

**TECHNICAL MANUAL**  
**OPERATOR'S MANUAL: CONTROLS AND**  
**INDICATORS**

**GUIDED MISSILE**  
**AIR DEFENSE SYSTEM**  
**AN/TSQ-73**

**This copy is a reprint which includes current  
pages from Changes 1 through 12.**

**OPERATOR MANUAL: CONTROLS AND INDICATORS**

**GUIDED MISSILE AIR DEFENSE SYSTEM AN/TSQ-73**

*Current to Tape Version 34.1*

**REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS**

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: AMSMI- MMC-LS-LP, Redstone Arsenal, AL 35898-5239. A reply will be furnished to you.

You may also send in your comments electronically to our e-mail address: [lslp@redstone-emhs.army.mil](mailto:lslp@redstone-emhs.army.mil) or by fax 205-842-6546/DSN 788-6546.

**TABLE OF CONTENTS**

Chapter	Page
LIST OF ILLUSTRATIONS .....	ii
LIST OF TABLES .....	iv
<b>2 CONTROLS AND INDICATORS.....</b>	<b>2-1</b>
Section I. INTRODUCTION .....	2-1
2-1 Scope .....	2-1
2-2 Reporting Equipment Publications Improvements .....	2-1
Section II. DISPLAY EQUIPMENT .....	2-2
2-3 Guided Missile Assault Fire Command Console OJ-299/TSQ-73(V) Operational Controls and Indicators .....	2-2
2-4 Display Console Setup and Maintenance Controls.....	2-2
2-5 Data Display Group OD-96/TSQ73(V) Status Board Controls and Indicators .....	2-2
2-6. Display Junction Box .....	2-2
Section III. RADAR INTERFACE EQUIPMENT .....	2-91
2-7 Radar Interface Equipment .....	2-91
2-8. Radar Interface Equipment Control Panels.....	2-91
2-9 Radar Simulator Panel .....	2-91
2-10 Radar Junction Box .....	2-91
Section IV. COMMUNICATIONS EQUIPMENT .....	2-108
2-11 Communications Equipment.....	2-108
2-12 Voice Comm Central .....	2-108
2-13 Voice Comm Station .....	2-108
2-13.1 Operator Interface .....	2-108
2-14 Data Communications Panel .....	2-108
2-15 Modem Control Panel .....	2-108
2-16 Communications Patching Panel .....	2-108

Chapter	Page
Section V. AUTOMATIC DATA PROCESSING EQUIPMENT.....	2-121
2-17 Automatic Data Processing Equipment .....	2-121
2-18 ADP Status and Control Panel.....	2-121
2-19 Magnetic Tape Unit .....	2-121
2-20 Keyboard Printer Unit .....	2-121
Section VI. SUPPORT EQUIPMENT .....	2-133
2-21 Support Equipment .....	2-133
2-22 Motor Generator Set .....	2-133
2-23 Diesel Engine Generator ..	2-133
2-24 Power Cabinet .....	2-133
2-25 Modular Collective Protection Equipment ..	2-133
2-26 Environmental Control Panel .....	2-133
2-27 Ceiling Light Panels .....	2-133

LIST OF ILLUSTRATIONS

VOLUME 2

Figure	Title	Page
2-1.	Display Console Functional Layout .....	2-3
2-2.	Display Console CRT Control Panel Controls and Indicators .....	2-4
2-3.	Display Console Maintenance and Setup Controls and Indicators .....	2-6
2-4.	Display Console Alerts Controls and Indicators .....	2-8
2-5.	Display Console Background Data Display Controls and Indicators.....	2-10
2-6.	Display Console Track Data Display Controls and Indicators.....	2-13
2-7.	Display Console Fire Unit Data Display Controls and Indicators .....	2-23
2-8.	Display Console System Mode Controls and Indicators .....	2-28
2-9.	Display Console Task Selections Controls and Indicators .....	2-32
2-10.	Display Console Task Functions Track Data Controls and Indicators .....	2-35
2-11.	Display Console Task Functions ADL Data Controls and Indicators .....	2-38
2-12.	Display Console Task Functions Assign Controls and Indicators .....	2-41
2-13.	Display Console Task Functions Q73 Remote Radar Controls and Indicators .....	2-45
2-14.	Display Console Task Functions Video Switch Controls and Indicators .....	2-48
2-15.	Display Console Task Functions Identification IFF Controls and Indicators .....	2-52
2-15.1	Display Console Task Functions Air Defense Operations Controls and Indicators .....	2-54.1
2-16.	Display Console Task Functions Status Board Data Controls and Indicators .....	2-55
2-17.	Display Console Task Functions PPI Data Entry Controls and Indicators .....	2-58
2-18.	Display Console Task Functions Target Processing Parameters Controls and Indicators ..	2-62
2-19.	Display Console Task Functions Miscellaneous Controls and Indicators .....	2-65
2-20.	Display Console Faults Controls and Indicators .....	2-69
2-21.	Display Console Brightness Controls and Indicators .....	2-71

LIST OF ILLUSTRATIONS-Continued

Figure	Title	Page
2-22.	Display Console Video and ARO Data Selections Controls and Indicators . . . . .	2-74
2-23.	Display Console Voice Comm Station Controls and Indicators . . . . .	2-79
2-24.	Display Console AN Keyboard Controls and Indicators . . . . .	2-82
2-25.	Data Display Group Controls and Indicators . . . . .	2-84
2-26.	Display Junction Box Controls and Indicators . . . . .	2-89
2-27.	Radar Interface Equipment I Panel Controls and Indicators . . . . .	2-92
2-28.	Radar Interface Equipment II Panel Controls and Indicators . . . . .	2-98
2-29.	Radar Simulator Panel Controls and Indicators . . . . .	2-104
2-30.	Radar Junction Box Controls and Indicators . . . . .	2-106
2-31.	Voice Comm Central Panel Controls and Indicators . . . . .	2-109
2-32.	Voice Comm Station Controls and Indicators . . . . .	2-112
2-32.1	Operator Interface Controls and Indicators . . . . .	2-114.1
2-33.	Data Communication Panel Controls and Indicators . . . . .	2-115
2-34.	Modem Control Panel Controls and Indicators . . . . .	2-117
2-35.	Communications Patching Panel Controls and Indicators . . . . .	2-119
2-36.	ADP Status and Control Panel Controls and Indicators . . . . .	2-122
2-37.	Magnetic Tape Unit Controls and Indicators . . . . .	2-128
2-38.	Keyboard Printer Unit Controls and Indicators . . . . .	2-131
2-39.	Motor Generator Set Controls and Indicators . . . . .	2-134
2-40.	Power Transfer Unit Controls and Indicators . . . . .	2-136
2-41.	AC Power Panel Controls and Indicators . . . . .	2-138
2-42.	DC Power Panel Controls and Indicators . . . . .	2-140
2-43.	Modular Collective Protection Equipment Compartment Control Module Controls and Indicators . . . . .	2-142
2-44.	Modular Collective Protection Equipment Power Distribution Unit Controls and Indicators . . . . .	2-144
2-45.	Modular Collective Protection Equipment Entrance Control Module Controls and Indicators . . . . .	2-146
2-46.	Environmental Control Panel Controls and Indicators . . . . .	2-147
2-47.	Ceiling Light Assemblies Controls and Indicators . . . . .	2-149

## LIST OF TABLES

## VOLUME 2

Table	Title	Page
2-1.	Display Console CRT Control Panel Controls and Indicators.....	2-5
2-2.	Display Console Maintenance Controls and Indicators.....	2-7
2-3.	Display Console Alerts Controls and Indicators .....	2-9
2-4.	Display Console Background Data Display Controls and Indicators .....	2-11
2-5.	Display Console Track Data Display Controls and Indicators.....	2-14
2-6.	Display Console Fire Unit Data Display Controls and Indicators.....	2-24
2-7.	Display Console System Mode Controls and Indicators.....	2-29
2-8.	Display Console Task Selections Controls and Indicators.....	2-33
2-9.	Display Console Task Functions Track Data Controls and Indicators.....	2-36
2-10.	Display Console Task Functions ADL Data Controls and Indicators.....	2-39
2-11.	Display Console Task Functions Assign Controls and Indicators .....	2-42
2-12.	Display Console Task Functions Q73 Remote Radar Controls and Indicators .....	2-46
2-13.	Display Console Task Functions Video Switch Controls and Indicators .....	2-49
2-14.	Display Console Task Functions Identification IFF Controls and Indicators .....	2-53
2-14.1	Display Console Task Functions Air Defense Operations Controls and Indicators.....	2-54.2
2-15.	Display Console Task Functions Status Board Data Controls and Indicators .....	2-56
2-16.	Display Console Task Functions PPI Data Entry Controls and Indicators .....	2-59
2-17.	Display Console Task Functions Target Processing Parameters Controls and Indicators.....	2-63
2-18.	Display Console Task Functions Miscellaneous Controls and Indicators .....	2-66
2-19.	Display Console Faults Controls and Indicators.....	2-70
2-20.	Display Console Brightness Controls and Indicators.....	2-72
2-21.	Display Console Video and ARO Data Selections Controls and Indicators .....	2-75
2-22.	Display Console Voice Comm Station Controls and Indicators.....	2-80
2-23.	Display Console AN Keyboard Controls and Indicators.....	2-83
2-24.	Data Display Group Controls and Indicators .....	2-85
2-25.	Display Junction Box Controls and Indicators.....	2-90
2-26.	Radar Interface Equipment I Panel Controls and Indicators.....	2-93
2-27.	Radar Interface Equipment II Panel Controls and Indicators.....	2-99
2-28.	Radar Simulator Panel Controls and Indicators.....	2-104
2-29.	Radar Junction Box Controls and Indicators.....	2-107
2-30.	Voice Comm Central Panel Controls and Indicators.....	2-110
2-31.	Voice Comm Station Controls and Indicators.....	2-113
2-31.1	Operator Interface Controls and Indicators.....	2-114.2
2-32.	Data Communication Panel Controls and Indicators.....	2-115
2-33.	Modem Control Panel Controls and Indicators .....	2-118
2-34.	Communications Patching Panel Controls and Indicators.....	2-120
2-35.	ADP Status and Control Panel Controls and Indicators.....	2-123
2-36.	Magnetic Tape Unit Controls and Indicators.....	2-129
2-37.	Keyboard Printer Unit Controls and Indicators.....	2-132
2-38.	Motor Generator Set Controls and Indicators.....	2-135
2-39.	Power Transfer Unit Controls and Indicators.....	2-136
2-40.	AC Power Panel Controls and Indicators.....	2-138
2-41.	DC Power Panel Controls and Indicators .....	2-141
2-42.	Modular Collective Protection Equipment Compartment Control Module Controls and Indicators.....	2-142
2-43.	Modular Collective Protection Equipment Power Distribution Unit Controls and Indicators .....	2-145
2-44.	Modular Collective Protection Equipment Protective Entrance Control Module Controls and Indicators .....	2-146
2-45.	Environmental Control Panel Controls and Indicators .....	2-148
2-46.	Ceiling Light Assemblies Controls and Indicators.....	2-149

## CHAPTER 2

CONTROLS AND INDICATORS

---

## SECTION I INTRODUCTION

**2-1. Scope.** This manual describes AN/TSQ-73 system controls and indicators. Unless otherwise stated, all descriptions, procedures, and remarks are directed to both brigade and battalion level users. In the following sections, system control and indicator panels are grouped by major subsystems (functional areas). Each section contains a description of the nomenclature found on the controls and indicators and related panels, and definitions of the function each performs. The control and indicator panels are presented by subsystem in the following order:

- a. Display equipment.
- b. Radar interface equipment (RIE).
- c. Communications equipment.
- d. Automatic data processing (ADP)
- e. Support equipment.

**2-2. 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-LC-ME-PMC, Redstone Arsenal, Alabama, 35898-5238.

## SECTION II DISPLAY EQUIPMENT

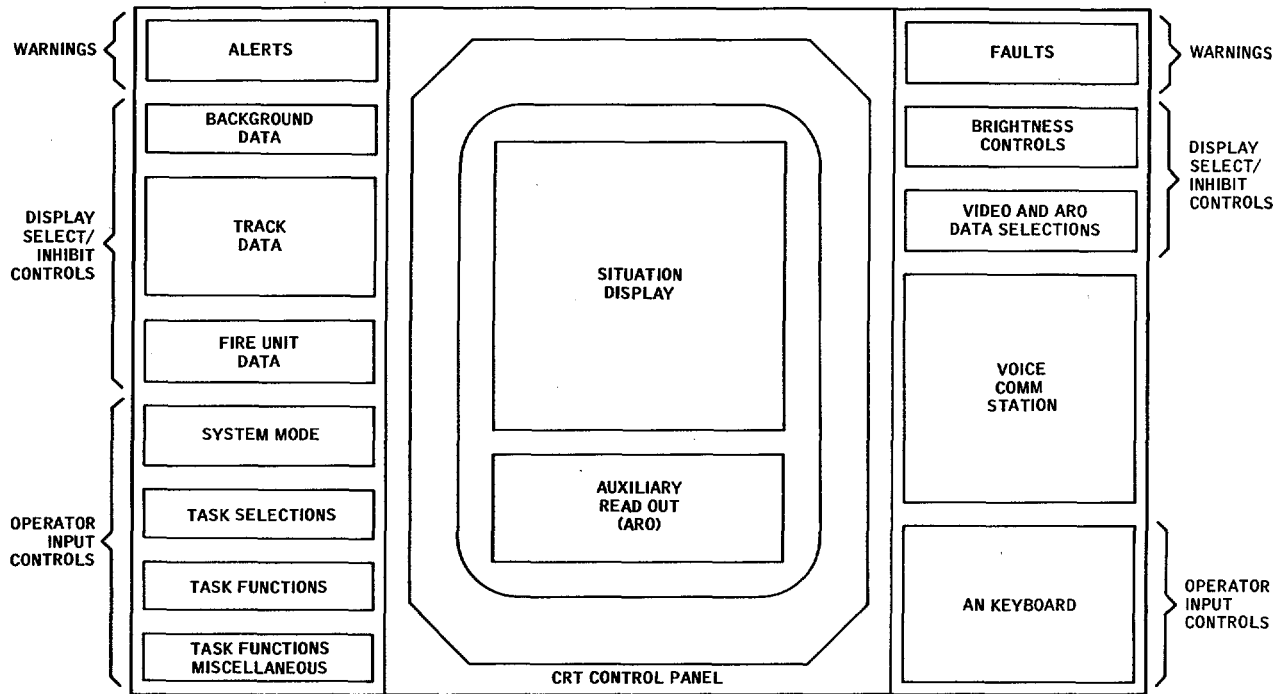
**2-3. Guided Missile Assault Fire Command Console OJ-299/TSQ-73(V) Operational Controls and Indicators.** The operational controls and indicators for the Guided Missile Assault Fire Command Console OJ-299/TSQ-73(V) (display console) are shown by functional group in figure 2-1. The figure also provides a ready reference to detailed figures that identify the specific controls and indicators comprising these functional groups. Each detailed figure (fig. 2-2 thru 2-24) is followed by an associated table (table 2-1 to 2-23) that describes the type, purpose, and operation of the controls and indicators shown in the associated figure. These figures and related tables describe the primary system and indicator set used to monitor the air situation and conduct air defense operations. (Refer to TM 9-1430-652-10-1 for a description of all symbology and ARO messages.) Unless otherwise specified, all switch-indicators have white lighting. The intensity of the light indicates the switch state, high intensity indicates an active state. Some projected label, membrane switch-indicators light green to indicate that

the switch is in the active state.

**2-4. Display Console Setup and Maintenance Controls.** The address selection and display console and maintenance controls and their locations are shown in figure 2-3. Table 2-2 describes the type, purpose, and operation of each control.

**2-5. Data Display Group OD-96/TSQ-73(V) Status Board Controls and Indicators.** Data Display Group OD-96/TSQ-73(V) (DDG) controls and indicators are shown in figure 2-25. The type, purpose, and operation of each control and indicator are described in table 2-24. The use of the time, fire unit (FIJ) data displays, and audio alarm on the DDG, as related to operational alert conditions are described in TM 9-1430-652-10-1.

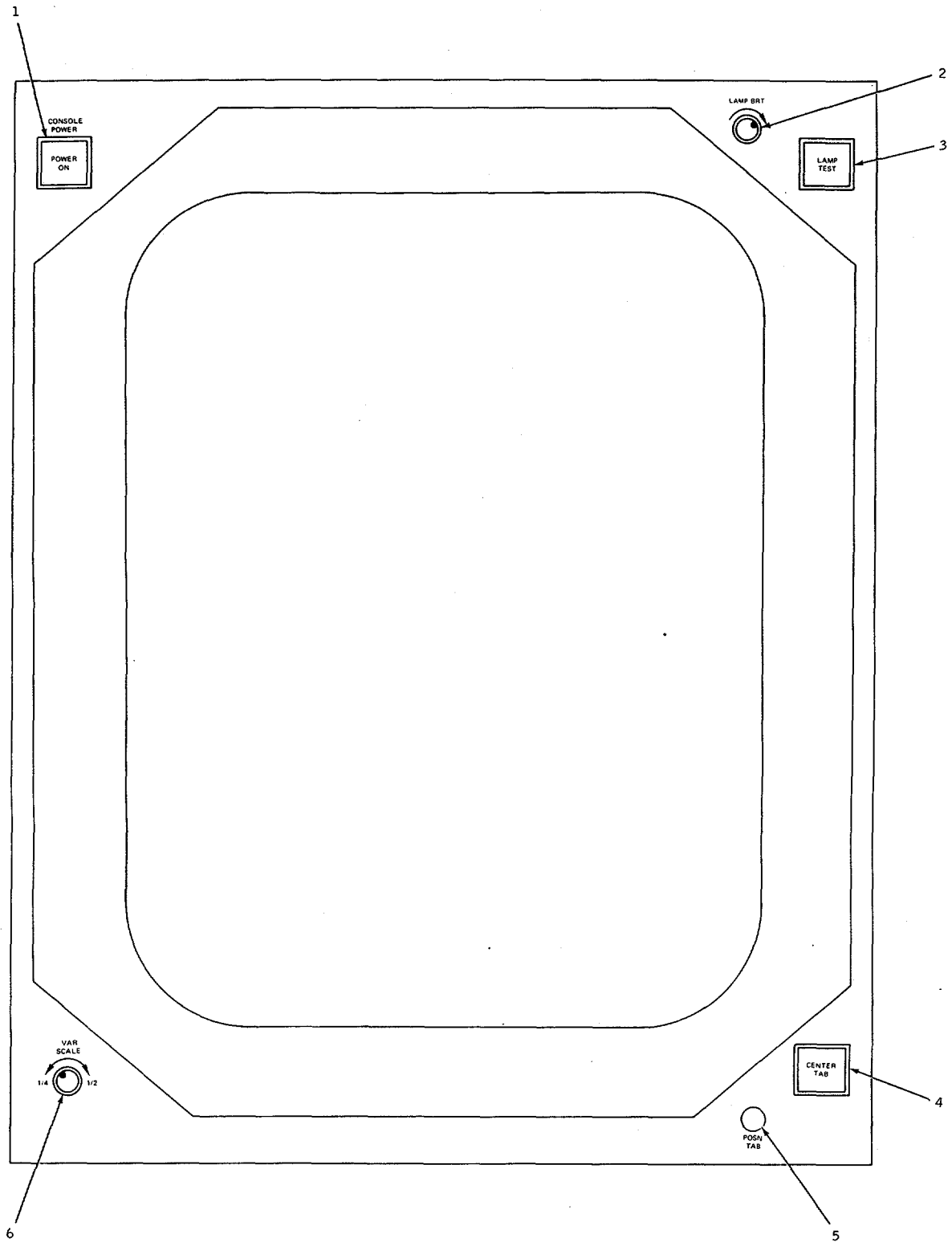
**2-6. Display Junction Box.** These controls and indicators are shown in figure 2-26 and described in table 2-25.



LEGEND	
AREA	FIGURE REFERENCE
CRT CONTROL PANEL	2-2
ALERTS	2-4
BACKGROUND DATA	2-5
TRACK DATA	2-6
FIRE UNIT DATA	2-7
SYSTEM MODE	2-8
TASK SELECTIONS	2-9
TASK FUNCTIONS	2-10 THRU 2-18
TASK FUNCTIONS MISCELLANEOUS	2-19
FAULTS	2-20
BRIGHTNESS CONTROLS	2-21
VIDEO AND ARO DATA SELECTIONS	2-22
VOICE COMM STATION	2-23
AN KEYBOARD	2-24

MS 202500

Figure 2-1. Display Console Functional Layout



MS 195799

Figure 2-2. Display Console CRT Control Panel Controls and Indicators

Table 2-1. Display Console CRT Control Panel Controls and Indicators

Key	Control/indicator	Description	Function
1	<b>CONSOLE POWER</b> POWER ON	Two -state, pushbutton switch -indicator, white	Applies power to display console. POWER ON indicator lights.
2	LAMP BRT	Rotary, continuous -action, switch	Controls brightness of all display console lamps. Turn clockwise to increase brightness.
3	LAMP TEST	Momentary -action, pushbutton, switch-indicator, white	Applies power to all display console lamps.
4	CENTER TAB	Momentary -action, pushbutton, switch -indicator, white, code 109	Returns tab marker to physical center of situation display PPI display area.
5	POSN TAB	Force stick potentiometer	Positions tab marker on situation display area.
6	VAR SCALE 1/4 1/2	Rotary, continuous -action control	Provides variable range scale adjustment between 1/4 and 1/2 range scale when 1/2 scale is selected.