14)



NOTE

Do not adjust adjustment screws of upper mirror during the following procedures.

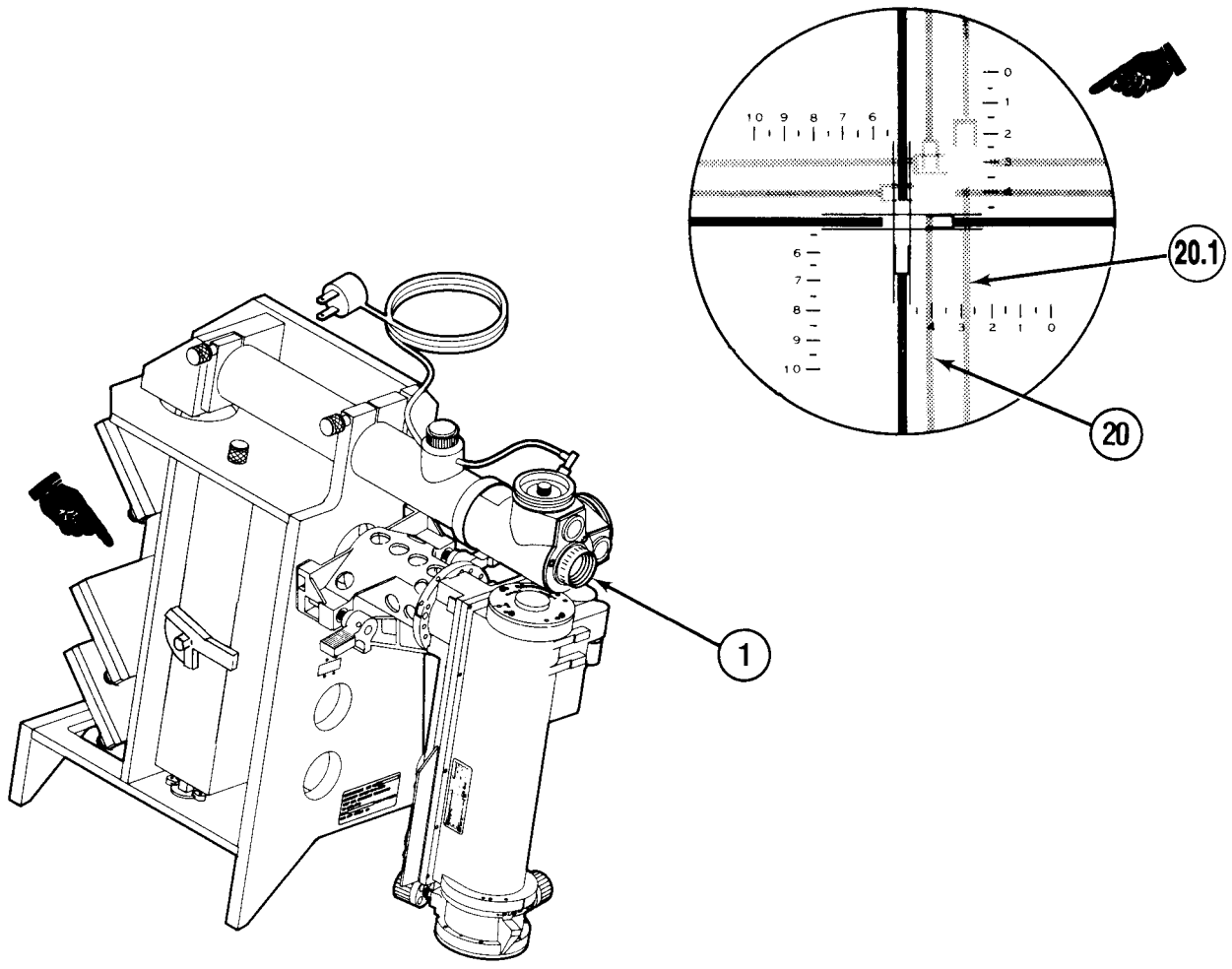
AD. Loosen coarse adjustment screw lock nuts (34) on middle mirror.

AE. When viewing as shown, look for bright green dot and dim green dot. Using coarse adjustment screws (35), aline bright and dim dots. This step will insure that reflected image from middle mirror (20.1) can be seen when viewing through eyepiece (1).

AF. Looking through eyepiece (1), use coarse adjustment screws (35) to adjust elevation setting and azimuth setting of reflected image from middle mirror (20.1) to be closely alined with reflected image from upper mirror (20).

GO TO NEXT PAGE

3-19. BORESIGHT COLLIMATOR TEST SET ALINEMENT (CONT) (Sheet 10 of 14)

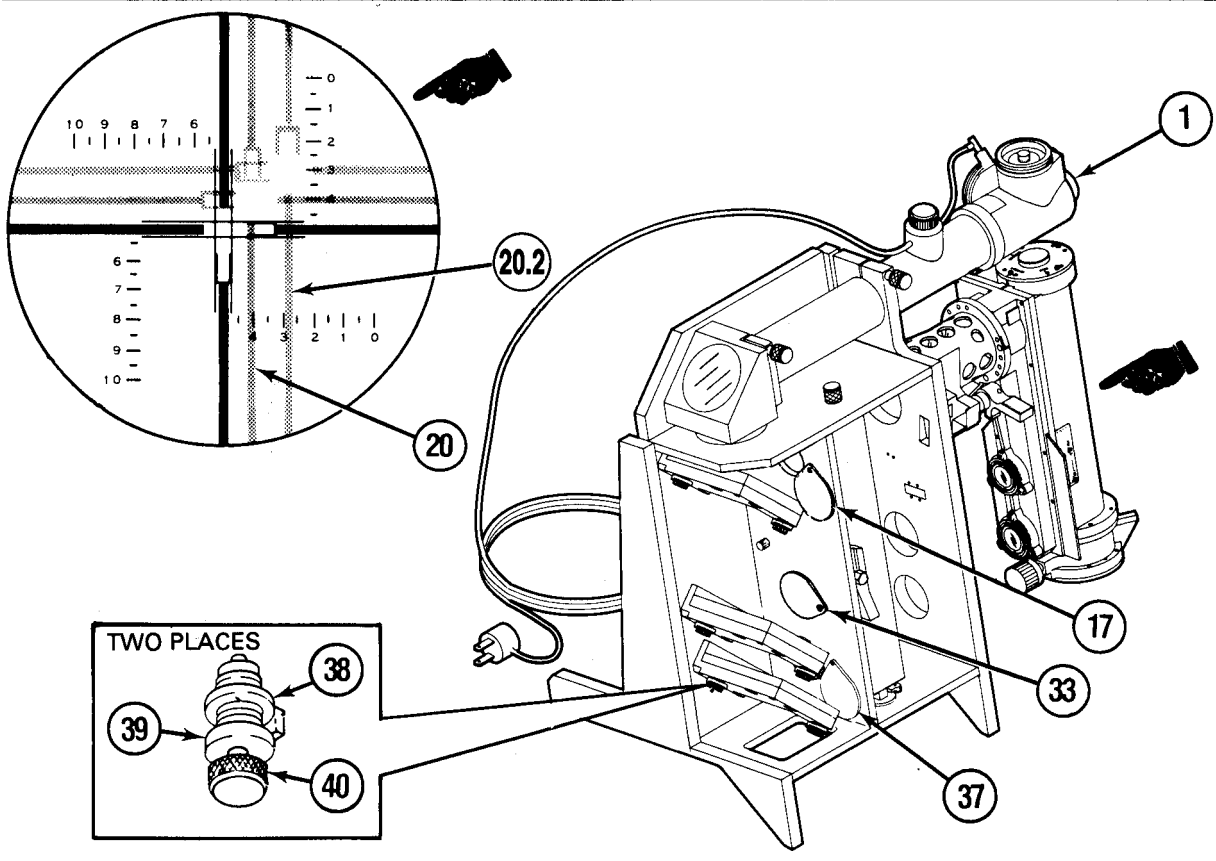


AG. Tighten coarse adjustment screw lock nuts (34).

AH. Looking through eyepiece (1), use fine adjustment screws (36) of middle mirror to adjust elevation and azimuth of reflected image of middle mirror (20.1) so that it is on top of reflected image of upper mirror (20).

GO TO NEXT PAGE

3-19. BORESIGHT COLLIMATOR TEST SET ALINEMENT (CONT) (Sheet 11 of 14)



AI. Insure that middle mirror optical baffle (33) is set to CLOSED position, and insure that upper mirror optical baffle (17) and lower mirror optical baffle (37) are set to OPEN position.

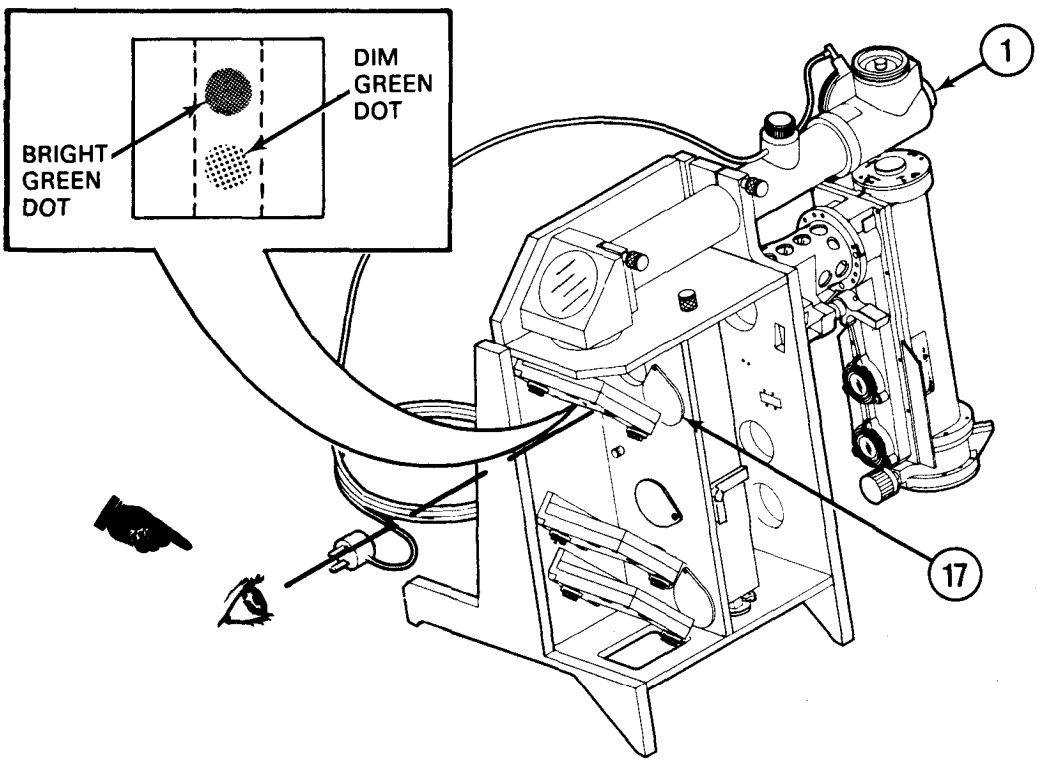
NOTE

Do not adjust adjustment screws of upper mirror during the following procedures.

AJ. When viewing as shown, look for bright green dot and dim green dot. Loosen coarse adjustment screw lock nuts (38). Using coarse adjustment screws (39) on lower mirror, aline bright and dim dots. This step will insure that reflected image from lower mirror can be seen when viewing through eyepiece (1).

GO TO NEXT PAGE

3-19. BORESIGHT COLLIMATOR TEST SET ALINEMENT (CONT) (Sheet 12 of 14)



NOTE

Do not adjust adjustment screws of upper mirror during the following procedures.

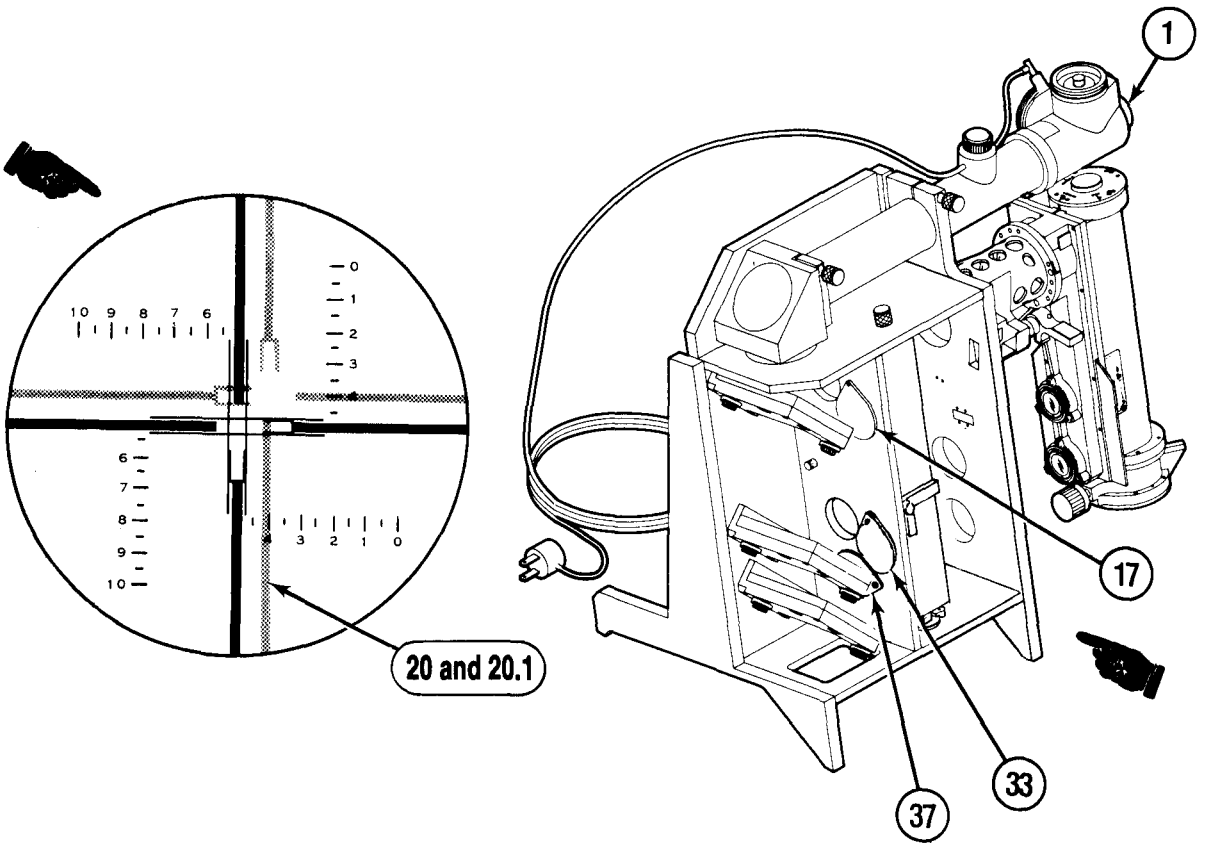
AK. Looking through eyepiece (1), use coarse adjustment screws (39) to adjust elevation setting and azimuth setting of reflected image from lower mirror (20.2) to be closely alined with reflected image from upper mirror.

AL. Tighten coarse adjustment screw lock nuts (38).

AM. Looking through eyepiece (1), use fine adjustment screws (40) to adjust elevation and azimuth of reflected image of lower mirror (20.2) so that it is on top of reflected image of upper mirror (20).

GO TO NEXT PAGE

3-19. BORESIGHT COLLIMATOR TEST SET ALINEMENT (CONT) (Sheet 13 of 14)

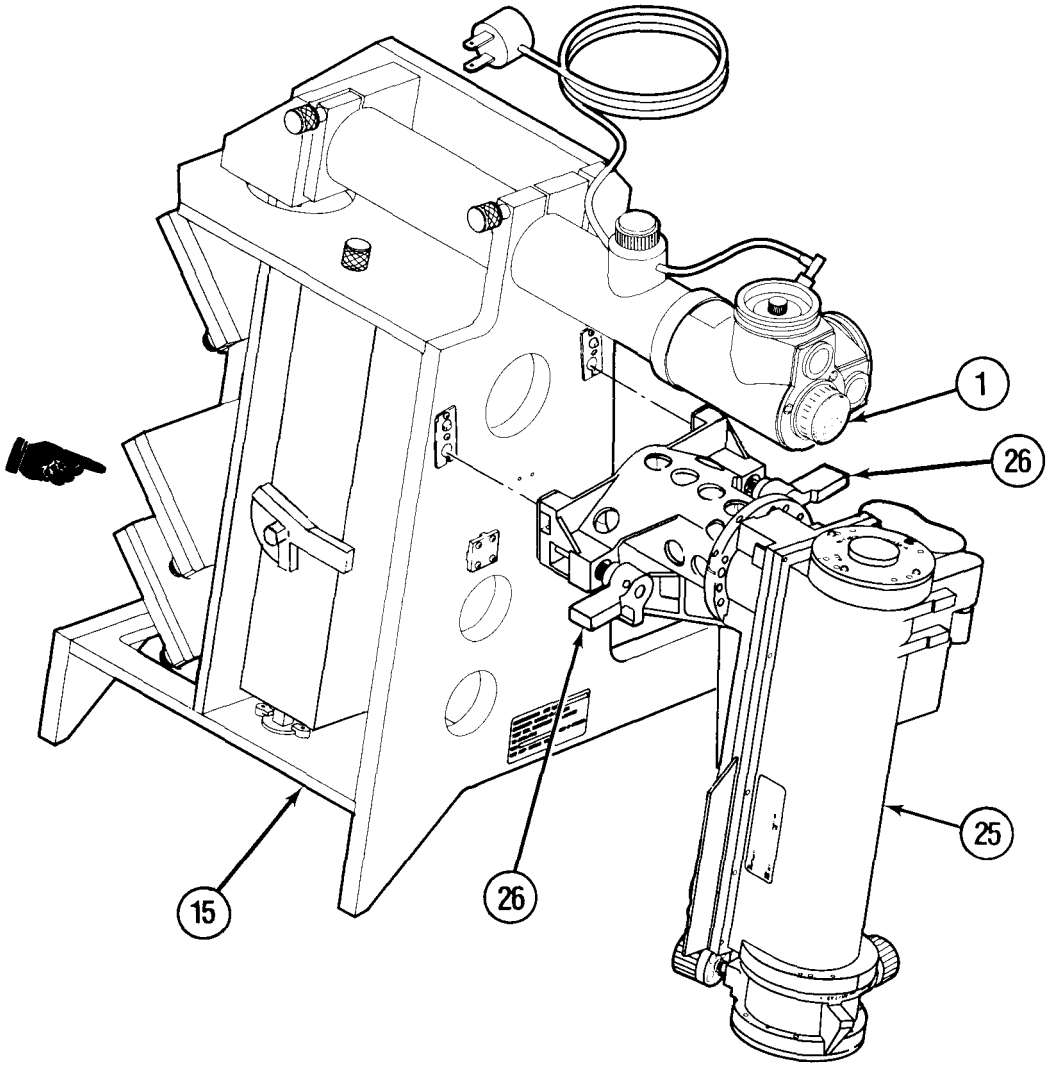


AN. Insure that lower mirror optical baffle (37) is closed and upper mirror optical baffle (17) and middle mirror optical baffle (33) are open.

AO. Looking through eyepiece (1), verify that reflected image from middle mirror (20.1) remains alined with reflected image from upper mirror (20). If necessary repeat steps AD through AH.

GO TO NEXT PAGE

3-19. BORESIGHT COLLIMATOR TEST SET ALINEMENT (CONT) (Sheet 14 of 14)



AP. Release two latch handles (26) on boresight collimator (25) and remove it from Boresight Collimator Test Set (15).

END OF TASK

APPENDIX A

REFERENCES

A-1. SCOPE

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

A-2. FORMS

Recommended Changes to Publications and Blank Forms ..... DA Form 2028
Equipment Inspection and Maintenance Worksheet . . . . . DAForm 2404
Quality Deficiency Report ..... SF 368

A-3. TECHNICAL MANUALS

Administrative Storage of Equipment ..... TM 740-90-1

Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronics Command) . . . . . TM 750-244-4-2

Organizational, Direct and General Support Repair Parts and Special Tools List for Boresight Collimator Test Set TS-3784/TAS (RPSTL) .. . . TM 9-5855-286-24P

Operator, Organizational, Direct Support, and General Support Maintenance Manual for Boresight Collimator SU-93/TAS and SU-93A/TAS ..... TM 9-5855-885-24

A-4. MISCELLANEOUS PUBLICATIONS

Ionizing Radiation Protection (Licensing, Control Transportation, Disposal, and Radiation Safety) ..... AR 385-11

Consolidated Index Army Publications and Forms ..... DA PAM 310-1

The Army Maintenance Management System (TAMMS) . . . . . DA PAM 738-750

APPENDIX B

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. GENERAL

a. This section provides a general explanation of all maintenance and repair functions authorized at various maintenance categories.

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 and capabilities of the designated maintenance categories.

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

d. Section IV contains supplemental instructions and explanatory notes for a particular maintenance function.

B-2. MAINTENANCE FUNCTIONS

Maintenance functions will be 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, i.e., 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 or exact position, or by setting the operating characteristics to specified parameters.

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

B-2. MAINTENANCE FUNCTIONS (CONT)

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test, measuring, and diagnostic equipments 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 is shown as the 3rd position code of the SMR code.

i. Repair. The application of maintenance services, including fault location/troubleshooting, removal/installation, and disassembly/assembly procedures, and maintenance actions to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a 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 serviceable/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 (hours/miles, etc.) considered in classifying Army equipment/components.

B-3. EXPLANATION OF MAC (SECTION II) COLUMN ENTRIES

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. End item group number shall be "00".

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

B-3. EXPLANATION OF MAC (SECTION II) COLUMN ENTRIES (CONT)

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 Category. Column 4 specifies, by the listing of a work time figure in the appropriate subcolumn(s), the category of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate work time figures will be shown for each category. 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/quality control 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 categories are as follows:

C - Operator/crew
O Organizational Maintenance
F - Direct Support Maintenance
H - General Support Maintenance
D - Depot Support Maintenance

e. Column 5, Tools and Equipment. Column 5 specifies, by code, those common tool sets (not individual tools) and special tools, and support equipment required to perform the designated function.

f. Column 6, Remarks. This column shall, when applicable, contain a letter code in alphabetical order which shall be keyed to the remarks contained in Section IV.

B-4. EXPLANATION OF 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 Category. The lowest category of maintenance authorized to use the tool or test equipment.

c. Column 3, Nomenclature. Name or identification 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.

B-5. EXPLANATION OF REMARKS (SECTION IV)

a. Column 1, Reference Codes. The code recorded in column 6, Section II.

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

Section II. MAINTENANCE ALLOCATION CHART FOR TEST SET, BORESIGHT COLLIMATOR TS-3784/TAS

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS & EQPT.	(6) REMARKS
			C	O	F	H	D		
00	Test Set, Boresight Collimator TS-3784/TAS	Inspect	0.1						
		Service	0.1						
		Replace	0.2						A
		Repair			0.2				
		Repair					2.0		
01	Test Set Assembly, Boresight Collimator	Inspect	0.1						
		Test			0.2				
		Service	0.3						
		Adjust	0.1						
		Aline			1.0				
		Replace	0.2						
		Repair	0.1						B
		Repair			0.2				c
0101	Autocollimator Assembly	Inspect	0.1						
		Test			0.2				
		Replace			0.2				
		Repair			0.2				D
		Repair					3.0		
0102	Calibration Plate Assembly	Inspect	0.1						
		Replace	0.1						
		Repair			0.2				E
0103	Optics Assembly	Inspect	0.1						
		Replace	0.1						
		Repair			2.0				F
		Repair					1.0		

Section II. MAINTENANCE ALLOCATION CHART FOR TEST SET, BORESIGHT COLLIMATOR TS-3784/TAS (CONT)

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS & EQPT.	(6) REMARKS
			C	O	F	H	D		
010301	Fixed Mirror Mount Assembly	Inspect	0.1						
		Replace			0.2				
		Repair					2.0		G
010302	Lower Mirror Assembly	Inspect	0.1						
		Replace			0.3				
		Repair			0.5				H
		Repair					2.0		
010303	Reference Mirror Assembly	Inspect	0.1						
		Replace			0.5				
		Repair					2.0		I
010304	Upper (Split) Mirror Assembly	Inspect	0.1						
		Replace			0.3				
		Repair			0.5				J
		Repair					2.0		
010305	Middle Mirror Assembly	Inspect	0.1						
		Replace			0.3				
		Repair			0.5				K
		Repair					2.0		
010306	Fixture Assembly	Inspect	0.1						
		Replace			0.1				
		Repair			1.0				L

Section III. TOOL AND TEST EQUIPMENT REQUIREMENTS FOR TEST SET, BORESIGHT COLLIMATOR TS-3784/TAS

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
1	F	Tool Kit, Guided Missile	5180-00-179-3574	

Section IV. REMARKS

REFERENCE CODE	TEST SET, BORESIGHT COLLIMATOR TS-3784/TAS REMARKS
A	By replacement of wedge window tool, pressure seal bag, case.
B	By replacement of 0102 and 0103.
C	By replacement of 0101.
D	By replacement of lamp housing cap, light socket moulding assembly, miniature lamp, barrel cap, power supply cord assembly.
E	By replacement of pads, springs, pins, and miscellaneous hardware.
F	By replacement of 010302, 010303, 010304, 010305, 010306, and miscellaneous hardware.
G	By replacement of front surface mirror.
H	By replacement of 01030201, mirror adjuster assembly, miscellaneous hardware.
I	By replacement of flat reference mirror, mirror clamp, clamp cushion, latch pin, spring, retaining ring, lock handle, handle pivot.
J	By replacement of 01030401, mirror adjuster assembly, miscellaneous hardware.
K	By replacement of 01030501, mirror adjuster assembly, miscellaneous hardware.
L	By replacement of pads, pivot screw, optics baffles, and miscellaneous hardware.

APPENDIX C

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

Section I. INTRODUCTION

C-1. SCOPE

This appendix lists components of end item and basic issue items for the Boresight Collimator Test Set to help you inventory items required for safe and efficient operation.

C-2. GENERAL

The components of End Item and Basic Issue Items Lists are divided into the following sections:

a. Section II. Components of End Item. This listing is for informational purposes only, and is not authority to requisition replacements. These items are part of the end item, but are removed and separately packaged or stowed for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts.Illustrations are furnished to assist you in identifying the items.

b. Section III. Basic Issue Items. Not Applicable.

C-3. EXPLANATION OF COLUMNS

The following provides an explanation of columns found in the tabular listings:

a. Column (1) - Illustration Number (Illus Number). This column indicates the number of the illustration in which the item is shown.

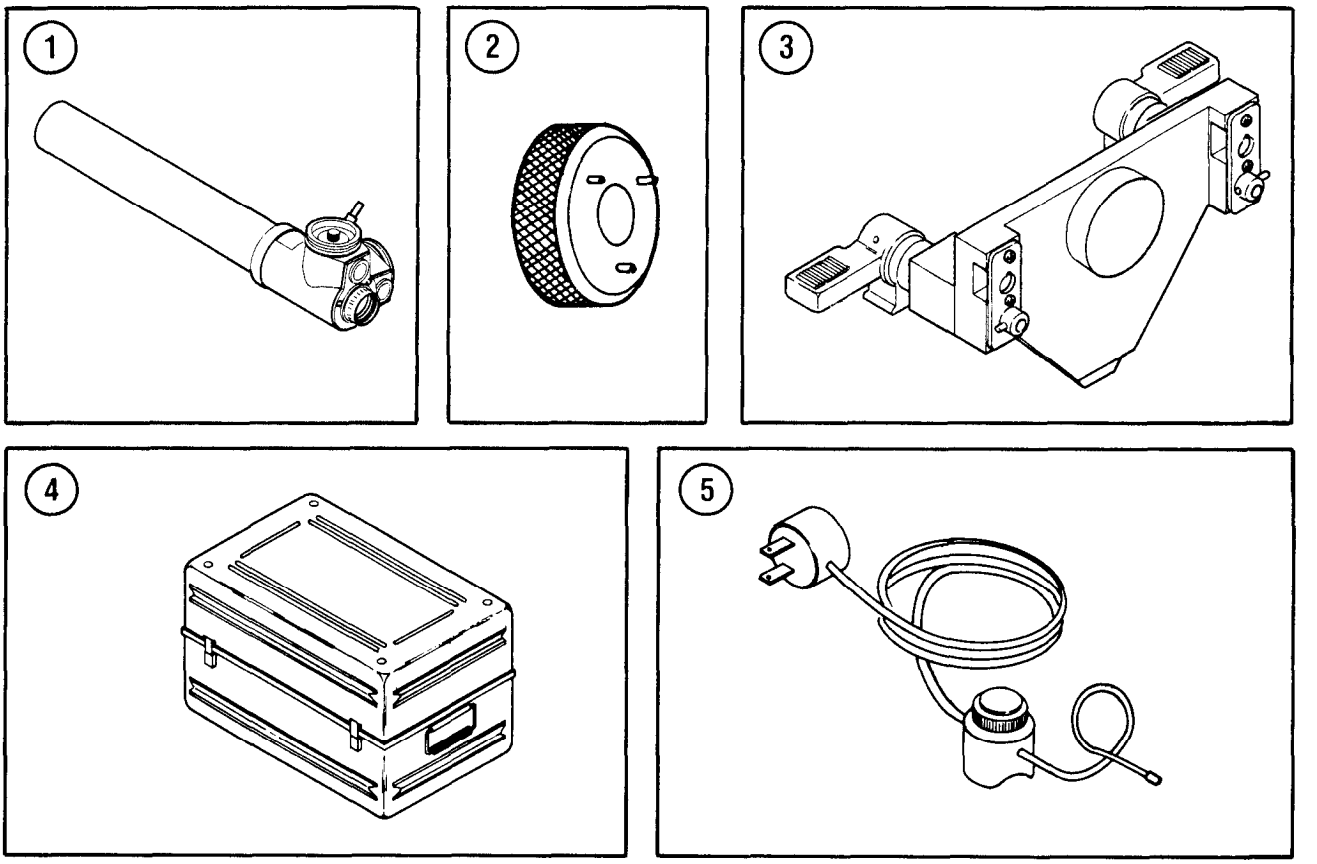
b. Column (2) - National Stock Number. Indicates the National Stock Number assigned to the item and will be used for requisitioning purposes.

c. Column (3) - Description. Indicates the Federal item name and the FSCM in parentheses followed by the part number.

d. Column (4) - Unit of Measure (U/M). Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr).

e. Column (5) - Quantity required (Qty rqr). Indicates the quantity of the item authorized to be used with/on the equipment.

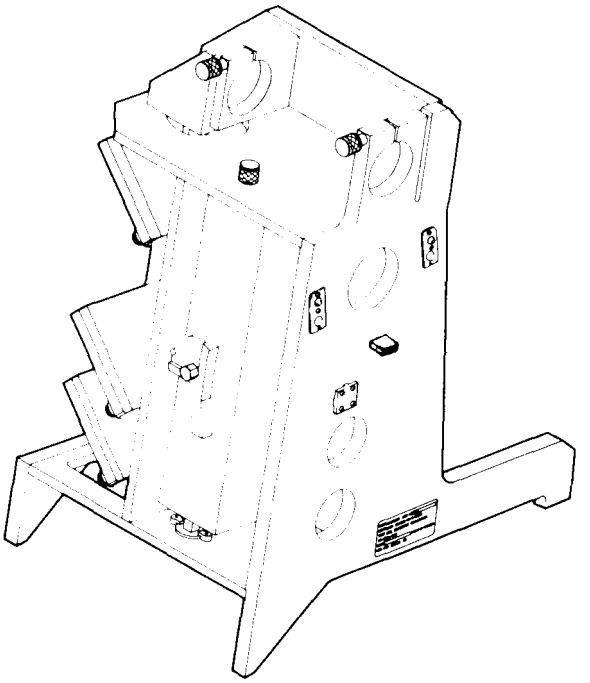
Section II. COMPONENTS OF END ITEM



(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	(4) U/M	(5) QTY RQR
1	6650-01-129-4968	Autocollimator Assembly (80063) SM-C-806905-1	EA	1
2	5120-01-141-0029	Wedge Window Tool (80063) SM-C-807454	EA	1
3	5855-01-118-2211	Calibration Plate Assembly (80063) SM-D-807590		
4	5855-01-147-3204	Container Case (80063) SM-D-807608-1	EA	1
5	5855-01-149-0890	Power Cord Assembly (80063) SM-C-969101	EA	1

Section II. COMPONENTS OF END ITEMS (CONT)

6



(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	(4) U/M	(5) QTY RQR
6	5855-01-147-3193	Optics Assembly (80063) SM-D-807444	EA	1

APPENDIX D

EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

D-1. SCOPE

This appendix lists expendable/durable supplies and materials you will need to operate and maintain the TS/3784/TAS. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items) .

D-2. EXPLANATION OF COLUMNS

Column 1 - Item number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., “Use cotton pad, Item 2, Appendix D”).

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

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

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 Federal Supply Code for Manufacturer (FSCM) in parentheses followed by the part number.

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

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	C	6810-00-292-9676	Alcohol, Methyl	PT
2	C	8320-00-299-8625	Pad, cotton	LB
3	C	7930-00-880-4455	Detergent, silicone P-D-410A AM2, TYPE 2	GL
4	O	9150-00-754-2595	Grease, Molybdenum (MIL-G-21164)	TU

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By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:

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To be distributed in accordance with DA Form 12-32, Operator, Organizational, Direct Support and General Support Maintenance for THERMAL IMAGERY System.

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RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)
CDR, 1st Bn, 65th ADA
ATTN: SP4 John Doe
Key West, FL 33040

DATE SENT
14 January 1979

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 9-1430-550-34-1	7 Sep 72	Unit of Radar Set AN/MPQ-50 Tested at the HFC

BE EXACT. . .PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO
9-19		9-5	
21-2	step 1C		21-2

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

"B" Ready Relay K11 is shown with two #9 contacts. That contact which is wired to pin 8 of relay K16 should be changed to contact #10.

Reads: Multimeter B indicates 600 K ohms to 9000 K ohms.

Change to read: Multimeter B indicates 600 K ohms minimum.

Reason: Circuit being checked could measure infinity. Multimeter can read above 9000 K ohms and still be correct.

NOTE TO THE READER:

Your comments will go directly to the writer responsible for this manual, and he will prepare the reply that is returned to you. To help him in his evaluation of your recommendations, please explain the reason for each of your recommendations, unless the reason is obvious.

All comments will be appreciated, and will be given immediate attention. Handwritten comments are acceptable.

For your convenience, blank "tear out" forms, preprinted, addressed, and ready to mail, are included in this manual.

SAMPLE

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER	SIGN HERE
SP4 John Doe, Autovon 222-222	

DA FORM 1 JUL 79 2028-2

PREVIOUS EDITIONS ARE OBSOLETE.

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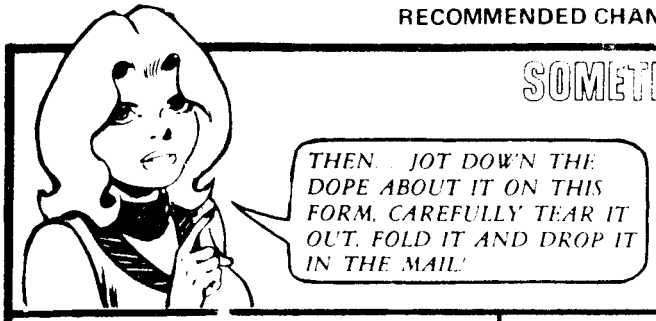

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