TECHNICAL MANUAL

ORGANIZATIONAL MAINTENANCE MANUAL
ELECTRONIC CIRCUIT PLUG-IN
UNIT TEST SET TS-3317 EQUIPMENT MAINTENANCE

EXPANDED TROUBLESHOOTING
(LOGIC DIAGRAM THEORY)

GUIDED MISSILE AIR DEFENSE SYSTEM
AN/TSQ-73

This copy is a reprint which includes current pages from Change 2.

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Organizational Maintenance Manual: Electronic Circuit Plug-In Unit Test Set TS-3317

Expanded Troubleshooting (Logic Diagram Theory)

GUIDED MISSILE AIR DEFENSE SYSTEM AN/TSQ-73

Current to Tape Version 34

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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CHAPTER 7
MODULE TEST SET EXPANDED TROUBLESHOOTING

SECTION I. INTRODUCTION

7-1. Scope. The expanded troubleshooting part of TM 9-1430-655-20-9 of the Module Test Set (MTS) Equipment Maintenance for Guided Missile Air Defense System AN/TSQ-73 is contained in volumes two and three. It provides supplemental information for the use and guidance of advanced personnel responsible for repair of the MTS beyond the scope of organizational maintenance covered in the basic TM 9-1430-655-20 series of technical manuals.

7-2. Expanded Troubleshooting Concept. Expanded troubleshooting is required when existing fault isolation procedures in the basic manuals fail to isolate and correct a malfunction. The troubleshooting covered in this manual is based on the use of existing onsite equipment (tapes, tools, test equipment, spare parts, and publications). Isolation of malfunctions is based on the fault analysis of normal system operating conditions and the use of built-in maintenance and diagnostic (M&D) software programs.

7-3. Troubleshooting Aids. Volume two contains the detailed descriptions and the related functional block diagrams. The functional block diagrams are related to the functional logic diagrams in volume three by the titles of the functional areas. Power distribution diagrams cabling diagrams, and front-panel schematic diagrams are also supplied in volume three.

a. Input/Output Tables. Input and output tables are provided, as applicable, for each figure and sheet to enable easy access to signals referenced to other diagrams.

b. Input/Output Symbols. Symbols used on diagrams to indicate input and output signals include the following:

▲ Indicates input from another figure.
Δ Indicates input from the same figure.
■ Indicates output to another figure.
□ Indicates output to the same figure.
◪ Indicates output to the same and another figure.

c. Equipment Interface. The troubleshooting diagrams may reference inputs and outputs interfacing between other pieces of equipment. When a notation shows that external equipment is involved, it is assumed that the user will refer to the applicable troubleshooting information provided for that equipment.

d. Logic Symbols. Logic symbols depend on card types. For discrete circuit cards containing conventional integrated circuits, conventional logic symbols are used. These symbols are used independently, with card locations and card pin numbers notated with the symbol. For analog circuits, circuit card details are provided only to a functional level.

7-4. Physical Description. The MTS (fig. 7-1) is a portable case-mounted assembly normally mounted in the maintenance bench. Accessories and adapters supplied with the MTS are stored in the maintenance bench and are shown in figure 7-2. The MTS includes two digital card racks, one analog card rack mounted in a frame attached to a front panel assembly, and two dc/dc converter assemblies. The chassis, which includes the card racks, frame, and front panel assembly, is contained in a case assembly. Refer to TM 9-1430-655-20-1 for cabling diagrams depicting the MTS installation. Refer to table 7-1 for a cross-reference of part numbers and drawing numbers for major system equipment in reference-designator order. Refer to table 7-2 for a detailed cross-reference of major MTS assemblies and components.

a. Case Assembly. The case is constructed of welded aluminum alloy. Handles on both sides are for carrying it. Filtered air vents on top and bottom allow cooling air to circulate through the interior.

b. Front Panel Assembly (fig. 7-3). The front panel assembly contains the controls and indicators for the MTS. On the right side of the front panel assembly are four connectors. One connector interfaces with prime power. The other three interface with the probe assembly and the special purpose cable assembly. Behind the access panel on the front panel assembly are two connectors (J6 and J7) and a self-test strip. Connector J6 interfaces with a testable circuit card during individual card test. Connector J7 provides test points for MTS internal logic M&D purposes. The self-test strip interfaces with the probe assembly during self-test. The frame assembly is attached to the front panel assembly with six screws. The front panel assembly contains eight captive fasteners that attach the chassis and the front panel to the case.

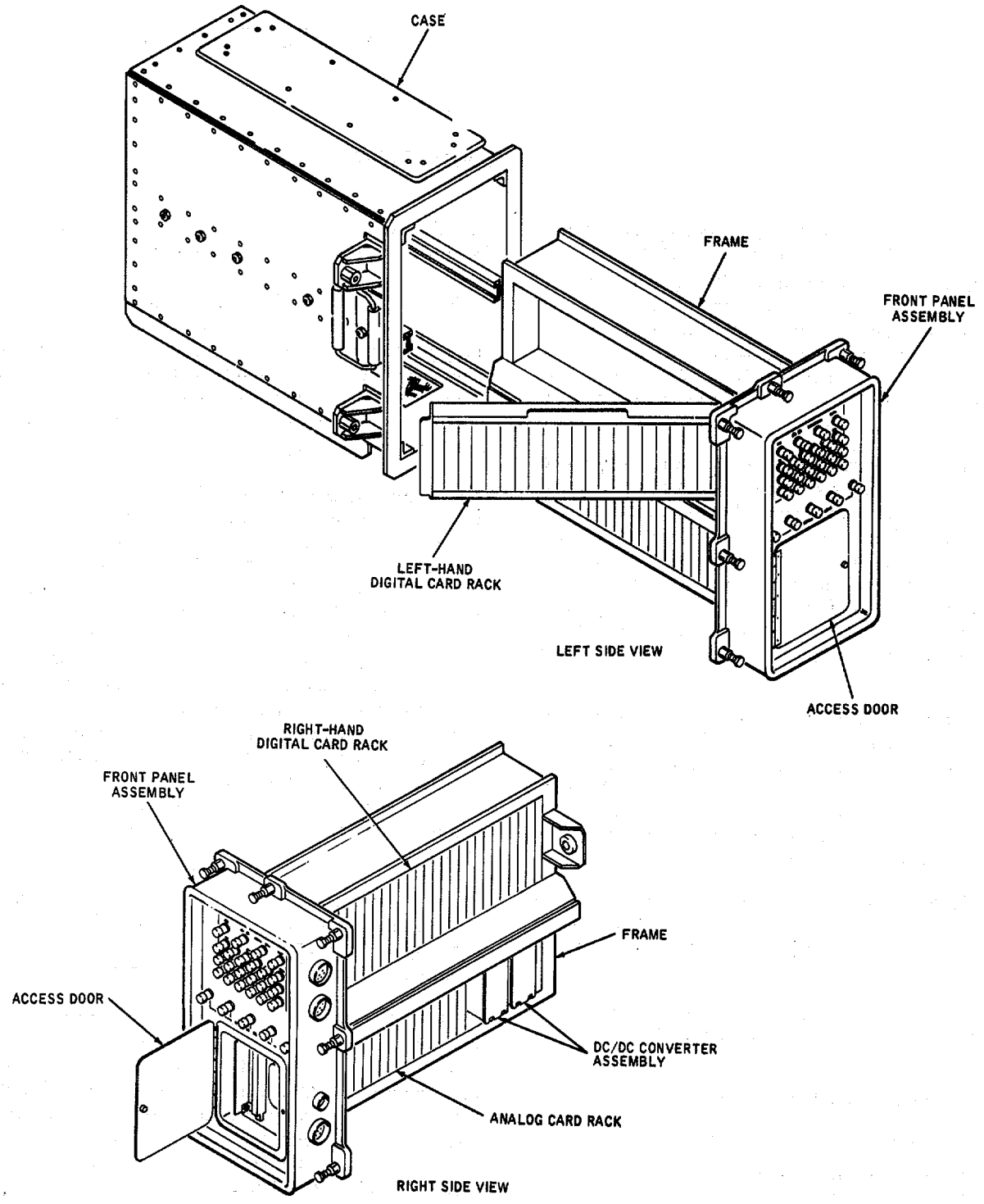

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Figure 7-1. Module Test Set Major Assemblies