

## CHAPTER 1

## GENERAL INFORMATION

## 1-1. INTRODUCTION.

1-2. GENERAL OVERVIEW. This maintenance manual provides descriptive information, technical data, operating procedures, maintenance instructions, and a detailed parts breakdown for the Input/Output Console OA-7984(V)/UYK (I/O Console). Installation data for the I/O Console is also provided in this manual. Troubleshooting and corrective maintenance data emphasize those procedures, adjustments, and component replacement instructions which can be performed by organizational level (shipboard) personnel using the available supporting tools and test equipment. The I/O Console configurations supported by this manual are listed in table 1-1.

1-3. GENERAL DESCRIPTION. The I/O Console is a peripheral device for communicating with the computer. The function of the I/O Console is to load data into the computer via the paper tape reader or keyboard, and monitor data from the computer via the paper tape punch or printer.

## 1-4. EQUIPMENT DESCRIPTION.

1-5. MAJOR ASSEMBLIES. The basic I/O Console consists of a Teletype Corporation Model-BRPE11 paper tape punch, Digatronics Model 2500 paper tape reader, Teletype Corporation Model 35 AH-KSR Teletypewriter (keyboard/printer), control panel, logic circuitry, power supply, cooling fans, air filters, tape bin, and manual paper tape rewinder. Figure 1-1 shows the major units of the I/O Console and their location within the I/O Console cabinet. Figure 1-2

illustrates the interunit signal, data flow, and power distribution between the I/O Console units. The interface control signals and data flow between the I/O Console and the computer are shown in figure 1-3.

1-6. PHYSICAL DESCRIPTION. All units comprising the I/O Console are mounted in or on a Radio Frequency Interference (RFI)-shielded, drip-proof electronics equipment cabinet as shown in figure 1-1. The I/O Console is connected to its associated equipment by power and signal cables. Plug-in printed circuit modules plug into a slide-out chassis and hold the majority of the logic circuits contained in the I/O Console.

1-7. Power and signal cables are connected to receptacles at the rear of the cabinet. Ambient room temperature air is drawn in through air intake vents and air filters, and dissipates the heat generated by electrical and electronic circuits within the cabinet. The resultant heated air is then expelled through air outlets located at the rear of the cabinet.

## 1-8. UNIT DESCRIPTION.

1-9. PHYSICAL CHARACTERISTICS AND OPERATIONAL PARAMETERS. The I/O Console, keyboard/printer, paper tape punch, and paper tape reader physical characteristics and operational parameters are provided in quick reference table 1-2. The major units comprising the I/O Console are briefly described in the following paragraphs. Each of these units is a readily identifiable physical and functional section of the I/O Console.

Table 1-1. I/O Console Configuration Options

Option	Equipment Configuration
1	Basic unit with or without false base Low-speed printer Keyboard/printer mounted on top of basic unit Fast (-3 V) or slow (-15 V) input/output interface Fast positive (+4.5 V) input/output interface Manual paper tape rewinder
2	Basic unit with or without false base Low-speed printer Keyboard/printer mounted on free-standing desk Fast (-3 V) or slow (-15 V) input/output interface Fast positive (+4.5 V) input/output interface Manual paper tape rewinder
3	Basic unit with or without false base High-speed or low-speed printer Keyboard/printer mounted on desk attached to basic unit Fast (-3 V) or slow (-15 V) input/output interface Fast positive (+4.5 V) input/output interface Manual paper tape rewinder

1-10. **KEYBOARD/PRINTER.** The keyboard/printer is mounted on the top of the cabinet, and performs the function of transferring data from the keyboard to the control logic for transfer to the computer and from the computer via the control logic to the printer, or from the keyboard to the printer off-line. An optional paper winder may be installed to facilitate paper handling.

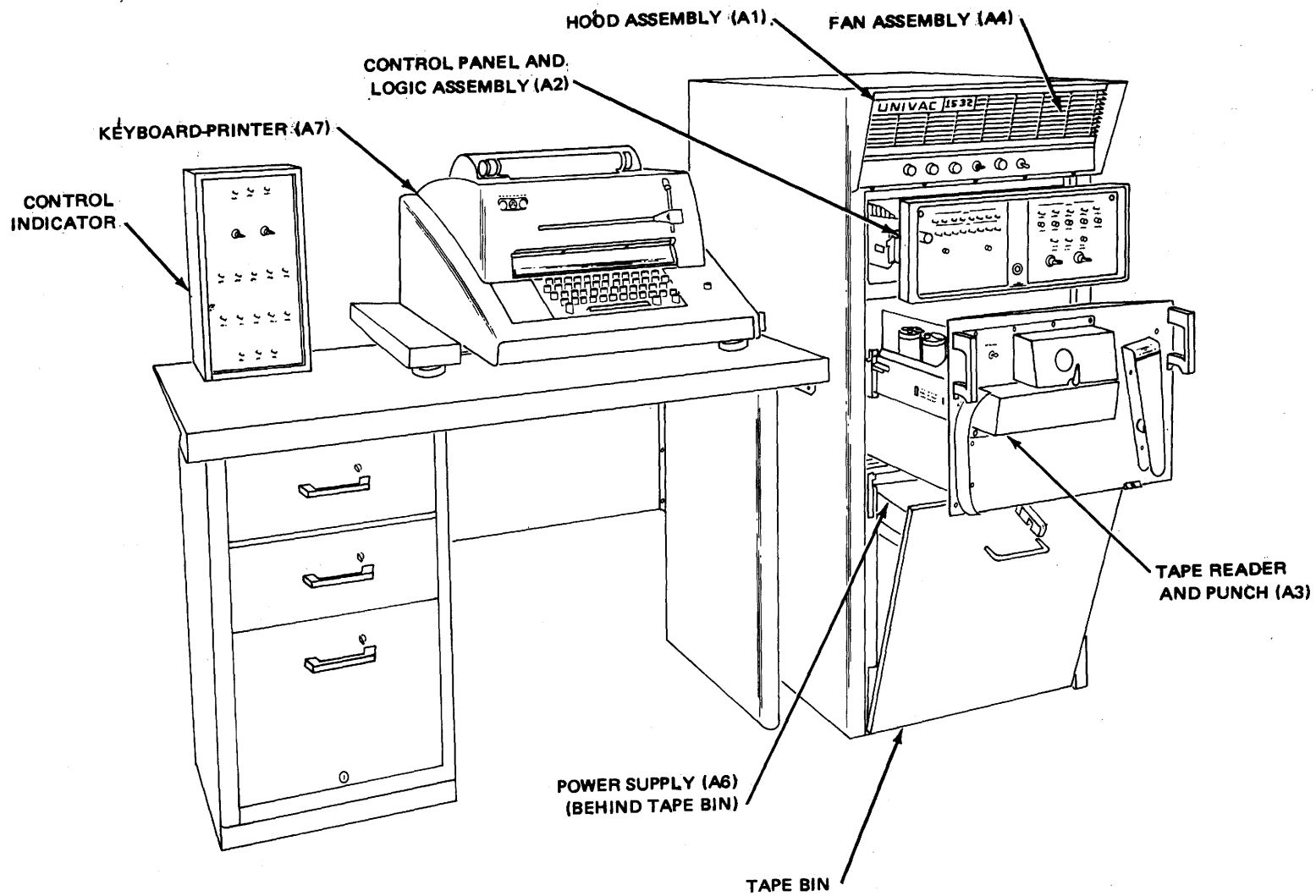
1-11. **PAPER TAPE READER.** The paper tape reader is a vendor-supplied unit mounted in the upper left drawer of the cabinet. It is designed to read data from perforated paper tape for transfer to the computer.

1-12. **PAPER TAPE PUNCH.** The paper tape punch is a vendor-supplied unit mounted in the upper left drawer of the cabinet. It is designed to record data transferred from the computer via the control logic onto perforated paper tape.

1-13. **POWER SUPPLIES.** The power supply assembly is located in the lower portion of the I/O Console cabinet. The assembly requires 115-VAC  $\pm 11.5$  VAC, 400-Hz  $\pm 20$  Hz, 3-phase power, and provides output voltages of -4.5 VDC, -15 VDC, and +15 VDC for operation of the logic circuits, and -28 VDC for operation of the keyboard/printer and paper tape punch.

1-14. **LOGIC CHASSIS.** The logic chassis provides mountings and wiring for receptacles which hold the plug-in printed circuit modules. The logic chassis is located above the paper tape reader and paper tape punch drawer. The control panel is mounted on the front of the logic chassis assembly and supports switches and indicators for the operational modes of the I/O Console.

1-15. **EQUIPMENT SUPPLIED.** The I/O Console is shipped as a single unit. Table 1-3 lists the equipment supplied.



SE640-AZ-MMM-010

Figure 1-1. I/O Console Physical Arrangement.

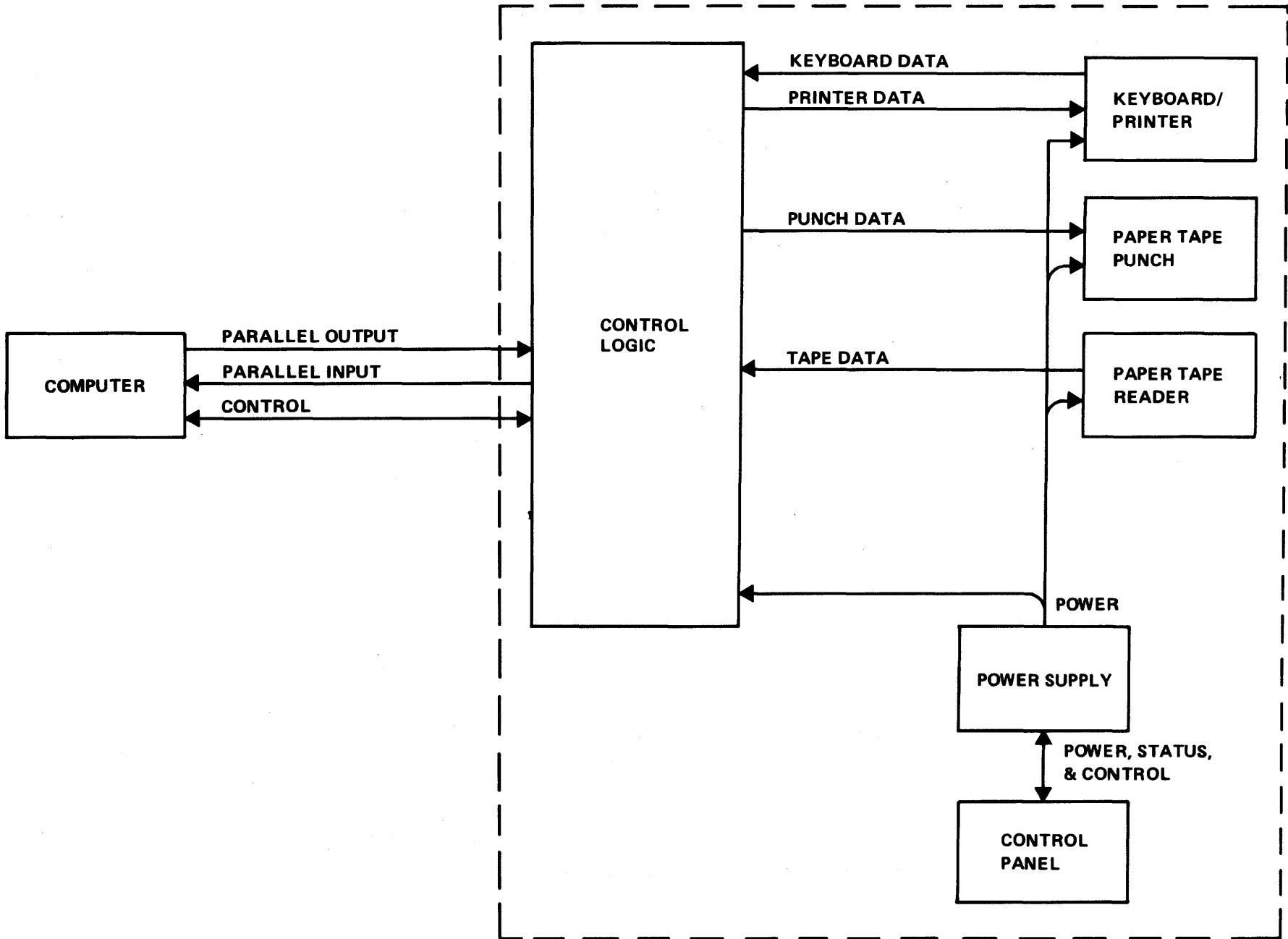


Figure 1-2. I/O Console Functional Sections.

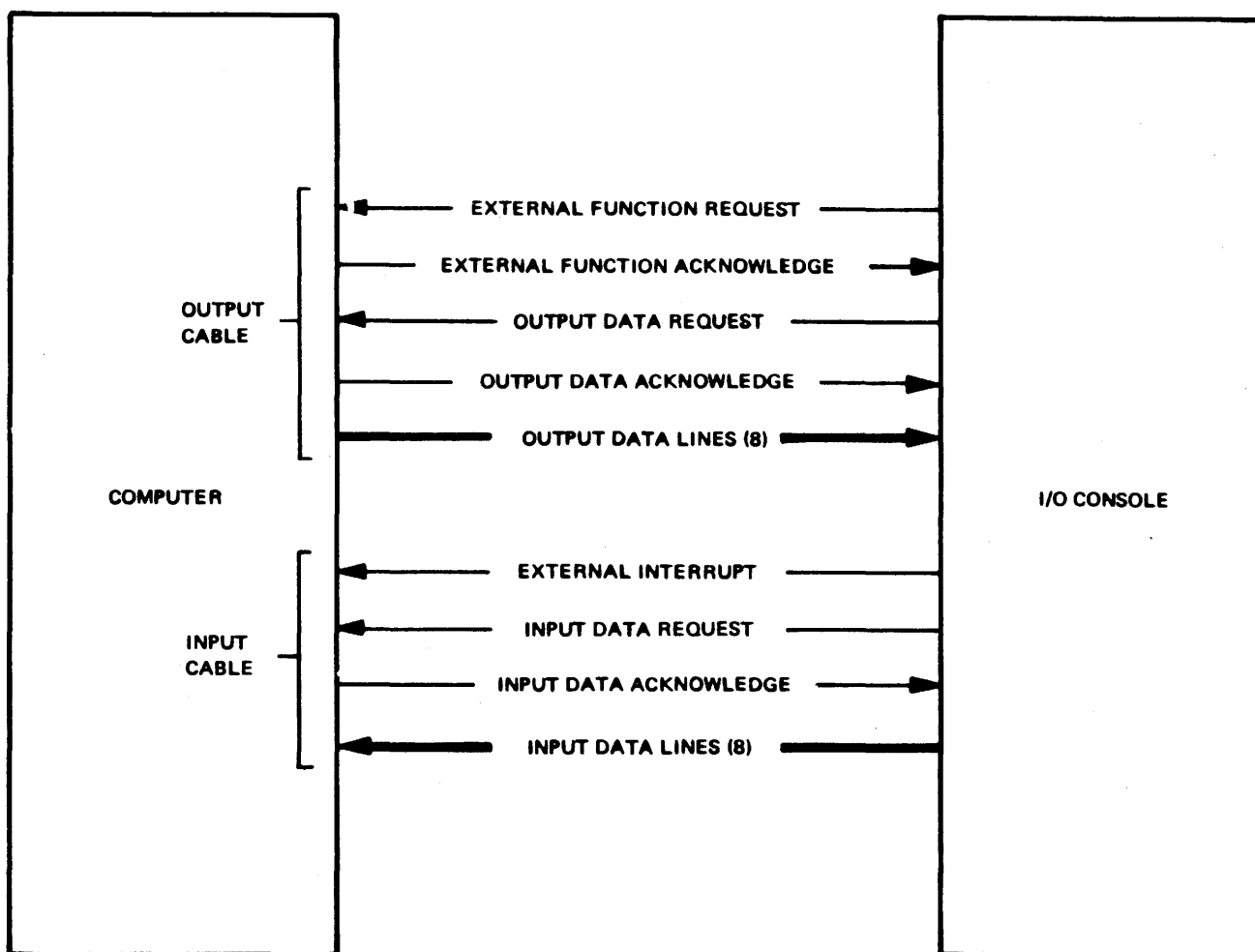


Figure 1-3. I/O Console to Computer Signal Interface.

1-16. EQUIPMENT AND PUBLICATIONS REQUIRED BUT NOT SUPPLIED. Test and maintenance support equipment required but not supplied are listed in table 1-4. The table includes test equipment, tools, and materials needed to perform I/O Console maintenance.

1-17. FIELD AND FACTORY CHANGES. Table 1-5 lists field and factory changes. This table lists the serial numbers of

the I/O Console affected, and references the publication which promulgated the change.

1-18. TAPE BIN. The tape bin is located in the lower portion of the I/O Console (figure 1-1). During operation of the paper tape punch, pull the tape bin out approximately 6 inches to catch the tape and keep it from running out on the floor.

Table 1-2. Quick Reference Data

I/O Console Characteristics	
Item	Data
Operating Temperature	0°C (32°F) to 50°C (122°F)
Nonoperating (Storage) Temperature	-62°C (-79.6°F) to 75°C (167°F)
Humidity (Relative) Range	Up to 95%
Dimensions:	
Height	49 in.
Width	23 in.
Depth	29 in.
Volume	18.9 ft <sup>3</sup>
Weight	300 lb
Cooling (Forced Air)	Ambient air is taken in through intakes at the front and exhausted at the rear of the cabinet. The amount of air required is 560 c.f.m.
Primary Power:	
Logic	115-VAC ±11.5 VAC, 400-Hz ±20 Hz, 3-phase, 250W line to ground
Motor	208-VAC ±20.8 VAC, 400-Hz ±20 Hz, 3-phase, 250W line to line
	115-VAC ±11.5 VAC, 60-Hz ±3 Hz, 1-phase, 600W
Power Supply:	
Logic	Input: 115-VAC ±11.5 VAC, 400-Hz ±20 Hz, 3-phase, 100W line to ground
	208-VAC ±20.8 VAC, 400-Hz ±20 Hz, 3-phase, 100W line to line
	Output: -4.5 VDC
	-15 VDC
	+15 VDC
Power Supply, Keyboard/Printer and Paper Tape Punch	Input: 115-VAC ±11.5 VAC, 400-Hz ±20 Hz, 3-phase, 150W
	Output: -28 VDC

#### Paper Tape Reader Characteristics

Dimensions:	
Length	10 in.
Depth	12-3/4 in.
Height	6 in.
Weight	15 lb

Table 1-2. Quick Reference Data (Contd)

Paper Tape Reader Characteristics (Contd)	
Item	Data
Operating Temperature	0°C (32°F) to 55°C (131°F)
Storage Temperature	-55°C (-67°F) to +65°C (149°F)
Power	115-VAC ±10 VAC, 60-Hz, 1-phase, 125W
Reading Speed	Up to 300 frames per second
Type of Tape	Paper, paper-mylar laminated, or mylar, 0.004 to 0.005 inches in thickness. Tapes with up to 40% transmissivity are acceptable. With a slight adjustment to the pinch roller assembly, tapes from 0.0025 to 0.008 inches in thickness may be used.
Tape Levels	5-, 6-, 7-, or 8-levels
Tape Widths	11/16-, 7/8-, or 1-in.

## Paper Tape Punch Characteristics

Dimensions (without cover):	
Height	10-1/2 in.
Width	8 in.
Depth	16-1/2 in.
Weight	24-1/2 lb
Power	115-VAC ±11.5 VAC, 60-Hz, 65W nominal
Operating Temperature	-4.4°C (40°F) to 43°C (110°F)
Punching Speed	110 characters per second
Type of Tape	Paper or mylar
Tape Levels	5-, 6-, 7-, or 8-levels
Tape Thickness	0.0025- to 0.005-in.
Tape Width	7/8- or 1-in.
Frame Spacing	10 frames per in.

## Teletypewriter Characteristics

Dimensions:	
Height	15 in.
Width	28 in.
Depth	25 in.
Volume	6.07 ft <sup>3</sup>
Weight	120 lb
Power	115-VAC ±11.5 VAC, 50- to 60-Hz

Table 1-2. Quick Reference Data (Contd)

Keyboard Characteristics	
Item	Data
Type of Transmission	Binary 1=+6 V Binary 0=-6 V
Transmission Rate	100 words per minute (nominal)
Transmission Sequence	(1) Start code (+6 V for 9.09 milliseconds) (2) Data with bits transmitted in order 0, 1, 2, 3, 4, 5, 6, 7 (3) Stop code (-6 V for 27.27 milliseconds)
Signal Rate	100 words per minute
Bit length at 100 words per minute	9.09 milliseconds
Capacity	Horizontal: 10 characters per inch, 72 characters per line Vertical single space: 6 lines per inch Vertical double space: 3 lines per inch
Paper Feed	Friction
Font	Open gothic

Table 1-3. Equipment, Accessories, and Documents Supplied

Qty Per Equip	Nomenclature		Dimensions			
	Name	Designation	Hgt (In.)	W (In.)	Dia (In.)	Wt (Lb)
1	I/O Console	0A-7984(V)/UYK	49	23	29	300
1	Maintenance Manual	SE640-AZ-MMM-010	-	-	-	-
1	Desk	---	30	45	25	110



Table 1-4. Equipment and Publications Required but not Supplied

Qty Per Equip	Nomenclature		Required Use	Equipment Characteristics
	Name	Designation		
1	Oscilloscope, dual trace	AN/USM-281E (SCAT 4308)	Troubleshooting and maintenance procedures	50-MHz, 7 ns
1	Multimeter	AN/USM-311 (SCAT 4245)	Troubleshooting and maintenance procedures	Voltages: 115-VAC, 60-Hz 115-VAC, 400-Hz Resistance: 0- to 100-M $\Omega$ Current: 0- to 1,000-mA
1	Technical Manual for Oscilloscope AN/USM-281E	NAVSEA 0969-LP-162-5020	Operation of oscilloscope	-
1	Technical Manual for Multimeter AN/USM-311	NAVELEX 0969-LP-137-7010	Operation of multimeter	-
1	Precision Voltmeter	John Fluke, model 895A, or equivalent (SCAT 4212)	Troubleshooting and maintenance procedures	-
1	Card Extender Cable	7009452-00	Troubleshooting and maintenance procedures	-
1	Wire-Wrap Gun (Battery Powered)	Gardner-Denver Co. P/N 14R2	Maintenance and Field Changes	-
1	Wire-Wrap Gun Power Pack	Gardner-Denver Co. P/N 8130-151	Use with wire-wrap gun	-
1	Wire-Wrap Adapter Wire-Wrap Bit for 30 gauge Wire-Wrap Bit for 30 gauge	Gardner-Denver Co. P/N 504221 P/N 501381	Maintenance and repair	-

Table 1-4. Equipment and Publications Required but not Supplied (Contd)

Qty Per Equip	Nomenclature		Required Use	Equipment Characteristics
	Name	Designation		
	Wire-Wrap Sleeve for 30 gauge bit	P/N 500350	-	-
	Wire-Wrap Sleeve for 30 gauge bit	P/N 17611-2	-	-
	Wire-Wrap Bit for 24 gauge	P/N 26263	-	-
	Wire-Wrap Sleeve for 24 gauge bit	P/N 18840	-	-
	Wire-Wrap Bit for 20 gauge	P/N 26495	-	-
	Wire-Wrap Sleeve for 20 gauge bit	P/N 26245	-	-
	Wire-Wrap Bit for 18 gauge	P/N A26336	-	-
	Wire-Wrap Sleeve for 18 gauge bit	P/N 19688	-	-
	Unwrap Tool, 30 gauge	P/N 505244	Maintenance and Field Changes	-
	Unwrap Tool, 20 to 26 gauge	P/N 500130	Maintenance and Field Changes	-
	Knurled Nut Driver	Walsco Electronics Corp. P/N 2582	Maintenance	-
1	Oiler, Hand, handle/lever, 13 in. flex spout	SPMIG no. 0928	Maintenance and repair	-
1	Screwdriver, Phillips, no. 2, 6 in.	SPMIG no. 1621	Maintenance and repair	-
1	Screwdriver, flat tip, 6 in., general purpose	SPMIG no. 1198	Maintenance and repair	-

Table 1-4. Equipment and Publications Required but not Supplied (Contd)

Qty Per Equip	Nomenclature		Required Use	Equipment Characteristics
	Name	Designation		
1	Gauge, Tape	Teletype no. 156011	Maintenance and repair	-
1	Vacuum Cleaner, electric, portable, type HVU with nonmetallic nozzle	SPMIG no. 0269	Maintenance	-

Table 1-5. Factory and Field Changes

Field Change No.	Reference Publication	Equipment Serial No.	Description
1	NAVSEA 0967-LP-307-3090	A1 thru A6, A8 thru A19, A21 thru A51, A61 thru A71	Ensures applicable UNIVAC Field Change Orders (MPLs) have been installed.

