TECHNICAL MANUAL

ORGANIZATIONAL MAINTENANCE MANUAL
MAGNETIC TAPE UNIT

EXPANDED TROUBLESHOOTING
(LOGIC DIAGRAM THEORY)

GUIDED MISSILE
AIR DEFENSE SYSTEM
AN/TSQ-73

DEPARTMENT OF THE ARMY

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ORGANIZATIONAL MAINTENANCE MANUAL: MAGNETIC TAPE UNIT EXPANDED TROUBLESHOOTING (LOGIC DIAGRAM THEORY) GUIDED MISSILE AIR DEFENSE SYSTEM AN/TSQ-73

REPORTING OF ERRORS

You can help improve this publication. If you find any mistakes, or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in back of this manual direct to: Commander, U.S. Army Missile Command, ATTN: DRSMI-SNPM, Redstone Arsenal, AL 35898. A reply will be furnished to you.

TABLE OF CONTENTS

TABLE OF CONTENTS - Continued

Chapter Page

LIST OF ILLUSTRATIONS

LIST OF ILLUSTRATIONS - Continued

LIST OF TABLES

CHAPTER 5

MAGNETIC TAPE UNIT
EXPANDED TROUBLESHOOTING

Section I. INTRODUCTION

5-1. Scope. The expanded troubleshooting part of TM 9-1430-655-20-5 of the Recorder-Reproducer RD-449/TSQ-73(V), hereinafter referred to as the magnetic tape unit (MTU), Equipment Maintenance for Guided Missile Air Defense System AN/ TSQ-73 is contained in volumes 2 and 3. It provides supplemental information for the use and guidance of advanced personnel responsible for repair of the MTU beyond the scope of organizational maintenance covered in the basic TM 9-1430-655-20 series of technical manuals.

5-2. 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.

5-3. Troubleshooting Aids. Volume 2 contains the detailed descriptions and the related functional block diagrams. The functional block diagrams are related to the functional logic diagrams in volume 3 by the titles of the functional areas. Power distribution diagrams, cabling diagrams, and front-panel schematic diagrams are also supplied in volume 3.

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.

△ 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.

↔ Indicates bidirectional signal flow.

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 functional level.

5-4. Physical Description (fig. 5-1). The MTU includes magnetic tape transport Al and an associated tape cartridge, card cage assembly A2, dc/dc converter PS 1, and a front-panel assembly containing switches, indicators, and external interface connectors. Locations and reference designations of major components of the MTU are shown in figure 5-2. The MTU major subassemblies are described in the following subparagraphs.

a. Front Panel Assembly (fig. 5-2). The front panel assembly contains all controls and indicators required for operation of the MTU. The controls and indicators permit the operator to place the MTU under automatic data processor (ADP) control, enable the write logic, advance or rewind the tape, enable the fault-detect logic, and perform self-test operations. External interface to the MTU is provided through device exchange channel (DEC) connector J 1 and POWER connector J2 mounted on the right side of the front-panel assembly. Connector J1 provides signal connections between the MTU and ADP and also provides an interlock that makes sure that the interconnecting cable is terminated. Connector J2 provides dc power connections between the MTU and the power cabinet through the maintenance bench power duct and an external power cable.

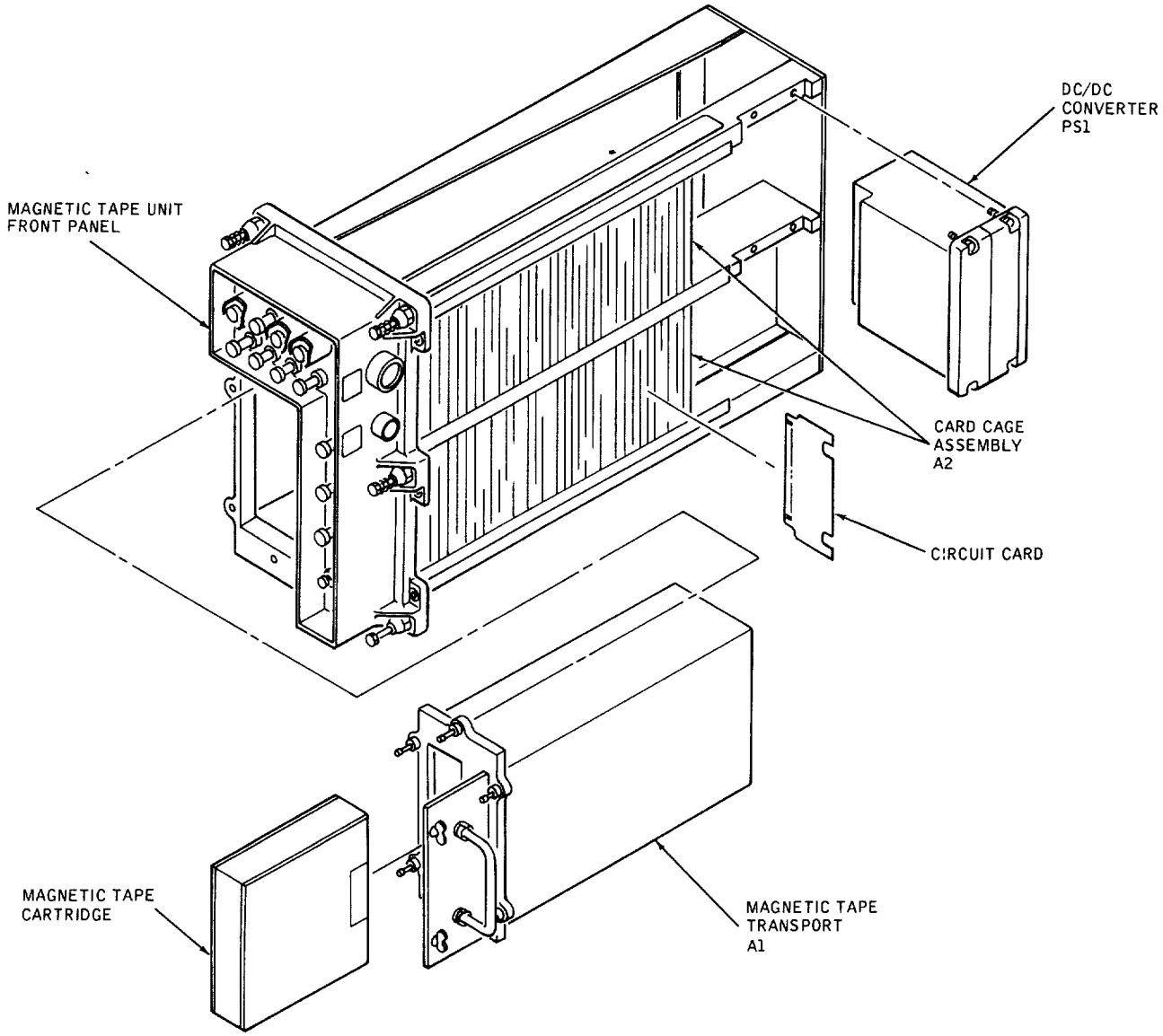

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Figure 5-1. MTU Major Subassemblies.