

TECHNICAL MANUAL

OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT
AND GENERAL SUPPORT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
FOR
FIRE CONTROL SUBSYSTEM TEST SET
AN/GSM-249
P/N 2201736-05
NSN 4931-00-121-8707

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Current as of 11 May 1981

REPORTING OF ERRORS

You can help improve this manual by calling attention to errors and by recommending improvements and stating your reasons for the recommendations. Your letter or DA Form 2028, Recommended Changes to Publications, should be mailed directly to Commander, U.S. Army Armament Materiel Readiness Command, ATTN: DRSAR-MAS, Rock Island, Illinois 61299. A reply will be furnished directly to you.

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CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope.

This manual is for your use in operating and maintaining the AN/GSM-249 Fire Control Subsystem Test Set (the test set). The manual is divided into five chapters and three appendixes. Chapter 1 describes the test set; Chapter 2 provides detailed theory of operation, and Chapter 3 provides operating instructions. Chapter 4 provides maintenance instructions, and Chapter 5 provides final inspection instructions. Appendix A is a list of references. Appendix B contains a Basic Issue Items List and Repair Parts and Special Tools List. Appendix C is the Maintenance Allocation Chart.

1-2. Maintenance Forms and Records.

Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed and prescribed in TM 38-750, The Army Maintenance Management Systems (TAMMS).

1-3. Administrative Storage.

Administrative storage of the test set shall be accomplished in accordance with the provisions of TM 740-90-1.

1-4. Destruction of Materiel to Prevent Enemy Use.

Refer to TM 750-244-1-5 for procedures to be used in destruction of the test set to prevent use by the enemy.

1-5. Calibration.

The digital multimeter in the test set is to be calibrated periodically. These calibration instructions are contained in TB 9-4931-363-50.

1-6. Quality Assurance/Quality Control (QA/QC).

There are no QA/QC requirements for the test set.

1-7. Reporting Equipment Improvement Recommendations (EIRs).

EIRs will be prepared on DA Form 2407, Maintenance Request. Instructions for preparing EIRs are provided in TM 38-750, The Army Maintenance Management System. EIRs should be mailed directly to Commander, U.S. Army Armament Materiel Readiness Command, ATTN: DRSAR-MAS, Rock Island, Illinois 61201. A reply will be furnished directly to you.

Section II. DESCRIPTION AND DATA

1-8. General (fig. 1-1).

a. The test set is used during alignment, boresighting, and test of a model XM12801- a model XM136 helmet sight subsystem (HSS); HSS XM128 is used in an AH-1Q/AH-1S(Mod) Cobra Helicopter and HSS XM136, in an AH-1S Cobra Helicopter. As shown in figure 1-1, the test set is made up of a test set subassembly, a linkage orientation device (LOD), a helmet boresight tool, a circuit card extractor, a connector shorting assembly, and four cable assemblies; these items are discussed in detail in paragraphs 1-9 through 1-16.

b. As covered in detailed procedures in TM 9-1270-212-14&P, the test set is used not only for alignment and boresighting of the HSS but also for complete electrical testing, isolating and verifying equipment failures that are detected by the built-in-test (BIT) circuits in the HSS EIA. The test set is used to test the EIA and the two linkages as a system or as separate items, as well as the helmet sight assembly. It can also be used to test individual subassemblies of the EIA after they are removed from the EIA; separate tests are provided in TM 9-1270-212-14&P for buffer amplifier modules A1 through A8 and for circuit card assemblies A9 through A13 and A15. The only EIA subassembly that cannot be tested as a separate item is azimuth bias circuit card assembly A14 in the EIA for XM136; this circuit card assembly does not exist in the EIA for XM128.

NOTE

In an EIA from XM128, the logic circuit card assembly has a designation of A10 versus a designation of A15 in an EIA from XM136.

1-9. Test Set Subassembly.

The test set subassembly consists of two main items, which are the test set chassis assembly and the test set container, and two plates, which are the test set instruction plate and the test set identification plate. The test set chassis assembly is mounted in the bottom part of the test set container, as shown in figure 1-1, but may be removed and mounted in an electrical-equipment rack. The test set identification plate is mounted on the top (front panel) of the test set chassis assembly. The test set instruction plate, which states the part numbers of the HSS items which can be tested with the test set, is mounted on the cover for the

test-set-container storage compartments. The test set container is discussed further in paragraph 1-10 and the test set chassis assembly, in paragraph 1-11.

1-10. Test Set Container.

All other test set items are stored in the test set container. Except for the test set chassis assembly, which is screw-mounted in the bottom part of the container, the other test set items are stored in the top part (the lid) of the container. (Figure 1-1 shows the container open and indicates the storage compartments in the container lid; figure 1-2 shows the closed container). The container is aluminum and is equipped with carrying handles, four clasp fasteners to secure the lid to the bottom section, and slip-out hinges to permit removal of the lid during operation. A seal between the lid and the bottom section insures that the container is airtight when the two sections are closed and secured. An air-bleed valve on the side of the container is depressed to equalize the container internal pressure and the external pressure. This valve must be depressed before an attempt is made to open the container.

1-11. Test Set Chassis Assembly.

The test set chassis assembly, mounted in the bottom of the test set container (fig. 1-1), has an aluminum control panel on which are mounted all the controls, indicators, and connectors. Inside the chassis are the other electrical components, including the two circuit card assemblies, A2 and A12, which are mounted on brackets secured to the back of the control panel.

1-12. Linkage Orientation Device (fig. 3-2).

a. The LOD is used to align the gunner and pilot linkage assemblies. The LOD consists of a leveling base to which is attached a bubble level assembly, a bubble level reflector, a rail clamp base assembly, an alignment pin, a magnet, a magnet adjustment device, and a borescope angle bracket.

b. The bubble level assembly is used to check the alignment of the linkage rails after the level assembly has been properly adjusted on the telescopic sighting unit (TSU) boresight device. The bubble level reflector enables the operator to check the bubble level from an angle. The rail clamp base assembly has deep parallel grooves in the base surface that are designed to fit up against the linkage rails

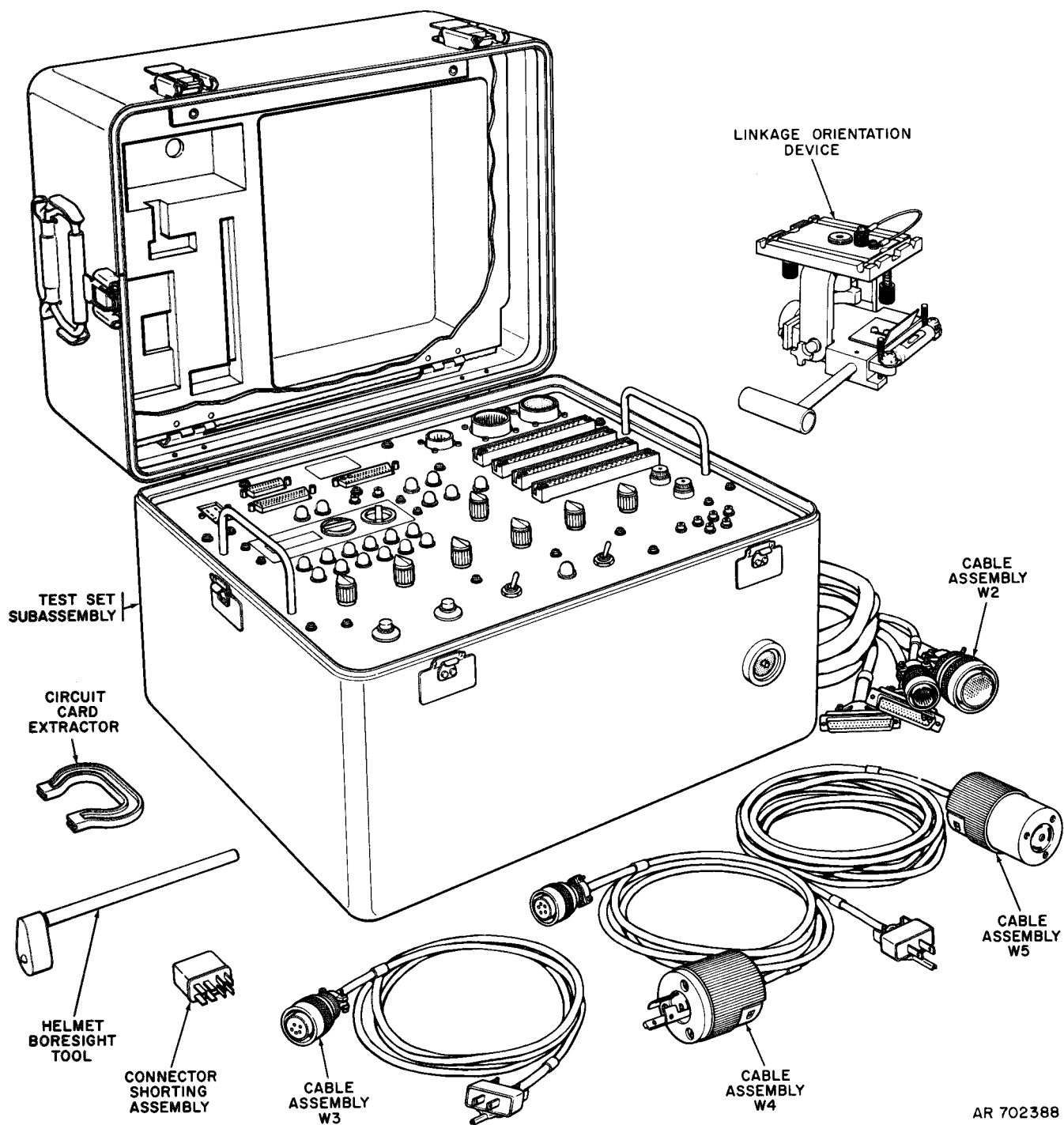


Figure 1-1. Test set AN/GSM-249