

TM 9-1240-259-35

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

FIELD AND DEPOT MAINTENANCE MANUAL

TELESCOPE M103



HEADQUARTERS, DEPARTMENT OF THE ARMY

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TELESCOPE M103

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SECTION I

INTRODUCTION

Section 1. GENERAL

1. Scope

a. This manual contains instructions for the information of personnel responsible for field and depot maintenance of telescope M103, which is beyond the scope of the tools, equipment, or supplies normally available to using organizations.

b. This manual contains a description of telescope M103. It also specifies troubleshooting procedures, disassembly, repair, overhaul, and assembly of telescope M103 peculiar to field and depot maintenance. The instructions in this manual are intended for maintenance specialists who have been thoroughly trained in maintenance practices.

c. The maintenance functions contained in this manual describe the concept of IROAN (Inspect and Repair Only As Necessary). This technique is applicable to the maintenance of telescope M103 and all associated repairable equipment at all echelons of maintenance. It does not change or lower the required quality of maintenance or prescribed serviceability standards.

d. The appendix contains a list of current references including supply and technical manuals, forms, and other available publications applicable to telescope M103. The maintenance allocation chart is included in TM 9-1015-223-12. TM 9-1240-259-35P lists repair parts, special tools, and equipment authorized to field and depot personnel.

e. Operation, lubrication, and all maintenance operations allocated to using organizations in performing maintenance work within their scope for telescope M103 are contained in TM 9-1015-223-12.

f. This first edition is being published in advance of complete technical review. Any errors or omissions will be forwarded on DA Form 2028 direct to the Commanding

Officer, Raritan Arsenal, Metuchen, N. J.,
ATTN: ORDJR-OPRA.

2. Maintenance Allocation and Parts

a. Field maintenance responsibilities prescribed in this manual will apply as reflected in the maintenance allocation chart in TM 9-1015-223-12 and as reflected by the allocation of repair parts and tools listed in TM 9-1240-259-35P.

b. Depot maintenance responsibilities will provide for complete overhaul of telescope M103 as reflected by the IROAN concept for the purpose of repairing or overhauling an unserviceable item.

c. Depot maintenance parts are listed in TM 9-1240-259-35P which is the authority for requisitioning replacements. Parts not listed therein but required by depot shops may be requisitioned and will be supplied, if available, when the need is substantiated. Requisitions for parts not listed in TM 9-1240-259-35P will contain a complete justification of requirements. Requisitions for assemblies will be held to a minimum. Whenever possible, overhaul of assemblies will be held to a minimum. Whenever possible, overhaul of assemblies will be accomplished. When feasible, local fabrications may be required for those parts unable to be supplied.

3. Forms, Records, and Reports

a. *General.* Responsibility for the proper execution of forms, records, and reports rests upon the Commanding Officers of all units maintaining this equipment. However, the value of accurate records must be fully appreciated by all persons responsible for their compilation, maintenance, and use. Records, reports, and authorized forms are normally utilized to indicate the type, quantity, and condition

of materiel to be inspected, to be repaired, or to be used in repair. Properly executed forms convey authorization and serve as records of work performed. The forms, record, and reports establish the work required, the progress of the work, and the status of the materiel upon completion of its repair.

b. Authorized Forms. The forms generally applicable to units maintaining this materiel are listed in the appendix. For instruction on the use of these forms, refer to FM 9-3 and FM 9-4. For a listing of all forms, refer to DA Pam 310-2.

c. Field Reports of Accidents. The reports necessary to comply with the requirements of the Army safety program are prescribed in detail in AR 385-40. These reports are required whenever accidents involving injury to personnel or damage to materiel occur.

d. Reports of unsatisfactory Equipment or Materials. Any deficiencies detected in the equipment covered herein, which occur under the circumstances indicated in AR 700-38, should be immediately reported in accordance with the applicable instructions in cited regulations.

Section II. DESCRIPTION AND DATA

4. General

This section provides an overall description of the major item and includes a reference to the materiel with which it is used. It also describes the assemblies and how they tie into the complete telescope MI03.

5. Description

a. General. Telescope MI03 (fig. 1) is a lightweight, hermetically-sealed, 3-power, fixed-focus optical instrument equipped with a ballistic-type reticle (fig. 2). The telescope can be quickly inserted or removed from telescope mount M110, which is mounted on the left of 90-mm rifle M67. Clamp and bracket assembly 7659949 is provided to mount instrument light 8246214 to the front bracket assembly of the rifle. The instrument light supplies the source of light to illuminate the reticle for night operations. Carrying case 8575980 is also provided to protect telescope MI03 during transit or storage.

b. Main Assemblies. Telescope MI03 (fig. 1) consists of an Offset housing and holder which are treated as main assemblies throughout the test.

- (1) The housing assembly contains the eyepiece assembly and incloses the prism, forming the larger diameter leg of the instrument. The eyepiece assembly consists of the eyelens, field lens, and reticle as-

sembly. The eyelens rests against an internal shoulder of the cell, and is held in place by a separator. The field lens rests the separator, and is held in place by an aluminum alloy retainer. The reticle and level vial are contained in the end of the eyelens cell in a reticle cell assembly. An additional retainer holds the reticle in the reticle cell. A dovetail slot to accept the instrument light bracket is machined on boss of the house just above counterbored hole. The counterbored hole is provided for mounting a cylindrical red glass window, to enable both the reticle and the level vial to be illuminated. The red glass provides this illumination with a minimum loss of target contrast. A rubber eyeshield is also provided and fits over flange on the end of the housing. The eyeshield protects the observer's eye from glare and prevents injury during the firing of the weapon.

- (2) The holder contains the objective cell assembly, provides the mounting surface for the prism cluster, and forms the smaller diameter leg of the instrument. The Abbe type prism cluster is bonded to the surface of a disk-shaped flange at the end of the holder. A conically-shaped shoulder, machined

on the holder near the flange, provides an accurate seating for the telescope in telescope mount M110. Three segments of a left-hand helical thread, with a lead three times the pitch, are machined on the surface of the holder near the end opposite the flange to engage mating threads in telescope mount M110. An axial slot (keyway) machined in the holder accepts a key of the spring assembly of the telescope mount on installation in the mount. The engraved index mark on the slot enables the telescope to be

properly aligned with the mount for installation.

6. Data

a. Optical Characteristics.

Magnification 3X
Diameter of exit pupil 0.250
Field of view $.10^{\circ}$
Eyepiece focus fixed at -1 diopter
Equivalent focal length of objective . . 3.601 in.
Equivalent focal length of eyepiece . . . 1.202 in.

b. Physical Characteristics.

Length 6-1/4 in.
Diameter 2-3/4 in.
Weight 15 oz.

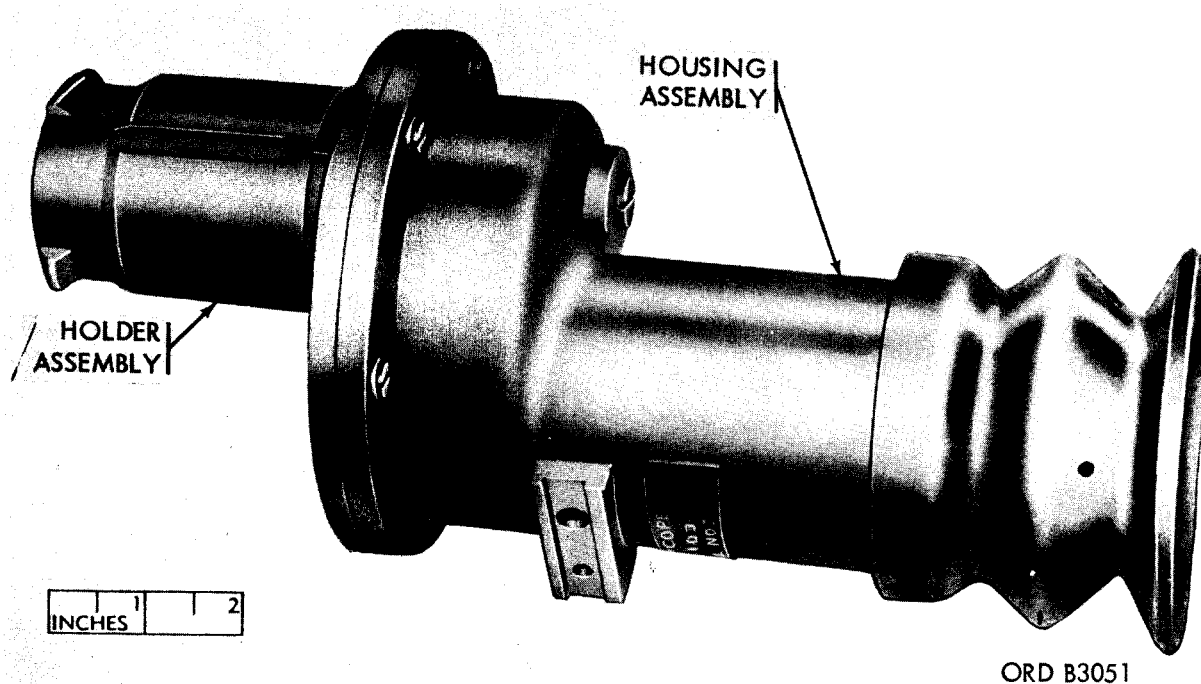


Figure 1. Telescope M103.