DEPARTMENT OF THE ARMY TECHNICAL MANUAL

DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOL LISTS FOR

INDICATOR, AZIMUTH, MECHANICAL: 10954720 (1290-901.8667)

This copy is a reprint which includes current pages from Changes 1 through 3.

HEADQUARTERS, DEPARTMENT OF THE ARMY

APRIL 1966

CHANGE
No. 3

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., *10 August 1972*

Direct Support, General Support, and Depot Maintenance Manual
Including Repair Parts and Special Tools List

INDICATOR, AZIMUTH, MECHANICAL: 10954720
(1290-901-8667)

TM 9-1290-335-35, 21 April 1966 is changed as follows:
1. New or changed material is indicated by a vertical bar in the margin of the page.
2. Revised illustrations are indicated by a vertical bar adjacent to the identification number.
3. Change XM551 to read "M551" wherever it appears throughout the manual.
4. Mark out all printed material in the WARNING page inside the front cover.
5. Remove old pages and insert new pages as indicated below:

Remove page	*Insert page*
None	Warning page
3-1, 3-2	3-1, 3-2
5-1 through 5-15	5-1 through 5-13
B-1 through B-8	B-1 through B-14

6. File this change sheet in front of the manual for reference purposes.

By Order of the Secretary of the Army:

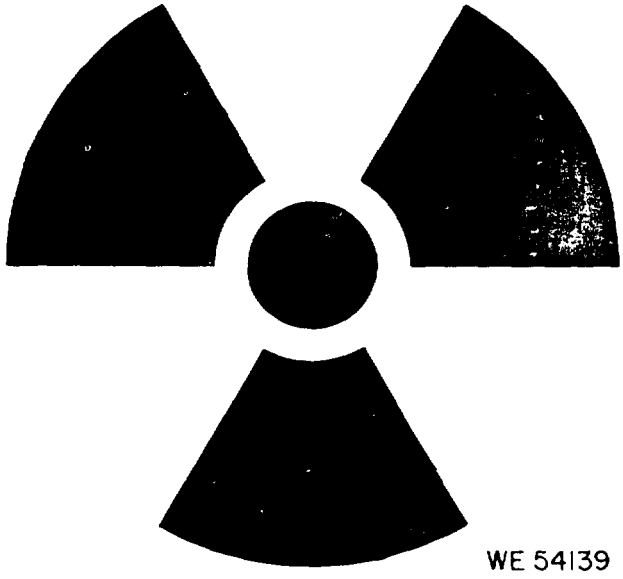
BRUCE PALMER, JR.
General, United States Army
Acting Chief of Staff

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. 54) Direct and General Support Maintenance requirements for Indicators, Azimuth.

WARNING
RADIATION HAZARD



Hazardous radiation conditions exist when the plastic window is broken or removed from azimuth indicators. DO NOT TOUCH DIAL POINTERS.

Dial pointers used in this azimuth indicator may contain radioactive material. The hazardous radiation conditions exist when azimuth indicators are equipped with dial pointers 1260-507-9490 (7068061) and 5355-330-9557 (5345726) and pointer assembly 1260-507-9491 (7068063). These pointers are, or at one time were, tipped with a coating of radium activated paint.

Until further notice, the scope of maintenance and repair to be accomplished at Direct Support and General Support maintenance levels is restricted to the replacement of incandescent lamps and complete azimuth indicator units (see paragraphs 5-1a and 5-b). Protection, handling, storage, and disposal of radioactive material shall be in accordance with TM MED 232 and TB 750-237.

CHANGES
No. 2

HEADQUARTERS,
DEPARTMENT OF THE ARMY
Washington, D.C., *4 March 1971*

Direct Support, General Support, and Depot Maintenance Manual
Including Repair Parts and Special Tools List
INDICATOR, AZIMUTH, MECHANICAL: 10954720
(1290-901-8667)

TM 9-1290-335-35, 21 April 1966, is changed as follows:

1. This change is prepared to add a decal warning of radiation hazard which will be attached to all azimuth indicators.
2. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a vertical bar adjacent to the identification number.

Remove pages	*Insert pages*
5-7 and 5-8	5-7 and 5-8
5-15	5-15
B-3 through B-8	B-3 through B-8

3. File this change sheet in the front of the publication for reference purposes.

By Order of the Secretary of the Army:

W. C. WESTMORELAND,
General, United States Army,
Chief of Staff.

Official:
KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

Distribution:
To be distributed in accordance with DA Form 12-41, (qty rqr block No. 54) Direct and General Support maintenance requirements for Indicator, Azimuth.

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

DS, GS, AND DEPOT MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOL LISTS FOR INDICATOR, AZIMUTH, MECHANICAL: 10954720 (1290-901-8667)

Headquarters, Department of the Army, Washington, D. C. 20315
21 April 1966

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This publication contains instructions for direct support, general support and depot maintenance of indicator, azimuth, mechanical, 10954720, 1290-901-8667.

b. These instructions are used in conjunction with and are supplementary to those in the operator's and organizational maintenance manual for armored reconnaissance airborne assault vehicle full tracked, 152mm, XM551 (ARAAV XM551). Instructions for operation,

lubrication, operator's and organizational maintenance (including installation and removal procedures, as well as tests and adjustments after installation) are contained in TM 92350-230-1] 2. It may be necessary to refer to this manual for complete procedures.

1-2. Comments

Report errors, omissions, and recommendations directly to Commanding Officer, Frankford Arsenal, ATTN: AMSWE-SM-W3100, Philadelphia, Pennsylvania 19137 on DA Form 2028.

1-3. Maintenance Allocation and Parts

The maintenance allocation chart in TM 92350-230-12 and repair parts and special tools listed in appendix II, allocate maintenance responsibilities.

1-4. Forms, Records, and Reports

a. Authorized Forms. The forms are listed in DA Pamphlet 310-2 and TM 38-750.

b. Report of Accidents. The necessary reports are prescribed in AR 385-40.

c. Equipment Improvement Recommendations (EIR). Use the Equipment Improvement Recommendation Section of DA Form 2407.

Section II. DESCRIPTION AND DATA

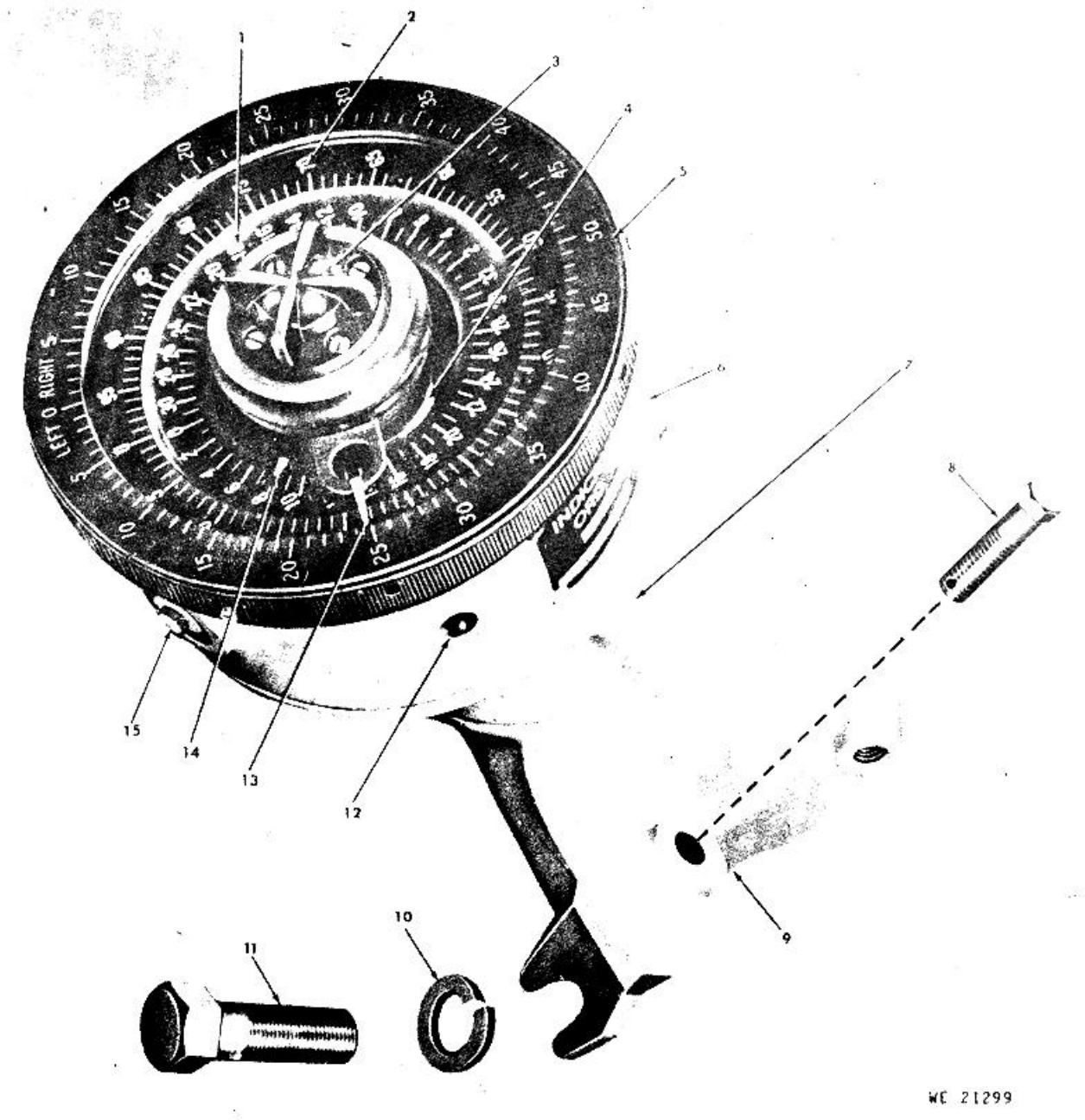
1-5. Description

a. The azimuth indicator 10954720 (fig. 1-1) consists of three housing assemblies with necessary gears, dials, and pointers arranged so the turret ring gear drives the pointers, through the gearing, to indicate, by means of scales graduated in mils, the position of the main gun in relation to a given point.

b. The indicator is equipped with three scales and pointers. The azimuth and micrometer scales are fixed while the gunners aid dial may be rotated to any position. The azimuth pointer and micrometer pointer can be rotated by means of the resetter knob. The directional pointer is zeroed in relation to the longitudinal axis of the vehicle at installation.

1-6. Data

Dial graduation (100 mil) azimuth scale.	0-3200, 0-3200 numbered every 200 mils
Dial graduation (1 mil) micrometer scale.	0-100 mils numbered every 5 mils
Gunner's aid dial graduation (1 mil).	0-50, 0-50 mils numbered every 5 mils
Weight	24 lb (approx)
Height	12 in. (approx)
Diameter	7 in. (approx)



1-Azimuth scale
2-Micrometer scale
3-Resetter knob
4-Directional pointer
5-Dial scale (gunner's aid)
6-(top) Housing assy 7537556
7-(middle) Housing assy 10954707
8-Screw hex. hd: 3/8-24, 1.375 lg 5305-269-3239
9-(bottom) Housing aasy 10954711
10-Washer 10910174-7
11-Bolt, self-locking: 5/8-18, 2.250 lg 5306-905-1670
12-Switch lead plug
13-Micrometer pointer
14-Azimuth pointer
15-Lamp

Figure 1-1. Indicator, azimuth, mechanical, 10954720, 1290-901-8667.

CHAPTER 2

TOOLS AND EQUIPMENT

2-1. Common Tools and Equipment

Standard and commonly used tools and equipment having general application to this materiel are authorized for issue by TA and TOE.

2-2. Special Tools and Equipment

No special tools and equipment are authorized or required for repair or overhaul of this materiel.

CHAPTER 3

INSPECTION

Section I. GENERAL

3-1. Scope

This chapter sets forth inspection of the azimuth indication the using position in direct support and general support maintenance shops and at depots.

3-2. Purpose

Inspection is performed primarily, (1) to determine completeness, (2) to determine the nature of unserviceability, (3) to determine the work, repair parts, and supplies required to to return the materiel to serviceability, (4) to ensure that work in process is being performed properly, and (5) to ensure that completed work complies fully with serviceability standards.

Section II. INSPECTION IN THE USING POSITION

3-3. General

In general, the azimuth indicator will be considered serviceable if it is complete and all deficiencies have been corrected ensuring operation in accordance with serviceability standards.

3-4. Using Position

Inspection in the using position refers to the inspection performed by maintenance personnel when the azimuth indicator is mounted in position in ARAAV XM551. Inspection of the azimuth indicator removed from the ARAAV XM551 is in paragraphs 3-9 through 3-11.

3-5. Modification Work Orders (MWO)

All applicable modification work orders will be applied. DA Pamphlet 310-4 contains the MWO index and equipment records DA Form 2408-5 or DA Form 2409 for the equipment, lists MWO's applied.

3-6. General Inspection

a. Note general appearance as an indication of the condition of the materiel and the type of treatment it has received.

b. Check exterior of materiel and accessible parts for dented surfaces, bent or broken parts, missing parts, moisture or corrosion, and other evidence of damage or misuse which might indicate a need for repair. The window will not be cracked or broken.

c. Inspect scale numbers, divisions and indexes, and lettering for legibility.

d. Inspect for bare spots or damaged finish which expose metal surfaces and lead to corrosion.

e. All controls must operate smoothly without binding or rough motion.

f. The equipment must be clean and free from grit and dirt.

g. Refer to the Basic Issue Items List in TM 9-2350-230-12 and check for completeness of repair parts, tools, and equipment.

3-7. Inspection of Electrical Components

Attach lead from the vehicle's switch assembly 3-volt dc power source to the switch lead plug on the azimuth indicator. Place switch in ON position to check the operation of the
lamps.

3-8. Performance Test

a. With the resetter knob in its normal (up) position, turn it in either direction. The micrometer pointer should turn without movement of the azimuth pointer.

b. Depress the resetter knob and turn it in either direction. Both the azimuth pointer and the micrometer pointer must turn in unison. The knob w: ill spring back from its depressed position when released.

c. Turn the gunner's aid dial to see that it is free and that the flat spring holds it in position.

d. Traverse the turret to see that the gears are operating freely and the pointers turn correctly. All three pointers should move when the gun is traversed, with the micrometer pointer making one complete revolution while the directional pointer and the azimuth pointer move one graduation.

e. To test backlash of the azimuth indicator, traverse the turret and evelate or depress the gun until the vertical line of the telescope or gunner's periscope reticle is laid on a well defined vertical aiming point. Position the 0 (zero) on the gunner's aid dial in line with the micrometer pointer. Traverse the turret approximately 50 mils clockwise, and then counterclockwise to the original aiming point without overtravel. The backlash error shall not exceed 0.5 mil. Repeat this procedure by traversing counterclockwise and returning clockwise.

Section III. INSPECTION IN DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE SHOPS AND AT DEPOTS

3-9. General

This section sets forth the procedure to be followed by direct support, general support, and by depot maintenance personnel in performing inspection of the azimuth indicator when removed from the ARAAV M551 and turned to the shop for repair.

3-10. General Inspection Requirements

Refer to paragraphs 3-3 through 3-8.

3-11. Performance Test

a. Refer to paragraph 3-8a through 3-8c and perform the test cited.

Note

Clamp lower housing of a complete azimuth indicator upright in a vise, so the drive gear can be rotated.

b. Rotate the drive gear until the directional pointer is set to 0 (zero). Depress the resetter knob and set the micrometer and azimuth pointers to 0 (zero). Scribe reference marks on the drive gear and bottom housing. Rotate the drive gear 360 degrees (6400 mils) aligning the scribe marks without overtravel. The three pointers should rest at original 0 (zero)'setting.

c. To test backlash rotate the drive gear to aline the scribe marks, position the 0 (zero) on the gunner's aid dial in line with the micrometer pointer. Rotate the drive gear approximately 50 mils clockwise, and then counterclockwise to aline the scribe marks without over travel. The micrometer pointer will indicate 0 (zero) within 0.5 mil, as read on the gunner's aid dial. Repeat this procedure by rotating the drive gear counterclockwise and returning to aline scribe marks clockwise.

CHAPTER 4
TROUBLESHOOTING

Section I. GENERAL

4-1. Purpose

Troubleshooting is a systematic isolation of malfunctions and defective components bv means of symptoms and tests. Close adherence to the procedures covered herein will materially reduce the time required to locate trouble and restore the equipment to normal operation.

Caution:
Operation of materiel without a preliminary examination can cause further damage to a faulty component. Exercise care during troubleshooting, to avoid further damage.

4-2. Scope

This chapter covers troubleshooting which is peculiar to direct support, general support, and depot maintenance operations. For troubleshooting procedures performed BY lower categories of maintenance, refer to TM 9-2350-230-12 .

Section II. TROUBLESHOOTING PROCEDURES

4-3. General

The troubleshooting procedure described herein is one of determining the cause of the malfunction and taking the necessary corrective action.

4-4. Procedure

Table 4-1 describes the troubleshooting procedures.

Table 4-1. Troubleshooting

Malfunction	Probable causes	Corrective Action	Lowest maintenance category
Gunner's aid dial does not turn smoothly or does not remain in position.	Tension spring broken,.	Replace tension spring. (para 5 8).	PS
Resetter knob does not remain in normal (up) position.	Resetter knob spring damaged or broken.	Replace the compression spring (para 5-8).	DS
With resetter knob de-pressed, upper 100 mil pointer does not turn.	Flange pin broken.	Replace flange pin (para 5-8).	GS
When turret is traversed upper 100 mil pointer does not turn.	Coil spring damaged or broken.	Replace oil spring (para 5-8).	GS

Table 4-1 Troubleshooting-Continued

Malfunction	Probable causes	Corrective Action	Lowest maintenance category
When turret is traversed pointers move erratically.	One or more of the gears as stripped, badly worn or broken.	Replace stripped, badly worn or broken gear/s (para 5-18 and 5-22).	GS
	Excessive backlash.	Remove backlash by adjusting stud (para 5-25).	DS
Lamp(s) do not light	Lamp(s) burned out or not properly seated.	Replace lamp(s) (para 5-12 and 5-13).	DS
	Switch lead plug not making proper contact.		
	Dirty or pitted.	Clean contact (para 5-6).	DS

CHAPTER 5

REPAIR AND OVERHAUL

Section I. GENERAL

5-1. Scope

a. This chapter contains detailed instructions for the repair of the azimuth indicator at direct support and general support maintenance levels. Depot shops are authorized by virtue of their facilities and skills to repair or replace all parts listed in Appendix B of this manual.

b. Until further notice the direct and general support level of repair and maintenance on the azimuth indicators is limited to the replacement of the incandescent lamps and complete indicators. Decontamination and internal repair and maintenance will be undertaken only by depots specifically designated by Headquarters, U.S. Army Materiel Command.

5-2. Maintenance Technique

These procedures include instructions for complete disassembly of the materiel. However, instructions will not be construed as authority to disassemble any segment of the materiel unless the need has first been established.

5-3. Parts Replacement

In subsequent repair paragraphs, replacement of parts damaged beyond repair is understood.

5-4. General Maintenance Procedures

Refer to TM 9-254.

5-5. Rescinded.

5-6. Rescinded.

Section II. REMOVAL OF MAIN ASSEMBLIES

5-7. General

This section provides instruction for the sequential disassembly of the azimuth indicator 10954720 into main assemblies. Table 5-1 lists the main assemblies and removal sequence.

Table 5-1. Main Assemblies and Sequence of Removal

Step	Description	Identifying number	References	
			Fig.	Para
1	HOUSING, assembly, and related parts.	7537556	5-1 5-2	5-8 5-9

Table 5-1. Main Assemblies and Sequence of Removal Continued

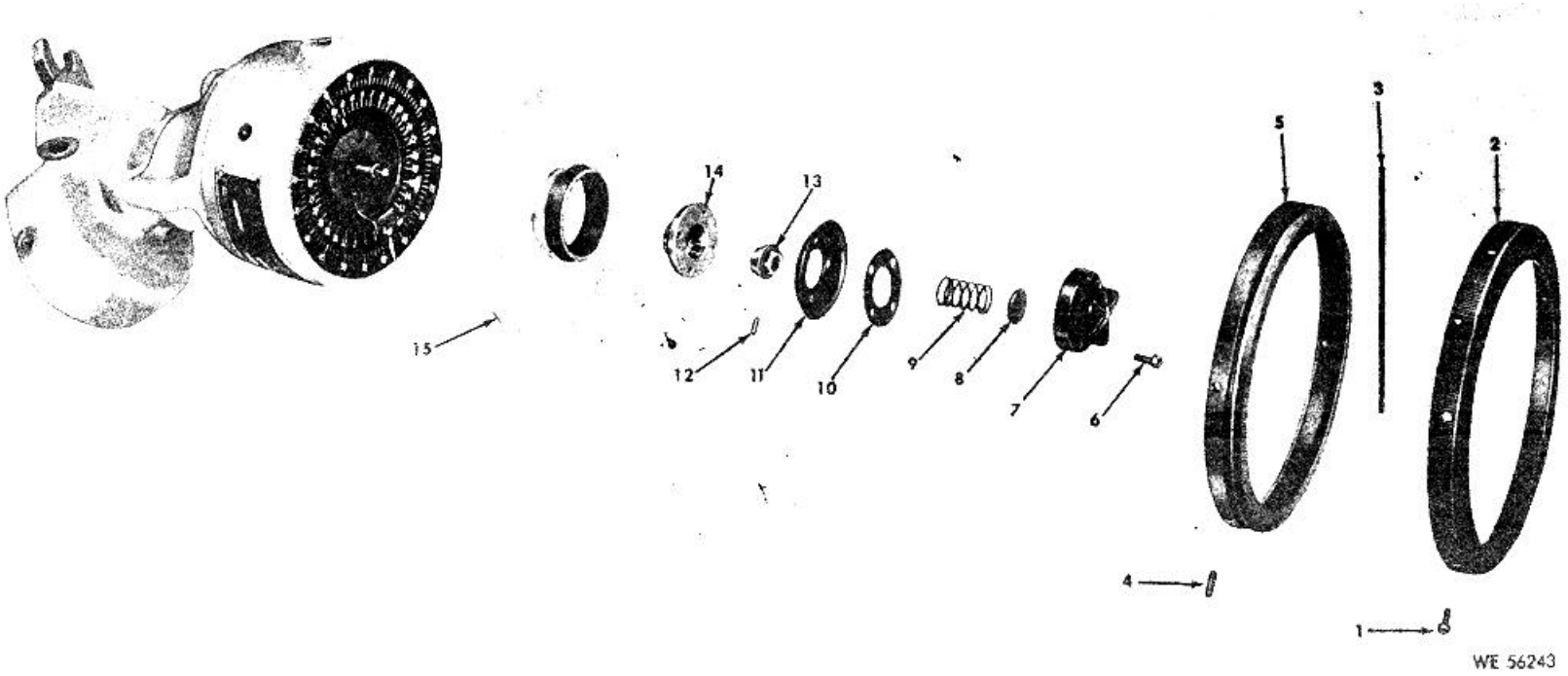
Step	Description	Identifying number	References	
			Fig.	Para
			5-3	5-10
			5-4	5-11
			5-5	5-12
				5-13
2	HOUSING, assembly, and related parts.	10954707	5-6 5-7	5-18 5-19
3	HOUSING, assembly, and related parts.	10954711	5-8	5-22

Section III. REPAIR AND OVERHAUL OF HOUSING ASSEMBLY 7537556 AND RELATED PARTS

5-8. Removal of Related Parts-Housing Assembly, 7537556

Warning:
Gunner's aid dial (2, fig. 5-1) is spring loaded, use precaution to avoid personal injury while removing the dial.

a. Remove items 1 through 5 (fig. 5-1).



1	Screw: fil hd -40, 3/16 lg (3)	6	Screw: pan hd 8-32, 1/2 lg (4)	12	Pin, grooved, hdls, 01101 od, 1/2 lg
2	Dial, scale (gunner's aid)	7	Knob: rd plstc	13	Cone
3	Spring (clip) tension	8	Retainer (spring)	14	Flange Assy
4	Setscrew, cup pt 10-24, 3/8 lg (6)	9	Spring, compression	15	Window, dial and bellows and related parts
5	Clamp	10	Gasket: syn rub		
		11	Cup		

Figure 5-1. Housing Assembly 7537556 and Related Parts-exploded view.

b. Apply pressure on knob (7) while removing screws (6) to prevent loss of spring loaded parts.

c. Remove item 7 through 11.

d. Depress bellows and drive out pin (12).

e. Remove item 13 through 15. Do not remove pin (14A) unless it is necessary.

5-9. Disassembly of Window, 5355-706-8064, Bellows, 1260-346-8644, and Related Parts

Remove items 1 through 5 from item 6 (fig. 5-2).

5-10. Removal of Related Parts-Housing Assembly 7537556

a. Remove items 1 through 4 (fig. 5-3).

b. Use care in removing split washer (5) from its mating groove to prevent loss of spring-loaded parts.

c. Remove items 6 through 9.

5-11. Removal and Disassembly of Housing Assembly 7537556 and Related Parts

a. Remove items 1 through 7 (fig. 5-4).

b. Drive out screws (8) and remove item 9.

5-12. Disassembly of Housing Assembly 7537556 and Related Parts

a. Remove items 1 through 14 (fig. 5-5).

b. Inspect plug (5) terminal (9) and socket assembly (14) for corrosion or damage. Inspect wires (6) and insulators (3 and 10) for deterioration, cracks, worn or frayed spots. Inspect connections for proper soldering. Inspect bushing 5345810, which is not removed from the housing 7537553, for excessive wear or other damage.

5-13. Assembly of Housing Assembly 7537556 and Related Parts

a. Assemble items 14 through 7 (fig. 5-5).

b. Tighten item 7 securely for proper electrical connection.

c. Twist wires (6) together, insert wires in plug (5) and tighten screw (4) securely, slide insulator (3) over items 4, 5 and 6. Install clip (2) with screws (1), do not tighten.

Note

Position plug (5) tip flush with outside of casting and tighten screws (1).

d. Connect a 3-volt dc power source to plug (5) in housing assembly and test lamps for illumination.

5-14. Installation and Assembly of Housing Assembly 7537556 and Related Parts

a. Install p)late (9, fig. 5-4) by driving in screws (8).

b. Assemble items 7 through 1.

5-15. Installation of Related Parts Housing Assembly 7537556

a. Install items 9 through 6 (fig. 5-3).

b. Install split washer (5) "with undercut side down.

c. Install items 4 through 1.

5-16. Assembly of Window 5355-706- 8064, Bellows 1260-346-8644 and Related Parts

Note

Carefully tighten screws (2, fig. 5-2) as they will crack window (6).

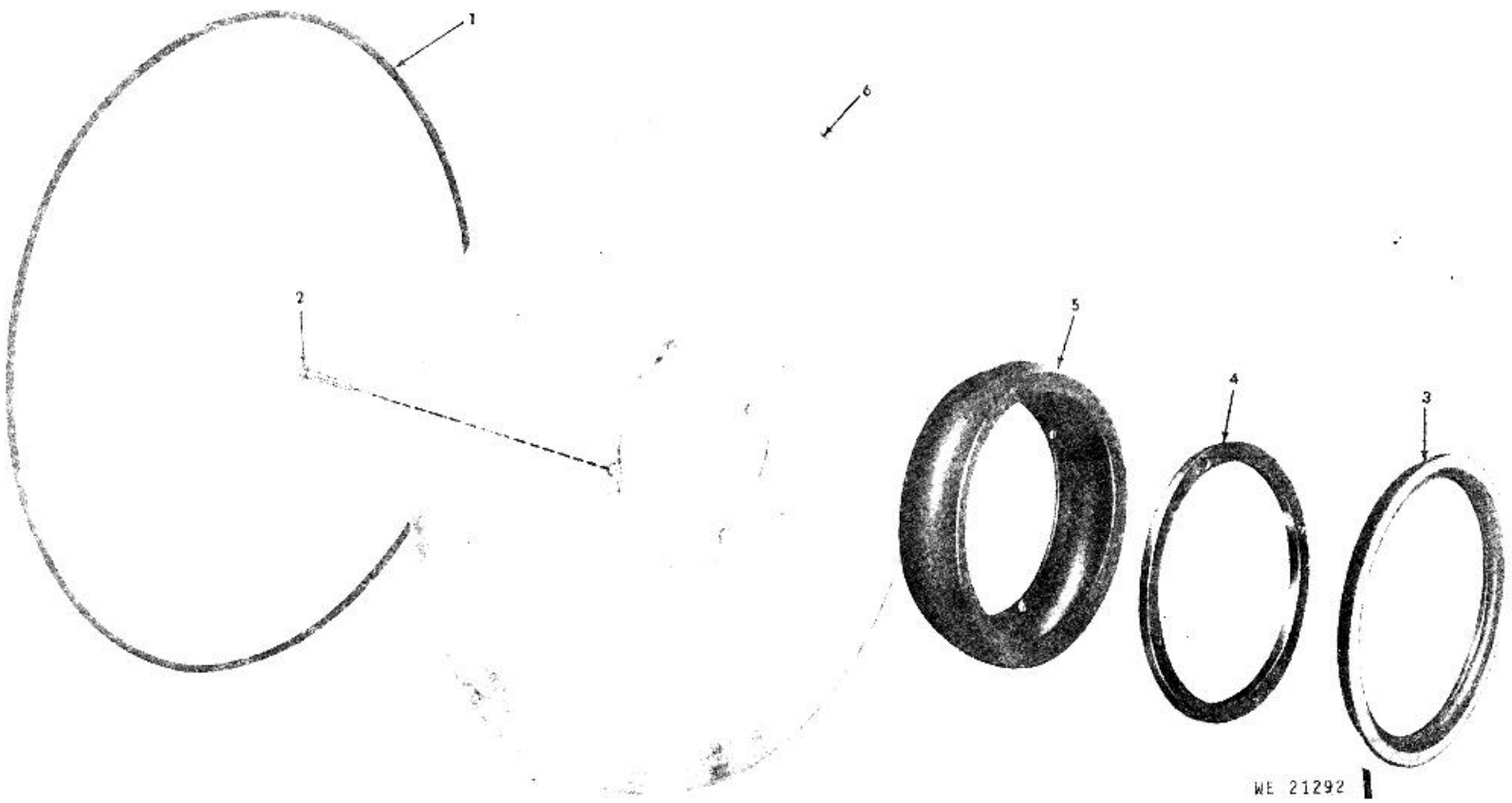
Install items 5 through 1 to item 6 (fig. 5-2).

5-17. Installation of Related Parts Housing Assembly, 7537556

a. Install items 15 through 6 (fig. 5-1).

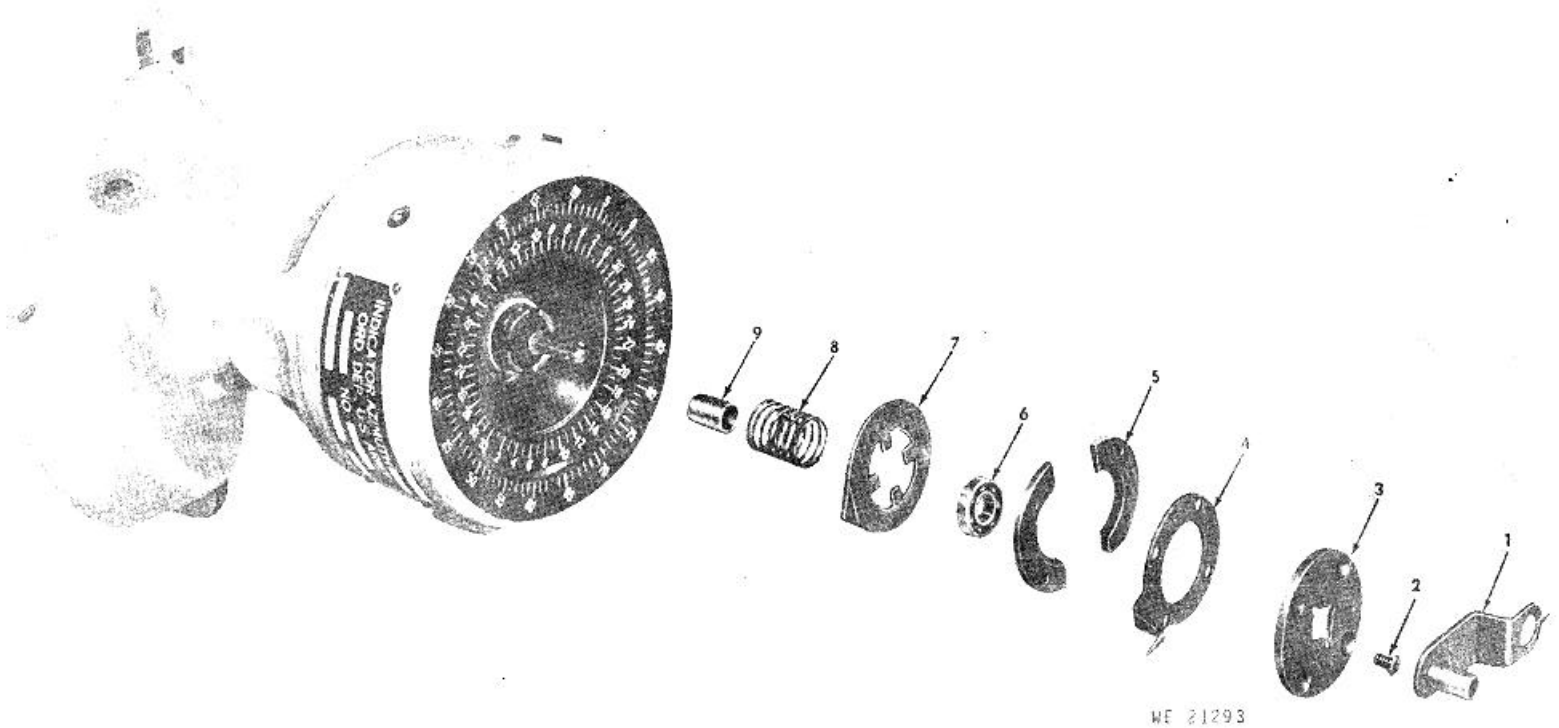
b. Aline screws (4) in window (15) recesses before tightening to hold clamp (5).

c. Install spring (3) with bent ends in undercut of clamp (5). Install items 2 and 1.



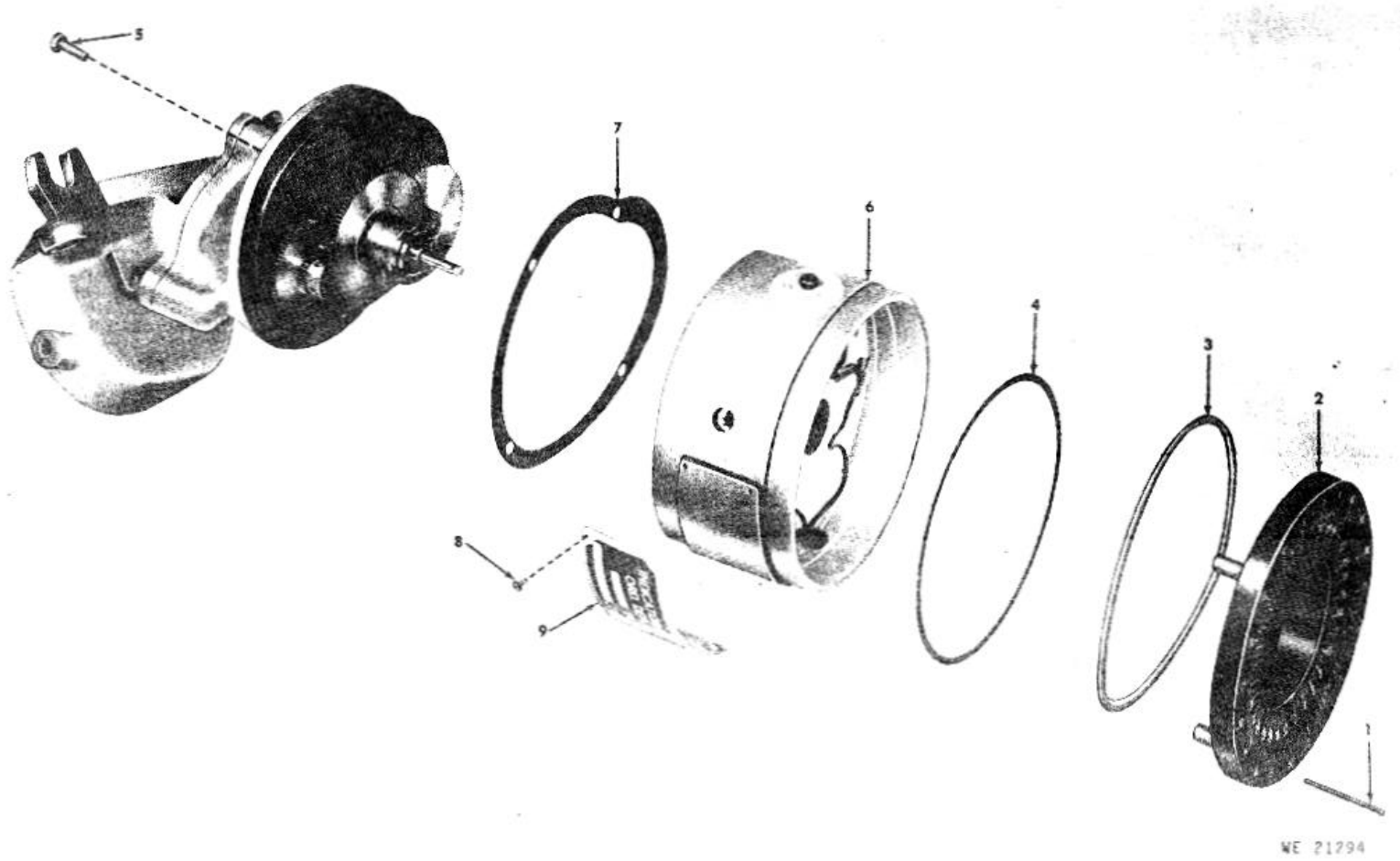
1-Gasket: syn rub
2-Screw: pan hd, 2-56, 1/2 lg
3-Ring: (top)
4-Ring, (bottom)
5-Bellows
6-Windows

Figure 5-2. Window 7068064, bellows 8734407 and related parts--exploded view.



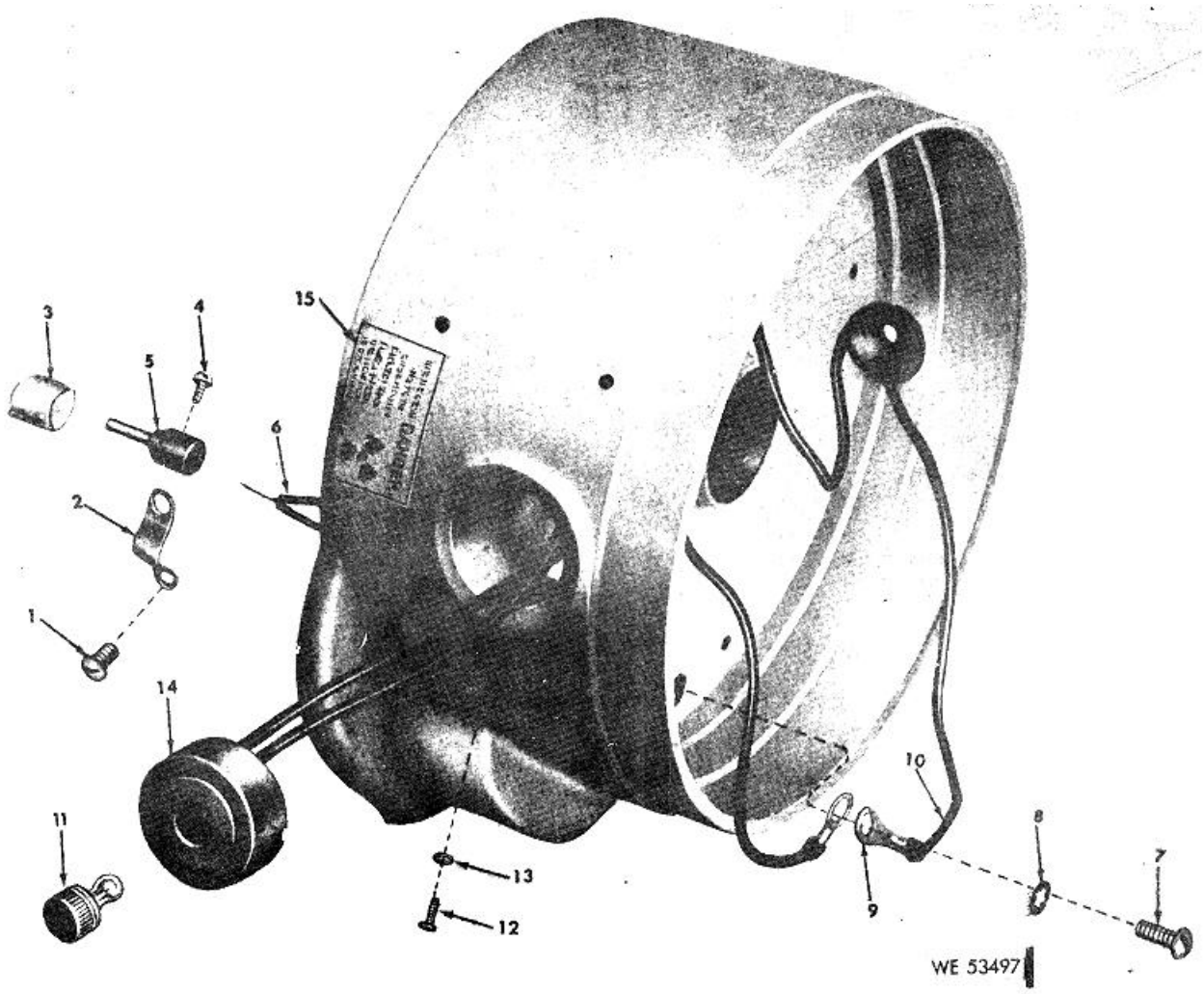
1- Pointer assembly: azimuth (radioactive item) 1260-507-9491 or pointer assembly 1290-247-7180
2- Screw: hd 8-32, 5/16 lg
3- Flange
4- Pointer dial: micrometer (radioactive item) 1260-507-9490 or pointer dial 5355-144-7213
5- Washer, split:
6- Bearing
7- Pointer dial: directional (radioactive item) 5355-330-9597 or pointer dial 5355-144-7215
8- Spring, compression:
9- Spacer

Figure 5-3. Housing assembly 7537556 and pointers-partial exploded view.



1- Screw: rd hd, 4-40, 1-1/2 lg
2- Dial assembly
3- Washer, nonmetallic
4- Spacer, ring
5- Screw, hex hd: 1/4-28, 0.750 lg (4)
6- Housing Assy w/related parts
7- Gasket: rub.
8- Screw, drive, rd hd, No. 4 x 3/16 lg (4)
9- Name plate

Figure 5-4. Removal of Housing assembly 7537556 and dial assembly 7028399-partial exploded view.



1	Screw: pan hd, 832, 1/4 lg (2)	6	Wires	11	Lamp, incandescent: (2)
2	Clip	7	Screw, pan hd, 8-32, 3/8 lg	12	Screw: fil hd, 5-40, 3/16 lg (2)
3	Insulator	8	Washer, lock, No. 8, 0.340 od, 0.176 id, 0.023 thk	13	Washer, lock: No. 5 screw size (2)
4	Screw (component of plug 5320625)	9	Terminal (2)	14	Socket assy (2)
5	Plug	10	Insulator (2)	15	Decalcomania

Figure 5-5. Housing assembly 7537556 and related parts-partial exploded view.

Section IV. REPAIR AND OVERHAUL OF HOUSING ASSEMBLY 10954707 AND RELATED PARTS

5-18. Removal and Disassembly of Related Parts-Housing Assembly 10954707

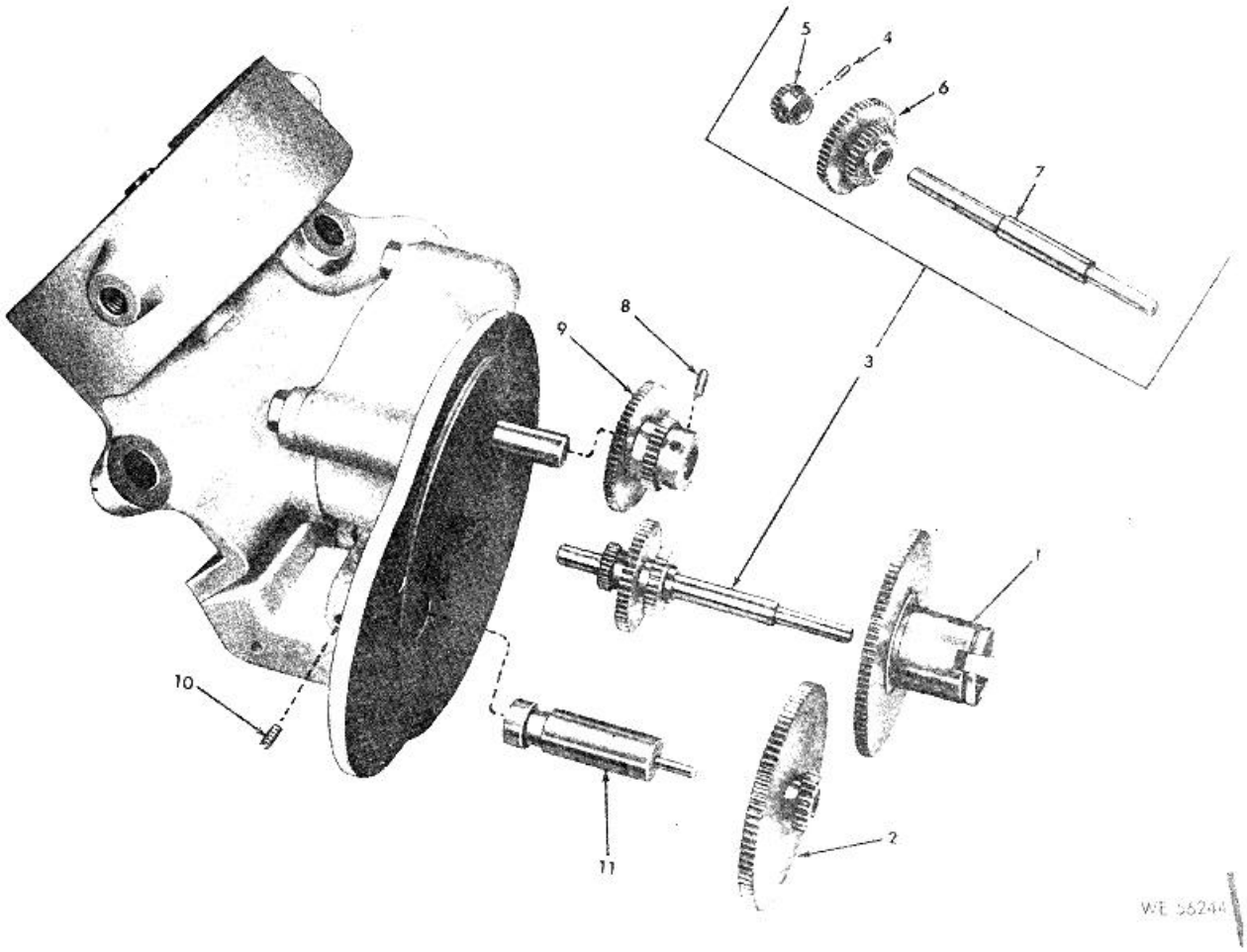
a. Lift off items 1 through 3 (fig. 5-6), and disassemble 4 through 7.

b. Drive out pin (8) to remove gear (9).

c. Remove stud (11) by removing setscrew (10).

5-19. Removal of Housing Assembly 10954707 and Related Parts

a. Remove items 1 through 3 (fig. 5-7).



1	Gear (hub)	5	Gear	9	Gear
2	Gear assembly idler	6	Gear assembly intermediate	10	Setscrew: hdls, 1/4-20, 0.250 lg
3	Shaft 53445727 and related parts	7	Shaft 5345727	11	Stud
4	Pin, straight, taper groove, 7/64 od, 5/8 lg	8	Pin, straight, taper groove, 11/'64 od, 1.00 lg		

Figure 5-6. Disassembly of Housing 10954707 and Related Parts-partial exploded view.

b. Remove item 4 and disassemble 5 through 7.

c. Inspect bearing which is not removed from the housing 10954705 for excessive wear or damage.

d. Inspect bushing 5345777, which is not removed from the housing 10954705, for excessive wear or other damage.

5-20. Installation of Housing Assembly 10954707 and Related Parts

Note

All gear teeth to be coated with grease MIL-G-10924 at assembly or installation.

a. Assemble items 7 through 5 (fig. 5-7).

b. Install items 4 through 1.

5-21. Installation and Assembly of Related Parts-Housing Assembly 10954707

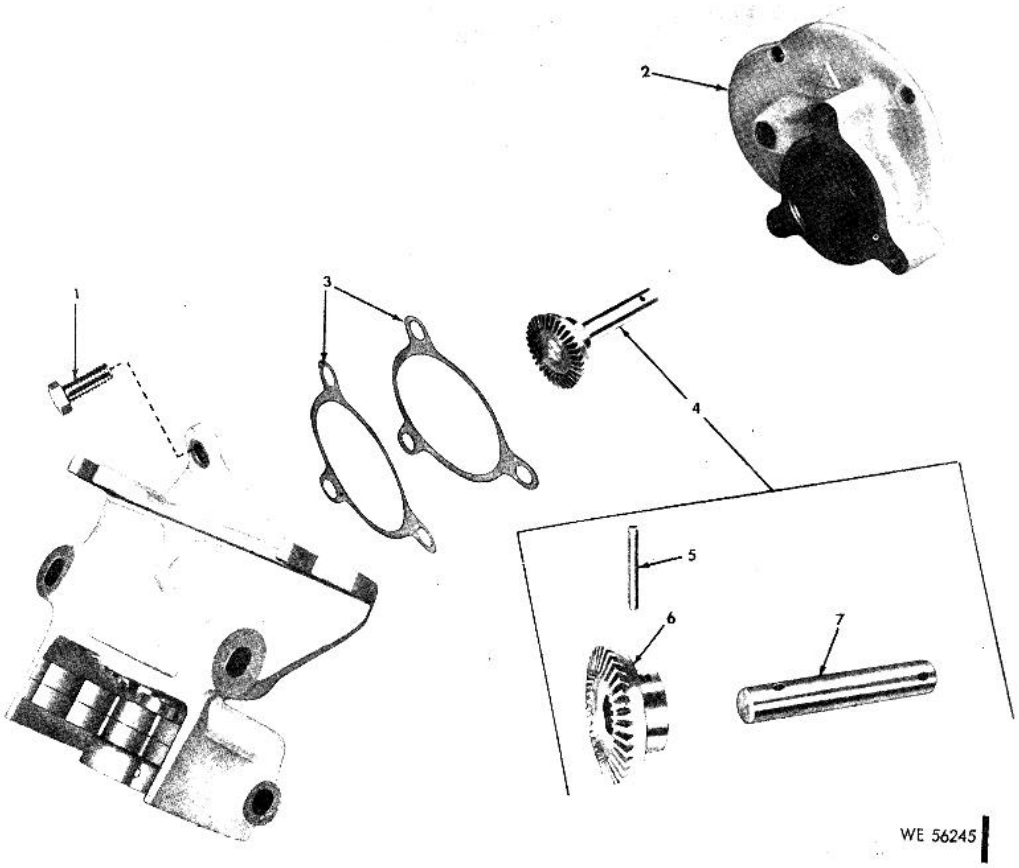
a,. Install stud (11 fig. 5-6) and setscrew (10) do not tighten.

b. Install gear (9) and drive in pin (8).

c. Assemble items 7 through 4.

d. Install items 3, 2 and 1.

e. Adjust stud (11) by sliding up or down in housing hole, to aline gear (2) ,with gears (1) and (3). Rotate gear (2) to establish proper mesh and tighten setscrew (10).



1- Screw hex hd: No. 3/8-16, 7/8 lg (3)
2- Housing assembly
3- Shim, as required
4- Shaft and related parts
5- Pin spring, 0.156 dia, 1.125 lg
6- Gear
7- Shaft

Figure 5-7. Removal of Housing Assembly 10954707 and housing assembly 10954711--partial exploded view.

Section V. OVERHAUL OF HOUSING ASSEMBLY 10954711 AND RELATED PARTS

Note
Prior to disassembly, scribe a reference mark on collar (2, fig. 6-8) and shaft (6).

5-22. Disassembly of Housing Assembly, 10954711 and Related Parts

a. Drive out pin (1) and remove item 2 through 6.

b. Disassemble items 7 through 9.

c. Remove items 10 and 11.

d. Drive out pin 12.

e. Insert key of locking plate (11) in keyway of bearing (13) and rotate clockwise until free from housing (14).

5-23. Assembly of Housing Assembly 10954711 and Related Parts

Note
All gear teeth to be coated with grease MIL-G-10924 at assernbly or installation.

a. Install bearing (13, fig. 5-8) in housing (14). Insert key of locking plate (11) in keyway of bearing (13) and rotate counterclockwise until tight against housing.

b. Install items 12 through 10.

c. Assemble items 7 through 9 and insert item 6 in item (14).

d. Insert one spring (4) end in 1/8 diameter hole in gear (3). Place gear (3) with spring (4) in gear (5) compressing spring and rotating clockwise until the other spring end drops into 1/8-diameter hole in gear (5). Hold gear (3), spring (4) and gear (5) together and install on shaft of item 6 with collar (2) and pin (1).

Section VI. INSTALLATION OF MAIN ASSEMBLIES

5-24. Installation

For installation of housing assembly 10954711 and related parts to housing assembly 10954707, with related parts, refer to paragraph 5-20, figure 5-7. For installation of housing assembly 7537556 and related parts to housing assembly 10954711, with related parts, refer to paragraph 5-20, figure 5-4.

Section VII. FINAL TEST AND ADJUSTMENT

5-25. Backlash Test Adjustment

a. Setup and test azimuth indicator 10954720 as directed in paragraph 3-11.

b. To eliminate backlash (without binding) lossen setscrew (10, fig. 5-6) and rotate stud (11) to establish 0.5 mil tolerance.

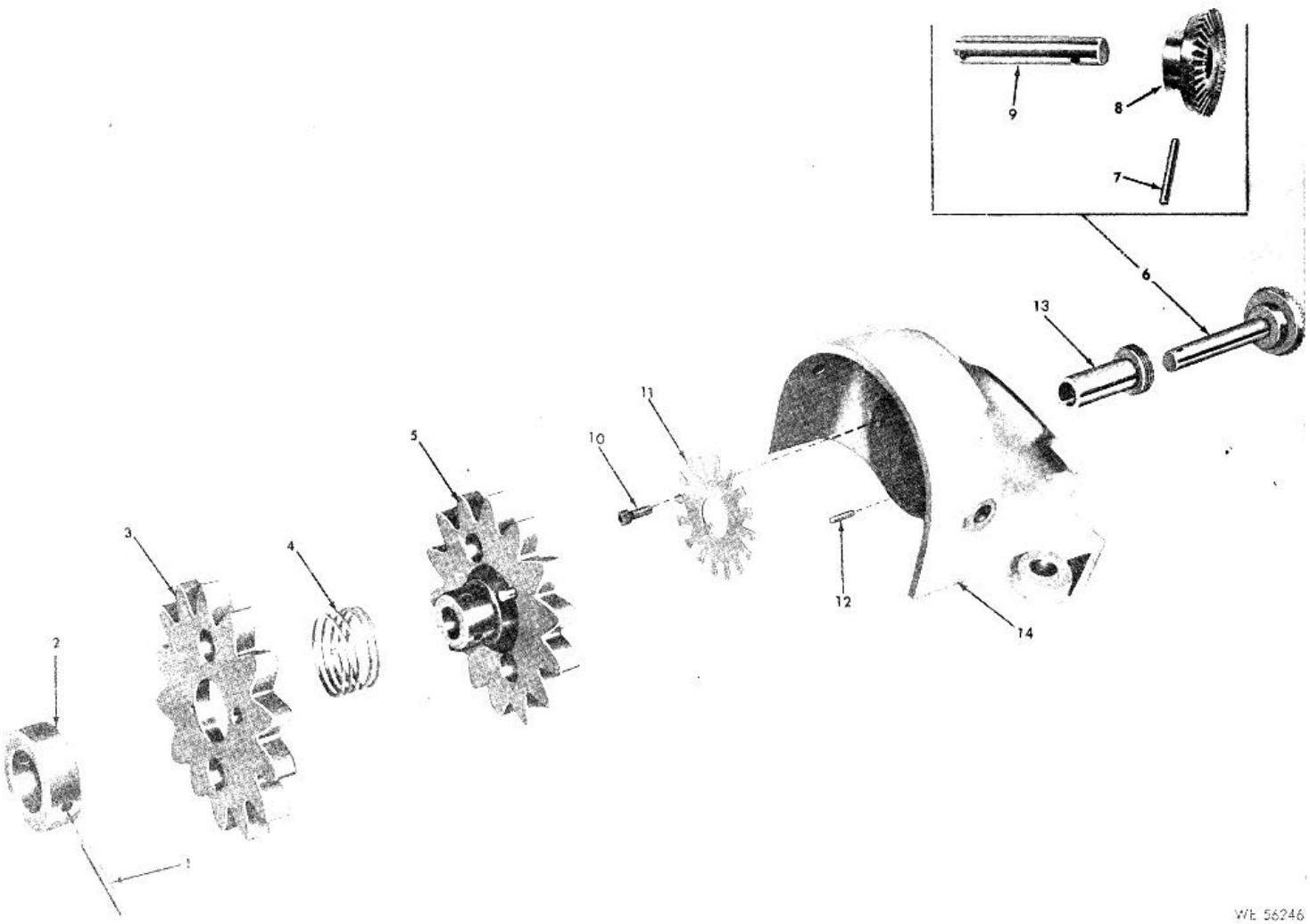


Figure 5-8. Disassembly of Housing Assembly 10954711-partial exploded view

1 Pin, grooved, hdls, 0.197 dia, 1 1/2 lg
2 Collar
3 Gear, drive
4 Spring, helical, torsion
5 Gear 10954717 w/pin
6 Shaft and related parts
7 Pin spring, 0.156 dia, 1.125 lg
8 Gear
9 Shaft
10 Screw, soc hd, 10-32, 0.500 lg (2)
11 Locking Plate
12 Pin, 0.219 dia, 0.375 lg
13 Bearing (threaded)
14 Housing

Figure 5-8-Continued.

CHAPTER 6

PROCESSING AND PACKAGING

6-1. General
Refer to MIL-P-14232/P10954720.

6-2. Optical Components
Cover all windows or optical elements with at least four thicknesses of neutral lens tissue and secure in place with *water-resistant pressure sensitive adhesive tape. (over the lens tissue with cellulosic cushioning material and secure in place with pressure sensitive tape.

6-3. Handling, Storage and Disposal of Radioactive Material
Refer to TB SIED 232 and applicable portions of TB 5-6600-227-15/1, TM 3-220 and TM 3-261 until a pending DA Technical Bulletin (TB) for the handling, storage, and disposal of U.S. Army Weapons Command Self-Luminous Devices is published.

APPENDIX I

REFERENCE

A-1. Supply Manuals

The following Department of the Army Supply Manuals pertain to repair and overhaul of this materiel:

Brushes, Paints, Sealers, and Adhesives ..... SM 5-1-C5-1
Fuels, Lubricants, Oils, and Waxes . ..... SM 10-1-C4-1
Hardware and Abrasives . ..... SM 9-1-C5300
Shop Set Field Maintenance: Instrument and Fire Control Basic ..... SM 9-1-5180-B06
(5180-754-0740).
Tool Kit, Fire Control Repairman (5180-357-7735) . ..... SM 9-4-5180-A61
Tool Kit, Instrument Repairman's (5180-357-7743)..... SM 9-4-5180-A62

A-2. Other Publications

a. General.

Accident Reporting and Records ..... AR 385-40
Ordnance Direct Support Service ..... FM 9-3
Ordnance General and Depot Support Service ..... FM 9-4
The Army Equipment Record System and Procedures . ..... TM 38-750

b. Maintenance.

Cleaning of Ordnance Materiel..... TM 9-208-1
General Maintenance Procedures for Fire Control Materiel ..... TM 9-254
Grease, Automotive and Artillery MIL-G-10924
Lubrication of Ordnance Materiel - ..... TM 9-273
Operator's and Organizational Maintenance Manual Armored Recon- TM 9-2350-230-12
naissance-Airborne Assault Vehicle: FT, 152MM, XM551.
Organizational, Direct Support, General Support, and Depot Mainte- TM 9-2350-230-25P/2
nance Repair Parts and Special Tool Lists For Turret, Elevating and
Traversing Systems, Cupola, Gun-Launcher and Fire Control For
Armored Reconnaissance-Airborne Assault Vehicle: FT, 152MM,
XM551 (2350-873-5408).
Painting Instructions for Field Use . ..... TM 9-213

c. Operations.

Auxiliary Sighting and Fire Control Equipment - ..... TM 9-575
Northern Operations..... FM 31-71
Operation and Maintenance of Ordnance Materiel in Extreme Cold TM 9-207
Weather, 0° to -65°F.

d. Shipment and Storage.

Paper, Lens, Tissue, Antitarnish Wrapping MIL-P-13988
Parts, Equipment and Tools for Ordnance Materiel, Packaging of MIL-P-14232
P10954720
Preservation, Methods of MIL-P-116
Preservation, Packaging and Packing ..... AR 700-15

APPENDIX B

REPAIR PARTS AND SPECIAL TOOLS LIST

This Appendix is Current as of 23 June 1972

Section I. INTRODUCTION

B-1. Scope

This appendix lists repair parts, special tools, and support equipment required for the performance of direct support, general support, and depot maintenance of azimuth indicator 10954720.

B-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, general support, and depot 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, general support, and depot levels.

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

B-3. Explanation of Columns

The following provides an explanation of column 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:

Code	Explanation
PA	Items 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 a n d stocked for initial issue or outfitting to specified maintenance repair aatitivities.
PF	Support equipment which wiU not be stocked but which will be centrally procured on demand.
MO	Item to be manufactured or fabricated at Organizational level.
MF	Item to be manufactured or fabricated at Direct Support level.
MH	Item to be manufactured or fabricated at General Support level.

Code	Explanation
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.
AH	Item to be assembled at General Support.
AD -	Item to be assembled at Depot Maintenance level.
XA	Item is 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 through 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 Direct Support.
H	Support item is removed, replaced, used at General Support.
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	Non-repairable.

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

Code	Explanation
Z	Non-repairable 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. Federal Stock Number. Indicates the Federal 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 indicated 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. This 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, subfunctional 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. 30-Day DS/GS Maintenance Allowances.

(1) The repair parts indicated by asterisk (*) entries in separate allowance column(s) for DS and GS represents those parts authorized for use at that category of maintenance and will be requisitioned on an "as required" basis.

(2) Allowance quantities are indicated in the special tools list section for special tools, TMDE, and other support equipment.

g. 1-Year Allowances Per 100 Equipments,/ Contingency Planning Purposes. No entries will appear in this column.

h. Depot Maintenance Allowances Per 100 Equiprments. This column indicates that the items identified with an asterisk (*) are authorized to be requisitioned "as required".

i. 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 used to reference the item on the illustration.

B-4. Special Information

a. Usable on codes are included in Column 3. Uncoded items are applicable to all models. Identification of the usable on codes used in this publication are:

Code	Explanation
A	Radioactive material.
B	Non-radioactive material.
C	Installed in serial numbers to 599.
D	Installed in serial numbers above 599.

b. The azimuth indicator was initially equipped with radioactive pointer assembly 1260-507-9491 (7068063) and dial pointers 1260-507-9490 (7068061) and 5355-330-9557 (5345726). These units, when decontaminated and overhauled will contain replacement pointers 11653612, 11653613, and 11653614 respectively. The listing of radioactive items has been retained in the list of parts for identification and reference purposes only.

c. Action change codes indicated in the lefthand margin of the listing page denotes the following:

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

B-5. How to Locate Repair Parts

a. When Federal stock number or reference number is unknown:

(1) *First.* Using the table of contents determine the functional or subfunctional groups 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 part 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 Federal Stock Numbers and Reference Numbers find the pertinent Federal stock number or reference number. This index is in ascending FSN

sequence followed by a list of reference numbers in ascending alphameric sequence, crossreferenced 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 Federal Stock Numbers and Reference Numbers.

B-6. Abbreviations

Abbreviations	*Explanations*
ALY	alloy
ALY STL	alloy steel
AMP	amperage
B	base
IRS	brass
CD PL	cadmium plate
CLI	clear
C	carbon steel
CTSK	countersunk
CUP PT	cup point
DIA	diameter
FILIH	fillister head
FL	flat
PNSH	finish
EDL	headless
HEX HD	hexagon head
ID	Inside diameter
INTL T	internal teeth
L	long
LG	length
LT	light
MTG HDW	mounting hardware
NC	National Coarse Thread
OD	outside diameter
PHOS	.phosphate
PLSTC	plastic
PNH	pan head
RBR	rubber
RDH .	round head
RND	round
SCR	screw
SPCL	special
STK	stock
STL	steel
SYNTH .	synthetic
THK	thick
TUNG FIL	tungsten filament
UNC	Unified Coarase Thread
UNF	Unified Fine thread
V	.volt(s)
W	wide
WD	width
WHT	white

B-7. Recommendations for Maintenance Publications Improvements

The reporting of errors, omissions, and recommendations for improvement improving this publications by the individual user, should be submitted on DA Form 2028 (Recommended Changes to Publications) and forwarded direct to Commanding Officer, Frankford Arsenal, ATTN: AMSWE-MAF-W3100, Philadelphia, Pa. 19137.

Section II. REPAIR PARTS LIST

Actn Chng Code	(1) SMR Code	(2) Federal Stk Number	(3) Description Ref No + Mfg Code Usable on code	(4) Unit of Meas	(5) (Qty) Inc in Unit	(6) 30-Day DS Maint Allow (A) 1-20	(6) (B) 21-50	(6) (C) 51-100	(7) 30-Day GS Maint Allow (A) 1-20	(7) (B) 21-50	(7) (C) 51-100	(8) 1-Yr Allow P/100 Equip Cntcgy	(9) Dep Maint Allow P/100 Equip	(10) Illustration (A) Fig No	(10) (B) Item No
			HOUSING ASSEMBLY 7637556 AND RELATED PARTS												
C	PA-FZ-Z	5305-022-4975	SCREW, MACHINE FILH, NO-5-40NC, 3/16 L 224975 (19207)	EA	3	*	*	*	*	*	*		*	5-1	1
N	PA-FZ-Z	5355-917-2697	DIAL, SCALE 10954715 (19207)	EA	1	*	*	*	*	*	*		*	5-1	2
C	PA-FZ-Z	5340-522-9963	CLIP, SPRING TENSION 7068048 (19207)	EA	1	*	*	*	*	*	*		*	5-1	3
N	PA-FZ-Z	5305-723-9396	SETSCREW HEX, SKT, CUP PT, ALY STL, CD PL NO. 10-24, 3/8 L MS5196349 (96906)	EA	6	*	*	*	*	*	*		*	5-1	4
N	PA-FZ-Z	1260-706-8069	CLAMP 7068069 (19207)	EA	1	*	*	*	*	*	*		*	5-1	5
N	PA-FZ-Z	5305-984-6193	SCREW, MACHINE PNH CROSS-REC, STL, CD PL, NO. 8-32UNC-2A 1/2 L MS35265-45 (96906)	EA	4	*	*	*	*	*	*		*	5-1	6
C	PA-FZ-Z	5355-534-5713	KNOB RED PLSTC 5345713 (19207)	EA	1	*	*	*	*	*	*		*	5-1	7
N	PA-FZ-Z	1260-515-2182	RETAINER 5345712 (19207)	EA	1	*	*	*	*	*	*		*	5-1	8
C	PA-FZ-Z	5340-692-8927	SPRING, HELICAL COMPRESSION STL, PHOS FNSH, 0.071 DIA STX, 23/32 OD, 6 COIL 1 1/16 FREE LG 8383335 (19207)	EA	1	*	*	*	*	*	*		*	5-1	9
C	PA-FZ-Z	5330-531-2364	GASKET SYNTH RBR, 0.875 ID, 1 3/4 OD, 1/12 THK 7000070 (19207)	EA	*	*	*	*	*	*	*		*	5-1	10

Actn Chng Code	(1) SMR Code	(2) Federal Stk Number	(3) Description Ref No + Mfg Code / Usable on code	(4) Unit of Meas	(5) (Qty) Inc in Unit	(6) 30-Day DS Maint Allow (A) 1-20	(6) (B) 21-50	(6) (C) 51-100	(7) 30-Day GS Maint Allow (A) 1-20	(7) (B) 21-50	(7) (C) 51-100	(8) 1-Yr Allow P/100 Equip Cntcgy	(9) Dep Maint Allow P/100 Equip	(10) Illustration (A) Fig No	(10) (B) Item No
N	PA-FZ-Z	1260-706-8073	CUP 7068073 (19200)	EA	1	*	*	*	*	*	*		*	5-1	11
N	PA-FZ-Z	5315-951-6906	PIN, GROOVED HDLS, TPR, CS, 1/2 L, 3/32 DIA MS35671-17 (96906)	EA	1	*	*	*	*	*	*		*	5-1	12
N	PA-FZ-Z	1290-507-9620	CONE 8383922 (19207)	EA	1	*	*	*	*	*	*		*	5-1	13
N	PA-FZ-Z	1260-522-9965	FLANGE ASSEMBLY 8668651 (19200)	EA	1	*	*	*	*	*	*		*	5-1	14
			WINDOW, DIAL AND BELLOWS W/RELATED PARTS WINDOW 7068064, BELLOWS 8734407 AND RELATED PARTS											5-1	15
C	PA-FZ-Z	5330-527-8900	GASKET SYNTH RBR, 5 3/4 ID, 5 63/64 OD, 1/16 THK 7069656 (19207)	EA	1	*	*	*	*	*	*		*	5-2	1
C	PA-FZ-Z	5305-954-3938	SCREW, MACHINE PNH, CROSS-REC, STL, CD PL, 2-56UNC-2A, 1/2 L MS35206-207 (96906)	EA	4	*	*	*	*	*	*		*	5-2	2
C	PA-FZ-Z	1260-706-8074	RING, BELLOW STOP BRS 1 7/8 ID, 2 5/16 OD 3/16 THK, W/FLANGE 7068074 (19207)	EA	1	*	*	*	*	*	*		*	5-2	3
N	PA-FZ-Z	5330-706-8072	RING, RETAINING 7068072 (19207)	EA	1	*	*	*	*	*	*		*	5-2	4
C	PA-FZ-Z	1260-346-8644	BELLOWS 8734407 (19207)	EA	1	*	*	*	*	*	*		*	5-2	5
C	PA-FZ-Z	5355-706-8064	WINDOW, DIAL 7068064 (19207) HOUSING ASSEMBLY 7537556 AND POINTERS	EA	1	*	*	*	*	*	*		*	5-2	6
C	PA-FZ-Z	1260-507-9491	POINTER ASSEMBLY 7068063 (19207) A	EA	1	*	*	*	*	*	*		*	5-3	1

Actn Chng Code	(1) SMR Code	(2) Federal Stk Number	(3) Description Ref No + Mfg Code	Usable on code	(4) Unit of Meas	(5) (Qty) Inc in Unit	(6) 30-Day DS Maint Allow (A) 1-20	(B) 21-50	(C) 51-100	(7) 30-Day GS Maint Allow (A) 1-20	(B) 21-50	(C) 51-100	(8) 1-Yr Allow P/100 Equip Cntcgy	(9) Dep Maint Allow P/100 Equip	(10) Illustration (A) Fig No	(B) Item No
N	PA-FZ-Z	1290-247-7180	POINTER ASSEMBLY 11653612 (19204)	B	EA	1	*	*	*	*	*	*		*	5-3	1
C	PA-FZ-Z	5305-954-3938	SCREW, MACHINE FL, CSK, CROSS-REC, STL, CD PL, NO 8-32UNC-2A, 5/16 L MS35190-250 (96906)		EA	4	*	*	*	*	*	*		*	5-3	2
	XB-FZ-F		FLANGE 7/16 ID, 2.0 ID, 11/64 THK 7068060 (19207)			1									5-3	3
C	PA-FZ-Z	1260-507-9490	POINTER 7068061 (19207)	A	EA	1	*	*	*	*	*	*		*	5-3	4
N	PA-FZ-Z	5355-144-7213	POINTER 11653613 (19204)	B	EA	1	*	*	*	*	*	*		*	5-3	4
C	PA-FZ-Z	5310-534-5718	WASHER, SPLIT STL, 0.980 ID, 2.0 OD, 0.125 THK 5345718 (19207)		EA	1	*	*	*	*	*	*		*	5-3	5
	XB-FZ-Z		BEARING, BALL 3/8 ID, 7/8 OD, 7/32 THK 700026 (21450)			1									5-3	6
C	PA-FZ-Z	5355-330-9597	POINTER, DIAL 5345726 (19200)		EA	1	*	*	*	*	*	*		*	5-3	7
N	PA-FZ-Z	5356-144-7215	POINTER, DIAL 11653614 (19204)	B	EA	1	*	*	*	*	*	*		*	5-3	7
C	PA-FZ-Z	5340-530-5624	SPRING, HELICAL, COMPRESSION STL, 0.063 DIA, 13/16 OD, 7 COIL, 1 1/16 FREE LG 5345723 (19207)		EA	1	*	*	*	*	*	*		*	5-3	8
	XB-FZ-Z		SPACER 5345720 (19207) HOUSING ASSEMBLY 7537556 AND DIAL ASSEMBLY 7028399			1									5-3	9
C	PA-FZ-Z	5305-011-7625	SCREW, MACHINE RHD, BRS NO 4-4ONC-2A, 1 1/2 L 117625 (21450)		EA	4	*	*	*	*	*	*		*	5-4	1
C	PA-FZ-Z	1260-702-8399	DIAL ASSEMBLY 7028399 (19207)		EA	1	*	*	*	*	*	*		*	5-4	2

Actn Chng Code	(1) SMR Code	(2) Federal Stk Number	(3) Description Ref No + Mfg Code / Usable on code	(4) Unit of Meas	(5) (Qty) Inc in Unit	(6) 30-Day DS Maint Allow (A) 1-20	(B) 21-50	(C) 51-100	(7) 30-Day GS Maint Allow (A) 1-20	(B) 21-50	(C) 51-100	(8) 1-Yr Allow P/100 Equip Cntcgy	(9) Dep Maint Allow P/100 Equip	(10) Illustration (A) Fig No	(B) Item No
C	PA-FZ-Z	5330-530-4468	FELT, MECHANICAL 5 13/32 ID, 5 3/4 OD, 3/32 THK 5345922 (19207)	EA	1	*	*	*	*	*	*		*	5-4	3
C	PA-FZ-Z	5340-530-9427	SPACER, RING RND STL, 5 13/32 ID, 5.730 OD, 0.016 THK 5345924 (19207)	EA	1	*	*	*	*	*	*		*	5-4	4
C	PA-FZ-Z	5305-068-0513	SCREW, CAP, HEX HD, STL, CD PL, NO. 1/428 UNF-2A, 0.750 L MS90727-6 (96906)	EA	4	*	*	*	*	*	*		*	5-4	5
			HOUSING ASSEMBLY W/RELATED PARTS											5-4	6
C	PA-FZ-Z	5330-753-7551	GASKET RBR, 2.565 ID, 3.00 OD, 0.015 THK 7537551 (19207)	EA	1	*	*	*	*	*	*		*	5-4	7
	XB-FZ-Z		SCREW, DRIVE RNH, NO. 4 (0.114), 3/16 L MS21318-20 (96906)		4									5-4	8
	XB-FZ-Z		NAMEPLATE 7537554 (19207)		1									5-4	9
			HOUSING ASSEMBLY 7537556												
C	PA-FZ-Z	5305-059-8263	SCREW, MACHINE PNH, CROSS-REC, BRS, NO. 8-32UNC-2A, 1/4 L MS3521438 (96906)	EA	2	*	*	*	*	*	*		*	5-5	1
	MD-DZ-Z		CLIP 7978441 (19207)		1									5-5	2
	XB-FZ-Z		INSULATOR 7089292 (19207)		1									5-5	3
			SCREW COMPONENT OF PLUG (5320625)		1									5-5	4

Actn Chng Code	(1) SMR Code	(2) Federal Stk Number	(3) Description Ref No + Mfg Code	Usable on code	(4) Unit of Meas	(5) (Qty) Inc in Unit	(6) 30-Day DS Maint Allow (A) 1-20	(B) 21-50	(C) 51-100	(7) 30-Day GS Maint Allow (A) 1-20	(B) 21-50	(C) 51-100	(8) 1-Yr Allow P/100 Equip Cntcgy	(9) Dep Maint Allow P/100 Equip	(10) Illustration (A) Fig No	(B) Item No
	XB-FZ-Z		PLUG, CONTACT 5320625 (19207)			1									5-5	5
	XB-FZ-Z		WIRE TYPE AWG NO. 20			4									5-5	6
	XB-FZ-Z		SCREW, MACHINE PNH, NO. 8-32, 3/8 L MS 35206-243 (96906)			1									5-5	7
	XB-FZ-Z		WASHER, LOCK INTL T, NO. 8, 0.340 OD, 0.176 ID, 0.023 THK MS35333-21 (96906)			1									5-5	8
	XB-FZ-Z		TERMINAL, LUG 506202 (19207)			2									5-5	9
	XB-FZ-Z		INSULATOR 7387395 (19207)			2									5-5	10
C	PA-OZ-Z	6240-947-6074	LAMP, INCANDESCENT 3V, 0.19 AMP, IC-2R MS25236-323 (96906)	C	EA	2	*	*	*	*	*	*		*	5-5	11
N	PA-OZ-Z	6240-051-4843	LAMP, INCANDESCENT 28V, 0.04A., CM8, 623, MS25236-8623 (96906)	D	EA	2	*	*	*	*	*	*		*	5-5	11
C	PA-FZ-Z	5305-022-4975	SCREW, MACHINE FILH, STL, CD PL, NO. 5-40NC-2A, 3/16 L 224975 (19207)		EA	4	*	*	*	*	*	*		*	5-5	12
C	PA-FZ-Z	5305-018-0156	WASHER, LOCK FL, INT T, STL, 0.021 THK, NO. 5 180156 (21450)		EA	2	*	*	*	*	*	*		*	5-5	13
	XB-FZ-Z		SOCKET ASSEMBLY 6209551 (19207)			2									5-5	14
C	PA-FZ-Z	1290-453-5624	DECALCOMANIA 11653657 (19207)		EA	1	*	*	*	*	*	*		*	5-5	15
			HOUSING 10964707 AND RELATED PARTS													
	XBFZ-Z		GEAR, HUB 7537548 (19207)			1									5-6	1
	XB-FZZ		GEAR ASSEMBLY, IDLER 7537558 (19207)			1									5-6	2
			SHAFT AND RELATED PARTS												5-6	3

Actn Chng Code	(1) SMR Code	(2) Federal Stk Number	(3) Description Ref No + Mfg Code / Usable on code	(4) Unit of Meas	(5) (Qty) Inc in Unit	(6) 30-Day DS Maint Allow (A) 1-20	(B) 21-50	(C) 51-100	(7) 30-Day GS Maint Allow (A) 1-20	(B) 21-50	(C) 51-100	(8) 1-Yr Allow P/100 Equip Cntcgy	(9) Dep Maint Allow P/100 Equip	(10) Illustration (A) Fig No	(B) Item No
	XB-FZ-Z		PIN STR, TPR GRV, 7/16 DIA, 5/8 L 142958 (21450)		1									5-6	4
N	PA-DZ-Z	1260-753-7547	GEAR 7537547 (19200)	EA	1								*	5-6	5
	XB-FZ-Z		GEAR ASSEMBLY, INTERMEDIATE 7537559 (19207)		1									5-6	6
	XB-FZ-Z		SHAFT 5345727 (19200)		1									5-6	7
	XB-FZ-Z		PIN STR, TPR GRV, 11/64 DIA, 1.00 L 142501 (21450)		1									5-6	8
N	PR-DZ-Z	1260-753-7546	GEAR, DRIVE 7537546 (19200)	EA	1								*	5-6	9
C	PA-FZ-Z	5305-723-5387	SETSCREW HDLS, CD PL NO. 1/4-20 UNC-3A, 0.250 L MS51963-63 (96906)	EA	1	*	*	*	*	*	*		*	5-6	10
C	PA-DZ-Z	5307-534-5706	STUD 5345706 (19200) HOUSING ASSEMBLY 10954707 AND HOUSING ASSEMBLY 10954711	EA	1								*	5-6	11
C	PA-FZ-Z	5305-558-4181	SCREW, HEX HD, STL, CD PL NO. 3/8-16UNC-2A, 7/8 L MS90728-59 (96906)	EA	3	*	*	*	*	*	*		*	5-7	1
	XA- -		HOUSING ASSEMBLY 10954707 (19207)		1									5-7	2
C	PA-FZ-Z	5340-939-1095	SHIM 10954712 (19207)	EA	1	*	*	*	*	*	*		*	5-7	3
			SHAFT AND RELATED PARTS											5-7	4
	XB-FZ-Z		PIN, SPRING 0.156 DIA, 1.125 L MS9048-140 (96906)		1									5-7	5

Actn Chng Code	(1) SMR Code	(2) Federal Stk Number	(3) Description Ref No + Mfg Code / Usable on code	(4) Unit of Meas	(5) (Qty) Inc in Unit	(6) 30-Day DS Maint Allow (A) 1-20	(B) 21-50	(C) 51-100	(7) 30-Day GS Maint Allow (A) 1-20	(B) 21-50	(C) 51-100	(8) 1-Yr Allow P/100 Equip Cntcgy	(9) Dep Maint Allow P/100 Equip	(10) Illustration (A) Fig No	(B) Item No
	XB-FZ-Z		GEAR 10954719 (19207)		1								5-7	6	
	XB-FZ-Z		SHAFT 1054713-1 (19207) HOUSING ASSEMBLY 10954711		1								5-7	7	
	XB-FZ-Z		PIN GR VD HDLS 0.197 DIA, 1 1/2 L MS35671-39 (96906)		1								5-8	1	
	XA- -		COLLAR 10954714 (19207)		1								5-8	2	
	XB-FZ-Z		GEAR, DRIVE 10954718 (19207)		1								5-8	3	
C	PA-FZ-Z	5360-798-3827	SPRING HELICAL, TORSION 7983827 (19207)	EA	1	*	*	*	*	*		*	5-8	4	
	XB-FZ-Z		GEAR W/PIN 7089295 10954717 (19207)		1								5-8	5	
			SHAFT AND RELATED PARTS										5-8	6	
	XB-FZ-Z		PIN, SPRING 0.156 DIA, 1.125 L MS9048-140 (96906)		1								5-8	7	
	XB-FZ-Z		GEAR 10954719 (19207)		1								5-8	8	
	XB-FZ-Z		SHAFT 10954713-2 (19207)		1								5-8	9	
	XB-FZ-Z		SCREW, SKT HD, NO. 10/32-1/2 L MS21262-69 (96906)		2								5-8	10	
	XB-FZ-Z		LOCKING PLATE 10954710 (19207)		1								5-8	11	
	XB-FZ-Z		PIN 0.219 DIA, 3/8 L MS9048-191 (96906)		1								5-8	12	
	XB-FZ-Z		BEARING, SLEEVE 10954709 (19207)		1								5-8	13	
	XA- -		HOUSING 10954708 (19207)		1								5-8	14	

Section III. SPECIAL TOOLS LIST

Actn Chng Code	(1) SMR Code	(2) Federal Stk Number	(3) Description Ref No + Mfg Code / Usable on code	(4) Unit of Meas	(5) (Qty) Inc in Unit	(6) 30-Day DS Maint Allow (A) 1-20	(6) (B) 21-50	(6) (C) 51-100	(7) 30-Day GS Maint Allow (A) 1-20	(7) (B) 21-50	(7) (C) 51-100	(8) 1-Yr Allow P/100 Equip Cntcgy	(9) Dep Maint Allow P/100 Equip	(10) Illustration (A) Fig No	(10) (B) Item No
			NONE AUTHORIZED												

Section IV. FEDERAL STOCK NUMBER AND REFERENCE NUMBER INDEX

Stock Number	*Figure No.*	*Item No.*
1260-346-8644	5-2	5
1260-507-9490	5-3	4
1260-507-9491	5-3	1
1260-513-2182	5-1	8
1260-522-9965	5-1	14
1260-702-8399	5-4	2
1260-706-8069	5-1	5
1260-706-8073	5-1	11
1260-706-8074	5-2	3
1260-753-7546	5-6	9
1260-753-7547	5-6	5
1290-453-5624	5-5	16
1290-507-9520	5-1	13
5305-011-7625	5-4	1
5305-018-0156	5-5	13
5305-022-4975	5-1	1
5305-022-4975	5-5	12
5305-059-8263	5-5	1
5305-068-0513	5-4	5
5305-558-4181	5-7	1
5305-723-5387	5-6	10
5305-723-9396	5-1	4
5305-954-3938	5-3	2
5305-984-6193	5-1	6
5307-534-5706	5-6	11
5310-534-5718	5-3	5
5315-951-6906	5-1	12
5330-527-8900	5-2	1
5330-530-4468	5-4	S
5330-531-2364	5-1	10
5330-706-8072	5-2	4
5330-753-7551	5-4	7
5340-522-9963	5-1	8
5340-530-5624	5-3	8
5340-530-9427	5-4	4
5340-692-8927	5-1	9
5340-939-1095	6-7	3
5355-144-7213	5-3	4
5355-144-7215	5-3	7
5355-330-9597	5-3	7
5355-534-5713	5-1	7
5355-706-8064	6-2	6
5355-917-2697	5-1	2
5360-798-3827	5-8	4
6240-051-4843	5-5	11
6240-947-6074	5-5	11

Reference No.	*Mfr. Code*	*Figure No.*	*Item No.*
MS21262-69	96906	5-8	10
MS2536-323	96906	5-5	11
MS25236-8623	96906	5-5	11
MS35190-250	96906	5-3	2
MS35206-243	96906	5-5	7
MS35214-38	96906	5-5	1
MS35265-45	96906	5-1	6
MS35333-21	96906	5-5	8

Reference No.	*Mfr. Code*	*Figure No.*	*Item No.*
MS35671-17	96906	5-1	12
MS35671-39	96906	5-8	1
MS51963-49	96906	5-1	4
MS51963-63	96906	5-6	10
MS9048-140	96906	5-7	5
MS9048-140	96906	5-8	7
MS9048-191	96906	5-8	12
MS90727-6	96906	5-4	5
MS90728-59	96906	5-7	1
1054713-1	19207	5-7	7
10954707	19207	5-7	2
10954708	19207	5-8	14
10954709	19207	5-8	13
10954710	19207	5-4	11
10954712	19207	5-7	3
10954713-2	19207	5-8	9
10954714	19207	5-8	2
10954716	19207	5-1	2
10954717	19207	5-8	5
10954718	19207	5-8	3
10954719	19207	5-7	6
10954719	19207	5-6	8
11653612	19204	5-3	1
11653613	19204	5-3	4
11653614	19204	5-3	7
11653657	19207	5-5	15
117625	21450	5-4	1
142501	21450	5-6	8
142958	21450	5-6	4
180156	21450	5-5	13
224975	19207	5-1	1
224975	19207	5-5	12
506202	19207	5 6	9
532065	19207	6-5	5
6345706	19200	5-6	11
5345712	19207	5-1	8
5345713	19207	5-1	7
5345718	19207	5-3	5
5345720	19207	5-3	9
5345723	19207	5-3	8
5345726	19200	5-3	7
5345727	19200	5-4	7
5345922	19207	5-4	3
5345924	19207	5-4	4
6209551	19207	5-5	14
700026	21450	5-3	6
7028399	19207	5-4	2
7068048	19207	5-1	3
7068060	19207	5-3	3
7068061	19207	5-3	4
7068063	19207	5-3	1
7068064	19207	5-2	6
7068069	19207	5-1	5
7068070	19207	5-1	10
7068072	19207	5-2	4
7068073	19200	5-1	11

Reference No.	*Mfr. Code*	*Figure No.*	*Item No.*	*Reference No.*	*Mfr. Code*	*Figure No.*	*Item No.*
7068074	19207	5-2	3	7537558	19207	5-6	2
7069656	19207	5-2	1	7537559	19207	5-6	6
7089292	19207	5-5	3	7978441	19207	5-5	2
7387395	19207	5-5	10	7983827	19207	5-8	4
7537546	19200	5-6	9	8383335	19207	5-1	9
7537547	19200	5-6	5	8383922	19200	5-1	13
7537548	19207	5-6	1	8668651	19207	5-1	14
7537551	19207	5-4	7	8734407	1-207	5-2	5
7537554	19207	5-4	9				

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By Order of the Secretary of the Army:

HAROLD K. JOHNSON,
General, United States Army,
Chief of Staff.

Official:
J.C. LAMBERT,
Major General, United States Army,
The Adjutant General.

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PREVIOUS EDITIONS ARE OBSOLETE.

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

The Metric System and Equivalents

Linear Measure

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

Weights

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

Liquid Measure

1 centiliter = 10 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	1.365	metric tons	short tons	1.102
pound-inches	newton-meters	.11375			

Temperature (Exact)

^{o}F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	^{o}C