TECHNICAL MANUAL

ORGANIZATIONAL MAINTENANCE MANUAL: RADAR INTERFACE GUIDED MISSILE AIR DEFENSE SYSTEM AN/TSQ-73

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ORGANIZATIONAL MAINTENANCE MANUAL: RADAR INTERFACE EQUIPMENT MAINTENANCE

GUIDED MISSILE AIR DEFENSE SYSTEM AN/TSQ-73

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CHAPTER 1
INTRODUCTION

Section I. GENERAL

1-1. Scope. This manual contains organizational maintenance information for the Guided Missile Air Defense System ANITSQ-73 Radar Interface Equipment (RIE) (fig. 1-1). The related simulation equipment is treated as part of the RIE. This manual is for use by personnel responsible for maintaining the RIE. Chapter 1 provides physical description and data. Chapter 2 provides theory of operation. Chapter 3 contains component location, maintenance and fault isolation information. Chapter 4 provides removal and replacement procedures and cabling/wiring diagrams.

1-2. Forms, Records, and Reports. Refer to DA PAM 738-750 for the use and completion of all forms required for operation and maintaining the equipment.

1-3. Destruction of Army Materiel to Prevent Enemy Use. If capture of this equipment appears imminent, or if the equipment must be abandoned, it should be destroyed to prevent enemy use. Destruction procedures should be carried out only on orders from the cognizant authority. Refer to TM 43-0002-21 for procedures required for destruction of the equipment and related system materiel. Recorded tape transport cartridges and classified manuals are priority items requiring destruction.

1-4. Reporting Equipment Publications Improvements. Reporting of errors and omissions and recommendations by the individual user for improving this publication is encouraged. Reports should be submitted on DA Form 2028, Recommended Changes to Publications, and forwarded to: Commander, U.S. Army Missile Command, ATTN: AMSMI-LC-ME-P, Redstone Arsenal, AL 35898-5238.

1-5. References. Refer to List of Applicable Publications TM 9-1425-655-L for a list of related publications and reference documents.

1-6. Abbreviations. Refer to appendix A for a list of abbreviations used in this manual.

1-7. Official Nomenclature. The official nomenclature associated with the AN/TSQ-73 equipment is listed in table 1-1. In the table a common name is also provided for each major unit.

Table 1-1. ANITSQ-73 Official Nomenclature

Official nomenclature	Common name
Air Defense System, Guided Missile AN/TSQ-73	AN/TSQ-73 system (battalion configuration)
Shelter, Electrical Equipment S-529/TSQ-73	AN/TSQ-73 system (brigade configuration)
Console, Assault Fire Command, Guided Missile OJ-299/TSQ-73	System shelter (battalion configuration) System shelter (brigade configuration)
Data Display Group OD-96/TSQ-73	Display console
Recorder-Reproducer, Guided Missile System, RD-449/TSQ-73	Data Display Group (DDG) Magnetic Tape Unit (MTU)
Test Set, Electronic Circuit Plug-In Unit TS-3317/TSQ-73	Module Test Set (MTS)

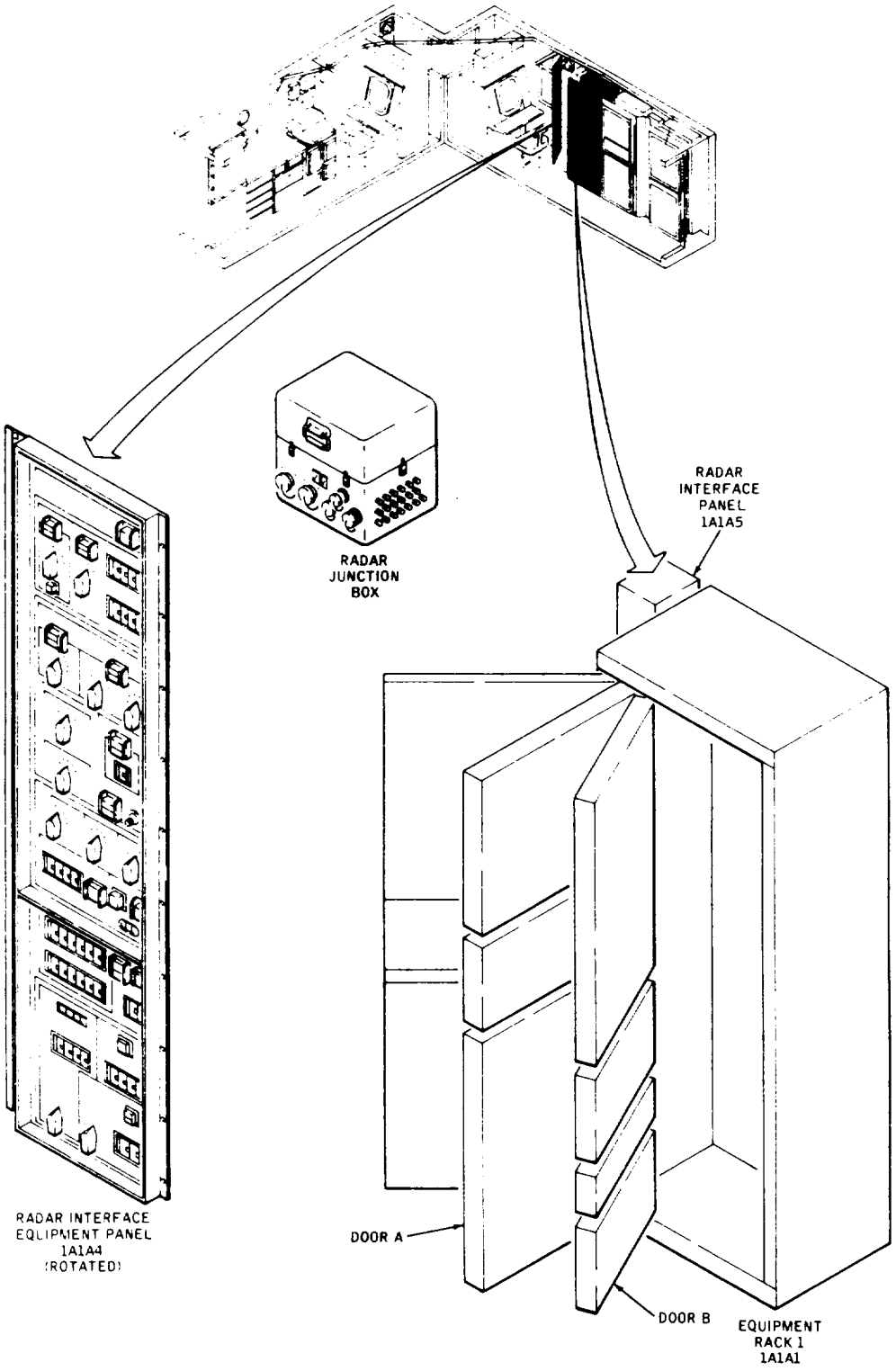

Figure 1-1. Radar Interface Equipment

Section II. DESCRIPTION AND DATA

1-8. General. The Radar Interface Equipment (RIE) includes all of the electronic components in electrical equipment rack 1, in a panel located adjacent to rack 1, and in a radar junction box located external to the electrical equipment shelter (fig. 1-2). RIE functions include radar and IFF data processing and simulation. Although the simulation equipment is not a physical part of the RIE, it is considered a functional unit of the RIE. Except for the physical description and the repair procedures, the simulation equipment is considered separate from the RIE.

1-9. Radar Interface Equipment (RIE). The RIE consists of: RIE I panel 1A1A4; RIE II panel 1A1A1A1; Radar Integration Unit (RIU) 1A1A1A4; Video Processor Unit (VPU) 1A1A1A5: single-port 16K memory unit 1A1A1A7; dc/dc converters 1A1A1PS1 through 1A1A1PS10; radar interface panel 1A1A5; and radar junction box unit 2. Components of the RIE are also located in Radar Simulator Unit (RSU) 1A1A1A6.

a. RIE Panels I and II. RIE panels I and II contain the controls and indicators required for operating and monitoring the RIE.

b. Radar Integration Unit (RIU). The RIU consists of two bays of circuit cards mounted back-to-back on the upper part of rack 1, door A. The bays are hinged to permit access to the circuit card backplanes for maintenance. Communication between the RIU and other units is through ribbon cables which plug into circuit card slots. A standard cable supplies de power to the RIU.

c. Video Processor Unit (VPU). The VPU consists of two bays of circuit cards mounted back-to-back on the lower part of rack 1, door A. The bays are hinged and cabled in the same manner as the RIU.

d. Single-Port 16K Memory Unit. The single-port 16K memory unit in located in the lower half of rack 1, door B. The unit consists of a two-tier card cage with an integral power supply, and uses CMOS Random Access Memories (RAMs) as the storage medium. The unit is functionally organized into two 8K sections, selectable by the 8K SELECT switch on the RIE II panel.

e. DC/DC Converters. The dc/dc converters are located in the center section of rack 1, door A. With the exception of the single-port 16K memory unit, the dc/dc Iconverters provide all the necessary dc voltages for the RIE and the simulation equipment. The de/dc converters are of modular construction, and connect to the system cabling with two standard connectors.

f. Deleted.

g Radar Interface Panel. Radar interface panel 1A1A5 is mounted on the shelter wall between equipment rack 1A1A1 and RIE 1 panel 1A1A4. The panel provides the connectors and wiring for interconnecting the units of the RIE and the interfacing display and ADP equipments and the local radar and IFF equipments (through the radar demarkation panel).

h. Radar Junction Box. The Radar Junction Box (RJB) provides interface between the AN/TSQ-73 system and the interfacing radar equipment, buffering and driving the video, trigger, syncehro, and logic signals. The RJB consists of a two-section (lower and upper) aluminum assembly. The lower section (case) contains the controls and indicators for operation of the RJB, and the electronics for processing, control, and distribution of radar and IFF signals. Most of the controls and indicators are located either on a switch bracket or on an accessory panel, both of which are mounted in the lower section. The primary power switch and power indicator are located on the outer wall of the case. The electronic circuits contained in the case are packaged on ten 4-inch by 5-inch circuit card assemblies (A1 through A9, and A11) installed in a card cage assembly. The case also contains a power supply for the electronics (power supply/data converter PS1) and the connectors required for interfacing with the radar, IFF, and AN/TSQ-73 system interconnecting cables. The hinged upper section (cover) is latched to the case to provide a watertight protective cover for the RJB electronics. The hinges connecting the cover to the case allow the cover to be removed during operation or servicing of the RJB. Spare fuses for power supply/data converter PSI (power supply) are stored in the cover.

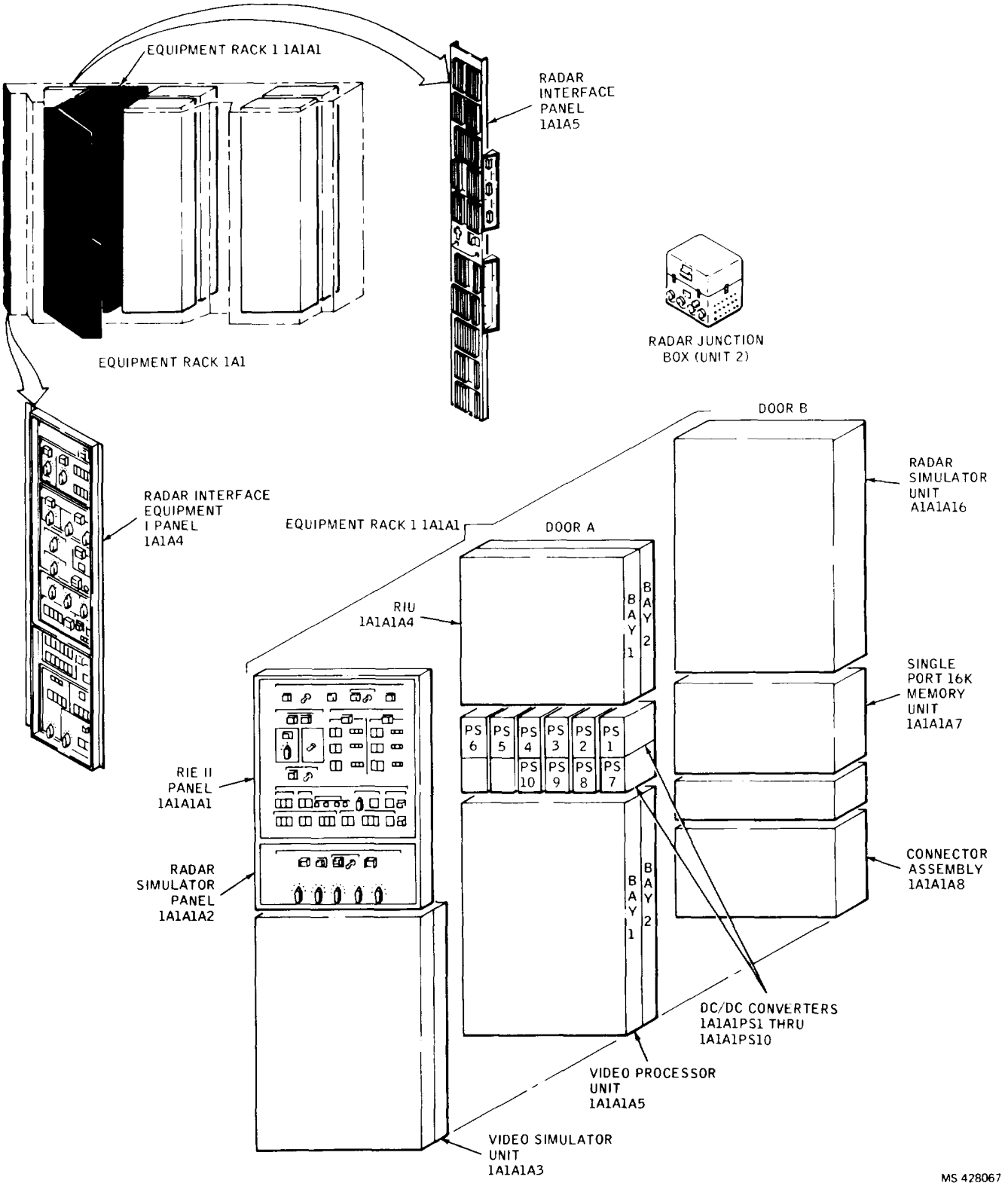

Figure 1-2. Radar Interface Equipment Major Units and Assemblies