DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR'S MANUAL:

INITIALIZATION AND OPERATING PROCEDURES

GUIDED MISSILE AIR DEFENSE SYSTEM AN/TSQ-73

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OPERATOR MANUAL: INITIALIZATION AND OPERATING PROCEDURES

GUIDED MISSILE AIR DEFENSE SYSTEM AN/TSQ-73

Current to Tape Version 34.1

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CHAPTER 3

SYSTEM INITIALIZATION

Section I. INTRODUCTION

3-1. Scope. This manual contains the initialization and operating procedures and support program operating procedures for the AN/TSQ-73 System. Before the system becomes operational, system initialization procedures (Chapter 3) must be accomplished. These include hardware setup, power turn-on, optional programming procedures, and radar interface equipment (RIE) alinement. The system initialization flowchart (fig. 3-1) outlines the procedures to be followed when initializing the system. System initialization must be performed in the order shown in the flowchart.

NOTE

Be sure that the procedures described in TM 9-1430-651-12 are completed before attempting procedures in this chapter. After power turn-on, system must warm up for 30 minutes before system becomes fully operational.

3-2. Reporting Equipment Publications Improvements. Reporting of errors, 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-MMC-LS-LP, Redstone Arsenal, Alabama 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.

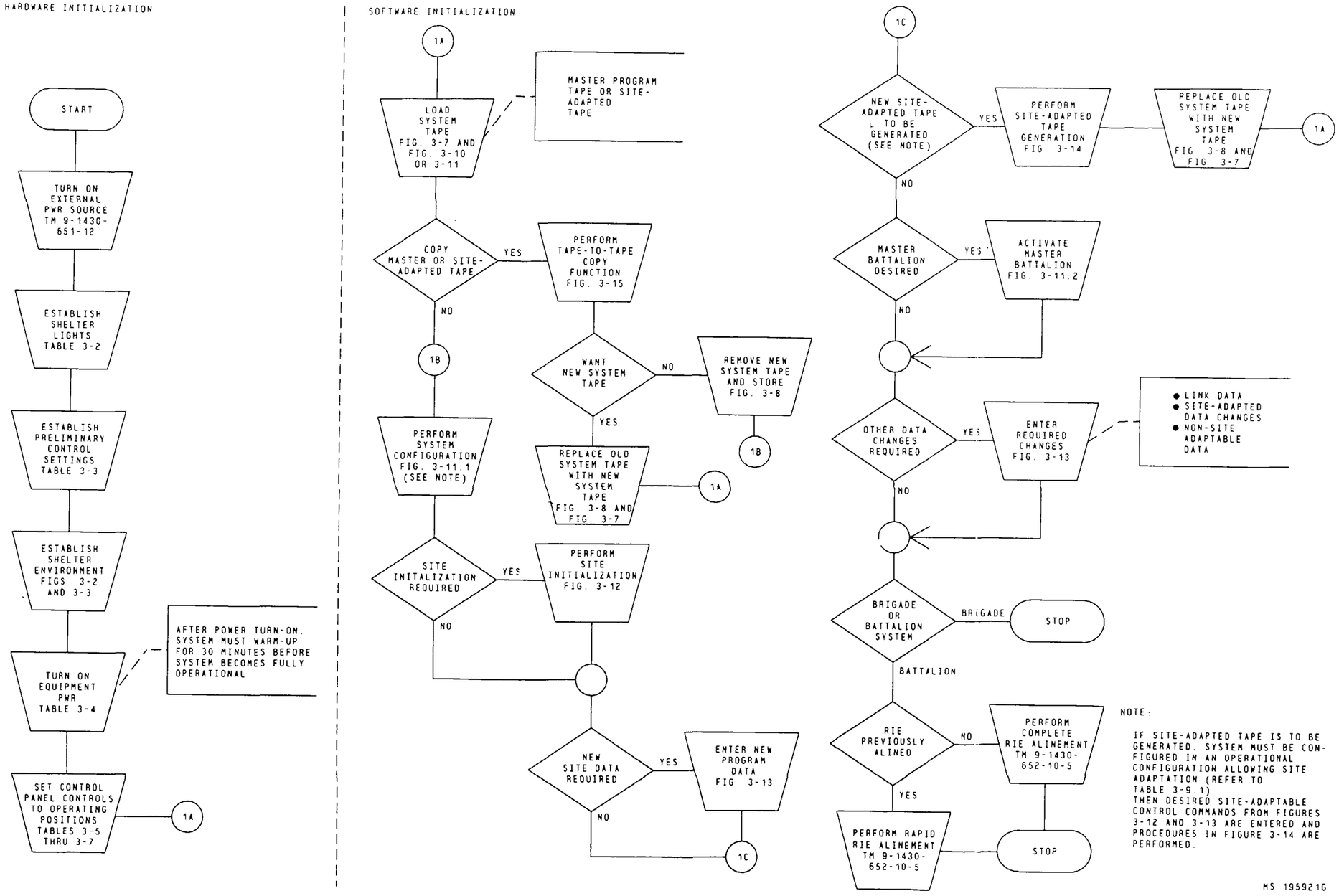

Figure 3-1. System Initialization - Flow Chart

Section II. HARDWARE INITIALIZATION

3-3. General. Initialization of system hardware must be accomplished prior to program entries (software initialization) or normal operation. Shelter lighting must be turned on, equipment control settings must be checked before power is applied and, after power is applied, equipment controls must be set to their initial operating states or positions. The tasks described in the following tables and paragraphs must be accomplished in the order given to prevent possible equipment damage. Refer to TM 9-1425-650-12 for physical location of electronic equipment control panels and TM 9-1430-652-10-2 for descriptions of controls and indicators.

3-4. Equipment Address Options. For the purpose of clarity, a specific equipment configuration and selected channel address settings have been assigned for the initialization. However, some major units are interchangeable electrically and functionally and therefore their addresses can be interchanged. Table 3-1 lists those units and the address options available.

3-5. Establish Shelter Lighting. Table 3-2 lists the switch settings necessary to establish shelter lighting in order to accomplish system initialization.

3-6. Preliminary Control Settings. Only the equipment panel controls listed in table 3-3 must be preset before power is applied; all other control positions are irrelevant. In this case, the listed order of the control settings is irrelevant as long as all the controls are set to the listed positions.

3-7. Power Turn-On. Table 3-4 lists the switch settings for applying power to the system electronic equipment.

WARNING

If the modular collective protection equipment (MCPE) is installed but not operating, air baffle 12 (MCPE/AC air intake control) and door of MCPE protective entrance must be open to prevent depletion of oxygen supply.

3-8. Shelter Environmental Modes. The system shelter may be operated in any one of four different environmental modes as determined by setting shelter air baffles, equipment blowers, and MCPE/air conditioner controls as specified in figures 3-2 and 3-3. Available environmental modes are as follows:

a. *Ambient*. In the ambient environmental mode, both equipment and personnel area temperatures are maintained by outside air.

b. *Vent*. In the vent environmental mode, equipment area temperature is maintained by outside air and personnel area temperature is maintained by the air-conditioner (cooling and heating).

CAUTION

Do not change air conditioner modes when the equipment is initialized and operating as power fluctuations will cause memory errors. Wait for an opportune maintenance period, then perform shutdown and restart changing air conditioner modes.

c. *Air-Conditioned*. In the air-conditioned environmental mode, both equipment and personnel area temperatures are maintained by the air-conditioner.

d. *CBR*. The CBR environmental mode is identical to air-conditioned environmental mode except that shelter air is detoxified and the shelter is pressurized by the Modular Collective Protection Equipment (MCPE).

3-9. Equipment Initialization. Tables 3-5 thru 3-7 list the preliminary operating positions of each equipment panel's controls. Any control or indicator not listed in these tables is irrelevant at this point and may be ignored. Set switches in accordance with table 3-5 and table 3-6 or 3-7. Use table 3-6 for modem control settings for battalion configuration operation or table 3-7 for brigade configuration operation. Table 3-8 lists Modem/Device/Connector assignments.

Table 3-1. Equipment Address Options

Unit	Designations	Selection
DDG No. 1	----	Channel 04
DDG No. 2		Channel 06
Computer	Upper and Lower	Primary or Secondary
Tape Units	Upper and Lower	Channel 0(10) or 1(11)
Consoles	Consoles 1 thru 8	Addresses must start with 0 and be consecutive.
Voice Comm Stations	Wall and console	Addresses 1 thru 10
Memories	Memory 1 thru 4	Memory bank addresses are restricted to 0, 1, 2 or 3.One address must be zero: the remainder must be consecutively numbered but can be in any order (i. e, 3, 0, 2, 1). Duplicate addresses are not allowed.
	Memory 5 thru 8	Nonfunctional
Modems	IA/TB	By addresses assigned during initialization but individual modems must be set for the data link to be used.

[1]The basic requirement is that identical equipment may not have more than one unit with the same address (channel) selected and online. For example, either tape unit can be used for any tape unit function if the proper addressing is used.

Table 3-2. Establish Shelter Lighting

Panel	Control	Setting
POWER TRANSFER UNIT		
	CAUTION **When turning on power for the first time ("cold" start), be sure that all MAIN POWER circuit breakers are off (down position and all DC power panel circuit breakers, except EMERGENCY POWER BATTERY OUTPUT, UPPER MEMORY RACK NO. 2, and LOWER MEMORY RACK NO.2) are on (up) before external power source is turned on.** **When turning on power from a power-loss condition ("re-start"), proceed as above except be sure to keep EMERGENCY OUTPUT circuit breaker in the on (up) position. This permits IBDL backup power to maintain the data in the CMOS memories until main power is established** .	
	NOTE **Be sure external power source is on.**	
AC Power Panel	PHASE AVAILABLE	A,B,C on (ind)
	PHASE ROTATION	A,B,C on (ind)
	POWER SOURCE SELECT	TAC POWER or CONV POWER
	MAIN POWER	
	RELAY COILS SERVICE BREAKER	ON (up)
	SYSTEM POWER ON	Green
	SHELTER circuit breaker	ON (up)
	LIGHTING MAIN	ON (up)
	LOCAL LCU/RMT	LOCAL (LCL/RMT if remote display consoles are used)
	AUX 5V MONITOR	ON (up)

3-4.1/(3-4.2 blank) Deleted

Table 3-2. Establish Shelter Lighting - Continued

Panel	Control	Setting
Single ceiling light assemblies	MAINTENANCE/OPERATIONAL	MAINTENANCE
Dual ceiling light assemblies	MAINTENANCE ON/OFF	ON
Environmental Control Panel	LIGHTING BLKOUT OVERRIDE	ON

NOTE

When AUX 5V MONITOR circuit breaker is set to ON, AC/DC CONVERSION NO. 1 voltage fault UNDER and BATTERY CHRG FAULT indicators may light. Additionally, on the environmental control panel, AIRFLOW FAULT SENSOR DUCT 1 and SENSOR DUCT 2 indicators may light.

Table 3-3. Preliminary Control Settings

Panel	Control	Setting
ADP STATUS AND CONTROL	**POWER**	
	UPPER CPU	OFF
	LOWER CPU	OFF
	IOU	OFF
	ADP	OFF
	ADP STATUS	
	PRIMARY CPU	
	RUN/INHIBIT	INHIBIT
	SECONDARY CPU	
	RUN/INHIBIT	INHIBIT
	DEVICE CONTROL	
	IOX 1	OFF LINE
	IOX 2	OFF LINE
	IOX 3	OFF LINE
	IOM	OFF LINE
	KEYBOARD PRINTER	OFF LINE
	MEMORY CONTROL	
	MEMORY 1	
	MEMORY SELECT	OFF

Table 3-3. Preliminary Control Settings - Continued

Panel	Control	Setting
ADP STATUS AND CONTROL	**MEMORY 2**	
	MEMORY SELECT	OFF
	MEMORY 3	OFF
	MEMORY SELECT	OFF
	MEMORY 4	
	MEMORY SELECT	OFF
	MEMORY 5	
	MEMORY SELECT	OFF
	MEMORY 6	
	MEMORY SELECT	OFF
	MEMORY 7	
	MEMORY SELECT	OFF
	MEMORY 8	
	MEMORY SELECT	OFF
DATA COMMUNICATION	**POWER SUPPLIES**	
	LOWER	
	1(CLOCK)	OFF
	2	OFF
	3	OFF
	4	OFF
	UPPER	
	1	OFF
	2	OFF
	3	OFF
	4	OFF
	IBDL	
	ON/OFF	OFF

NOTE

The modem control panels are located in door 2 of rack 2. The indicated control settings are made on all modem control panels.

Modem	POWER ON/OFF	OFF
RADAR SIMULATOR	MODE	OFF LINE
	RCVR NOISE VOLTS PEAK	OFF