

TM 9-1240-368-34

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

DIRECT SUPPORT AND GENERAL SUPPORT
MAINTENANCE MANUAL

(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)

FOR

PERISCOPE, BATTERY COMMAND: M65 W/E

(1240-00-678-5577)



HEADQUARTERS, DEPARTMENT OF THE ARMY

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**DIRECT SUPPORT AND GENERAL SUPPORT
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 FOR
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 (1240-00-678-5577)**

	Paragraph	Page	Illus Fig
LIST OF ILLUSTRATIONS			
Chapter 1. INTRODUCTION			
Section I. General	1-1	1-1	
II. Description and data	1-3	1-1	
CHAPTER 2. DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE INSTRUCTIONS			
Section I. Repair parts, special tools and equipment	2-1	2-1	
II. General maintenance	2-4	2-2	
III. Troubleshooting	2-6	2-3	
IV. Inspection	2-8	2-5	
CHAPTER 3. REPAIR INSTRUCTIONS			
Section I. General	3-1	3-1	
II. Repair of battery command periscope M65	3-3	3-1	
III. Repair of periscope mount M48	3-5	3-11	
IV. Repair of tripod M17	3-7	3-12	
V. Repair of tripod M10	3-9	3-13	
VI. Repair of instrument light M28	3-11	3-14	
VII. Repair of packing chest M39A1	3-13	3-14	
VIII. Tests and adjustments	3-15	3-14	
CHAPTER 4. FINAL INSPECTION			
Section I. General	4-1	4-1	
II. Inspection of periscope M65	4-3	4-1	
III. Inspection of periscope mount M48	4-26	4-3	
IV. Inspection of cover assembly 6583358	4-34	4-3	
V. Inspection of tripod M/17	4-36	4-3	
VI. Inspection of tripod M10, adapter M14 and instrument light M28	4-38	4-3	
VII. Inspection of packing chest M39A1 and carrying case M45	4-40	4-4	
APPENDIX A. REFERENCES			
		B-1	
APPENDIX B. REPAIR PARTS AND SPECIAL TOOLS LIST			
Section I. Introduction	B-1	B-1	
II. Repair parts list		B-4	

*This manual supersedes that portion of TM 9-1580, 11 February 1953, pertaining to BC Telescope M65: ORD 8 SNL F-359, 15 August 1956, including all changes; and ORD 9 SNL F-259, 5 April 1951, including all changes.

	Paragraph	Page	Illus Fig
Section II. Repair parts list			
Group 2218 .01	Battery command periscope M65	B-5	B-1
	Left housing assembly and right housing assembly with related parts _	B-7	B-2
	Left prism holder assembly and left eyepiece assembly	B-10	B-3
	Right eyepiece assembly, reticle assembly, and right prism holder assembly	B-13	B-4
	Elevating worm, angle of site worm gear 5582524 and gear 8213688 with related parts	B-18	B-5
	Filter holder assembly and left housing	B-20	B-6
	Filter holder assembly and right housing _	B-23	B-7
	Worm gear with related parts	B-25	B-8
	Filter holder assembly _	B-27	B-9
	Right eyepiece assembly	B-29	B-10
	Left eyepiece assembly	B-31	B-11
	Cell assembly	B-33	B-12
	Reticle assembly	B-35	B-13
	Gear and level vial holder assembly _	B-37	B-14
	Left prism holder assembly _	B-39	B-15
	Right prism holder assembly _	B-41	B-16
	Objective assembly _	B-43	B-17
	Head assembly 5582516 with related parts	B-45	B-18
	Right and left head 5582515 _	B-47	B-19
	Left head 8213788 and right head 8213789	B-49	B-20
	Window assembly _	B-51	B-21
	Prism holder assembly _	B-53	B-22
	Interpupillary screw assembly	B-56	B-23
.02	Mount periscope M48	B-58	B-24
	Housing and spindle assembly with related parts	B-63	B-25
	Circular level assembly _	B-65	B-26
.03	Tripod M17	B-67	B-27
	Lower leg	B-69	B-28
	Upper leg 5313953 and 5313954	B-71	B-29
	Head assembly 5581222	B-73	B-30
.04	Tripod M10	B-75	B-31
.05	Instrument light M28 _	B-77	B-32
.06	Packing chest M39A1	B-79	B-33
Section III. Special tools			
Group 2218 .07	Tools	B-81	B-34
	Tools and equipment	B-82	B-35
Section IV. National stock number and reference number index _			
INDEX			

LIST OF ILLUSTRATIONS

<i>Figure</i>	<i>Title</i>	<i>Page</i>
3-1	Using hook-type spanner wrench 7642278 to unscrew round nuts. (WE 56482)	3-1
3-2	Using tubular spanner wrench 7597682 to remove objective assemblies. (WE 56483)	3-2
3-3	Using nonadjustable lug-type spanner wrench 7634533 to remove locating bushing. (WE 56484)	3-3
3-4	Fabricated special fixture. (WE 53672)	3-14
3-5	Fabricated testing target. (WE 53649)	3-15
3-6	Fabricated special fixture and periscope mounted on adjustable surface plate and other tools, (WE 53674)	3-16
3-7	V-Block and 5-second level. (WE 53675)	3-17
3-8	Adjusting interpupillary scale. (WE 53676)	3-18
3-9	Adjusting 90° prism holder assembly. (WE 53677)	3-19
3-10	Cross leveling and elevation test fixture with adapter. (WE 56479)	3-21
3-11	Periscope mount M48 mounted on azimuth test fixture. (WE 56481)	3-23
3-12	Adjusting circular level vial, (WE 53678)	3-24
B-1	Battery command periscope M65, 7579932 partial-exploded view. (WE 56206)	B-5
B-2	Left housing assembly 5582518 and right housing assembly 6574392 with related parts-partial exploded view. (WE 56207)	B-7
B-3	Left prism holder assembly 5582526 and left eyepiece assembly 8215542-exploded view. (WE 56208)	B-10
B-4	Right eyepiece assembly 8215543, reticle assembly 6180593, and right prism holder assembly 5582528-exploded view. (WE 56209)	B-13
B-5	Elevating worm 6180595, angle of site worm 6180590, gear 5582524, and gear 8213688 with related parts-partial exploded view. (WE 56210)	B-18
B-6	Filter holder assembly 5582519 and left housing 6582847-exploded view. (WE 56211)	B-20
B-7	Filter holder assembly 5582519 and right housing 6582848-exploded view. (WE 56212)	B-23
B-8	Worm gear 5582525 with related parts-exploded view. (WE 56213)	B-25
B-9	Filter holder assembly 5582519-exploded view. (WE 56214)	B-27
B-10	Right eyepiece assembly 8215543-exploded view. (WE 56215)	B-29
B-11	Left eyepiece assembly 8215542-partial exploded view. (WE 56216)	B-31
B-12	Cell assembly 82215541-exploded view. (WE 56217)	B-33
B-13	Reticle assembly 6180593-exploded view. (WE 56218)	B-35
B-14	Gear 8213688 and level vial holder assembly 8213691-exploded view. (WE 56219)	B-37
B-15	Left prism holder assembly 5582526-exploded view. (WE 56220)	B-39
B-16	Right prism holder assembly 5582528-exploded view. (WE 56221)	B-41
B-17	objective assembly 6180569-exploded view. (WE 56222)	B-43
B-18	Head assembly 5582516 with related parts-exploded view. (WE 56223)	B-45
B-19	Right and left head 5582515-partial exploded view. (WE 56224)	B-47
B-20	Left head 8213788 and right head 8213789-exploded view. (WE 56225)	B-49
B-21	window assembly 6180578-exploded view. (WE 53669)	B-51
B-22	Prism holder assembly 5631125-exploded view. (WE 56227)	B-53
B-23	Interpupillary screw assembly 7677291-exploded view. (WE 56228)	B-56
B-24	Mount periscope M48 6583165-exploded view. (WE 56229)	B-58
B-25	Housing 6583169 and spindle assembly 5635924 with related parts--exploded view. (WE 56230)	B-63
B-26	Circular level assembly 7635924-exploded view. (WE 56232)	B-65
B-27	Tripod M17, 6574387-partial exploded view. (WE 56233)	B-67
B-28	Lower leg 6178760-exploded view. (WE 56234)	B-69
B-29	Upper leg 5313953 and 5313954-exploded view. (WE 56234)	B-71
B-30	Head assembly 5581222-exploded views. (WE 56236)	B-73
B-31	Tripod M10-exploded view. (WE 56237)	B-75
B-32	Instrument light M28-partial exploded view. (WE 56238)	B-77
B-33	Packing chest M39A1. (WE 53648)	B-79
B-34	Equipment (WE 56239)	B-81
B-35	Tools and equipment. (WE 56241)	B-35

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

These instructions are in accordance with the MAC and are published for the use of direct support and general support maintenance personnel for the repair and overhaul of battery command periscope M65. Included are repair and overhaul instructions for associated equipment items which are beyond the scope of the tools, equipment, personnel, or supplies normally available to operator's and organizational maintenance. Operator's and organizational maintenance instructions are contained in TM 9-1240-368-12.

1-2. Forms and Records

a. Maintenance Forms and Records. Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by TM 38-750.

b. Reporting of Errors. Report of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028, Recommended Changes to DA Publications, and forwarded directly to the Commander, Frankford Arsenal, ATTN: AMSWE-MAF-W3100, Philadelphia, PA 19137.

Section II. DESCRIPTION AND DATA

1-3. Description

The battery command periscope M65 W/E, consists of eight pieces of equipment and one special tool (figs. B-34 and B-35. Refer to TM 9-1240-368-12 for a detailed description.

1-4. Data

Tabulated data for the battery command periscope M65 is contained in TM 9-1240-368-12.

CHAPTER 2
DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
INSTRUCTIONS

Section I. REPAIR PARTS, SPECIAL TOOLS AND EQUIPMENT

2-1. Repair Parts

Repair parts for battery command periscope M65 and associated equipment are listed and illustrated in Appendix B. Maintenance instructions contained herein pertain to the replacement of repair parts authorized at the direct support and general support maintenance levels.

2-2. Special Tools and Equipment

Table 2-1 lists the special tools that are necessary to perform the operations described in this manual. Refer to Appendix B for authorized tools and equipment.

Table 2-1. Special Tools

Item	NSN or Reference No.	References Fig.	References Para	use
ADAPTER ASSEMBLY	4931-00-346-8314 (6510677)	3-10	3-15	Support special fixture on cross leveling and elevation fixture.
ADAPTER ASSEMBLY	4931-00-765-1338 (7651338)	3-11	3-15 3-16	Support telescope collimator.
ADAPTER ASSEMBLY inspection	4931-00-765-1336 (7651336)	3-11	3-16	Support periscope mount, adapter assembly 7651338, and telescope collimator.
COLLIMATOR projector <i>OK</i>	4931-00-757-3291 (7573291)	3-11	3-16	Target for test and adjustment of periscope mount.
COLLIMATOR TELESCOPE	4931-00-554-9108 (5549108)	3-11	3-15 3-16	Aline target and test and adjust periscope and periscope mount.
DIOPTRIC METER	4931-00-536-5557 (7680631)	3-6	3-15	Test and adjust periscope.
FIXTURE, AXIMUTH TEST <i>OK</i>	4931-00-769-1596 (7691596)	3-11	3-16	Test and adjust periscope mount.
FIXTURE, CROSS-LEVELING AND ELEVATION <i>OK</i>	4931-00-652-3553 (6523553)	3-10	3-15	Test and adjust periscope.
GAGE, SURFACE <i>OK</i>	5210-00-221-1842 (GGG-G-17)	3-6	3-15	Support holder and dioptric meter,
HOLDER, DIOPTRIC METER <i>OK</i>	4931-00-191-1379 (11738294)	3-6	3-15	Support dioptric meter.
LEVEL, 5-SECOND <i>OK</i>	5210-00-546-6362 (7686087)	3-7	3-15 3-16	Set up test equipment for periscope and periscope mount.
PLATE, SURFACE	4931-00-879-6405 (10553998)	3-6	3-15	Base for fabricated special fixture and periscope.
Purging Kit Fire Control <i>OK</i>	4931-00-065-1110 (SC 4931-95-CL-J54)		4-24	To purge and change instrument.
V-BLOCK <i>OK</i>	4931-00-863-5652 (8204909)	3-7	3-15 3-16	Hold telescope collimator.
WRENCH, spanner adjustable pin-type <i>OK</i>	5120-00-561-0854 (8284044)		3-3a(6) 3-4x (4)	Remove and install adjusting screws 5316673.

Table 2-1. Sepcial Tool-Continued

Item	NSN or Reference No.	Refer Fig.	ences Para	Use
WRENCH, spanner adjustable pin-type	41-W-3248-130		3-3e (6)	Remove and install ball cap 7653185.
WRENCH, spanner adjustable pin-type	5120-00-595-8996 (7597708)		3-4s(3)	Remove and install retaining ring 6180604.
WRENCH, spanner adjustable pin-type	5120-00-561-.0855 (8284045)		3-3f(5) 3-4r (4) 3-3f (12) 3-3W(5) 3-4a(5) 3-4t(4) 3-3t(2)(b) 3-3t(2)(d)2 3-4d(3) 3-5d(12) 3-6b(10)	Remove and install ball cap 7680265. Remove and install setscrew MS51031-8 and screw 5181696. Remove and install round nut 5317314 in periscope mount M48.
WRENCH, spanner hook-type	5120-00-595-8998 (7642278)	3-1	3-3a(1) 3-4x(8)	Remove and install round nut 6180579.
WRENCH, spanner nonadjustable lug-type	5120-00-595-8997 (7634533)	3-3	3-3f(2) 3-4r(2)	Remove and install locating bushing 5046497.
WRENCH, spanner tubular	5120-00-345-1429 (7597682)	3-2	3-3a(8) 3-4x(3)	Remove and install objective assemblies 6180569.
WRENCH, spanner tubular	51,20-00-345-1408 (7597661)		3-3k (1) 3-4m (3)	Remove and install retaining ring 5316640.
WRENCH, spanner tubular	5120-00-345-1404 (7597656)		3-3n (1) 3-4j (3)	Remove and install retaining ring 5316667.
WRENCH, spanner tubular	5120-00-345-1423 (7597676)		3-3r (1) 3-4f(2)	Remove and install retaining ring 5316672.
WRENCH, spanner tubular	5120-00-345-1438 (7597691)		3-3s(8) 3-4e(2)	Remove and install window assemblies 6180578.
WRENCH, spanner tubular pin-type)	5120-00--611-6736 (41-W-0372-7225)		3-3d(6) 3-4u(3) 3-3u(2) 3-4c(3)	Remove and install retaining ring 5316668. Remove and install retaining ring 5316642.
WRENCH, spanner tubular pin-type	5120-00-611-6735 (7634536)		3-3t(2)(d)6 3-4d(1) 3-5c(2) 3-6c(4)	Remove and install retaining ring 5181697. Remove and install round nut 5317309 in periscope mount M48.

2-3. Fabricated Tools

necessary to perform the operations described in

Table 2-2 lists the fabricated tools that are

this manual.

Table 2-2. Fabricated Tools

Item	NSN or Reference No.	References Fig	Para	Use
Special fixture Make from: Steel Bars, MIL-S-8559, Fsc 9510 Steel Sheet, QQ-S-700, FSC 9515		3-4 3-6 3-10	3-16	To mount periscope on adjustable surface plate and cross leveling and elevation test fixture.
Testing Target Make from: Plywood, Flat Panel, Grade A, Type I, NN-P-530, FSC 5330		3-5	3-16	To test and adjust periscope,

Section II. GENERAL MAINTENANCE

2-4. General Maintenance Procedures

2-5. Other Materials Required

Refer to TM 9-254.

Materials necessary to perform the repair functions are listed in Table 2-3.

Table 2-3. Consumable Maintenance Supplies

Item Name	Specification	FSC
Adhesive, rubber base, general purpose	MMM-A-1617	8040
Adhesive-sealants, silicone, RTV, general purpose	MIL-A-46106	8040
Grease, aircraft and instrument, gear and activator screw	MIL-G-23827	9150
Gypsum calcined	MIL-G-20098	5610
Lapping and grinding compound (for chromium-cobalt hard-faced seats and disks)	MIL-L-17862	5350
Nitrogen, technical	FED-BB-N-411	6830
Sealing, locking, and retaining compounds; single-component	MIL-S-22473	8030
Sealing compound, adhesive, curing (polysulfide base)	MIL-S-11031	8030
Silicone Compound	MIL-S-8660	6850

Section III. TROUBLESHOOTING

2-6. General

This section contains troubleshooting information and tests for locating anti correcting malfunctions that may develop in the battery command periscope M65 and associated equipment. This information is arranged to provide maintenance personnel with a logical method of troubleshooting. These procedures are peculiar to direct support and general support maintenance. For troubleshooting performed by operator and organizational maintenance refer to TM 9-1240-368-12.

CAUTION: Operation of the battery command

periscope M65 and associated equipment without a preliminary examination could cause further damage to a faulty component. Be careful during inspection and troubleshooting so that additional damage can be avoided.

2-7. Procedure

Close adherence to the procedures covered herein will materially reduce the time required to locate the trouble and restore the instrument to normal operation. Table 2-4 contains troubleshooting methods in case of malfunction and the corrective action to be taken.

Table 2-4. Troubleshooting

Malfunctions	Probable cause(s)	Corrective action (s)
<i>Periscope, BC, M65</i>		
Diagonal type vertical travel	Bent or burred locating bushing on the instrument.	Disassemble (para 3-3f); remove burrs (TM 9-254). Replace or refit latch (para 3-3i and 3-4o).
Drag in interpupillary movement in angle of site mechanism or in elevating mechanism.	a. Improper lubrication or dirty bearing surfaces. b. Ball cap too tight; setscrews too tight on ball cap and socket ball seat. c. Too much spring pressure or damaged parts.	a. Disassemble, clean, and properly lubricate (para 3-3a., 3-3f, 3-3e, 3-4a, 3-4t, 3-4s). b. Loosen ball cap and setscrews (para 3-4a, 3-4t and 3-4s). c. Adjust spring pressure. Disassemble and replace damaged parts (para 3-4a, 3-4t and 3-4s).
Locating bushing does not mate securely with mount.	a. Improper fit or assembly of latch, plug, and spring. b. Locating bushing is not securely fastened to elevating worm gear.	a. Stone the mating surfaces (TM 9-254) until proper fit is obtained. b. Remove the two taper pins (para 3-3f) securing locating bushing to the worm gear; ream the holes and refit or replace taper pins (para 3-5s).
Backlash in elevation	a. Improper mesh of elevation worm and gear, b. End play between elevating ball cap and socket ball seat.	a. Tighten the slotted plug (para 3-4s). b. Tighten ball cap (para 3-4s).
Elevating movement less than 320 mils below to 320 mils above the horizontal line-of-sight.	a. Defective worm gear b. Key washers not positioned correctly. c. High spots at extremities of worm gear.	a. Replace worm gear (para 3-3, 3-4s). b. Check the position of the elevating worm key washers (para 3-4s). c. Lap the elevating worm and gear together until extremities are worn down to match the wear at the center (para 3-15l(3) (e).

Table 2-4. Troubleshooting—Continued

Malfunctions	Probable cause(s)	Corrective action(s)
Binding in angle of site movement Uneven binding in angle of site movement. Chatter -----	ball cap too tight ----- Bent worm ----- <i>a.</i> Improper adjustment of ball cap <i>b.</i> Improper tension of plunger spring.	Loosen ball cap (para 3-4t). Straighten bent worm or replace worm (para 3-4t). <i>a.</i> Adjust ball cap (para 3-4t). <i>b.</i> Adjust spring tension or replace plunger spring (para 3-4t).
Backlash in angle of site mechanism exceeds one mil; irregularities, friction, or looseness in movement.	<i>a.</i> Improper mesh of angle of site worm and worm gear. <i>b.</i> End play between angle of site worm, ball cap, and socket ball seat.	<i>a.</i> Tighten plug increasing the pressure on the spring and plunger para 3-15l(3) (f) <i>b.</i> Tighten the angle of site ball (para 3-15l(3) (f)).
Interpupillary scale movement less than 12 millimeters.	Improper positioning of key washers	Disassemble the interpupillary screw assembly and assemble properly (para 3-3w and 3-4a).
Interpupillary scale reading incorrect	Improper adjustment -----	Set the interpupillary distance at 2.52 inches and loosen the two screws securing the interpupillary scale to the housing and aline the 64mm mark with the index (para 3-15i). Tighten the two screws.
Binding in the eyepiece movement -----	<i>a.</i> Dirty or burred thread ----- <i>b.</i> Wrong lubricant -----	<i>a.</i> Disassemble (para 3-3c and 3-d), clean, and lubricate threads of eyepiece assembly. Remove burrs (TM 9-254). <i>b.</i> Lubricate threads with proper lubricant (para 3-4).
Poor reticle definition -----	Defective optical elements; incorrect assembly and positioning of elements located between the reticle and the eye of the observer; improper adjustment of diopter scale.	Perform a thorough inspection of elements and correct assembly (para 4-14, 3-3c, 3-3d, 3-3u, 3-3v, and 3-15f).
Poor image definition -----	<i>a.</i> Heavy condensate present <i>b.</i> Objective assemblies improperly adjusted. <i>c.</i> 90° prism improperly adjusted <i>d.</i> Defective filter holder assemblies	<i>a.</i> Purge and charge periscope (para 4-24 and TM 750-116). <i>b.</i> Adjust objective assemblies (para 3-15f). <i>c.</i> Adjust prisms (para 3-15g). <i>d.</i> Repair or replace filters or assemblies.
Parallax and improper diopter movement.	Image formed by objective too close or too far from focal plane of eyepiece.	Adjust objective assembly (para 3-16f).
Diopter scale more than 0.5 diopters off zero when tested.	Diopter scale improperly located-----	Adjust diopter scale (para 3-16f (1) and 3-16f(3)).
Tilt of reticle -----	Improper reticle positioning	Slightly loosen the four reticle setscrews, remove plug in housing, and with a scribe, rotate the reticle assembly the desired amount (para 3-16g) (1). Install the plug and tighten the setscrews.
Collimation error excessive or double vision present.	Optical axes are not parallel to geometric axes at some interpupillary setting.	Collimate periscope (para 3-16j).
Tilt of field-of-view -----	Improper adjustment of 90° prisms or right or left prism holder assemblies.	Adjust 90° prisms, if not corrected adjust or replace right or left prism holder assemblies (para 3-16h).
<i>Periscope Mount M48</i>		
Circular level vial bubble larger than index.	defective vial -----	Replace circular level vial (para 3-5e and 3-7a).
Circular level vial bubble does not stay within index when mount is rotated.	Improper adjustment of vial	Adjust circular level vial bubble (para 3-16b(10)).

Table 2-4. Troubleshooting-Continued

Malfunctions	Probable cause(s)	
Wave type horizontal travel	Improper adjustment	Adjust and check mating parts (para 3-16b(11)).
Jump type horizontal travel (vertical displacement),	Improper adjustment of spindle assembly and housing.	Adjust nut and other mating parts (para 3-16b(12)).
Diagonal type horizontal travel	Bent spindle assembly	Replace spindle assembly (para 3-5c and 3-6c).
Backlash in orienting mechanism more than 2.0 mils.	a. Improper spring tension	a. Increase the tension of spring, check plunger for defects, and make sure that cover is secure (para 3-16b(14)b)).
	b. End play between worm and ball cap.	b. Tighten ball cap (para 3-16b(14)b)).
Backlash in azimuth more than 2.0 mils	a. Improper spring tension	a. Increase tension on spring by tightening the plug or replace spring (para 3-5d(7), 3-6b(5), and 3-16b(14)a)).
	b. End play between worm and ball cap.	b. Tighten ball cap (para 3-16b(14)a)).
Drag in azimuth or orienting mechanism.	a. Improper lubrication or duty bearing surfaces.	a. Disassemble, clean, and properly lubricate mechanisms cited in malfunction (para 3-5 and 3-6).
	b. Ball cap too tight or setscrews too tight on ball cap.	b. Loosen ball cap and setscrews (para 3-5d(8)).
	c. Too much spring pressure or damaged V-bearing, spring, or plug.	c. Adjust spring pressure. Disassemble and replace damaged V-bearing, spring or plug (para 3-5d and 3-6b).
	d. Burrs on bearing surfaces . . .	d. Disassemble and remove burrs (para 3-5 and TM 9-254).
<i>Tripod M17</i>		
Leg assemblies warped	Weather	Replace leg assemblies (para 3-7a, 3-7b, and 3-8e).
Loose shoe assemblies	Shrinkage of wood	Replace lower legs (para 3-7c and 3-8c).
Head assembly fails to properly support legs.	Improper adjustment of clamping screws.	Loosen nut and rotate clamping screw clockwise in leg caps using lever as a wrench. Tighten nut (para 3-8a).
<i>Instrument Light M28</i>		
Failure of reticle light or hand light to illuminate.	a. Dirt, corrosion, etc., on lamp contact. Lamp not properly installed or burned out.	a. Clean lamp contact and install properly. Replace lamp if burned out (para 3-12a, 3-12b).
	b. Weak or dead battery	b. Replace BA-30 battery.
	c. Battery cap corroded, weak tension spring, etc.	c. Replace instrument light M28.
	d. Corroded battery contacts	d. Replace instrument light M28.
	e. Open circuit or short in switch	e. Replace instrument light M28.
	f. Defective wiring	f. Replace instrument light M28.

Section IV. INSPECTION

2-8. General

a. This section sets forth inspection procedures for the battery command periscope M65 and associated equipment in direct support and general support maintenance ships. Inspection is performed primarily, (1) to determine completeness, (2) to determine the nature of unserviceability, (3) to determine the work, repair parts, and sup-

plies required to return the material to serviceability, (4) to ensure that work in process is being performed properly, and (5) to determine that completed work complies fully with serviceability standards.

b. All applicable modification work orders will be applied. DA Pamphlet 310-7 contains the MWO

index and equipment records DA Form 2408-5 and DA Form 2409 lists MWOs applied.

2-9. Categories of Inspection

Categories of inspection define the responsibilities of direct support and general support maintenance shops as a support activity.

a. Direct Support and General Support Inspection.

(1) *Initial inspection.* This inspection is performed immediately on receipt of material in direct support and general support maintenance shops. This inspection will determine the amount of work to be performed or whether the materiel should be forwarded to a depot maintenance shop because of the type or extent of repair.

(2) *In-process inspection.* This inspection is performed in the process of repairing the mate-

riel and its components. It ensures that workmanship is in accordance with approved methods and procedures and that deficiencies not disclosed by the initial inspection are found and corrected

(3) *Final inspection.* Refer to Chapter 4.

b. *Preembarkation Inspection of Materiel in Units Alerted for Overseas Movement.* This inspection is performed on materiel in the hands of troops alerted for overseas duty to ensure that such materiel will not become unserviceable or worn out in a relatively short time. It prescribes a higher percentage of remaining usable life in serviceable materiel to meet a specific need beyond minimum serviceability.

2-10. Inspection Procedures

The inspections in Table 2-5 are to be performed as designated by a "X" in the appropriate column.

Table 2-5. Maintenance Inspections

Direct and General Support Inspections		Preembarkation	Action
Initial	In-Process		
X		X	Note general appearance of the battery command periscope M65 and associated equipment as an indication of the condition of the materiel and type of treatment it has received.
X	X	X	Check accessible areas for dents, bent, broken, or missing parts, moisture or corrosion.
X	X	X	Inspect scale numbers, divisions, indexes, and identification plates for legibility.
X	X	X	Inspect for bare spots due to chipping of paint or damaged finishes which expose metal surfaces and lead to corrosion.
X	X	X	Knobs and levers must operate smoothly without binding or rough motion.
X	X	X	The equipment must be clean and free of dirt or grit.
		X	Refer to the Basic Issue Items List in TM 9-1240-368-12 for completeness of repair parts, tools, and equipment.
X	X	X	Optical components must be free of scratches, pits, dirt, moisture, and chips that will interfere with periscope performance.
X	X	X	There must be no discoloration of cement between elements of compound lenses which will affect optical performance.
X	X	X	Electrical components will be visually inspected for wire ends not soldered or improperly secured under screws, frayed wiring, loose hardware, or improperly soldered connections.

CHAPTER 3

REPAIR INSTRUCTIONS

Section I. GENERAL

3-1. Scope

This chapter contains detailed instructions for repair of battery command periscope M65 and associated equipment at the direct support and general support maintenance levels. Disassembly of the instrument and the extent of repair are limited to replacement of parts authorized to the direct support and general support levels in Appendix B.

3-2. Parts Replacement

In subsequent paragraphs it is understood that authorized parts damaged beyond repair are to be replaced. Repair is not authorized for cover assembly 6583358, carrying case M45 and periscope adapter M14.

Section II. REPAIR OF BATTERY COMMAND PERISCOPE M65

3-3. Removal and Disassembly

Note: All sealing compound, MIL-S-11031, must be removed from exterior setscrews prior to disassembly.

a. Removal of Head Assembly 5582516 with Related Parts from Housing Assemblies 5582518 and 6574392 with Related Parts (Fig. B-1).

(1) Remove setscrews (1 and 2), from round nuts (5 and 7), and with hook-type spanner wrench 7642278 (fig. 3-1) loosen both round nuts.

(2) Remove head assembly (3).

(3) Scribe an identifying mark on the right tube (4) and left tube (6) and housing (8). Apply heat to soften the sealing compound MIL-S-11031, between both tubes and housing.

(4) Unscrew the right and left tubes from the housing and remove both round nuts.

(5) Remove two set screws (9 and 10) securing the objective assemblies (13 and 14).

(6) Using adjustable pin-type spanner wrench, 5120-00-561-0854, remove adjusting screws (11 and 12).

(7) Scribe both objective assemblies through their respective adjusting screw holes with a circular mark.

(8) Using tubular spanner wrench 7597682 (fig. 3-2), remove both objective assemblies.

(9) Remove cap (15), core valve (16), and stem valve (17) from head assembly.

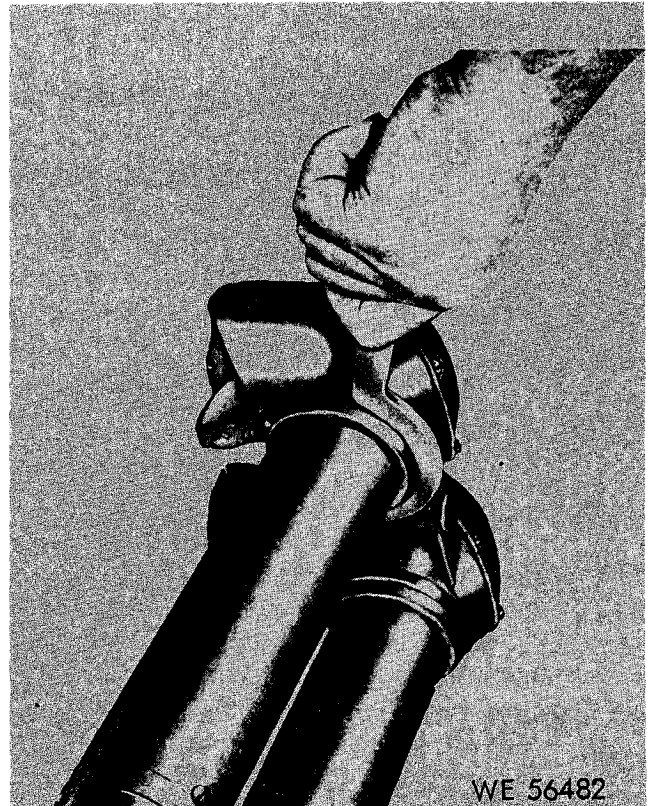
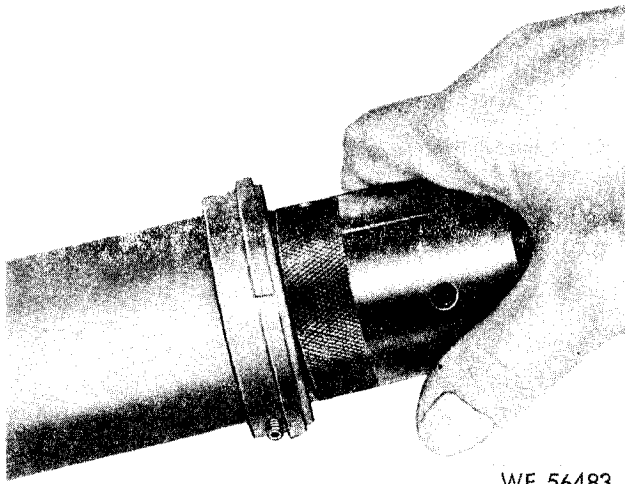


Figure 3-1. Using hook-type spanner wrench 7642278 to unscrew round nuts.



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Figure 3-2. Using tubular spanner wrench 7597682 to remove objective assemblies.

(10) Remove packing (18 and 19).

b. Removal of Left Housing Assembly 5582518 with Related Parts from Right Housing Assembly 6574392 with Related Parts (Fig. B-2).

(1) Remove three screws (1) securing support bracket (3) to left housing assembly (7).

(2) Remove four screws (2) securing interpupillary screw assembly (4) to right housing assembly (8).

(3) Remove support bracket and interpupillary screw assembly as a unit separating the left housing assembly from the right housing assembly.

(4) Separate support bracket from interpupillary screw assembly.

Note: Remove two pins (5 and 6) only if damaged.

c. Removal of Left Eyepiece Assembly 8215542, and Left Prism Holder Assembly 5582526 (Fig. B-3).

(1) Remove eyeguard (1).

(2) Remove setscrew (2), round nut (3), and diopter scale (4).

(3) Remove three screws (5) and sleeve (6).

(4) Unscrew and remove left eyepiece assembly (7).

(5) Remove locking screw (8) and cover (9).

(6) Remove four screws (10) and lift out left prism holder assembly (11) from left housing assembly (16).

(7) Remove two screws (12), two washers (13), and identification plate (14).

Note: Remove two pins (15) from left housing assembly only if damaged.

d. Removal of Right Eyepiece Assembly 821-5543, Reticle Assembly 6180593, and Right Prism Holder Assembly 5582528 (Fig. B-4).

(1) Remove eyeguard (1).

(2) Remove setscrew (2), round nut (3), and diopter scale (4).

(3) Remove three screws (5) and sleeve (6).

(4) Unscrew and remove right eyepiece assembly (7).

(5) Remove setscrew (8).

(6) Using pin-type tubular spanner wrench 5120-00-611-6736, remove retaining ring (9).

(7) Remove setscrew (10).

(8) Remove four setscrews (11) and lift out reticle assembly (12).

(9) Remove locking screw (13) and cover (14).

(10) Remove four screws (15) and lift out right prism holder assembly (16) from right housing assembly (18).

Note: Remove two pins (17) from right housing assembly only if damaged.

e. Disassembly of Elevating Worm 6180595 (Fig. B-5).

(1) Drive out tapered pin (1) and slide off knob assembly (2).

Note: Remove two pins (3) from knob (4) only if damaged.

(2) Remove one stop key washer (5) and eight rotating key washers (6).

(3) Remove setscrew (7) from right housing assembly (46).

(4) Remove slotted plug (8), compression spring (9), and plunger (10).

(5) Remove setscrews (11 and 12).

(6) Using adjustable pin-type spanner wrench, 41-W-3248-130, remove ball cap (13).

(7) Unscrew elevating worm (14) and remove from right housing assembly.

(8) Remove socket ball seat (15) from elevating worm.

f. Disassembly of Angle of Site Worm 6180590 (Fig. B-5).

(1) Drive out two tapered pins (16) while

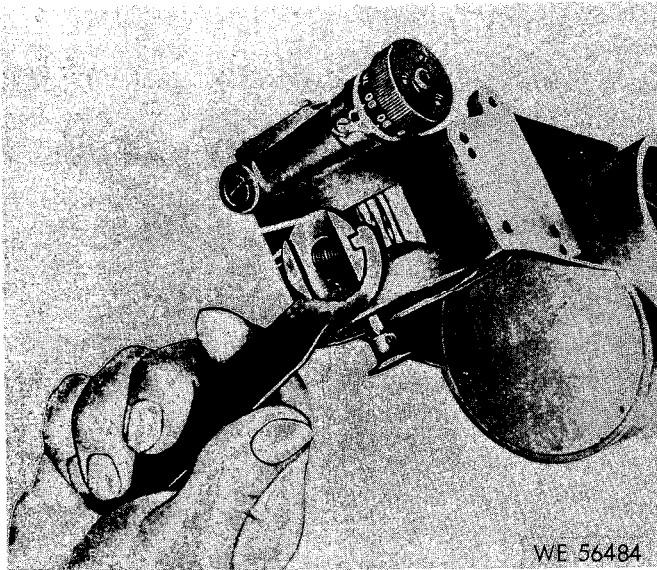


Figure 3-3. Using nonadjustable lug-type spanner wrench 7634533 to remove locating bushing.

supporting locating bushing (17) on a block of wood. Maintain the bushing in a centered position.

(2) Using nonadjustable lug-type spanner wrench 7634533 (fig. 3-3), remove locating bushing.

(3) Remove washer (18).

Note: In figure B-5 pin (16), locating bushing (17), and washer (18) are components of worm gear (6, fig. B-8) which in turn is a component of gear (21). These items must be partially disassembled for removal from the instrument.

(4) Remove two setscrews (19).

(5) Using adjustable pin-type spanner wrench, 5120-00-95-996, remove retaining ring (20).

(6) Remove the partially disassembled gear (21) out of right housing assembly (46).

(7) Remove three screws (22), knob (23), and scale dial (24).

(8) Drive out tapered pin (25) and slide off adapter assembly (26).

Note: Remove two pins (27) from adapter (28) only if damaged.

(9) Remove one stop key washer (29) and eight rotating key washers (30).

(10) Remove plug (31), compression spring (32), and plunger (33).

(11) Remove setscrews (34 and 35).

(12) Using adjustable pin-type spanner wrench, 5120-00-567-0855 remove hall cap (36).

(13) Turning angle of site worm (37) counterclockwise, remove from right housing assembly.

(14) Remove socket ball seat (38) from angle of site worm.

(15) Remove gear (39) from right housing assembly.

(16) Remove two screws (40), two washers (41), and angle of site scale dial (42).

(17) Remove two screws (43) two washers (44) and take off angle of site scale index (45) from right housing assembly.

g. Disassembly of Left Housing 6582847 (Fig. B-6).

(1) Scribe a letter "L" on filter holder assembly (2) in left housing (13).

(2) Remove screw (1), filter holder assembly, and washer (3).

(3) Loosen setscrew (4), remove cross shape knob (5), and rubber washer (6).

(4) Slide driving wheel (7), washer (8), and packing (9) from left housing (13).

(5) Remove two screws (10), clamp (11), and detent (12) from left housing.

h. Disassembly of Right Housing 6582848 (Fig. B-7).

(1) Scribe a letter "R" on filter holder assembly (2) in right housing (14).

(2) Remove screw (1), filter holder assembly, and washer (3).

(3) Loosen setscrew (4), remove cross shape knob (5), and rubber washer (6).

(4) Slide driving wheel (7), washer (8), and packing (9) from right housing.

(5) Remove two screws (10), clamp (11), and detent (12) from right housing.

(6) Remove sealing compound, MIL-S-11031, and lift out light filter (13) from right housing.

i. Disassembly of Worm Gear 5582525 and Related Parts (Fig. B-8).

(1) Remove setscrew (1) and knob (2).

(2) Remove plug (3), take out compression spring (4), and latch (5) from worm gear (6),

j. Disassembly of Filter Holder Assembly 558-2519 for Right or Left Housing Assembly (Fig. B-9).

(1) Remove four screws (1) and lift off filter retainer (2).

Caution: Exercise special care to avoid disturbing the position of unbroken windows (3, 4, 5 and 6) in the filter holder (9)

- (2) Remove four windows only if damaged.
- (3) Remove two screws (7), two washers (8), releasing filter holder and driving wheel (10).

k. Disassembly of Right Eyepiece Assembly 8215543 (Fig. B-10)

(1) Using tubular spanner wrench 5120-00-345-1408, remove retaining ring (1).

(2) Remove field lens (2), separator (2), center lens (4), separator (5), and eyelens (6) from cell assembly (7).

l. Disassembly of Left Eyepiece Assembly 821-5542 (Fig. B-11).

(1) Turn the cell (1) counterclockwise in

(2) Remove field lens (2), separator (3), center lens (4), separator (5) and eyelens (6) from cell assembly (7).

m. Disassembly of Cell Assembly 8215541 for Right or Left Eyepiece (Fig. B-12).

(1) Turn the cell (1) counterclockwise in the adapter (2) until it reaches the point where it disengages from the adapter. At this point scribe a reference mark on the cell and the adapter to ensure proper location in assembly.

(2) Remove packing (3).

n. Disassemble of Reticle Assembly 6180593 (Fig. B-13).

(1) Using tubular spanner wrench, 5120-00-345-1404, remove retaining ring (1).

(2) Remove reticle (2) from cell (3).

o. Disassembly of Gear 821688 with Related Parts (Fig. B-14).

(1) Remove three screws (1), and three washers (2) securing level vial holder assembly (3) to gear (6).

(2) Remove level vial (4) from holder (5).

p. Disassembly of Left Prism Holder Assembly 5582526 (Fig. B-15).

(1) Remove four screws (1) and large prism spring (2) from holder (6).

(2) Remove two screws (3), small prism spring (4), and prism (5) from holder.

q. Disassembly of Right Prism Holder Assembly 5582528 (Fig. B-16).

Disassemble right prism holder assembly in accordance with paragraph 3-3p above.

r. Disassembly of Objective Assembly 6180-569 for Right or Left (Fig. B-17)

(1) Using tubular spanner wrench 5120-00-345-1423, remove retaining ring (1).

(2) Remove objective lens (2) from cell (3).

s. Disassembly of Head Assembly 5582516 (Figs. B-18 and B-19).

Note: The key numbers shown below in parentheses refer to figure B-18 unless otherwise indicated.

(1) Remove six screws (1), six washers (2), cap (3), and gasket (4) from head assembly (9).

(2) Remove six screws (5), six washers (6), cap (7), and gasket (8).

(3) Scribe an "L" on the left 90° prism holder assembly (13) and scribe an "R" on the right 90° prism holder assembly (11).

(4) Remove six screws (10) and carefully lift out left 90° prism holder assembly.

(5) Remove six screws (12) and carefully lift out right 90° prism holder assembly.

Note: Remove two pins (14) and two pins (15) only if damaged.

(6) Remove four screws (1, fig. B-19), four washers (2, fig. B-19), and two plugs (3, fig. B-19).

(7) Remove two setscrews (4, fig. B-19).

(8) Using tubular spanner wrench, 5120-00-345-1438, remove two window assemblies (5, fig. B-19).

(9) Remove two packings (6, fig. B-19) from right and left head (7, fig. B-19).

t. Disassembly of Left and Right Head 5582515 (Fig. B-20).

(1) Check the movement between the left head (9) and the right head (10).

(2) If the hushing (8) is loose, it may be adjusted without complete disassembly as outlined in (a) through (d) below:

(a) Remove two setscrews (1 and 4).

(b) Using adjustable pin-type spanner wrench, 5120-00-561-0855, loosen the front screw (5) with several turns and draw up on the rear screw (2).

(c) Tighten the front screw and check for looseness.

(d) If condition has been eliminated, drill both front and rear screws to accommodate the two setscrews with a No. 50 drill, one quarter

inch deep, and tap with a No. 2-64NF-2 tap. Install setscrews. If the looseness was not eliminated, proceed as outlined below:

1. Remove two setscrews (1 and 4).
2. Using adjustable pin-type spanner wrench 5120-00-561-0855, remove the front and rear screws (2 and 5).
3. Drive out the small end of tapered spindle (6) from the rear of the periscope.
4. Pin (7) will fall out as spindle is removed.
5. Remove setscrew (3) securing hushing (8).
6. Using pin-type tubular spanner wrench, 5120-00-611-6735, remove bushing separating left head from right head.

u. Disassembly of Window Assembly 6180578 for Right or Left Head (Fig. B-21).

- (1) Scrape off sealing compound, MIL-S-11031, in three places from ring (1).
- (2) Using pin-type tubular spanner wrench, 5120-00-611-6736, remove ring.
- (3) Remove window (2) from cell (3).

v. Disassembly of 90° Prism Holder Assembly 5631125 for Right or Left Head (Fig. B-22).

- (1) Turn the three screws (4) from the underside of the prism holder (8) approximately one-eighth of an inch into the holder.
- (2) Remove four screws (1) releasing retaining strap (2).
- (3) Remove retaining strap and lift the 90° prism (3) from the prism support (6).
- (4) Remove three screws (4) and three washers (5) releasing prism support and three compression springs (7) from holder.

w. Disassembly of Interpupillary Screw Assembly 7677291 (Fig. B-23).

- (1) Drive out tapered pin (1) and slide off knob (2).

Note: Remove two pins (3) from knob (4) only if damaged.

- (2) Remove one stop key washer (5) and thirteen rotating key washers (6).
- (3) Remove slotted plug (7), compression spring (8), and V-bearing (9).
- (4) Remove setscrews (10 and 11).
- (5) Using adjustable pin-type spanner wrench, 5120-00-561-0855, remove ball cap (12).
- (6) Turn interpupillary screw (13) counter-clockwise from barrel nut (15) and pull screw with socket ball seat (14) from housing (21).

- (7) Remove two screws (16) and plastic strip (17).

- (8) Remove two screws (18), two washers (19), interpupillary dial scale (20).

3-4. Assembly and Installation

Note: Apply light film of grease MIL-G-23827, to all metal moving parts.

Note: Polished surfaces of all optics should be clean and without finger marks prior to installation.

a. Replacement of Interpupillary Screw Assembly 7677291 (Fig. B-23).

- (1) Install interpupillary dial scale (20) on the housing (21) and secure with two screws (18), and two washers (19).

- (2) Install plastic strip (17) on the housing. Apply sealing compound, MIL-S-11031, to threads of two screws (16) and secure in place.

Note: Visually inspect interpupillary screw (13) for defects. Roll on surface plate to check for straightness. Replace screw if bent.

- (3) Apply sealing compound, MIL-S-11031, to setscrew (11) and insert into housing. Place socket ball seat (14) on interpupillary screw.

- (4) Insert interpupillary screw in housing and turn clockwise into barrel nut (15). At the same time, guide the slot of the socket ball seat into setscrew (11) and secure setscrew.

- (5) Install ball cap (12) with adjustable pin-type spanner wrench, 5120-00-561-0855. Tighten sufficiently to allow free movement of the interpupillary screw with no excessive movement.

- (6) Secure with setscrew (10) and tighten setscrew (11). Apply sealing compound, MIL-S-11031, to the ends of both setscrews.

Note: Examine the thirteen rotating key washers (6) and replace those showing any evidence of damage.

- (7) Adjust the interpupillary screw until barrel nut is positioned in the center of the housing. Install the thirteen rotating key washers placing each so that the keys of alternating washers are directly opposite.

- (8) If the two pins (3) were removed from knob (4), replace pins pressing them into the knob.

- (9) Position the one fixed key washer (5) over the pins of the knob (2) and place on interpupillary screw.

- (10) Position and install the knob on the interpupillary screw.

- (11) When interpupillary screw or knob have

been replaced, press key washers tightly against housing with the knob. Allow .003 to .005 clearance to permit free movement of key washers before pinning knob in place.

(12) Align the hole for tapered pin (1). Secure knob with tapered pin.

(13) Insert V-bearing (9) and compression spring (8) in housing.

(14) Install slotted plug (7) and turn until contact is made with V-bearing, then reverse plug one eighth of one turn. Apply sealing compound, MIL-S-11031, over slotted plug and fill setscrew hole in housing.

b. Assembly of ,90° Prism Holder assembly 5631125 for Right or Left Head (Fig. B-22).

(1) Position the three compression springs (7) and prism support (6) on prism holder (8).

(2) Install three washers (5) and three screws (4) until the screw ends are approximately one eighth inch through the outer surface of the holder.

(3) Position 90° prism (3) on prism support.

(4) Install retaining strap (2) and secure with four screws (1).

(5) Turn the three screws (4) clockwise on the outside of the prism holder until they protrude within one sixteenth of the outer surface.

c. Assembly of Window Assembly 6180578 for Right or Left Head (Fig. B-21).

(1) Apply a thin coating of sealing compound MIL-S-11031 around the seat in cell (3).

(2) Position window (2) in cell.

(3) Install and tighten ring (1) using pin-type tubular spanner wrench 5120-00-611-6736.

(4) Seal ring at three places with sealing compound, MIL-S-11031. Remove excess sealing compound and clean window if necessary.

d. Assembly of Left and Right Head 5582515 (Fig. B-20) .

(1) Using pin-type tubular spanner wrench, 5120-00-611-6735, install bushing (8) in left head (9). If new bushing is installed, drill a hole to accommodate setscrew (3) with a No. 50 drill, one quarter inch deep, and tap with a No. 2-64NF-2 tap. Install setscrew (3) and align the left and right heads (9 and 10) together.

(2) Install spindle (6) and ensure that the large end is flush to a depth of .005 inch below the counter bore surface. If necessary, ream the hole with a No. 3 taper reamer (one half inch taper per foot) until spindle enters the hole to

the proper depth. Drill a hole with a No. 54 drill three sixteenth inch deep and ream for drive fit. Install pin (7).

(3) Using adjustable pin-type spanner wrench 5120-00-561-0855, install two screws (2 and 5) and two setscrews (1 and 4). Adjust to eliminate looseness as specified in paragraph 3t(2).

e. Assembly of Head Assembly 5582516 (Figs. B-18 and B-19).

Note: The key numbers shown below in parenthesis refer to figure B-18 unless otherwise indicated.

(1) Apply a light film of silicone compound MIL-S-8660, to packing (6, fig. B-19) and install in right and left head (7, fig. B-19).

(2) Install two window assemblies (5, fig. B-19) and tighten using tubular spanner wrench, 5120-00-345-1438. Secure window assemblies with two setscrews (4, fig. B-19). Spot sealing compound, MIL-S-11031, around window assemblies in three places. Clean windows if necessary.

(3) Secure each of the plugs (3, fig. B-19) with four washers (2, fig. B-19) and four screws (1, fig. B-19).

(4) Install four pins (14 and 15) in head assembly (9) and apply sealing compound MIL-S-11031, to the grooves and outer periphery of the left and right 90° prism holder assemblies (11 and 13). Position the prism holder assembly scribed "L" in the left head and the one scribed "R" in the right head assembly.

(5) Apply sealing compound, MIL-S-11031, to six screws (10) and (12) and secure each 90° prism holder assembly with these screws.

Tighten the screws and remove the excess sealing compound.

Note: The two caps (3 and 7) and two gaskets (4 and 8) will be assembled to the head assembly (9) with twelve screws (1 and 5) and twelve washers (2 and 6) after the 90° prisms are adjusted as specified in para 3-15j.

f. Assembly of Objective Assembly 6180589 for Right or Left Tube (Fig. B-17).

(1) Slide objective lens (2) into cell (3).

(2) Using tubular spanner wrench, 5120-00-345-1423, secure objective lens with retaining ring (1).

(3) Spot retaining ring with sealing compound MIL-S-11031, in three places.

g. Assembly of Right Prism Holder Assembly 5582528 (Fig. B-16).

Note: Apply sealing compound MIL-S-11031, under heads of screws (1 and 3) before installation.

(1) Install small prism spring (4) on holder (6) and secure with two screws (3).

(2) Place prism (5) on the four pads of the holder and against the spring. Withdraw the spring sufficiently with a hook scriber to allow the prism to be positioned, Ensure that the prism is properly seated on the pads.

(3) Position large prism spring (2) over prism and secure to the posts of the holder with four screws (1).

h. Assembly of Left Prism Holder Assembly 5582556 (Fig. B-15). Assemble left prism holder assembly in accordance with paragraph 3-5g above.

i. Assembly of Gear 8213688 with Related Parts (Fig. B-14).

(1) Install and position level vial (4) in holder (5) so that the center of bubble movement is to coincide with the vertical center axis of the holder. Cement in place with gypsum, MIL-G-20098.

(2) Install level vial holder assembly (3) in gear (6) and secure with three washers (2) and three screws (1).

(3) If gear has been replaced, it must be assembled with its mating angle of site worm (37, fig. B-5) and associated parts and lapped to fit with lapping and grinding compound, MIL-L-17862. Disassemble and thoroughly remove lapping compound from all parts.

j. Assembly of Reticle Assembly 6180593 (Fig. B-13):

(1) With the illumination slot in the upper right hand quadrant of cell (3) install reticle (2) with etching side toward retaining ring (1), as shown.

(2) Position the horizontal line of the reticle to aline with the longitudinally drilled hole in the cell.

(3) Install and tighten retaining ring, using tubular spanner wrench, 5120-00-345-1404, being careful to keep the reticle in the correct position.

(4) Seal retaining ring in three places with sealing compound MIL-S-11031.

Note: Ensure that the illumination slot is free from sealing compound,

k. Assembly of Cell Assembly 8215541 for Right or Left Eyepiece (Fig. B-12).

(1) Apply a light film of silicone compound MIL-S-8660, on packing (3) and install in cell (1). Lubricate threads of cell with grease MIL-G-23827.

(2) Aline the scribe mark made at disassembly and screw the cell into the adapter (2).

l. Assembly of Left Eyepiece Assembly 8215542 (Fig. B-11).

(1) Fill groove at the eyelens end of cell assembly (7) with sealing compound MIL-S-11031.

(2) Insert eyelens (6), separator (5), center lens (4), separator (3), and field lens (2) into cell assembly.

(3) Secure field lens with diaphragm (1). Spot diaphragm with sealing compound MIL-S-11031, in three places.

m. Assembly of Right Eyepiece Assembly 8215543 (Fig. B-10).

(1) Fill groove at the eyelens end of cell assembly (7) with sealing compound, MIL-S-11031.

(2) Insert eyelens (6), separator (5), center lens (4), separator (3), and field lens (2) into cell assembly.

(3) Secure field lens with retaining ring (1) using tubular spanner wrench, 5120-00-345-1408. Spot retaining ring with sealing compound MIL-S-11031, in three places.

n. Assembly of Filter Holder Assembly 558-2519 for Right or Left Housing Assembly (Fig. B-9).

(1) Aline driving wheel (10) to filter holder (9) and secure with two washers (8) and two screws (7).

(2) Position the windows (3, 4, 5, and 6) in the filter holder.

(3) Secure with filter retainer (2). Apply sealing compound, ML-S-11031, to the threads of four screws (1) and tighten.

o. Assembly of Worm Gear 5582525 and Related Parts (Fig. B-8).

(1) Insert latch (5) in worm gear (6).

(2) Seat compression spring (4) in the end of latch.

(3) Insert and adjust plug (3) to secure clearance of undercut in latch with respect to spindle hole when spring is compressed so that latch strikes end of plug. Stake plug.

(4) Install knob (2) and setscrew (1). Stake setscrew.

(5) If worm gear has been replaced, it must be assembled with its mating worm (14, fig. B-5) and associated parts and lapped to fit with lapping and grinding compound, MIL-L-17862.

Disassemble and thoroughly remove lapping compound from all parts.

p. Assembly of Right Housing 6582848 (Fig. B-7).

(1) Apply one strip of sealing compound MIL-S-11031, around the edge of the right housing (14) where light filter (13) is installed, Position light filter in housing with level edge up and apply second coat of sealing compound around the edges between the right housing and the light filter.

(2) Place detent (12) and clamp (11) in right housing and secure with two screws (10).

(3) Apply a light film of silicone compound, MIL-S-8660, to packing (9). Install packing and washer (8) on driving wheel (7). Insert shaft of driving wheel into right housing.

(4) Install rubber washer (6) in its seat and fill in groove of cross shape knob (5) with grease, MIL-G-23827. Slide cross shape knob on shaft of driving wheel.

(5) Aline setscrew hole in cross shape knob with the flat on the driving wheel shaft and install setscrew (4), Turn knob to indicate "A".

(6) Position the filter holder assembly (2) so that the amber window is directly over the opening leading to the objective.

(7) Apply sealing compound MIL-S-11031, to threads of screw (1), Insert screw through filter holder assembly, Place washer (3) on screw and secure.

(8) Ensure that the color of the windows correspond to what is indicated on the knob. Ensure that the window centers over the objective opening when the detent stop is in the notch of the filter holder assembly. If it is not centered, loosen two screws (10) and adjust the detent to allow the window to center. Tighten both screws.

q. Assembly of Left Housing 6582847 (Fig. B-6).

(1) Place detent (12), and clamp (11), in left housing (13), and secure with two screws (10).

(2) Apply a light film of silicone compound, MIL-S-8660, to packing (9). Install packing and washer (8) on driving wheel (7). Insert shaft of driving wheel into left housing.

(3) Install rubber washer (6) in its seat and fill in groove of cross shape knob (5) with grease MIL-G-23827. Slide cross shape knob on shaft of driving wheel.

(4) Aline setscrew hole in cross shape knob

with flat on the driving wheel shaft and install setscrew (4). Turn knob to indicate "A".

(5) Position the filter holder assembly (2) so that the amber window is directly over the opening leading to the objective.

(6) Apply sealing compound MIL-S-11031, to threads of screw (1). Insert screw through filter holder assembly. Place washer (3) on screw and secure.

(7) Ensure that the color of the windows correspond to what is indicated on the knob, Ensure that the window centers over the objective opening when the detent stop is in the notch of the filter holder assembly. If it is not centered, loosen two screws (10) and adjust the detent to allow the window to center. Tighten both screws.

r. Installation of Gear 8213688 with Related Parts, and Gear 5582525 with Related Parts (Fig. B-5).

(1) Install gear (39) and worm gear (21) in housing assembly (46) with special care to avoid binding.

Note: Do not wedge gears in right housing assembly.

(2) Place washer (18) on locating bushing (17). Using a nonadjustable lug-type spanner wrench 5120-00-595-8997, fig. 3-3, install locating bushing in gear (21) through hole in bottom of right housing assembly.

(3) Tighten locating bushing until tapered pin holes are alined.

(4) Using adjustable pin-type spanner wrench, 5120-00-595-8996, install and tighten retaining ring (20) apply sealing compound MIL-S-11031, to threads of two setscrews (19) and install in housing.

s. Installation of Elevating Worm 6180595 (Fig. B-5).

Note: Visually inspect elevating worm (14) for defects. Roll on surface plate to check for straightness. Replace worm if bent.

(1) Apply sealing compound MIL-S-11031, to setscrew (12) and insert into right housing assembly (46). Place socket ball seat (15) on elevating worm (14).

(2) Insert elevating worm into right housing assembly and turn clockwise. At the same time, guide the slot of the socket ball seat into setscrew (12) and secure setscrew.

(3) Install ball cap (13) with adjustable pin-type spanner wrench, 41-W-3248-130. Tighten sufficiently to allow free movement of the elevating worm with no excessive movement.

(4) Secure with setscrew (11) and tighten setscrew (12). Apply sealing compound MIL-S-11031, to the ends of both setscrews.

Note: Examine the eight rotating key washers (6) and replace those showing any evidence of damage.

(5) Install the eight rotating key washers (6) placing each so that the keys of alternating washers are directly opposite.

(6) If the two pins (3) were removed from knob (4) replace pins pressing them into the knob.

(7) Position the one key washer (5) over the pins of the knob assembly (2) and place on elevating worm.

(8) Position and install the knob assembly on the elevating worm.

(9) When worm or knob assembly have been replaced, press key washers tightly against housing with the knob assembly. Allow .003 to .005 clearance to permit free movement of key washers before pinning knob assembly in place.

(10) Aline the hole for tapered pin (1). Secure knob assembly with tapered pin.

(11) Insert plunger (10) and compression spring (9) in right housing assembly.

(12) Install slotted plug (8) and turn clockwise until contact is made with plunger, then reverse slotted plug one eighth of one turn.

(13) Secure slotted plug with setscrew (7). Apply sealing compound, MIL-S-11031, over slotted plug and setscrew.

(14) Adjust elevating worm until locating bushing (17) is positioned in the opening of the right housing assembly.

(15) Install two tapered pins (16) in locating bushing.

t. Installation of Angle of Site Worm 6180590 (Fig. B-5).

Note: Visually inspect angle of site worm (37) for defects. Roll on surface plate to check for straightness. Replace worm if bent.

(1) Install plunger (33) in right housing assembly (46) alining hole in plunger parallel to the worm axis.

(2) Apply sealing compound MIL-S-11031, to setscrew (34) and insert into right housing assembly. Place socket ball seat (38) on angle of site worm (37).

(3) Insert angle of site worm into right housing assembly and turn clockwise. At the same time guide the slot of the socket ball seat into setscrew (34) and secure setscrew.

(4) Install ball cap (36) with adjustable pin-type spanner wrench 5120-00-561-0855. Tighten sufficiently to allow free movement of the angle of site worm with no excessive movement.

(5) Secure with setscrew (35) and tighten setscrew (34). Apply sealing compound MIL-S-11031, to the ends of both setscrews.

(6) Adjust angle of site worm until the level vial is approximately parallel to the axis of the worm.

Note: Examine the eight rotating key washers (30) and replace those showing any evidence of damage.

(7) Install the eight rotating key washers (30) placing each so that the keys of alternating washers are directly opposite.

(8) If the two pins (27) were removed from adapter (28) replace pins pressing them into the adapter.

(9) Position the one fixed key washer (29) over the pins of the adapter assembly (26) and place on angle of site worm.

(10) Position and install the adapter assembly on the angle of site worm and secure with tapered pin (25).

(11) When worm or adapter assembly have been replaced, press key washers tightly against housing with the adapter assembly. Allow .003 to .005 clearance to permit free movement of key washers before pinning adapter assembly in place.

(12) Install scale dial (24), knob (23), and secure with three screws (22).

(13) Insert compression spring (32) and plug (31). Turn plug clockwise until contact is made with plunger, then reverse plug one eighth of one turn. Apply sealing compound MIL-S-11031, over plug.

(14) Secure scale dial (42) to right housing assembly with two screws (40) and two washers (41).

(15) Secure scale index (45) with two screws (43) and two washers (44).

u. Installation of Right Eyepiece Assembly 8215543, Reticle Assembly 6180593, and Right Prism Holder Assembly 5582528 (Fig. B-4).

(1) Install reticle assembly (12) in right housing assembly (18) alining slot in reticle assembly with the hole for setscrew (10). This setscrew plugs the hole which permits adjustment of the reticle.

(2) Install four setscrews (11) and adjust them to center the reticle assembly.

(3) Using pin-type tubular spanner wrench

5120-00-611-6736, install retaining ring (9) and secure with setscrew (8).

(4) Apply sealing compound MIL-S-11031, around the flange of right eyepiece assembly (7). Install and secure right eyepiece assembly in right housing assembly. Remove excess sealing compound.

(5) Install sleeve (6) on right eyepiece assembly and secure with three screws (5). Apply sealing compound MIL-S-11031, to threads of screws prior to installation.

(6) Install diopter scale (4) on sleeve and install round nut (3) on right eyepiece assembly. Secure with setscrew (2).

(7) Install eyeguard (1).

(8) Install two pins (17) in right housing assembly. Position right prism holder assembly (16) on pins.

(9) Secure right prism holder assembly with four screws (15).

(10) Install cover (14) and secure with locking screw (13).

Note: If right prism holder assembly (16) has been replaced, ream holes for slip fit on two pins (17).

v. Left Eyepiece Assembly 8215542 and Left Prism Holder Assembly 5582526 (Fig. B-3).

(1) Apply sealing compound MIL-S-11031, around the flange of left eyepiece assembly (7). Install and secure left eyepiece assembly in left housing assembly (16). Remove excess sealing compound.

(2) Install sleeve (6) on left eyepiece assembly and secure with three screws (5). Apply sealing compound MIL-S-11031, to threads of screws prior to installation.

(3) Install diopter scale (4) on sleeve and install round nut (3) on left eyepiece assembly. Secure with setscrew (2).

(4) Install eyeguard (1).

(5) Install two pins (15) in left housing assembly. Position left prism holder assembly (11) on pins.

(6) Secure left prism holder assembly with four screws (10).

(7) Install cover (9) and secure with locking screw (8).

Note: If left prism holder assembly (11) has been replaced, ream holes for slip fit on two pins (15).

(8) Install identification plate (14) to left housing assembly with two washers (13) and two screws (12).

w. Installation of Left Housing Assembly 558-2518 with Related Parts to Right Housing Assembly 6574392 with Related Parts (Fig. B-2).

(1) Install support bracket (3) to left housing assembly (7) with three screws (1), but do not tighten.

(2) Position interpupillary screw assembly (4) so that the barrel nut fits into the notch on the support bracket.

(3) Aline the right housing assembly (8) with the four screw holes of the interpupillary screw assembly. Install four screws (2) but do not tighten.

(4) Install pins (5 and 6) and tighten four screws (2) and three screws (1).

x. Installation of Head Assembly 5582516 With Related Parts to How-sing Assemblies 5582518 and 6574392 With Related Parts (Fig. B-1).

(1) Apply sealing compound, MIL-S-11031, to valve stem (17) and screw into head assembly (3). Install valve core (16) and cap (15).

(2) Install objective assembly (13) in right tube (4) and objective assembly (14) in left tube (6).

(3) Install objective assemblies with tubular spanner wrench 5120-00-345-1429 (fig. 3-2) turning assemblies until the circular scribe marks made at disassembly are alined with holes for adjusting screws (11 and 12).

(4) Apply sealing compound, MIL-S-11031, under heads of adjusting screws. Using adjustable pin-type spanner wrench 5120-00-561-0854, install adjusting screws in tubes. Install setscrews (9 and 10).

(5) Place round nuts (5 and 7) on tubes.

(6) Apply sealing compound, MIL-S-11031, around threaded portion of housing assemblies (8). Install and aline left tube with scribe mark in left side of housing assembly and right tube with scribe mark in right side of housing assembly. Remove excess sealing compound.

(7) Apply a light film of silicone compound, MIL-S-8660, around packing (18 and 19) and install on base of head assembly.

(8) Slide head assembly into position in tubes. Secure tubes to head assembly with two round nuts (5 and 7) using hook-type spanner wrench 5120-00-595-8998, (fig. 3-1). Tighten round nuts.

(9) Install setscrews (1 and 2) in round nuts. Apply sealing compound, MIL-S-11031, over exterior of setscrews.

Section III. REPAIR OF PERISCOPE MOUNT M48

3-5. Removal and Disassembly

Note: Periscope mount M48 must be partially disassembled for installation on or removal from tripod M17.

Note: All sealing compound MIL-S-11031 must be removed from exterior setscrews prior to disassembly.

a. Removal of Housing 6583169 and Related Parts (Fig. B-24).

(1) Remove left-hand screw (1) from lower spindle, Screw serves as a stop for wing nut (2).

(2) Remove wing nut, washer (3), and wing nut (4).

(3) Remove washer (5), spring (6), and washer (7).

(4) Slide off lower clamp (8) lift periscope mount M48 from tripod M17.

(5) Slide off upper clamp (10) from housing and related parts (9).

b. Removal of Worm 6172547 (Fig. B-25).

(1) Drive out two tapered pins (1 and 4) securing knobs (2 and 5) to worm (14). Remove knobs and two washers (3 and 6).

(2) Remove two screws (7) and slide off cover (8). Lift out spring (9) and bearing (10).

(3) Remove two setscrews (11 and 12) from housing (20).

(4) Unscrew ball cap (13) and worm. Remove socket ball seat (15) from worm.

c. Disassembly of Housing 6583169 and Removal from Spindle Assembly 5630900 (Fig. B-25).

(1) Remove setscrew (16) securing spindle (17) to housing (20). Remove spindle.

(2) Using pin-type tubular spanner wrench 5120-00-611-6735, remove round nut (18). Lift out washer (19) and separate housing from spindle assembly (47).

(3) Remove washer (21) from housing.

d. Removal of Worm 6181031 and Identification Plate 11731300 (Fig. B-25).

(1) Remove three screws (22) securing plate cover (23) and dial scale (24) to adapter (26).

(2) Remove plate cover and dial scale.

(3) Drive out tapered pin (25) securing adapter to worm shaft (39). Slide off adapter.

(4) Remove index (27) and felt (28).

(5) Drive out tapered pin (29) securing

knob (30) to worm shaft. Slide off knob, washer (31), and shoe (32).

(6) Remove setscrew (33) securing plug (34) in spindle assembly (47). Remove plug.

(7) Lift out spring (35).

(8) Remove setscrews (36) and 37) securing ball cap (38) and socket ball seat (40) in spindle assembly. Remove ball cap.

(9) Unscrew and remove worm (39).

(10) Remove socket ball seat (40).

(11) Slide out V-bearing (41) and remove washer (44),

(12) Remove setscrew (42) securing round nut (43). Using adjustable pin-type spanner wrench 5120-00-561-0855, unscrew and remove round nut.

(13) Slide off worm gear (45).

(14) Remove washer (46) from spindle assembly.

(15) Unscrew and remove circular level assembly (48).

(16) Remove two screws (49) and two washers (50) securing identification plate (51). Remove plate.

e. Disassembly of Circular Level Assembly 7635924 (Fig. B-26) .

(1) Remove three setscrews (1).

(2) Unscrew and remove cap (2) from level vial support (5).

(3) Remove circular level vial (3) and washer (4).

3-6. Assembly and Installation

Note: Apply light film of grease, MIL-G-23827, to all metal moving parts.

a. Assembly and Installation of Circular Level Assembly 7635924 (Fig. B-26).

(1) Install washer (4) in level vial support (5).

(2) Apply a coating of adhesive, MIL-A-46106, to the interior surface of support and over washer.

(3) Before installing circular level vial (3) ensure that it is free from cracks, and that the bubble is slightly smaller than the etched circular index. Install circular level vial and screw cap (2) on support.

(4) Install three setscrews (1).

(5) Ensure that red circle of vial is positioned in opening of cap within .040 of an inch.

(6) Install circular level assembly (48, fig. B-25) in spindle assembly (47, fig. B-25). Screw the circular level assembly in as far as it will go and back off one-half turn.

b. Installation of Worm 6181031 and Identification Plate 11731300 (Fig. B-25).

(1) Position identification plate (51) on housing (20) and secure with two screws (49) and two washers (50).

(2) Before assembly ensure that the shaft of spindle assembly (47) is free from burrs or other defects that will prevent the periscope from seating properly.

(3) Slide V-bearing (41) in spindle assembly.

(4) Install socket ball seat (40) on worm (39) and install worm in spindle assembly. Secure socket ball seat with setscrew (37) screw on ball cap (38), and secure with setscrew (36).

(5) Install spring (35) and plug (34). Tighten plug so the worm moves without binding but is not loose. Secure plug with setscrew (33).

(6) Install shoe (32) and washer (31) on worm shaft.

(7) Slide knob (30) on shaft and secure with taper pin (29).

(8) Install washer (28), index (27), and adapter (26). Secure adapter to worm shaft with tapered pin (25).

(9) Check numerals on dial scale (24) for legibility and install over adapter. Secure with plate cover (23) and three screws (22).

(10) Install washer (46) on gear (45). Push the knob (30) horizontally and slide the gear into the housing. Secure gear with round nut (43) using adjustable pin-type spanner wrench 5120-00-561-0855. Install setscrew (42).

(11) Install washer (44).

c. Assembly of Housing 6583169 and Installation in Spindle Assembly 5630900 (Fig. B-25).

(1) Insert washer (21) in housing (20).

(2) Slide the spindle assembly (47) with related parts and housing together.

(3) Install washer (19).

(4) Apply three spots of locking compound Grade C, MIL-S-22473, on threads of round nut (18) before assembling. Using pin-type tubular spanner wrench, 5120-00-611-6735, install round nut.

(5) Before installing spindle (17) ensure that the spindle is free from burrs or other defects that will prevent the mount from being clamped properly to the tripod M17.

(6) Install spindle and secure with setscrew (16). When spindle has been replaced drill hole 7/16 deep with a No. 42 drill and tap with No. 4-48UNF-2B 5/16 deep for setscrew.

d. Installation of Worm 6172547 (Fig. B-25).

(1) Install socket ball seat (15) on worm (14) and position worm in housing (20).

(2) Secure socket ball seat with setscrew (12). Screw in cap ball (13) and secure with setscrew (11).

(3) Insert bearing (10).

(4) Install spring (9), cover (8), and secure with two screws (7).

(5) Install two washers (3 and 6), and knobs (2 and 5), and secure with two tapered pins (1 and 4).

e. Installation of Housing 6583169 and Related Parts (Fig. B-24).

(1) Slide upper clamp (10) to housing and related parts (9).

(2) Install periscope mount M48 on tripod M17 and slide on lower clamp (8).

(3) Install washer (7), spring (6), and washer (5).

(4) Install wing nut (4), washer (3), wing nut (2) and left-hand screw (1) to lower spindle.

Section IV. REPAIR OF TRIPOD M17

3-7. Removal and Disassembly

a. Removal of Carrying Strap 5580794 and Leg Assembly 5581876 (Fig. B-27).

(1) Remove two round nuts (1), two screws (2), and two washers (3) securing carrying strap (4). Remove carrying strap.

(2) Remove two screws (5) securing each of the three leg assemblies to the head assembly (8).

(3) Slide out leg assembly (6).

(4) Remove two wedges (7).

b. Disassembly of Leg Assembly 5581876.

(1) Remove nut and screw (1 and 2, fig. B-28).

(2) Loosen two clamps (2, fig. B-29) and separate lower leg (12, fig. B-28) from the two upper legs (6 and 7, fig. B-29).

c. Disassembly of Lower Leg 6178760 (Fig. B-28).

- (1) Remove two round nuts (3), two screws (4) and fastner (5).
- (2) Remove nut (6) and screw (7).
- (3) Remove nut (8), washer (9), screw (10) and shoe assembly (11) from lower leg (12).

d. Disassembly of Upper Leg 5313953 and 5313954 (Fig. B-29).

- (1) Remove four wood screws (1) securing two clamps (2) to the upper leg (6).
- (2) Remove two clamps.
- (3) Remove four wood screws (3) securing two plates (4 and 5) to the upper leg (7), Remove plates,

e. Disassembly of Head Assembly 5581222 (Fig. B-30).

- (1) At all three places on the head assembly loosen nut (1) securing lever (3) to the hexagonal portion of the clamping screw (2).
- (2) Use lever as a wrench and rotate clamping screw counter clockwise until it disengages from leg caps (4 and 5).
- (3) Remove clamping screw from head (10) sliding off sleeve (6), nut, and lever.
- (4) Remove strip (7) from dove-tail slot in head.
- (5) Remove two drive screws (8) and name plate (9) only if necessary.

3-8. Assembly and Installation

a. Assembly of Head Assembly 5581222 (Fig. B-30).

Note: Inspect head (10) for damage that would prevent the periscope mount M48 from being securely fastened to the tripod.

- (1) If name plate (9) has been removed, position on head and secure with two drive screws (8).
- (2) Cut strip (7) to length, then chamfer ends 3/8" long.

(3) Apply adhesive, MMM-A-1617, to dove-tail slot in head and chamfered ends of strip.

(4) Insert strip in slot.

(5) At all three places on the head assembly, insert clamping screw (2) in head sliding on lever (3), nut (1), and sleeve (6).

(6) Using lever as a wrench, rotate the clamping screw clockwise in leg caps (4 and 5).

(7) Secure nut.

b. Assembly of Upper Leg 5313953 and 5313954 (Fig. B-29) .

(1) Place two plates (4 and 5) on upper leg (7). Secure with four wood screws (3).

(2) Place two clamps (2) on upper leg (6). Secure with four wood screws (1).

(3) Position upper leg (7) in clamps.

c. Assembly of Lower Leg 6178760 (Fig. B-28) .

(1) Install shoe assembly (11) to lower leg (12). Secure with screw (10), washer (9), and nut (8).

(2) Install screw (7) and nut (6).

(3) Install fastner (5), two screws (4), and two round nuts (3).

d. Assembly of Leg Assembly 5581876.

(1) Slide lower leg (12, fig. B-28) between the two upper legs (6 and 7, fig. B-29) and secure with two clamps (2, fig. B-29).

(2) Install screw and nut (1 and 2, fig. B-28).

e. Installation of Carrying Strap 5580794 and Leg Assembly 5581876 (Fig. B-27).

(1) Install two wedges (7).

(2) Slide in leg assembly (6).

(3) Secure each of the three leg assemblies to the head assembly (8) with two screws (5).

(4) Position carrying strap (4) and secure with two washers (3), two screws (2), and two round nuts (1).

Section V. REPAIR OF TRIPOD M10

3-9. Removal and Disassembly of Tripod M1O (Fig. B-31)

Remove three legs (1) from head (2).

3-10. Installation and Assembly of Tripod M1O (Fig. B-31)

Install three legs (1) on head (2).

Section VI. REPAIR OF INSTRUMENT LIGHT M28

3-11. Removal and Disassembly of Instrument Light M28 (Fig. B-32)

- a. Remove lamp (1).
- b. Remove cap (2) and lamp (3).

3-12. Installation and Assembly of Instrument Light M28 (Fig. B-32)

- a. Install lamp (3) and cap (2).
- b. Install lamp (1).

Section VII. REPAIR OF PACKING CHEST M39A1

3-13. Removal and Disassembly of Packing Chest M39A1 (Fig. B-33)

- a. Remove four wood screws (1) securing handle (2). Remove handle.
- b. Remove eight wood screws (3) securing latch (4). Remove latch.

3-14. Installation and Assembly of Packing Chest M39A1 (Fig. B-33)

- a. Secure latch (4) with eight wood screws (3).
- b. Secure handle (2) with four wood screws (1).

Section VIII. TESTS AND ADJUSTMENTS

3-15. Battery Command Periscope M65

a. *General.* This section contains specific instructions for test and adjustments of battery command periscope M65 including setup procedures for fabricated tools and special fixtures.

b. *Fabricated special fixture (Fig. 3-4).* This

fixture is used to mount the periscope on the adjustable surface plate 4931-00-879-6405. It is made with a square base so that the telescope collimator, 4931-00-554-9108, in the Y-block 4931-00-863-5652, will be parallel to the periscope line-of-sight when the V-block is set flush against the left side of the special fixture.

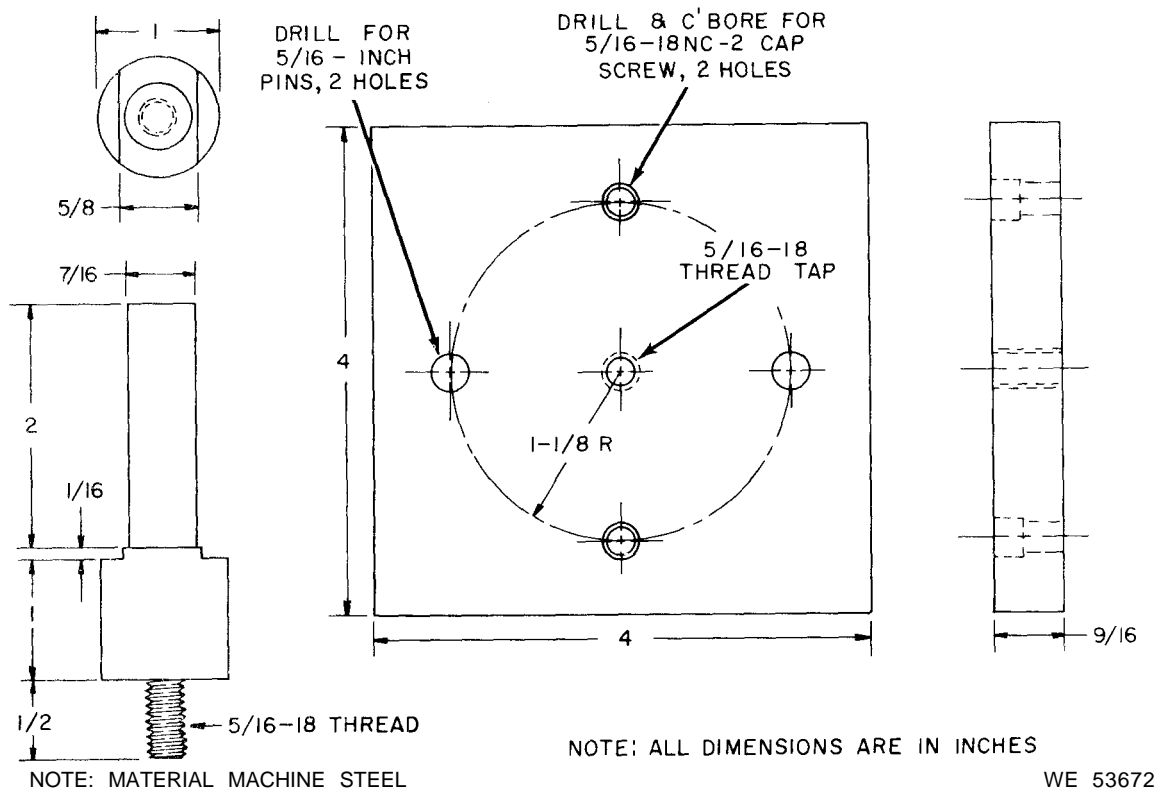


Figure 3-4. Fabricated special fixture.

c. *Fabricated Testing Target (Fig. 3-5).* Place the testing target in an approximate plumb position at the same height as the instrument to be tested and at a distance of 127 meters. Final adjustments of the target will be made later.

d. *Adjustable surface plate (Fig. 3-6).*

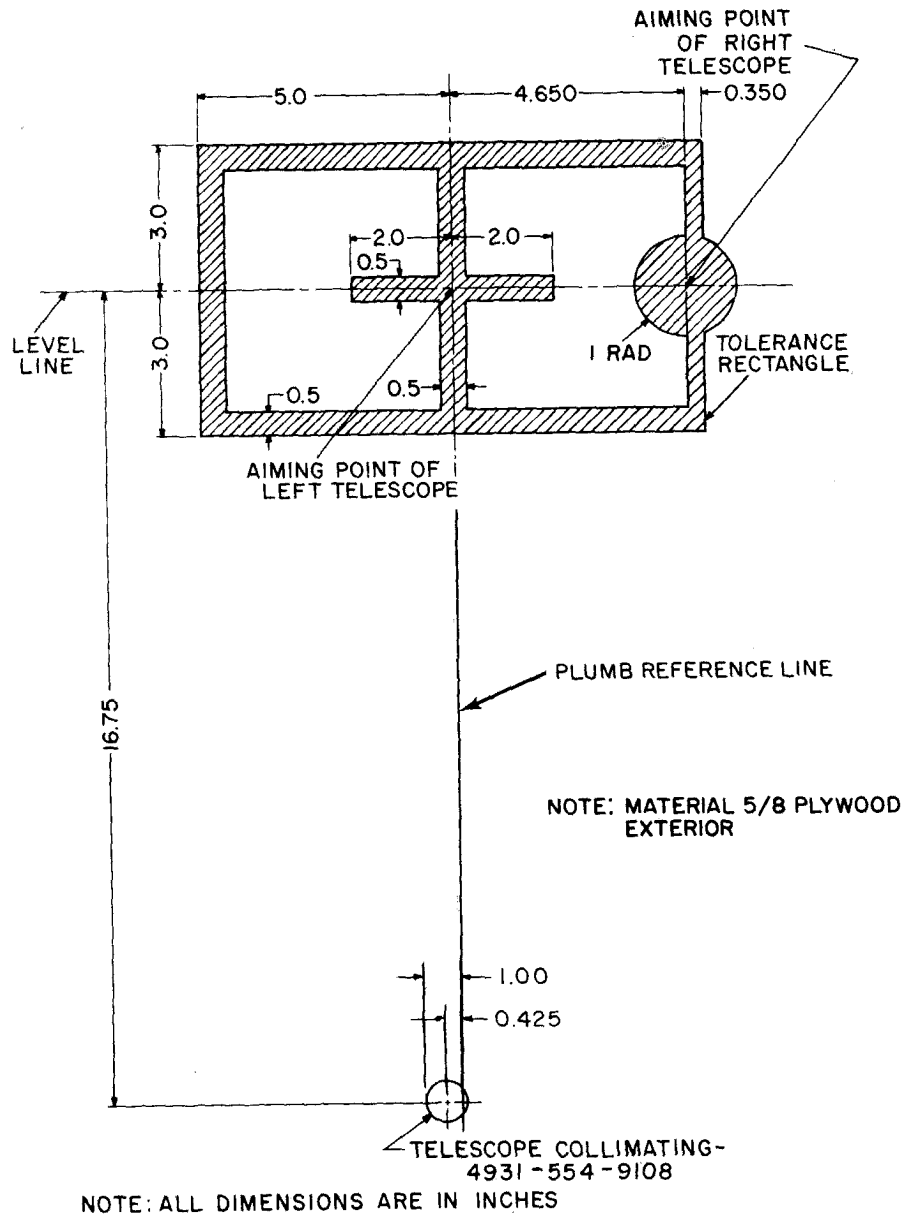
(1) Secure the fabricated special fixture on the adjustable surface plate so the periscope is located on the spindle with the eyepieces facing the single adjusting screw on the surface plate.

(2) Position the surface plate on a bench or other firm support with the end of the plate having the two adjusting screws facing the tar-

get. Place a precision level on the plate, adjusting the three leveling screws until the plate is cross-leveled.

(3) Suspend a plumb line in any convenient location approximately 30 feet from the surface plate.

(4) Place V-block on the surface plate with telescope collimator attached. While viewing the plumb line through the collimator rotate the collimator until the vertical reticle line is parallel to the plumb line. Use a parallax shield on the collimator to eliminate parallax when viewing at close range. Clamp the collimator in V-block to maintain reticle plumb.



WE 53649

Figure 3-5. Fabricated testing target.

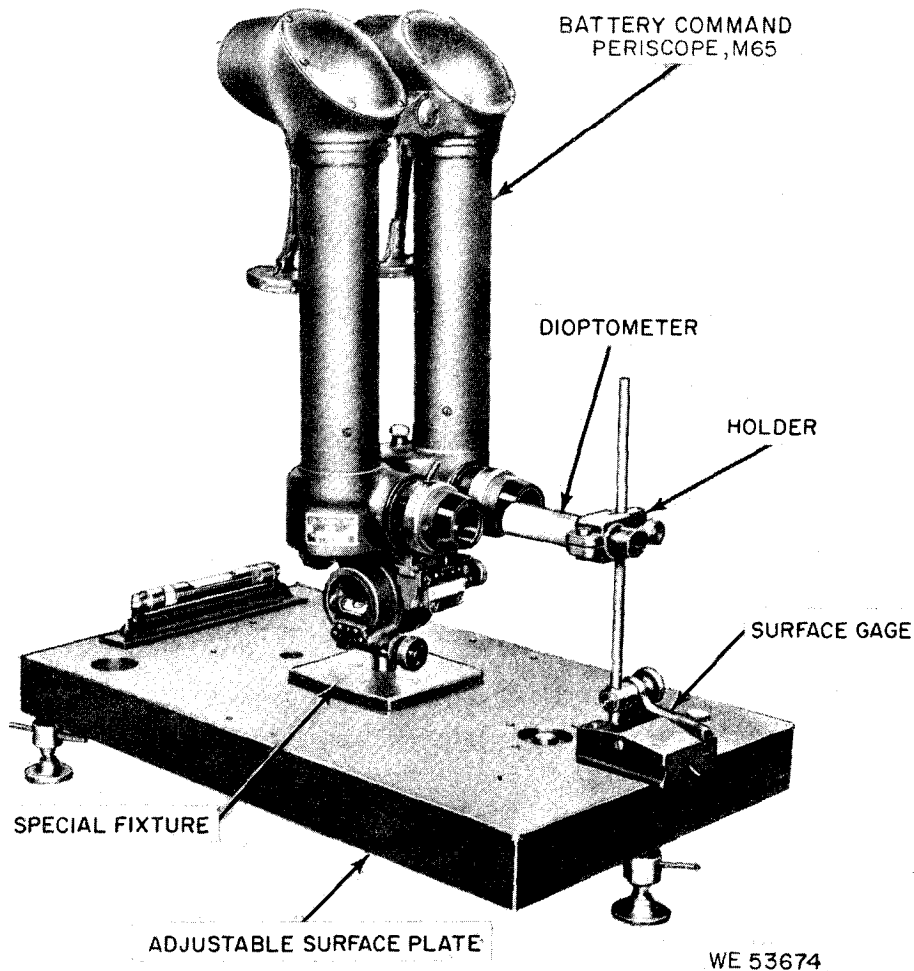


Figure 3-6. Fabricated special fixture and periscope mounted on adjustable surface plate and other tools.

(5) Place the V-block with collimator attached against the left side of the fabricated special fixture.

e. Target Adjustment.

(1) View the target through the collimator position the target to the right or left and up or down until the intersection of the collimator reticle crossline is superimposed on the lower target circle. Rotate the target as required to bring the plumb reference line of the target into coincidence with the vertical line of the collimator reticle. Simultaneous adjustment of the target should be made to ensure that the face of the target is on a plane perpendicular to the line-of-sight of the collimator. Secure target in position and verify adjustments.

(2) Place the periscope on the spindle of the fabricated special fixture with the eyepieces fac-

ing the single adjusting screw at the rear of the surface plate (fig. 3-6). Place V-block on the right periscope tube and a 5-second level 5210-00-546-6362 on the top of the V-block as shown in figure 3-7.

(3) Rotate the elevating mechanism until the periscope tubes are in a vertical position perpendicular to the surface plate.

(4) Place dioptrometer 4931-536-5557 in the holder 4931-00-191-1379 mounted on a surface gage (fig. 3-6). With the locating guide pins of the surface gage 5210-00-221-1842 flush against the rear edge of the surface plate, raise the dioptrometer with its holder to the level of the eyepieces of the periscope. In this position, adjust dioptrometer using a level to establish a level line-of-sight. Adjust dioptrometer eyepiece for best focus of the reticle and set the dioptrometer objective scale to zero.

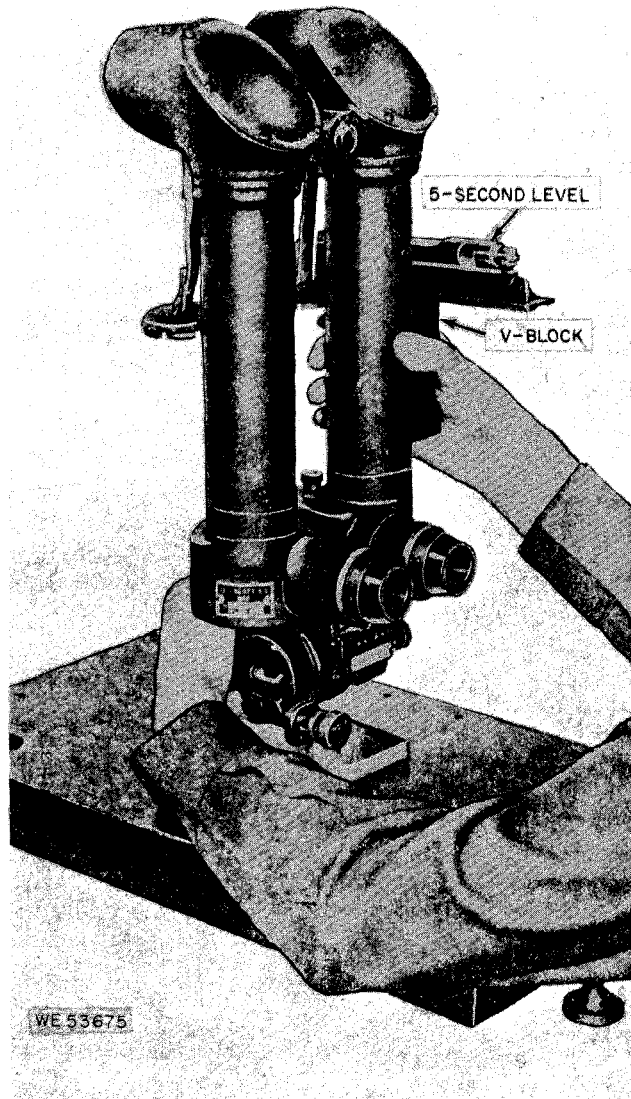


Figure 3-7. V-block and 5-second level.

(5) Sight the dioptrometer on the plumb line and check plumb of reticle. Adjust if necessary by rotating the dioptrometer until the vertical reticle line coincides with the plumb line and secure it in the holder.

f. Eyepiece Focus, Stagger, Definition, and Parallax.

(1) Position dioptrometer against right eyepiece as in paragraph *e(4)* above, sight through the dioptrometer and rotate the periscope right eyepiece until the reticle is sharp and clear. Set right diopter scale at zero.

(2) Sight through the right eyepiece with the unaided eye, at a target of 1000 ± 100 meters distance and check for parallax. If parallax exists, rotate the right objective assembly (13, fig. B-1) in or out as needed through

access hole after removing special screw (11, fig. B-1).

(3) With the right eyepiece set at zero, adjust for stagger. Lay a straight-edge, or scale, against the eyepieces. Rotate left eyepiece until the depth is equal to that of the right eyepiece $\pm 1/64$. Set left diopter scale on zero. Rotate left objective assembly (14, fig. B-1) in or out after removing special screw (12, fig. B-1) until the field-of-view of the left telescope, as viewed with dioptrometer, is at its sharpest point. Definition of field-of-view will be clearly defined at the center of field through both right and left eyepieces.

(4) Secure the objective assemblies in position with setscrews (9 and 10, fig. B-1). Ensure position has not changed. Fill in remaining threaded cavity over setscrews with sealing com-

pound MIL-S-11031. Secure diopter scale retaining rings with setscrews (2, fig. B-3 and 2, fig. B-4) and fill in with sealing compound, MIL-S-11031, over setscrews. Install and secure special screws (11 and 12, fig. B-1) in tubes after applying sealing compound, MIL-S-11031, under heads.

g. Parallelism of Reticle and Image.

(1) With the periscope setup as in paragraph *e(4)* above, sight through the dioptometer into the right eyepiece of the periscope and check that the periscope vertical reticle line coincides with the vertical reticle line of the dioptometer. If it is not parallel, slightly loosen the four reticle setscrews (11, fig. B-4) and remove setscrew (10, fig. B-4). Insert a scribe through the hole for setscrew (10, fig. B-4). Rotate the reticle cell the desired amount. Tighten the four set screws and check that the periscope reticle is parallel to dioptometer reference. Install setscrew (10, fig. B-4) and seal with sealing compound, MIL-S-11031.

(2) Observing a plumb line through the right eyepiece of the periscope with the unaided eye, the vertical reticle line shall be parallel to the vertical target image line (plumb line) within 0.8 mils at the edge of the field when measured over a field-of-view of 80 mils on the periscope reticle.

h. Image Tilt. Since both image tilt and collimation (para *j*) require adjustment of the 90° prism in the head assemblies, these adjustments are made simultaneously. If tilt of image cannot be removed by adjusting the 90° prisms, replace the right and left prism assemblies, and retest.

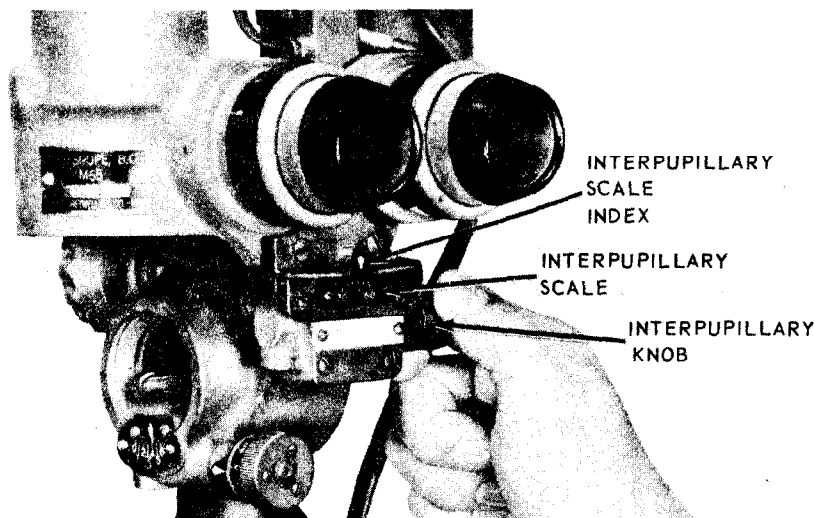
i. Interpupillary Scale Setting. Adjust the interpupillary knob (fig. 3-8) so that the distance as actually measured with a machinist scale between corresponding parts of the eyepieces is 2.52 inches correct within 0.020 inches (0.5 mm). Loosen the two screws (18, fig. B-23) which secure the interpupillary scale to the interpupillary screw housing (21, fig. B-23) and aline the 64 mm graduation with the index. The two screws are in elongated holes which permit lateral movement of the scale against the index if adjustment is, indicated. If the interpupillary scale movement is less than 12 mm, refer to Table 2-4 troubleshooting.

j. Collimation.

(1) With dioptometer setup as in paragraph *e(4)* above, slide the surface gage behind the right eyepiece and sight through the dioptometer to determine whether or not the line-of-sight is centered on the upper right circle of the target. If it is not, remove the head cap (3, fig. B-18) of the upper right head and adjust the three spring-loaded screws of the 90° prism holder assembly (fig. 3-9) until the cross hairs of the dioptometer are superimposed on the right aiming point of the target (fig. 3-5).

(2) Slide the surface gage to bring the dioptometer behind the left eyepiece and perform adjustments as in (1) above until the crosshairs of the dioptometer reticle are superimposed on the left aiming point of the target.

(3) Set the interpupillary distance at 72 mm and slide the dioptometer behind the left eyepiece. The crosshairs of the dioptometer re-



WE 53676

Figure 3-8. Adjusting interpupillary scale.

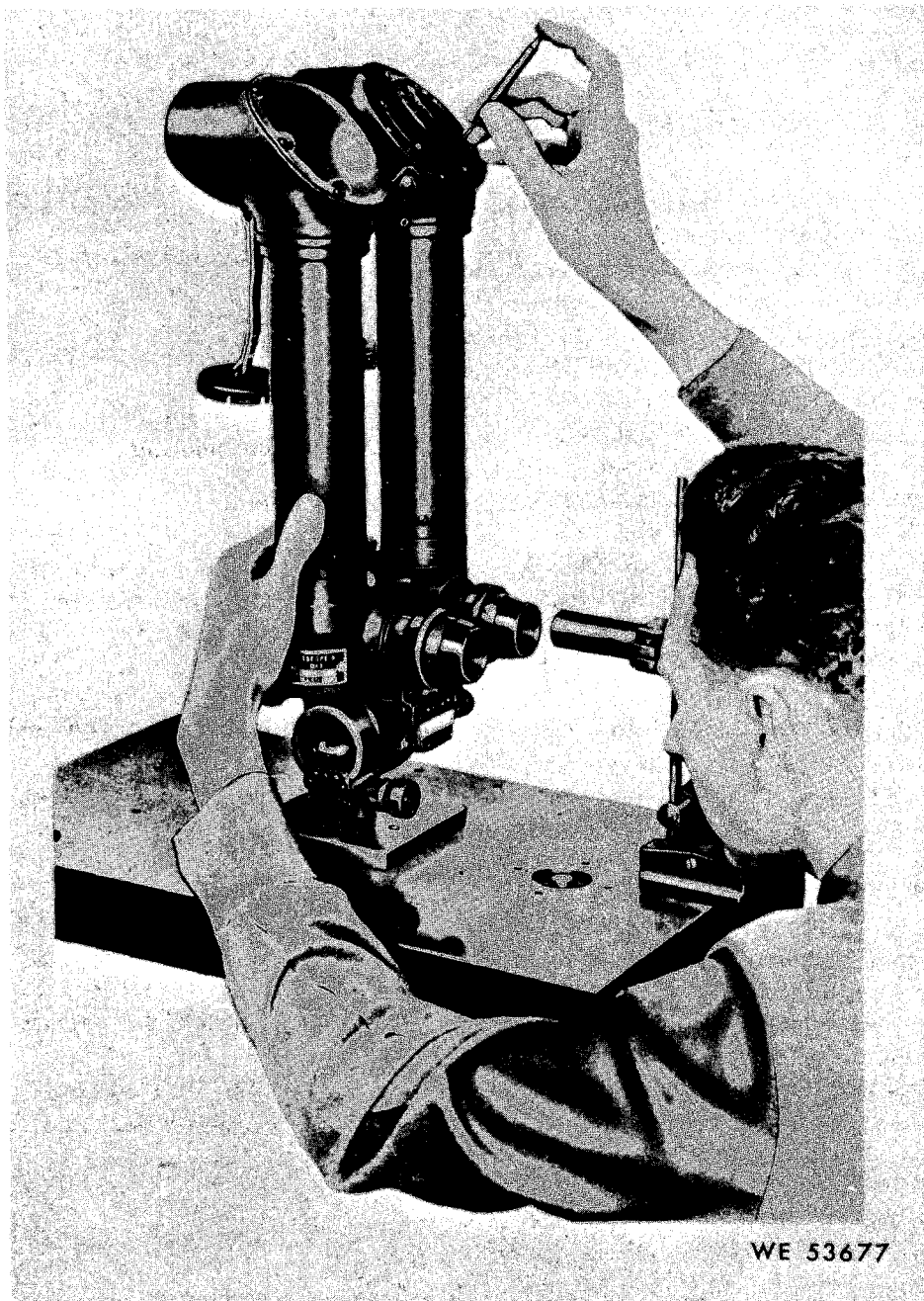


Figure 3-9. Adjusting 90° prism holder assembly.

title must be within the tolerance rectangle of the target. Check the right eyepiece to see that its line-of-sight is still superimposed on the right aiming point of the target.

(4) Set the interpupillary distance at 60 mm and repeat the test checking the right eyepiece to see that it has not moved.

(5) When the cross hairs of the dioptrimeter do not stay within the tolerance rectangle at all interpupillary settings, the optical axis of the tubes are not parallel to the true mechanical axis of the hinge. Consequently, it is

necessary to relocate the optical line-of-sight adjusting the 90° prisms. In making this adjustment, the error will be split on either side of the true line-of-sight. Thus, a vertical error of 1.0 mil will read 0.5 mil above and 0.5 mil below the line-of-sight at the extremities of the interpupillary movement. Horizontal errors will be corrected in the same manner. Apply sealing compound MIL-S-11031 over exposed ends of three screws in each prism holder (4, fig. B-22) and over ends of four pins (14 and 15, fig. B-18). Install gaskets (4 and 8, fig. B-18), caps (3 and 7, fig. B-18), with twelve washers (2 and 6, fig. B-18) and twelve

screws (1 and 5, fig. B-18). When the instrument cannot be collimated by adjusting the head prisms, the error can generally be attributed to binding in the hinge or to binding in the interpupillary movement. To inspect the hinge, disassemble the interpupillary movement and swing the left tube outward on the hinge. When released, it should return to its normal position under its own weight. A further check can be made by viewing the target through the left eyepiece with a dioptrimeter and moving the left eyepiece and the dioptrimeter through the range of the interpupillary movement. When the line-of-sight remains within the tolerance rectangle of the target, the hinge is not the source of error. To inspect the interpupillary movement, examine the mating surfaces of the left housing bracket and the interpupillary screw housing for burrs, nicks, or binding. Remove burrs or high spots on the mating surfaces of the hinge or of the interpupillary movement with a fine mill file. When these measures fail to correct the collimation error, replace all worn or damaged parts.

k. Adjusting Angle of Site Level. With the periscope collimated as in paragraph *j* above and the adjustable surface plate cross-leveled, center the angle of site level bubble. When it is necessary to reset the angle of site index or the micrometer, proceed as follows: Loosen two screws (40, fig. B-5) which secure the angle of site index 45, fig. B-5) to the level vial holder and move the index so that the arrow coincides with the "3" on the angle of site scale. Tighten the two screws. Loosen the three retaining screws (22, fig. B-5) which secure the angle of site knob and micrometer and turn the micrometer until the "0" coincides with the index. Tighten the three screws and check and level the bubble position. The angle of site mechanism should be operated throughout its entire range and should function without undue irregularities, friction, binding, or looseness.

1. Elevation and Angle of Site Mechanisms.

(1) *General.* The periscope must be checked at each point of elevation for proper scale readings, plumb travel, and backlash in the elevation and angle of site mechanisms. These tests may be conducted by using the cross-leveling and elevation test fixture 4931-00-652-3553.

(2) Setup of cross-level and elevation test fixture (fig. 3-10).

(a) Secure fixture on a sturdy stand, approximately level, at a suitable height for operation.

(b) Check the elevation mounting shaft of the fixture for defects such as burrs and digs. Remove as required.

(c) Mount adapter assembly, 4931-00-346-8314, on elevation shaft. Snug adapter screws, do not tighten.

(d) Turn hand wheels on fixture until square position of upper shaft is approximately level.

(e) Place a 5-second level crosswise on square of upper shaft. Turn upper section hand wheel until bubble of the level is centered. Move vernier scale until the zero graduation is aligned with the zero graduation on the upper section hand wheel scale.

(f) Turn the 5-second level parallel to the axis on the square of the upper shaft. Center the level bubble with the lower section hand wheel and adjust vernier scale to align the zero graduation with the zero on the lower section hand wheel scale.

(g) Place 5-second level on the surface of the fixture adapter and adjust position on the elevation shaft of the fixture until its horizontal surface is cross-leveled. Tighten screws.

(h) Place a V-block with collimator attached and preplumbed reticle on the adapter assembly.

(i) Suspend a plumb line thirty feet in front of the collimator. Superimpose the collimator reticle on the plumb line and clamp to the adapter assembly.

(j) Operate the elevation hand wheel rotating the fixture testing its ability to track the plumb line. If deviation occurs, adjust the cross-leveling hand wheel until the line-of-sight tracks the plumb line.

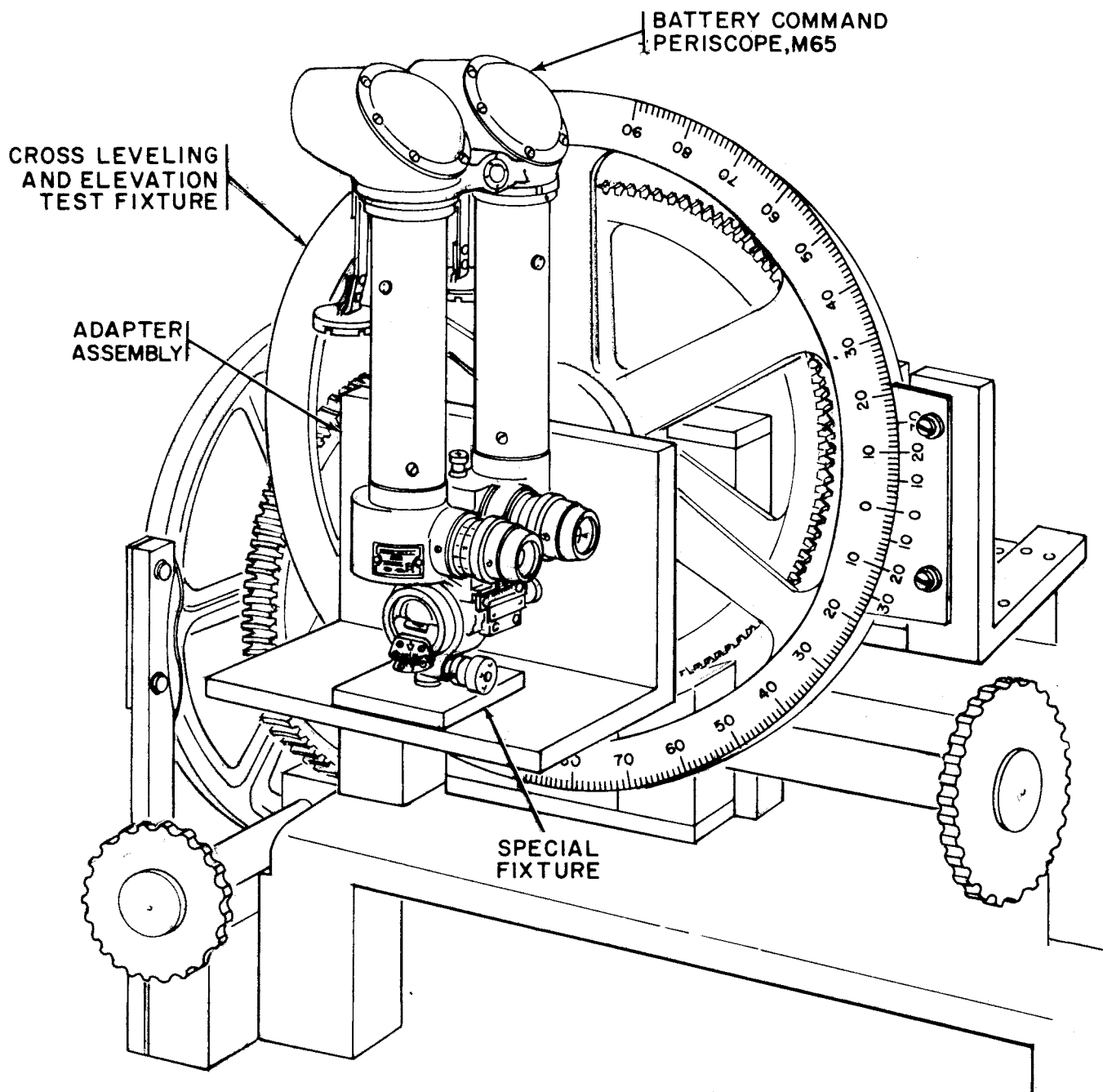
(k) Set the vernier scale zero to the lower section hand wheel scale zero.

(l) Install and clamp fabricated special fixture (fig. 3-4) on the surface of the adapter assembly and install the periscope on the spindle of the special fixture.

Note: The special fixture will be positioned so that the mating keys of the periscope and the fixture, when engaged will result in the line-of-sight of the periscope being perpendicular to the fixture elevation axis.

(3) *Plumb (vertical) travel.*

(a) *General.* The elevation mechanism rotates the periscope in a vertical -plane. The full elevating movement is approximately 320 mils above to 320 mils below the horizontal line-of-sight. The elevation or vertical movement is of the worm and gear segment type (14 and 21, fig. B-5). Vertical movements must be inspected for backlash, error in vertical travel, and accuracy of elevation readings.



WE 56479

Figure 3-10. Cross-level and elevation test fixture with adapter.

(b) *Plumb travel.* With the periscope spindle socket in a true vertical position and the vertical reticle line of the periscope superimposed on the plumb line, rotate the periscope by means of its elevation knob throughout approximately 320 mils elevation and 320 mils depression. The periscope line-of-sight will not deviate from the plumb line by more than 1.0 mil throughout total range of elevation and depression.

(c) *Angle of site error.* Known angles of elevation or depression are set in the cross-leveling and elevation fixture and the angle of site mechanism of the periscope. In using the cross-leveling and elevation test fixture, the elevation movement is displaced vertically in known angular steps. The level vial bubble of the periscope is then centered using the angle of the site knob. Any existing error can be read on the angle

of site micrometer scale. Check to see that the error of any angle of site reading including backlash (para (e) below) does not exceed 2.0 mils.

(d) *Adjustment.* Angle of site errors indicate irregular tooth spacing on the gear segment, in which case the section of the segment causing the error should be repaired.

(e) *Elevation excursion and backlash.* See that the elevation mechanism has full 640 mil movement without friction looseness or chatter. Place the angle of site scale at "0". Set if the bubble can be centered by rotating the elevating knob. Repeat this procedure with the angle of site scale at "6" and the micrometer at "0". If the bubble cannot be centered by rotating the elevating knob when the angle of site scale is set at "0" or "6" and the micrometer at "0", inspect and replace the elevating worm gear if unserviceable. If full movement is not attained, check the position of the key washers (6, fig. B-5) and see that they are in proper relationship to each other. If this fails to free the movement, lap the elevating worm and worm gear together with lapping and grinding compound, MIL-L-17862. The high spots on the extremities of the worm gear must be relieved to match the wear in the center of the worm. This should result in a smooth movement over the full 640 mils (320 mils elevation and 320 mils depression).

(f) *Backlash in angle of site mechanism.* Set angle of site scale at "3" and the micrometer at "0". Center the bubble of the angle of site level vial by rotating the elevating knob. Rotate the angle of site micrometer until the scale reads "0", and bring it back again until the level vial bubble is again centered. Do not overpass the point of level. Note the micrometer reading. Rotate the micrometer until the scale reads "6" and return to the level point. Again note the micrometer reading. The sum of the differences between the two readings is the amount of the backlash. If backlash exceeds 1.0 mil, increase the tension on the compression spring (32, fig. B-5) by tightening the plug (31, fig. B-5). Apply sealing compound, MIL-S-11031, on threads of plug at time of final adjustment. If backlash results from end play in the worm, tighten the ball cap (36, fig. B-5).

(g) *Azimuth displacement.* While the angle of site mechanism of the periscope positioned horizontally (index at "3" and micrometer at "0"), view through the right eyepiece and rotate the elevation knob to establish the horizontal line-of-sight. Rotate the knob to elevate the line of sight to 300 mils. Azimuth displacement between the vertical reticle line of the periscope and the plumb line shall not exceed 0.5

mils when reversing the travel of the elevation knob to establish zero elevation.

3-16. Periscope Mount M48

a. *General.* Utilizing the inspection adapter assembly 4931-00-765-1336 and adapter assembly 4931-00-765-1338 for the telescope 4931-00-554-9108. The periscope mount can be tested on the azimuth test fixture 4931-00-769-1596 (fig. 3-11).

b. *Setup Procedure for Azimuth Test Fixture.* The azimuth test fixture shall be setup as listed below:

(1) With the azimuth test fixture installed on a bench or other firm support, place the 5-second level, 5210-00-546-6362, on the adapter support plate and adjust the three leveling screws in the housing until the fixture is level in all positions when the azimuth ring is turned 6400 mils.

(2) Install inspection adapter assembly on the adapter support plate of the azimuth test fixture. Secure in position with three clamping screws.

(3) Install periscope mount in position on inspection adapter assembly. Clamp mount in position but do not secure.

(4) Install adapter assembly on mount spindle in keyed position.

(5) Install and clamp telescope collimator in adapter assembly with the vertical reticle line adjusted to plumb with reference to a distant suspended plumb line. Secure telescope collimator in position and verify plumb of its reticle.

(6) Slide the bracket with the projector collimator along the tube until the optical axis of the projector collimator is at approximately the same height as the optical axis of the telescope collimator. Clamp the housing to secure the projector collimator. Adjust the leveling screws in the bracket until the level vial bubble is centered.

(7) On the projector collimator, set the adjustable objective scale to infinity. Loosen the locking screws on the azimuth test fixture and rotate as a unit, inspection adapter assembly, periscope mount, adapter assembly, and the telescope collimator until the vertical reticle line of the telescope collimator coincides with the vertical reticle line of the projector collimator. Clamp the inspection adapter assembly to the azimuth test fixture by tightening the three locking screws. Adjust the vertical movement of the projector collimator until the horizontal reticle lines of the

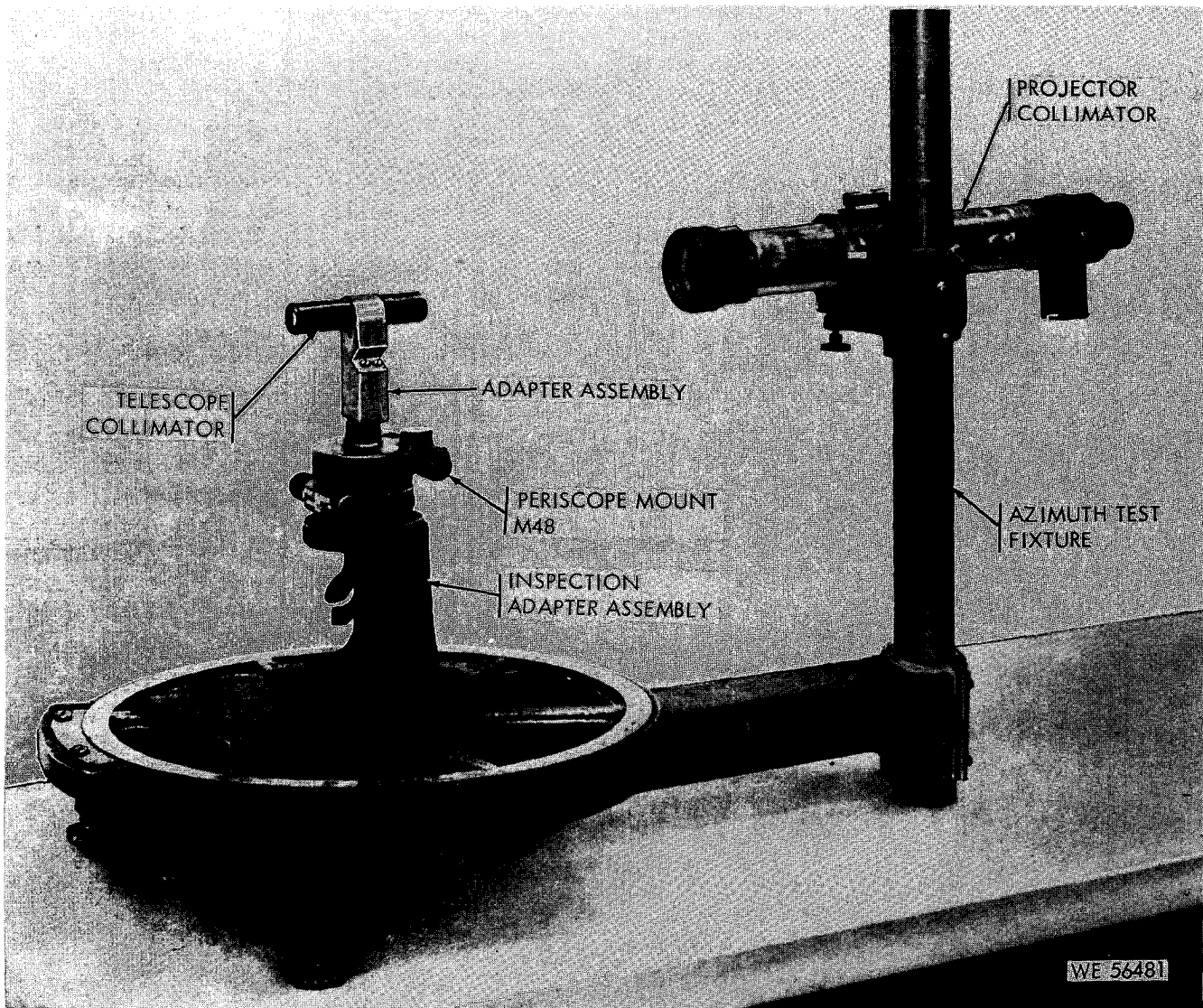


Figure 3-11. Periscope mount M48 mounted on azimuth test fixture.

telescope collimator and of the projector collimator coincides by loosening the clamp on the housing and raising or lowering the projector collimator.

Note: Simultaneous with above adjustment, the periscope mount must be tilted in the inspection adapter assembly to bring the upper spindle of the mount in a true vertical position. The amount of tilt to be eliminated is determined by alternately advancing the fixture 400 mils and returning the telescope collimator to the projector collimator aiming reference through use of the azimuth knob. This is repeated making necessary corrections until deviation of the horizontal reticle line of the telescope collimator from the projector collimator horizontal reticle line has been eliminated. Clamp the periscope mount securely to the inspection adapter assembly, and verify plumb of telescope collimator vertical reticle line against the suspended plumb line.

(8) Plumb the projector collimator at this time. Loosen the locking lever so that the azimuth ring can be rotated to move the line of sight of the telescope collimator across the full field-of-view of the reticle in the projector collimator. Rotate the projector collimator about its axis until the horizontal reticle line of the projector collimator is parallel to the horizontal reticle line of the telescope collimator throughout its entire length when the line of sight is moved from side to side. Tighten the clamping screws on the bracket to secure the projector collimator in position. Tighten the locking lever on the housing to secure the azimuth ring in place.

(9) If the vertical reticle lines do not exactly coincide, adjustment is made by turning the

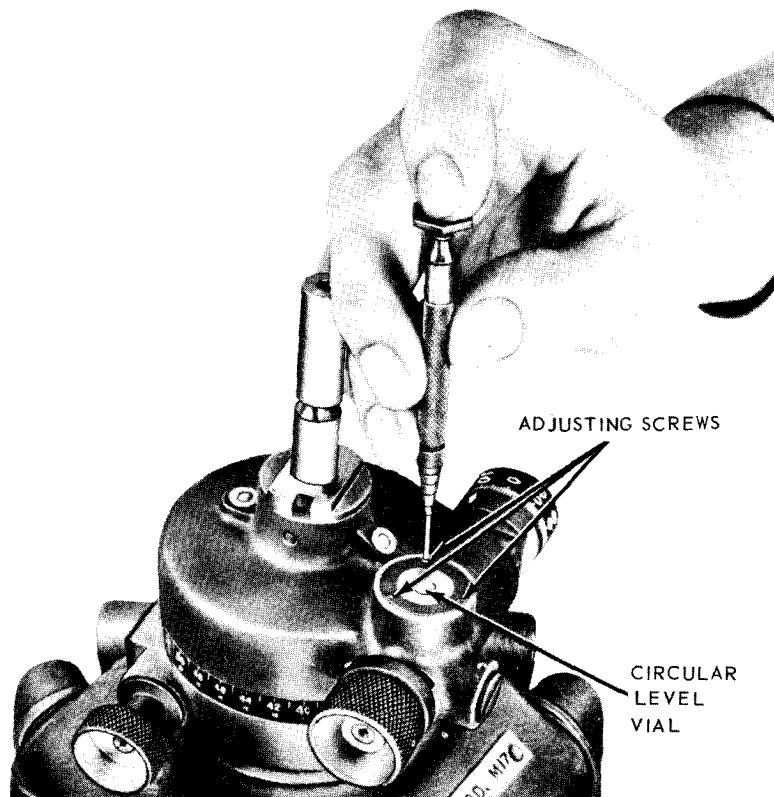
fine adjustment thumb-screw of the azimuth ring. The "0" on the vernier should now be aligned with the "0" on the azimuth ring. If the "0" is not aligned, loosen the two No. 10 x 15/16 special screws that secure the vernier to the housing. Position the vernier by adjusting the 1/4 x 1.0 special screw to align the "0" and secure by tightening the two No. 10 special screws. The azimuth test fixture is now properly setup and zeroed.

(10) *Circular level vial accuracy.* With the spindle of the periscope mount vertical (para (1) through (8) above) check the position of the circular level vial bubble on the mount. The level vial bubble must be central within the limits of the etched circle on the vial. If adjustment is required, center the level vial bubble by tightening and loosening alternate adjusting screws (fig. 3-12). Rotate the mount 360° with the azimuth knob and insure that the bubble remains centered.

(11) *Horizontal travel.* With the azimuth test fixture ring set at zero, rotate the azimuth micrometer knob of the mount until the vertical lines of the telescope collimator are in coincidence

with the cross lines of the projector collimator, 4931-00-757-3291 reticle on the azimuth test fixture. The optical line of sight of the telescope collimator will not deviate up or down from a point on a vertical line of the projector collimator by more than 1.5 mils when the mount is rotated by means of the azimuth knob and/or orienting knob to any position in 6400 mils and the optical line of sight of the telescope collimator is brought back to the projector collimator target by means of fixture ring. If deviation exceeds the 1.5 mils adjustment is required. Mating parts must be checked. The spindle assembly shaft and taper, as well as the mating taper on the housing must be perpendicular and concentric.

(12) *Vertical displacement.* With the scales of the mount and the azimuth fixture set at zero, the line-of-sight of the telescope collimator in coincidence with the intersection of the horizontal and vertical center lines of the projector collimator, rotate the azimuth ring of the fixture 800 mils. The azimuth knob of the mount shall be rotated in the opposite direction the same amount as indicated by the azimuth micrometer



WE 53678

Figure 3-12. Adjusting circular level vial.

scale. Observe the line of sight of the telescope collimator in relation to the projector collimator reticle. Record the error of the telescope collimator horizontal reticle line in reference to the projector collimator reticle. Reverse the direction of the azimuth knob one quarter turn and observe the error. Deviation as measured on the projector collimator shall not exceed 1.5 mils. Continue the test at 800 mil intervals through 6400 mils. If deviation exceeds the 1.5 mil tolerance, adjustment is required. It may be excessive play in mating tapers of spindle assembly (47, fig. B-25) and housing (20, fig. B-25). The clearance may be too great between worm gear (45, fig. B-25) and spindle assembly or improper tightening of round nut (18, or 43, fig. B-25) and other mating parts.

(13) *Azimuth error.* (Accuracy of azimuth readings).

(a) *General.* The azimuth scales and micrometers must be checked for accuracy of the angular rotation in relation to the scale readings. If the azimuth and orienting mechanisms of the mount move through any specific angle, the azimuth scale and micrometer must indicate this angle. Azimuth error exists if the azimuth scales and the angular rotation of telescope collimator installed on-the periscope mount are not in accord. Azimuth error must not be confused with backlash.

(b) *Check-out procedure.* Set up azimuth test fixture (para (1) through (8) above). The inspection is completed by advancing the fixture 800 mils each time and returning the telescope collimator to the projector collimator aiming point reference using the periscope mount azimuth knob. After each move the micrometer and azimuth scale must be recorded until a complete rotation has been made. With the azimuth scale and micrometer of the mount set at zero, adjust the vernier of the fixture to "0" position on the scale and clamp it securely. Aline the vertical reticle line of the telescope collimator with the vertical reticle line of the projector collimator. Determine the azimuth error by rotating the fixture azimuth ring 800 mils from zero, in a clockwise or counterclockwise direction. Return the reticle line to coincidence with the vertical center line of the projector collimator by rotating the azimuth knob of the mount. The reading of the azimuth scale and micrometer of the mount should indicate 800 mils from "0". Continue displacing the azimuth ring of the fixture by 800 mil steps, returning the reticle line to coincidence

in each case, until "0" position is reached. Care must be exercised in these test methods to keep the movement of the azimuth worm mechanism turning in one direction so that what ever backlash exists will not be confused with an azimuth error. This is done by approaching the aiming reference slowly and stopping at the reference point without overtravel. Care must also be used in setting the azimuth test fixture readings. The azimuth error in the azimuth mechanism will not exceed 2.0 mils, excluding backlash, at any point on the azimuth circle.

(14) *Backlash.*

(a) *Azimuth mechanism.* If the amount of backlash exceeds 2.0 mils adjust as follows: To correct backlash between the azimuth worm and worm gear, increase the tension on the compression spring (35, fig. B-25) by tightening the slotted plug (34, fig. B-25). Adjust for end play between the azimuth worm and the ball cap by tightening the ball cap (38, fig. B-25). Burrs or irregularities in bearing surfaces may also introduce error requiring the removal of burrs to correct the defect.

(b) *Orienting mechanism.* Superimpose the center of the reticle of the telescope collimator on the center of the projector collimator reticle. While viewing the projector collimator target reference through the telescope collimator, move the orienting knob slightly and notice if the center of the reticle appears to move away from the reference line. If it does not move immediately, backlash is present. If more than 2.0 mils backlash exists, eliminate as follows: Increase the tension of the spring (9, fig. B-25), check the plunger (10, fig. B-25) for defects, and make sure that cover (8, fig. B-25) is secure. To adjust for end play between the orienting worm and ball cap, tighten the ball cap (13, fig. B-25) .

(15) *Scale coincidence.* If the zero graduation of the azimuth micrometer does not coincide with its index when azimuth scale marking is in coincidence with the azimuth scale index, adjustment is required. Rotate the azimuth micrometer knob to aline any of the 100 mil graduations of the azimuth scale with its related index. Use a jeweler's eye loupe, if necessary, for accurate alinement. If the azimuth micrometer scale does not read zero, loosen the three screws (22, fig. B-25) that secure the micrometer scale and rotate the scale to zero. Tighten the screws to secure adjustment.

CHAPTER 4

FINAL INSPECTION

Section I. GENERAL

4-1. Scope

Final inspection of the battery command periscope M65 and associated equipment is performed after repairs have been completed to ensure that the items are serviceable according to the established standards in Chapter 2.

4-2. Purpose

Satisfactory completion of initial inspection listed in Table 2-5, plus final inspection standards contained in this chapter, will certify the periscope and its associated equipment as completely serviceable for return to user.

Section II. INSPECTION OF PERISCOPE M65

4-3. Completeness

The periscope must be complete with all necessary screws, nuts, and washers in place and secured.

4-4. Condition of Optics

Optical components must be free of scratches, pits, dirt, moisture, and chips that will interfere with periscope performance.

4-5. Eyepiece Focus

Eyepiece focus shall be adjustable over the range of at least plus and minus 3 diopters as read on each eyepiece scale. The zero diopter setting of each eyepiece scale shall indicate zero diopter within ± 0.5 diopter. This should happen when infinity target images are brought into clear focus when viewed with the aid of a diometer.

4-6. Definition

The images formed by the optical systems will be sharp and clear at the center of the field. Definition will be checked with the aid of a diometer as required in paragraph 4-5 above.

4-7. Parallelism of Reticle and Image

The vertical reticle line of the periscope shall be parallel to the vertical target image (plumb line) within 0.8 mils at the edge of the field

when measured over a field-of-view of 80 mils on the periscope reticle.

4-8. Image Tilt

The image of a plumb line formed by the two optical systems shall be vertical within 18 mils and parallel to each other within 9.0 mils.

4-9. Parallax

There shall be no parallax between the target image and the center of the periscope reticle at a distance between 900 to 1100 meters.

4-10. Collimation

Parallel rays entering the objectives shall emerge from the eyepiece parallel within 15 minutes of arc (4.5 mils) in divergence and shall not diverge less than 5 minutes (1.5 mils) nor more than 30 minutes of arc (8.9 mils). These conditions shall be met utilizing fabricated testing target (fig. 3-5) set at least 1,000 meters distance from the eyepieces, and for any setting of the interpupillary scale between 60 and 72 mm.

4-11. Eyepiece Movements

The periscope eyepieces will function without undue irregularities, friction, or looseness throughout the entire range of the diopter scale.

4-12. Eyepiece Stagger

With the same diopter reading on each eyepiece, one eyepiece will not extend beyond the other by more than $1/32 \pm 1/64$ of an inch.

4-13. Filters

There shall be complete filter coverage for each periscope. The filter knobs shall indicate the correct filter position. There shall be no overlap of adjacent filters in the field of view. The filters will be clean and free from cracks or breaks.

4-14. Reticle Focus

The periscope reticle shall be in sharp focus at zero diopter within ± 0.5 diopter when viewed with the aid of a diptometer.

4-15. Interpupillary Movement and Scale

The interpupillary movement shall function without undue irregularities, friction, or looseness between 60 and 72 mm. The interpupillary distance indicated by the scale will be correct within 0.5 mm.

4-16. Angle of Site Mechanism

The angle of site mechanism shall function without undue irregularities, friction, or looseness.

4-17. Angle of Site Error

The error of any angle of site reading shall not exceed 2.0 mils including backlash.

4-18. Backlash

The backlash in the angle of site mechanism shall not exceed 1.0 mil.

4-19. Angle of Site Level

With the periscope spindle socket in a true vertical position and the optical line of sight horizontal, the angle of site level bubble will be central with respect to the vial graduations when the angle of site index is opposite "3" of the angle of site scale and the angle of site micrometer dial is set to read zero.

4-20. Elevation Excursion

With the periscope mounted on a spindle the

elevation mechanism shall function without undue irregularities, friction, looseness, or chatter. If chatter exists in the movement, it shall not result in causing the periscope to move in "jump" more than 2.0 mils at any point throughout total excursion.

4-21. Plumb Travel

With the periscope spindle socket in a true vertical position, the optical line-of-sight shall not deviate from a plumb line by more than 1.0 mil when the periscope is rotated through an angle of approximately 320 mils below to 320 mils above the horizontal line-of-sight.

4-22. Azimuth Displacement (Shift)

The azimuth shift in the line-of-sight at horizontal position (angle of site mechanism positioned to index 3, micrometer 0) shall not exceed 0.5 mil after a change of 300 mils in elevation and 300 mils in depression from a horizontal position.

4-23. Illumination

With the reticle illuminated by instrument light M28 or equivalent, the reticle markings will be clearly defined when the cap is positioned to cover the objective window of the right periscope.

4-24. Sealing, Purging, and Charging

The left and right periscope tubes shall each be pressurized utilizing purging kit 4931-00-065-1110 and nitrogen FED-BB-N-411. An internal pressure of 5 psi is required. The pressure on each tube shall be maintained at 5 psi for a period of 5 minutes to balance pressure within the instruments internal cells. Subsequent to the 5 minutes balancing period the periscope shall show no evidence of leakage with an internal pressure of 5 psi over a period of 5 minutes ± 15 seconds. The periscopes shall then be flushed with dry nitrogen and sealed with an internal pressure between 0.25 and 0.50 psi of dry nitrogen (see TM 750-116).

4-25. Plugs

The protective metal covers will fit properly with their mating parts on the periscope.

Section III. INSPECTION OF PERISCOPE MOUNT M48

4-26. Components

The periscope mounting spindle, lower spindle, and the mount clamping mechanism will function properly for support and adjustment of the periscope.

4-27. Circular Level

With the periscope mounting spindle in a true vertical position, the circular level vial will be central within the etched circle on the cover glass.

4-28. Movements

The azimuth and orienting worms will function without undue irregularities, friction or looseness. The azimuth worm throwout mechanism will function so as to return the worm into mesh immediately upon releasing.

4-29. Azimuth Reading

Error of any azimuth reading shall not exceed 2.0 mils excluding backlash.

4-30. Backlash

Backlash in the azimuth and orienting worm mechanism shall not exceed 2.0 mils in each mechanism.

4-31. Vertical Displacement

The axis of the mounting spindle shall not deviate from its vertical position by more than 1.5 mils when the mount is rotated to any position of azimuth rotation.

4-32. Horizontal Travel

The optical line-of-sight of the telescope collimator will not deviate up or down from a point on the vertical line of the collimator projector by more than 1.5 mils when the mount is rotated by means of the azimuth and/or orienting knob to any position in 6400 mils.

4-33. Scale Coincidence

The zero graduation of the azimuth micrometer shall coincide with its index when any azimuth scale marking is in coincidence with the azimuth scale index.

Section IV. INSPECTION OF COVER ASSEMBLY 6583358

4-34. Cover

The metal cover for the periscope mount shall not be damaged in any way that will prevent it from fitting properly on the M17 tripod when the mount is attached.

4-35. Straps

The straps shall be free from mold, breaks, tears, loose stitching, or defective buckles.

Section V. INSPECTION OF TRIPOD M17

4-36. Components

The tripod head, hinge assemblies, and leg assemblies shall function properly for support and adjustment of the mount and the periscope.

4-37. Strap Assembly

The strap assembly shall be free from mold, breaks, tears, loose stitching, or defective buckles.

Section VI. INSPECTION OF TRIPOD M10, ADAPTER M14 AND INSTRUMENT LIGHT M28

4-38. Components

The metal components shall not be damaged in any way that would prevent the periscope and the mount from being securely supported. They should be free from corrosion or loose paint.

4-39. Instrument Light

The instrument light shall be checked for completeness, operation of switch and lamp, and condition of wiring. The case shall not be dented nor shall any parts be bent or twisted.

Section VII. INSPECTION OF PACKING CHEST M39A1
AND CARRYING CASE M45

4-40. Components

All leather, wood felt, and metal components shall be free from mold, breaks, tears, rust, defective lid clamps or broken handles.

4-41. Packing Chest

The packing chest shall not be damaged in any way that would prevent the periscope from

being securely supported in its respective position in the chest without damage.

4-42. Carrying Case

The carrying case shall not be damaged in any way that would prevent the tripod M10 and the adapter from being securely supported in their respective positions in the case without damage.

APPENDIX A

REFERENCES

A-1. Supply Publications

The following Department of the Army Supply Publications pertain to repair of this materiel:

Abrasive materials	C5350-IL-A
Brushes, Paints, Sealers and Adhesives	C8000-IL-A
Disks and Stones, Abrasive.	C5345-IL-A
Fire Control Maintenance and Repair Shop Specialized Equipment Tool Set, DS, GS and Depot Maintenance, General Purpose Tools (4931-574-6433).	SC 4931-95-CL-J51
Fire Control Maintenance and Repair Shop Specialized Equipment Wrench Set, Spanner DS, GS and Depot Maintenance: Tubr, Dble-End Concave Inserted Blade; Set of 76 Wrenches (4931-580-0012)	SC 4931-95-CL-J52
Purging Kit, Fire Control (4931-065-1110)	SC 4931-95-CL-J54
Miscellaneous Chemical Specialities	C6800-IL
Miscellaneous Hardware	C5340-IL-A
Fuels, Lubricants, Oils, and Waxes	C9100-IL

A-2. Other Publications

a. General.

Federal Supply Code for Manufacturers-United States and Canada-Code to Name (Cataloging Handbook H4-2)..	SB 708-42
The Army Maintenance Management Systems (TAMMS)	TM 38-750
US Army Equipment Index of Modification Work Orders	DA PAM 310-7

b. Maintenance.

General Maintenance Procedures for Fire Control Materiel	TM 9-254
Grease, Aircraft and Instrument, Gear and Actuator Screw	MIL-G-23827
Operator and Organizational Maintenance Manual (Including Repair Parts and Special Tools List) Periscope, Battery Command, M65 (W/E) (1240-678-5577)	TM 9-1240-368-12
Purging and Charging of Fire Control Instruments	TM 750-116
Recommended Changes to DA Publications	DA Form 2028
Sealing Compound, Adhesive Curing (Polysulfide Base)	MIL-S-11031

APPENDIX B

REPAIR PARTS AND SPECIAL TOOLS LIST

This appendix is current as of 1 May 1973

Section I. INTRODUCTION

B-1. Scope

This appendix lists repair parts, special tools, and support equipment required for the performance of direct support and general support maintenance of the battery command periscope M65 and associated equipment.

6-2. General

This Repair Parts and Special Tools List is divided into the following sections.

a. Repair Parts List-Section II. A list of repair parts authorized at the direct support and general support levels for the performance of maintenance. This list also includes parts which must be removed for the replacement of the authorized parts. Parts lists are composed of functional groups in ascending numerical sequence, with parts in each group listed in figure and item number sequence.

b. Special Tools List-Section III. A list of special tools, test and support equipment authorized for the performance of maintenance at the direct support and general support levels.

c. National Stock Number and Reference Number Index-Section IV. A list, in ascending numerical sequence, of all national stock numbers appearing in the listings followed by a list, in alphameric sequence, of all reference numbers appearing in the listings. National stock number and reference numbers are cross-referenced to each illustration figure and item number appearance.

B-3. Explanation of Columns

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

a. Source, Maintenance, and Recoverability Codes (SMR).

(1) *Source code.* Indicates the manner of acquiring support items for maintenance, repair, or overhaul of end items. Source codes are:

<i>Code</i>	<i>Explanation</i>
PA	Item procured and stocked for anticipated or known usage.
PB	Item procured and stocked for insurance purposes because essentiality dictates that a minimum quantity be available in the supply systems.
PC	Item procured and stocked and which otherwise would be coded "PA" except that it is deteriorative in nature.
PD	Support item, excluding support equipment, procured for initial issue or outfitting and stocked only for subsequent or additional initial issues or outfitting. Not subject to automatic replenishment.
PE	Support equipment procured and stocked for initial issue or outfitting to specified maintenance repair activities.
PF	Support equipment which will not be stocked but which will be centrally procured on demand.
MO	Item to be manufactured or fabricated at organization level.
MF	Item to be manufactured or fabricated at direct support level.
MH	Item to be manufactured or fabricated at general support.
MD	Item to be manufactured or fabricated at depot maintenance level.
AO	Item to be assembled at organizational level.
AF	Item to be assembled at direct support maintenance level.
AH	Item to be assembled at general support maintenance level.
AD	Item to be assembled at depot maintenance level.
XA	Item not procured or stocked because the requirements for the item will result in the replacement of the next higher assembly.
XB	Item is not intended for procurement and is not stocked. If not available thru salvage, requisition.
XC	Installation drawing, diagram, instruction sheet, field service drawing, that is identified by manufacturers part number.

(2) *Maintenance codes.* Indicates the levels of maintenance authorized to USE and REPAIR support items.

(a) *Use code*. Indicates the lowest maintenance level authorized to remove, replace, and use the support item. Use codes are:

Code	Explanation
C	Used to denote crew or operator maintenance; performed within organizational maintenance.
O	Support item is removed, replaced, used at the organizational level of maintenance.
F	Support item is removed, replaced, used at the direct support level.
H	Support item is removed, replaced, used at the general support level.
D	Support item is removed, replaced, used at depot only.

(b) *Repair code*. Indicates whether the item is to be repaired and identifies the lowest maintenance level with the capability to perform complete repair (i.e., all authorized maintenance functions). Repair codes are:

Code	Explanation
O	The lowest maintenance level capable of complete repair of the support item is the organizational level.
F	The lowest maintenance level capable of complete repair of the support item is direct support.
H	The lowest maintenance level capable of complete repair of the support item is general support.
D	The lowest maintenance level capable of complete repair of the support item is the depot level.
z	Nonrepairable.

(3) *Recoverability codes*. Indicates the disposition action on unserviceable items. Recoverability codes are:

Code	Explanation
z	Nonrepairable item. When unserviceable, condemn and dispose at the level authorized to replace the item.
F	Repairable item. When uneconomically repairable, condemn and dispose at direct support level.
H	Repairable item. When uneconomically repairable, condemn and dispose at general support level.
D	Repairable item. When beyond lower level repair capability, return to depot. Condemnation and disposal not authorized below depot level.
L	Repairable item. Repair, condemnation and disposal not authorized below depot/specialized repair activity level.
A	Item requires special handling or condemnation procedure because of specific reasons (i.e., precious metal content, high dollar value, critical material or hazardous material). Refer to appropriate manuals/directives for specific instructions.

b. *National Stock Number*. Indicates the na-

tional stock number assigned to the item and will be used for requisitioning purposes.

c. *Description*. Indicates the Federal item name and a minimum description required to identify the item. The last line indicates the reference number followed by the applicable Federal Supply Code for Manufacturer (FSCM) in parentheses. The FSCM is used as an element in item identification to designate manufacturer or distributor or Government Agency, etc., and is identified in SB 708-42.

d. *Unit of Measure (U/M)*. Indicates the standard or basic quantity by which the listed item is used in performing the actual maintenance function. The measure is expressed by a two-character alphabetical abbreviation, e.g., ea, in, pr, etc., and is the basis used to indicate quantities and allowances in subsequent columns. When the unit of measure differs from the unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned.

e. *Quantity Incorporated in Unit*. Indicates the quantity of the item used in the breakout shown in the illustration figure, which is prepared for a functional group, subfunctions] group, or an assembly. A "V" appearing in this column in lieu of a quantity indicates that no specific quantity is applicable, e.g., shims, spacers, etc.

f. *Allowance Columns*. The allowance columns are left blank intentionally. The maintenance level code indicates that the item is authorized for use at that category. Direct support and general support maintenance parts will be requisitioned on an as required basis until authorized stockage levels are established based on demand criteria.

g. *Illustration*. This column is divided as follows :

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

(2) *Item number*. Indicates the callout number to reference the item on the illustration.

B-4. Special Information

a. Action change codes indicated in the left hand margin of the listing page denote the following:

N-Indicates an added item.
 C-Indicates a change in data.
 R-Indicates a change in NSN only.

b. To maintain disassembly sequence in this manual a number in parentheses will be displayed

immediately to the right of the callout number on the illustration.

B-5. How to Locate Repair Parts

a. When National Stock Number or Reference Number is Unknown:

(1) *First.* Using the table of contents determine the functional or subfunctional group within which the repair part belongs, i e., engine, engine assembly, transmission, transmission assembly. This is necessary since illustrations are prepared for functional and subfunctional groups, and listings are divided into the same groups.

(2) *Second.* Find the illustration covering the functional or subfunctional group to which the repair part belongs.

(3) *Third.* Identify the repair on the illustration and note the illustration figure and item number of the repair part.

(4) *Fourth.* Using the Repair Parts Listing, find the functional or subfunctional group to which the repair part belongs and locate the illustration figure and item number noted on the illustration.

b. When Federal Stock Number or Reference Number is Known:

(1) *First.* Using the index of National Stock Numbers and reference Numbers find the pertinent National stock number or reference number. This index is in ascending NSN sequence followed by a list of reference numbers in ascending alphameric sequence, cross-referenced to the illustration figure number and item number.

(2) *Second.* Using the repair parts listing, find the functional or subfunctional group of the repair part and the illustration figure number and item number referenced in the Index of National Stock Numbers and Reference Numbers.

B-6. Abbreviations

<i>Abbreviations</i>	<i>Explanation</i>
AL	aluminum
ALY	alloy
AMB	amber
AMP	amperage
ANDZ	anodize
BEV	bevel
BLK	black
BRZ	bronze
CA	clear aperture
CD PL	cadmium plate
CLR	clear
CNA	copper nickel alloy
CP	cone point
CRES	corrosion-resistant-steel
CSKH	countersunk head
CSTG	casting
DEVN	deviation
DIA	diameter

<i>Abbreviations</i>	<i>Explanation</i>
DP	depth
DR	drill
DR	drill rod
DR	drive
ENAM	enamel
FGR	finger
FIL	fillister
FILH	fillister head
FL	flat
FNSH	finish
FP	flat point
GL	glass
GND	ground
GRAD	gradient
H	high
HDLS	headless
HEX	hexagon
HGT	height
HLCL	helical
ID	inside diameter
INSR	insert
INTL	internal
JAP	japanned
KWY	keyway
L	long
MIN	minimum
MTD	mounted
MUW	music wire
NI SIL	nickel-silver
NM	nonmetallic
NS	national special (thread)
OA	over-all
OD	outside diameter
OXD	oxide
PLSTC	plastic
PNH	pan head
PSM	prism
PSVT	passivate
PT	point
RAD	radius
RBR	rubber
RDH	roundhead
REC	recess (ed)
RND	round
SFT	shaft
SHP	shape
SKT	socket
SLTD	slotted
SPCL	special
SPR	spring
STK	stock
STL	steel
STR	straight
T	teeth
THD	thread
THK	thick
THKNS	thickness
TUNG	tungsten
UNC	unified coarse thread
UNCTD	uncoated
UNF	unified fine thread
UNS	unified special thread
V	voltage
W	wide
WAF	width across flats
WD	width
WHT	white

SECTION II. REPAIR PARTS LIST

ACTN CHNG code	(1) SMB code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) Fig. No.	(b) Item No.
N	PA-HZ-Z	5305-00-993-3589	M65 PERISCOPE 7579932		EA	2									B-1	1
			SETSCREW HEX SOC, FP, CRES, PSVT FNSH, NO 8-36UNF-3A, 3/16 L MS51031-34 (96906)													
			HEAD ASSEMBLY 5582516 WITH RELATED PARTS		EA	2									B-1	3
N	PA-HZ-Z	1240-00-536-5469	TUBE 6180598 (19200)												B-1	4
N	PA-HZ-Z	5310-00-618-0579	NUT, PLAIN, ROUND 2 7/16-20UNS-2B, STL 6180579 (19200)		EA	2									B-1	5
			HOUSING ASSEMBLIES 5582518 AND 6574392 AND RELATED PARTS		EA	2									B-1	8
N	PA-HZ-Z	5305-00-716-8035	SETSCREW HEX SKT, CP, ALY STL, CD PL, NO 2-64UNF-3A, 1/8 L MS51974-1 (96906)		EA	2									B-1	9
N	PA-FZ-Z	5305-00-531-6673	SCREW, SPECIAL 5316673 (19200)		EA	2									B-1	11
N	AH-HZ-Z		OBJECTIVE ASSEMBLY 6180569 (19200)												B-1	13
N	PA-OZ-Z	1240-00-783-9475	CAP, HIGH PRESSURE, AIR VALVE BR, 3/8 HEX W, 0.375 L 8634473 (19200)		EA	2									B-1	15
N	PA-FZ-Z	2640-00-060-3543	VALVE, CORE MS51377-2 (96906)		EA	2									B-1	16
N	PA-FZ-Z	6240-00-155-8654	VALVE, STEM, PURGING CRES, 7/16 HEX, 1 1/32 L MS51607-1 (96906)		EA	2									B-1	17
N	PA-HZ-Z		PACKING, PREFORMED RBR, 2 9/64 OD, 2 ID, 0.070 THK 8213787-1 (19200)		EA	2									B-1	18

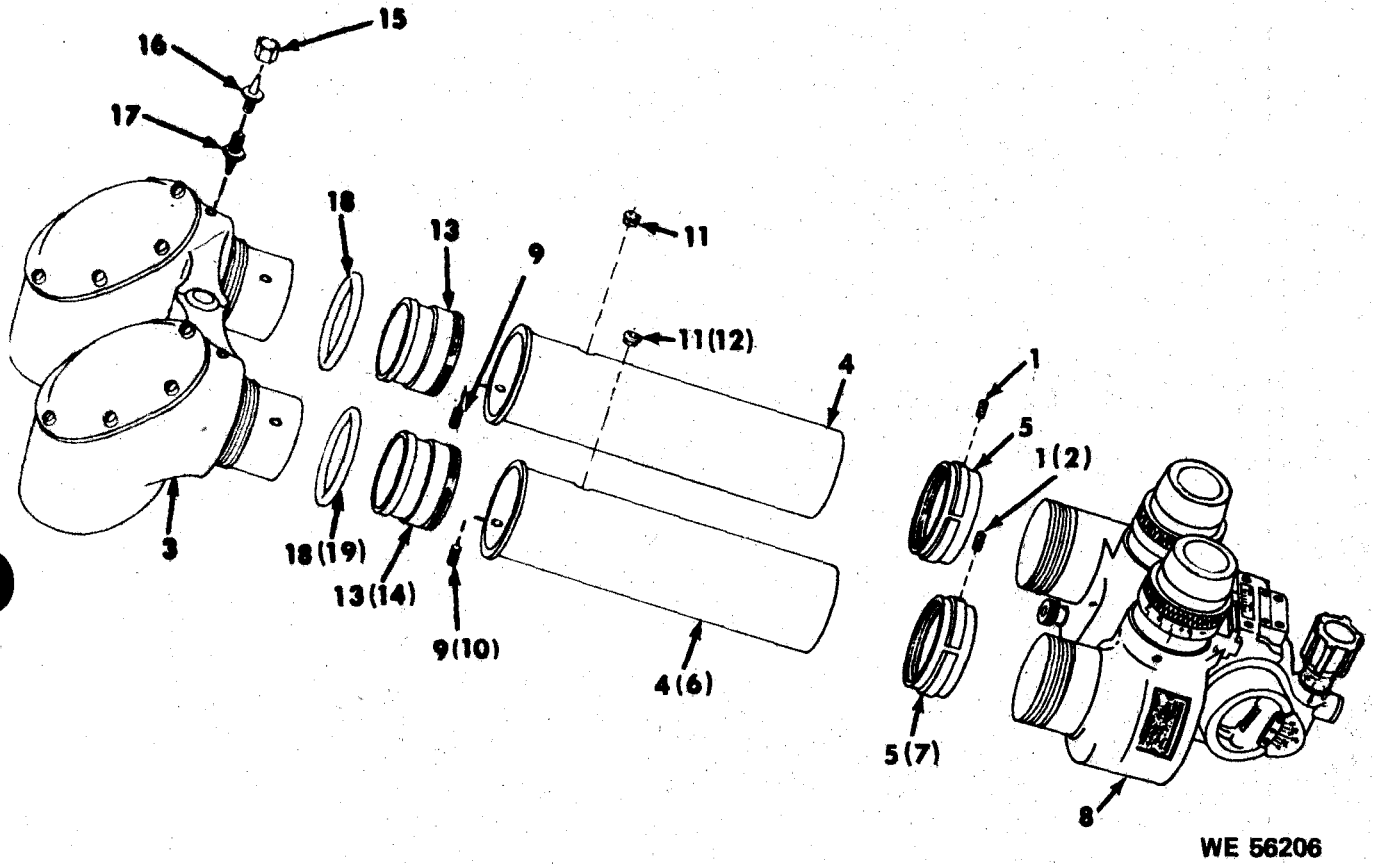
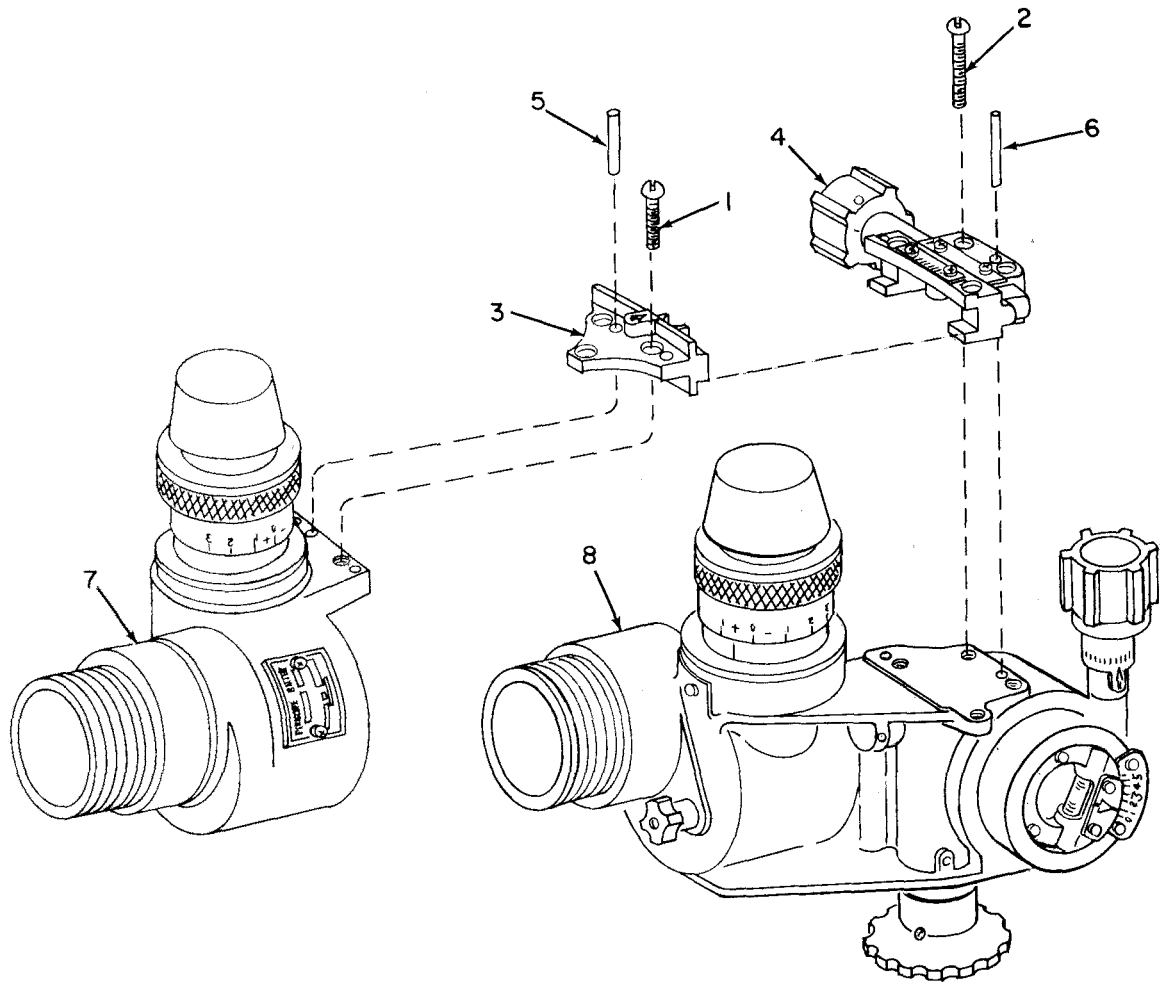


Figure B-1. Battery command periscope M65, 7579932-partial exploded view.

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a)	(b)	(c)	(a)	(b)	(c)			(a) Fig. No.	(b) Item No.
							1-20	21-50	51-100	1-20	21-50	51-100				
N	PA-FZ-Z	5305-00-939-9231	LEFT HOUSING ASSEMBLY 5582518 AND RIGHT HOUSING ASSEMBLY 6574392 WITH RELATED PARTS		EA	3									B-2	1
N	PA-FZ-Z	5305-00-943-5918	SCREW, MACHINE DR, FILH, SLTD, CRES, PSVT FNSH NO 8-32 UNC-2A, 7/16 L MS 35275-244 (96906)		EA	4									B-2	2
N	XB-HZ-Z		BRACKET, SUPPORT 5582531 (19200)		EA	1									B-2	3
N	XB-HZ-Z		SCREW, INTERPUPILLARY ASSEM- BLY 7677291 (19200)		EA	1									B-2	4
N	PA-FZ-Z	5315-00-810-0505	PIN, STRAIGHT, HEADLESS CRES, PSVT FNSH, 1/8 DIA, 5/8 L MS16555-628 (96906)		EA	2									B-2	5
N	PA-FZ-Z	5315-00-834-0745	PIN, STRAIGHT, HEADLESS CRES, PSVT FNSH, 1/8 DIA, - L MS165555-631 (96906)		EA	2									B-2	6
			HOUSING ASSEMBLY, LEFT, 5582518 AND RELATED PARTS												B-2	7
			HOUSING ASSEMBLY, RIGHT, 6574392 AND RELATED PARTS												B-2	8



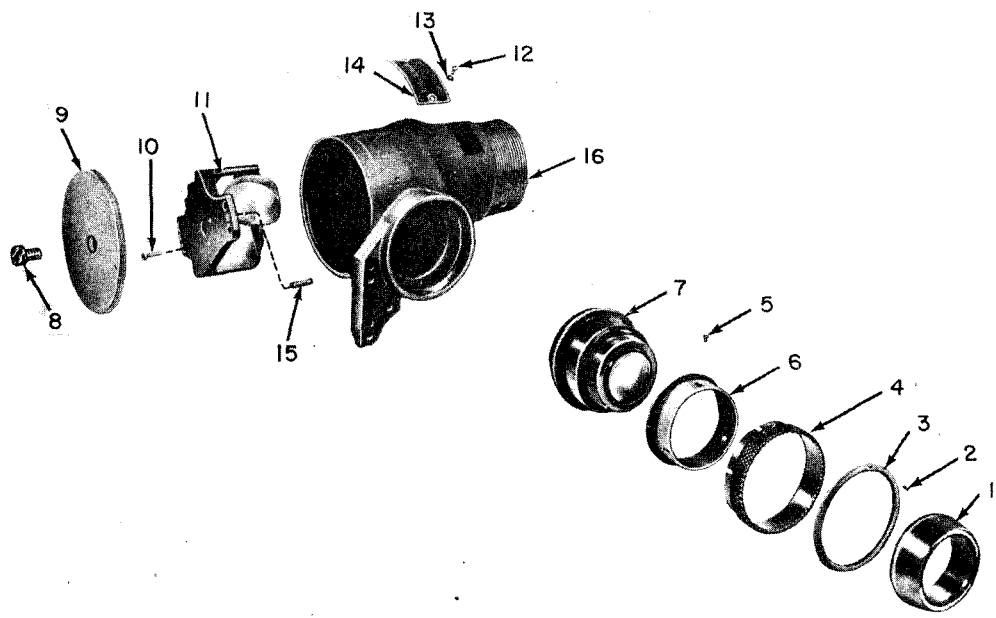
WE 56207

Figure B-2. Left housing assembly 5582518 and right housing assembly 6574392 with related parts-partial exploded view.

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) Fig. No.	(b) Item No.
			LEFT PRISM HOLDER ASSEMBLY 5582526 AND LEFT EYEPIECE ASSEMBLY 8215542													
N	PA-FZ-Z	1240-00-531-6679	GUARD, EYE 5316679 (19200)		EA	1									B-3	1
N	PA-FZ-Z	5305-00-206-5799	SETSCREW HDLS, SLTD, CRES, NO 2-64NF-2A, 0.16 L 5034658 (19200)		EA	1									B-3	2
N	PA-FZ-Z	5310-00-514-6452	NUT, PLAIN, ROUND 1 3/4-32NS-2B, 2 1/16 OD, 0.150 THK 5316647 (19200)		EA	1									B-3	3
N	PA-FZ-Z	1240-00-618-0583	SCALE, DIOPTRER AL, BLK-ANODIZED, 9 GRAD, 1.943 OA ID, 2 1/16 OA OD, 5/8 OA H, MTD BY TEETH ON ID 6180583 (19200)		EA	1									B-3	4
N	PA-FZ-Z	5305-00-829-0105	SCREW, MACHINE FL, CSKH, CROSS REC, CRES, PSVT FNSH, NO 2-64UNF-2A, 1/8 L MS51960-6 (96906)		EA	3									B-3	5
N	PA-FZ-Z	1240-00-618-0584	SLEEVE, PINNED 6180584 (19200)		EA	1									B-3	6
N	AH-HZ-Z		EYEPIECE ASSEMBLY, LEFT 8215542 (19200)		EA	1									B-3	7
N	PA-HZ-Z	5305-00-685-1570	SCREW, SELF LOCKING 10555157-8 (19200)		EA	1									B-3	8
N	XB-HZ-Z		COVER 10559882 (19200)		EA	1									B-3	9
N	PA-HZ-Z	5305-00-022-5417	SCREW, MACHINE FILH, SLTD, CRES, NO 5-44UNF-2A, 3/8 L 225417 (21450)		EA	4									B-3	10
N	AH-HZ-Z		HOLDER, PRISM, LEFT ASSEMBLY 5582526 (19200)		EA	1									B-3	11
N	PA-FZ-Z	5305-00-054-5635	SCREW, MACHINE PNH, CROSS REC, CRES, PSVT FNSH NO 2-56UNC-2A, 1/8 L MS51957-1 (96906)		EA	2									B-3	12

N	PA-FZ-Z	5310-00-543-4652	WASHER, LOCK FL, INTL, T, CRES, PSVT FNSH, 0.095 ID, 0.200 OD, 0.015 THK MS35333-69 (96906)	EA	2								B-3	13
N	PA-FZ-Z	9905-00-164-3540	PLATE, IDENTIFICATION 11731299 (19200)	EA	1								B-3	14
N	PA-HZ-Z	5315-00-682-1726	PIN, STRAIGHT, HEADLESS CRES, PSVT FNSH 3/32 DIA, 5/16 L MS16555-617 (96906)	EA	2								B-3	15
N	XB-HZ-Z		HOUSING, LEFT ASSEMBLY 5582518 (19200)	EA	1								B-3	16

32



WE 56208

Figure B-3. Left prism holder assembly 5582526 and left eyepiece assembly 8215542-
exploded view.

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
			Reference Number & Mfg Code	Usable on Code			(a)	(b)	(c)	(a)	(b)	(c)			(a) Fig. No.	(b) Item No.
							1-20	21-50	51-100	1-20	21-50	51-100				
			RIGHT EYEPIECE ASSEMBLY 8215543, RETICLE ASSEMBLY 6180593 AND RIGHT PRISM HOLDER ASSEMBLY 5582528													
N	PA-FZ-Z	1240-00-531-6679	GUARD, EYE 5316679 (19200)		EA	1									B-4	1
N	PA-FZ-Z	5305-00-206-5799	SETSCREW HDLS, SLTD, CRES, NO 2-64NF-2A, 0.16 L 5034658 (19200)		EA	1									B-4	2
N	PA-FZ-Z	5310-00-514-6452	NUT, PLAIN, ROUND 1 3/4-32NS-2B, 2 1/16 OD, 0.150 THK 5316647 (19200)		EA	1									B-4	3
N	PA-FZ-Z	1240-00-618-0583	SCALE, DIOPTR AL, BLK. ANODIZED, 9 GRAD, 1.943 OA ID, 2 1/16 OA OD, 5/8 OA H, MTD BY TEETH ON ID 6180583 (19200)		EA	1									B-4	4
N	PA-FZ-Z	5305-00-829-0105	SCREW, MACHINE FL, CSKH, CROSS REC, CRES, PSVT FNSH, NO 2-64UNF-2A, 1/8 L MS51960-6 (96906)		EA	3									B-4	5
N	PA-FZ-Z	1240-00-618-0584	SLEEVE, PINNED 6180584 (19200)		EA	1									B-4	6
N	AH-HZ-Z		EYEPIECE ASSEMBLY, RIGHT 8215543 (19200)		EA	1									B-4	7
N	PA-HZ-Z		SETSCREW HEX SKT, FP, CRES, PSVT FNSH, NO 2-64UNF-3A, 1/16 L MS51031-7 (96906)		EA	1									B-4	8
N	XB-HZ-Z		RING, RETAINING 5316668 (19200)		EA	1									B-4	9
N	PA-HZ-Z	5305-00-724-3439	SETSCREW HEX SKT, FP, CRES, PSVT FNSH, NO 8-36UNF-3A, 1/8 L MS51031-33 (96906)		EA	1									B-4	10
N	PA-HZ-Z	5305-00-582-9064	SETSCREW HEX SKT, FP, CRES, PSVT FNSH, NO 6-40UNF-3A, 1/8 L MS51031-24 (96906)		EA	4									B-4	11
N	AH-HZ-Z		RETICLE ASSEMBLY 6180593 (19200)		EA	1									B-4	12

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr slw per 100 equip cntgcy	(9) Depot maint slw per 100 equip	(10) Illustration	
							(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) Fig. No.	(b) Item No.
							N	PA-HZ-Z	5305-00-685-1570	SCREW, SELF LOCKING 10555157-8 (19200)		EA			1	
N	XB-HZ-Z	5305-00-022-5417	COVER 10559882 (19200)		EA	1									B-4	14
N	PA-HZ-Z		SCREW, MACHINE FILH, SLTD, CRES, NO 5-44UNF-2A, 3/8 L 225417 (21450)		EA	4									B-4	15
N	AH-HZ-Z	5315-00-682-1726	HOLDER, PRISM, RIGHT ASSEMBLY 5582528 (19200)		EA	1									B-4	16
N	PA-HZ-Z		PIN, STRAIGHT, HEADLESS CRES. PSVT FNSH. 3/32 DIA, 5/16 L MS16555-617 (96906)		EA	2									B-4	17
			HOUSING ASSEMBLY, RIGHT, 6574392 AND RELATED PARTS												B-4	18

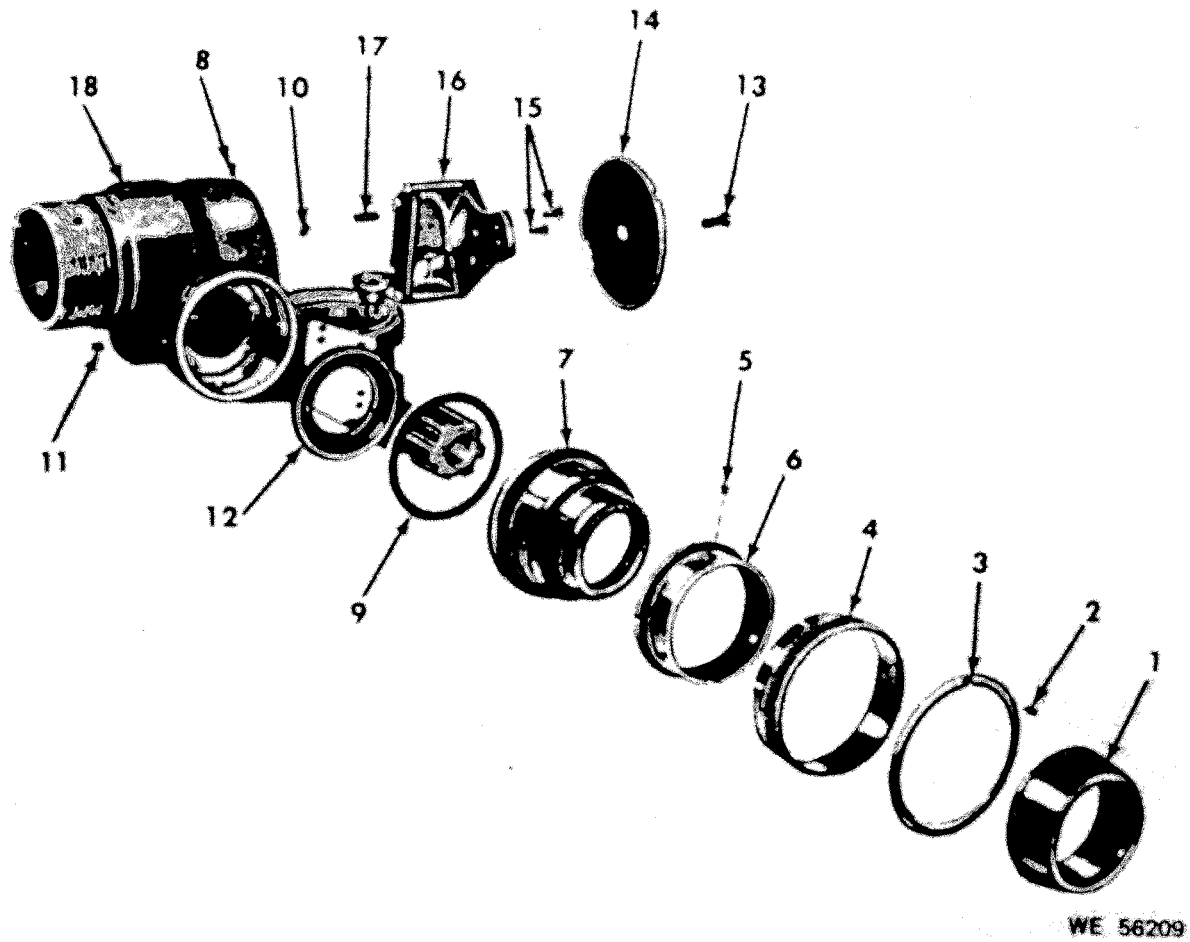


Figure B-4. Right eyepiece assembly 8215543, reticle assembly 6180593, and right prism holder assembly 5582528-exploded view.

B-14

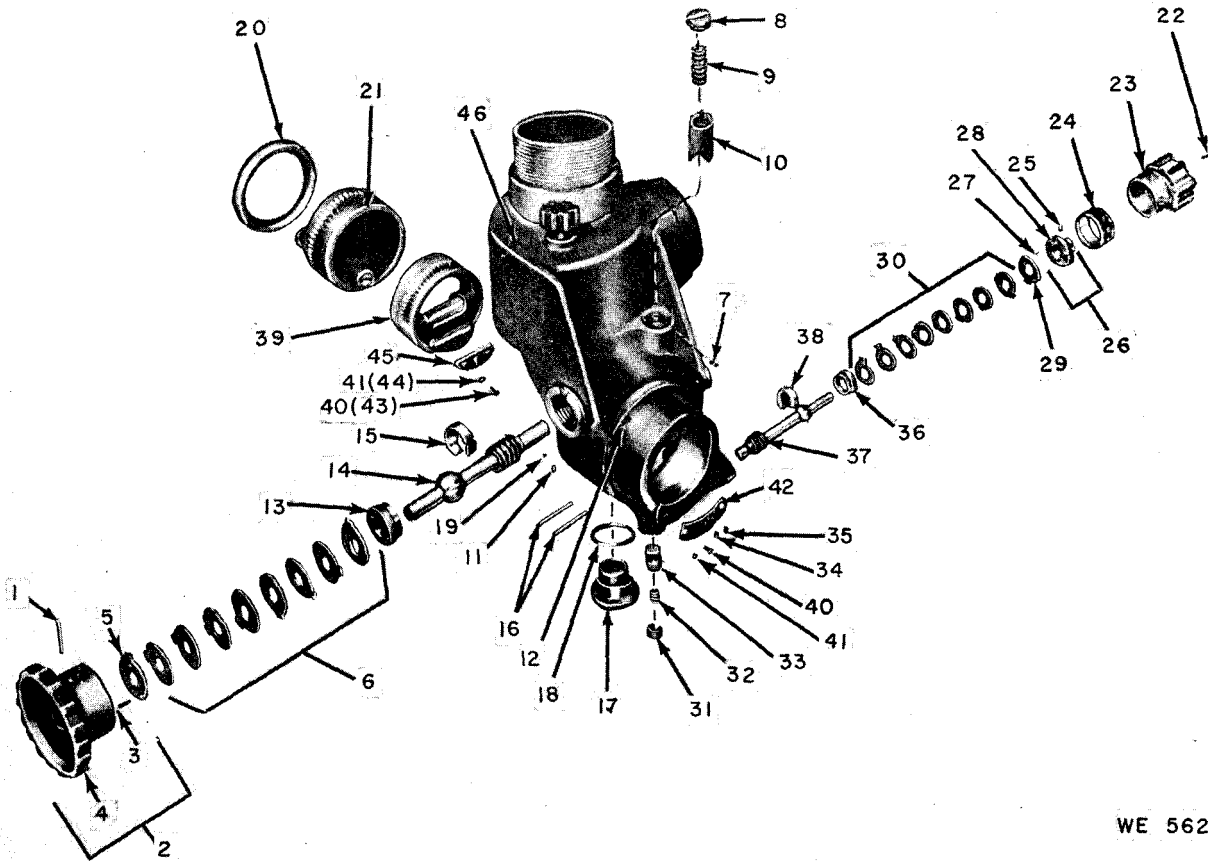
Change 1

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day CS maint allowance			(8) 1-Yr alw per 100 equip entcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) Fig. No.	(b) Item No.
							N	PA-FZ-Z	5315-00-187-3258	ELEVATING WORM 6180595, ANGLE OF SITE WORM/6180590, GEAR 5582524 AND GEAR 8213688 WITH RELATED PARTS		EA			1	
N	PA-FZ-Z	5355-00-618-0602	PIN, TAPERED PLAIN CRES, PSVT FNSH, NO 4/0, 3/4 L MS24692-84 (96906)		EA	1									B-5	2
N	PA-FZ-Z	5315-00-817-0889	KNOB, PINNED BRZ, 2.000 DIA, 1 1/32 THK, 1.125 SFT DIA 6180602 (19200)		EA	2									B-5	3
N	XB-FZ-Z		PIN, STRAIGHT, HEADLESS CRES, 1/16 DIA, 3/16 L MS16555-601 (96906)		EA	1									B-5	4
N	PA-FZ-Z	5310-00-347-7588	KNOB 5181682 (19200)		EA	1									B-5	5
N	PA-FZ-Z	5310-00-347-7593	WASHER, KEY 5181683 (19200)		EA	8									B-5	6
N	PA-FZ-Z	5305-00-719-5330	WASHER, KEY 5181684 (19200)		EA	1									B-5	7
N	PA-FZ-Z	5365-00-503-4656	SETSCREW HEX SKT, FP, ALY STL NO 6-32UNC-3A, 3/16 L MS51963-21 (96906)		EA	1									B-5	8
N	PA-FZ-Z	5340-00-597-2047	PLUG BRS, SAW SLOT, 1/2-32UN-2A, 3/16 L 5034656 (19200)		EA	1									B-5	9
N	PA-FZ-Z		SPRING, HELICAL, COMPRESSION MUW, 0.047 DIA STK, 0.325 OD, 21/32 L 8 COILS 5034447 (19200)		EA	1									B-5	10
N	PA-FZ-Z	5305-00-404-8171	PLUNGER BRZ, .4685 DIA, .631 L 7595152 (19200)		EA	1									B-5	11
N	PA-FZ-Z	5305-00-503-4659	SETSCREW HEX SKT, CP, ALY STL, CD PL, NO 6-32UNC-3A, 3/16 L MS51973-18 (96906)		EA	1									B-5	12

N	PA-FZ-Z	6650-00-505-5462	CAP, BALL 7653185 (19200)	EA	1						B-5	13
N	PA-FZ-Z	1240-00-618-0595	WORM, ELEVATING STL, 3.128 DIA ONE END, 0.375 DIA OTHER END 3 5/8 L 6180595 (19200)	EA	1						B-5	14
N	PA-FZ-Z	1240-00-505-5461	SEAT, BALL, SOCKET PLSTC, 0.313 RAD, 0.250 OA HGT, 0.654 HOLE DIA, 0.350 CO WD, 0.082 KWY WD, 0.040 KWY DP 7653184 (19200)	EA	1						B-5	15
N	PA-HZ-Z	1240-00-558-2524	GEAR, WORM, ELEVATING COMPOSED OF ITEMS 16, 17, 18 FIG 5 AND ITEM 6 FIG 8 5582524 (19200)	EA	1						B-5	
N	PA-HZ-Z	5315-00-187-3261	PIN, TAPERED, PLAIN CRES, PSVT FNSH, NO 4/0, 1 L MS24692-90 (96906)	EA	2						B-5	16
N	XA- -		BUSHING, LOCATING 5046497 (19200)		1						B-5	17
N	XB-HZ-Z		WASHER 7579223 (19200)	EA	1						B-5	18
N	PA-FZ-Z	5305-00-716-7932	SETSCREW HEX SKT, CP, ALY STL, CD PL NO 2-64UNF-3A, 3/16 L MS51974-2 (96906)	EA	2						B-5	19
N	PA-FZ-Z	5365-00-318-4400	RING, EXTERNALLY, THREADED BRZ, ENAM 1.765 STR BORE DIA, 2 5/16-24NS-2A, 0.280 OA L, 2 HOLES 0.093 DIA 6180604 (19200)	EA	1						B-5	20
			GEAR, WORM, 5582525, AND RELATED PARTS								B-5	21
N	PA-FZ-Z	5305-00-022-5389	SCREW, MACHINE FILH, CRES, PSVT FNSH NO 3-56NF-2A, 1/4 L 225389 (21450)	EA	3						B-5	22
N	PA-FZ-Z	5355-00-667-9514	KNOB RND, SHP THRU HOLE BRZ, 1 3/8 DIA, 1 3/32 THK, 0.390 SFT DIA 7596928 (19200)	EA	1						B-5	23
N	PA-FZ-Z	5355-00-518-1694	DIAL, SCALE 5181694 (19200)	EA	1						B-5	24
N	PA-FZ-Z	5315-00-187-3226	PIN, TAPERED, PLAIN CRES, NO 6/0, 0.375 L MS24692-27 (96906)	EA	1						B-5	25

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) Fig. No.	(b) Item No.
							N	PA-FZ-Z	1240-00-618-0603	ADAPTER ASSEMBLY 6180603 (19200)		EA			1	
N	XA		PIN, STRAIGHT, HEADLESS MS9105-01 (96906)			2									B-5	27
N	XA		ADAPTER 5181695 (19200)			1									B-5	28
N	PA-FZ-Z	5310-00-347-7630	WASHER, KEY 5181688 (19200)		EA	1									E-5	29
N	PA-FZ-Z	5310-00-347-7631	WASHER, KEY 5181689 (19200)		EA	8									B-5	30
N	PA-FZ-Z	5365-00-278-5327	PLUG 5316660 (19200)		EA	1									B-5	31
N	PA-FZ-Z	5340-00-209-8394	SPRING, HELICAL, COMPRESSION GND, ENDS, RND W, STL, 0.25 OD, 0.24 L 5316676 (19200)		EA	1									B-5	32
N	PA-FZ-Z	1240-00-531-6675	PLUNGER PH BRZ, 0.328 OD, 31/64 L 5316675 (19200)		EA	1									B-5	33
N	PA-FZ-Z	5305-00-206-7329	SETSCREW HDLS, DOG PT, 1/8-44NF-2, 3/16 L 51817088 (19200)		EA	1									B-5	34
N	PA-FZ-Z	5305-00-282-7667	SETSCREW HDLS, SLTD DR, CP, CRES, PSVT FNSH NO 5-44NF-2A, 1/8 L 540976 (21450)		EA	1									B-5	35
N	PA-FZ-Z	1240-00-505-5464	CAP, BALL 7680265 (19200)		EA	1									B-5	36
N	PA-FZ-Z	1240-00-618-0590	WORM, ANGLE OF SITE STL, 0.404 DIA, 2.800 L 6180590 (19200)		EA	1									B-5	37
N	PA-FZ-Z	1240-00-505-5463	SEAT, BALL, SOCKET PLSTC, 0.203 RAD, 0.200 OA H, 0.426 HOLE DIA, 0.255 CO W, 0.64 KWY W, 0.030 KWY DP 7680264 (19200)		EA	1									B-5	38
N	PA-FZ-Z	5305-00-054-5636	GEAR, 8213688, AND RELATED PARTS SCREW, MACHINE PNH, CROSS REC, CRES, PSVT FNSH, NO 2-56UNC-2A, 3/16 L MS51957-2 (96906)		EA	4									B-5 B-5	39 40

N	PA-FZ-Z	5310-00-543-4652	WASHER, LOCK FL, INTL, T, CRES, PSVT FNSH, 0.095 ID, 0.200 OD, 0.015 THK MS35333-69 (96906)	EA	4									B-5	41
N	PA-FZ-Z	5355-00518-1699	DIAL, SCALE BRS, 0 TO 6 SCALE RANGE, 2 HOLES FOR MTG 5181699 (19200)	EA	1									B-5	42
N	PA-FZ-Z		INDEX BRS, 13/32 W, 1 L, 2 HOLES 8213689 (19200)	EA	1									B-5	45
N	XB-HZ-Z		HOUSING, RIGHT ASSEMBLY 6574392 (19200)	EA	1									B-5	46



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Figure B-5. Elevating worm 6180595, angle of site worm 6180590, gear 5582524, and gear 8213688 with related parts-partial exploded view.

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description Reference Number & Mfg Code Usable on Code		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a)	(b)	(c)	(a)	(b)	(c)			(a) Fig. No.	(b) Item No.
							1-20	21-50	51-100	1-20	21-50	51-100				
N	PA-HZ-Z	5305-00-286-1867	FILTER HOLDER ASSEMBLY 5582519 AND LEFT HOUSING 6582847		EA	1									B-6	1
N	PA-HZ-Z	1240-00-623-0714	SCREW, SHOULDER FLH, CRES, NO 10-32NF-2A, .427 L 5316650 (19200)		EA	1									B-6	2
N	PA-HZ-Z	5310-00-531-6652	HOLDER, FILTER ASSEMBLY 5582519 (19200)		EA	1									B-6	3
N	PA-FZ-Z	5305-00-043-3642	WASHER, FLAT RND, CRES, UNCTD 0.191 ID, 0.500 OD, 0.020 THK 5316652 (19200)		EA	1									B-6	4
N	PA-FZ-Z	5355-00-668-3944	SETSCREW HEX SOC, CUP PT, ALY STL, CD PL, NO 8-36UNF-3A, 1/8 L MS51964-37 (96906)		EA	1									B-6	5
N	PA-FZ-Z	5330-00-297-0487	KNOB, CROSS SHAPE SETSCREW TYPE, BR 11/16 W, 11/16 L, 0.505 THK, 1/4 SFT DIA 7596480 (19200)		EA	1									B-6	6
N	PA-HZ-Z	1240-00-618-0589	WASHER, RUBBER SYNTHETIC 0.375 OD, 0.24 ID, 1/16 THK 5316655 (19200)		EA	1									B-6	7
N	PA-HZ-Z	5310-00-531-6651	WHEEL DRIVING 6180589 (19200)		EA	1									B-6	8
N	PA-HZ-Z	5330-00-588-9650	WASHER, FLAT CRES, UNCTD, 0.260 ID, 0.500 OD, 0.025 THK 5316651 (19200)		EA	1									B-6	9
N	PA-HZ-Z	5305-00-054-5646	PACKING, PREFORMED RBR, 0.114 ID, 0.070 THK 11731144-1 (19200)		EA	2									B-6	10
N	PA-HZ-Z	5340-00-545-3076	SCREW, MACHINE PNH, CROSS REC, CRES, PSVT FNSH, NO 4-40UNC-2A, 3/16 L MS51957-12 (96906)		EA	1									B-6	11
N	PA-HZ-Z	1240-00-618-0588	CLAMP, LOOP 5316654 (19200)		EA	1									B-6	12
N	XB-HZ-Z		DETENT STL, 0.430 ID, 0.203 W 6180588 (19200)		EA	1									B-6	13
			HOUSING LEFT 6582847 (19200)		EA	1										

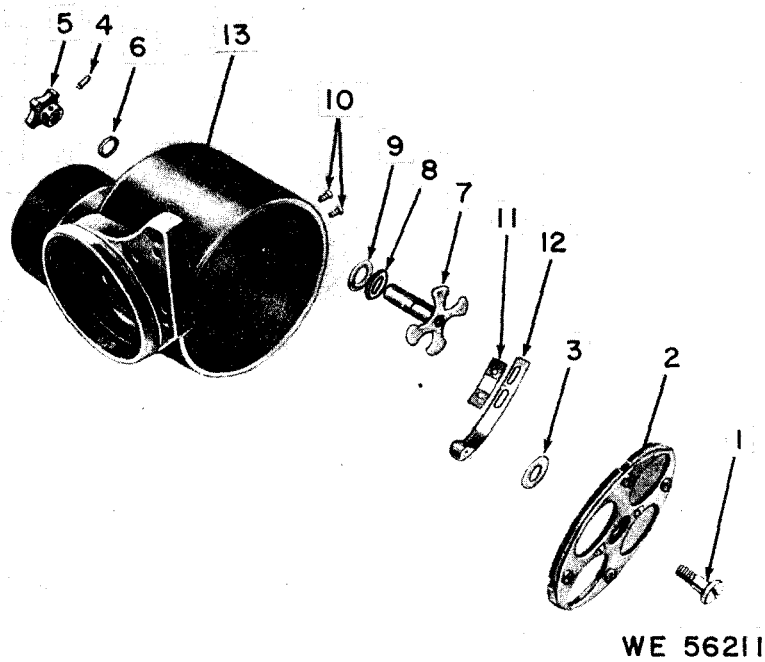


Figure B-6. Filter holder assembly 5582519 and left housing 6582847-exploded view.

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description Reference Number & Mfg Code Usable on Code		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr aw per 100 equip cntgcy	(9) Depot maint aw per 100 equip	(10) Illustration	
							(a)	(b)	(c)	(a)	(b)	(c)			(a)	(b)
							1-20	21-50	51-100	1-20	21-50	51-100			Fig. No.	Item No.
N	PA-HZ-Z	5305-00-286-1867	FILTER HOLDER ASSEMBLY 5582519 AND RIGHT HOUSING 6582848		EA	1									B-7	1
N	PA-HZ-Z	1240-00-623-0714	SCREW, SHOULDER FLH, CRES, NO 10-32NF-2A, .427 L 5316650 (19200)		EA	1									B-7	2
N	PA-HZ-Z	5310-00-531-6652	HOLDER, FILTER ASSEMBLY 5582519 (19200)		EA	1									B-7	3
N	PA-FZ-Z	5305-00-043-3642	WASHER, FLAT RND, CRES, UNCTD 0.191 ID, 0.500 OD, 0.020 THK 5316652 (19200)		EA	1									B-7	4
N	PA-FZ-Z	5305-00-043-3642	SETSCREW HEX SOC, CUP PT, ALY STL, CD PL, NO 8-36UNF-3A, 1/8 L MS51964-37 (96906)		EA	1									B-7	5
N	PA-FZ-Z	5355-00-668-3944	KNOB, CROSS SHAPE SETSCREW TYPE, BR 11/16 W, 11/16 L, 0.505 THK, 1/4 SFT DIA 7596480 (19200)		EA	1									B-7	6
N	PA-FZ-Z	5330-00-297-0487	WASHER, RUBBER SYNTHETIC 0.375 OD, 0.24 ID, 1/16 THK 5316655 (19200)		EA	1									B-7	7
N	PA-HZ-Z	1240-00-618-0589	WHEEL, DRIVING 6180589 (19200)		EA	1									B-7	8
N	PA-HZ-Z	5310-00-531-6651	WASHER, FLAT CRES, UNCTD, 0.260 ID, 0.500 OD, 0.025 THK 5316651 (19200)		EA	1									B-7	9
N	PA-HZ-Z	5330-00-054-5646	PACKING, PREFORMED RBR, 0.114 ID, 0.070 THK 11731144-1 (19200)		EA	1									B-7	10
N	PA-HZ-Z	5305-00-054-5646	SCREW, MACHINE PNH, CROSS REC, CRES, PSVT FNSH, NO 4-40UNC-2A, 3/16 L MS51957-12 (96906)		EA	2									B-7	11
N	PA-HZ-Z	5340-00-545-3076	CLAMP, LOOP 5316654 (19200)		EA	1									B-7	12
N	PA-HZ-Z	1240-00-618-0588	DETENT STL, 0.430 ID, 0.203 W 6180588 (19200)		EA	1									B-7	12

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a)	(b)	(c)	(a)	(b)	(c)			(a) Fig. No.	(b) Item No.
							1-20	21-50	51-100	1-20	21-50	51-100				
N	PA-HZ-Z	1240-00-330-0105	FILTER, LIGHT, TELESCOPIC GLASS, RED 5181796 (19200)		EA	1									B-7	13
N	XB-HZ-Z		HOUSING, RIGHT 6582848 (19200)		EA	1									B-7	14

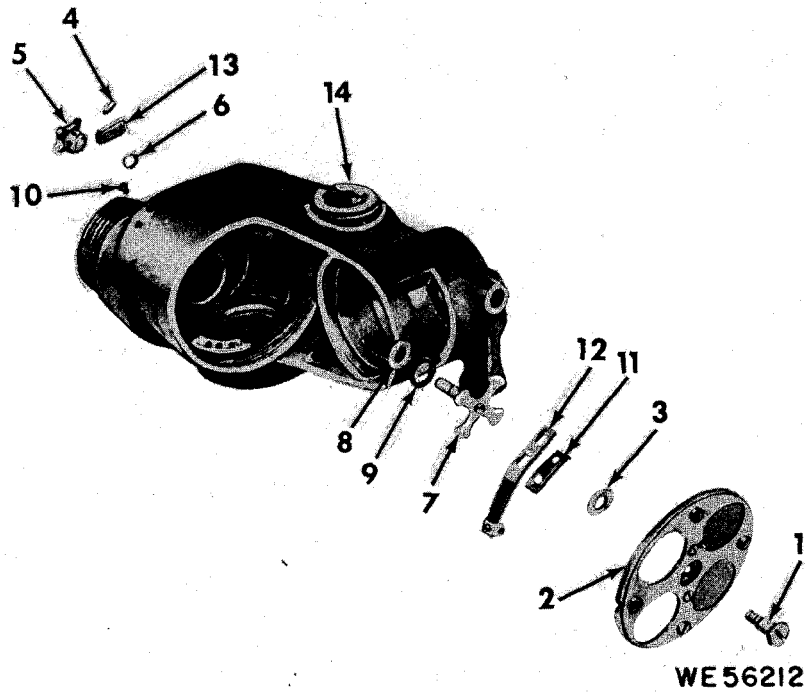


Figure B-7. Filter holder assembly 5582519 and right housing 6582848-exploded view.

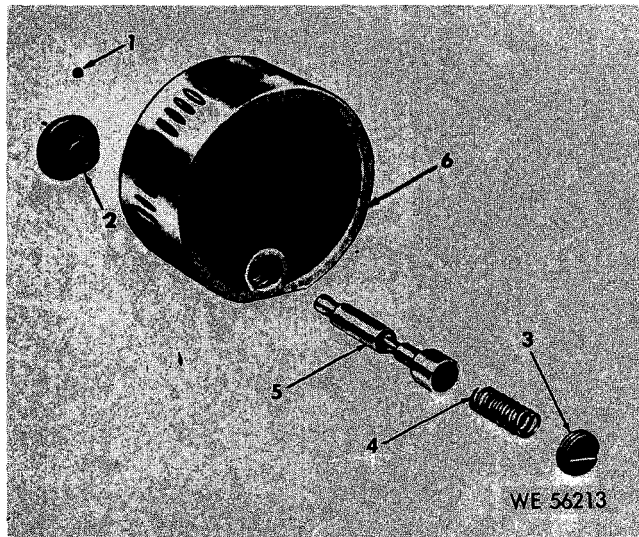


Figure B-8. Worm gear 5582525 with related parts-exploded view.

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) Fig. No.	(b) Item No.
							N	PA-HZ-Z	5305-00-282-3791	FILTER HOLDER ASSEMBLY 5582519 SCREW, MACHINE FLH, SLTD DR, CRES, NO 2-64NF-3A, 0.122 L 5182863 (19200)		EA			4	
N	PA-HZ-Z	1240-00-618-0587	RETAINER, FILTER 6180587 (19200)		EA	1									B-9	2
N	PA-HZ-Z	1240-00-330-0108	WINDOW, OBSERVATION GL, RED, 0.870 OA DIA, 0.087 OA THK, W/O FR 5316364 (19200)		EA	1									B-9	3
N	PA-HZ-Z	1240-00-330-0107	WINDOW, OBSERVATION GL, COLORLESS, 0.878 OA DIA, 0.087 OA THK, W/O FR 5316363 (19200)		EA	1									B-9	4
N	PA-HZ-Z	1240-00-531-6362	WINDOW, OBSERVATION GL, AMB, 0.870 DIA, 0.090 THK 5316362 (19200)		EA	1									B-9	5
N	PA-HZ-Z	1240-00-531-6365	WINDOW, OPTICAL INSTRUMENT GL, 1.517 INDEX OF REFRACTION, 64.5 ANGSTROM DISPERSION, BOTH SURFACES POLISHED, 22.41 MILLIMETERS DIA, 2.23 THK, 0.25 MILLIMETERS DP OF BEV 5316365 (19200)		EA	1									B-9	6
N	PA-HZ-Z	5305-00-057-0498	SCREW, MACHINE PNH, CROSS REC, CRES, PSVT FNSH, NO 2-64UNF-2A, 3/16 L MS51958-2 (96906)		EA	2									B-9	7
N	PA-HZ-Z	5310-00-928-2690	WASHER, LOCK SPG, HLCL, CRES, PSVT FNSH, 0.172 OD, 0.020 THK, NO 2 SCR SIZE MS35338-134 (96906)		EA	2									B-9	8
N	PA-HZ-Z	1240-00-618-0586	HOLDER, FILTER 6180586 (19200)		EA	1									B-9	9
N	PA-HZ-Z	1240-00-618-0597	WHEEL, DRIVING 6180597 (19200)		EA	1									B-9	10

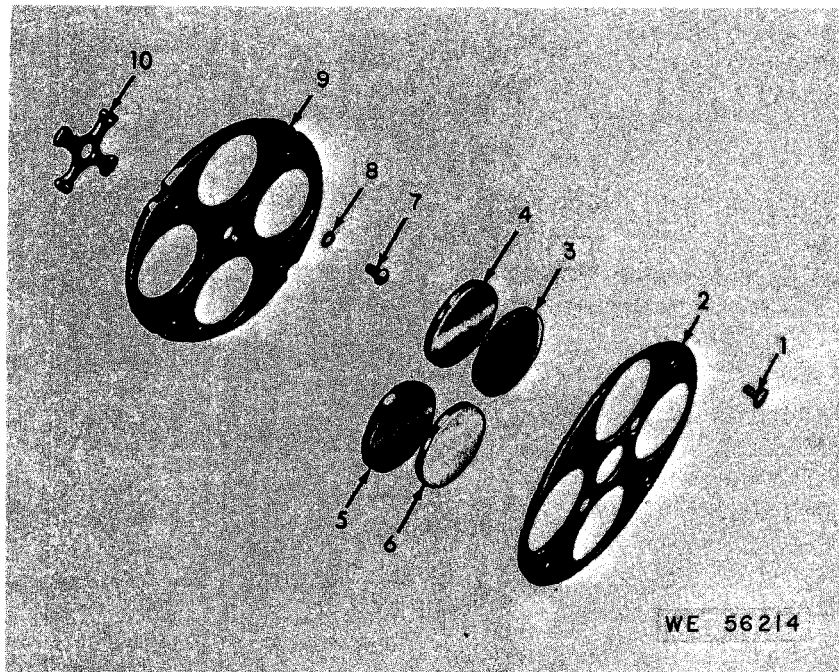


Figure B-9. Filter holder assembly 5582519-exploded view.

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) Fig. No.	(b) Item No.
N	PA-HZ-Z	5365-00-530-5889	RIGHT EYEPIECE ASSEMBLY 8215543		EA	1									B-10	1
N	PA-HZ-Z	6650-00-531-6357	RING, RETAINING 5316640 (19200)		EA	1									B-10	2
N	PA-HZ-Z	5330-00-531-6645	LENS, FIELD 5316357 (19200)		EA	1									B-10	3
N	PA-HZ-Z	1240-00-531-6358	SEPARATOR 5316645 (19200)		EA	1									B-10	4
N	PA-HZ-Z	1240-00-531-6358	LENS, CENTER 5316358 (19200)		EA	1									B-10	5
N	PA-HZ-Z	1240-00-531-6646	SEPARATOR 5316646 (19200)		EA	1									B-10	6
N	PA-HZ-Z	1240-00-531-6359	EYELENS 5316359 (19200)		EA	1									B-10	7
N	AH-HZ-Z	6650-00-903-0597	CELL ASSEMBLY 8215541 (19200)		EA	1									B-10	7

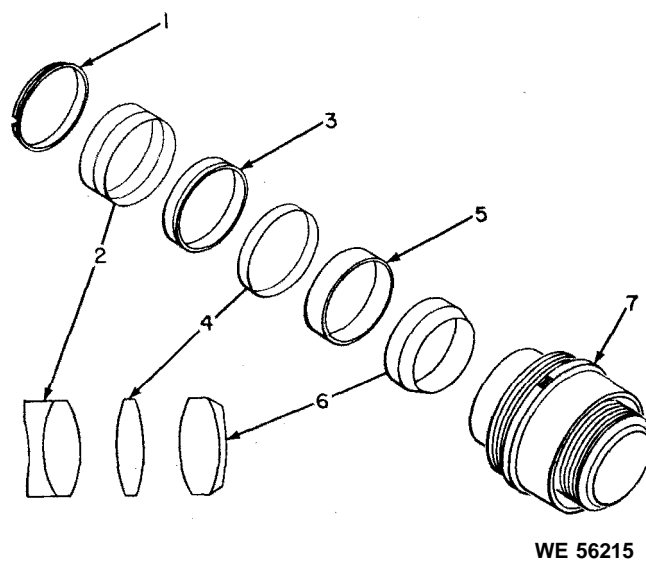


Figure B-10. Right eyepiece assembly 8215543-exploded view.

ACTN
CHNG
code

	(1) SMR code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip entgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) Fig. No.	(b) Item No.
N	PA-HZ-Z	1240-00-531-6678	LEFT EYEPiece ASSEMBLY 8215542 DIAPHRAGM 5316678 (19200)		EA	1									B-11	1
N	PA-HZ-Z	1240-00-531-6357	LENS, FIELD 5316357 (19200)		EA	1									B-11	2
N	PA-HZ-Z	5330-00-531-6645	SEPARATOR 5316645 (19200)		EA	1									B-11	3
N	PA-HZ-Z	6650-00-531-6358	LENS, CENTER 5316358 (19200)		EA	1									B-11	4
N	PA-HZ-Z	1240-00-531-6646	SEPARATOR 5316646 (19200)		EA	1									B-11	5
N	PA-HZ-Z	1240-00-531-6359	EYELENS 5316359 (19200)		EA	1									B-11	6
N	AH-HZ-Z	6650-00-903-0597	CELL ASSEMBLY 8215541 (19200)		EA	1									B-11	7

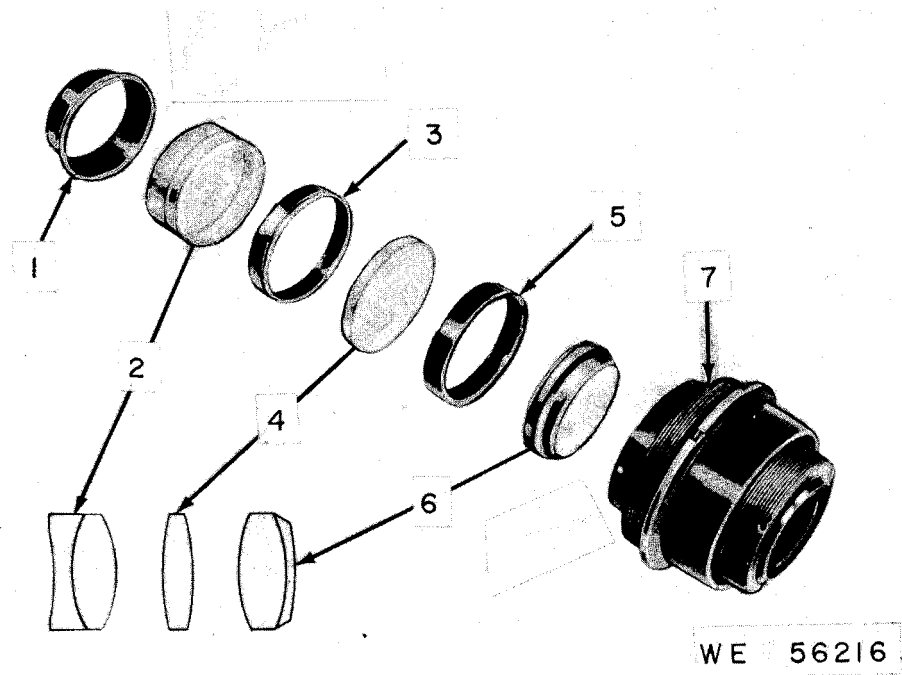


Figure B-11. Left eyepiece assembly 8215542-partial exploded view.

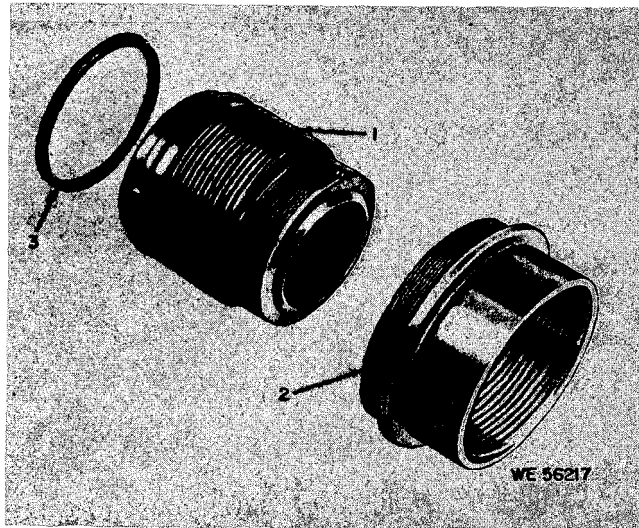


Figure B-12. Cell assembly 82215541-exploded view.

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) Fig. No.	(b) Item No.
							N	PA-HZ-Z	5365-00-507-8287	RETICLE ASSEMBLY 6180593 RING, RETAINING 5316667 (19200)		EA			1	
N	PA-HZ-Z	1240-00-558-1108	RETICLE 5581108 (19200)		EA	1								B-13	2	
N	PA-HZ-Z	1240-00-618-0594	CELL, RETICLE 6180594 (19200)		EA	1								B-13	3	

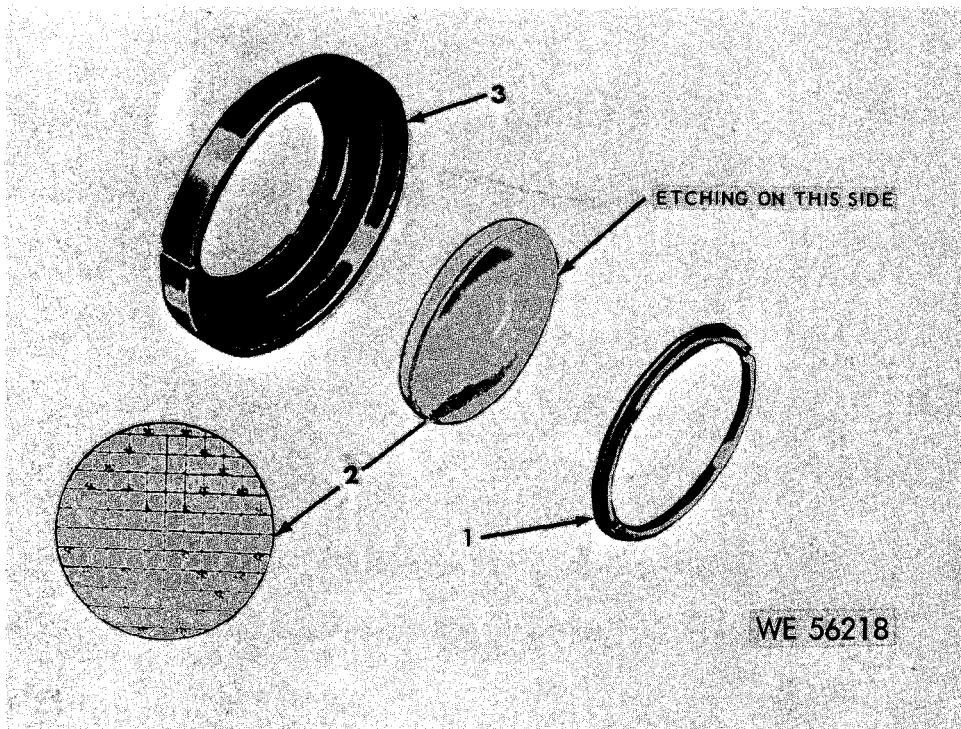
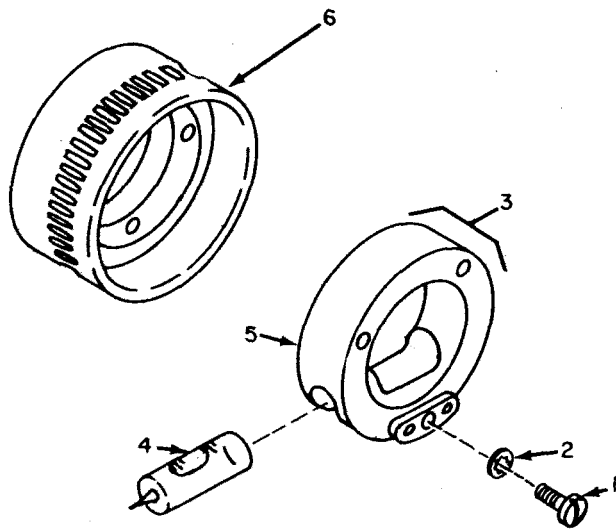


Figure B-13. Reticle assembly 6180593-exploded view.

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip entgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a)	(b)	(c)	(a)	(b)	(c)			(a) Fig. No.	(b) Item No.
							1-20	21-50	51-100	1-20	21-50	51-100				
N	PA-HZ-Z	5305-00-947-2169	GEAR 8213688 AND LEVEL VIAL HOLDER ASSEMBLY 8213691		EA	3									B-14	1
N	PA-HZ-Z	5310-00-933-8118	SCREW, MACHINE DR, FILH, SLTD, CRES, PSVT FNSH NO 4-40NC-2A, 1/2 L MS35275-217 (96906)		EA	3									B-14	2
N	XB-HZ-Z		WASHER, LOCK SPR, HLCL, CRES, PSVT FNSH, 0.121 ID, 0.204 OD, 0.025 THK MS35338-135 (96906)		EA	1									B-14	3
N	PA-HZ-Z	1290-00-067-6407	HOLDER, LEVEL VIAL ASSEMBLY 8213691 (19200)		EA	1									B-14	4
N	XB-HZ-Z		VIAL, LEVEL CYLINDRICAL, TYPE DA3 MS35102-3 (96906)		EA	1									B-14	5
N	XB-HZ-Z		HOLDER 8213690 (19200)		EA	1									B-14	6
N	XB-HZ-Z		GEAR 8213688 (19200)		EA	1									B-14	6



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Figure B-14. Gear 8213688 and level vial holder assembly 8213691-exploded view.

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration		
			<i>Reference Number & Mfg Code</i>	<i>Usable on Code</i>			(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) Fig. No.	(b) Item No.	
			LEFT PRISM HOLDER ASSEMBLY 5582526														
N	PA-HZ-Z	5305-00-532-0489	SCREW, MACHINE FLH, CRES, NO 5-44NF-2A, 0.2525 L 5320489 (19200)		EA	6										B-15	1
N	PA-HZ-Z	1240-00-531-6643	SPRING, PRISM, LEFT 5316643 (19200)		EA	1										B-15	2
N	PA-HZ-Z	1240-00-538-6815	SPRING, PRISM STL, 3/4 L, 2 HOLES 0.132 DIA 5386815 (19200)		EA	1										B-15	4
N	PA-HZ-Z	1240-00-618-1118	PRISM, OPTICAL INSTRUMENT GL, POR AND 90 DEGREE PSM, NOT RATED FOR LIGHT DEVIATION, 2 PRISMS BONDED TO FORM REFLECTING PSM 6181118 (19200)		EA	1										B-15	5
N	PA-HZ-Z	1240-00-558-2527	HOLDER, OPTICAL ELEMENT AL, BLK OXD FNSH, HOLDS PSM BY MEANS OF SPR AT EACH END, AND 4 FGR FROM THE HOLDER, 4 MTG HOLES 5582527 (19200)		EA	1										B-15	6

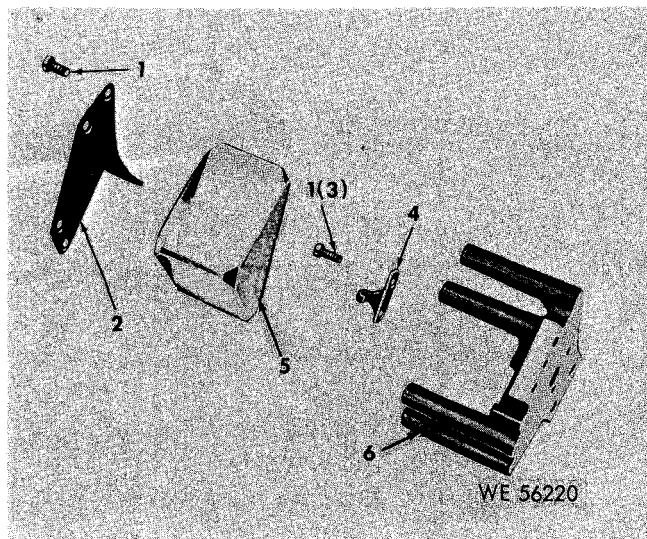


Figure B-15. Left prism holder assembly 5582526-exploded view.

B-40

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description Reference Number & Mfg Code Usable on Code		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a)	(b)	(c)	(a)	(b)	(c)			(a)	(b)
							1-20	21-50	51-100	1-20	21-50	51-100			Fig. No.	Item No.
			RIGHT PRISM HOLDER ASSEMBLY 5582528													
N	PA-HZ-Z	5305-00-532-0489	SCREW, MACHINE FLH, CRES, NO 5-44NF-2A, 0.2525 L 5320489 (19200)		EA	6									B-16	1
N	PA-HZ-Z	1240-00-531-6641	SPRING, PRISM, RIGHT 5316641 (19200)		EA	1									B-16	2
N	PA-HZ-Z	1240-00-538-6815	SPRING, PRISM STL, 3/4 L, 2 HOLES 0.132 DIA 5386815 (19200)		EA	1									B-16	4
N	PA-HZ-Z	1240-00-618-1117	PRISM, OPTICAL INSTRUMENT GL, POR AND 90 DEGREE PSM, NOT RATED FOR LIGHT DEVN, 2 PRISMS BONDED TO FORM REFLECTING PSM 6181117 (19200)		EA	1									B-16	5
N	PA-HZ-Z	1240-00-558-2529	HOLDER, OPTICAL ELEMENT AL, BLK OXD FNSH, HOLDS PSM BY MEANS OF SPR AT EACH END AND 4 FGR FROM THE HOLDER 4 MTG HOLES 5582529 (19200)		EA	1									B-16	6

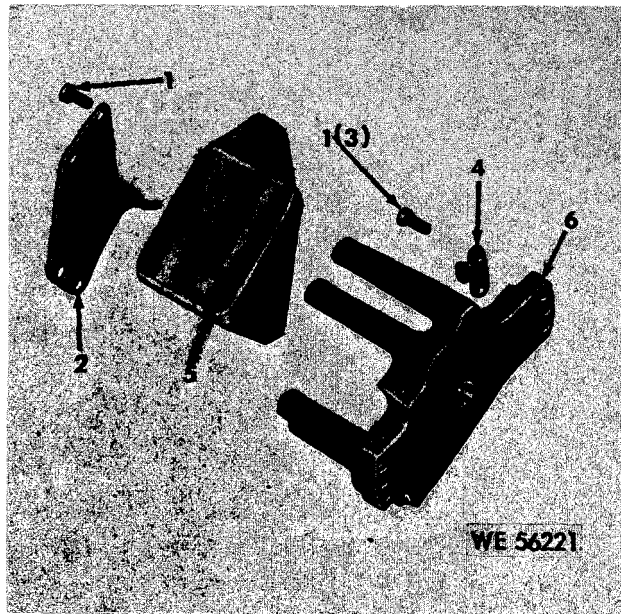


Figure B-16. Right prism holder assembly 5582528-exploded view.

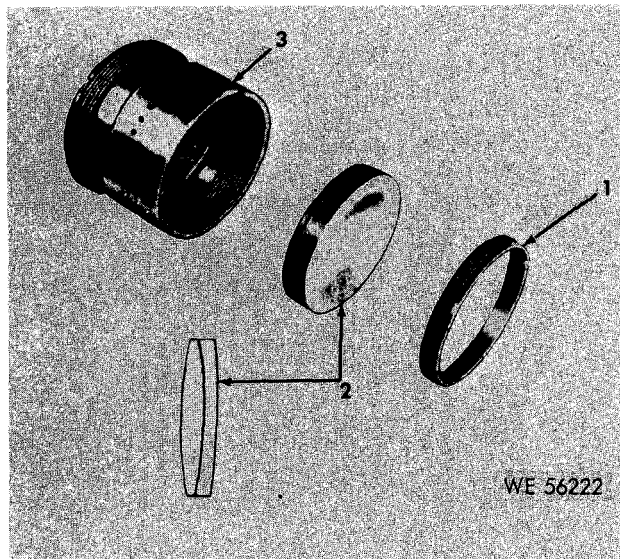


Figure B-17. Objective assembly 6180569-exploded view.

ACTN CHNG code	(1) SME code	(2) National stock No.	(3) Description Reference Number & Mfg Code Usable on Code	(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
						(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) Fig. No.	(b) Item No.
						N	PA-HZ-Z	5305-00-912-7648	HEAD ASSEMBLY 5582516 WITH RELATED PARTS SCREW, MACHINE DRILLED FILH, SLOT DR, CRES, PSVT FNSH, NO 6-40UNF-2A, 1/4 L MS35276-226 (96906)	EA	12				
N	PA-HZ-Z	5310-00-616-3555	WASHER, LOCK FL, INTL T, CRES, PSVT FNSH, 0.150 ID, 0.295 OD, 0.021 THK MS35333-71 (96906)	EA	12									B-18	2
N	XB-HZ-Z		CAP 5316664 (19200)	EA	2									B-18	3
N	PA-HZ-Z	5330-00-330-5248	GASKET 5316639 (19200)	EA	2									B-18	4
N	XB-HZ-Z		HEAD ASSEMBLY 5582516 (19200)	EA	1									B-18	9
N	PA-HZ-Z	5305-00-054-5646	SCREW, MACHINE PNH, CROSS REC, CRES, PSVT FNSH, NO 4-40UNC-2A, 3/16 L MS51957-12 (96906)	EA	12									B-18	10
N	XB-HZ-Z		HOLDER, ASSEMBLY 90° PRISM 5361125 (19200)	EA	2									B-18	11
N	PA-HZ-Z	5315-00-682-1726	PIN, STRAIGHT, HEADLESS CRES, PSVT FNSH, 3/32 DIA, 5/16 L MS16555-617 (96906)	EA	4									B-18	14

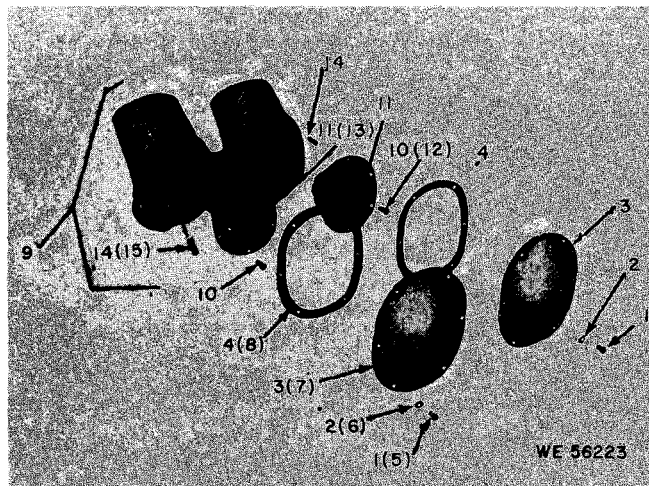


Figure B-18. Head assembly 5582516 with related parts-exploded view.

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) Fig. No.	(b) Item No.
							N	PA-FZ-Z	5305-00-054-5636	RIGHT AND LEFT HEAD 5582515 SCREW, MACHINE PNH, CROSS REC, CRES, PSVT FNSH, NO 2-56UNC-2A, 3/16 L MS51957-2 (96906)		EA			4	
N	PA-FZ-Z	5310-00-543-4652	WASHER, LOCK FL, INTL T, CRES, PSVT FNSH, 0.095 ID, 0.200 OD, 0.015 THK MS35333-69 (96906)		EA	4								B-19	2	
N	PA-FZ-Z	1240-00-618-0591	PLUG 6180591 (19200)		EA	2								B-19	3	
N	PA-HZ-Z	5310-00-734-1738	SETSCREW HEX, SKT, CUP PT, ALY STL, CD PL, NO 6-32UNC-3A, 1/8 L MS51973-19 (96906)		EA	2								B-19	4	
N	AH-HZ-Z		WINDOW ASSEMBLY 6180578 (19200)		EA	2								B-19	5	
N	PA-HZ-Z		PACKING, PREFORMED RBR, 2 33/64 OD, 2.369 ID, 0.070 THK 8213787-2 (19200)		EA	2								B-19	6	
N	XB-HZ-Z		HEAD, RIGHT AND LEFT 5582515 (19200)		EA	1								B-19	7	

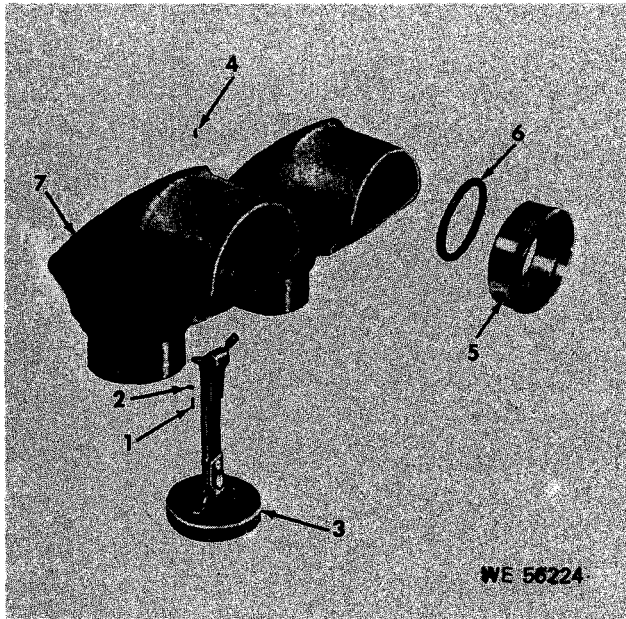


Figure B-19. Right and left head 5582515-partial exploded view.

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a)	(b)	(c)	(a)	(b)	(c)			(a) Fig. No.	(b) Item No.
							1-20	21-50	51-100	1-20	21-50	51-100				
N	PA-HZ-Z	5305-00-068-1654	LEFT HEAD 8213788 AND RIGHT HEAD 8213789		EA	3								B-20	1	
N	PA-HZ-Z	5305-00-518-1696	SETSCREW HEX SKT, FP, CRES, PSVT FNSH NO 2-64UNF, 1/8 L MS51031-8 (96906)		EA	2								B-20	2	
N	PA-HZ-Z	1240-00-518-1698	SCREW, MACHINE 5181696 (19200)		EA	1								B-20	6	
N	PA-HZ-Z	5315-00-619-7464	SPINDLE 5181698 (19200)		EA	1								B-20	7	
N	XB-HZ-Z		PIN, STRAIGHT, HEADLESS CRES, GND BODY FNSH 0.062-0.063 DIA, 0.115-0.135 OA L MS9105-1 (96906)		EA	1								B-20	8	
N	XB-HZ-Z		BUSHING 5181697 (19200)		EA	1								B-20	9	
N	XB-HZ-Z		HEAD 8213788 (19200)		EA	1								B-20	10	
N	XB-HZ-Z		HEAD 8213789 (19200)		EA	1								B-20	10	

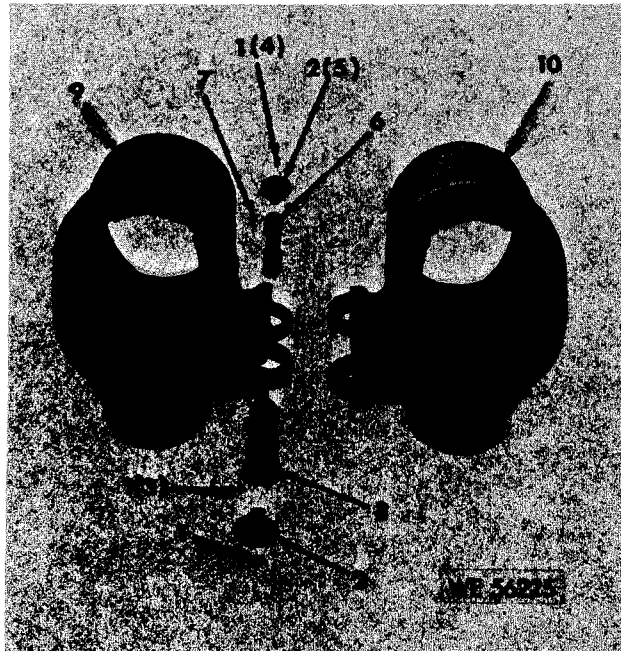


Figure B-20. Left head 8213788 and right head 8213789-exploded view.

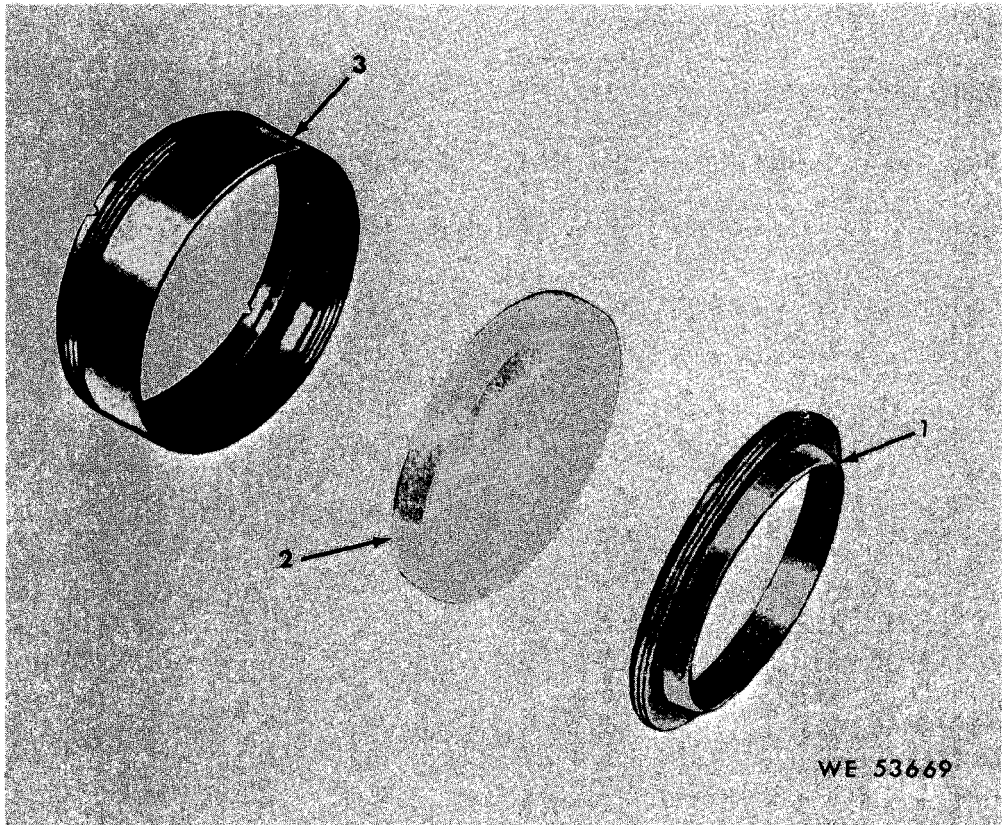


Figure B-21. Window assembly 6180578-exploded view.

ACTN CHNG code	(1) SME code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) Fig. No.	(b) Item No.
							N	PA-HZ-Z	5305-00-532-0489	PRISM HOLDER ASSEMBLY 5631125 SCREW, MACHINE NO 5-44NF-2A, 0.2525 L 5320489 (19200)		EA			8	
N	PA-HZ-Z	5340-00-337-5867	STRAP, RETAINING STEEL, TYPE WD 1/95 MATL BLK OXD FNSH, 1 7/8 W, 1 1/2 H INSIDE ARCH DATA, 0.132 MTG HOLE DIA, 0.02 THK 5316662 (19200)		EA	2								B-22	2	
N	PA-HZ-Z	1240-00-617-9896	PRISM, OPTICAL INSTRUMENT GLASS, 90 DEGREE PRISM, 90 DEGREE PLUS OR MINUS, 6 MIN LIGHT DEVIATION 6179896 (19200)		EA	2								B-22	3	
N	PA-HZ-Z	5305-00-532-0488	SCREW, MACHINE NO 10-40 NONSTD-2A, 0.4500 LG 5320488 (19200)		EA	6								B-22	4	
N	PA-HZ-Z	5310-00-538-6816	WASHER, CONVEX CRES, PSVT FNSH, 0.191 HOLE DIA, 0.490 OD, 0.250 THK, 0.281 RAD 5386816 (19200)		EA	6								B-22	5	
N	PA-HZ-Z	1240-00-618-1391	SUPPORT, PRISM 6181391 (19200)		EA	2								B-22	6	
N	PA-HZ-Z	5340-00-597-2042	SPRING, HELICAL, COMPRESSION COP PL, 54.39 LB SPRING RATE/IN 7/16 OD, 1/2 L, 0.054 WIRE DIA 5316663 (19200)		EA	6								B-22	7	
N	PA-HZ-Z	1240-00-531-6665	HOLDER PRISM AL, 2.587 W, 0.375 THK, 3.375 L 5316665 (19200)		EA	2								B-22	8	

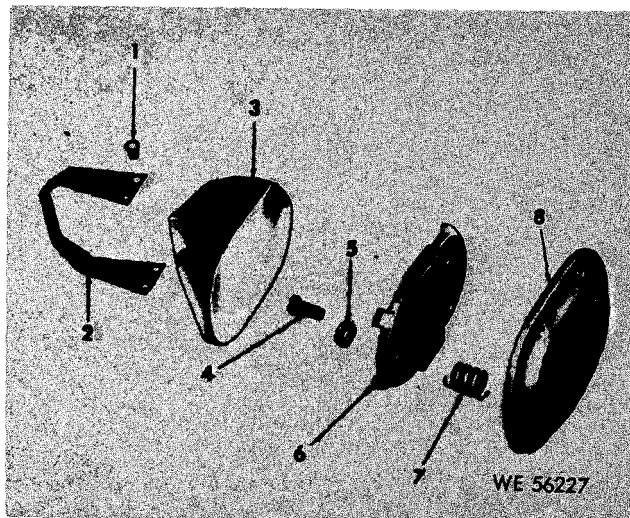
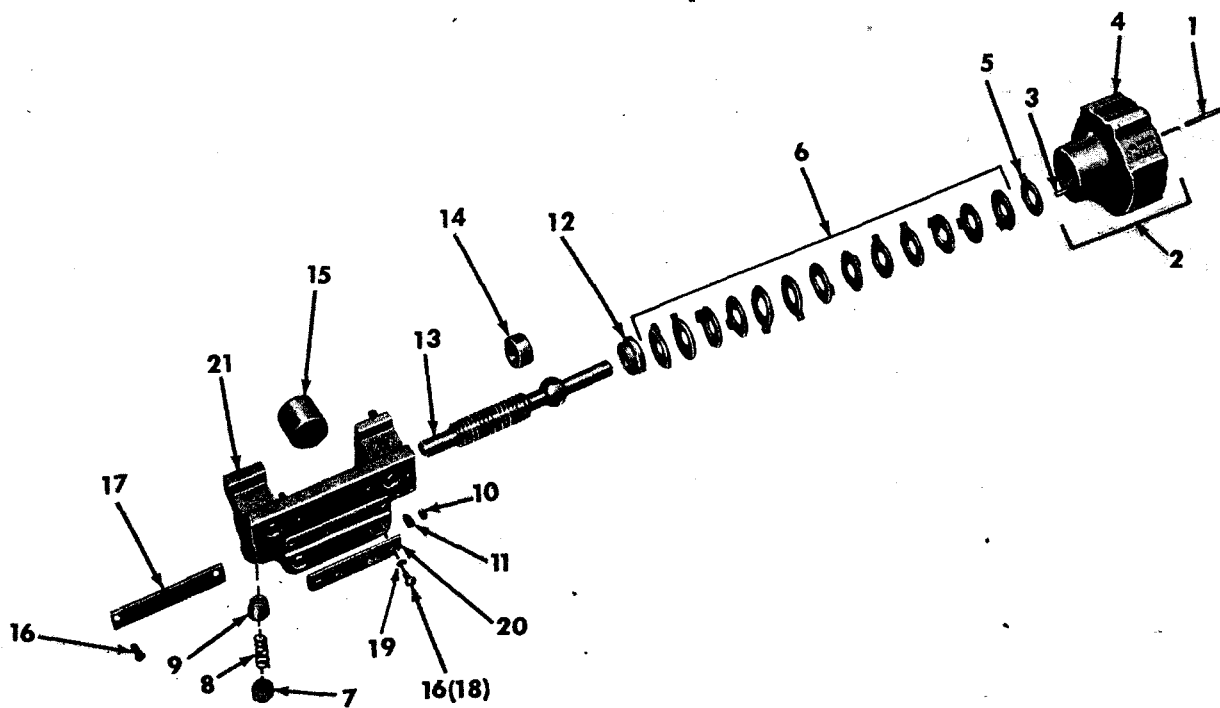


Figure B-22. Prism holder assembly 5631125-exploded view.

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a)	(b)	(c)	(a)	(b)	(c)			(a)	(b)
							1-20	21-50	51-100	1-20	21-50	51-100			Fig. No.	Item No.
			INTERPUPILLARY SCREW ASSEMBLY 7677291													
N	PA-FZ-Z	5315-00-187-3232	PIN, TAPERED PLAIN CRES, NO 6/0, 0.078 DIA, 0.750 L MS24692-36 (96906)		EA	1									B-23	1
N	PA-FZ-Z	5355-00-763-5923	KNOB PINNED 7635923 (19200)		EA	1									B-23	2
N	PA-FZ-Z	5315-00-817-0889	PIN, STRAIGHT, HEADLESS CRES, PSVT FNSH, 1/16 DIA, 3/16 L MS16555-601 (96906)		EA	2									B-23	3
N	XA- -		KNOB 7596927 (19200)		EA	1									B-23	4
N	PA-FZ-Z	5310-00-347-7630	WASHER, KEY 5181688 (19200)		EA	1									B-23	5
N	PA-FZ-Z	5310-00-347-7631	WASHER, KEY 5181689 (19200)		EA	13									B-23	6
N	PA-FZ-Z	5365-00-503-4654	PLUG, SLOTTED 5034654 (19200)		EA	1									B-23	7
N	PA-FZ-Z	5340-00-597-0908	SPRING, COMPRESSION 5033526 (19200)		EA	1									B-23	8
N	PA-FZ-Z		V-BEARING PH BRZ, 0.2810 OD, 19/64 L MS35689-2 (96906)		EA	1									B-23	9
N	PA-FZ-Z	5305-00-282-7667	SETSCREW HDLS, SLTD DR, CUP PT, CRES, PSVT FNSH, NO 5-44NF-2A, 1/8 L 540976 (21450)		EA	1									B-23	10
N	PA-FZ-Z	5305-00-206-7329	SETSCREW HDLS, DOG PT, NO 5-44NF-2A, 3/16 L 5181708 (19200)		EA	1									B-23	11
N	PA-FZ-Z	1240-00-505-5464	CAP, BALL 7680265 (19200)		EA	1									B-23	12
N	PA-FZ-Z	5305-00-518-1685	SCREW 5181685 (19200)		EA	1									B-23	13
N	PA-FZ-Z	1240-00-505-5463	SEAT, BALL SOCKET PLSTC, 0.203 RAD, 0.200 OA H, 0.426 HOLE DIA, 0.255 CO W, 0.64 KWY W, 0.030 KWY DP 7680264 (19200)		EA	1									B-23	14
N	PA-FZ-Z	5310-00-518-1686	NUT, PLAIN, BARREL PH BRZ, 3/8-16UNC-2B, 1/2 L 5181686 (19200)		EA	1									B-23	15

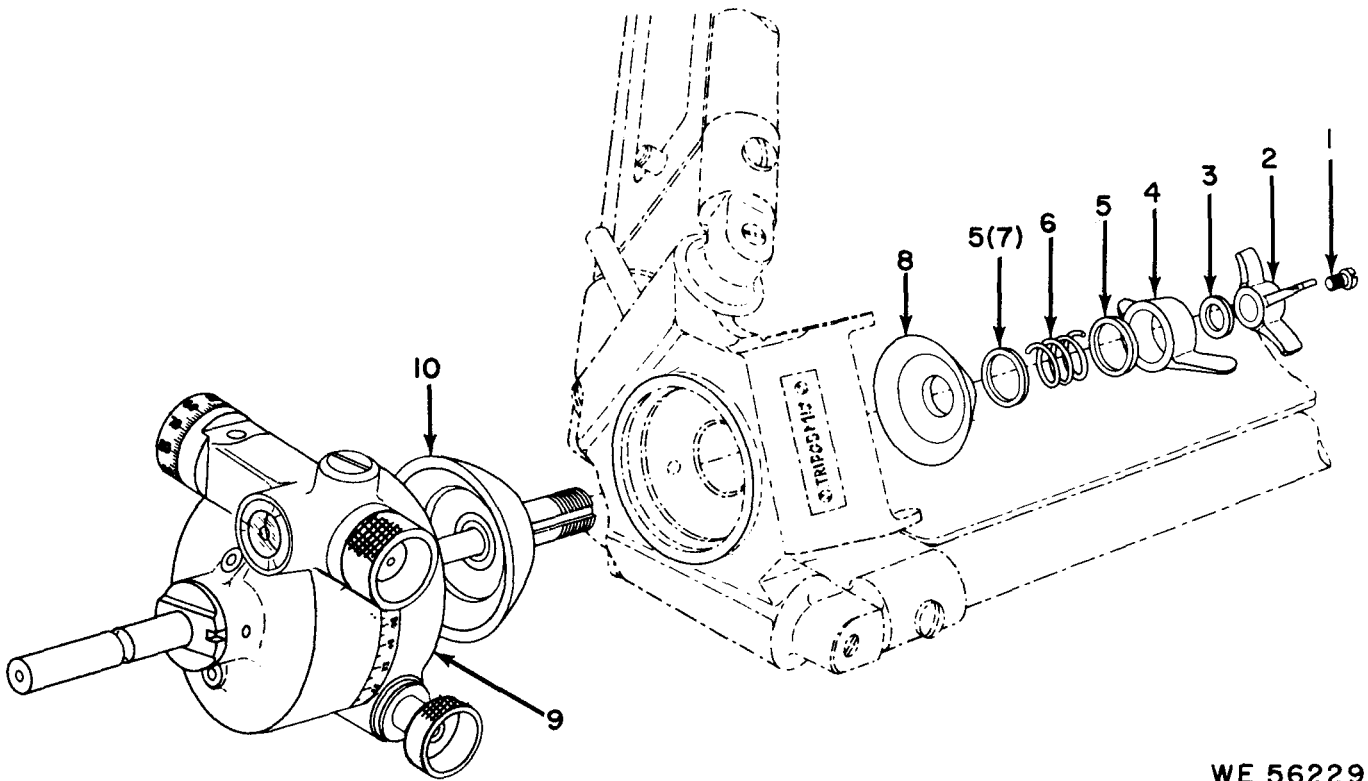
N	PA-FZ-Z	5305-00-054-5636	SCREW, MACHINE PNH, CROSS REC, CRES, PSVT FNSH, NO 2-56UNC-2A, 3/16 L MS51957-2 (96906)	EA	4									B-23	16
N	PA-FZ-Z	1240-00-531-6674	STRIP PLSTC, 0.373 W, 1/16 THK, 1 1/2 L 5316674 (19200)	EA	1									B-23	17
N	PA-FZ-Z	5310-00-543-4652	WASHER, LOCK FL, INT T, CRES, PSVT FNSH, 0.095 ID, 0.200 OD, 0.015 THK MS35333-69 (96906)	EA	2									B-23	19
N	PA-FZ-Z	5355-00-518-1757	SCALE, DIAL, INTERPUPILLARY 5181757 (19200)	EA	1									B-23	20
N	XB-HZ-Z		HOUSING 5582532 (19200)	EA	1									B-23	21



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Figure B-23. Interpillary screw assembly 7677291-exploded view.

ACTN CHNG code	(1) SME code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>	(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr aw per 100 equip cntgcy	(9) Depot maint aw per 100 equip	(10) Illustration	
						(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) Fig. No.	(b) Item No.
						N	PA-FZ-Z	5305-00-551-7508	MOUNT, PERISCOPE, M48 6583165 SCREW, MACHINE FL HD, SLTD DR, CRES, NO 8-36UNF-2A, 0.313 L 7681585 (19200)	EA	1				
N	PA-FZ-Z	5310-00-509-5449	NUT, PLAIN, WING 5317317 (19200)	EA	1								B-24	2	
N	PA-FZ-Z	5310-00-514-9123	WASHER, KEY 5317313 (19200)	EA	1								B-24	3	
N	PA-FZ-Z	5310-00-638-6781	NUT, PLAIN, WING 5317316 (19200)	EA	1								B-24	4	
N	PA-FZ-Z	5310-00-531-7318	WASHER, FLAT 5317318 (19200)	EA	2								B-24	5	
N	PA-FZ-Z	5340-00-205-4464	SPRING, HELICAL, COMPRESSION 5317312 (19200)	EA	1								B-24	6	
N	PA-FZ-Z	3040-00-531-7321	CLAMP 5317321 (19200)	EA	1								B-24	8	
N	PA-FZ-Z	1240-00-618-1032	HOUSING, 6583169, WITH RELATED PARTS CLAMP 6181032 (19200)	EA	1								B-24	9	
													B-24	10	



WE 56229

Figure B-24. Mount periscope M48 6583165-exploded view.

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>	(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgty	(9) Depot maint alw per 100 equip	(10) Illustration	
						(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) Fig. No.	(b) Item No.
						HOUSING 6583169 AND SPINDLE ASSEMBLY 5635924 WITH RELATED PARTS									
N	PA-FZ-Z	5315-00-187-3254	PIN TAPERED PLAIN CRES, PSVT FNSH, NO 4/0, 1/2 L MS24692-78 (96906)	EA	4									B-25	1
N	PA-FZ-Z	5355-00-667-9103	KNOB BRS, 7/8 DIA, 15/16 THK, .219 SFT DIA 5181728 (19200)	EA	2									B-25	2
N	PA-FZ-Z	5310-00-298-5468	WASHER FELT 23/32 OD, 3/16 ID, 1/16 THK 5181729 (19200)	EA	2									B-25	3
N	PA-FZ-Z	5305-00-057-0509	SCREW MACHINE PNH, CROSS REC, CRES, PSVT FNSH NO 4-48UNF-2A, 3/16 L MS51958-12 (96906)	EA	2									B-25	7
N	XB-FZ-Z		COVER 5317323 (19200)	EA	1									B-25	8
N	PA-FZ-Z	5340-00-504-6528	SPRING 5046528 (19200)	EA	1									B-25	9
N	PA-FZ-Z	3120-00-518-1727	BEARING 5181727 (19200)	EA	1									B-25	10
N	PA-FZ-Z	5305-00-716-7932	SETSCREW HEX SKT, CP, ALY STL, CD PL, NO 2-64UNF-3A, 3/16 L MS51974-2 (96906)	EA	2									B-25	11
N	PA-FZ-Z	5305-00-206-5777	SETSCREW CRES, DOG PT, NO 2-64NF-3A, .11 L 5039618 (19200)	EA	2									B-25	12
N	PA-FZ-Z	1240-00-505-5464	CAP BALL 7680265 (19200)	EA	1									B-25	13
N	PA-HZ-Z	1240-00-617-2547	WORM STL, 0.433 DIA, 4 7/32 L 6172547 (19200)	EA	1									B-25	14
N	PA-FZ-Z	1240-00-505-5463	SEAT BALL SOCKET PLSTC, 0.203 RAD, 0.200 OA HGT, 0.426 HOLE DIA, 0.255 CO W, 0.064 KWY W, 0.030 KWY DP 7680264 (19200)	EA	1									B-25	15
N	PA-HZ-Z	5305-00-724-7278	SETSCREW HEX SKT, FP, ALY STL, CD PL, NO 4-48UNF-3A, 5/16 L MS51966-19 (96906)	EA	1									B-25	16

ACTN CHNG code	(1) SME code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr slw per 100 equip entgcy	(9) Depot maint slw per 100 equip	(10) Illustration	
							(a)	(b)	(c)	(a)	(b)	(c)			(a)	(b)
							1-20	21-50	51-100	1-20	21-50	51-100			Fig. No.	Item No.
N	PA-HZ-Z	1240-00-618-1029	SPINDLE STL, 0.820 DIA, 3.300 LG 6181029 (19200)		EA	1									B-25	17
N	PA-HZ-Z	5310-00-531-7309	NUT PLAIN ROUND STL, 3/8-24UNF-2B, 1/16 OD, 7/32 THK 5317309 (19200)		EA	1									B-25	18
N	PA-HZ-Z	5310-00-531-7320	WASHER SPRING TENSION STL, 13/32 ID, 5/8 OD, 0.010 THK 5317320 (19200)		EA	1									B-25	19
N	XB-HZ-Z		HOUSING 6583169 (19200)		EA	1									B-25	20
N	PA-HZ-Z	3120-00-661-3036	WASHER THRUST STL, 1.6875 OD, 1.179 ID, 0.062 OA THKNS 5317310 (19200)		EA	1									B-25	21
N	PA-FZ-Z	5305-00-022-5415	SCREW, MACHINE FILH, SLTD DR, CRES, PSVT FNSH, NO 5-44-2A, 1/4 L 225415 (21450)		EA	3									B-25	22
N	PA-FZ-Z	1240-00-531-5076	COVER PLATE, ACCESS BR, 0.870 OD, 1/8 THK, 3 HOLES 0.213 DIA, 0.625 BLT CIR DIA 5315076 (19200)		EA	1									B-25	23
N	PA-FZ-Z	5355-00-531-5075	DIAL, SCALE 5315075 (19200)		EA	1									B-25	24
N	PA-FZ-Z	1290-00-503-9619	ADAPTER BR, 27/32 OD, 0.315 LG 5039619 (19200)		EA	1									B-25	26
N	PA-FZ-Z	5355-00-667-6311	INDEX 6181030 (19200)		EA	1									B-25	27
N	PA-FZ-Z	5330-00-202-3571	FELT, MECHANICAL PREFORMED NON CIRC SHP 0.250 APERT DIA, 0.687 W, 0.687 LG, 0.062 THK, 5318682 (19200)		EA	1									B-25	28
N	PA-FZ-Z	5355-00-503-9613	KNOB RND SHP, NI SIL, 15/16 DIA, 5/8 THK, 0.250 SFT DIA 5039613 (19200)		EA	1									B-25	30
N	PA-FZ-Z	531-00-531-7308	WASHER, SPRING TENSION STL, COP PLD FNSH, 17/64 ID, 7/8 OD, 0.010 THK, 3/32 OA HGT 5317308 (19200)		EA	1									B-25	31

N	PA-FZ-Z	1240-00-531-7319	SHOE 5317319 (19200)	EA	1					B-25	32
N	PA-FZ-Z	5305-00-724-7876	SETSCREW HDLS, SKT DR, FP, ALY STL, CD PL, NO 2-64UNF-3A, 1/8 L MS51966-7 (96906)	EA	1					B-25	33
N	PA-FZ-Z	5365-00-541-0846	PLUG, SLOTTED MACHINE THREAD ANDZ, ENAMELED PL HD FNH, 15/32-36NS-3, 0.125 LG 5039625 (19200)	EA	1					B-25	34
N	PA-FZ-Z		SPRING, HELICAL, COMPRESSION MUW, STL, CD PL, 0.038 DIA STK, 0.240 OD, 0.69 LG MS24585-1115 (96906)	EA	1					B-25	35
N	PA-FZ-Z	1290-00-692-1515	SEAT, BALL SOCKET PLSTC, 0.218 RAD, 0.162 BALL SEAT DP, 0.600-4NS-2B, 0.223 OA H, 0.323 HOLE DIA 7680255 (19200)	EA	1					B-25	38
N	PA-HZ-Z	1240-00-618-1031	WORM STL, 0.433 DIA, 3.650 L 6181031 (19200)	EA	1					B-25	39
N	PA-FZ-Z	1290-00-692-1516	CAP, BALL 7680257 (19200)	EA	1					B-25	40
N	PA-FZ-Z		V-BEARING (SPRING LOADED THROW OUT TYPE), 0.250 DIA, 13/16 LG MS35688-1 (96906)	EA	1					B-25	41
N	PA-HZ-Z	5305-00-724-7873	SETSCREW HEX SOC, FP, ALY STL, CD PL, NO 4-48UNF-3A, 1/8 L MS51966-16 (19200)	EA	1					B-25	42
N	PA-HZ-Z	5310-00-531-7314	NUT, PLAIN, ROUND STL, 1.409-32NS-2B, 1 3/4 L 5317314 (19200)	EA	1					B-25	43
N	PA-HZ-Z	5330-00-641-0255	WASHER, NONMETALLIC CK, 2 25/32 OD, 2 7/16 ID, 3/32 THK 5317315 (19200)	EA	2					B-25	44
N	PA-HZ-Z	1240-00-563-0901	GEAR WORM, BRS CSTG, DBL GR, 44 AND 64 T, 1.828 HD DIA, 2.625 BDIA 5630901 (19200)	EA	1					B-25	45
N	PA-HZ-Z	1240-00-536-5468	SPINDLE ASSEMBLY 5630900 (19200)	EA	1					B-25	47
N	AH-HZ-Z		LEVEL ASSEMBLY CIRCULAR 7635924 (19200)	EA	1					B-25	48

ACTN CHNG code	(1) SMB code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a)	(b)	(c)	(a)	(b)	(c)			(a)	(b)
							1-20	21-50	51-100	1-20	21-50	51-100			Fig. No.	Item No.
N	PA-FZ-Z	5305-00-054-5635	SCREW, MACHINE PNH, CROSS REC, CRES, PSVT FNSH, NO 2-56UNC-2A, 1/8 L MS51957-1 (96906)		EA	2									B-25	49
N	PA-FZ-Z	5310-00-543-4652	WASHER, LOCK FL, INTL T, CRES, PSVT FNSH, 0.095 ID, 0.200 OD, 0.015 THK MS35333-69 (96906)		EA	2									B-25	50
N	PA-FZ-Z		PLATE, IDENTIFICATION 11731300 (19200)		EA	1									B-25	51

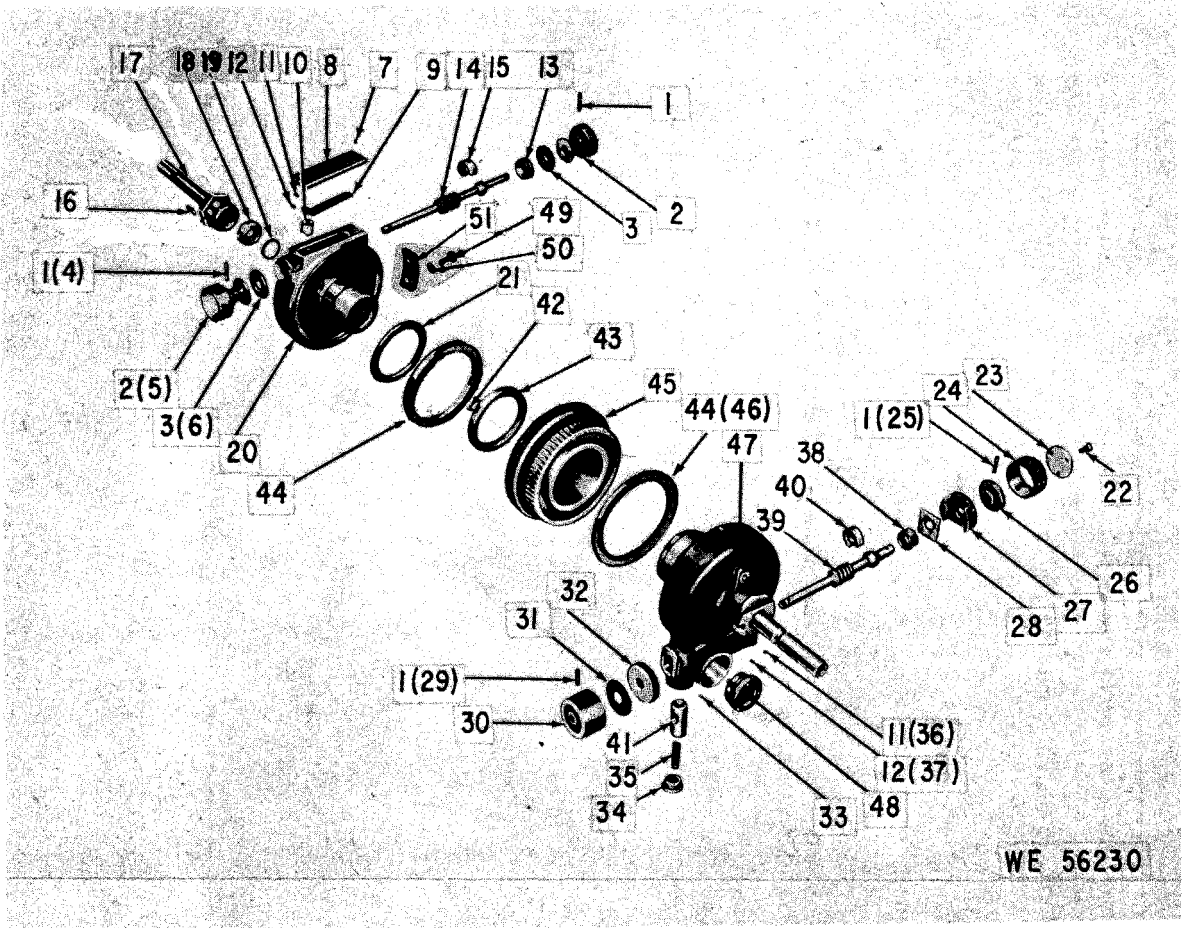


Figure B-25. Housing 6583169 and spindle assembly 5635924 with related parts-exploded view.

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ACTN CHNG code	(1) SME code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>	(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day D6 maint allowance			(7) 30-Day G5 maint allowance			(8) 1-Yr slw per 100 equip cntgty	(9) Depot maint slw per 100 equip	(10) Illustration	
						(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) Fig. No.	(b) Item No.
						N	PA-HZ-Z	5305-00-206-7328	CIRCULAR LEVEL ASSEMBLY 7635924 SETSCREW HDLS, SLTD DR, CP, CNA, NO 1-72UNF-2A, 5/32 L 5043926 (19200)	EA	3				
N	PA-HZ-Z	5310-00-504-7837	CAP, LEVEL VIAL 5047837 (19200)	EA	1									B-26	2
N	PA-HZ-Z	1290-00-764-6198	VIAL, LEVEL CIRCULAR, TYPE CA MS35106-1 (96906)	EA	1									B-26	3
N	PA-HZ-Z	5310-00-504-7839	WASHER, SPRING TENSION NI SIL, 5/16 ID, 9/16 OD, 0.007 THK, 3/32 O/A HGT 5047839 (19200)	EA	1									B-26	4
N	PA-HZ-Z	1290-00-757-9205	SUPPORT, LEVEL VIAL 7579205 (19200)	EA	1									B-26	5

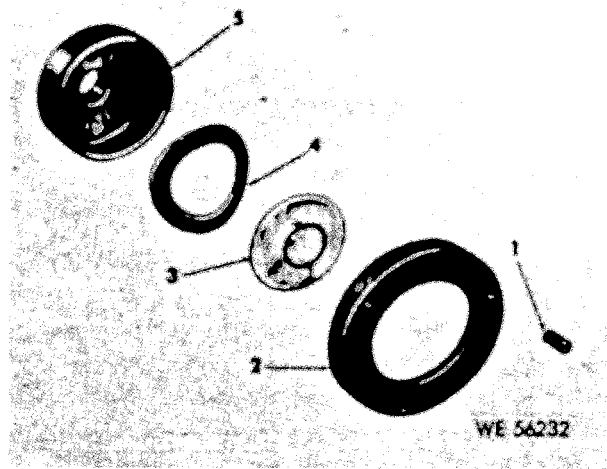


Figure B-26. Circular level assembly 7635924-exploded view.

B-66

Change 1

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ACTN CHNG code	(1) SMB code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip catgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) Fig. No.	(b) Item No.
N	PA-FZ-Z	5310-00-520-4574	TRIPOD M17 6574387 NUT, PLAIN, ROUND CRES, NO 8-36UNF-2B, 5/16 OD, 3/16 THK 5204574 (19200)		EA	2									B-27	1
N	PA-FZ-Z	5305-00-902-2146	SCREW, MACHINE FL CTSK HD, CROSS REC, CRES, PSVT, NO 8-36UNF-2A, 1 L MS51960-51 (96906)		EA	2									B-27	2
N	PA-FZ-Z	5310-00-889-2546	WASHER, FINISHING CRES, PSVT FNSH, 0.164 ID, 0.541 OD, 0.017 THK, 0.112 OA HGT MS27129-9 (96906)		EA	2									B-27	3
N	PA-FZ-Z	5340-01-030-0042	STRAP, CARRYING, SEWED 11728899 (19200)		EA	1									B-27	4
N	PA-FZ-Z	5305-00-520-3538	SCREW, MACHINE FILH, SLTD DR, BRS, OD FNSH, 5/16-18UNC-2A, 1 7/16 L 5203538 (19200)		EA	6									B-27	5
N	AF-FZ-Z	1240-00-558-1876	LEG ASSEMBLY, TRIPOD 5581876 (19200)		EA	3									B-27	6
N	PA-FZ-Z	1240-00-520-3548	WEDGE 5203548 (19200)		EA	6									B-27	7
N	AF-FZ-Z		HEAD ASSEMBLY, TRIPOD 5581222 (19200)		EA	1									B-27	8

TM 9-1240-368-34

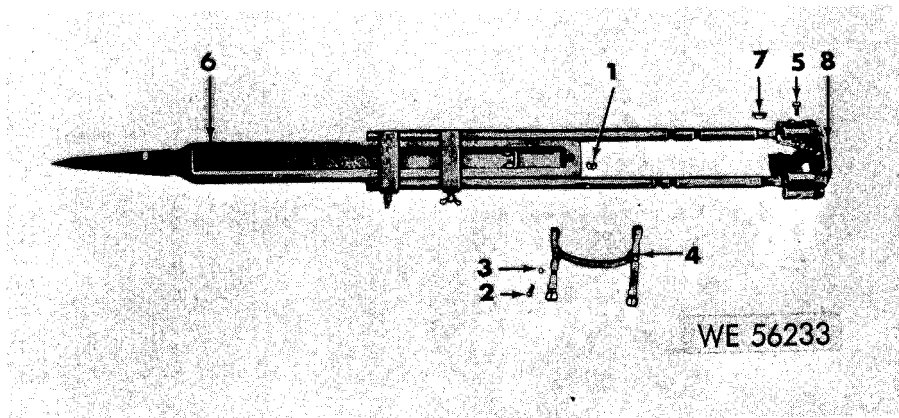
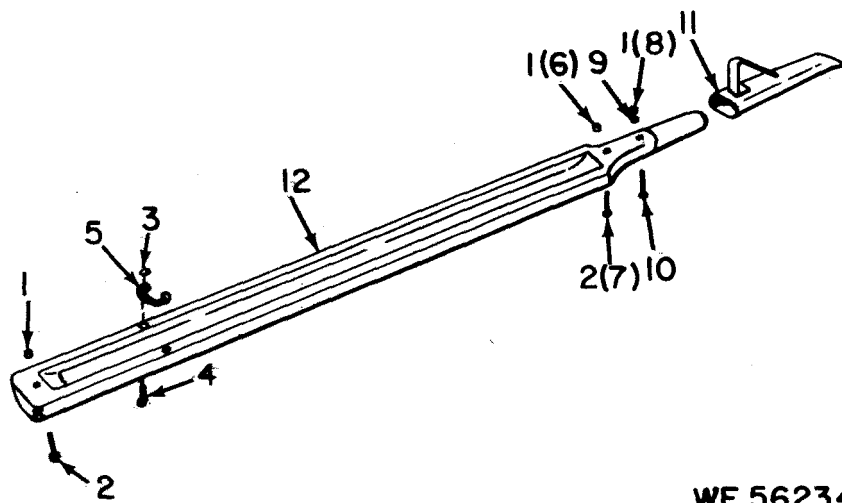


Figure B-27. Tripod M17, 6574387-partial exploded view.

ACTN CHNG code	(1) SME code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a)	(b)	(c)	(a)	(b)	(c)			(a) Fig. No.	(b) Item No.
							1-20	21-50	51-100	1-20	21-50	51-100				
N	PA-FZ-Z	5310-00-997-1888	LOWER LEG 6178760 NUT PLAIN, HEXAGON STL, CD PL, 1/4-20UNC-2B MS35649-2252 (96906)		EA	3									B-28	1
N	PA-FZ-Z	5305-00-939-9150	SCREW, MACHINE DR, FILH, SLTD, CRES, PSVT FNSH, 1/4-20UNC-2A, 1.250 L MS35275-284 (96906)		EA	2									B-28	2
N	PA-FZ-Z	5310-00-520-4574	NUT, PLAIN, ROUND CRES, NO 8-36NF-2B, 5/16 OD, 3/16 THK 5204574 (19200)		EA	2									B-28	3
N	PA-FZ-Z	5305-00-701-5061	SCREW, MACHINE PNH, CROSS REC, CRES, PSVT FNSH, NO 8-36NF-2A, 1/2 L MS51958-45 (96906)		EA	2									B-28	4
N	PA-FZ-Z	1240-00-520-4573	FASTENER STL, 3 1/16 LG, 7/32 ROD DIA 5204573 (19200)		EA	1									B-28	5
N	PA-FZ-Z	5310-00-933-8121	WASHER LOCK SPR, HLCL, CRES, PSVT FNSH 0.255 MIN ID, 0.4890 OD, 0.062 THK MS35338-139 (96906)		EA	1									B-28	9
N	PA-FZ-Z	5305-00-207-2297	SCREW CAP HEXAGON HEAD CRES, PSVT FNSH, 1/4-20UNC-2A, 1.500 L MS35307-312 (96906)		EA	1									B-28	10
N	PA-FZ-Z	1240-00-617-6713	SHOE ASSEMBLY 6176713 (19200)		EA	1									B-28	11
N	PA-FZ-Z	1240-00-617-8760	LEG LOWER 6178760 (19200)		EA	1									B-28	12



WE 56234

Figure B-28. Lower leg 6178760-exploded view.

B-70

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
			Reference Number & Mfg Code	Usable on Code			(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) Fig. No.	(b) Item No.
N	PA-FZ-Z	5305-00-249-2664	UPPER LEG 5313953 AND 5313954 SCREW, WOOD, FLAT HEAD, SLTD, STL CD OR ZINC PL NO 5, 1/2 L MS35494-21 (96906)		EA	8									B-29	1
N	PA-FZ-Z	1240-00-617-6714	CLAMP, PINNED AND BRAZED 6176714 (19200)		EA	2									B-29	2
N	PA-FZ-Z	5340-00-520-3550	PLATE 5203550 (19200)		EA	2									B-29	4
N	PA-FZ-Z	1240-00-531-3953	LEG, UPPER 5313953 (19200)		EA	1									B-29	6
N	PA-FZ-Z	1240-00-531-3954	LEG, UPPER 5313954 (19200)		EA	1									B-29	7

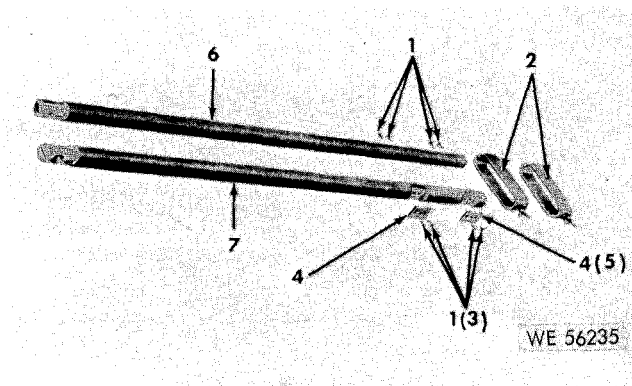


Figure B-29. Upper leg 5313953 and 5313954-exploded view.

B-72

ACTN CHNG code	(1) SME code	(2) National stock No.	(3) Description		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
			Reference Number & Mfg Code	Usable on Code			(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) Fig. No.	(b) Item No.
N	PA-FZ-Z	5310-00-275-2039	HEAD ASSEMBLY 5581222		EA	3									B-30	1
			NUT, SELF-LOCKING WITH NM INSR, STL, 1/2-20UNF-3B, 0.312 +0.016 THK, 0.750 +0.002/-0.10 WAF MS20364-820A (96906)													
N	PA-FZ-Z	5305-00-520-4148	SCREW, CLAMPING 5204148 (00000)		EA	3									B-30	2
N	PA-FZ-Z	1240-00-520-3543	LEVER 5203543 (19200)		EA	3									B-30	3
N	PA-FZ-Z	1240-00-617-6909	CAP, LEG 6176909 (19200)		EA	3									B-30	4
N	PA-FZ-Z	1240-00-617-6910	CAP, LEG 6176910 (19200)		EA	3									B-30	5
N	XB-HZ-Z		SLEEVE 5203549 (19200)		EA	3									B-30	6
N	PA-FZ-Z	5330-00-520-2939	STRIP 5202939 (19200)		EA	1									B-30	7
N	PA-FZ-Z	5305-00-253-5614	SCREW, DRIVE RDH, TYPE U, CS, CD PL, NO 4, 7 THD, 3/16 L MS21318-20 (96906)		EA	2									B-30	8
N	PA-FZ-Z	1240-00-758-1258	PLATE, NAME 7581258 (19200)		EA	1									B-30	9
N	PA-FZ-Z	1240-00-618-1036	HEAD 5581221 (19200)		EA	1									B-30	10

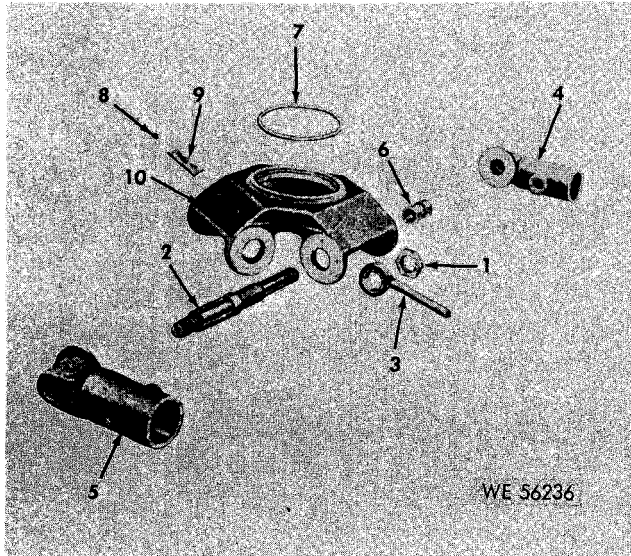
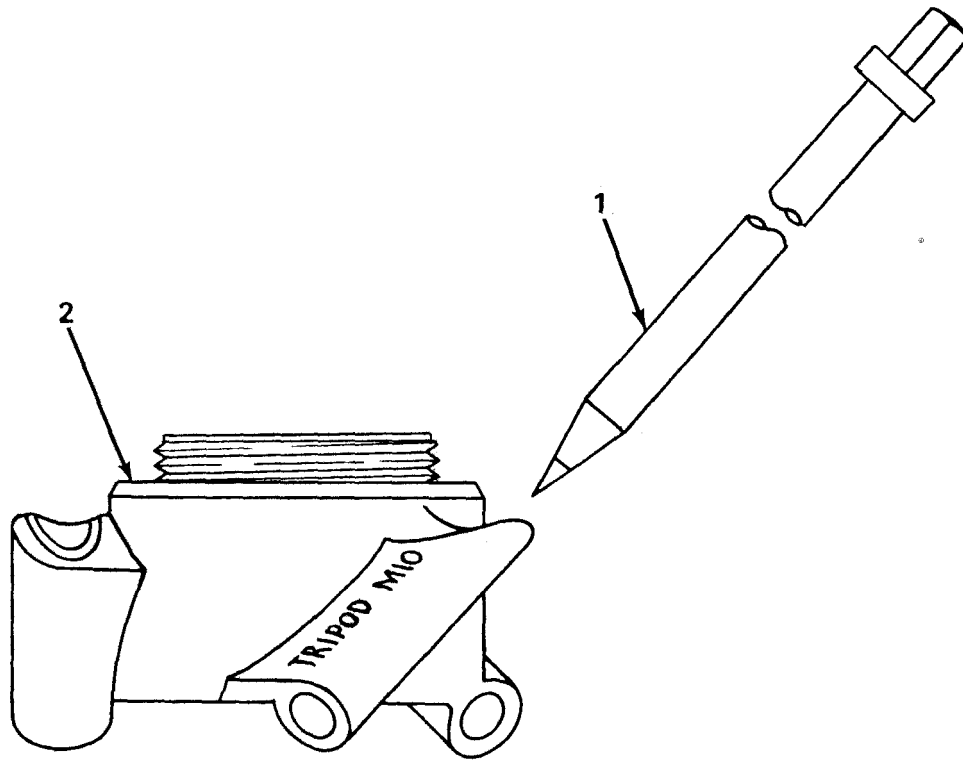


Figure B-30. Head assembly 5581222-exploded view.

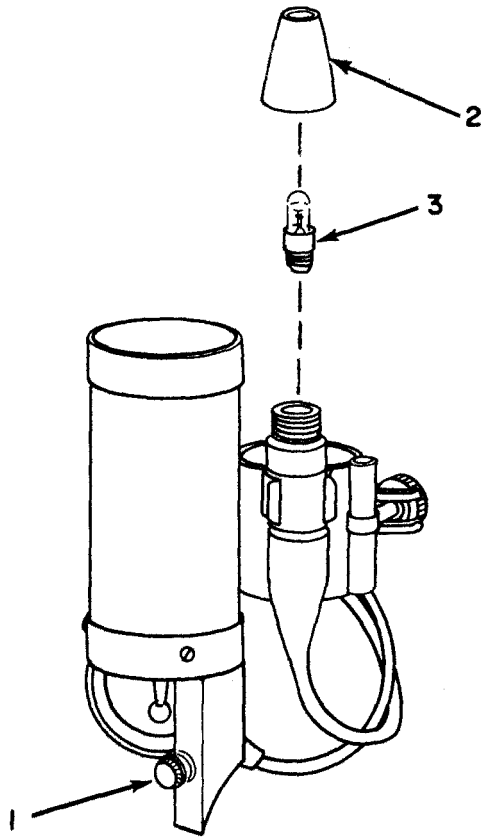
ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) Fig. No.	(b) Item No.
							N	PA-FZ-Z	1240-00-617-7437	TRIPOD M10 LEG, TRIPOD STL, 7/8 DIA, 11 L 6177437 (19200)		EA			3	
N	XB-HZ-Z		HEAD TRIPOD 6545928 (19200)		EA	1								B-31	2	



WE 56237

Figure B-31. M10 Tripod-exploded view.

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) Fig. No.	(b) Item No.
N	PA-CZ-Z	6240-00-155-7864	INSTRUMENT LIGHT M28 LAMP, INCANDESCENT 3 V, 0.19 AMP, 1C-2R TUNG FIL, SPL B, T-1 1/4 BULB, CLR, WHT, LT, NO 323 MS25236-323 (96906)		EA	1									B-32	1
N	PA-CZ-Z	1290-00-517-9387	CAP 5179387 (96906)		EA	1									B-32	2
N	PA-CZ-Z	6240-00-635-9800	LAMP, INCANDESCENT 3 V, 0.19 AMP, C-2R FIL, SPCL SCR B, T-1 1/4 BULB, CLR, WHT, LT, NO 325 MS51608-3 (96906)		EA	1									B-32	3



WE 56238

Figure B-32. Instrument light M28-partial exploded view.

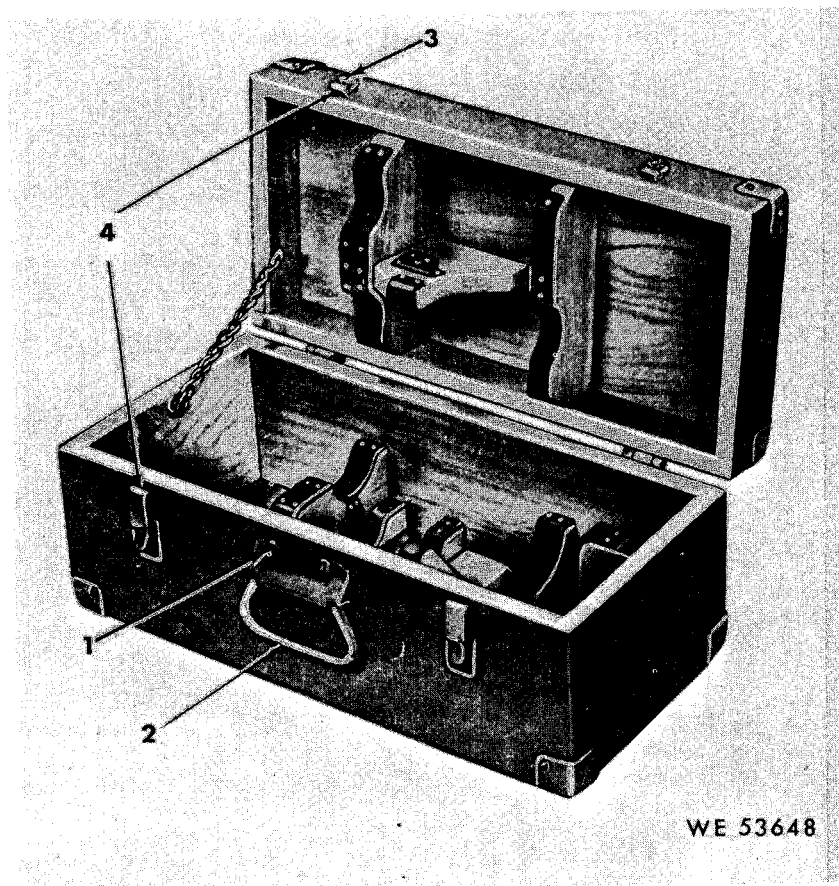
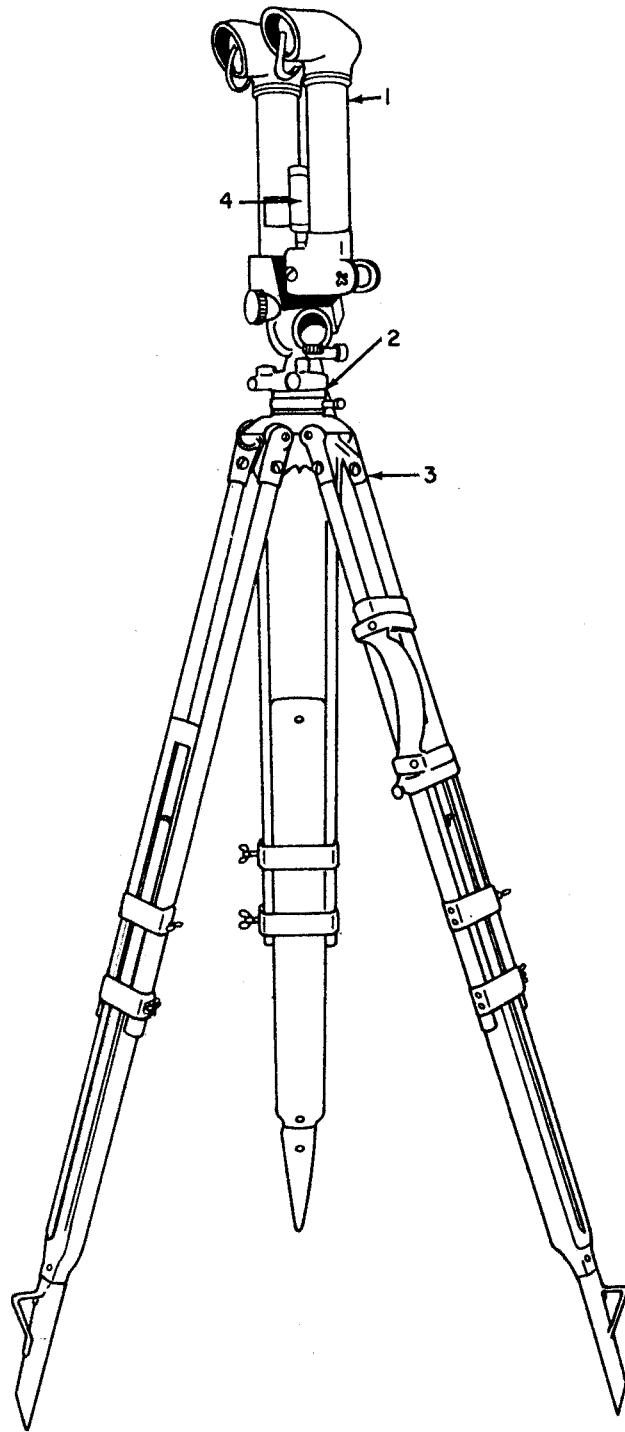


Figure B-33. Packing chest M39A1.

SECTION III. SPECIAL TOOLS LIST

ACTN CHNG code	(1) SMR code	(2) National stock No.	(3) Description <i>Reference Number & Mfg Code</i> <i>Usable on Code</i>		(4) Unit of meas	(5) Qty inc in unit	(6) 30-Day DS maint allowance			(7) 30-Day GS maint allowance			(8) 1-Yr alw per 100 equip cntgcy	(9) Depot maint alw per 100 equip	(10) Illustration	
							(a)	(b)	(c)	(a)	(b)	(c)			(a)	(b)
							1-20	21-50	51-100	1-20	21-50	51-100			Fig. No.	Item No.
			EQUIPMENT													
N	XA-		PERISCOPE, BATTERY COMMAND M65 7579932 (19200)			1									B-34	1
N	PA-CH-D	1240-00-344-4648	MOUNT, PERISCOPE M48 6583165 (19200)		EA	1									B-34	2
N	PA-CH-D	1240-00-657-4387	TRIPOD M17 6574387 (19200)		EA	1									B-34	3
N	PA-OH-D	1290-00-658-2819	LIGHT, INSTRUMENT M28 6582819 (19200)		EA	1									B-34	4
			TOOLS AND EQUIPMENT													
N	PA-CH-D	1240-00-658-3358	COVER, ASSEMBLY 6583358 (19200)		EA	1									B-35	1
N	PA-CH-D	1240-00-658-3104	CASE, CARRYING M45 6583104 (19200)		EA	1									B-35	2
N	PA-CH-D	1240-00-658-2520	ADAPTER, PERISCOPE M14 6582520 (19200)		EA	1									B-35	3
N	PA-CZ-Z	5120-00-277-2406	WRENCH, SOCKET 2034B (93232)		EA	1									B-35	4
N	PA-CH-D	1290-00-654-5927	TRIPOD M10 6545927 (19200)		EA	1									B-35	5
N	PA-CH-D	1240-00-769-4908	CHEST, PACKING M39A1 7694908 (19200)		EA	1									B-35	6



WE 56239

Figure B-34. Equipment.

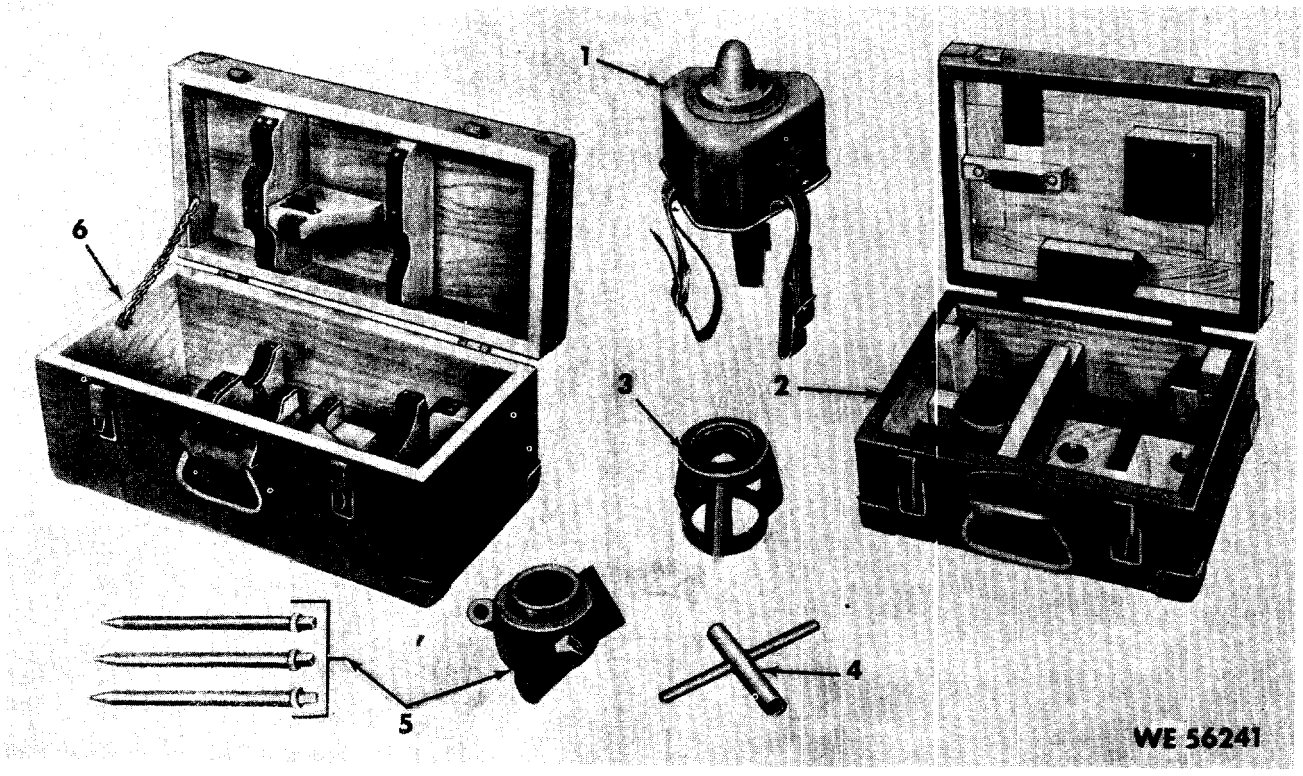


Figure B-35. Tools and equipment.

SECTION IV. NATIONAL STOCK NUMBER AND REFERENCE NUMBER INDEX

<i>STOCK NUMBER</i>	<i>FIGURE NO.</i>	<i>ITEM NO.</i>	<i>STOCK NUMBER</i>	<i>FIGURE NO.</i>	<i>ITEM NO.</i>
1240-00-161-0416	B-12	2	1240-00-618-0586	B-9	9
1240-00-161-0423	B-12	1	1240-00-618-0587	B-9	2
1240-00-330-0105	B-7	13	1240-00-618-0588	B-6	12
1240-00-330-0107	B-9	4	1240-00-618-0588	B-7	12
1240-00-330-0108	B-9	3	1240-00-618-0589	B-6	7
1240-00-344-4648	B-34	2	1240-00-618-0589	B-7	7
1240-00-505-5461	B-5	15	1240-00-618-0590	B-5	37
1240-00-505-5463	B-5	38	1240-00-618-0591	B-19	3
1240-00-505-5463	B-23	14	1240-00-618-0594	B-13	3
1240-00-505-5463	B-25	15	1240-00-618-0595	B-5	14
1240-00-505-5464	B-5	36	1240-00-618-0595	B-5	14
1240-00-505-5464	B-23	12	1240-00-618-0597	B-9	10
1240-00-505-5464	B-25	13	1240-00-618-0603	B-5	27
1240-00-518-1698	B-20	6	1240-00-618-1029	B-25	17
1240-00-520-3543	B-30	3	1240-00-618-1031	B-25	39
1240-00-520-3548	B-27	7	1240-00-618-1032	B-24	10
1240-00-520-4573	B-28	5	1240-00-618-1036	B-30	10
1240-00-531-3953	B-29	6	1240-00-618-1117	B-16	5
1240-00-531-3954	B-29	7	1240-00-618-1118	B-15	5
1240-00-531-5076	B-25	23	1240-00-618-1390	B-21	3
1240-00-531-6356	B-17	2	1240-00-618-1391	B-22	6
1240-00-531-6357	B-10	2	1240-00-623-0714	B-6	2
1240-00-531-6357	B-11	2	1240-00-623-0714	B-7	2
1240-00-531-6358	B-10	4	1240-00-657-4387	B-34	3
1240-00-531-6358	B-11	4	1240-00-658-2520	B-35	3
1240-00-531-6359	B-10	6	1240-00-658-3104	B-35	2
1240-00-531-6359	B-11	6	1240-00-658-3358	B-35	1
1240-00-531-6361	B-21	2	1240-00-758-1258	B-30	9
1240-00-531-6362	B-9	5	1240-00-769-4908	B-35	6
1240-00-531-6365	B-9	6	1240-00-783-9475	B-1	15
1240-00-531-6641	B-16	2	1290-00-067-6407	B-14	4
1240-00-531-6643	B-15	2	1290-00-503-9619	B-25	26
1240-00-531-6646	B-10	5	1290-00-517-9387	B-32	2
1240-00-531-6646	B-11	5	1290-00-654-5927	B-35	5
1240-00-531-6659	B-8	5	1290-00-658-2819	B-34	4
1240-00-531-6665	B-22	8	1290-00-692-1515	B-25	38
1240-00-531-6674	B-23	17	1290-00-692-1516	B-25	40
1240-00-531-6675	B-5	33	1290-00-757-9205	B-26	5
1240-00-531-6678	B-11	1	1290-00-764-6198	B-26	3
1240-00-531-6679	B-3	1	2640-00-060-3543	B-1	16
1240-00-531-6679	B-4	1	3040-00-531-7321	B-24	8
1240-00-531-7319	B-25	32	3120-00-518-1727	B-25	10
1240-00-536-5468	B-25	47	3120-00-661-3036	B-25	21
1240-00-536-5469	B-1	4	5305-00-022-5389	B-5	22
1240-00-538-681 5	B-15	4	5305-00-022-5415	B-25	22
1240-00-538-6815	B-16	4	5305-00-022-5417	B-3	10
1240-00-558-0794	B-27	4	5305-00-022-5417	B-4	15
1240-00-558-1108	B-13	2	5305-00-043-3642	B-6	4
1240-00-558-2524	B-5	16	5305-00-043-3642	B-7	4
1240-00-558-2527	B-1 5	6	5305-00-151-3723	B-33	3
1240-00-558-2529	B-16	6	5305-00-054-5635	B-3	12
1240-00-563-0901	B-25	45	5305-00-054-5635	B-25	49
1240-00-617-2547	B-25	14	5305-00-054-5636	B-5	40
1240-00-617-6713	B-28	11	5305-00-054-5636	B-19	1
1240-00-617-6714	B-29	2	5305-00-054-5636	B-23	16
1240-00-617-6909	B-30	4	5305-00-054-5646	B-6	10
1240-00-617-6910	B-30	5	5305-00-054-5646	B-7	10
1240-00-617-7437	B-31	1	5305-00-054-5646	B-18	10
1240-00-617-8760	B-28	12	5305-00-057-0498	B-9	7
1240-00-617-9896	B-22	3	5305-00-057-0509	B-25	7
1240-00-618-0580	B-17	3	5305-00-068-1653	B-4	8
1240-00-618-0583	B-3	4	5305-00-068-1654	B-20	1
1240-00-618-0583	B-4	4	5305-00-206-5777	B-25	12
1240-00-618-0584	B-3	6	5305-00-206-5799	B-3	2
1240-00-618-0584	B-4	6	5305-00-206-5799	B-4	2

STOCK NUMBER	FIGURE NO.	ITEM NO.	STOCK NUMBER	FIGURE NO.	ITEM NO.
5305-00-206-7328	B-26	1	5310-00-531-7309	B-25	18
5305-00-206-7329	B-5	34	5310-00-531-7314	B-25	43
5305-00-206-7329	B-23	11	5310-00-531-7318	B-24	5
5305-00-207-2297	B-28	10	5310-00-531-7320	B-25	19
5305-00-249-2664	B-29	1	5310-00-538-6816	B-22	5
5305-00-253-5614	B-30	8	5120-00-277-2406	B-35	4
5305-00-282-3791	B-9	1	5310-00-543-4652	B-3	13
5305-00-282-7648	B-8	1	5310-00-543-4652	B-5	41
5305-00-282-7667	B-5	35	5310-00-543-4652	B-19	2
5305-00-282-7667	B-23	10	5310-00-543-4652	B-23	19
5305-00-286-1867	B-6	1	5310-00-543-4652	B-25	50
5305-00-286-1867	B-7	1	5310-00-616-3555	B-18	2
5305-00-404-8171	B-5	11	5310-00-618-0579	B-1	5
5305-00-503-4659	B-5	12	5310-00-638-6781	B-24	4
5305-00-518-1685	B-23	13	5310-00-734-1738	B-19	4
5305-00-518-1696	B-20	2	5310-00-889-2546	B-27	3
5305-00-520-3538	B-27	5	5310-00-928-2690	B-9	8
5305-00-520-4148	B-30	2	5310-00-933-8118	B-14	2
5305-00-531-6673	B-1	11	5310-00-933-8121	B-28	9
5305-00-532-0488	B-22	4	5310-00-997-1888	B-28	1
5305-00-532-0489	B-16	1	5315-00-187-3226	B-5	25
5305-00-532-0489	B-15	1	5315-00-187-3232	B-23	1
5305-00-532-0489	B-22	1	5315-00-187-3254	B-25	1
5305-00-551-7508	B-24	1	5315-00-187-3258	B-5	1
5305-00-582-9064	B-4	11	5315-00-187-3261	B-5	16
5305-00-685-1570	B-3	8	5315-00-619-7464	B-20	7
5305-00-685-1570	B-4	13	5315-00-682-1726	B-18	14
5305-00-701-5061	B-28	4	5315-00-810-0505	B-2	5
5305-00-716-7932	B-5	20	5315-00-817-0889	B-5	3
5305-00-716-7932	B-25	11	5315-00-817-0889	B-23	3
5305-00-716-8035	B-1	9	5315-00-834-0745	B-2	6
5305-00-719-5330	B-5	7	5330-00-202-3571	B-25	28
5305-00-724-3439	B-4	10	5330-00-297-0487	B-6	6
5305-00-724-7278	B-25	16	5330-00-297-0487	B-7	6
5305-00-724-7873	B-25	42	5330-00-330-5248	B-18	4
5305-00-724-7876	B-25	33	5330-00-520-2939	B-30	7
5305-00-829-0105	B-3	5	5330-00-531-6645	B-10	3
5305-00-829-0105	B-4	5	5330-00-531-6645	B-11	3
5305-00-902-2146	B-27	2	5330-00-588-9650	B-6	9
5305-00-912-7648	B-18	1	5330-00-588-9650	B-7	9
5305-00-939-9150	B-28	2	5330-00-641-0255	B-25	44
5305-00-939-9231	B-2	1	5340-00-205-4464	B-24	6
5305-00-943-5918	B-2	2	5340-00-209-8393	B-8	4
5305-00-947-2169	B-14	1	5340-00-209-8394	B-5	32
5305-00-993-3589	B-1	1	5340-00-337-5867	B-22	2
5310-00-275-2039	B-30	1	5340-00-504-6528	B-25	9
5310-00-298-5468	B-25	3	5340-00-520-3550	B-29	4
5310-00-347-7588	B-5	5	5340-00-545-3076	B-7	11
5310-00-347-7593	B-5	6	5340-00-545-3076	B-6	11
5310-00-347-7630	B-5	29	5340-00-545-3076	B-6	11
5310-00-347-7630	B-23	5	5340-00-562-4101	B-5	8
5310-00-347-7631	B-5	31	5340-00-597-0908	B-23	8
5310-00-347-7631	B-23	6	5340-00-597-2042	B-22	7
5310-00-504-7837	B-26	2	5340-00-597-2047	B-5	9
5310-00-504-7839	B-26	4	5340-00-850-1928	B-33	2
5310-00-509-5449	B-24	2	5340-00-975-2126	B-33	4
5310-00-514-6452	B-3	3	5355-00-503-9613	B-25	30
5310-00-514-6452	B-4	3	5355-00-518-1694	B-5	24
5310-00-514-9123	B-24	3	5355-00-518-1699	B-5	42
5310-00-518-1686	B-23	15	5355-00-518-1757	B-23	20
5310-00-520-4574	B-27	1	5355-00-531-5075	B-25	24
5310-00-520-4574	B-28	3	5355-00-618-0602	B-5	2
5310-00-531-6651	B-6	8	5355-00-667-6311	B-25	27
5310-00-531-6651	B-7	8	5355-00-667-9102	B-8	2
5310-00-531-6652	B-6	3	5355-00-667-9103	B-25	2
5310-00-531-6652	B-7	3	5355-00-667-9514	B-5	23
5310-00-531-7308	B-25	31	5355-00-668-3944	B-6	5

STOCK NUMBER	FIGURE NO.	ITEM NO.	STOCK NUMBER	FIGURE NO.	ITEM NO.
5355-00-668-3944	B-7	5	5365-00-597-8827	B-21	1
5355-00-763-5923	B-23	2	5910-00-850-1929		
5365-00-278-5327	B-5	21	6240-00-155-7864	B-32	1
5365-00-278-5327	B-8	3	6240-00-155-8654	B-1	17
5365-00-318-4400	B-5	20	6240-00-635-9800	B-32	2
5365-00-503-4654	B-23	7	6650-00-505-5462	B-5	13
5365-00-507-8287	B-13	1	6650-00-558-1876	B-27	6
5365-00-530-5889	B-10	1	6650-00-903-0597	B-10	7
5365-00-541-0846	B-25	34	9905-00-164-3540	B-3	14
5365-00-597-8826	B-17	1			

REFERENCE NO.	MFR CODE	FIGURE NO.	ITEM NO.	REFERENCE NO.	MFR CODE	FIGURE NO.	ITEM NO.
A5181796	19200	B-7	13	MS51957-12	96906	B-18	10
MS16555-601	96906	B-5	3	MS51957-2	96906	B-5	40
MS16555-601	96906	B-23	3	MS51957-2	96906	B-19	1
MS16555-617	96906	B-18	14	MS51957-2	96906	B-23	16
MS16555-628	96906	B-2	5	MS51958-12	96906	B-25	7
MS16555-631	96906	B-2	6	MS51958-2	96906	B-9	7
MS18015-1	96906	B-33	4	MS51958-45		B-28	4
MS20364-820A	96906	B-30	1	MS51960-51	96906	B-27	2
MS21318-20	96906	B-30	8	MS51960-6	96906	B-3	5
MS24585-1115	96906	B-25	35	MS51960-6	96906	B-4	5
MS24692-27	96906	B-5	25	MS51963-21	96906	B-5	7
MS24692-36	96906	B-23	1	MS51964-37	96906	B-6	4
MS24692-78	96906	B-25	1	MS51964-37	96906	B-7	4
MS24692-84	96906	B-5	1	MS51966-16	19200	B-25	42
MS24692-90	96906	B-5	17	MS51966-19	96906	B-25	16
MS25236-323	96906	B-32	1	MS51966-7	96906	B-25	33
MS27129-9	96906	B-27	3	MS51973-18	96906	B-5	11
MS35102-3	96906	B-14	4	MS51973-19	96906	B-19	4
MS35106-1	96906	B-26	3	MS51974-1	96906	B-1	8
MS35275-217	96906	B-14	1	MS51974-2	96906	B-5	20
MS35275-244	96906	B-2	1	MS51974-2	96906	B-25	11
MS35275-249	96906	B-2	2	MS9105-01	96906	B-5	27
MS35275-284	96906	B-28	2	MS9105-1	96906	B-20	7
MS35276-226	96906	B-18	1	10555157-8	19200	B-3	8
MS35307-312	96906	B-28	10	10555157-8	19200	B-4	13
MS35333-69	96906	B-3	13	10559882	19200	B-3	9
MS35333-69	96906	B-5	41	10559882	19200	B-4	14
MS35333-69	96906	B-19	2	11731144-1	19200	B-6	9
MS35333-69	96906	B-23	19	11731144-1	19200	B-7	9
MS35333-69	96906	B-25	50	11731299	19200	B-3	14
MS35333-71	96906	B-18	2	11731300	19200	B-25	51
MS35338-134	96906	B-9	8	225389	21450	B-5	22
MS35338-135	96906	B-14	2	225415	21450	B-25	22
MS35338-139	96906	B-28	9	225417	21450	B-3	10
MS35494-21	96906	B-29	1	225417	21450	B-4	15
MS35494-83	96906	B-33	1	5033526	19200	B-23	8
MS35493-35	96906	B-33	3	5034447	19200	B-5	9
MS35649-2252	96906	B-28	1	5034654	19200	B-23	7
MS35688-1	96906	B-25	41	5034656	19200	B-5	8
MS35689-2	96906	B-23	9	5034658	19200	B-3	2
MS51031-24	96906	B-4	11	5034658	19200	B-4	2
MS51031-33	96906	B-4	10	5034659	19200	B-5	12
MS51031-34	96906	B-1	1	5039613	19200	B-25	30
MS51031-7	96906	B-4	8	5039618	19200	B-25	12
MS51031-8	96906	B-20	1	5039619	19200	B-25	26
MS51377-2	96906	B-1	16	5039625	19200	B-25	34
MS51607-1	96906	B-1	17	5043926	19200	B-26	1
MS51608-3	96906	B-32	2	5046497	19200	B-5	17
MS51957-1	96906	B-3	12	5046528	19200	B-25	9
MS51957-1	96906	B-25	49	5047837	19200	B-26	2
MS51957-12	96906	B-6	10	5047839	19200	B-26	4
MS51957-12	96906	B-7	10	5179387	19200	B-32	2
				5180708	19200	B-5	34

REFERENCE NO.	MFR CODE	FIGURE NO.	ITEM NO.	REFERENCE NO.	MFR CODE	FIGURE NO.	ITEM NO.
5181682	19200	B-5	4	5316654	19200	B-7	11
5181683	19200	B-5	5	5316655	19200	B-6	6
5181684	19200	B-5	6	5316655	19200	B-7	6
5181685	19200	B-23	13	5316656	19200	B-8	2
5181686	19200	B-23	15	5316659	19200	B-8	5
5181688	19200	B-5	29	5316660	19200	B-5	31
5181688	19200	B-23	5	5316660	19200	B-8	3
5181689	19200	B-5	30	5316661	19200	B-8	4
5181689	19200	B-23	6	5316662	19200	B-22	2
5181694	19200	B-5	24	5316663	19200	B-22	7
5181695	19200	B-5	28	5316664	19200	B-18	3
5181696	19200	B-20	2	5316665	19200	B-22	8
5181697	19200	B-20	8	5316667	19200	B-13	1
5181698	19200	B-20	6	5316668	19200	B-4	9
5181699	19200	B-5	43	5316672	19200	B-17	1
5181708	19200	B-23	11	5316673	19200	B-1	11
51817088	19200	B-5	35	5316674	19200	B-23	17
5181727	19200	B-25	10	5316675	19200	B-5	33
5181728	19200	B-25	2	5316676	19200	B-5	32
5181729	19200	B-25	3	5316678	19200	B-11	1
5181757	19200	B-23	20	5316679	19200	B-3	1
5182863	19200	B-9	1	5316679	19200	B-4	1
5202939	19200	B-30	7	5317308	19200	B-25	31
5203538	19200	B-27	5	5317309	19200	B-25	18
5203543	19200	B-30	3	5317310	19200	B-25	21
5203548	19200	B-27	7	5317312	19200	B-24	6
5203549	19200	B-30	6	5317313	19200	B-24	3
5203550	19200	B-29	4	5317314	19200	B-25	43
5204148	19200	B-30	2	5317315	19200	B-25	44
5204573	19200	B-28	5	5317316	19200	B-24	4
5204574	19200	B-27	1	5317317	19200	B-24	2
5204574	19200	B-28	3	5317318	19200	B-24	5
5313953	19200	B-29	6	5317319	19200	B-25	32
5313954	19200	B-29	7	5317320	19200	B-25	19
5315075	19200	B-25	24	5317321	19200	B-24	8
5315076	19200	B-25	23	5317323	19200	B-25	8
5316356	19200	B-17	2	5318582	19200	B-25	28
5316357	19200	B-10	2	5320488	19200	B-22	4
5316357	19200	B-11	2	5320489	19200	B-16	1
5316358	19200	B-10	4	5320489	19200	B-15	1
5316358	19200	B-11	4	5320489	19200	B-22	1
5316359	19200	B-10	6	5386815	19200	B-16	4
5316359	19200	B-11	6	5386815	19200	B-15	4
5316361	19200	B-21	2	5386816	19200	B-22	5
5316362	19200	B-9	5	540155	19200	B-33	2
5316363	19200	B-9	4	540882	21450	B-8	1
5316364	19200	B-9	3	540976	21450	B-5	35
5316365	19200	B-9	6	540976	21450	B-23	10
5316639	19200	B-18	4	5580794	19200	B-27	4
5316640	19200	B-10	1	5581108	19200	B-13	2
5316641	19200	B-15	2	5581221	19200	B-30	10
5316642	19200	B-21	1	5581222	19200	B-27	8
5316643	19200	B-15	2	5581876	19200	B-27	6
5316645	19200	B-10	3	5582515	19200	B-19	7
5316645	19200	B-11	3	5582516	19200	B-18	9
5316646	19200	B-10	5	5582518	19200	B-3	16
5316646	19200	B-11	5	5582519	19200	B-6	2
5316647	19200	B-3	3	5582519	19200	B-7	2
5316647	19200	B-4	3	5582524	19200	B-5	16
5316650	19200	B-6	1	5582525	19200	B-8	6
5316650	19200	B-7	1	5582526	19200	B-3	11
5316651	19200	B-6	8	5582527	19200	B-15	6
5316651	19200	B-7	8	5582528	19200	B-4	16
5316652	19200	B-6	3	5582529	19200	B-16	6
5316652	19200	B-7	3	5582531	19200	B-2	3
5316654	19200	B-6	11	5582532	19200	B-23	21

REFERENCE NO.	MFR CODE	FIGURE NO.	ITEM NO.	REFERENCE NO.	MFR CODE	FIGURE NO.	ITEM NO.
5630900	19200	B-25	47	7579205	19200	B-26	5
	19200	B-25	45	7579223	19200	B-5	18
5631125	00000	B-18	11	7581258	19200	B-30	9
6172547	19200	B-25	14	7595152	19200	B-5	10
6180569	19200	B-1	13	7596480	19200	B-6	5
6176713	19200	B-28	11	7596480	19200	B-7	5
6176714	19200	B-29	2	7596927	19200	B-23	4
6176909	19200	B-30	4	7596928	19200	B-5	23
6176910	19200	B-30	5	7635923	19200	B-23	2
6177437	19200	B-31	1	7635924	19200	B-25	48
6178760	19200	B-28	12	7653184	19200	B-5	15
6179896	19200	B-22	3	7653185	19200	B-5	13
6180578	19200	B-19	5	7677291	19200	B-2	4
6180579	19200	B-1	5	7680256	19200	B-25	38
6180580	19200	B-17	3	7680257	19200	B-25	40
6180583	19200	B-3	4	7680264	19200	B-5	39
6180583	19200	B-4	4	7680264	19200	B-23	14
6180584	19200	B-3	6	7680264	19200	B-25	15
6180584	19200	B-4	6	7680265	19200	B-5	36
6180586	19200	B-9	9	7680265	19200	B-23	12
6180587	19200	B-9	2	7680265	19200	B-25	13
6180588	19200	B-6	12	7681585	19200	B-24	1
6180588	19200	B-7	12	8213688	19200	B-14	6
6180589	19200	B-6	7	8213689	19200	B-5	45
6180589	19200	B-7	7	8213690	19200	B-14	5
6180590	19200	B-5	37	8213691	19200	B-14	3
6180591	19200	B-19	3	8213787-1	19200	B-1	18
6180593	19200	B-4	12	8213787-2	19200	B-19	6
6180594	19200	B-13	3	8213788	19200	B-20	9
6180595	19200	B-5	14	8213789	19200	B-20	10
6180597	19200	B-9	10	8215538	19200	B-12	1
6180598	19200	B-1	4	8215539	19200	B-12	2
6180602	19200	B-5	2	8215540	19200	B-12	3
6180603	19200	B-5	26	8215541	19200	B-10	7
6180604	19200	B-5	20	8215541	19200	B-11	7
6181029	19200	B-25	17	8215542	19200	B-3	7
6181030	19200	B-25	27	8215543	19200	B-4	7
6181031	19200	B-25	39	8634473	19200	B-1	15
6181032	19200	B-24	10	2034B	93232	B-35	4
6181117	19200	B-16	5	6545927	19200	B-35	5
6181118	19200	B-15	5	6574387	19200	B-34	3
6181390	19200	B-21	3	6582520	19200	B-35	3
6181391	19200	B-22	6	6482819	19200	B-34	4
6545928	19200	B-31	2	6583104	19200	B-35	2
6574392	19200	B-5	46	6583165	19200	B-34	2
6582847	19200	B-6	13	6583358	19200	B-35	1
6582848	19200	B-7	14	7579932	19200	B-34	1
6583169	19200	B-25	20				

INDEX

	Paragraph	Page
Adjustable surface plate	3-15d	3-15
Adjusting angle of site level	3-15k, 4-19	3-20, 4-2
Angle of site worm 6180590:		
Disassembly	3-3f	3-2
Installation	3-4t	3-9
Assembly and installation (see specific item)		
Azimuth error	3-16b(13),4-29	3-25, 4-3
Backlash	3-16b(14), 4-30	3-25, 4-3
Battery command periscope M65:		
Assembly and installation	3-4	3-5
Final inspection	4-3 thru 4-25	4-1
Removal and disassembly	3-3	3-1
Tests and adjustments	3-15	3-14
Carrying strap 5580794:		
Installation	3-8e	3-13
Removal	3-7a	3-12
Categories of inspection	2-9	2-6
Cell assembly 8215541:		
Assembly	3-4k	3-7
Disassembly	3-3m	3-4
Circular level assembly 7635924:		
Assembly and installation	3-6a	3-11
Disassembly	3-5e	3-11
Circular level vial accuracy	3-16b(10), 4-27	3-24, 4-3
Collimation	3-15j, 4-10	3-18, 4-1
Data	1-4	1-1
Definition	3-15f, 4-6	3-17, 4-1
Description	1-3	1-1
Direct support and general support maintenance	App B	B-1
Elevating worm 6180595:		
Disassembly	3-3e	3-2
Installation	3-4s	3-8
Elevation and angle of site mechanisms	3-15l, 4-16	3-20, 4-2
Plumb (vertical) travel	4-20	4-2
Setup of cross-level and elevation test fixture	3-15l(3), 4-21	3-20, 4-2
Setup of cross-level and elevation test fixture	3-15l(2)	3-20
Eyepiece	3-15f, 4-12	3-17, 4-2
Eyepiece focus	3-15f, 4-5	3-17, 4-1
Fabricated special fixture	3-15b	3-14
Fabricated testing target	3-15c	3-15
Fabricated tools	2-3	2-2
Filter holder assembly 5582519:		
Assembly	3-4n	3-7
Disassembly	3-3j	3-3
Final inspection:		
Battery command periscope M65:		
Angle of site error	4-17	4-2
Angle of site level	4-19	4-2
Angle of site mechanism	4-16	4-2
Azimuth displacement (shift)	4-22	4-2
Backlash	4-18	4-2
Collimation	4-10	4-1

	Paragraph	Page
C o m p l e t e n e s s	4-3	4-1
Condition of optics	4-4	4-1
Definition	4-6	4-1
Elevation excursion	4-20	4-2
Eyepiece focus	4-5	4-1
Eyepiece movements	4-11	4-1
Eyepiece stagger	4-12	4-2
Filters	4-13	4-2
Illumination	4-23	4-2
Image tilt	4-8	4-1
Interpupillary movement and scale	4-15	4-2
Parallax	4-9	4-1
Parallelism of reticle and image	4-7	4-1
Plugs	4-25	4-2
Plumb travel	4-21	4-2
Reticle focus	4-14	4-2
Sealing, purging and charging	4-24	4-2
Final inspection:		
Cover assembly 6583358:		
Cover	4-34	4-3
Straps	4-35	4-3
Final inspection:		
Packing chest M39A1 and carrying case M45:		
C a r r y i n g c a s e	4-42	4-4
C o m p o n e n t s	4-40	4-4
Packing chest	4-41	4-4
Final inspection:		
Periscope mount M48:		
A z i m u t h r e a d i n g	4-29	4-3
Backlash	4-30	4-3
Circular level	4-27	4-3
Components	4-26	4-3
Horizontal travel	4-32	4-3
Movements	4-28	4-3
Scale coincidence	4-33	4-3
Vertical displacement	4-31	4-3
Final inspection:		
Tripod M10, Adapter M14, and Instrument Light M28:		
Components	4-38	4-3
Instrument light	4-39	4-3
Final inspection:		
Tripod M17:		
Components	4-36	4-3
Strap assembly	4-37	4-3
Forms and records:		
Maintenance forms and records	1-2a	1-1
Reporting of errors	1-2b	1-1
Gear 5582525:		
Installation	3-4r	3-8
Removal	3-3f	3-2
Gear 8213688:		
Assembly	3-4i	3-7
Disassembly	3-3o	3-4
Installation	3-4r	3-8
Removal	3-3f	3-2
General maintenance procedures	2-4	2-2
Head assembly 5581222:		
Assembly	3-8a	3-13
Disassembly	3-7e	3-13
Head assembly 5582516:		
Assembly	3-4e	3-6
Disassembly	3-3s	3-4
Installation	3-4x	3-10
Removal	3-3a	3-1

	Paragraph	Page
Horizontal travel	3-16b(11), 4-32	3-24, 4-3
Housing 6583169:		
Assembly	3-6c	3-12
Disassembly	3-5c	3-11
Installation	3-6e	3-12
Removal	3-5a	3-11
Identification plate 11731300:		
Installation	3-6b	3-12
Removal	3-5d	3-11
Image tilt	3-15h, 4-8	3-18, 4-1
Inspection (General):		
Categories	2-9	2-6
General	2-8	2-5
Procedures	2-10	2-6
Table 2-5 (Maintenance inspection)	2-10	2-6
Inspection (see specific items)		
Instrument light M28:		
Final inspection	4-38 thru 4-39	4-3
Installation and assembly	3-12	3-14
Removal and disassembly	3-11	3-14
Interpupillary scale setting	3-15i, 4-15	3-18, 4-2
Interpupillary screw assembly 7677291:		
Disassembly	3-3w	3-5
Replacement	3-4a	3-5
Left and right head assembly 5582515:		
Assembly	3-4d	3-6
Disassembly	3-3t	3-4
Left eyepiece assembly 8215542:		
Assembly	3-4l	3-7
Disassembly	3-3l	3-4
Installation	3-4v	3-10
Removal	3-3c	3-2
Left housing 6582847:		
Assembly	3-4q	3-8
Disassembly	3-3g	3-3
Left housing assembly 5582518:		
Installation	3-4w	3-10
Removal	3-3b	3-2
Left prism holder assembly 5582526:		
Assembly	3-4h	3-7
Disassembly	3-3p	3-4
Installation	3-4v	3-10
Removal	3-3c	3-2
Leg assembly 5581876:		
Assembly	3-8d	3-13
Disassembly	3-7b	3-12
Installation	3-8e	3-13
Removal	3-7a	3-12
Lower leg 6178760:		
Assembly	3-8c	3-13
Disassembly	3-7c	3-13
Materials required	2-5	2-2
90° prism holder assembly 5631125:		
Assembly	3-4b	3-6
Disassembly	3-3v	3-5
Objective assembly 6180569:		
Assembly	3-4f	3-6
Disassembly	3-3r	3-4
Packing chest M39A1:		
Final Inspection	4-40 thru 4-42	4-4
Installation and assembly	3-14	3-14
Removal and Disassembly	3-13	3-14
Parallax	3-15f, 4-9	3-17, 4-1

	Paragraph	Page
Parallelism of reticle and image	3-15g, 4-7	3-18, 4-1
Parts replacement	3-2	3-1
Periscope mount M48:		
Assembly and installation	3-6	3-11
Final inspection	4-26 thru 4-33	4-3
Removal and disassembly	3-5	3-11
Test and adjustments	3-16	3-22
Removal and disassembly (see specific item)		
Repair parts	2-1	2-1
Reticle assembly 6180593:		
Assembly	3-4j	3-7
Disassembly	3-3n	3-4
Installation	3-4u	3-9
Removal	3-3d	3-2
Right eyepiece assembly 8215543:		
Assembly	3-4m	3-4
Disassembly	3-3k	3-3
Installation	3-4u	3-9
Removal	3-3d	3-2
Right housing 6582848:		
Assembly	3-4p	3-8
Disassembly	3-3h	3-3
Right prism holder assembly 5582528:		
Assembly	3-4g	3-3
Disassembly	3-3q	3-8
Installation	3-4u	3-9
Removal	3-3d	3-2
Scale coincidence	3-16b(15), 4-33	3-25, 4-3
Setup procedure for azimuth test fixture	3-16b	3-22
Special tools and equipment	2-2	2-1
Table 2-1 Special tools and equipment	2-2	2-1
Table 2-2 Fabricated tools	2-3	2-2
Table 2-3 Consumable maintenance supplies	2-5	2-2
Table 2-4 Troubleshooting	2-7	2-3
Table 2-5 Maintenance inspection	2-10	2-6
Target adjustment	3-15e	3-16
Test and adjustments (see specific item)		
Tripod M10:		
Final inspection	4-38 thru 4-39	4-3
Installation and assembly	3-10	3-13
Removal and disassembly	3-9	3-13
Tripod M17:		
Assembly and installation	3-8	3-13
Final inspection	4-36 thru 4-37	4-3
Removal and disassembly	3-7	3-12
Troubleshooting:		
General	2-6	2-3
Procedure	2-7	2-3
Table 2-4	2-7	2-3
Upper leg 5313953:		
Assembly	3-8b	3-13
Disassembly	3-7d	3-13
Upper leg 5313954:		
Assembly	3-8b	3-13
Disassembly	3-7d	3-13
Vertical displacement	3-16b(12), 4-31	3-24, 4-3
Window assembly 6180578:		
Assembly	3-4c	3-6
Disassembly	3-3u	3-5
Worm 6172547:		
Installation	3-6d	3-12
Removal	3-5b	3-11

	Paragraph	Page
Worm 6181031:		
Installation	3-6b	3-12
Removal	3-5d	3-11
Worm gear 5582525:		
Assembly	3-3o	3-4
Disassembly	3-3i	3-3

By Order of the Secretary of the Army:

CREIGHTON W. ABRAMS
General, United States Army
Chief of Staff

Official:

VERNE L. BOWERS
Major General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-41, (qty rqr block no. 80) Direct and General Support maintenance requirements for Periscope B C.

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



THEN...JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL.

SOMETHING WRONG WITH PUBLICATION

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PUBLICATION TITLE

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PAGE NO.

PARA-GRAPH

FIGURE NO.

TABLE NO.

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

TEAR ALONG PERFORATED LINE

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER

SIGN HERE

The Metric System and Equivalents

Linear Measure

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

Weights

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

Liquid Measure

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

Square Measure

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

Cubic Measure

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

Approximate Conversion Factors

To change	To	Multiply by	To change	To	Multiply by
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29.573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.356	metric tons	short tons	1.102
pound-inches	newton-meters	.11296			

Temperature (Exact)

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

