TM 9-1240-318-35

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST FOR

TELESCOPE, STRAIGHT: M120

(1240-930-4259)

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HEADQUARTERS
DEPARTMENT OF THE ARMY
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DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE MANUAL TELESCOPE, STRAIGHT: M120 (1240-930-4259) AND TELESCOPE, STRAIGHT: XM134 (1240-179-1155)

This manual is current as of 30 June 1971

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This publication contains instructions for the repair and overhaul of telescope, straight, M120, 1240-930-4259 and telescope, straight XM134, 1240-179-1155, and support equipment by direct support (DS), general support (GS), and depot maintenance shops.

b. These instructions are used in conjunction with and are supplementary to those in the operator's and organizational maintenance manual for the armored command and reconnaissance carrier M114A1E1 using the 20 mm Rapid Fire Weapons System for telescope, straight M120, and Gun AAA, SP 20 mm XM163 and Gun AAA, Towed 20 mm XM167 for telescope, straight XM134. 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 9-2320-224-10 for telescope, straight M120 and TM 9-2350-300-10 and TM 9-1005-286-10 for telescope, straight XM134. It may be necessary to refer to these manuals for complete procedures.

Note: In this manual, "the telescope" will refer to both telescopes unless otherwise noted.

1-2. Comments

DA Form 2028 (Recommended Changes to DA Publications) will be used for reporting discrepancies and recommendations for improving this equipment manual. The form will be completed by the individual using this publication and forwarded directly to Commanding Officer, Frankford Arsenal, ATTN: AMSWE-MAF-W3100, Philadelphia, Pa., 19137.

1-3. Maintenance Allocation and Parts

The maintenance allocation chart (MAC) in TM 9-2320-224-20 (telescope M120) and TM 9-2350-300-20 and TM 9-1005-286-20 (telescope) XM134) and repair parts and support equipment listed in appendix B 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. Straight tube telescope M120 (fig. 1-1) is used on the armored command and reconnaissance carrier M114A1E1 with 20 mm automatic gun M139. Straight tube telescope XM134 (fig. 1-1) is used with both the gun, AAA, SP, 20 mm XM163 and gun, AAA, towed 20 mm XM167. The telescopes are the direct fire control instruments used for positioning the weapon in deflection and elevation on targets visible from the weapon. Telescope M120 is mounted by means of a dovetail to a bracket and secured with a locking device located on mount, telescope M148. Telescope XM134 is secured by the same method on mount, telescope XM164.

b. The external parts of the telescopes are the same. They are located and identified in figure 1-1 as follows: A cap assembly (1) consisting of an optical glass window in a flexible rubber cap, fits over the front end of the telescope to protect the objective lens. A rubber eyeshield (2) fits over the rear end of the telescope to protect the eye of the observer. A light well (for instrument light) (3) contains a threaded stainless steel insert to accept the threads on the brass metal shield containing the lamp socket of the instrument light. A cap (4), used to cover the light well and prevent the entry of dirt, moisture, etc., when the instrument light is not in place, is fastened to the housing by a bead chain, secured by one of the screws holding the identification plate. The dovetail mounting plate (5) is located directly under the identification plate, secured by two socket head screws and two steel pins to the telescope housing. Two screws (6), one located in front, and the other located in back of the mounting plate, are used to close purging ports in the housing. After the assembled telescope has been purged and charged with dry nitrogen gas, these ports are sealed to eliminate moisture which may damage internal optics and metal parts.

c. The optical system (fig. 1-2) for both telescopes consists of the objective system, the reticle lens, the erector system, a diaphragm, eyepiece assembly, and illumination window. All the light transmitting surfaces of the optical components, with the exception of the reticle. are fluoride coated to increase light transmission through the instrument and to reduce internal reflections. A description of each optic in the system is as follows:

(1) *Objective assembly.* The objective lens assembly (1 through 3, fig. 1-2) is a three element air spaced triplet consisting of a double convex lens and an air spaced doublet. A negative field lens (4) mounted in front of the reticle is also part of the objective system. Light passing through the objective forms an inverted image of the distant object (target) at the reticle focal plane.

(2) *Reticle.* The reticle lens (5) serves as a collective member to direct the field rays to the center of the erector system, thus keeping the diameter of the erector lens to a minimum size. The reticle is a ballistic-type with etching on the plane surface of a plano-convex lens and is part of the erector system.

(3) *Erector assembly.* The erector assembly (6 through 9) consists of a double convex lens, two cemented doublets, and a second double convex lens. These lenses invert and revert the image (target) and project the erected image to the focal plane of the eyepiece assembly.

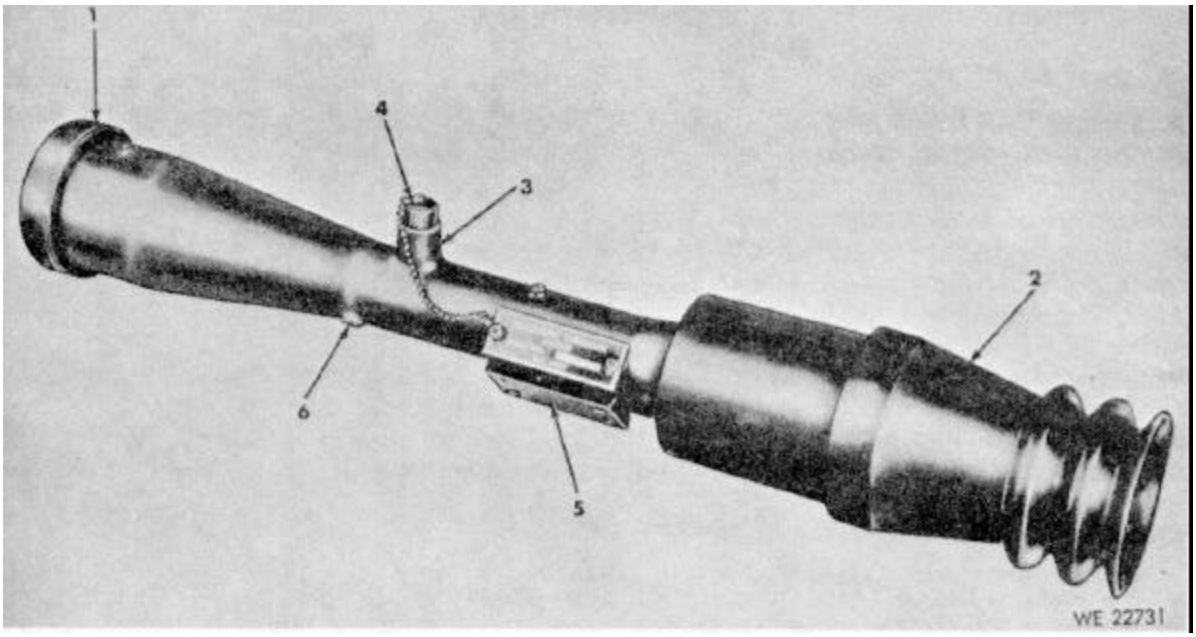
(4) *Diaphragm.* The diaphragm (13) acts as a field stop by blocking light rays that are not essential to the field-of-view.

(5) *Eyepiece assembly.* The eyepiece assembly (10 and 11) consists of a cemented doublet and a single element double convex eye lens. The eyepiece serves to magnify the image (target) and reticle pattern.

(6) *Illumination window.* The window (12) allows light from the instrument light M52E1 to illuminate the etching of the reticle.

d. Support equipment necessary for storage and operation of the telescope are as follows:

(1) A carrying case (fig. 10, located in appendix B) of molded, laminated, sheet plastic



1	Cap assembly	3	Light well	5	Dovetail
2	Eyeshield	4	Cap	6	Purging screws

Figure 1-1. Telescope, straight M120 and telescope, straight XM134.

with polyurethane foam padding on the inside, is provided to transport and store the telescope when not in use.

(2) An instrument light M52E1 used on telescope M120 only (fig. 11, located in appendix B) is used to provide illumination of the reticle in the telescope.

1-6. Data

a. Telescope.

(1) *Physical characteristics.*

Length (w/cap and eyeshield)	19 in
Width	2-3/4 in.
Height	2-3/4 in.
Weight	3 lb, 4 oz approx

(2) *Optical system.*

Magnification	6 power
Field-of-view	5 deg 12 min.
Effective focal length (EFL objective)	6.375 in.
Effective focal length (EFL eyepiece)	2.250 in.
Eye relief	3.50 in.
Diameter of exit pupil	.275 in.
Dioptral range (fixed)	-3/4 to -1.0 diopter

b. Carrying case.

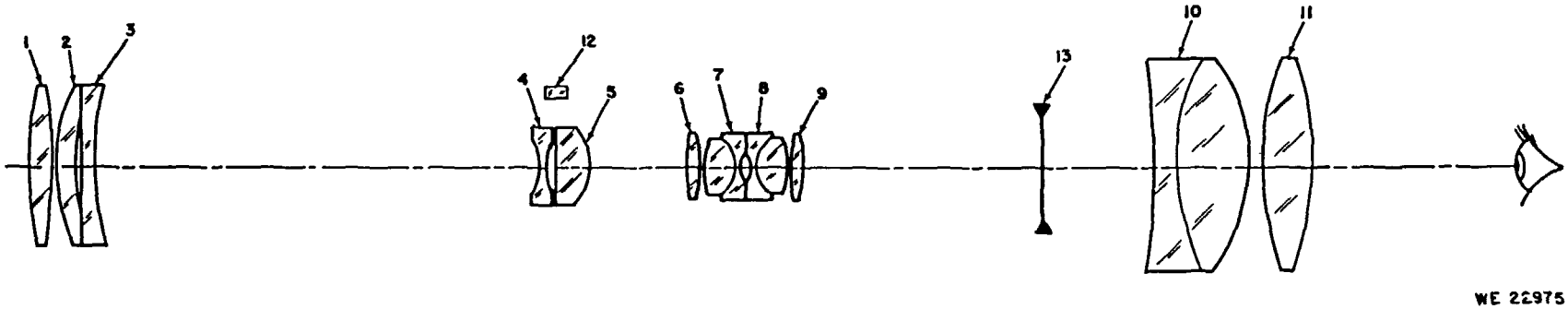
Length	21 in.
Width	6 in.
Height	4-1/2 in.
Weight	6 lb approx

c. Instrument Light M52 E1

Length (excluding lead)	7-1/4 in.
Diameter	1-7/8 in.
Diameter at rheostat	2-5/8 in.
Weight (without batteries)	3/4 lb approx
(one battery weight)	2-1/2 oz approx

d. Temperature Range.

Operable	-65°F to 160°F.
Storage	-80°F to 160°F.



1 Objective lens 10543448
2 Objective lens 10543450
3 Objective lens 10543451
4 Objective lens 10543452
5 Reticle 10543455 (M120)
or
Reticle 11728181 (XM134)
6 Erector lens 10543456
7 Erector lens 10543457
8 Erector lens 10543457
9 Erector lens 10543458
10 Field lens 1054359
11 Eye lens 10543454
12 Window 1240-087-7284
13 Diaphragm
14 Diaphragm 1054476

Figure 1-2. Optical system.

1-7. Differences Between Models

The difference between the M120 and XM134 telescopes is the reticle pattern. The patterns differ because of their end item application. When observed through the eyepiece, the reticle pattern in the M120 telescope is parallel to the base of the telescope dovetail. The XM134 telescope reticle pattern is positioned 90 degrees counterclockwise to the base of the telescope dovetail.

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

Table 2-1 lists the special tools and equipment which are necessary to perform the operations described in this manual. Special tool sets of a general nature are authorized by TA and TOE.

Table 2-1. Special Tools and Equipment

Item	Federal stock no.	Part no.	Reference Fig.	Reference Para.	Use
BAR, PARALLEL	5220-242-7514		3-1	3-10	Used in setting up fixture.
COLLIMATOR: projector	4931-757-3291	7573291	3-1	3-10	Used for final test and adjustment of telescope.
DIOPTOMETER	4931-536-5557	7680631	---	5-6	To set and check eyepiece focus.
FIXTURE, PRESSURE TEST	4931-065-2018	8565556	5-1	5-26	For purging and charging and performance of pressure and leakage test of instrument. (Depot)
GAGE, HEIGHT, VENIER	5210-132-5689		3-1	3-10	Used in setting up fixture.
GAGE, SURFACE	5210-221-1842		3-2	3-10	Used to mount holder telescope.
GUN: hydraulic	4931-764-8134	7648134	---	5-7	To inject sealing compound.
HOLDER TELESCOPE	4931-612-1110	6121110	3-2	3-10	Used to plumb collimator, projector.
INDICATOR, DIAL	5210-277-8840	8039138	3-1	3-10	Used in setting up fixture.
KIT, ADAPTER ASSEMBLY	4931-936-4283	10552433 (No. 8-32 UNC-2A)	5-1	5-26	To connect hose assembly for purging and charging operation.
NITROGEN TECHNICAL: tank	6830-264-9086		5-1	5-26	Container with dry nitrogen gas used in purging and charging operations.
PLATE, ANGLE	4931-886-1222	7902771	3-1	3-10	Used in setting up fixture.
PURGING KIT, FIRE CONTROL	4931-065-1110	SC 4931-95-CL-J54			
ADAPTER, NITROGEN FILLING	4931-508-5453	7680682	5-1	5-26	Connects regulator to nitrogen tank when purging and charging.

Table 2-1. Special Tools and Equipment-Continued

Item	Federal stock no.	Part no.	Reference Fig.	Reference Para.	Use
REGULATOR, NITROGEN PRESSURE	4931-558-0922 or 6685-724-9744	5580922 or 11729749	5-1	5-26	To control the flow of nitrogen during purging and charging.
TELESCOPE: collimating	4931-554-9108	5549108	3-2	3-10	Used to aline or verify alinement of final test fixture.
TESTER: vibration	4931-536-5555	7560085	2-1	5-16	To simulate shock conditions after instrument has been repaired. (Depot)
WRENCH SET, SPANNER	4931-580- 0012	5800012	---	5-9	To remove and install cell and retaining rings.

2-3. Universal Vibration Tester

a. The universal vibration tester (fig. 2-1) is a motor-driven vibrator which uses a mounting adapter for mounting the telescope. It is used to simulate conditions of shock and handling that the telescope would receive in normal use, determines that all parts are secure, and reveals loose dirt, which would affect the efficient operation of the telescope.

b. Amplitude and frequency of the vibrator are adjusted as required by the specifications for the telescope. Frequency of vibration of the tester is controlled by adjusting the speed of rotation indicated on the frequency meter. This is accomplished by adjusting the belt-driven variable speed pulley by means of its handwheel. Amplitude is adjusted by the tee-handled screw on the side of the tester. Refer to instruction plates and caution plates attached to the vibration tester. A timer switch, wired into the electrical circuit, is set for the time of vibration required.

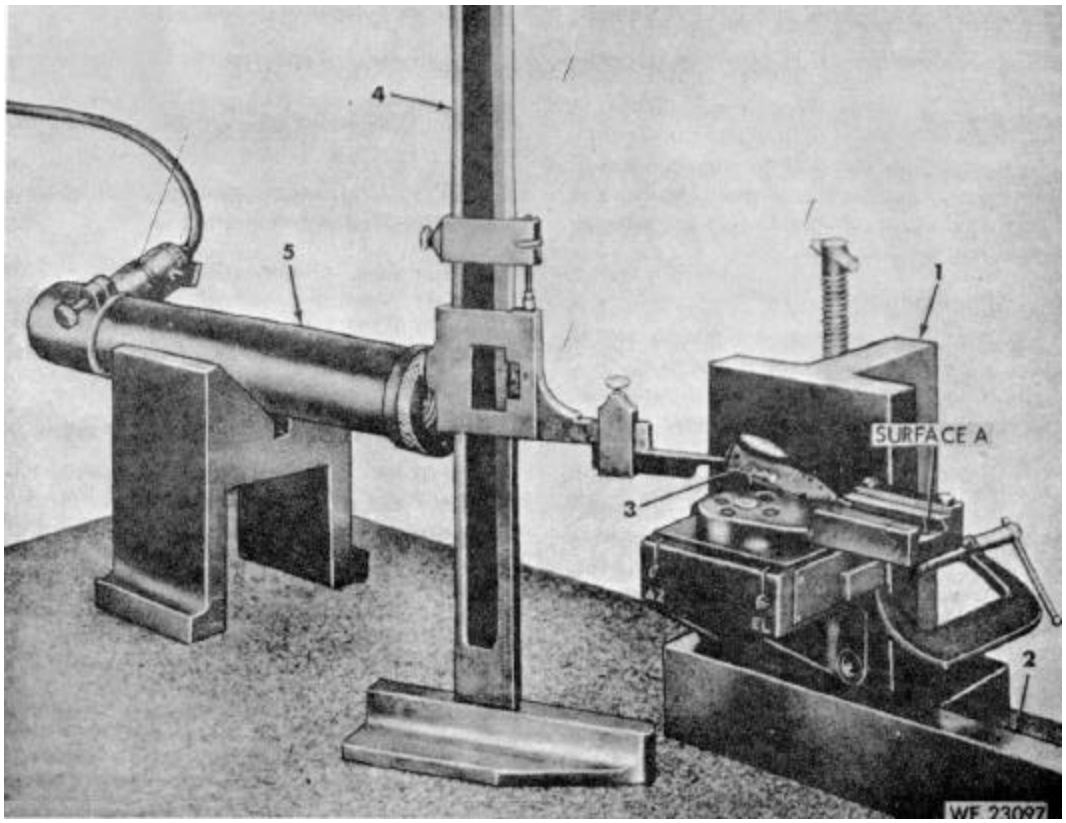


Figure 2-1. Universal vibration tester 4931-536-5555.

CHAPTER 3

INSPECTION

Section I. GENERAL

3-1. Scope

This chapter sets forth inspection of the telescope m the using position and in maintenance shops.

3-2. Purpose

Inspection is performed primarily, (1) to determine completeness, (2) to determine completeness, (2) to determine the nature of unserviceability, (3) to determine the work, repair parts, and supplies required 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 telescope 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 telescope is installed and mounted in position on its respective weapon system.

3-5. Modification Work Orders (MWO)

All applicable modification work orders will be applied. DA Pamphlet 310-7 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. All assemblies and component parts shall be present and securely fastened. There shall be no evidence of chipping, cracking, blistering, bruising, splotches, overall paint discoloration, bare spots, or damage which expose base metal.

b. The dovetail mounting surfaces will not be damaged in any way that would prevent proper seating of the telescope in its mount.

c. Numbers and letters on identification plate will be clearly defined.

d. The rubber eyeshield and cap will be free from deterioration, cuts, or tears.

e. The reticle illumination window will not be broken and will be sealed and fastened securely in the telescope housing. The threads for accepting the instrument light will be free from nicks, burrs, and paint.

3-7. Inspection of Optical Components

a. When looking through the eyepiece or objective ends of the telescope, there will be no objectional dirt, smears, scratches, digs condensate, fungus growth, chips, fractures, or cement separations that would interfere with or effect the optical performance of the telescope.

Note. Optical instruments will not be rejected for defects which can be detected only by shading or shadowing technique. When inspecting through the eyepiece end of the telescope, rejection is based only on those defects which are apparent when the instrument is used in a manner simulating field conditions. Shadowing is the technique of looking into the eyepiece or objective end of an instrument obliquely so as to obtain reflections from a particular surface in the optical system. With this method, the surfaces of lenses and the reticle are dark grey in appearance and all defects such as condensate, scratches, etc. show up as white particles.

Section III. INSPECTION IN DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE SHOPS

3-8. General

This section sets forth the procedure to be followed by maintenance shops in performing inspection of the telescope when removed from the end item and turned-in to the shop for repair.

3-9. Initial Inspection

Refer to paragraphs 3-3 through 3-7.

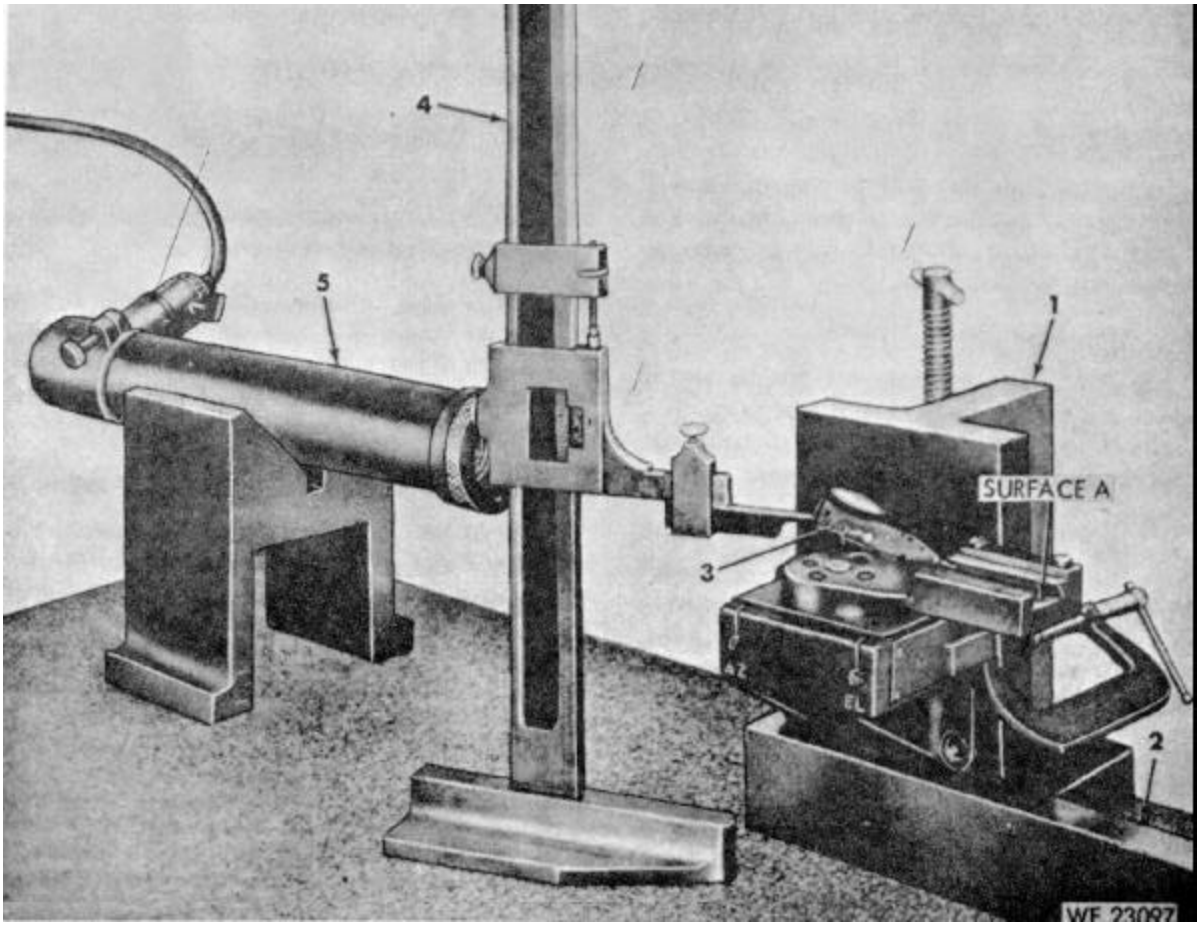
Note. If after inspection the telescope requires repair that is not within the scope of direct support maintenance shops it will be forwarded to a higher level maintenance shop.

3-10. Setup of Testing Fixture For General Support and Depot Maintenance Shops

Note. In order to perform setup procedures it will be necessary to use the telescope M120 together with mount, telescope M148 and telescope XM134 together with mount, telescope XM164.

a. Place an angle plate (1, fig. 3-1) on a leveled surface table and secure with a "C" clamp.

b. Place a parallel bar (2, fig. 3-1) on surface table and against angle plate.



1 Angle plate 4931-886-1222
2 Parallel bar 5220-242-7514
3 Dial indicator 5210-277-8840
4 Venier height gage 5210-132-5689
5 Projector collimator 4931-757-3291

Figure 3-1. Setup of testing fixture.

Note. Prior to positioning mount, telescope M148 or mount, telescope XM164 on top of parallel bar, make certain mating surfaces of mount are clean and free of paint.

c. Position mount, telescope M148 or mount, telescope XM164 on top of parallel bar and against angle plate. Secure mount to angle plate with a "C" clamp.

d. Loosen the mount azimuth locking screw. Place screwdriver in the screw slot on the "AZ" worm and turn from stop-to-stop. Note how much the worm has traveled. Position worm in the center of its mechanical travel. Lock in position by tightening the azimuth locking screw.

e. Loosen the mount elevation locking screw. Place screwdriver in the eccentric "EL" screw slot and turn from stop-to-stop. Note how much the screw has traveled. Position the screw in the center of its mechanical travel. Lock in position by tightening the elevation locking screw.

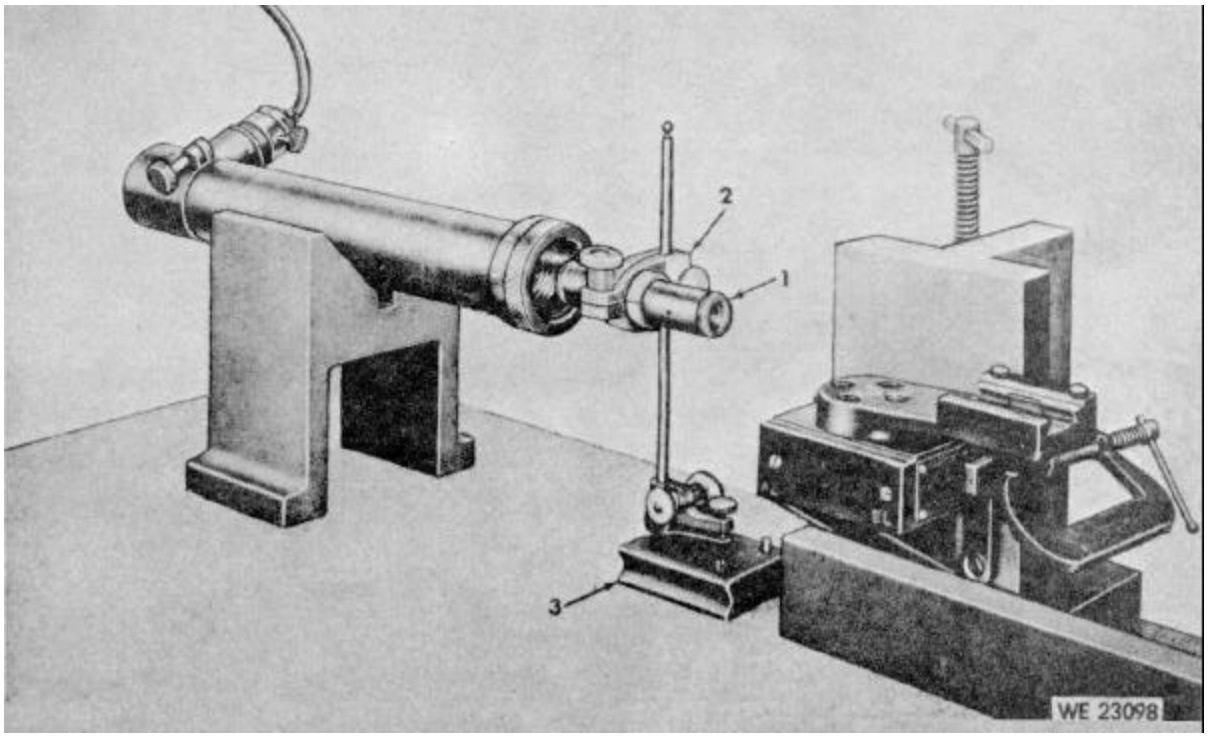
f. Attach dial indicator (3, fig. 3-1) to height gage (4, fig. 3-1), with dial indicator against surface "a". Move the height gage, along the entire length of surface "A" and note whether dial of dial indicator has moved. Surface "A" must be precision leveled; if not, then loosen the mount elevation locking screw and rotate the "EL" eccentric -a small amount until surface "A" is leveled.

g. Position projector collimator (5, fig. 3-1) approximately seven inches high and approximately nine inches in front of the mount. (Use a "V" block, or equivalent holding device, to mount projector collimator.) Set the projector collimator to 1000 meters by rotating the knurl knob.

h. Secure collimating telescope (1, fig. 3-2) to telescope holder (2, fig. 3-2) and surface gage (3, fig. 3-2).

i. Plumb the collimating telescope to a plumb line and lock in position.

j. Place the collimating telescope in front of the projector collimator. Sight through the collimating telescope and rotate the projector



1 Collimating telescope 4931-554-9180 2 Telescope holder 4931-612-1110 3 Surface gage 5210-221-1842

Figure 3-2. Setup of testing fixture.

collimator until the vertical centerline of the projector commator reticle is parallel to the reticle in the collimating telescope.

k. Position telescope (fig. 3-3) into dovetail of mount and secure with locking lever.

l. Sight through the telescope eyepiece. Note whether the telescope 800 meter reticle line and center vertical reticle line (geometric axis of reticle) are in coincidence with the horizontal and center vertical reticle lines of the projector collimator; if not, aline by moving the projector collimator holding device and if necessary place shims under the legs of holding device until the projector collimator reticle is in alinement with the telescope reticle. Ensure that the projector collimator is not rotated during the above alignment.

3-11. Eyepiece Focus

The eyepiece setting must read between -3/4 and -1 diopter when the reticle, at the center of the field, is at sharp focus with the aid of dioptometer, 4931-536-5557, focused at infinity.

3-12. Definition

The image will be sharp and clear at the center of the field. Definition will be checked with the aid of a dioptometer.

3-13. Collimation

With the objective cap removed, the line of sight through the geometric axis of the reticle pattern shall be parallel to the axis of the longitudinal and horizontal planes of the dovetail within ±5.0 mils in azimuth and ±4.0 mils in elevation.

3-14. Parallax

Parallax shall not exceed 0.10 mil (thickness of reticle line) when viewing a target at 1000 meters.

3-15. Reticle Plumb

A line defined by the interrupted range line, located nearest the geometric axis of the reticle pattern (800 meter range line), shall be parallel within 2.0 degrees of arc to the image of a target line parallel to the horizontal plane of the dovetail for telescope M120, or 1.4 mils over entire

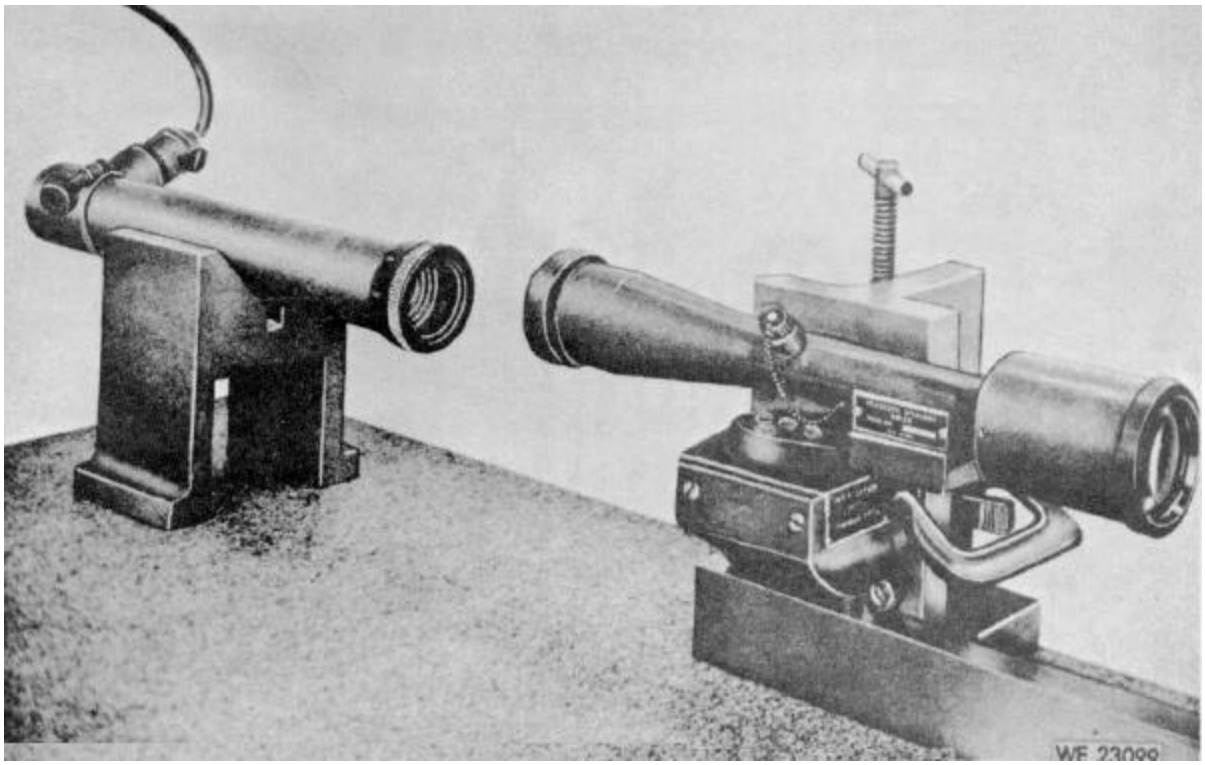


Figure 3-3. Setup of testing fixture.

length of range line when viewing a test target or standard collimator reticle. For telescope XM134 (reticle pattern rotated 90 degrees counterclockwise from that of telescope M120) the interrupted range line, located nearest the geometric axis of the reticle pattern (800 meter range line), shall be parallel within 2.0 degrees of arc to the image of a target line perpendicular to the horizontal plane of the dovetail, or 1.4 mils over entire length of range line.

3-16. Reticle Accuracy

The optical elements in the assembled telescope will be so adjusted that the angular value between the boresighting cross and the 2000 meter range line of the telescope shall be 18.6 mils, ±0.6 mil for telescope M120 and 36.95 mils ±0.6 mil for telescope XM134 when checked against a testing target or collimator reticle having an accurately graduated angular scale.

3-17. Reticle Illumination

With instrument light; M52E1 or an equivalent properly mounted, the reticle will appear clearly defined when observed in a dark area.

3-18. Vibration Test. (Depot Maintenance Only)

With the mount telescope M148 or mount telescope XM164 secured on the universal vibration tester (fig. 2-1) and telescope M120 or telescope XM134 secured to its respective mount, vibrate for 15 seconds at an amplitude of 1/16-inch (1/8-inch total movement) and at a frequency of 30 cps. There shall be no evidence of physical failure, such as glass breakage, loosening of parts, and binding or sealing.

3-19. Sealing

Check that all screws, cells, and retaining rings are adequately sealed.

3-20. Purging and Charging. (Depot Maintenance Only)

Check that telescope has been purged and charged and that no leaks are present.

CHAPTER 4

TROUBLESHOOTING

Section I. GENERAL

4-1. Purpose

Troubleshooting is a systematic isolation and remedy of malfunctions and defective components by 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 telescope 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 9-2320-224-20 for telescope M120 and TM 9-2350-300-20 and TM 9-1005-286-20 for telescope XM134.

Section II. TROUBLESHOOTING

4-3. General

The troubleshooting procedures describe possible malfunctions and the necessary corrective actions.

4-4. Procedure

Table 4-1 describes the troubleshooting procedures.

Table 4-1. Troubleshooting

Malfunction	Probable cause	Corrective action	Lowest maintenance category
Target blurred or foggy	Dirt or finger prints on optics	Clean with lens tissue moistened with alcohol.	DS
Condensation on internal optics	a. Improperly sealed.	a. Reseal, purge, and charge (para 5-26).	Depot
	b. Defective preformed packing.	b. Replace packing (para 5-6).	DS
Parallax between target and reticle	a. Objective cell loose in housing.	a. Remove parallax and secure cell in housing (para 5-8).	GS
	b. Objective lens loose in cell.	b. Tighten lens in cell and check parallax (para 5-8.)	GS
Reticle not sharp and clear	Eyepiece not adjusted properly.	Adjust and secure eyepiece (para 5-6).	GS
Reticle not plumb	a. Reticle loose in cell.	a. Tighten reticle in cell and plumb reticle (para 5-11).	GS
	b. Reticle cell loose in housing.	b. Plumb reticle (para 5-10).	GS

Table 4-1. Troubleshooting - Continued

Malfunction	Probable cause	Corrective action	Lowest maintenance category
Poor or no reticle illumination	a. Burned out lamp or defective batteries in instrument light.	a. Replace lamp or batteries (para 6-6).	DS
	b. Reticle cell loose in housing.	b. Aline and secure reticle cell in housing (para 5-10).	GS
	c. Reticle not properly alined in cell.	c. Aline reticle in cell and plumb (para 5-10).	GS
Collimation error	a. Telescope dovetail not secured in mount.	a. Secure Telescope in mount by locking clamping lever.	DS
	b. Dirt, nicks, or paint on dovetail.	b. Clean and remove nicks or paint on dovetail (para 5-14).	DS
Reticle accuracy exceeds tolerances	Erector system improperly alined.	Aline erector system properly (para 5-11).	GS

CHAPTER 5

REPAIR AND OVERHAUL

Section I. GENERAL

5-1. Scope

This chapter contains detailed instructions for the repair and overhaul of the telescope.

Note. This manual contains exploded-view illustrations which depict the complete disassembly of the material. This should not be construed as authority to disassemble material beyond that required to perform operations authorized on the MAC or to replace parts other than those authorized in the applicable columns in appendix B.

5-2. Parts Replacement

In subsequent paragraphs, it is understood that authorized parts damaged beyond repair are to be replaced.

5-3. General Maintenance Procedures

Refer to TM 9-254.

5-4. Rescinded

5-5. Cleaning

Refer to TM 9-208-1.

Section II. REPAIR

5-6. Replacement of Eyeshield 1240-087-7281, Cap Assembly 1240-087-7282, Eyepiece Cell Assembly 1240-891-1289, and Gasket 1240-891-4540

Note. Item numbers shown below refer to figure 1, located in appendix B.

a. Removal.

(1) Remove eyeshield (1) from telescope.

(2) Remove cap assembly (2) from objective end of telescope. Remove window (2A) from cap (2B).

(3) Remove screw (3) securing the eyepiece cell assembly (4) and unscrew cell assembly from telescope.

(4) Remove gasket (5) from telescope.

b. Inspection.

(1) Inspect the general condition of the eyeshield. Check for wear, cuts, tears, or loss of elasticity.

(2) Inspect cap for wear, cracks, loss of tension, and other signs of unserviceability.

(3) Check window for loss of coating, chips, cracks, or scratches that would interfere with performance.

(4) Inspect the cell assembly for dents or damaged threads.

(5) Check exterior optics for loss of coating, scratches, or digs.

(6) Inspect gasket for breaks, damage, or deterioration that would prevent a good seal.

c. Repair. Remove small chips or fractures from window that will interfere with performance by using a fine abrasive stone.

d. Assembly. Install window (2A) in place on cap (2B) and clean both sides of window thoroughly.

e. Installation.

(1) Install gasket (5) in place on telescope.

(2) Clean exterior optics and screw the eyepiece cell assembly (4) in place on telescope.

(3) Eyepiece cell assembly will be secured

with screw (3) after test and adjustment below has been completed.

(4) Install cap assembly (2) into groove on objective end of telescope.

(5) Install eyeshield (1) in place on eyepiece end of telescope.

f. Test and Adjustment.

(1) Eyepiece focus.

(a) Use dioptometer 4931-536-5557 and adjust eyepiece until the dioptometer reticle is sharp to the observers eye. Set the objective tube of dioptometer between -0.75 to 1.0 diopter.

(b) Place dioptometer against the eyepiece of telescope. Sight through dioptometer and observe if the reticle pattern of telescope is at its sharpest focus; if not, rotate eyepiece clockwise or counterclockwise until this requirement is attained.

(c) Secure eyepiece cell assembly with screw (3) and lock with varnish, MIL-V-173.

5-7. Disassembly of Cell Assembly 1240-891-1289

Note. Item numbers shown below refer to figure 2, located in appendix B.

a. Removal.

(1) Using tubular spanner wrench, 4931-580-0012 unscrew retainer (1).

(2) Remove items 2 through 4 from cell (5).

Note. Use care in removing retainer and eyelenses since they are sealed with sealing compound, adhesive curing, MIL-S-11031, 8030-275-8110.

b. Inspection.

(1) Inspect retainer for damaged threads.

(2) Check lenses for chips, digs, or scratches.

(3) Check fluoride coating for excessive deterioration.

(4) Inspect the cell for dents, damaged threads, scratches and bare spots that may lead to corrosion.

c. Repair.

(1) Remove small chips or fractures on lenses that will interfere with performance by using a fine abrasive stone.

(2) Touchup cell, as required, using olive drab paint, 8010-598-5936.

d. Cleaning.

(1) Clean all lenses thoroughly using the materials specified in TM 9-254.

(2) Remove all traces of sealing compound from interior of cell with cleaning solvent 6850-336-8170.

e. Assembly.

(1) Since the presence of a film of grease reduces adhesion all interior surfaces of the cell and its components must be thoroughly cleaned before assembling and sealing.

(2) Assemble items 4 through 2 and install in cell (5). Install and secure retainer (1) using tubular spanner wrench.

f. Sealing. Using hydraulic guns 4931-764-8134, inject sealing compound, MIL-S-11031, into the two injection ports of cell (5), and add a small amount of sealing compound around the outer edge of retainer (1), thereby locking the ring in place.

Note. Use care when using sealing compound on retainer so as not to get any compound on the lenses.

5-8. Replacement of Cell Assembly 1240-891-1287 and Gasket 1240-891-4539

Note. Item numbers shown below refer to figure 3, located in appendix B.

a. Removal.

(1) Remove two screws (1) securing objective cell assembly (2). Remove cell assembly using tubular spanner wrench.

(2) Remove gasket (3).

b. Inspection.

(1) Inspect the cell for dents or damaged threads.

(2) Check exterior optics for loss of coating, scratches, or digs.

(3) Inspect gasket for breaks, damage, or deterioration that could prevent a good seal.

c. Installation.

(1) Install gasket in place on interior of telescope tube.

(2) Clean exterior optics and screw cell assembly in telescope tube.

(3) Objective cell assembly will be secured after test and adjustment below has been completed.

d. Test and Adjustment of Parallax.

(1) With the fixture setup as outlined in paragraph 3-10, place the telescope in the dovetail of mount and secure in place with locking lever.

(2) View through eyepiece and move head from side to side and observe if there is any apparent movement between the projector collimator reticle and the telescope reticle lines at the center of the field. Parallax must not exceed 0.1 mil (thickness of reticle line).

(3) If parallax exceeds 0.1 mil of the center of the field, rotate objective cell assembly in or out until parallax does not exceed 0.1 mil.

(4) Place a small amount of sealing compound, MIL-S-11031, on the threads of screws (1) and secure cell assembly (2).

5-9. Disassembly of Cell Assembly 1240-891-1287

Note. Item numbers shown below refer to figure 4, located in appendix B.

a. Removal

(1) Using tubular spanner wrench, unscrew retainer (1).

(2) Remove items 2 through 5, from cell (6).

Note. Use care in removing retainer (1) and lens (2) since they are sealed with sealing compound, MIL-S-11031.

b. Inspection.

(1) Inspect retainer for damaged threads.

(2) Check lens for chips, digs, or scratches.

(3) Check fluoride coating for excessive deterioration.

(4) Inspect the cell for dents and damaged threads.

c. Repair. Remove small chips or fractures from lenses that will interfere with performance by using a fine abrasive stone.

d. Cleaning.

(1) Clean all lenses thoroughly using the materials specified in TM 9-254.

(2) Remove all traces of sealing compound from cell, spacer, and retainer with cleaning solvent, 6850-336-8170.

e. Assembly.

(1) Since the presence of a film of grease reduces adhesion the cell and its components must be thoroughly cleaned before assembling and sealing.

(2) Assemble items 5 through 2. Install and secure retainer (1) using tubular spanner wrench.

f. Sealing. Using sealing compound gun 4931-508-5428, inject sealing compound, MIL-S-11031, into the sealing ports of cell. Lock retainer (1) in place by placing a small amount of sealing compound around its outer edge.

5-10. Replacement of Cell Assembly 1240-891-1288 (M120 only) or Cell Assembly 1240-483-1171 (XM134 only)

Note. Item numbers shown below refer to figure 5, located in appendix B.

a. Removal.

(1) Remove diaphragm (1) using tubular spanner wrench.

(2) Remove the two set screws (2) securing cell assembly (3). Remove cell assembly from tube using tubular spanner wrench.

b. Inspection.

(1) Inspect diaphragm for damaged threads.

(2) Inspect the cell for dents or damaged threads.

(3) Check exterior optics for loss of coating, scratches, or digs.

c. Installation.

(1) Clean exterior optics and install cell assembly in telescope tube. Cell assembly will be secured after test and adjustment below has been completed.

(2) Install diaphragm and secure in place by placing a small amount of sealing compound, MIL-S-11031, around the outer edge to lock in position.

d. Test and Adjustment of Reticle Plumb.

(1) With the fixture setup as outlined in paragraph 3-10 and the telescope completely assembled, place the telescope in the dovetail of the mount and secure in place.

(2) Sight through the telescope and observe if the telescope reticle pattern (800 meter range line) is parallel to the fixture collimator reticle pattern within the thickness of a reticle line; if not, remove two screws and insert a pointed tool through one of the screw holes (for cell assembly) and while viewing through the

eyepiece, rotate cell assembly a small amount until the above conditions are attained.

(3) Place a small amount of sealing compound, MIL-S-11031, on the threads of screws (2) and lock cell assembly in place.

(4) Check parallax test and adjustment in paragraph 5-8*d*.

5-11. Disassembly of Cell Assembly 1240-891-1288 M120 only) or Cell Assembly 1240-483-1171 (XM134 only).

Note. Item numbers shown below refer to figure 6, located in appendix B unless otherwise indicated.

a. Removal.

(1) Remove retainer (1) using tubular spanner wrench.

Note. Use care in removing components of cell and cell assembly since they are sealed with sealing compound, MIL-S-11031.

(2) Remove items 2 and 3 from cell (6).

(3) Prior to removal of reticle (4) note position of the reticle in relation to the illumination slot of cell (6). Remove reticle from cell.

(4) Remove cell assembly (5) using tubular spanner wrench.

(5) Using tubular spanner wrench remove retainer (1, fig. 7, located in appendix B).

(6) Remove items 2 through 7 from cell (8, fig. 7 located in appendix B).

b. Inspection.

(1) Inspect retainers for damaged threads.

(2) Check lens for chips, digs, or scratches.

(3) Check that the lines of reticle pattern are sharp, distinct, and numbers legible.

(4) Check fluoride coating for excessive deterioration.

(5) Inspect the cells for dents or damaged threads.

c. Repair. Remove small chips or fractures from lenses that will interfere with performance by using a fine abrasive stone.

d. Cleaning.

(1) Clean all lens thoroughly using the materials specified in TM 9-254.

(2) Remove all traces of sealing compound from cells and retaining rings with cleaning solvent, 6850-336-8170.

e. Assembly.

(1) Since the presence of a film of grease reduces adhesion, the cell and its components must be thoroughly cleaned before assembling and sealing.

(2) Assemble items 7 through 2 into cell (8, fig. 7 located in appendix B). Place sealing compound, MIL-S-11031, on threads of retainer (1, fig. 7 located in appendix B) and secure retainer in place using tubular spanner wrench.

Note. Item numbers shown below refer to figure 6, located in appendix B.

(3) Install reticle (4) in cell (6) etching towards the objective and position reticle so that the vertical etched lines and the horizontal 800 meter line straddle the illumination hole of the cell.

(4) Install items 3 and 2 and secure with retainer (1) using tubular spanner wrench.

(5) Place a small amount of sealing compound, MIL-S-11031, on the threads of cell assembly (5) and install cell assembly into cell (6).

f. Sealing.

(1) Using sealing compound gun inject sealing compound, MIL-S-11031, into the sealing ports of cell (6) thereby locking the reticle (4) and cell assembly (5) in place.

(2) Lock retainer (1) in place by placing a small amount of sealing compound around its outer edge.

Note. The test and adjustment below will have to be performed immediately so that cell assembly (5) can be rotated within cell (6) before the sealing compound is cured. In order to complete the test and adjustment below, the telescope must be completely assembled.

g. Test and Adjustment of Reticle Accuracy.

(1) With the fixture setup as outlined in paragraph 3-10 and the telescope completely assembled, place telescope in the dovetail of mount and secure in place.

(2) Prior to checking for reticle accuracy, check parallax test and adjustment in paragraph 5-8*d*.

(3) Sight through the telescope and observe if the angular value between the boresight cross and the 2000 meter range line of the telescope reticle is 18.6 mils, ±0.6 mil for telescope M120 or 36.95 mils ±0.6 mil for telescope XM134 when checked against the fixture collimator reticle pattern.

(4) If the reticle accuracy is under or over the tolerance specified in (3) above, remove the eyepiece assembly and insert a tubular spanner

wrench so that only the inner cell assembly (5, fig. 6) can be rotated.

(5) Rotate the inner cell assembly (clockwise or counterclockwise) a small amount. Place the eyepiece assembly back on the telescope and again check the angular value of the telescope reticle as specified in (3) above.

(6) If still not within the specified tolerance then repeat (4) and (5) above until the conditions outlined in (3) above are attained.

(7) After reticle accuracy test and adjustment have been completed, check and adjust for reticle plumb as described in paragraph 5-10*d*.

h. Test and Adjustment of Reticle Illumination. With an instrument light, M52E1 equivalent, properly mounted, the etched graduations of the telescope reticle will appear clearly defined when observed in a dark room.

5-12. Replacement of Plug 4730-893-5885, Adapter 1240-891-4541, Window 1240-087-7284, and Chain 4010-016-8704

Note. Item numbers shown below refer to figure 8 located in appendix B.

a. Removal.

(1) Remove screws (1 and 2) and remove chain (3).

(2) Remove items 4 through 7.

Note. Use care in removing window (7) from telescope light well since it is sealed with sealing compound, MIL-S-11031.

b. Inspection.

(1) Check plug and adapter for damaged threads.

(2) Check window for chips, digs, or scratches.

c. Repair. Remove small chips or fractures from window that will interfere with performance by using a fine abrasive stone.

d. Installation.

(1) Place window in light well and secure in place by placing a small amount of sealing compound, MIL-S-11031, around the outer edges of window.

(2) Install items 6 through 4. Secure chain (3) with screws (2 and 1).

5-13. Repair of Identification Plate 10543495 (M120) or 11728182 (XM134)

Note. Item numbers shown below refer to figure 8 located in appendix B.

a. Removal. Remove screws (1 and 8) and remove identification plate (9).

b. Inspection. Inspect identification plate. Letters and numbers should be clear, complete, and legible. Plate should be free of paint splotches and show no signs of corrosion.

c. Installation. Install plate and secure with two screws (1 and 8). Lock screws with varnish, MIL-V-173.

5-14. Repair of Dovetail 10543489

Note. Item numbers shown below refer to figure 9 located in appendix B.

a. Removal.

(1) Remove purging screws (1).

(2) Remove items 2 through 4 from housing (6). Remove pin (5) if damaged.

b. Inspection. Inspect the mounting surface of the dovetail for burrs, paint, or other deformities that will prevent proper seating of dovetail into telescope mount.

c. Repair. Remove burrs from dovetail with a fine file.

d. Installation. Install items 5 through 1 on housing (6).

Section III. FINAL TEST AND ADJUSTMENT

5-15. General

Final test and adjustment is performed after overhaul has been completed to ensure that the telescope is serviceable according to established serviceability standards. Any items containing defects disclosed by the final inspection will be returned to the maintenance shop for repair or adjustment.

5-16. Vibration

Note. To vibrate the M120 or XM134 telescope, either the mount, telescope M148 or mount, telescope XM164 can be used for securing the telescope.

a. Place mount, telescope M138 or mount, telescope XM164 on vibration fixture mounting plate and secure in place. Place the telescope in the dovetail of mount and secure in place with locking lever.

b. Prior to other inspection operations, perform the vibration test of telescope as outlined in paragraph 3-18.

5-17. Eyepiece Focus

Refer to paragraph 5-6*f*.

5-18. Parallax

Refer to paragraph 5-8*d*.

5-19. Reticle Plumb

Refer to paragraph 5-10*d*.

5-20. Reticle Accuracy

Refer to paragraph 5-11*g*.

5-21. Reticle Illumination

Refer to paragraph 5-11*h*.

5-22. Collimation

a. With the fixture setup, as outlined in paragraph 3-10, place the telescope in the dovetail of its respective mount and secure in place.

b. Sight through the telescope and observe if the line of sight through the geometric axis of the telescope reticle pattern (800 meter range line) is within ±5.0 mils in azimuth and ±4.0 mils in elevation to the geometric axis of the fixture collimator reticle pattern.

c. If the line of sight (800 meter range line) exceeds the tolerance specified in *b* above, check the dovetail (4, fig. 9, located in appendix B) for proper seating of telescope. Remove any burrs that would prevent proper mating of dovetail mounting flange on to mating dovetail of fixture mount.

Section IV. SEALING, PURGING, AND CHARGING

5-23. Sealing

Sealing is a process of creating an airtight instrument that will retain a desired amount of dry nitrogen over a period of time. Two types of seals are used; preformed packing and sealing compound.

a. Preformed packing is a rubber O ring compressed into a slot and allowed to expand against a mating surface.

b. Sealing compound, MIL-S-11031, is used to seal and lock all screws and rings authorized for replacement at direct support, general support, and depot maintenance levels.

5-24. Purging

Purging is a procedure which eliminates the moisture content and contaminated air locked inside of a sealed instrument by introducing dry nitrogen gas into the interior of the instrument housing and allowing it to escape by means of a vent at the opposite end of the instrument.

5-25. Charging

Charging is a process of forcing dry nitrogen gas into a sealed optical instrument at a prescribed pressure for the purpose of minimizing internal condensation or fogging due to external temperature changes.

5-26. Purging and Charging. (Depot Maintenance ONLY)

Note. Key numbers below refer to figure 5-1.

a. Place a tank of dry nitrogen (1) in back of the pressure test fixture (2) and secure. Remove threaded cover from the valve outlet of tank. Open tank valve (3) momentarily to rid the valve scat of any foreign matter.

b. Check adapter (4) for cleanliness and proper sealing of gasket. Securely attach this adapter to the tank valve and then attach pressure regulator (5) to adapter. Connect the pressure line to the pressure regulator and ensure that all connections are tightened to prevent leakage.

c. Remove cap from snap-type coupler and connect hose assembly (6) to valve outlet by means of the snap-type coupler.

d. Turn the pressure regulator valve counterclockwise to the closed position. Open the nitrogen tank valve slowly until pressure is registered on the high pressure gage (7).

Note. Tank pressure must exceed 100 psi. If the registered pressure is less than 100 psi, obtain and use a replacement tank.

e. Open valve knob (9) located under the outlet valve gages (10).

f. Slowly turn the pressure regulator valve clockwise until approximately 5 psi is registered on the low pressure gage (11). Adjust outlet valve (8) until 5 psi is registered on outlet valve gage. Check free end of the attached hose assembly for free flow of nitrogen for approximately ten seconds; then close valve knob to stop the flow of nitrogen.

g. Remove the purging screws (12 and 13) and insert threaded purging adapter (14) to the purging screw hole. Connect free end of hose assembly to purging adapter.

h. Open valve knob and allow nitrogen to flush through the telescope at this pressure for five minutes.

i. Close valve knob and replace purging screw (12) on telescope. Open valve knob to permit nitrogen to flow into the instrument and continue to charge the telescope at 5 psi for two minutes.

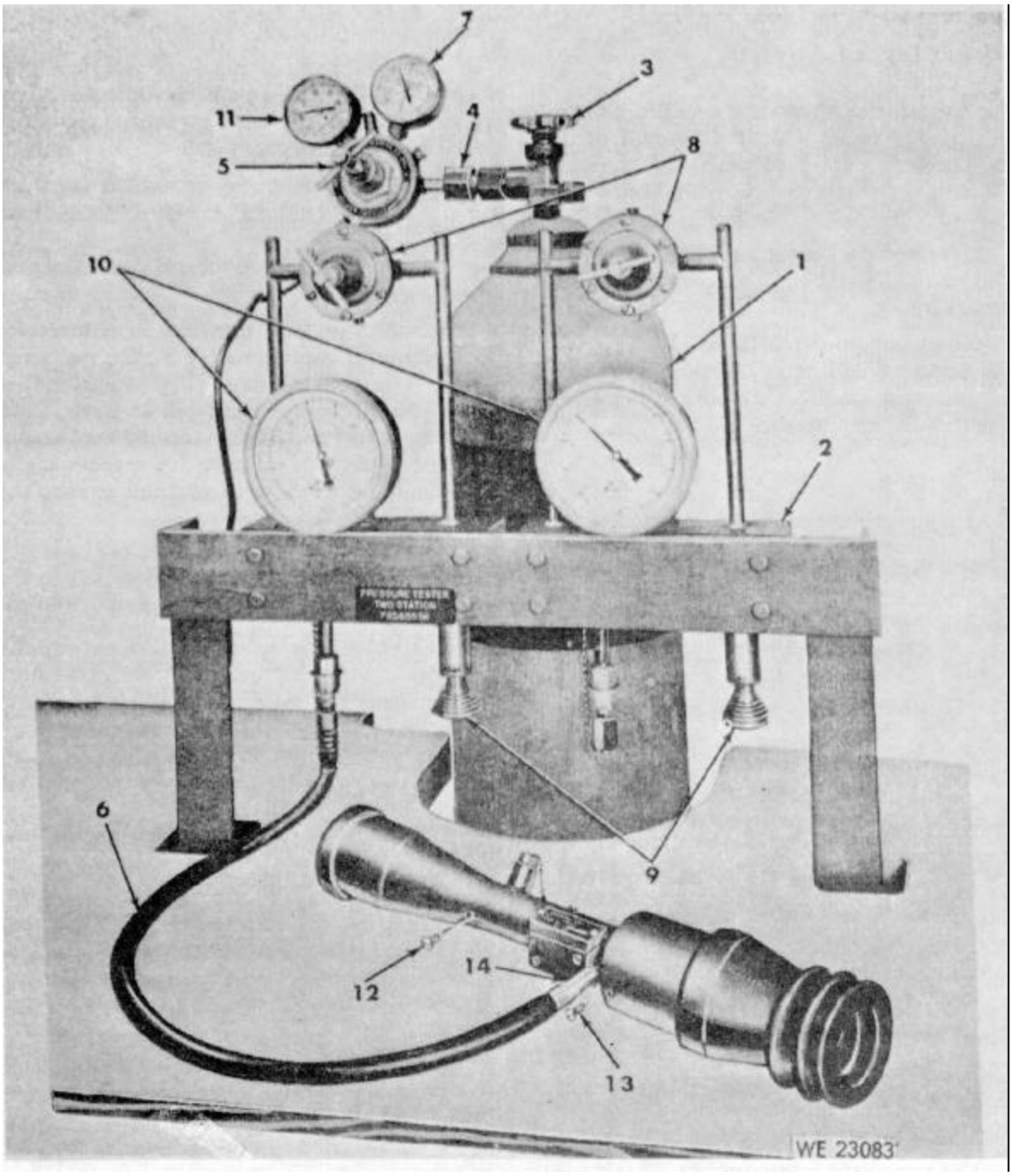
j. Close the valve knob and record the internal pressure on the outlet valve gage. The pressure should be between 4.5 to 4.9 psi. The reading will drop if the telescope sight is not properly sealed. If loss of nitrogen is indicated, reseal the instrument.

Note. After a five minute period, check the internal pressure on the outlet valve gage. The pressure should not drop in excess of 0.1 psi.

k. If there is no apparent pressure loss, remove the purging adapter and hose assemble; then replace the purging screw (13).

Note. Replace the purging screw as quickly as possible when removing purging adapter to retain as much of the nitrogen charge as possible.

l. If no further purging and charging is required, exhaust system as follows: close tank valve, open valve knob, remove hose and replace cap to snap-type coupler.



1 Nitrogen, technical (tank)
2 Pressure test fixture
3 Tank valve
4 Adapter nitrogen filling
5 Nitrogen pressure regulator
6 Hose assembly
7 High pressure gage
8 Outlet valves
9 Valve knobs
10 Outlet valve gages
11 Low pressure gage
12 Self sealing screw (purging) 5305-930-1808
13 Self sealing screw (purging) 5305-930-1808
14 Purging adapter

Figure 5-1. Typical setup for purging and charging the telescope.

CHAPTER 6

EQUIPMENT ISSUED WITH TELESCOPE M120 AND TELESCOPE XM134

Section I. DESCRIPTION

6-1. Carrying Case

A carrying case (fig. 10, located in appendix B) is provided to transport and store the telescope when not in use. The interior is molded, laminated sheet plastic with foam padding to protect the telescope. An upper and lower shell are joined by a piano hinge which is riveted to the back of the shells. A gasket is cemented in the bottom of the well to provide a watertight and dust-tight seal when the case is closed. A metal carrying handle is mounted on the front of the case. Two snap-type catches are provided to hold the cover securely closed. The exterior of the case is olive drab. The part number, 10553971, is stenciled in white on the cover of the case.

6-2. Instrument Light, M52E1

The instrument light, M52E1 (fig. 11, located in appendix B) is used to provide illumination of the reticle of telescope M120. It consists of two D-size flashlight batteries (BA-30), a battery case, a rheostat knob attached to the side of the battery case, and a coiled lead wire extending from one end of the battery case. The wire is coiled and the leads may be extended from a nominal length of two feet to approximately six feet. The lamp socket, attached to the lead wire, has an external thread so that it can be threaded to the light well of the telescope. The rheostat knob on the battery case controls an internal switch that turns the lamp on and off and also controls the intensity of illumination.

Section II. REPAIR OF CARRYING CASE

6-3. Inspection

a. General inspection procedures, outlined in paragraphs 3-3 through 3-7, may apply to the carrying case. In addition, inspect the interior to ensure that the padding is not torn or cracked or has other signs of deterioration.

b. Inspect the seal for general damage and deterioration of the rubber.

c. Inspect the piano hinge that it is securely riveted to the back of the shells and that it operates freely when the case is opened and closed.

d. Inspect the hinge pin and the latching member for proper alinement.

e. Inspect for wear on the hinge pin and distortion of the latching member.

f. Inspect the metal carrying handle that it is securely attached to case and operates freely without binding.

6-4. Repair

a. Coat exposed surfaces of packing with a soft film of silicone compound, MIL-C-21567.

b. Disassembly of carrying case is not authorized. Refer to TM 9-254, general maintenance procedures, to repair bent or damaged surfaces.

Section III. REPAIR OF INSTRUMENTS LIGHT, M52E1

6-5. Inspection

a. General inspection procedures, outlined in paragraphs 3-3 through 3-7, may apply to the instrument light. In addition, inspect the rheostat knob to ensure that it rotates freely with no binding and that illumination changes as the rheostat is turned.

b. Inspect the general appearance; painted surfaces should not have bare spots or scratches exposing bare metal. There will be no evidence of corrosion on any part.

c. Inspect the batteries and contacts that they are free from corrosion. Check batteries.

d. Check lamp.

e. Inspect threads on light adapter.

f. Check wiring for cracks, deterioration, or loss of tension.

6-6. Repair

a. Replace lamp and batteries if defective.

b. Refer to TM 9-254, general maintenance procedures, to repair bent or damaged surfaces. If damaged beyond repair replace the instrument light.

CHAPTER 7

PROCESSING AND PACKAGING

7-1. General

Refer to MIL-P-14232/P10543470 for telescope M120 and MIL-P-14232/P11728190 for telescope XM134.

7-2. Optical Components

Cover all optical elements with at least four thicknesses of neutral lens tissue and secure in place with water-resistant pressure-sensitive adhesive tape. Cover the lens tissue with cellulosic cushioning material and secure in place with pressure-sensitive tape.

APPENDIX A

REFERENCES

A-1. Supply Catalogs

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

Brushes, Paints, Sealers, and Adhesives	C8000-IL-A
Fire Control Maintenance and Repair Shop Specialized Equipment: Tool Set, DS, GS, and Depot Maintenance: General Purpose, Special 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
Fuels, Lubricants, Oils, and Waxes	C9100-IL
Hardware and Abrasives	C5350-IL-A
Shop Set, Instrument and Fire Control: Field Maintenance, Basic (4931-754-0740).	SC 4931-95-CL-A07
Tool Kit, Fire Control Instrument Repairman (4931-947-8243)	SC 4931-95-CL-A09

A-2. Other Publications

a. General.

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

b. Maintenance.

Cleaning of Ordnance Materiel	TM 9-208-1
Compound, Silicone, Soft Film	MIL-C-21567
Direct Support, General Support, and Depot Maintenance Manual Including Repair Parts and Special Tools List For Mount, Telescope: M148 (1240-930-4258).	TM 9-1240-319-35
General Maintenance Procedures For Fire Control Materiel	TM 9-254
Grease, Aircraft and Instrument (For Low and High Temperatures)	MIL-G-23827
Lubricating Oil, Instrument, Aircraft, Low Volatility	MIL-L-6085
Lubricating of Ordnance Materiel	TM-9-273
Operator's Manual for Gun, Antiaircraft Artillery, Towed: 20 mm XM167	TM 9-1005-286-10
Organizational Maintenance Manual for Gun, Antiaircraft Artillery, Towed: 20 mm XM167.	TM 9-1005-286-20
Organizational Maintenance Repair Parts and Special Tools List for 20 MM Towed Antiaircraft Artillery Gun: XM167.	TM 9-1005-286-20

Operator's Manual: Carrier Command and Reconnaissance: Armored M114/M114A1/M114A1E1 using the 20 mm Rapid Fire Weapons System.	TM 9-2320-224-10
Organization Maintenance Manual: Carrier Command and Reconnaissance: Armored M114/M114A1/M114A1E1 using the 20 mm Rapid Fire Weapons System.	TM 9-2320-224-20
Organizational, Direct Support, General Support and Depot Maintenance Repair Parts and Special Tools List for Carrier Command and Reconnaissance: Armored M114/M114A1/M114A1E1 using the 20 mm Rapid Fire Weapons System.	TM 9-2320-224-25P
Operator's Manual: Gun, Antiaircraft Artillery, SP: 20 mm, XM163	TM 9-2350-300-10
Organizational Maintenance Manual for Gun, Antiaircraft Artillery, SP: 20 mm, XM163.	TM 9-2350-300-20
Organizational Maintenance Repair Parts and Special Tool Lists for Gun, Antiaircraft Artillery, SP: 20 mm, XM163.	TM 9-2350-300-20P
Sealing Compound, Adhesive Curing (Polysulfide Base)	MIL-S-11031
Varnish, Moisture and Fungus Resistant - Treatment of Communications, Electrical, and Associated Electrical Equipment.	MIL-V-173

c. Operations

Northern Operations	FM 31-71
Operation and Maintenance of Army Materiel in Extreme Cold Weather, 0° to -65° F.	TM 9-207

d. Shipment and Storage.

Paper, Lens Tissue, Antitarnish Wrapping	MIL-P-13988
Parts, Equipment and Tools for Ordnance Materiel, Packaging of	MIL-P-14232/ P10543470 or MIL-P-14232/ P11728190
Preservation, Methods of	MIL-P-116
Preservation, Packaging and Packing	AR 700-15

APPENDIX B

REPAIR PARTS AND SPECIAL TOOLS LIST

Section I. INTRODUCTION

B-1. Scope

This appendix lists repair parts and support equipment required for the performance of direct support, general support, and depot maintenance of telescope M120 and telescope XM134.

B-2. General

This Repair Parts and Support Equipment List is divided into the following sections:

a. Repair Parts - Section II. A list of repair parts for the performance of maintenance at the direct support, general support, and depot level in figure and item number sequence; illustrations are in disassembly sequence.

b. Support Equipment - Section III. A list of support equipment authorized for the performance of maintenance at the direct support, general support, and depot level.

Note. Special tools and test equipment not applicable.

c. Federal Stock Number and Reference Number Index - Section IV. A list of Federal stock numbers followed by reference numbers in ascending alpha-numeric sequence, cross-referenced to figure number and item number.

B-3. Explanation of Columns

The following provides an explanation of columns in the tabular lists in sections II, III and IV:

a. Source, Maintenance, and Recoverability Codes (SMR), Column 1:

(1) Source code, indicates the selection status and source for the listed item. Source codes used are-

Code	Explanation
P	Repair Parts, Special Tools and Test Equipment supplied from the GSA/DSA or Army supply system authorized for use at indicated maintenance categories.
P2	Repair Parts, Special Tools and Test Equipment which are procured and stocked for insurance purposes because the combat or military essentiality of the end item dictates that a minimum quantity be available in the supply system.
P9	Assigned to items which are NSA design controlled: Unique repair parts, special, tools, test, measuring and diagnostic equipment, which are stocked and supplied by the Army COMSEC Logistic System and which are not subject to the provisions of AR 380-41.
P10	Assigned to items which are NSA design controlled: Special Tools, test, measuring and diagnostic equipment for COMSEC support, which are accountable under the provisions of AR 380-41, and which are stocked and supplied by the Army COMSEC Logistic System.
M	Repair Parts, Special Tools and Test Equipment which are not procured or stocked, as such, in the supply system but are to be manufactured at indicated maintenance levels.
A	Assemblies which are not procured or stocked, as such, in the supply system but are made up of two or more units. Such component units carry individual stock numbers and descriptions, are procured and stocked separately and can be assembled to form the required assembly at indicated maintenance categories.
X	Parts and assemblies that are not procured or stocked because the failure rate is normally below that of the applicable end item of component. The failure of such part or assembly should result in retirement of the end item from the supply system.

X1 Repair Parts which are not procured or stocked. The requirement for such items will be filled by the next higher assembly or component.

X2 Repair Parts, Special Tools, and Test Equipment which are not stocked and have no foreseen mortality. The indicated maintenance category requiring such repair parts will attempt to obtain the parts through cannibalization or salvage, if not obtainable through cannibalization or salvage, the item may be requisitioned with exception data, for the end item manager, for immediate use.

G Major assemblies that are procured with PEMA funds for initial issue only as exchange assemblies at DSU and GSU level. These assemblies will not be stocked above the DS and GS level or returned to depot supply level.

Note. Cannibalization or salvage may be used as a source of supply for any items source coded above except those coded X1 and aircraft support items as restricted by AR 700-42.

(2) Maintenance code, indicates the lowest category of maintenance authorized to install the listed item. The maintenance level codes are-

Code	Explanation
C	Crew or Operator Maintenance
O	Organizational Maintenance
F	Direct Support Maintenance
H	General Support Maintenance
D	Depot Maintenance

(3) Recoverability code, indicates whether unserviceable items should be returned for recovery or salvage. Items not coded are expendable. Recoverability codes are-

Code	Explanation
R	Applied to repair parts, (assemblies and components) special tools and test equipment which are considered economically repairable at direct and general support maintenance levels. When the item is no longer economically repairable, it is normally disposed of at the GS level. When supply considerations dictate, some of these repair parts may be listed for automatic return to supply for depot level repair as set forth in AR 710-50. When so listed, they will be replaced by supply on an exchange basis.
S	Repair Parts, Special Tools, Test Equipment and assemblies which are economically repairable at DSU and GSU activities and which normally are furnished by supply on an exchange basis. When items are determined by a GSU to be uneconomically repairable, they will be evacuated to a depot for evaluation and analysis before final disposition.
T	Higher dollar value recoverable repair parts, special tools and test equipment which are subject to special handling and are issued on an exchange basis. Such items will be evacuated to the depot for overhaul or final disposition. Communications-Electronics and Missile Support Items will be repaired/overhauled only at depots.
U	Repair Parts, Special Tools and Test Equipment specifically selected for salvage by reclamation units because of precious metal content, critical materials, high dollar value or reusable casings or castings.

Note. When a dash is indicated in the recoverability column, the part will be considered nonrecoverable.

b. Federal Stock Number, Column 2. This column indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

c. Description, Column 3. This column indicates the Federal item name and any additional description of the item required. A part number or other reference number is followed by the applicable five-digit Federal supply code for manufacturers in parentheses.

d. Unit of Issue, Column 4. This column indicates the unit used as a basis for issue, e.g., ea, hd, etc.

e. Quantity Incorporated in Unit Pack, Column 5. This column indicates the quantity of item in the assembly and/or partial exploded view.

f. Quantity Incorporated in Unit, Column 6. This column indicates the quantity of the item used in the functional group.

g. 30-Day DS/GS Maintenance Allowances, Columns 7 and 8.

(1) The allowance columns are divided into three subcolumns. Indicated in each subcolumn, opposite the first appearance of each item, is the total quantity of items authorized for the number of equipments supported. Subsequent appearances of the same item will have no entry in the allowance column but will have in the description column a

reference to the first appearance of the item. Items authorized for use as required but not for initial stockage are identified with an asterisk in the allowance column.

(2) The quantitative allowances for DS/GS levels of maintenance will represent initial stockage for a 30-day period for the number of equipments supported.

(3) Determination of the total quantity of parts required for maintenance of more than 100 of these equipments can be accomplished by converting the equipment quantity to a decimal factor by placing a decimal point before the next to the last digit of the number to indicate hundredths, and multiplying the decimal factor by the parts quantity authorized in the 51 - 100 allowance column. Example, authorized allowance for 51 - 100 equipments is 40; for 150 equipments multiply 40 by 1.50 or 60 parts required.

h. 1-Year Allowances Per 100 Equipments/ Contingency Planning Purposes, Column 9. This column indicates opposite the first appearance of each item the total quantity required for distribution and contingency planning purposes. The range of items indicates total quantities of all authorized items required to provide for adequate support of 100 equipments for one year.

i. Depot Maintenance Allowance Per 100 Equipments, Column 10. This column indicates opposite the first appearance of each item, the total quantity authorized for depot maintenance of 100 equipments. Subsequent appearances of the same item will have no entry in this column, but will have in the description column a reference to the first appearance of the item.

j. Illustration, Column 11. This column is divided as follows:

(1) *Figure Number, Column 11a.* Indicates the figure number of the illustration in which the item is shown.

(2) *Item Number, Column 11b.* Indicates the callout number used to reference the item in the illustration.

B-4. Special Information

a. The following publications pertain to Telescope M120:

TM 9-2320-224-10
TM 9-2320-224-20
TM 9-2320-224-20P

b. The following publications pertain to Telescope XM134:

TM 9-1005-286-10
TM 9-1005-286-20
TM 9-1005-286-20P
TM 9-2350-300-10
TM 9-2350-300-20
TM 9-2350-300-20P

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

N - Indicates an added item not included in previous publications.

C - Indicates a change in data.

F - 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/index, determine the assembly within which the repair part belongs.

(2) *Second.* Find the illustration covering the assembly 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 assembly 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 the reference number in alpha-numeric sequence cross-referenced to illustration figure number and item number.

(2) *Second.* Using the Repair Part Listing, find the assembly 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	Explanation
al	aluminum
aly	alloy
cd	cadmium
cres	corrosion resistant steel
csk	countersunk
dia	diameter
fin	finish
hd	head
hex	hexagon
id	inside diameter
lg	long
med	medium
NS	American National Special Thread
ola	overall
od	outside diameter
pan.	panoramic
pass	passivated
pl	plate
rub	rubber
scr	screw
slot.	slotted
soc	socket
stl	steel
UNC	American Unified Coarse Thread

B-7. Federal Supply Codes for Manufacturers

Code	Manufacturer
19200	Frankford Arsenal
96906	Military Standards Promulgated by Standardization Div. Directorate of Logistic Services DSA

Section II. REPAIR PARTS LIST

(1) Smr Code	(2) Federal Stock No.	(3) Description Reference Number & Mfr. Code	(4) Unit of Issue	(5) Qty. Inc. in Unit Pack	(6) Qty. in Unit	(7) Direct Support 30-Day Maint. Allowance (A) 1-20	(B) 21-50	(C) 51-100	(8) General Support 30-Day Maint. Allowance (A) 1-20	(B) 21-50	(C) 51-100	(9) 1 Yr. Alw. Per 100 Equip Cntgcy Planning	(10) Depot Main. Alw. Per 100 Equip	(11) Illustration (A) Fig. No.	(B) Item No.
		TELESCOPE MI 20 OR TELESCOPE XM134 - PARTIAL EX PLODED VIEW													
P-O...	1240-087-7281	EYESHIELD, RUBBER BELLOWS 10543481 (19200)	EA	1	1	1	1	2	1	1	2	20	20	1	1
C P-O...	1240-087-7282	CAP ASSEMBLY 10543494 (19200)	EA	1	1	1	1	2	1	1	2	20	10	1	2
X1...		WINDOW 10543493 (19200)		1										1	2A
X1...		CAP 10543490 (19200)		1										1	2B
C P-F...	5305-770-2533	SCREW, MACHINE FLAT CSK HD, CROSS RECESSED, CRES, PASS FIN, NO 4-40UNC-2A, 1/4 LG MS51959-13 (96906)	HD	1	1	1	1	2	1	1	2	20	20	1	3
C P-H...	1240-891-1289	CELL ASSEMBLY, OPTICAL INSTRUMENT EYEPIECE 10543480 (19200)	EA	1	1	--	--	--	*	1	1	6	8	1	4
C P-H...	1240-891-4540	GASKET: RUB, 2 175 ID, 2 38 OD, 0.103 DIA 10544241-2 (19200)	EA	5	1	--	--	--	*	1	2	10	5	1	5

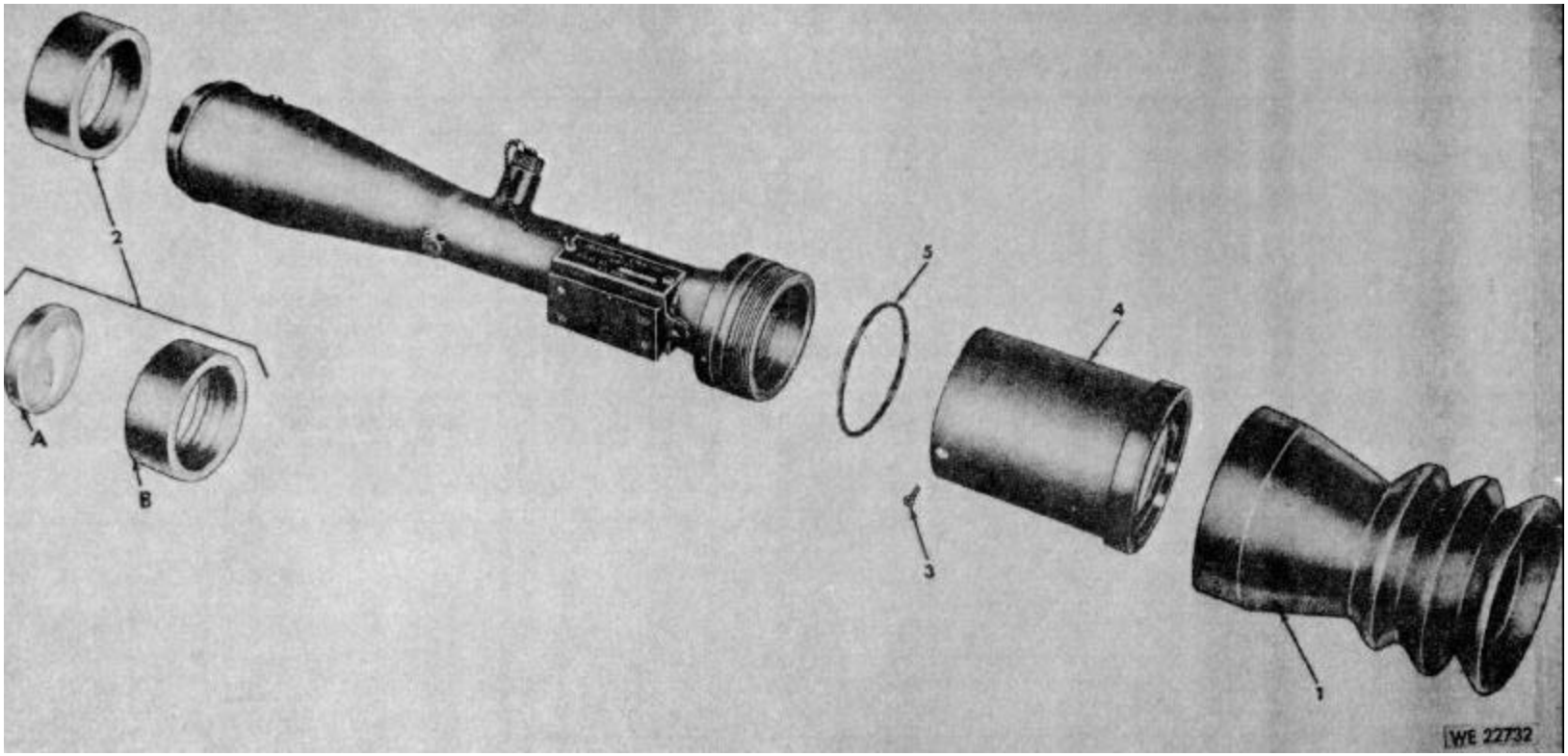


Figure 1. Telescope M120 or telescope XM134 - partial exploded view.

(1) Smr Code	(2) Federal Stock No.	(3) Description Reference Number & Mfr. Code	(4) Unit of Issue	(5) Qty. Inc. in Unit Pack	(6) Qty. in Unit	(7) Direct Support 30-Day Maint. Allowance (A) 1-20	(B) 21-50	(C) 51-100	(8) General Support 30-Day Maint. Allowance (A) 1-20	(B) 21-50	(C) 51-100	(9) 1 Yr. Alw. Per 100 Equip Cntgcy Planning	(10) Depot Main. Alw. Per 100 Equip	(11) Illustration (A) Fig. No.	(B) Item No.
		CELL ASSEMBLY, EYEPIECE 1240-891-1289 - EXPLODED VIEW													
X1...		RETAINER, OPTICAL ELEMENT. 10543477 (19200)			1									2	1
XI...		LENS, OPTICAL INSTRUMENT FIELD 10543459 (19200)			1									2	2
X1...		SPACER, OPTICAL ELEMENT EYEPIECE 10543478 (19200)			1									2	3
X1...		LENS, OPTICAL INSTRUMENT. 10543454 (19200)			1									2	4
X1...		CELL, OPTICAL ELEMENT. EYEPIECE 10543479 (19200)			1									2	5

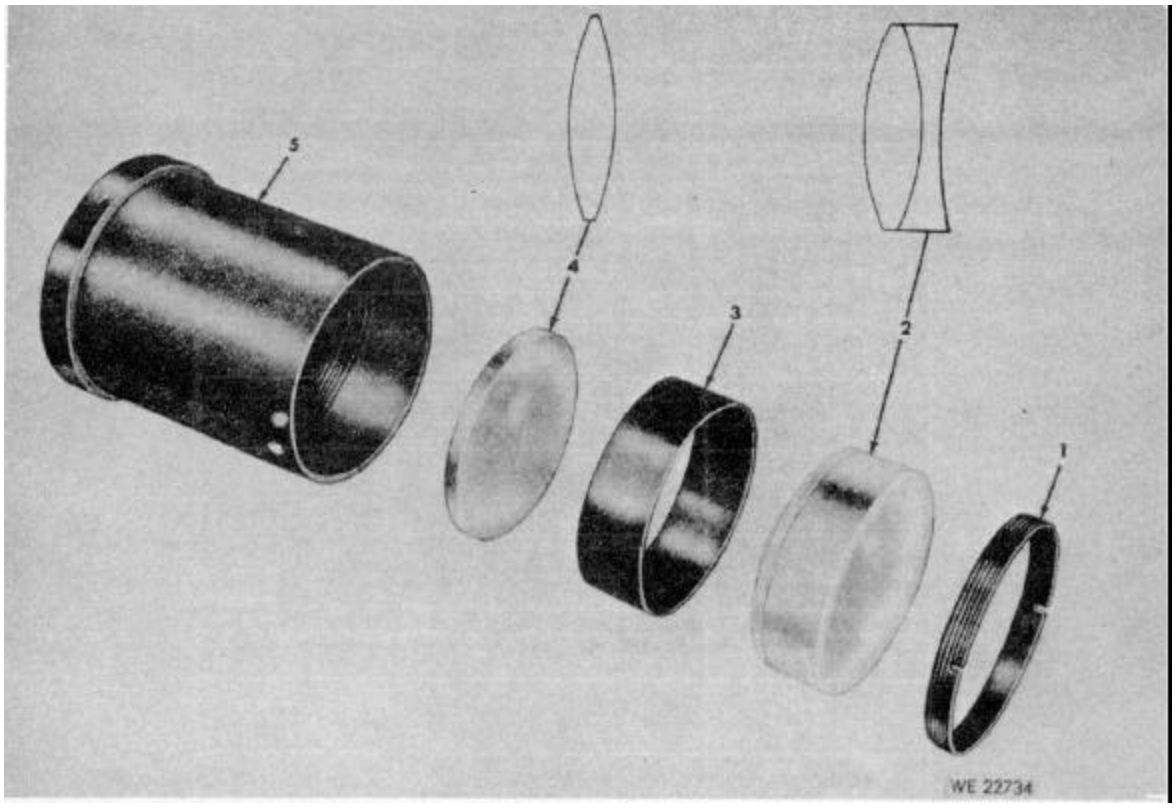


Figure 2. Eyepiece cell assembly - exploded view.

(1) Smr Code	(2) Federal Stock No.	(3) Description / Reference Number & Mfr. Code	(4) Unit of Issue	(5) Qty. Inc. in Unit Pack	(6) Qty. in Unit	(7) Direct Support 30-Day Maint. Allowance (A) 1-20	(B) 21-50	(C) 51-100	(8) General Support 30-Day Maint. Allowance (A) 1-20	(B) 21-50	(C) 51-100	(9) 1 Yr. Alw. Per 100 Equip Cntgcy Planning	(10) Depot Main. Alw. Per 100 Equip	(11) Illustration (A) Fig. No.	(B) Item No.
		TELESCOPE M120 OR TELESCOPE XM134 - PARTIAL EXPLODED VIEW													
C P-F...	5305-717-6950	SETSCREW: HEX, SOC, CUP PT, ALY STL, CD. PL, NO. 4-40 UNC-3A, 118 LG MS51963-9 (96906)	EA	100	4	1	1	2	1	1	2	20	20	3	1
C P-H...	1240-891-1287	CELL ASSEMBLY, OPTICAL INSTRUMENT: OBJECTIVE 10543475 (19200)	EA	1	1	--	--	--	*	1	1	6	10	3	2
C P-H...	1240-891-4539	GASKET: RUB, 1 925 ID, 2.131 OD. 0.103 DIA 10544241-1 (19200)	EA	5	1	--	--	--	*	1	2	10	5	3	3

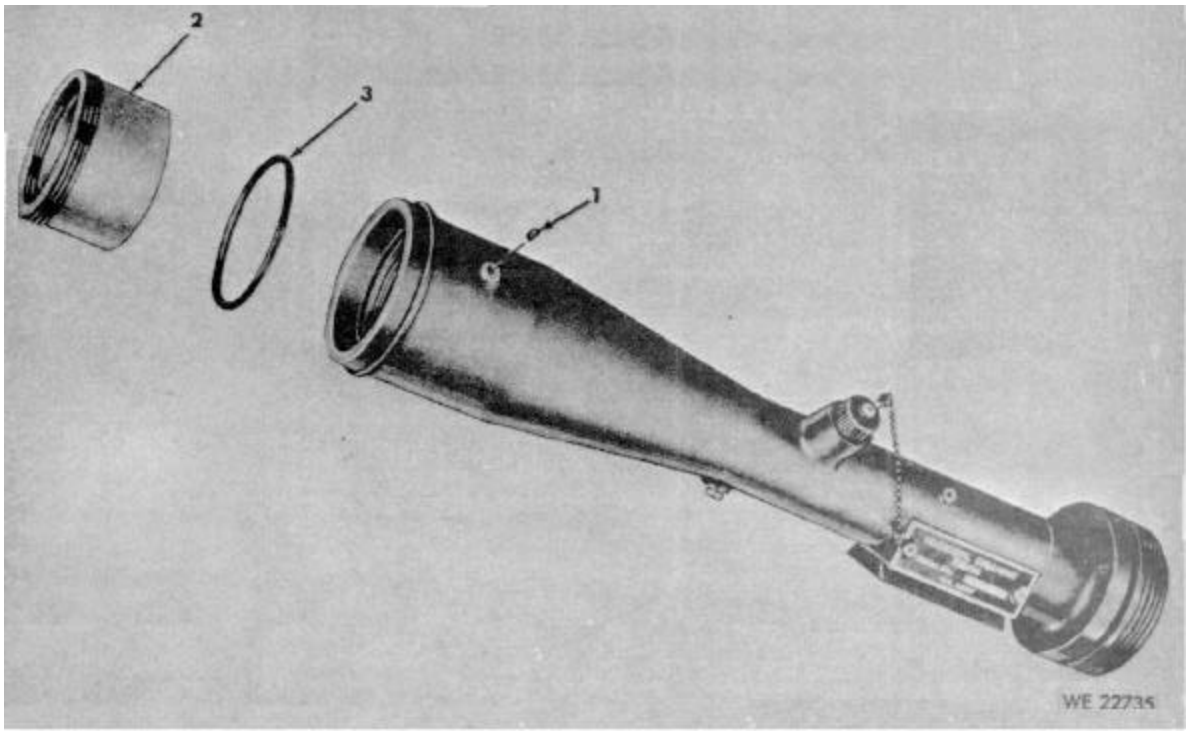


Figure 3. Telescope M120 or Telescope XM134 - partial exploded view.

(1) Smr Code	(2) Federal Stock No.	(3) Description / Reference Number & Mfr. Code	(4) Unit of Issue	(5) Qty. Inc. in Unit Pack	(6) Qty. in Unit	(7) Direct Support 30-Day Maint. Allowance (A) 1-20	(B) 21-50	(C) 51-100	(8) General Support 30-Day Maint. Allowance (A) 1-20	(B) 21-50	(C) 51-100	(9) 1 Yr. Alw. Per 100 Equip Cntgcy Planning	(10) Depot Main. Alw. Per 100 Equip	(11) Illustration (A) Fig. No.	(B) Item No.
		CELL ASSEMBLY, OBJECTIVE: 1240-891-1287 - EXPLODED VIEW													
X1...		RETAINER, OBJECTIVE 10543472 (19200)			1									4	1
X1...		LENS, OPTICAL INSTRUMENT' OBJECTIVE 10543448 (19200)			1									4	2
XI...		SPACER, OPTICAL ELEMENT: OBJECTIVE 10543473 (19200)			1									4	3
X1...		LENS, OPTICAL INSTRUMENT. OBJECTIVE 10543450 (19200)			1									4	4
X1...		LENS, OPTICAL INSTRUMENT: OBJECTIVE 10543451 (19200)			1									4	5
X1...		CELL, OPTICAL ELEMENT. OBJECTIVE 10543471 (19200)			1									4	6

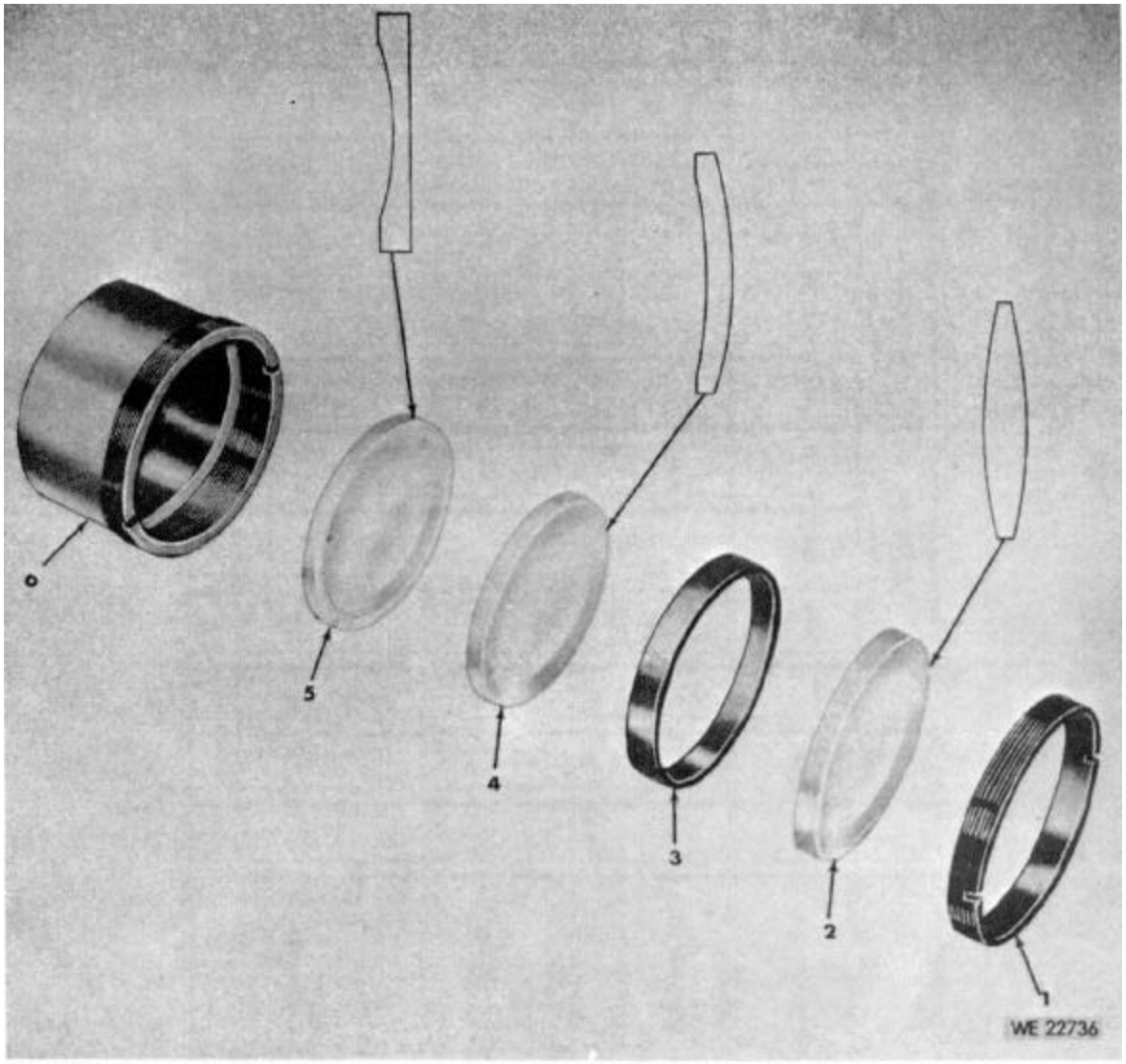


Figure 4. Objective cell assembly - exploded view.

(1) Smr Code	(2) Federal Stock No.	(3) Description / Reference Number & Mfr. Code	(4) Unit of Issue	(5) Qty. Inc. in Unit Pack	(6) Qty. in Unit	(7) Direct Support 30-Day Maint. Allowance (A) 1-20	(B) 21-50	(C) 51-100	(8) General Support 30-Day Maint. Allowance (A) 1-20	(B) 21-50	(C) 51-100	(9) 1 Yr. Alw. Per 100 Equip Cntgcy Planning	(10) Depot Main. Alw. Per 100 Equip	(11) Illustration (A) Fig. No.	(B) Item No.
		TELESCOPE M120 OR TELESCOPE XM134 - PARTIAL EXPLODED VIEW													
X1...		DIAPHRAGM: 10543476 (19200)			1									5	1
P-F...	5305-717-6950	SETSCREW: HEX, SOC, CUP PT, ALY STL, CD PL, NO. 4-40 UNC-3A, 1/8 LG MS51963-9 (96906) (SEE FIGURE 3, ITEM 1 FOR ALLOWANCES)	EA	100	4									5	2
C P-H...	1240-891-1288	CELL ASSEMBLY, OPTICAL INS TRUMENT. RETICLE AND ERECTOR (M120 TELESCOPE ONLY) 10543482 (19200)	EA	1	1	--	--	--	1	1	2	8	10	5	3
N P-H...	1240-483-1171	CELL ASSEMBLY, OPTICAL INSTRUMENT RETICLE AND ERECTOR (XM134 TELESCOPE ONLY) 11728184 (19200)	EA	1	1	--	--	--	*	1	1	8	10	5	3

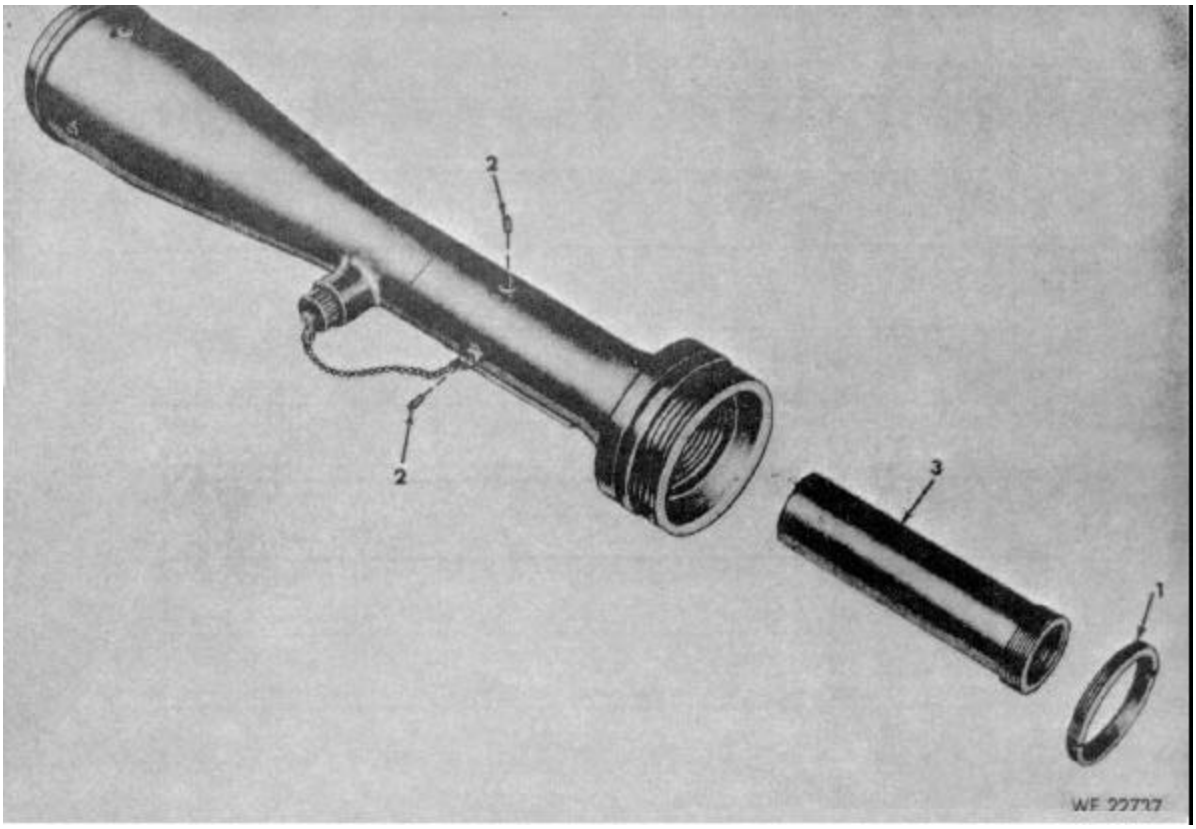


Figure 5. Telescope M120 or Telescope XM135 - partial exploded view.

(1) Smr Code	(2) Federal Stock No.	(3) Description / Reference Number & Mfr. Code	(4) Unit of Issue	(5) Qty. Inc. in Unit Pack	(6) Qty. in Unit	(7) Direct Support 30-Day Maint. Allowance (A) 1-20	(B) 21-50	(C) 51-100	(8) General Support 30-Day Maint. Allowance (A) 1-20	(B) 21-50	(C) 51-100	(9) 1 Yr. Alw. Per 100 Equip Cntgcy Planning	(10) Depot Main. Alw. Per 100 Equip	(11) Illustration (A) Fig. No.	(B) Item No.
		CELL ASSEMBLY, RETICLE AND ERECTOR 1240-891-1288 (M120 TELESCOPE ONLY) OR 1240-483-1171 (XM134 TELESCOPE ONLY) - PARTIAL EXPLODED VIEW													
X1...		RETAINER, OPTICAL ELEMENT: 10543484 (19200)			1									6	1
X1...		LENS, OPTICAL INSTRUMENT: OBJECTIVE 10543452 (19200)			1									6	2
X1...		SPACER, OPTICAL ELEMENT: 10543491 (19200)			1									6	3
X1...		LENS, OPTICAL INSTRUMENT- RETICLE (M120 TELESCOPE ONLY) 10543455 (19200)			1									6	4
N X1...		LENS, OPTICAL INSTRUMENT. RETICLE (XM134 TELESCOPE ONLY) 11728181 (19200)			1									6	4
X1...		CELL ASSEMBLY: ERECTOR 10543485 (19200)			1									6	5
X1...		CELL, OPTICAL ELEMENT: 10543483 (19200)			1									6	6

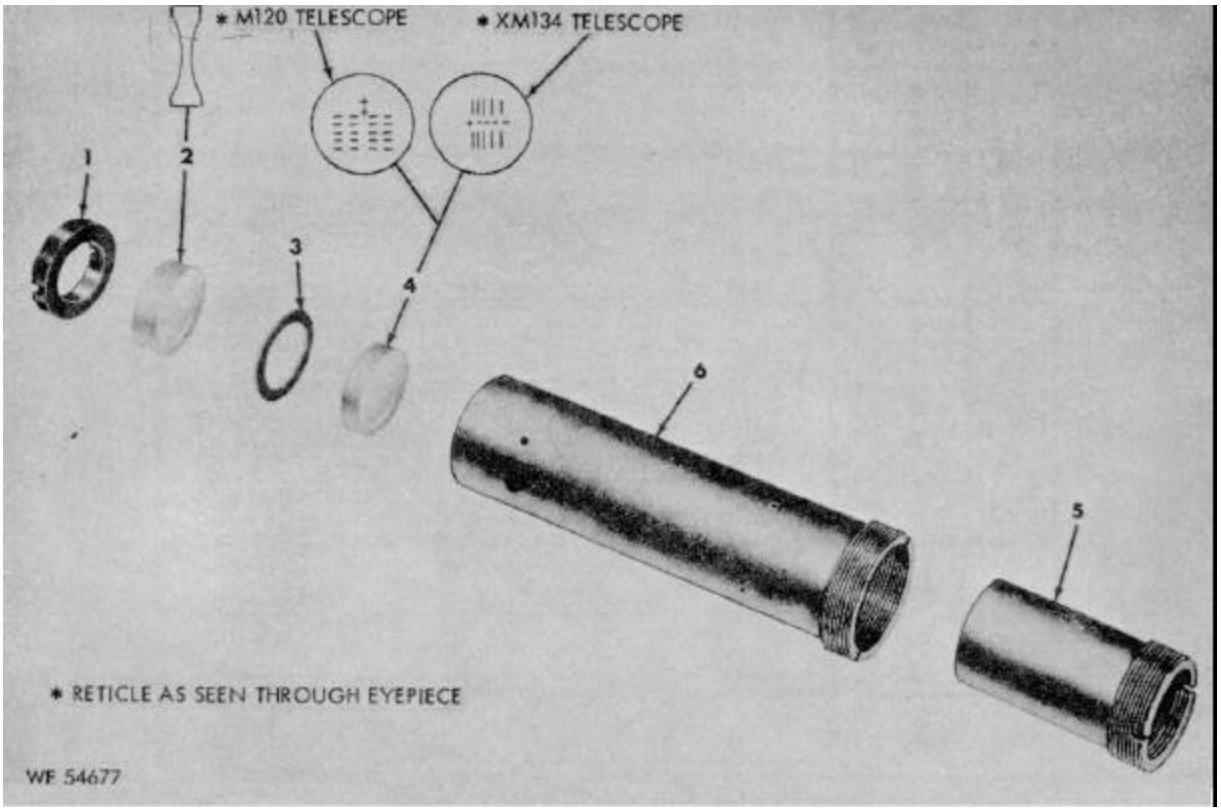


Figure 6. Reticle and erector assembly for Telescope M120 and Telescope XM134 - partial exploded view.

(1) Smr Code	(2) Federal Stock No.	(3) Description / Reference Number & Mfr. Code	(4) Unit of Issue	(5) Qty. Inc. in Unit Pack	(6) Qty. in Unit	(7) Direct Support 30-Day Maint. Allowance (A) 1-20	(B) 21-50	(C) 51-100	(8) General Support 30-Day Maint. Allowance (A) 1-20	(B) 21-50	(C) 51-100	(9) 1 Yr. Alw. Per 100 Equip Cntgcy Planning	(10) Depot Main. Alw. Per 100 Equip	(11) Illustration (A) Fig. No.	(B) Item No.
		CELL ASSEMBLY, ERECTOR. 10543485 - EXPLODED VIEW													
X1...		RETAINER, OPTICAL ELEMENT: 10543488 (19200)			1									7	1
X1...		LENS, OPTICAL INSTRUMENT: ERECTOR 10543458 (19200)			1									7	2
X1...		SPACER, OPTICAL ELEMENT: 10543492 (19200)			1									7	2
X1...		LENS, OPTICAL INSTRUMENT: 10543457 (19200)			2									7	4
X1...		LENS, OPTICAL INSTRUMENT: 10543457 (19200)			2									7	5
X1...		SPACER, OPTICAL ELEMENT: 10543487 (19200)			1									7	6
X1...		LENS, OPTICAL INSTRUMENT: 10543456 (19200)			1									7	7
X1...		CELL, OPTICAL ELEMENT: 10543486 (19200)			1									7	8

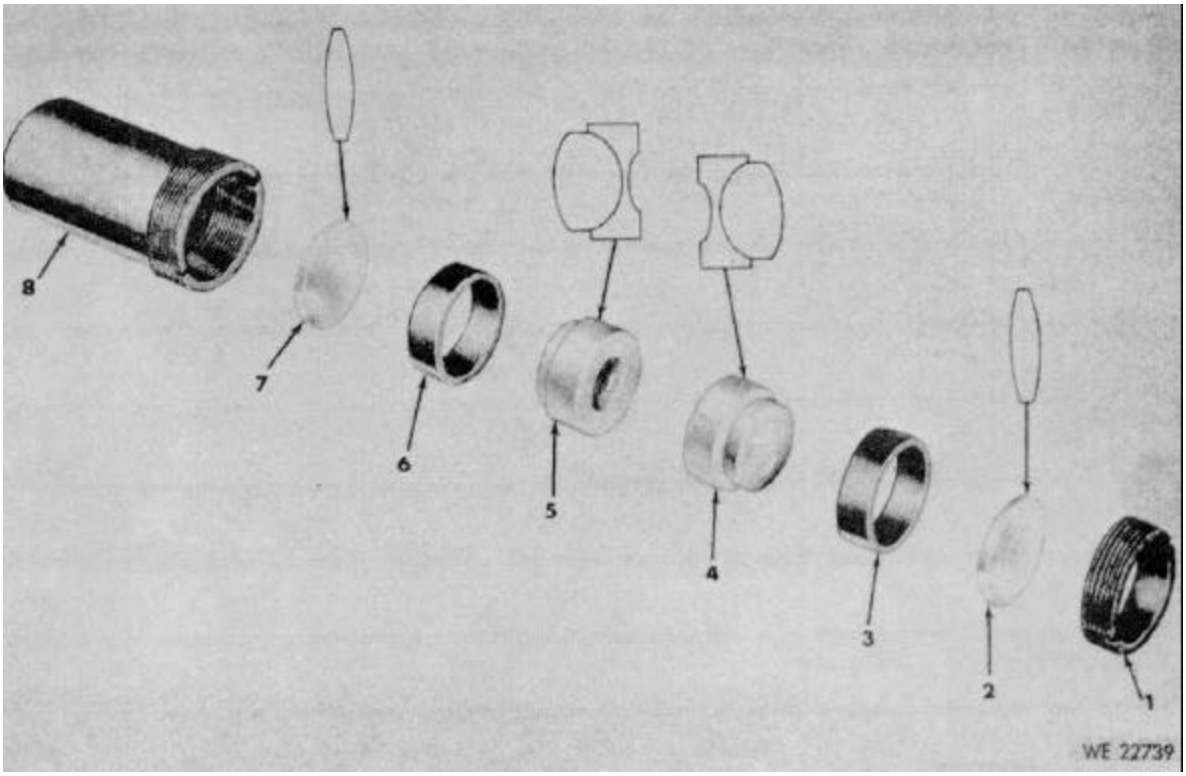


Figure 7. Erector cell assembly - exploded view.

(1) Smr Code		(2) Federal Stock No.	(3) Description / Reference Number & Mfr. Code	(4) Unit of Issue	(5) Qty. Inc. in Unit Pack	(6) Qty. in Unit	(7) Direct Support 30-Day Maint. Allowance (A) 1-20	(B) 21-50	(C) 51-100	(8) General Support 30-Day Maint. Allowance (A) 1-20	(B) 21-50	(C) 51-100	(9) 1 Yr. Alw. Per 100 Equip Cntgcy Planning	(10) Depot Main. Alw. Per 100 Equip	(11) Illustration (A) Fig. No.	(B) Item No.
			TELESCOPE M120 OR TELESCOPE XM134 - PARTIAL EXPLODED VIEW													
C	P-F...	5305-054-5646	SCREW, MACHINE: PAN HD, CROSS-RECESSED, CRES, PASS. FIN., NO. 4-40UNC-2A, 3/16 LG MS51957-12 (96906)	HD	1	3	1	1	2	1	1	2	20	20	8	1
	P-F...	5305-054-5646	SCREW, MACHINE. PAN HD, CROSS RECESSED, CRES, PASS. FIN., NO. 4-40UNC-2A, 3/16 LG MS51957-12 (96906) (SEE ITEM 1 ABOVE FOR ALLOWANCES)	HD	1	3									8	2
C	P-F...	4010-016-8704	CHAIN ASSEMBLY, SINGLE LEG: 10541429 (19200)	EA	5	1	*	1	2	*	1	2	10	5	8	3
C	P-F...	4730-893-5885	PLUG, MACHINE THREAD: AL ALY 0.393-32NS-2, 0 562 LG O/A 8587298 (19200)	EA	1	1	*	1	2	*	1	2	10	5	8	4
C	P-H...	1240-891-4541	ADAPTER: 10543498 (19200)	EA	1	1	--	--	--	*	1	2	10	5	8	5
	X1...		SPACER: 10543497 (19200)			1									8	6
C	P-H...	1240-) 87-7284	WINDOW: ILLUMINATING RETICLE 10543496 (19200)	EA	1	1	--	--	--	*	1	2	10	5	8	7
	P-F...	5305-054-5646	SCREW, MACHINE: PAN HD, CROSS-RECESSED, CRES, PASS. FIN., NO 4-40UNC-2A, 3/16 LG MS51957-12 (96906) (SEE ITEM 1 ABOVE FOR ALLOWANCES)	HD	1	3									8	8
C	X1...		PLATE: (M120 TELESCOPE ONLY) 10543495 (19200)			1									8	9
N	X1...		PLATE: (XM134 TELESCOPE ONLY) 11728182 (19200)			1									8	9

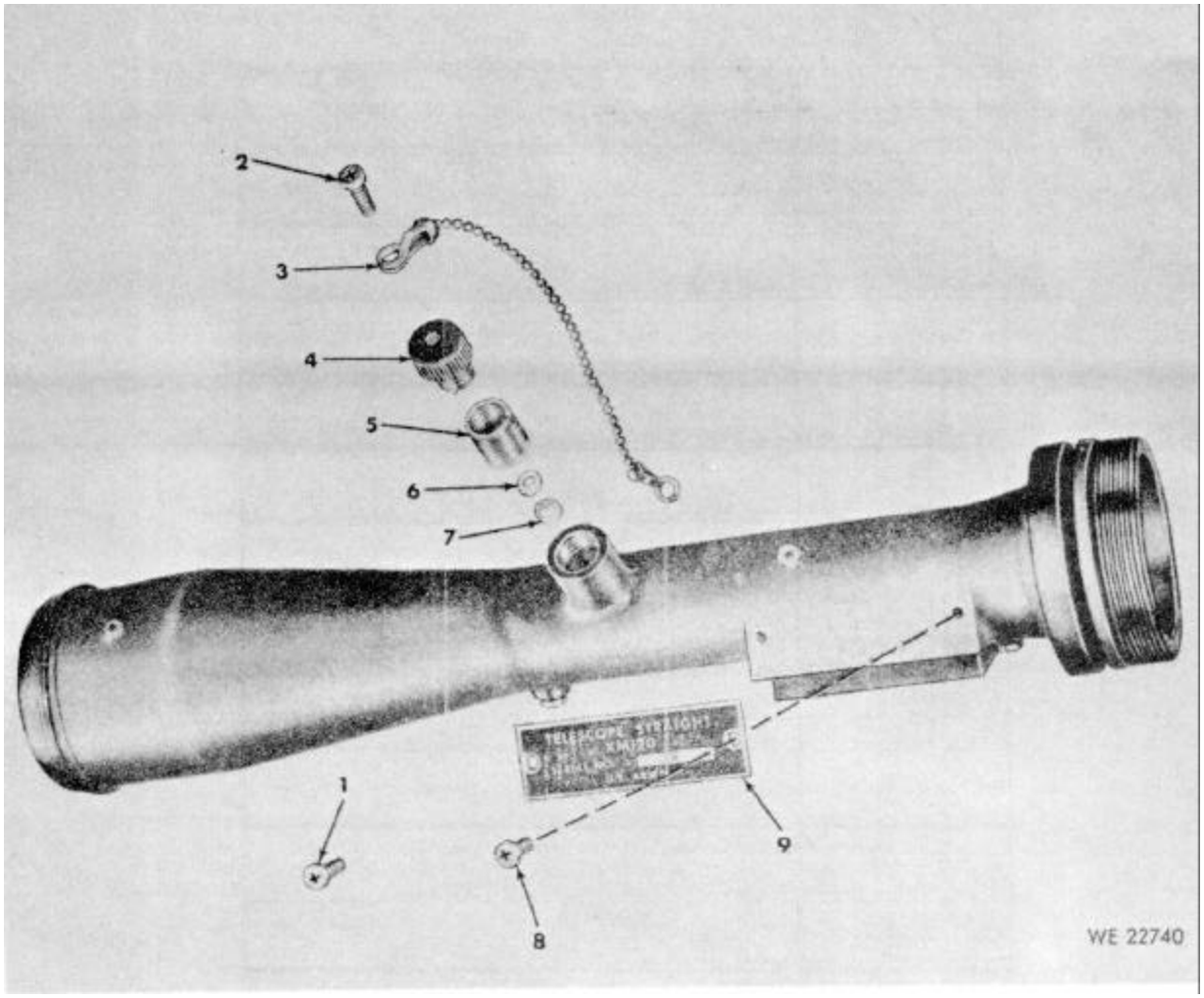


Figure 8. Telescope M120 or Telescope XM134 - partial exploded view.

(1) Smr Code	(2) Federal Stock No.	(3) Description / Reference Number & Mfr. Code	(4) Unit of Issue	(5) Qty. Inc. in Unit Pack	(6) Qty. in Unit	(7) Direct Support 30-Day Maint. Allowance (A) 1-20	(B) 21-50	(C) 51-100	(8) General Support 30-Day Maint. Allowance (A) 1-20	(B) 21-50	(C) 51-100	(9) 1 Yr. Alw. Per 100 Equip Cntgcy Planning	(10) Depot Main. Alw. Per 100 Equip	(11) Illustration (A) Fig. No.	(B) Item No.
		TELESCOPE M120 OR TELESCOPE XM134 - PARTIAL EXPLODED VIEW													
C P-O...	5305-685-1570	SCREW, MACHINE CRES, SLOT. HD, NO. 8-32NC-2A, 1/4 LG 10555157-8 (19200)	EA	5	2	*	1	2	*	1	2	10	5	9	1
X1...		SCREW, CAP, SOCKET HEAD HEX HD, CRES, NO. 6-UNC-3A, 114 LG MS16995-16 (96906)			2									9	2
C X1...		WASHER, LOCK: SPLIT, MED, CRES, PASS. FIN, NO. 6 SCR SIZE MS35338-136 (96906)			1									9	3
X1...		DOVETAIL: 10543489 (19200)			1									9	4
X1...		PIN, STRAIGHT, HEADLESS: DOWEL, 1/8 DIA, 5/16 LG M816555-625 (96906)			2									9	5
X1...		HOUSING 10543474 (19200)			1									9	6

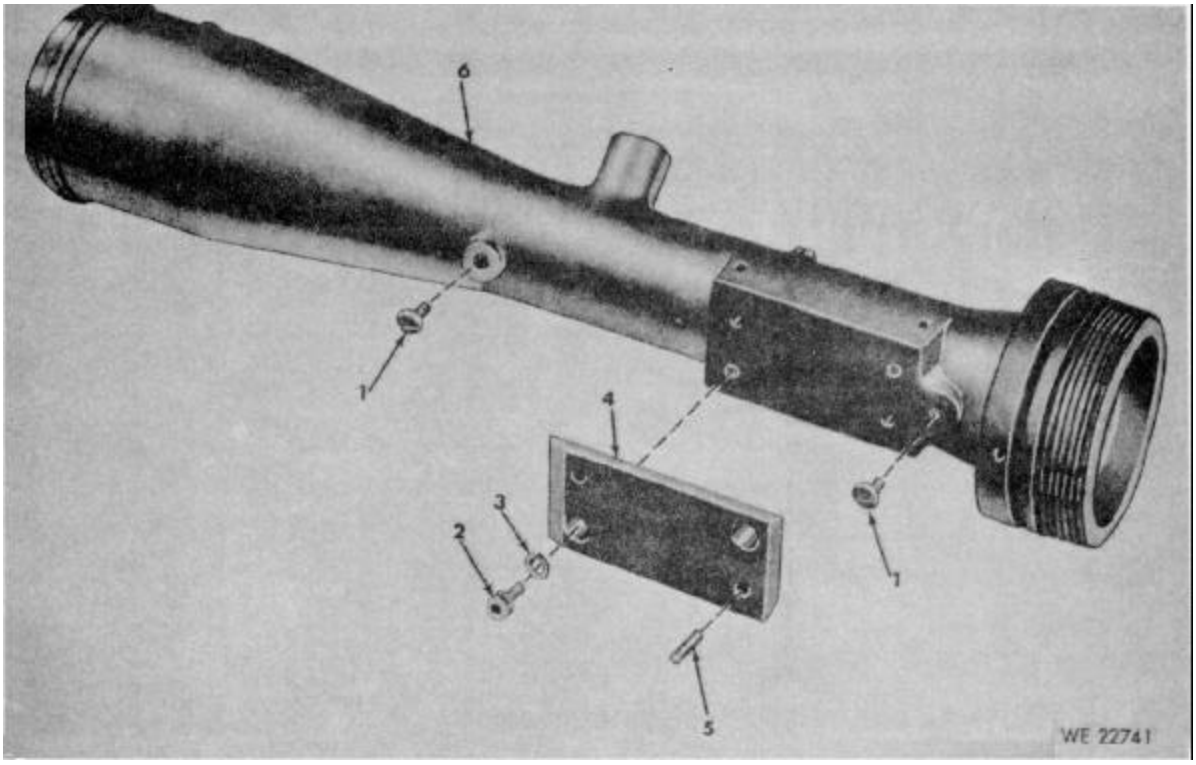


Figure 9. Telescope M120 or Telescope XM134 - partial exploded view.

Section II. REPAIR PARTS LIST

(1) Smr Code	(2) Federal Stock No.	(3) Description / Reference Number & Mfr. Code	(4) Unit of Issue	(5) Qty. Inc. in Unit Pack	(6) Qty. in Unit	(7) Direct Support 30-Day Maint. Allowance (A) 1-20	(B) 21-50	(C) 51-100	(8) General Support 30-Day Maint. Allowance (A) 1-20	(B) 21-50	(C) 51-100	(9) 1 Yr. Alw. Per 100 Equip Cntgcy Planning	(10) Depot Main. Alw. Per 100 Equip	(11) Illustration (A) Fig. No.	(B) Item No.
		TOOLS AND EQUIPMENT													
C P-O...	1240-782-9652	CASE CARRYING 10553971 (19200)	EA	1	1	*	*	2	*	*	2	5	5	10	
C P-O.R	1240-089-1875	LIGHT, INSTRUMENT M52E1 (M120 TELESCOPE ONLY) 10553462 (19200)	EA	1	--	*	*	2	*	*	2	10	5	11	

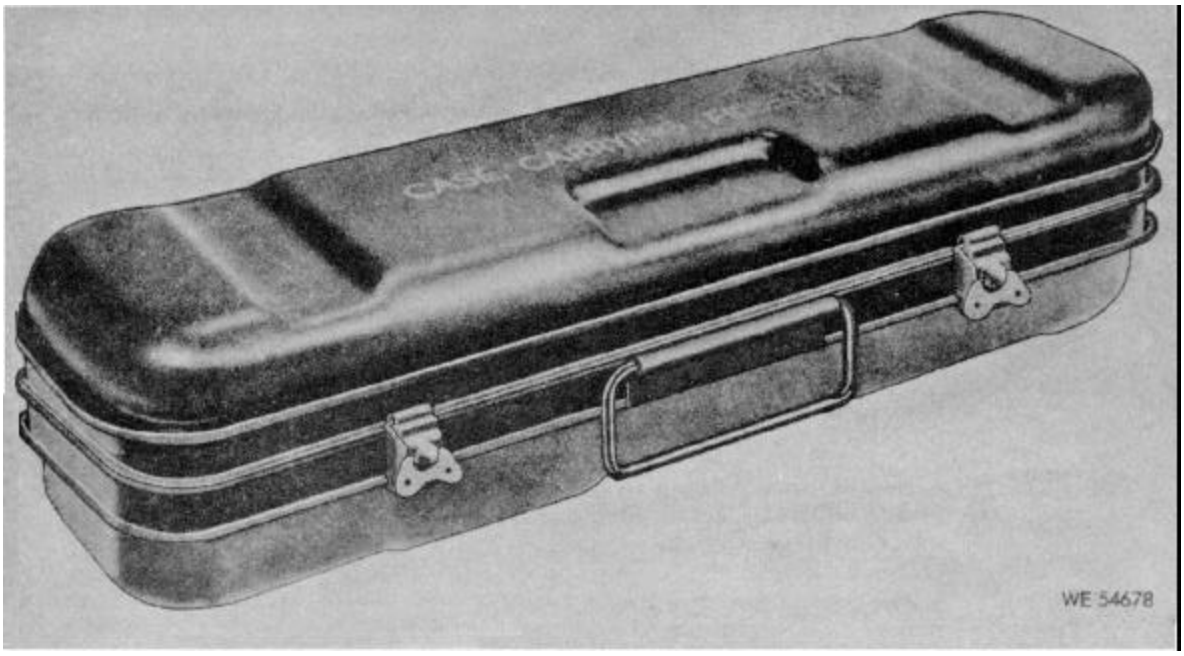


Figure 10. Carrying case 10553971.

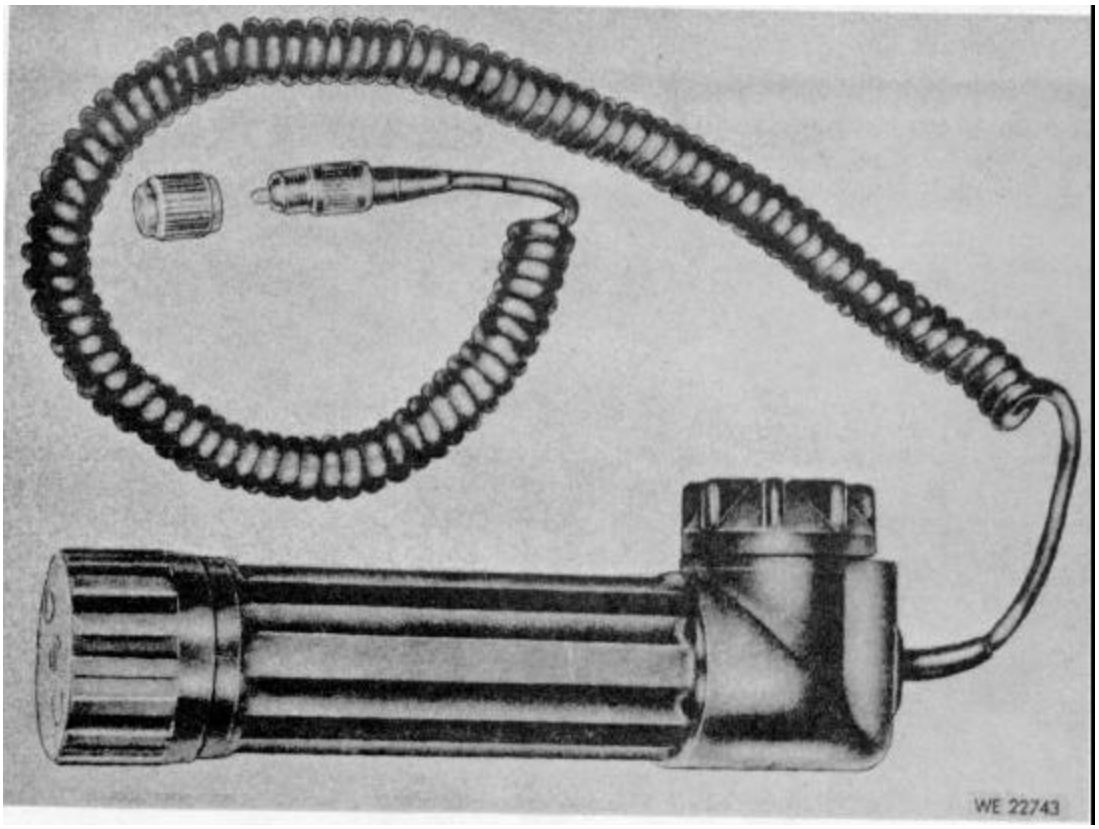


Figure 11. Instrument light M52E1.

Section IV INDEX-FEDERAL STOCK NUMBER AND REFERENCE NUMBER CROSS-REFERENCE TO FIGURE AND ITEM NUMBER

Stock Number	Figure No.	Item No.	Stock Number	Figure No.	Item No.
1240-087-7281	1	1	1240-891-4539	3	3
1240-087-7282	1	2	1240-891-4540	1	5
1240-087-7284	8	7	1240-891-4541	8	5
1240-089-1875	11	--	4010-016-8704	8	3
1240-483-1171	5	3	4730-893-5885	8	4
1240-782-9652	10	--	5305-054-5646	8	1
1240-891-1287	3	2	5305-685-1570	9	1
1240-891-1288	5	3	5305-717-6950	3	1
1240-891-1289	1	4	5305-770-2533	1	3

Reference No.	Mfg Code	Figure No.	Item No.	Reference No.	Mfg Code	Figure No.	Item No.
MS16555-625	96906	9	5	10543481	19200	1	1
MS16995-16	96906	9	2	10543482	19200	5	3
MS35338-136	96906	9	3	10543483	19200	6	6
MS51957-12	96906	8	1	10543484	19200	6	1
MS51959-13	96906'	1	3	10543485	19200	6	5
MS51963-9	96906	3	1	10543486	19200	7	8
10541429	19200	8	3	10543487	19200	7	6
10543448	19200	4	2	10543488	19200	7	1
10543450	19200	4	4	10543489	19200	9	4
10543451	19200	4	5	10543490	19200	1	2B
10543452	19200	6	2	10543491	19200	6	3
10543454	19200	2	4	10543492	19200	7	3
10543455	19200	6	4	10543493	19200	1	2A
10543456	19200	7	7	10543494	19200	1	2
10543457	19200	7	4	10543495	19200	8	9
10543458	19200	7	2	10543496	19200	8	7
10543459	19200	2	2	10543497	19200	8	6
10543471	19200	4	6	10543498	19200	8	5
10543472	19200	4	1	10544241-1	19200	3	3
10543473	19200	4	3	10544241-2	19200	1	5
10543474	19200	9	6	10553462	19200	11	--
10543475	19200	3	2	10553971	19200	10	--
10543476	19200	5	1	10555157-8	19200	9	1
10543477	19200	2	1	11728181	19200	6	4
10543478	19200	2	3	11728182	19200	8	9
10543479	19200	2	5	11728184	19200	5	3
10543480	19200	1	4	8587298	19200	8	4

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By Order of the Secretary of the Army:

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

Official:

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

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