DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR'S MANUAL:

DATA AND VOICE COMMUNICATION

OPERATING PROCEDURES

GUIDED MISSILE AIR DEFENSE

SYSTEM AN/TSQ-73

H E A D Q U A R T E R S , D E P A R T M E N T O F T H E A R M Y
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GUIDED MISSILE AIR DEFENSE SYSTEM AN/TSQ-73
Current to Tape Version 34.1

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CHAPTER 10

DATA AND VOICE COMMUNICATION

Section I. INTRODUCTION

10-1. Scope. This volume provides the AN/TSQ-73 operator the information required to establish and maintain data and voice communications during air defense operations. Procedures assume that the requirements presented in TM 9-1430-651-12 (Emplacement and Preparation for Travel) and TM-1430-652-10-3 (Initialization and Operating Procedures) have been complied with, i.e., the system is installed, initialized, and is operational. Control and indicator information for data and voice communication equipment is provided in TM 9-1430-652-10-2. Maintenance and troubleshooting information is provided in TM 9-1430-655-20-7.

10-2. Reporting Equipment Publications Improvements. You can help improve this publication. If you **f**ind 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) direct to: Commander, U.S. Army Missile Command, ATTN: AMSMI-MMC-LS-LP, Redstone Arsenal, AL 35898-5238. You may also send in your comments electronically to our e-mail address: ls-lp@redstone.emh2.army.mil or by fax 205-842-6546/DSN 788-6546.

Section II. DESCRIPTION AND DATA

10-3. General. The communications equipment (fig.10-1) consists of two independent functional groups, voice communication and data communication equipment, which share the use of the communications patching panel. When used in the Mobile Subscriber Equipment/Air Defense Interface (MSE/ADI) (for ANI/SQ-73 system equipped with MSE/ADI), an Operator Interface (OI) is provided to control voice and data communication links to the MSE network, via the communications patching panel. These equipments are discussed in the following paragraphs.

10-4. Voice Communication Equipment Description.

a. *General.* The voice communication equipment consists of a Voice Communication Central (VCC) and Voice Communication Stations (VCS). Normally four VCSs are utilized in Guided Missile Air Defense System AN/TSQ-73; however, up to 10 stations may be utilized with the addition of printed circuit boards. One VCS is located in each display console and two are wall mounted on the roadside of the shelter above the maintenance bench near the keyboard printer.

b. *VCC Description.* The VCC is located in the communications cabinet assembly on the roadside of the shelter above the power cabinet and provides the switching, signaling, and interfacing capability required to establish voice communications between VCS operators and personnel external to the AN/TSQ-73 system (fig. 10-1). The VCC consists of a control panel assembly and a wired card cage for printed circuit boards. All controls and indicators on the VCC, with the exception of the power switches, are oriented toward fault isolation and maintenance particularly in the area of analog circuitry.

c. *VCS Description.* The VCSs provide the operator access to the voice communications system and consist of an electronics enclosure assembly and a front panel assembly. The electronics enclosure assembly houses four circuit cards and wiring, and the front panel assembly houses the controls and indicators required to provide operators with rapid access to the voice network. Front panel controls are divided into three functional groups consisting of a station control group, command control group, and subscriber select/indicator control group. The primary communications end-instrument for the VCS in the wall mount configuration is a handset with a push-to-talk switch. A jack is also available for the option of using a headset in conjunction with, or instead of, a handset. In the headset configuration, a push-to-talk switch is not provided and requires a continuous hot microphone operation under control of a voice operated squelch. In the handset configuration, the operator can select the option of continuous hot microphone operation or push-to-talk under switch control. The primary communication end-instrument for the console mounted configuration is a headset with a separate push-to-talk foot switch. A second headset jack provides the option of using two headsets per terminal. The operator can select the option of continuous hot microphone or push-to-talk under switch control.

10-5. Data Communication Equipment Description. The data communication equipment consists of a data terminal set which is made up of a control panel assembly, lower modem assembly, upper modem assembly, and card cage assembly. All parts of the data terminal set are located in equipment rack 2. Functionally, the data terminal set is divided into oscillator common timing, modems, and a control panel. The oscillator common timing circuitry is located in the card cage assembly. Twenty modems are used in a battalion configuration and 12 are used in a brigade configuration. Wiring and space are provided for a total of 32 modems with the addition of circuit cards. Each modem consists of eight circuit cards including a modem control panel for individual channel control of power, format, bit rate, and attenuation. Six power supply modules are also provided with the data terminal set for supplying power to the modems in a battalion configuration and four are provided in a brigade configuration. The data terminal set provides for the exchange of digital data between the Automatic Data Processor (ADP) and up to 20 battalion configuration remote stations or 12 brigade configuration remote stations by using multiple bit rates and modulation techniques. With expansion capabilities, up to 32 remote stations may be connected. The data terminal set operates in conjunction with the communications patching panel which is shared with the voice communication equipment to provide monitoring and patching capabilities for maintenance and test functions.

10-5.1. Operator Interface Description. For AN/TSQ-73 system equipped with MSE/ADI, the OI permits the operator to establish up to nine communication channels to control the transfer of Frequency Shift Keying (FSK) modem data and analog voice signals to other subscriber stations over the MSE network. The OI is located inside the AN/TSQ-73 shelter on the roadside wall above the maintenance bench. The unit contains a power on/off switch and associated indicator, a 16-character keypad, and a 32-character display (16 columns by 2 rows). The keypad provides channel configuration, channel selection, Built-in-Test (BIT), and subscriber dialing. The display provides visual status of the channel configuration for all nine channels (voice or data), the channel and subscriber numbers

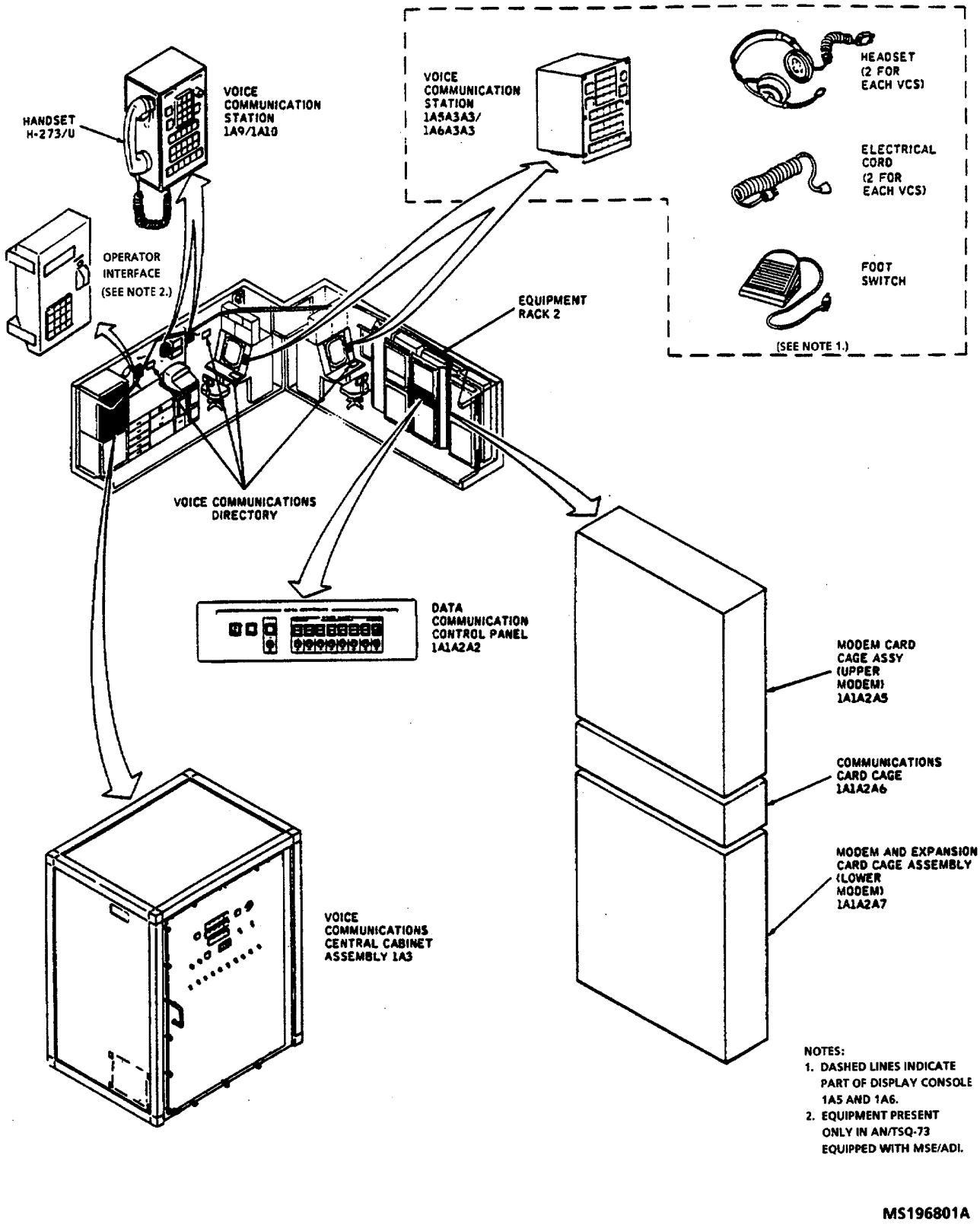

Figure 10-1. Communications Equipment, Major Units and Assemblies (Sheet 1 of 2)