

silent 700

electronic data terminals

Model 743 KSR
Model 745 Portable
Maintenance Manual

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TABLE OF CONTENTS

Section	Page	Section	Page
1		EQUIPMENT DESCRIPTION	
1.1	1-1	3.3.1 Character Spacing	3-6
1.2	1-1	3.3.2 Line Spacing.	3-6
1.3	1-1	3.3.3 Paper Supply	3-6
1.3.1	1-1	3.3.4 Paper Loading.	3-6
1.3.2	1-1	3.3.5 Paper Tearoff	3-6
1.4	1-1	3.3.6 Printhead Pressure	3-6
1.4.1	1-1	3.4 Printhead System	3-6
1.4.2	1-3	3.4.1 Printhead Address Drivers	3-6
1.4.3	1-3	3.4.2 Temperature Compensation Circuit.	3-6
1.5	1-4	3.4.3 Print Voltage Circuit	3-7
1.6	1-4	3.5 Mechanism Drive Electronics	3-9
1.6.1	1-4	3.5.1 Motor Drive Electronics	3-10
1.6.2	1-4	3.5.2 Solenoid Drivers	3-13
2		3.6 Keyboards	3-14
2.1	2-1	3.6.1 Standard Keyboard	3-14
2.2	2-1	3.6.2 Optional Full-ASCII Keyboard.	3-14
2.3	2-1	3.6.3 Receive-Only Control Panel.	3-20
2.3.1	2-1	3.6.4 APL/ASCII Keyboard	3-20
2.3.2	2-3	3.6.5 Katakana Keyboard	3-23
2.3.3	2-4	3.7 Operator Controls and Indicators	3-25
2.3.4	2-5	3.8 Power Supply	3-25
2.3.5	2-5	3.8.1 Power Transformer	3-26
2.4	2-7	3.8.2 Voltage Regulator	3-27
2.5	2-7	3.8.3 Failure Protection	3-28
2.5.1	2-7	3.8.4 Soft Start Circuit.	3-28
2.5.2	2-7	3.8.5 Electromagnetic Interference (EMI) Filter	3-28
3		3.8.6 Electrical Power Interface	3-28
3.1	3-1	3.9 Current Loop Interface.	3-28
3.2	3-2	3.9.1 Receiver Circuit	3-28
3.2.1	3-2	3.9.2 Transmit Circuit	3-29
3.2.2	3-2	3.10 Firmware.	3-30
3.2.3	3-2	3.10.1 Power-Up Routine.	3-33
3.2.4	3-2	3.10.2 Keyboard Routine.	3-33
3.2.5	3-5	3.10.3 Receiver Routine.	3-34
3.2.6	3-5	3.10.4 Data Control Routine.	3-34
3.2.7	3-5	3.10.5 Character Analyzer	3-35
3.2.8	3-5	3.10.6 Character Buffering	3-36
3.2.9	3-5	3.10.7 Paper Advance Operation	3-39
3.3	3-6	3.10.8 Answer-Back Memory	3-39
		3.10.9 Left Margin/Paper-Out Detection.	3-39
		3.11 Acoustic Coupler/Modem	3-40
		3.11.1 Receiver Section	3-41
		3.11.2 Transmitter Section	3-43

TABLE OF CONTENTS (CONTINUED)

Section	Page	Section	Page
4		MAINTENANCE	
	4-1	4.1 Preventive Maintenance	4-1
	4-1	4.2 Troubleshooting	4-1
	4-1	4.3 Adjustments.	4-1
	4-1	4.3.1 Print Contrast.	4-1
	4-3	4.3.2 Acoustic Coupler or Modem Transmit Adjustment	4-3
	4-3	4.3.3 Printer Subsystem Adjustments	4-3
	4-6	4.4 Subassembly Replacement	4-6
	4-6	4.4.1 Outer Cover Removal (Model 745 Only)	4-6
	4-6	4.4.2 Outer Cover Installation (Model 745 Only)	4-6
	4-6	4.4.3 Inner Cover Removal (Both Models)	4-6
	4-6	4.4.4 Inner Cover Installation	4-6
		4.4.5 Mechanism Removal	4-7
		4.4.6 Mechanism Installation.	4-7
		4.4.7 Keyboard Removal	4-7
		4.4.8 Keyboard Installation.	4-8
		4.4.9 Fan Removal and Installation	4-8
		4.4.10 PWB Removal.	4-8
		4.4.11 PWB Installation	4-8
		4.4.12 Printhead Removal	4-8
		4.4.13 Printhead Installation.	4-8
		4.4.14 Option PROM Replacement	4-9
		APPENDIX	
		Assembly Drawings and Lists of Material and Electronic Schematics	

LIST OF ILLUSTRATIONS

Figure No.	Page	Figure No.	Page
1-1	1-2	3-8	3-12
2-1	2-2	3-9	3-12
2-2	2-4	3-10	3-15
2-3	2-6	3-11	3-16
2-4	2-8	3-12	3-17
2-5	2-9	3-13	3-17
3-1	3-1	3-14	3-17
3-2	3-2	3-15	3-18
3-3	3-7	3-16	3-18
3-4	3-8	3-17	3-18
3-5	3-9	3-18	3-19
3-6	3-10	3-19	3-19
3-7	3-11		

LIST OF ILLUSTRATIONS (CONTINUED)

Figure No.	Page	Figure No.	Page
3-20	Codes Generated With the CTRL Key Pressed and Held	3-35	Transient Surge ac Voltage Step Function Locs Limits for 110 Vac Operation
3-21	Receive-Only Control Panel	3-36	Model 743/745 Firmware Control System Block Diagram
3-22	Optional APL Keyboard Layout and Symbolization	3-37	Functional Block Diagram I/O and Timer Device
3-23	Codes Generated in the APL Mode with no Mode Keys Activated (APL Keyboard) . . .	3-38	Model 743/745 Firmware Structure
3-24	Codes Generated in the APL Mode with the SHIFT Key Pressed and Held (APL Keyboard)	3-39	Model 743/745 Keyboard Matrix Encoding Scheme
3-25	Codes Generated in the ASCII Mode with no Mode Keys Activated (APL Keyboard)	3-40	Models 743/745 Print/Step Routine Pulse Train
3-26	Codes Generated in the ASCII Mode with the SHIFT Key Pressed and Held (APL Keyboard)	3-41	Print/Step Routine State Diagram
3-27	Codes Generated in the ASCII Mode with the CTRL Key Pressed and Held (APL Keyboard)	3-42	Stepping Motor Line Feed (LF) Routine Timing Diagram
3-28	Katakana Keyboard Layout and Symbolization	3-43	Carriage Return Routine State Diagram
3-29	Katakana Keyboard Codes Generated in the Unshifted Kana Mode	3-44	Frequency-Shift Keying (FSK) Modulation
3-30	Katakana Keyboard Codes Generated in the Kana Mode with SHIFT Pressed and Held	3-45	Acoustic Coupler/Modem Block Diagram
3-31	Katakana Keyboard Codes Generated in the Unshifted Alpha Mode	4-1	Models 743/745 Component Locations
3-32	Katakana Keyboard Codes Generated in the Alpha Mode with SHIFT Pressed and Held	4-2	Module Connectors and Printhead Components
3-33	Katakana Keyboard Codes Generated with the CTRL Key Pressed and Held . . .	4-3	Printhead Adjustments and Components
3-34	Model 743/745 Power Supply Functional Block Diagram	4-4	Power Cord Storage in 745 Outer Cover
			Troubleshooting Flow Diagrams

LIST OF TABLES

Table No.	Page	Table No.	Page
1-1	Options for the Models 743/745 Data Terminals	2-3	Teletype Current Loop Cable Pin Assignments
2-1	External Interface Connector Pin Assignments	2-4	Options Internal Modem Cable Pin Assignments
2-2	Model 743 EIA Interface Cable Pin Assignments	2-5	EIA/Auxiliary Acoustic Coupler Cable Pin Assignments Model 745
		2-6	EIA/Auxiliary Modem Cable Pin Assignments for Model 743

LIST OF TABLES (CONTINUED)

Table No.		Page	Table No.		Page
3-1	APL and ASCII Code System and Character Set	3-3	3-5	Acoustic Coupler FSK Transmission Frequency Assignments	3-41
3-2	Katakana and ASCII Code System and Character Set	3-4	4-1	Models 743/745 Optional Internal Electronics Jumpers.	4-9
3-3	Power Supply dc Output.	3-26	4-2	Keyboard Kit and Option PROM Replacement Part Numbers	4-9
3-4	Firmware Operating System Interrupts	3-32			

SECTION I

EQUIPMENT DESCRIPTION

1.1 SCOPE.

This manual contains descriptions, installation instructions, theory of operation, and maintenance procedures for the Silent 700* Models 743 and 745 Electronic Data Terminals manufactured by the Digital Systems Division of Texas Instruments Incorporated. The information in this manual is intended to help in maintaining and servicing these data terminals. The troubleshooting data is designed to help isolate problems to one of the five major assemblies.

A general description of the Models 743/745 and available options is included in this section of the manual. Necessary interfacing and installation information is contained in Section 2, and a general theory of operation is included in Section 3. Maintenance and troubleshooting procedures are contained in Section 4. Lists of materials, related mechanical drawings, and electrical schematics are included in the appendix to this manual.

1.2 REFERENCES.

Other TI manuals concerning the Models 743/745 Data Terminals include:

- Model 743 Operating Instructions, TI Part No. 984030-9701
- Model 745 Operating Instructions, TI Part No. 984024-9701.

1.3 GENERAL DESCRIPTION.

The Silent 700* Models 743/745 Electronic Data Terminals are self-contained, compact, durable machines designed for use in a wide variety of telecommunications systems. Silent electronic printing is achieved using a five-by-seven-dot matrix mounted on a monolithic, solid-state printhead which prints up to 80 characters across the page. The dot matrix is composed of 35 individual, solid-state heating elements, each electronically controlled. Voltage is applied to the appropriate elements in the matrix for each printable character. The thermal energy thus generated is transferred to heat-sensitive paper, creating a visible image.

The standard Models 743 and 745 feature a 58-key, TTY 33-compatible, modular keyboard with integral numeric keypad, carrier-detect indicator, two-key rollover, and key debounce circuitry. Various optional keyboards are described in Section 1.4.

Both models are designed and built using snap-in, quick replacement modules for fast, simple, field maintenance. The primary modules include the case, keyboard, printhead and paper drive mechanism, cooling fan, and the printed-wiring board (PWB) which contains all electronics.

1.3.1 MODEL 743. The TI Model 743 Data Terminal, shown in Figure 1-1, is a light-weight, table-top electronic-printing data terminal capable of operating in full- or half-duplex modes at 10 or 30 characters per second. The Model 743 uses a character set and code compatible with the American Standard Code for Information Interchange (ASCII). The standard communications interface provided with this model is the EIA RS-232-C.

1.3.2 MODEL 745. The TI Model 745 Portable Data Terminal, shown in Figure 1-1, is a light-weight, portable, electronic-printing data terminal with a built-in acoustic coupler and integral carrying case. The Model 745 is capable of operating in full- or half-duplex modes at 10 or 30 characters per second, using a character set and code compatible with the American Standard Code for Information Interchange (ASCII). The Model 745 is designed to use standard commercial telephone facilities for interrogation of computerized data bases from a remote location.

1.4 OPTIONS.

Several options are available for both the Model 743 and 745, but some options may be used on only one model. Options for both models are listed in Table 1-1.

1.4.1 OPTIONS AVAILABLE ON BOTH MODELS 743 AND 745. The following options are available for both models.

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1.4.1.1 Answer-Back Memory. The optional Answer-Back Memory configuration provides a customer-specified, 1- to 21-character identification sequence which is transmitted to the communications line upon receipt of the ENQ code from the line or upon actuation of the HERE IS key by the operator. In addition to the character sequence, the customer also specifies whether or not the transmitted sequence of characters is printed if the terminal is in the half duplex mode. The answer-back contents are not printed when the terminal is off-line and the ENQ code is received.

1.4.1.2 Parity Options. The standard Models 743 and 745 are shipped with *even* parity for transmitted data. Factory-installed *odd*, *mark*, or *space* parity is available as specified in the original purchase order.

1.4.1.3 Full-ASCII Keyboard. An optional Full-ASCII keyboard is available for both Models 743 and 745. This keyboard transmits, receives, and prints both uppercase and lowercase alphabet characters using the SHIFT key as on a standard typewriter. A special UPPER CASE rocker switch is provided to permit generating/printing uppercase-only alphabet characters.



Figure 1-1. Models 743/745 Data Terminals

P1000032a&t

Table 1-1. Options for the Models 743/745 Data Terminals

Option	Available For:	
	Model 743	Model 745
Acoustic Coupler	No	Yes (standard)
Auxiliary Use of Acoustic Coupler	No	Yes
Internal Modem	Yes	No
Auxiliary Use of Modem	Yes	No
EIA RS-232-C	Yes	Yes*
EIA 103A/113A	Yes	No
TTY Half Duplex	Yes	No
TTY Full Duplex	Yes	No
European (CCITT) Acoustic Coupler	No	Yes
Answer-Back Memory	Yes	Yes
Full-ASCII Keyboard	Yes	Yes
Receive-only Keyboard	Yes	Yes
APL/ASCII Keyboard	Yes	Yes
Katakana Keyboard	Yes	Yes

*With Auxiliary Acoustic Coupler

1.4.1.4 APL/ASCII Keyboard. An optional APL/ASCII keyboard is available for both Models 743 and 745. This keyboard transmits, receives, and prints either in the full-ASCII mode or in the APL mode, depending on the position of the APL/ASCII mode select switch.

1.4.1.5 Receive-Only Option. A receive-only control panel replaces the standard keyboard of either model data terminal. The receive-only Models 743 and 745 are available with the Answer-Back Memory option and limited-ASCII or full-ASCII. The control panel has PAPER ADV and LOW SPEED controls and a carrier-detect indicator.

1.4.2 MODEL 743 OPTIONS. The following options are available only on the Model 743 data terminal.

1.4.2.1 Current Loop Interface. The Current Loop Interface option converts the EIA levels of the basic

unit into a TTY 33-compatible, current loop interface. This interface may be used in either four-wire or two-wire communications systems. The nominal operating current is 20 milliamps dc. A 6-foot cable terminated in four spade lugs is provided with this option.

1.4.2.2 Internal Modem. The Modem configuration converts the EIA levels of the standard Model 743 to FSK signals for presentation to a Bell-type CDT, manual Data Access Arrangement (DAA). When connected to the DAA, the modem is functionally equivalent to a Bell 103A Data Set. It meets all interface requirements of the DAA, including adjustment of the transmit level without removal of any parts. A 6-foot cable, terminating in two spade lugs, is supplied for CDT DAA connection.

1.4.2.3 EIA/Auxiliary Modem Cable. The EIA/Auxiliary Modem Cable for the Model 743 is applicable only to the internal modem configuration. It provides separate EIA interfaces to the keyboard/printer and to the internal modem, which permits connection of an external device (e.g., tape cassette, plotter, etc.) between the two interfaces. The 6-foot cable supplied provides CDT DAA spade lug terminations as well as a 25-pin male connector for terminating the keyboard/printer interface and a 25-pin female connector for terminating the internal modem EIA interface. Both connectors are compatible with the requirements of EIA Specification RS-232-C. With these two connectors mated the terminal functions as described in paragraph 1.4.2.2 above.

1.4.3 MODEL 745 OPTIONS. The following options are available only for the Model 745.

1.4.3.1 EIA/Auxiliary Coupler Interface. The EIA/Auxiliary Coupler Interface option of the Model 745 provides separate EIA interfaces to the internal acoustic coupler and to keyboard/printer functions. This option enables connection of an external device (e.g., tape cassette, plotter, etc.) between the two interfaces. The 6-foot cable supplied provides a 25-pin male connector for terminating the keyboard/printer interface and a 25-pin female connector for terminating the internal acoustic coupler. Both connectors are compatible with the requirements of EIA Specification RS-232-C. With these two connectors plugged together, the terminal functions the same as a basic Model 745.

1.4.3.2 C.C.I.T.T. Acoustic Coupler. The C.C.I.T.T. Acoustic Coupler option converts the EIA levels of the basic unit to FSK tones for presentation to a standard commercial telephone handset. The C.C.I.T.T. Acoustic Coupler operates in full duplex mode over switched telephone networks at data rates up to 300 baud in accord with the requirements of *C.C.I.T.T. Recommendation VIII, Data Transmission*. Like the U.S. acoustic coupler for the basic Model 745, this version operates in the *originate mode* only: no signals are transmitted until the carrier signal is received from the *answer* end of the communication link.

1.5 PHYSICAL DIMENSIONS.

The Model 743 Data Terminal is a compact unit designed for desk-top use. The Model 745 Data Terminal is a self-contained unit designed to fit easily beneath a commercial airliner seat. The Model 745 outer structure is built to afford the same protection, from both the elements and physical abuse, as a sturdy attache case.

Size

The overall terminal dimensions (in inches) are

	Model 745	Model 743
Depth:	16.0	15.25
Width:	15.4	14.60
Height:	4.6	4.25

Weight

The maximum weight of the Models 743 and 745 terminals with paper is

Model 745	13.5 pounds
Model 743	11.2 pounds.

1.6 ENVIRONMENTAL LIMITS.

1.6.1 NONOPERATING ENVIRONMENT. The terminal, exclusive of the thermal paper, will operate within the minimum specified performance requirements after enduring the following environmental conditions.

In Shipping Container:

1. Temperature: -30°C to 70°C
2. Relative Humidity: 10% to 95% without condensation

3. Shock: Drop from 40 inches on each surface and corner
4. Vibration; Sinusoidal, 2G, 5 to 50 Hz; 4G, 50 to 500 Hz; 6-minute linear sweep
5. Altitude: 50,000 feet
6. Cargo Bounce: per MIL-STD 810B; 1-inch double amplitude orbital motion, 225 RPM, 30 minutes per side.

Out of Shipping Container:

1. Temperature: -30°C to 70°C
2. Relative Humidity: 10% to 95% without condensation
3. Shock:
 - Portable model
 - 20G for 11 milliseconds
4. Vibration: Sinusoidal 1.5G, 5 to 500 Hz.

1.6.2 OPERATING ENVIRONMENT. The terminals will operate within specifications under the following environmental conditions.

1. Ambient temperature: 10°C to 40°C*
2. Relative humidity: 10 percent to 90 percent without condensation
3. Altitude: to 12,000 feet
4. Vibration: sinusoidal vibration of 0.5G peak in the range of 10 to 60 Hz
5. Shock: 0G
6. Temperature shock: operate in a 25°C, 50 percent relative humidity environment within 30 minutes after being stored for 2 hours at -30°C at 50 percent relative humidity.

These specifications apply to equipment hardware; for paper limitations see TI Paper Specification 972603 (maximum temperature in the vicinity of paper roll is less than 5°C greater than ambient temperature).

*Derate upper limit 1°C per 1000 feet above 6000 feet altitude.

SECTION 2

EQUIPMENT INSTALLATION

2.1 PRELIMINARY CHECKOUT.

Visually check the data terminal before applying power. After unpacking, check for any obvious shipping damage such as a damaged top cover. Look for packing material inside the mechanism and paper roller. Verify that the inner cover and base fit snugly together.

NOTE

The printer will not operate without paper on the drive roller since damage to both platen and printhead could result. After loading paper the control logic should be reset by cycling power off and on or by pressing the carriage RETURN key.

2.2 POWER CONNECTION.

The Models 743/745 Data Terminals are manufactured to operate from three-wire 115-Vac power. The power cord plugs into the right rear of the terminal (see Figure 2-1).

Two power cords are used with the Models 743/745:

- Terminal serial numbers 0X743YYYYY and 0X745YYYYY use part number 972674-0001.
- Terminal serial numbers 0X744YYYYY and 0X746YYYYY use part number 996289-0002.

2.3 COMMUNICATIONS INTERCONNECTIONS.

The communications interface for the Model 745 Portable is available through the telephone handset muffs located at the top rear of the case.

The external (cable) interface for the Model 743 KSR and for the Model 745 with the EIA/Auxiliary Coupler option is available through a 15-pin connector at the rear of the terminal. Signals available at the external interface connector are defined in Table 2-1. Specific configuration connections are described in the following paragraphs.

2.3.1 ACOUSTIC COUPLER CONFIGURATION, MODEL 745.

Using the built-in acoustic coupler, the communications link is established as follows.

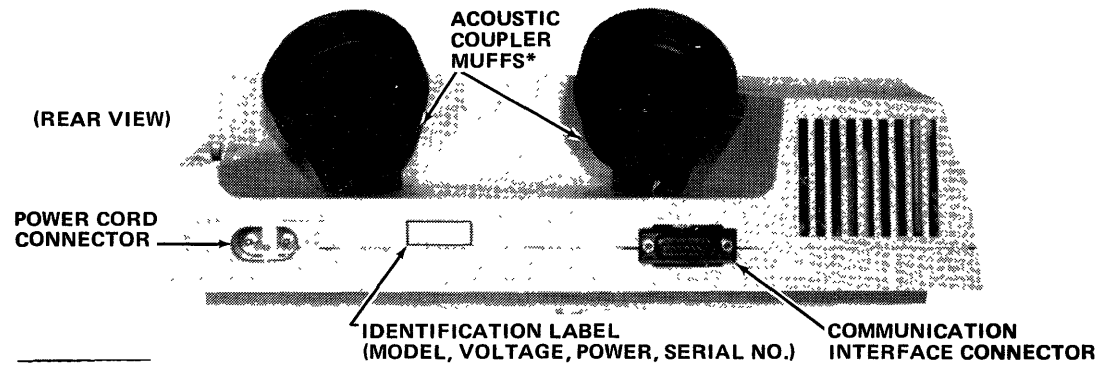
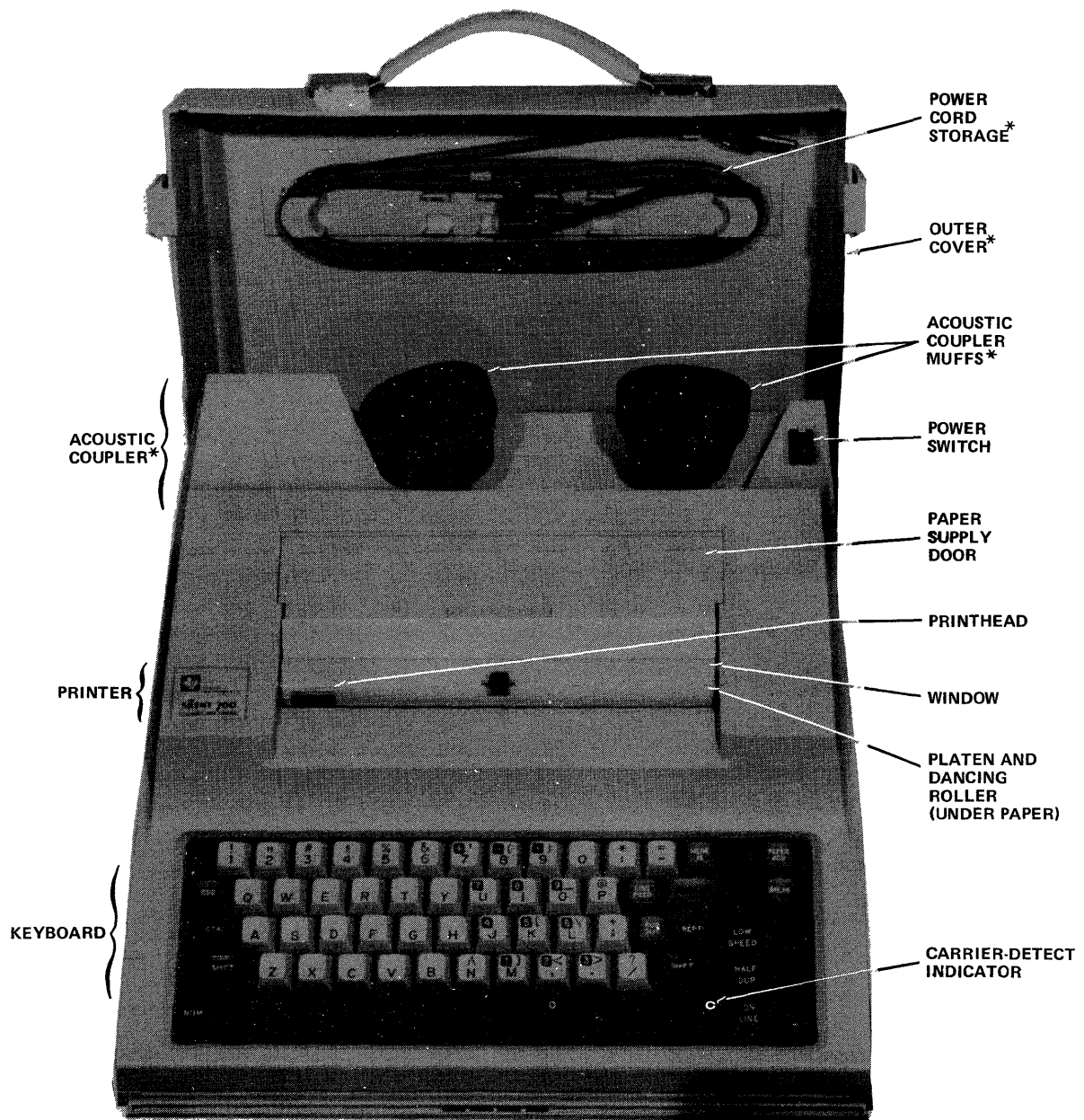
- a. Switch terminal power on and press the carriage RETURN key.
- b. Set the LOW SPEED rocker switch on the keyboard to the right for 30 CPS* or to the left for 10 CPS; these rates equal 300 baud and 110 baud, respectively.
- c. Set the transmission mode (HALF DUP) switch on the keyboard to the HALF (left) or full (right) DUPlex mode.
- d. Set the ON LINE switch to the left position.
- e. Lift the telephone handset from the cradle and dial the appropriate number to connect the Model 745 to the data equipment at the other end of the telephone line.
- f. When an audible high-frequency signal (*mark*) is heard on the receiver, place the telephone handset into the acoustic coupler muffs so that the telephone handset cord is to the left side of the data terminal. Wait 3 to 7 seconds for the CARRIER DETECT indicator to illuminate.

NOTE

Take special care to insert the handset into the muffs so that the outer lip of each muff mates with the grooves surrounding the handset earpiece and mouthpiece. The removable caps on the handset must be completely surrounded by the inside circumference of the muffs.

- g. Begin communication according to your system instructions.

*CPS = characters per second



*NOTE: MODEL 745 only

Figure 2-1. Major Components and Controls (Typical)

Table 2-1. External Interface Connector Pin Assignments

J403 Pin No.	Source	Function
9	Common	<i>Protective Ground</i> – Connected to terminal chassis and power cord ground
1	Terminal	<i>Signal Ground</i> – Common return for all data and control lines
14	Terminal	<i>CR Busy</i> – Low power TTL level, high-true when printhead is lifted (for test only)
15	Terminal	<i>DTR</i> – EIA level held to ON condition when terminal is on-line
13	Terminal	<i>XMTD</i> – Transmit data; EIA level held to MARK state when no data is being transmitted
12	External	<i>RCVD</i> – Receive data; EIA level held to MARK state by external device when no data is to be printed
11	External	<i>CDET</i> – Carrier detect; EIA level held to ON condition by external device when data is to be received on pin 12
2	Terminal	<i>CARDET</i> – Carrier detect; EIA level held to ON condition by terminal when carrier is detected
8	Terminal	<i>RCVDATA</i> – Receive data; EIA level held to MARK state by terminal when no data is being received
3	External	<i>XMIT DATA</i> – Transmit data; EIA level held to MARK state by external device when no data is to be transmitted
6	External	<i>RL 1</i> – Input side of receive data current loop when current loop option is installed; otherwise, 3.3k ohms to +5V
7	External	<i>RL 2</i> – Return side of receive data current loop when current loop option is installed; otherwise, 3.3k ohms to +5V
5	External	<i>DT</i> – Data Tip; DAA signal when modem option is installed
4	External	<i>X1</i> – Input side of transmit data current loop when current loop option is installed
4	External	<i>DR</i> – Data ring; DAA signal when modem option is installed
10	Terminal	<i>X2</i> – Return side of transmit data current loop when current loop option is installed
10	Terminal	<i>P12V</i> – Spare EIA level held to ON condition when terminal power is on (3.3k ohms to +12V)

NOTES

1. The terminal connector (J403) is a 15-pin (male) plug, AMP P/N 206913-2, or Amp P/N 205867-2, or equivalent.
2. The mating (cable) connector (P1) is a 15-pin (female) receptacle, Amp P/N 205205-1 or equivalent.

h. In the event the communication link is lost during operation, replace the handset into its cradle, and repeat steps e through g above.

mating 15-pin female connector on the data terminal end is provided with the standard EIA interface for the Model 743 terminal. Pin assignments are listed in Table 2-2. Complete the following steps to establish the communications link.

2.3.2 EIA CONFIGURATION, MODEL 743. A 6-foot cable with a 25-pin male connector (Cannon DB-25P or equivalent) on the modem end and a

- a. Connect the 6-foot cable between the terminal and the data set.

Table 2-2. Model 743 EIA Interface Cable Pin Assignments

103A Data Set (Cable Part No. 983848)		
P1 Connector to Model 743	P2 Cable Termination	Function
P1-9	P2-1	Protective Ground
P1-13	P2-2	Transmit Data
P1-12	P2-3	Receive Data
P1-1	P2-7	Signal Ground
P1-11	P2-8	Data Carrier Detect ¹
P1-15	P2-20	Data Terminal Ready ²
P1-10	P2-4	Request to Send ³

113A Data Set (Cable Part No. 983854)		
Connector to Model 743	Cable Termination	Function
P1-9	P2-1	Protective Ground
P1-13	P2-2	Transmit Data
P1-12	P2-3	Receive Data
P1-1	P2-7	Signal Ground
P1-15	P2-20	Data Terminal Ready ³
P1-10	□	{ Terminal Carrier Detect
P1-11			Biased ON

NOTES

- ¹ Must be > +3 V to receive data.
- ² Function of ON LINE switch: > +3 V when on-line
< -3 V when off-line.
- ³ > +3 V when power is ON.

- b. Set the LOW SPEED rocker switch on the keyboard to the appropriate speed: left for 10 CPS or right for 30 CPS.
- c. Switch terminal power on and press the RETURN key.
- d. Set the ON LINE switch to the left position.
- e. Begin communications according to your system instructions.

2.3.3 TTY CONFIGURATION, MODEL 743. A 6-foot cable (TI Part No. 983850-0001) is provided to connect the Model 743 to the communication line. This cable consists of a 15-pin connector for connection at the rear of the terminal, and four spade lugs at the other end of the cable. Pin assignments are listed in Table 2-3. Use the following procedure to complete the communication link for four-wire (full-duplex) and two-wire (half-duplex).

Table 2-3. Standard dc-Current Loop Interface Cable Pin Assignments (Cable Part No. 983850)

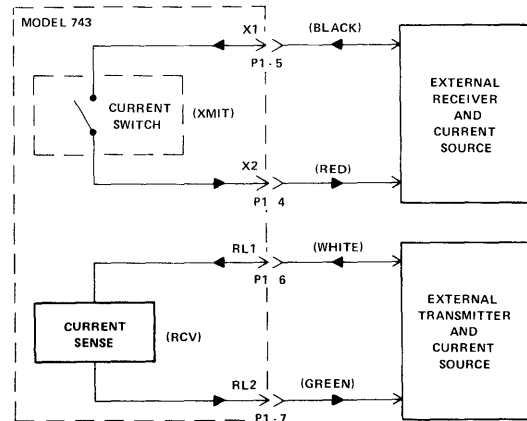
P1 Connector to Model 743	Cable Termination	Function
P1-6	RL1 lug (white wire)	743 Rcv Loop Input
P1-7	RL2 lug (green wire)	743 Rcv Loop Return
P1-5	X1 lug (black wire)	743 Xmit Loop Input
P1-4	X2 lug (red wire)	743 Xmit Loop Return
P1-13 } P1-3 }		Transmit Jumper
P1-12 } P1-8 }		Receive Jumper
P1-11 } P1-2 }		Terminal Carrier Detect biased ON

NOTE

Signal ground is not required when using the dc current loop interface, since the transmit/receive current loop circuitry utilizes optically coupled isolators.

- a. For full duplex mode connect the four wires [X1 and X2 (transmit pair) and RL1 and RL2 (receive pair)] to the signal source as shown in Figure 2-2. For half duplex operation connect X1 and RL2 to the communication source. Connect X2 to RL1, thus putting the terminal's transmit and receive leads in series as shown in Figure 2-2.

Full Duplex



Half Duplex

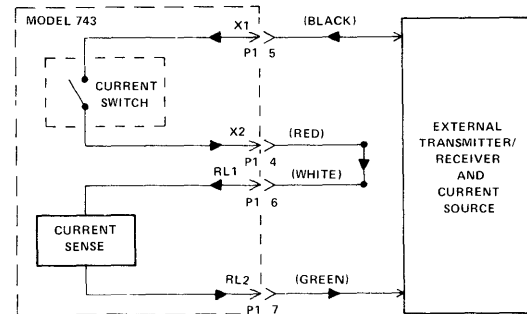


Figure 2-2. Model 743 TTY Configurations

- b. Set the LOW SPEED rocker switch to the left position for 10 CPS or to the right for 30 CPS.
- c. Switch terminal power on and press the RETURN key.
- d. Set the ON LINE rocker switch to the left position.
- e. The terminal should be operable. If not, check polarity of the leads described in step a above, and repeat steps b through d.

2.3.4 INTERNAL MODEM CONFIGURATION, MODEL 743. A 6-foot cable (TI Part No. 983849-0001) terminated in two spade lugs is available for the Model 743. This cable provides standard *data tip* (DT) and *data ring* (DR) output/input signals. Pin assignments are listed in Table 2-4. The procedure for completing the communications link is as follows:

- a. Connect the 6-foot cable between the terminal and the CDT DAA. See Table 2-4 for pin assignments.
- b. Switch terminal power on and press the RETURN key.
- c. Set the LOW SPEED rocker switch to the left position for 10 CPS or to the right for 30 CPS.
- d. Set the ON LINE rocker switch to the left position.
- e. On the telephone, dial the appropriate number to connect the data terminal to the data equipment.
- f. When an audible high frequency signal is heard through the receiver, lift the white *data* button on the telephone cradle and place the handset on the table beside the dial unit.

Table 2-4. Optional Internal Modem Interface Cable Pin Assignments (Cable Part No. 983849)

P1 Connector to Model 743	Connector to DAA	Function
P1-5	lug (red wire)	Data Tip (DT)
P1-4	lug (black wire)	Data Ring (DR)
P1-13 } P1-3 }		Transmit Jumper
P1-12 } P1-8 }		Receive Jumper
P1-11 } P1-2 }		Carrier Detect Jumper

2.3.5 AUXILIARY MODEM/COUPLER CONFIGURATION. The Models 743/745 Data Terminals can be equipped with EIA interface capability and auxiliary use of the coupler or modem by use of either of two optional cables:

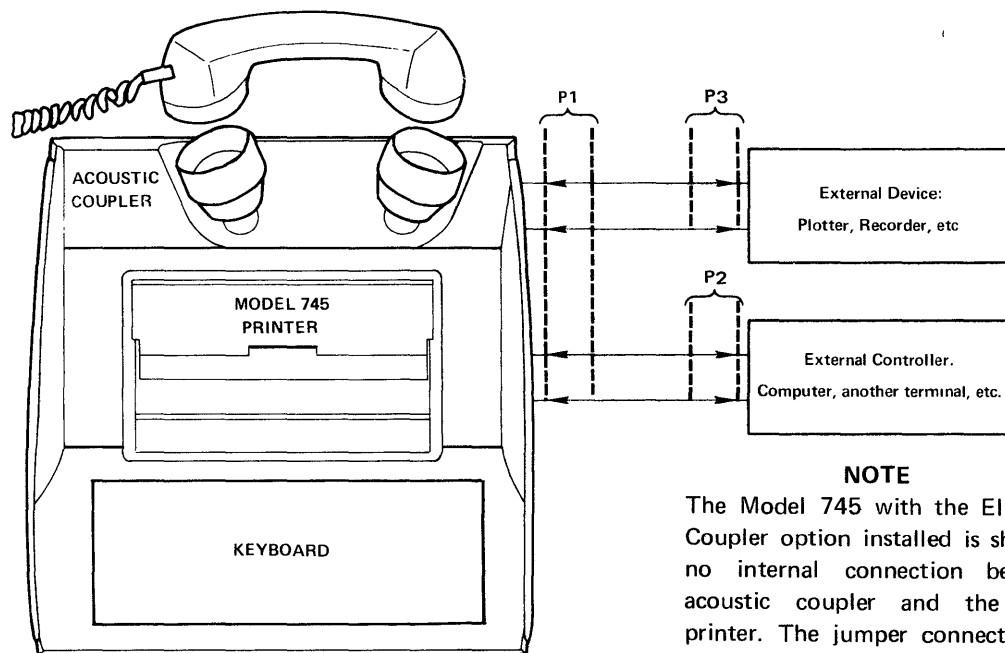
- EIA/Auxiliary coupler cable (TI Part No. 983847-0001) for the Model 745.
- EIA/Auxiliary modem cable (TI Part No. 983855-0001) for the Model 743.

2.3.5.1 EIA/Auxiliary Coupler, Model 745. In this application the coupler is used to communicate with an external device and, therefore, is used separately from terminal operation. Figure 2-3 diagrams this mode of operation, and pin assignments are listed in Table 2-5. The link may be completed through use of the following procedure.

NOTE

The Model 745 with the **EIA/Auxiliary Coupler** option installed is shipped with **no internal connection** between the acoustic coupler and the keyboard/printer. The jumper connector (TI Part No. 983846) furnished with the EIA/Auxiliary Coupler option must be inserted into the communications interface connector at the rear of the terminal to permit use of the Model 745 in its standard configuration.

- a. Connect P1 of the 6-foot cable to the communication interface connector at the rear of the Model 745.
- b. Connect P2 to P3 at the opposite end of the 6-foot cable.
- c. Test terminal operation as though it were a standard Model 745; follow the procedure outlined in **Section 2-3.1** above. If this link tests satisfactorily, continue the procedure.
- d. Unplug P2 from P3 and plug P3 into an external device for auxiliary use of the acoustic coupler. Complete the communications link as described in **Section 2-3.1** above.



NOTE
 The Model 745 with the EIA/Auxiliary Coupler option installed is shipped with no internal connection between the acoustic coupler and the keyboard/printer. The jumper connector (TI Part No. 983846) furnished with the EIA/Auxiliary Coupler option must be inserted into the communications interface connector at the rear of the terminal to permit use of the Model 745 in its standard configuration.

A0001074

Figure 2-3. EIA/Auxiliary Coupler Connections for the Model 745

Table 2-5. EIA/Auxiliary Acoustic Coupler Cable Pin Assignments Model 745 (TI Part No. 983847)

Terminal Connector (P1)	Cable Termination (P2 and P3)	Function
P1-9	P2-1	Acoustic Coupler, Keyboard/Printer EIA Interface Protective Ground Transmit Data ¹ Receive Data ¹ +12 Volts to RTS ^{1,4} Signal Ground ¹ Data Carrier Detect ^{1,5} Data Terminal Ready ^{1,1} Receive Data ² Transmit Data ² Signal Ground ² Carrier Detect ² Protective Ground Clear to Send ^{2,4} Data Set Ready ^{2,4}
P1-13	P2-2	
P1-12	P2-3	
P1-10	P2-4	
P1-1	P2-7	
P1-11	P2-8	
P1-15	P2-20	
P1-8	P3-3	
P1-3	P3-2	
P1-1	P3-7	
P1-2	P3-8	
P1-9	P3-1	
P1-6	P3-5	
P1-7	P3-6	

NOTES

- Relative to the keyboard and printer (P2)
- Relative to the acoustic coupler internal to the terminal and on another connector (P3)
- DTR is on (> + 3V) when terminal is on-line
- EIA on (< + 3V) when power is ON.
- Held to EIA ON by external equipment required for data reception

- e. Check your external device for satisfactory operation before continuing.
- f. Connect P2 to an external controller. Check the Model 745 keyboard and printer for normal operation.

2.3.5.2 EIA/Auxiliary Modem, Model 743. In this application the modem is used with an external device rather than normal terminal functions. Figure 2-4 diagrams this mode of operation. Pin assignments are listed in Table 2-6. The communications link may be completed using the following procedure.

- a. Connect P1 of the 6-foot cable to the communication interface connector at the rear of the Model 743.
- b. Connect the spade lugs to the CDT DAA (see Table 2-6).
- c. Connect P2 to P3 and test the Model 743 for normal operations as outlined in **Section 2.3.2** above.
- d. After the link has been completed, remove P2 from P3 and connect P3 to an external device.
- e. Test the external device for satisfactory operation.
- f. Connect P2 to an external controller and test the Model 743 printer and keyboard for normal operation (see **Section 2.3.2** above).

2.4 LOADING PAPER.

The following procedure describes how to load a fresh supply of paper into the Models 743/745. See Figures 2-1 and 2-5 for identification of components.

IMPORTANT NOTE

The warranty and/or service contract on the thermal printhead is subject to nullification if the thermal printing paper used in the Silent 700 Data Terminal does not meet TI Specification 972603-0001.

- a. Switch terminal power on.
- b. Open the paper door and remove any excess (old) paper or the empty core from the paper receptacle.

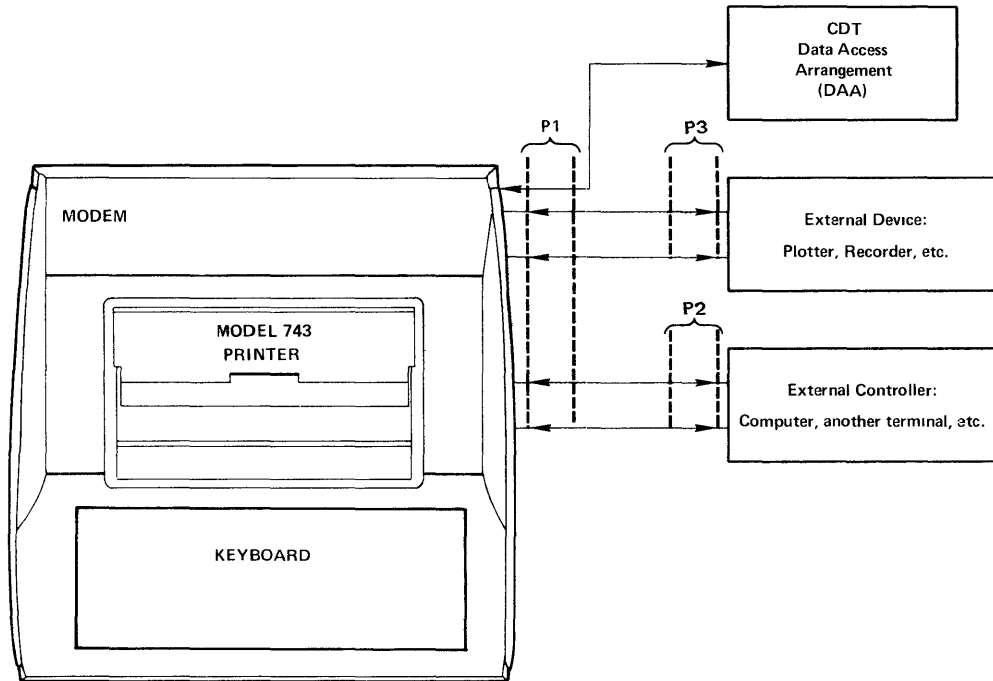
- c. Grasp a new paper supply roll so that the loose end of the paper faces you with the end pointing up.
- d. Place the paper supply roll on the paper roll supports; check that the roll can rotate freely.
- e. Grasp both corners of the end of the paper and gently pull up about 6 inches of paper.
- f. Feed the paper over the dancing roller and down the paper chute until it can be seen behind the window. *The paper will not slide under the printhead because the printhead is pressed against the platen.*
- g. Press the PAPER ADVance key with your right hand while simultaneously pushing the paper gently down the paper chute with your left hand. The paper will feed under the printhead, then under the window/pinch roller.
- h. Tear off excess paper by pulling forward over the tearoff edge of the window and close the paper door.
- i. After paper loading is complete, press the RETURN key; or cycle power OFF and ON (to initialize the electronics).

2.5 ADJUSTMENTS.

Only two field adjustments are possible in normal use: printing image contrast (darkness) and modem/acoustic coupler transmit level.

2.5.1 PRINT CONTRAST. The printing image contrast is preset at the factory and should not require adjustment. However, if darker or lighter print is desired, see **Section 4.3.1** of this manual for the procedure.

2.5.2 ACOUSTIC COUPLER AND MODEM ADJUSTMENTS. The acoustic coupler and modem are factory calibrated for average operating conditions. However, since handset quality varies and telephone and communications line losses occur, the acoustic coupler and modem may require occasional adjustment. See **Section 4.3.2** for detailed procedures to adjust the acoustic coupler and modem transmit levels.



A0001075

Figure 2-4. EIA/Auxiliary Modem Connections for the Model 743

Table 2-6. EIA/Auxiliary Modem Interface Cable Pin Assignments (Cable Part No. 983855)

P1 Connector to Model 743	Cable Termination	Function
743 Printer/Keyboard		
P1-9	P2-1	Protective Ground ¹
P1-13	P2-2	Transmit Data ¹
P1-12	P2-3	Receive Data ¹
P1-10	P2-4	Request to Send ^{1,4}
P1-1	P2-7	Signal Ground ¹
P1-11	P2-8	Data Carrier Detect ^{1,5}
P1-15	P2-20	Data Terminal Ready ^{1,3}
Modem		
P1-9	P3-1	Protective Ground ²
P1-8	P3-3	Receive Data ²
P1-3	P3-2	Transmit Data ²
P1-1	P3-7	Signal Ground ²
P1-2	P3-8	Carrier Detect ²
P1-6	P3-5	Clear to Send ⁴
P1-7	P3-6	Data Set Ready ⁴
To DAA		
P1-5	lug (red wire)	Data Tip (DT)
P1-4	lug (black wire)	Data Ring (DR)

NOTES

¹ Relative to keyboard and printer (P2)

² Relative to internal modem (P3).

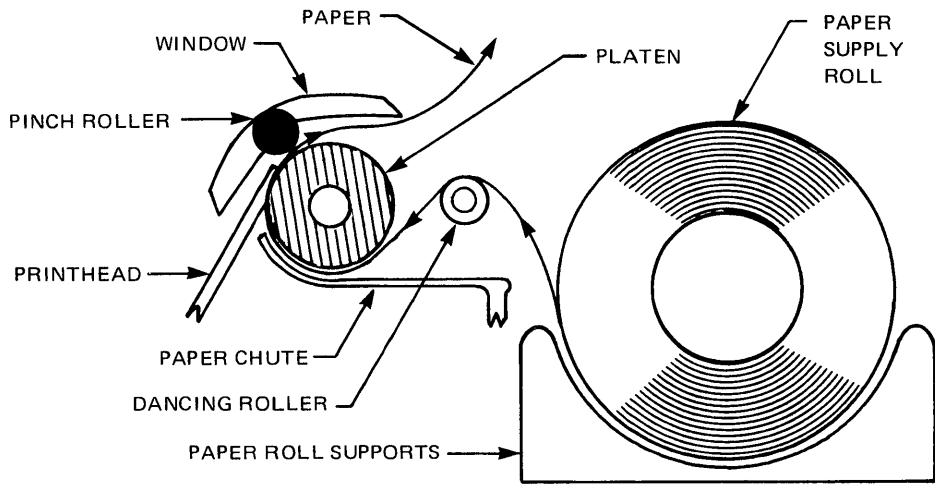
Function of ON LINE switch

> +3 V when on-line

< -3 V when off-line

⁴ > +3 when power is ON.

⁵ Must be > +3 V to receive data.



(SIDE VIEW)

A0001076

Figure 2-5. Paper Loading Diagram (Not to Scale)

SECTION 3

THEORY OF OPERATION

3.1 FUNCTIONAL DESCRIPTION.

The Models 743/745 are low cost, light weight, interactive data terminals which utilize the thermal printing technique. A functional block diagram of the Models 743/745 is shown in Figure 3-1. The terminals operate in two modes, ON-LINE or OFF-LINE, selectable by the operator.

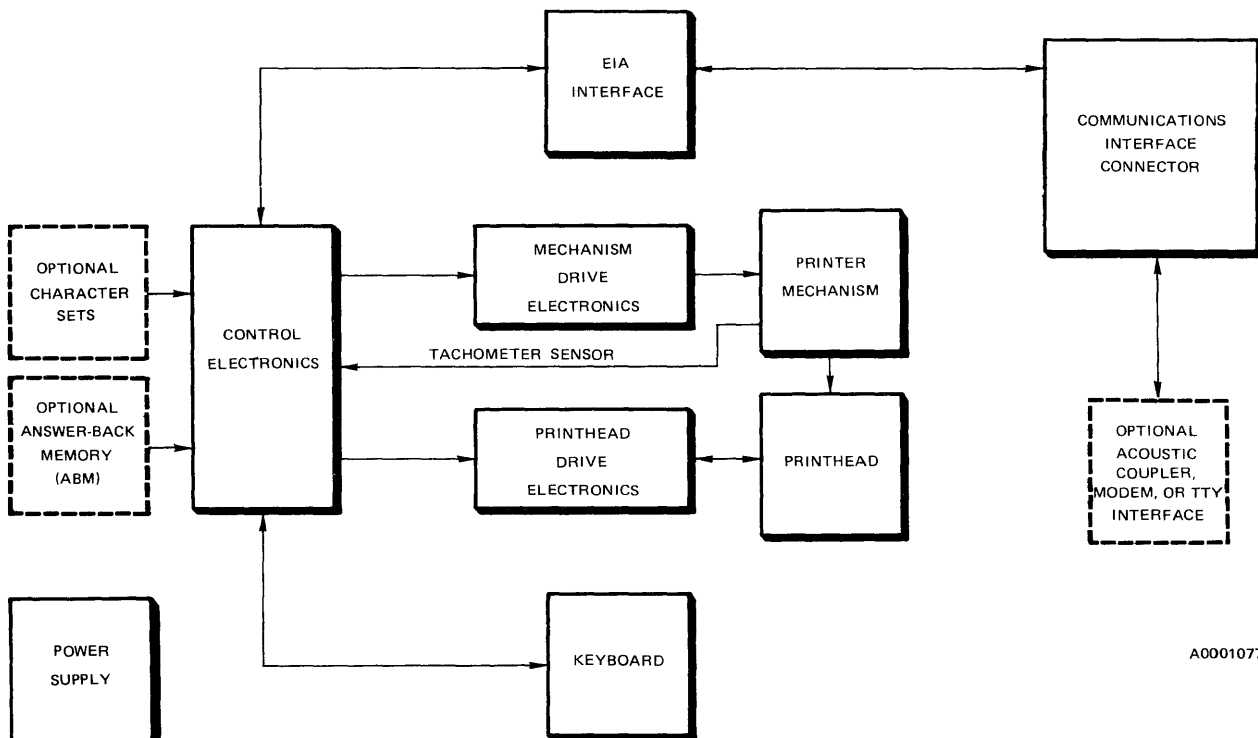
- ON-LINE Operation. With the terminal in the ON LINE mode, the keyboard and printer operate in conjunction with the external interfaces as dictated by the communications discipline and modified by the specific interface options.
- OFF-LINE Operation. With the terminal in the OFF LINE mode, the terminal operates in a "typewriter" mode; i.e., the keyboard is connected to the printer and no data is transmitted or received. All communications-related functions of the keyboard are inoperable in this mode (i.e., BREAK, HERE IS, etc.).

The following paragraphs in this Section describe the theory of operation of the Models 743/745 Data Terminals. Schematics referred to in the text may be found in the appendix to this manual.

NOTE

The Models 743/745 Data Terminals are supplied with one of two different paper handling mechanisms and one of two different electronics printed wiring boards (PWB). The similarities and differences in these subassemblies are explained in the text where appropriate. Use the following table to determine which mechanism and PWB your model has.

Terminal Serial No.	Mechanism Part No.	PWB Part No.
0X743YYYYY or 0X745YYYYY	983811	983841
0X744YYYYY or 0X746YYYYY	999257	937300



A0001077

Figure 3-1. Models 743/745 Simplified Block Diagram

3.2 CONTROL ELECTRONICS.

The control electronics function in the Models 743/745 is performed by an interrupt driven, stored program, microprocessor system. The microprocessor system consists of a Texas Instruments TMS 8080 microprocessor, two 1Kx8 TMS 4700 ROM's, (one 4Kx8 TMS 4732 ROM in the later models), a 64x8 TMS 4036 RAM, and a special purpose TMS 5504 I/O device.

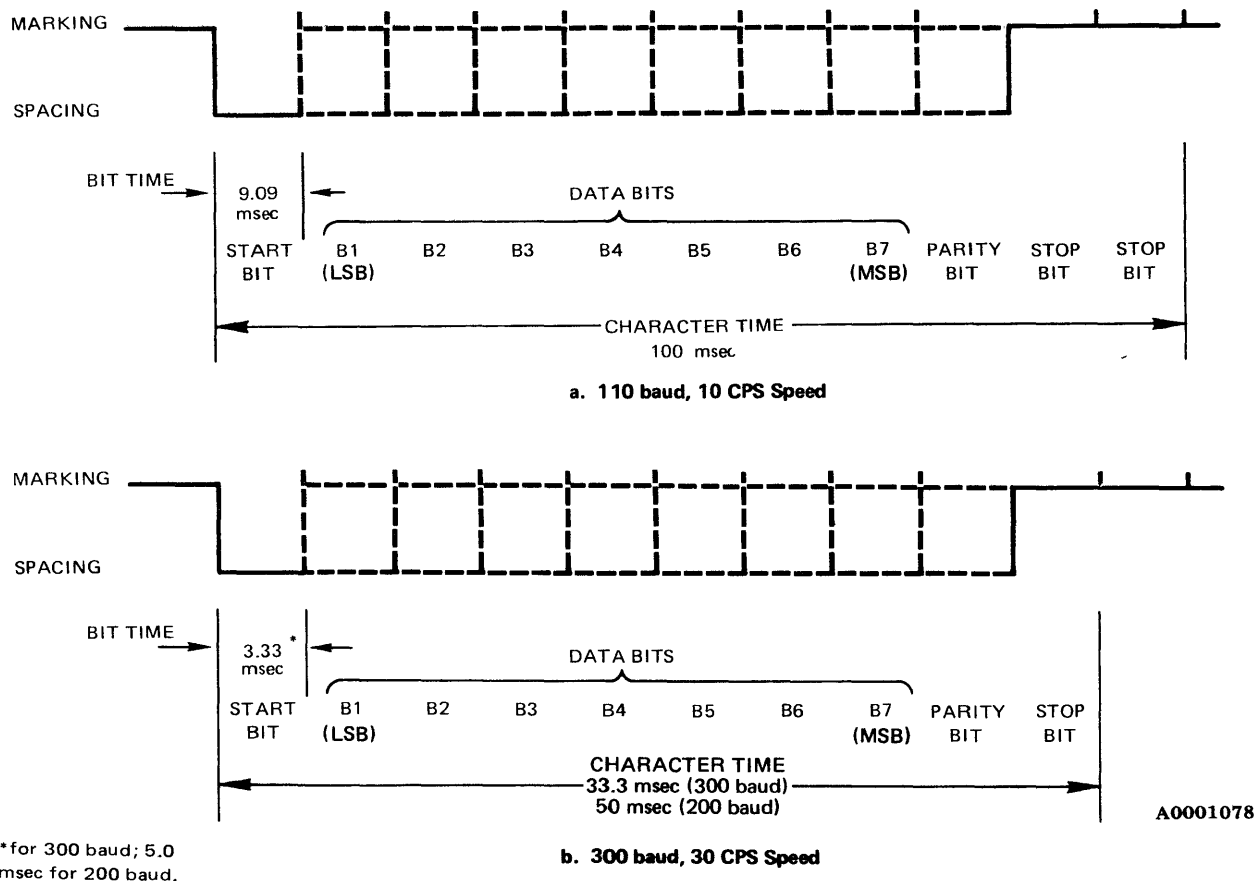
The control electronics monitors all terminal inputs and generates all necessary timing and control signals to effect data transfers, cause printhead and paper motion, and generate printable characters through the thermal printhead matrix.

3.2.1 COMMUNICATIONS DISCIPLINE. The control electronics monitors received data from the EIA or the optional interfaces. It generates the appropriate timing and code structure to transmit data entered through the keyboard. The control electronics transmits and receives asynchronous serial data in accord with *ANSI Standard for Character Structure and Parity Sense X3.16-1966* and *ANSI Standard for Bit Sequence X3.15-1967*.

3.2.2 SPEED (BAUD RATE). The terminal transmission speed is determined by an operator selectable, two-position rocker switch at 10 characters per second (110 baud) or 30 characters per second (300 baud).

3.2.3 BUFFERING. A buffer is provided to store characters received while a carriage return/line feed (CR/LF) is in progress. The combination of print time, CR time, and buffer is such that fill characters are not required and no data is lost even for an automatic CR/LF at column 81. This yields a true 30-CPS printing capability (see paragraph 3.11.5 for details).

3.2.4 CHARACTER STRUCTURE. A character is made up of a start bit (always ZERO or *spacing*), seven data bits (least significant bit first), a parity bit, and two stop bits at 110 baud (always ONE or *marking*) or one stop bit at 300 baud (always ONE or *marking*). Figure 3-2 illustrates the character serial data timing. Tables 3-1 and 3-2 list the code structure for the ASCII, APL, and Katakana codes as interpreted by the terminal.



*for 300 baud; 5.0 msec for 200 baud.

Figure 3-2. Serial Data Timing Diagram

Table 3-1. APL and ASCII Code System and Character Sets

CONTROL FOR BOTH APL AND ASCII		U. S. ASCII MODE							APL MODE*							
b ₇ b ₆ b ₅		0	0	0	0	1	1	1	1	0	0	1	1	1	1	
b ₄ b ₃ b ₂ b ₁		No.	0	1	2	3	4	5	6	7	2	3	4	5	6	7
0 0 0 0	0	NUL	DLE	SPACE	0	@	P		p	SPACE	0	-	*	◇	p	
0 0 0 1	1	SOH	DC1	!	1	A	Q		a	q	·	1	α	?	a	q
0 0 1 0	2	STX	DC2	"	2	B	R		b	r	)	2	⊥	ρ	b	r
0 0 1 1	3	ETX	DC3	#	3	C	S		c	s	<	3	∩	⌈	c	s
0 1 0 0	4	EOT	DC4	\$	4	D	T		d	t	≤	4	L	~	d	t
0 1 0 1	5	ENQ	NAK	%	5	E	U		e	u	=	5	ε	↓	e	u
0 1 1 0	6	ACK	SYN	&	6	F	V		f	v	>	6	-	∪	f	v
0 1 1 1	7	BEL	ETB	'	7	G	W		g	w	]	7	∇	ω	g	w
1 0 0 0	8	BS	CAN	(	8	H	X		h	x	∨	8	Δ	⊃	h	x
1 0 0 1	9	HT	EM	)	9	I	Y		i	y	^	9	ℓ	↑	i	y
1 0 1 0	10	LF	SUB	*	:	J	Z		j	z	≠	(	°	⊂	j	z
1 0 1 1	11	VT	ESC	+	;	K	[		k	[	÷	[	'	←	k	{
1 1 0 0	12	FF	FS	,	<	L	\		l	\	,	,	□	T	l	→
1 1 0 1	13	CR	GS	-	=	M	]		m	]	+	X	|	→	m	}
1 1 1 0	14	SO	RS	·	>	N	^		n	^	.	.	T	≥	n	\$
1 1 1 1	15	SI	US	/	?	O	_		o	DEL	/	\	○	-	o	DEL

* APL characters are available only with the optional APL/ASCII keyboard.



Printable characters



Printer control characters



Translated to uppercase equivalents by standard keyboard, or when UPPER CASE ONLY is selected on the optional Full-ASCII keyboard.



Codes generated and transmitted by the terminal, but no action is taken.



On standard (limited-ASCII) keyboard only: printed when received but not generated.

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ASCII CONTROL CHARACTERS

(From USA Standards Institute Publication X3.4-1968)

ACK	acknowledge	EM	end of medium	NAK	negative acknowledge
BEL	bell	ENQ	enquiry	NUL	null
BS	backspace	EOT	end of transmission	RS	record separator
CAN	cancel	ESC	escape	SI	shift in
CR	carriage return	ETB	end of transmission block	SO	shift out
DC1	device control 1	ETX	end of text	SOH	start of heading
DC2	device control 2	FF	form feed	STX	start of text
DC3	device control 3	FS	file separator	SUB	substitute
DC4	device control 4 (stop)	GS	group separator	SYN	synchronous idle
†DEL	delete (also called RUBOUT)	HT	horizontal tabulation	US	unit separator
DLE	data link escape	LF	line feed	VT	vertical tabulation

†not strictly a control character

Table 3-2. Katakana and ASCII Code System and Character Set

CONTROL FOR BOTH KANA & ASCII		U.S. ASCII MODE								KATAKANA MODE*						
		0	0	0	0	1	1	1	1	0	0	1	1	1	1	
b ₇ b ₆ b ₅		0	0	1	1	0	0	1	1	0	0	1	1	1	1	
b ₄ b ₃ b ₂ b ₁		0	0	0	0	1	1	1	1	0	0	1	1	1	1	
No.		0	1	2	3	4	5	6	7	2	3	4	5	6	7	
0 0 0 0	0	NUL	DLE	SPACE	0	@	P			SPACE	—	タ TA	ミ MI			
0 0 0 1	1	SOH	DC1	!	1	A	Q			○	ア A	チ CHI	ム MU			
0 0 1 0	2	STX	DC2	"	2	B	R			「	イ I	ツ TSU	メ ME			
0 0 1 1	3	ETX	DC3	#	3	C	S			」	ウ U	テ TE	モ MO			
0 1 0 0	4	EOT	DC4	\$	4	D	T			、	エ E	ト TO	ヤ YA			
0 1 0 1	5	ENQ	NAK	%	5	E	U			・	オ O	ナ NA	ユ YU			
0 1 1 0	6	ACK	SYN	&	6	F	V				カ KA	ニ NI	ヨ YO			
0 1 1 1	7	BEL	ETB	'	7	G	W			ア A	キ KI	ヌ NU	ラ RA			
1 0 0 0	8	BS	CAN	(	8	H	X			イ I	ク KU	ネ NE	リ RI		
1 0 0 1	9	HT	EM	)	9	I	Y			ウ U	ケ KE	ノ NO	ル RU		
1 0 1 0	10	LF	SUB	*	:	J	Z			エ E	コ KO	ハ HA	レ RE			
1 0 1 1	11	VT	ESC	+	;	K	[			オ O	サ SA	ヒ HI	ロ RO		
1 1 0 0	12	FF	FS	,	<	L	¥ YEN			ヤ YA	シ SHI	フ FU	ワ WA			
1 1 0 1	13	CR	GS	-	=	M	]			ユ YU	ス SU	ヘ HE	ン N		
1 1 1 0	14	SO	RS	.	>	N	^			ヨ YO	セ SE	ホ HO	"			
1 1 1 1	15	SI	US	/	?	O	_			ツ TSU	ソ SO	マ MA	°		DEL	

* Katakana characters available only with the optional Katakana keyboard.

- Printable characters
- Printer control characters
- Codes generated and transmitted by the terminal, but no action taken.
- Translated to uppercase equivalents when received by the terminal equipped with Katakana keyboard.
- Printed when received, but not generated
- Ignored codes

A0001202

ASCII CONTROL CHARACTERS
(From USA Standards Institute Publication X3.4-1968)

ACK	acknowledge	EM	end of medium	NAK	negative acknowledge
BEL	bell	ENQ	enquiry	NUL	null
BS	backspace	EOT	end of transmission	RS	record separator
CAN	cancel	ESC	escape	SI	shift in
CR	carriage return	ETB	end of transmission block	SO	shift out
DC1	device control 1	ETX	end of text	SOH	start of heading
DC2	device control 2	FF	form feed	STX	start of text
DC3	device control 3	FS	file separator	SUB	substitute
DC4	device control 4 (stop)	GS	group separator	SYN	synchronous idle
†DEL	delete (also called RUBOUT)	HT	horizontal tabulation	US	unit separator
DLE	data link escape	LF	line feed	VT	vertical tabulation

†not strictly a control character

The standard Models 743/745 utilize a limited-ASCII character set. On the standard limited-ASCII keyboard, lowercase alphabet characters are not generated and are translated to their uppercase equivalents when received. Full-ASCII (lowercase capability), Katakana, and APL keyboards are available as options.

3.2.5 PARITY. The parity of received data is ignored by the printer. The parity of the transmitted character is factory-strappable between *odd*, *even*, or continuous *mark*. Parity is not operator-selectable but is set at the factory according to the original purchase order. *Even* parity is supplied if not otherwise specified.

3.2.6 DUPLEX OPERATION. Duplex operation of the communications circuit is operator-selectable to either half- or full-duplex via the two-position HALF DUP switch on the keyboard. In full-duplex operation the terminal is capable of transmitting and receiving data simultaneously; any data typed on the keyboard is transmitted but not printed. In this mode it is possible to transmit data at the 30-CPS rate from the keyboard while the printer is simultaneously receiving data from the line at the 30-CPS rate.

In half-duplex operation the terminal is capable of transmitting and receiving data, but not simultaneously. Any data typed on the keyboard is transmitted and also printed. In the Model 745 any data received from the line while the terminal is transmitting is ignored and is not printed.

3.2.7 ANSWER-BACK MEMORY OPTION. The Answer-Back Memory option is implemented by a PROM inserted into a socket located on the printed wiring board (PWB) inside the Model 743/745 (see Section 3.10.8 for additional information).

3.2.8 KEYBOARD SCAN. The control electronics generates control signals to scan the keyboard and debounce keyswitch depressions. When a key depression is detected during a scan, the character is encoded and the appropriate action is taken by the terminal. Each scan is complete so as to detect possible multiple key depressions. When simultaneous depressions are detected during a scan, neither key is acted upon. This scanning/debounce technique effects a two-key rollover with lockout.

3.2.9 MECHANISM CONTROL. The control electronics also generates control signals for horizontal positioning of the printhead as well as vertical positioning of the printing paper.

3.2.9.1 Horizontal Printhead Positioning. The control electronics positions the printhead horizontally through the three-phase, 15-degree stepping motor. The motor is coupled mechanically to the printhead. The control electronics monitors an optical sensor mounted on the motor shaft which provides feedback to control both stepping motion during printing and slew motion during carriage return. The print/step cycle operates asynchronously up to 35 CPS during the period required to empty the data buffer.

Carriage return time for a full 80 columns is typically 180 milliseconds. A backspace consumes one character time. An automatic carriage return/line feed (CR/LF) is executed upon receipt from the keyboard or line of the 81st character in a line. Fault detection methods are used by the control electronics to prevent damage during power cycling conditions, obstruction of printhead motion, or loss of the optical sensor signal.

3.2.9.2 Paper Advance. The control electronics advances the printing paper by timing the current levels through the line feed stepping motor (or solenoid). The motor (or solenoid) is mechanically coupled to a ratchet mechanism which advances paper beneath the printhead. A line feed is performed in one character-time. By holding the PAPER ADVance key depressed, the operator can direct the control electronics to perform repeated line feeds.

3.2.9.3 Printhead Pressure Control. The control electronics generates timed current levels through the printhead pressure solenoid which is mechanically coupled to the printhead pressure bar. Activating the solenoid relieves pressure upon the paper during line feed and carriage return operations; preserving line and character registration accuracy and reducing wear on the printhead.

3.2.9.4 Character Printing. Upon receipt of a character from the keyboard or the communications line, the control electronics generates the appropriate control signals to form the selected character utilizing the five by seven dot matrix on the thermal printhead. The print voltage is enabled, and then the matrix data is transferred to the printhead one column at a time.

3.3 PRINTER MECHANISM.

The printer mechanism positions the printhead horizontally as each character is printed. The mechanism also returns the printhead to column one and advances the paper into position for the next line of print. The last character printed as well as the previous line are visible to the operator under normal lighting conditions. A line constitutes up to 80 character positions (columns).

The Models 743/745 employ either of two printer mechanisms. Horizontal printhead positioning and printhead pressure are implemented identically in both versions. However, one version uses a solenoid and ratchet arrangement to advance the paper (line feed); the second version uses a four-phase stepping motor for paper advance. The two types may be identified as follows:

<u>Terminal Serial No.</u>	<u>Mechanism & Electronics</u>
0X743YYYYY or 0X745YYYYY	Solenoid line feed mechanism (Part No. 983811) with PWB electronics (Part No. 983841) — Schematic 983842
0X744YYYYY or 0X746YYYYY	Stepping motor line feed mechanism (Part No. 999257) with PWB electronics (Part No. 937300) — Schematic 937298

Printer mechanisms are supplied either with a printhead integral to the assembly (part number 983833 with solenoid line feed or 999257-0002 with motor line feed) or without a printhead (part number 983811 with solenoid line feed or 999257-0001 with motor line feed).

3.3.1 CHARACTER SPACING. Characters are spaced in 0.100-inch increments (center to center) within a tolerance of ± 0.005 inch.

3.3.2 LINE SPACING. Line spacing is 0.167 ± 0.005 inch center to center, producing six lines per inch (single space).

3.3.3 PAPER SUPPLY. The mechanism accepts 100-foot rolls of paper with a 1.93-inch maximum outside diameter, wound with the heat-sensitive surface outside. The paper width is 8.54 inches maximum. The mechanism is designed to operate only with paper meeting *TI Thermal Paper Specification 972603* and the *TI Thermal Paper Print Quality Specifications 244156-9801, -9802, and -9803*.

3.3.4 PAPER LOADING. After an initial line feed of at least 30 lines, paper will feed parallel between adjacent lines of print to within 0.02 inches, and all lines will be perpendicular to the paper edge within 0.05 inch.

3.3.5 PAPER TEAROFF. The back edge of the paper window is sharpened to provide means to tear off printed paper. This method minimizes paper waste and does not disturb the remaining paper supply.

3.4 PRINTHEAD SYSTEM.

The printhead consists of a five by seven matrix of 35 heating elements and a transistor mounted on a monolithic chip. Mounted on a heatsink, the chip is connected to the printhead interface PC card with a flexible cable. Mounted on the printhead interface PC card are two selected resistors (RTRIM and R3) which control the characteristics of the temperature compensation circuit so that its operation is optimum for each individual printhead.

The printhead control electronics is identical for both PWB versions (TI part numbers 937300 and 983841). A block diagram of the printhead subsystem is shown in Figure 3-4.

Each of the 35 heating elements on the printhead consists of an SCR and a heating element. The 35 elements are controlled by the printhead driver address lines diagrammed in Figure 3-5. When both X and Y inputs are positive to a given element, the SCR energizes and remains on (approximately 10 msec) until PVOLTS is switched off.

3.4.1 PRINTHEAD DRIVERS. The printhead drivers are implemented on two SN98614 linear integrated circuits, each of which consists of six driver circuits. Each driver circuit has a low power, TTL, AND-input stage and a totem pole, power transistor output stage. All drivers are enabled by a signal called PHDSTRBE, and each is controlled by an individual (address) line from the processor.

Each driver translates TTL data into the levels necessary to control the printhead heating elements. The nominal output levels of the drivers are -4.7 volts low and $+3.5$ volts high.

3.4.2 TEMPERATURE COMPENSATION CIRCUIT. The printhead temperature compensation circuit provides a regulated, temperature compensated voltage to the printhead. The voltage is programmed by

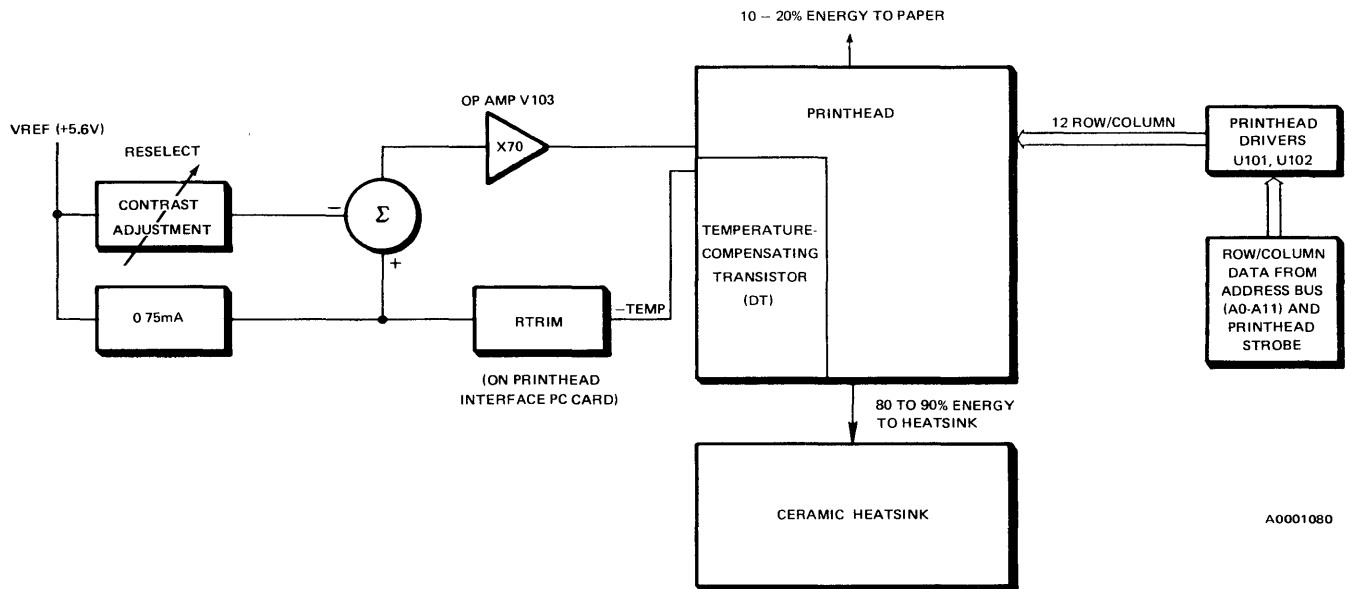


Figure 3-3. Model 743/745 Printing Subsystem Block Diagram

the selected resistors on the printhead interface PC card and the voltage drop across the base-to-emitter and collector junctions of the temperature compensation transistor on the monolithic printhead chip.

3.4.3 PRINT VOLTAGE CIRCUIT. Referring to schematic 937298, sheet 7 or 983842, sheet 6 in the appendix, R112 meters approximately 0.74mA of current to RTRIM and DT (temperature-compensating transistor). RTRIM and DT are connected in series with R110 to ground on the printhead assembly. RTRIM is selected during manufacture so that its resistance compensates for variations in the voltage/current characteristics of DT. Thus, the resulting PVOLTS is correct for a particular printhead. The resulting voltage at E125 is nominally 0.964 volt.

When the PRINT signal is at logical ZERO from the processor, Q103 is energized, applying +5 volts to the cathode of CR106 which holds it off and holds Q102 on. In the ON state Q102 has a maximum resistance of 60 ohms. At a 1-volt level RTRIM and DT have characteristic impedances of approximately $1.0V/0.75mA = 1.3k$ ohms. Capacitor C114 charges at a rate of $(1.3k + 0.06k) \times 1 \times 10^{-6}$ second or about a 1.4 msec time constant $\pm 20\%$ for variations in C114 and the voltage changes, and resulting impedance changes, in RTRIM and DT. The maximum charge time for C114 is $1.672 \text{ msec} \times 5 = 8.36 \text{ msec}$. The holding time for C114 is greater than 0.1 second with less than 1 percent drop.

When PRINT switches high and Q103 is off, the Q103 collector and CR106 cathode are at -12 volts. This switches Q102 off and prevents the voltage on C114 from changing during a PRINT period.

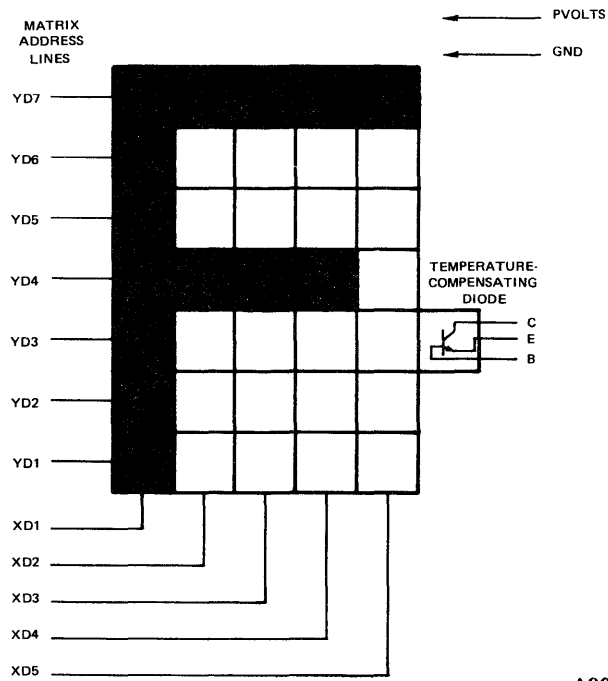
Circuit gain is not changed when the CONTRAST potentiometer R123 is adjusted. Gain is fixed at 70.

R122 is selected during manufacturing unit test of the PWB in order to calibrate the function of the temperature compensation circuit. This calibration enables use of any printhead with any PWB without any adjustment or circuit change.

CR107 provides a level shift of 12 volts which enables amplifier U103 to output up to 22 volts and a minimum of 2 volts.

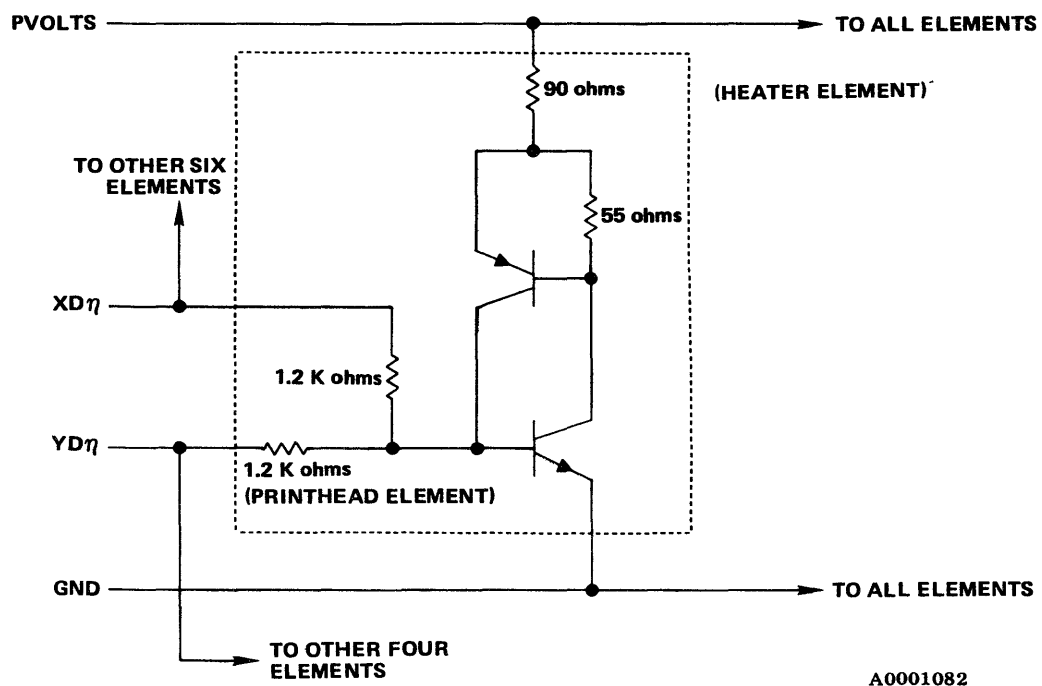
CR108 and CR105 provide two functions:

- (1) Isolation of Q104 base from the gain loop of the compensation circuit which enables PVOLTS to be switched on and off without disturbing the circuit equilibrium
- (2) The two diode drops shift the base potential of Q104 base position so that a dc measurement of PVOLTS can be made at the cathode of CR107 without energizing PVOLTS.



Printhead Matrix Address Lines

NOTE
This view shows the printhead as it rests on the paper (from heatsink side of printhead), creating the letter "F".



Printhead Element Block Diagram

Figure 3-4. Printhead Matrix and Address Lines, and Printhead Element Block Diagram

Q101 switches the base of Q104 to ground and holds it there except when PVOLTS is to be turned on. Diodes CR101 and CR102 provide base current to Q101 to keep it at ground whenever a break occurs in the DT/RTRIM circuit which would cause excessive PVOLTS.

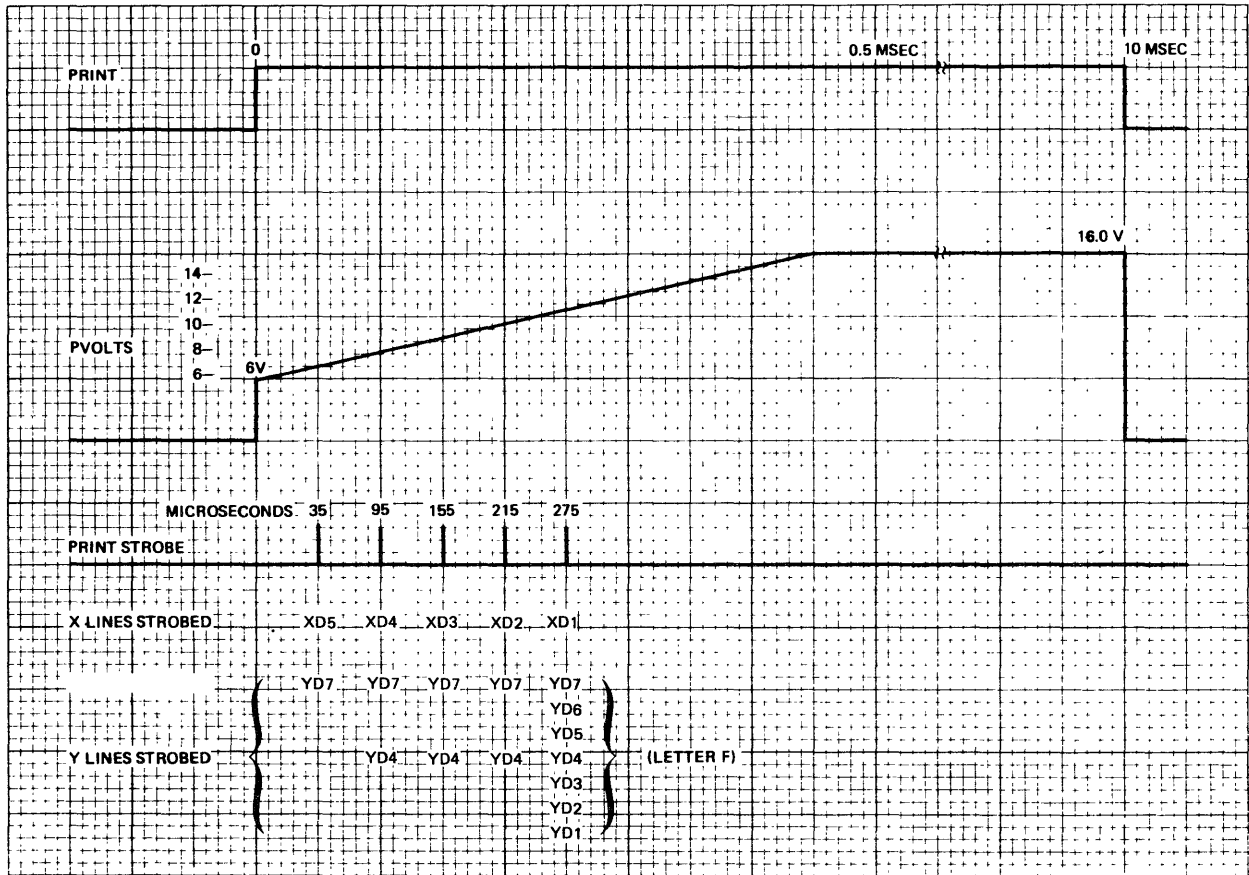
As diagrammed in Figure 3-5, C113 and R108 control the initial step of PVOLTS and the rate of change of PVOLTS when Q104 is switched on by Q101 being turned off. Q103 and C109 form a timing circuit whose natural period is 10.5 to 15 msec. Normally, this circuit is switched on at the leading edge and off at the trailing edge of the 10-millisecond PRINT control signal from the processor. But only in case of a processor failure which allows PRINT to stay at a logic ONE level would the PRINT time be controlled by this circuit.

3.5 MECHANISM DRIVE ELECTRONICS

The printer mechanism drive electronics converts the processor control signals into the appropriate closed-loop, controlled dc currents. The dc currents are applied to (1) a three-phase 15-degree printhead stepping motor, (2) a printhead pressure solenoid, and (3) to a four-phase stepping motor (on the 999257 mechanism) or to a solenoid (on the 983811 mechanism) for line feed.

The two printer mechanism versions and their associated PWB electronics may be identified as follows:

<u>Terminal Serial No.</u>	<u>Mechanism & Electronics</u>
0X743YYYYY or 0X745YYYYY	Solenoid line feed mechanism 983811 with PWB electronics 983841 — Schematic 983842
0X744YYYYY or 0X746YYYYY	Stepping motor line feed mechanism 999257 with PWB electronics 937300-Schematic 937298



A0001083

Figure 3-5. Printhead Interface Timing (For Letter "F")

3.5.1 PRINTHEAD DRIVE MOTOR ELECTRONICS. The printhead positioning motor and electronics is identical for both mechanism versions (schematic 937298, sheet 7 or 983842, sheet 6). The electronics comprises four sections: phase-selecting circuits, a current decay time-constant circuit, and a feedback sensor circuit. A block diagram of the printhead drive electronics is shown in Figure 3-6.

3.5.1.1 Phase Selecting Circuits. Current in each of the three printhead drive motor phases is selected and controlled by three identical transistor networks:

- Phase A – Q207, Q208, Q215
- Phase B – Q206, Q204, Q202
- Phase C – Q205, Q201, Q203

The operation of the circuits is discussed using only one network, phase A, as an example. The TTL logic level from U26-10 (PHA) selects current flowing in phase A. When this signal is a logic ONE, base current is supplied to Q207. Emitter current in Q207 energizes Q208, supplying sufficient base drive to saturate Q215. Emitter current of Q215 is applied to the phase A winding.

3.5.1.2 Current Regulator Circuit. Emitter current for Q205, Q206, and Q207 is controlled by the current regulator circuit. This circuit is a switching regulator type, synchronized to a 20-kHz square wave signal (PWRCLK) from U28-8. The 20-kHz signal is integrated by C203, R223, and C209: the resulting triangular signal is summed with the motor phase current sample voltage from R233 and is applied to pin 2 of U201. When the voltage at pin 3 of U201 is more positive than at pin 2, emitter current for the phase select circuits is switched on by U201 through R212. When the voltage at pin 2 is more positive, the emitter current is switched off.

The reference voltage at pin 3 of U201 is set by the processor to one of two levels, which consequently regulates the motor phase current to one of two levels. *Hold* current is regulated at 0.65 amps and *step* current is regulated at 1.4 amps. When the STEP signal from U26-5 is at a logic ZERO, the current regulator circuit applies *hold* current to the motor phase winding. When the STEP signal is at a logic ONE, *step* current is applied. As the STEP signal goes

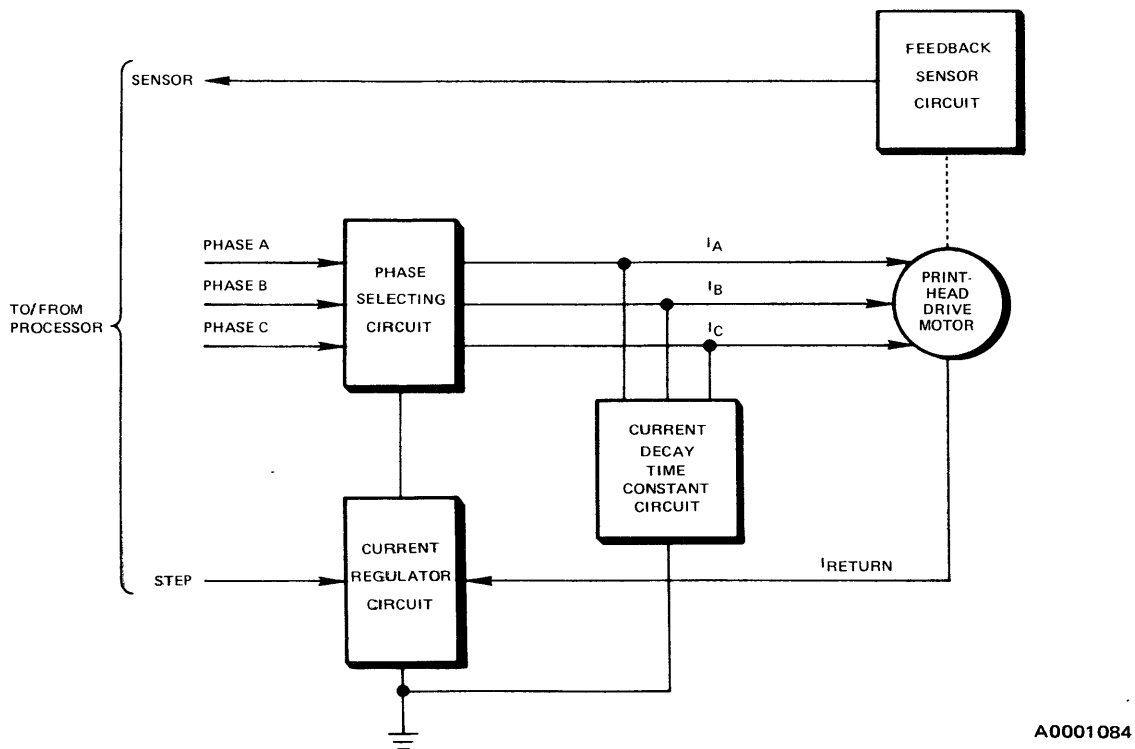


Figure 3-6. Printhead Stepping Motor Drive Circuit Block Diagram

from a logic ZERO to logic ONE, the current regulator circuit ramps the motor current up to 1.4 amps by charging C204 through R222 and R234 to prevent sudden changes in motor torque and to reduce audible noise in printhead movement.

3.5.1.3 Current Decay Circuit. When the current regulator senses sufficient current in the printhead stepping motor and switches off the current through Q215, the emitter of Q215 is suddenly switched from +30 volts to a negative voltage by the inductive flyback of the motor winding. The value of this negative voltage determines the time necessary to discharge the current in that winding. An approximation of this time may be computed using $LI/V = t$ where

- L = winding inductance
- I = motor current
- V = voltage from winding to ground
- t = time of current decay.

During periods when motor current needs to remain constant, transistors Q214 and Q209 are energized with base current via CR202 and R229. The flyback voltage during these periods is limited to:

$$V_{CR207} (-1 V) + V_{CEQ209} (-1 V)$$

or approximately -2 volts. This provides a very long discharge time and enhances regulator efficiency.

When the processor requires quick discharge of the phase current, it sets a logic ONE at the U26 pin 2, FAST signal. This energizes Q212 and Q213 which removes base current from Q214 and Q209. This enables VCEQ209 to go to -22 volts, providing a 0.75 amps-per-msec discharge rate for motor winding inductance.

3.5.1.4 Feedback Sensor Circuit. The processor requires data on the position of the printhead stepping motor in order to "know" when to apply braking, to change phases, or to make other decisions concerning motion of the printhead carriage. This data is provided by the feedback sensor. Figure 3-7 diagrams the output characteristics of the feedback sensor circuit.

Primary operation of the feedback sensor is accomplished by a 24-position slotted wheel which interrupts a light path between an IR emitting diode and a photosensitive transistor. This assembly is mounted on the stepping motor which drives the printhead carriage. The circuit is shown in Figure 3-8. The current from the phototransistor is translated into a TTL logic level signal by the Q2 and Q3 circuit shown in Figure 3-9.

As the slotted wheel opens the light path, current flows through the phototransistor, energizing Q2

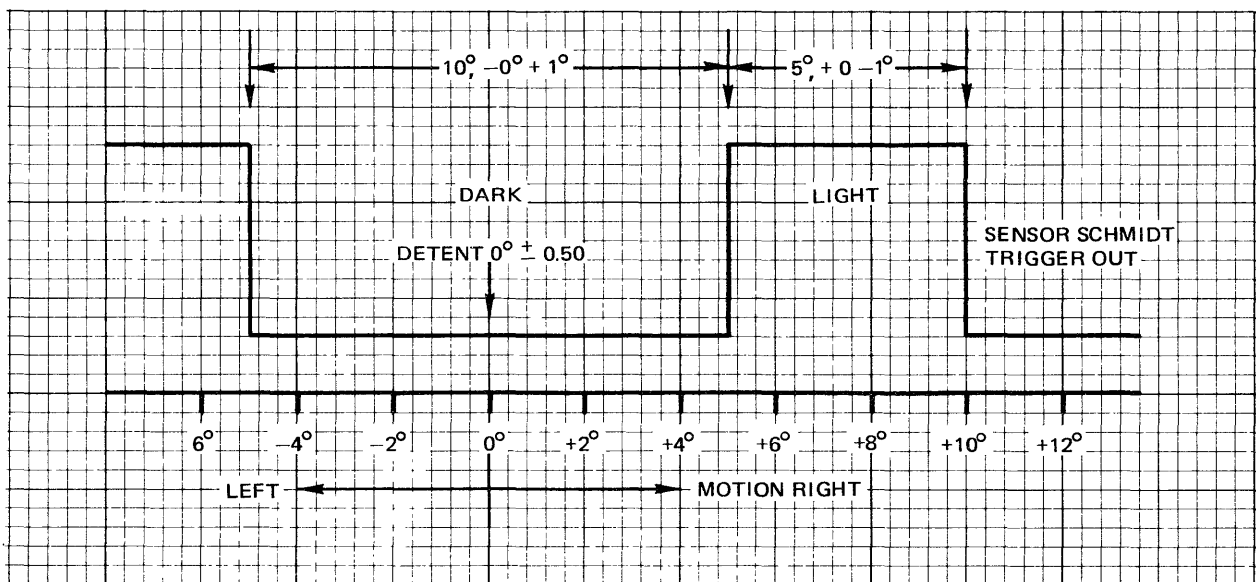
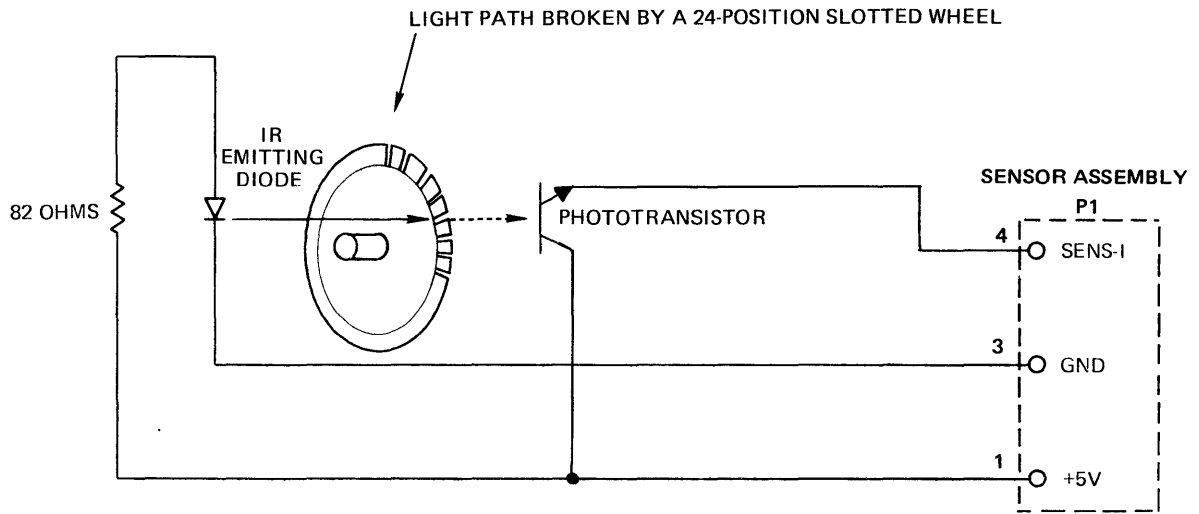


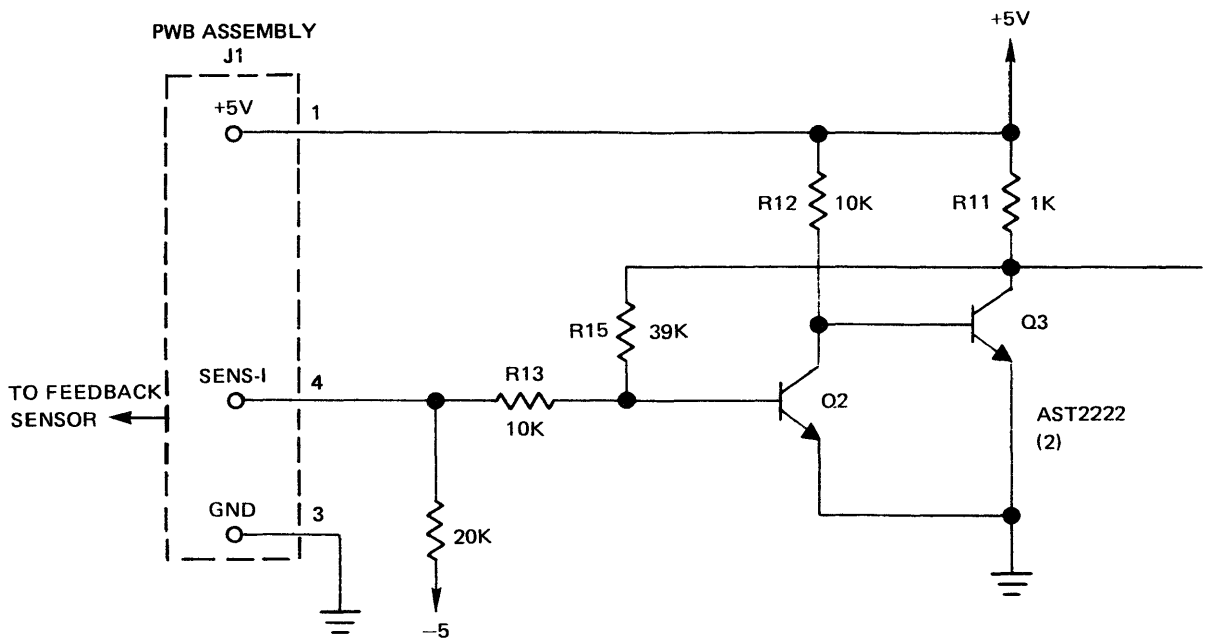
Figure 3-7. Printhead Stepping Motor Drive Circuit Feedback Sensor Output Characteristics

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A0001086

Figure 3-8. Printhead Stepping Motor Feedback Sensor Light Path Schematic



A0001087

Figure 3-9. Printhead Stepping Motor Feedback Sensor Q2, Q3 Circuit Schematic

which deenergizes Q3. Resistor R15 adds hysteresis to the circuit to provide regenerative feedback during transitions; this eliminates false triggering of the sensor.

3.5.2 PRINthead PRESSURE AND LINE FEED

CIRCUITS. The paper handling mechanism in the Models 743/745 uses one of two types of line feed drives. One version of the mechanism (TI Part No. 983811) incorporates two solenoids, one for paper line feed and one for printhead lift. The other version of the mechanism (TI Part No. 999257) has a solenoid-actuated printhead lift and a motor-driven paper advance (line feed). The following discussion distinguishes between the two types of mechanisms, first describing the two-solenoid mechanism and then the motor/solenoid arrangement.

Refer to schematic 983842, sheet 6 for the solenoid/solenoid mechanism; and to schematic 937298, sheet 7 for the motor/solenoid drive.

3.5.2.1 Solenoid/Solenoid Drive (983811).

Both solenoid drivers basically are transistor voltage switches which provide a means for the processor to energize the two solenoids (one for printhead pressure and one for line feed). The transistors are NPN Darlingtion devices with a minimum current gain of 1000. Base current is provided when the processor sets U25, pin 15 for line feed and U25, pin 5 for printhead lift to a logic ONE. The collector of Q251 saturates +1.5 volts (maximum) sinking current for the line feed solenoid. When the processor resets U25, pin 15 to a logic ZERO, Q251 goes off; simultaneously, the inductive flyback of the solenoid current drives the collector of Q251 to a peak of approximately +65 volts. During the flyback, current flows through CR251 and R257, discharging the inductive current from the solenoid.

The printhead lift circuit is similar to the line feed except that the +30 volts is applied to the junction of R258 and CR252. This limits the current in the printhead pressure solenoid to a maximum 0.9 amps and limits the voltage stress on Q252 to about +31 volts.

3.5.2.2 Motor/Solenoid Drive (999257).

The drivers are saturated transistor voltage switches controlled from the processor buffer for energizing the LF-step B-printhead lift solenoid and/or the LF-step A-line feed stepping motor. The transistors are NPN Darlingtion devices with a minimum current gain of 1000 specified for inductive switching applications.

- a. Printhead Lift Without Line Feed. The printhead lift function is performed when the base drive resistor R253 for Q251 and the base drive resistor R255 for Q252 are switched to a logic ONE level. This turns on Q251 and Q252, causing current flow from +30 through fuse F252 and the printhead lift solenoid and parallel resistor R258 through both sets of motor windings through Q251 and Q252 to the 30 V supply return. The transistors inductively clamp the stored inductive energy upon turn-off. The printhead-lift-without-line-feed function is subject to a maximum 20 percent duty cycle, based on a maximum on-time of 45 seconds.
- b. Printhead Lift With Line Feed. The processor performs a printhead-lift-with-line-feed by switching the base drive resistors R253 for Q251 and the base drive resistor R255 for Q252 to a logic ONE level in the following sequence:

Step No.	Transistor ON	Phase (degrees)	Motor Phase ON	Time (msec)
1A	Q251	7.5	1	0-3
1B	Q251	15.0	2	3-6
2A	Q252	22.5	3	6-9
2B	Q252	30.0	4	9-12
3A	Q251	37.5	1	12-15
3B	Q251	45.0	2	15-18
4A	Q252	52.5	3	18-21
4B	Q252	60.0	4	21-24

Motor-phase 1 is energized by the charging of capacitor C213 from +30 V through the motor winding, and returns through Q251. Motor-phase 2 is dc-coupled and is energized when Q251 is turned on. Motor-phase 3 is energized by the charging of capacitor C212 from +30 V through the motor winding and returns through Q252. Motor-phase 4 is dc-coupled and is energized when Q252 is turned on. Diodes CR251 and CR252 provide reverse-voltage protection for capacitors C213 and C212. Printhead-lift-with-line-feed is subject to a maximum duty cycle of 40 percent, based on a maximum continuous line feed of 330 seconds.

3.6 KEYBOARDS

The standard keyboard for the Models 743 and 745 is a limited-ASCII (uppercase alphabet characters only) version with an integral numeric keypad for fast number entry.

An optional, full-ASCII keyboard is capable of generating/printing both lowercase and uppercase alphabet characters. Table 3-1 shows the code structure of the ASCII code as interpreted by the standard and full-ASCII keyboards.

An optional APL/ASCII keyboard generates/prints the special programming characters shown in Table 3-1 in addition to the full-ASCII character set.

An optional Katakana keyboard generates/prints the Katakana characters and limited-ASCII characters shown in Table 3-2.

All keyboards are TTY33-compatible, alphanumeric devices equipped with a carrier detect lamp which indicates that the data carrier is being received (or that the carrier detect signal is biased ON).

The dot pattern structure of the various character sets is illustrated in Figures 3-10 and 3-11.

The following special-function keys are provided on all keyboard versions:

- a. PAPER ADVance — When held depressed, the PAPER ADV key causes the printer to perform a carriage return (CR), and continuous line feeds (LF) after returning the printhead to column one; no code is transmitted. A 200-millisecond pause follows the first line feed before continuous line feeds are performed.
- b. BREAK — The BREAK key, when depressed, causes the terminal to transmit a continuous *space* as long as the key is depressed and the terminal is on-line.
- c. HERE IS — The HERE IS key, when depressed, causes the optional answer-back memory contents (if installed) to be transmitted if the terminal is ON-LINE.
- d. REPT — The REPT key, when held depressed in addition to a character key, causes the terminal to repeatedly generate the character at the terminal operating

speed. (This key is not provided on the APL keyboard, which has an automatic repeat feature.)

- e. LOW SPEED — The LOW SPEED control is a two-position rocker switch which sets the transmission rate to 10 characters per second (CPS) when pressed to the left or 30 CPS when pressed to the right.
- f. HALF DUPlEx — The HALF DUP control is a two-position rocker switch which sets the communication status to half duplex when pressed to the left or full duplex when pressed to the right.
- g. ON LINE — The ON LINE control is a two-position rocker switch which sets the terminal to on-line status when pressed to the left or local status (off line) when pressed to the right.

3.6.1 STANDARD KEYBOARD. The standard keyboard is equipped with 54 single action keys, four two-position rocker switches, and one carrier detect indicator lamp. The integral numeric keypad is activated by pressing the NUM rocker switch to the left; then only the "shadow box" keys are enabled.

Standard keyboard layout and symbolization are shown in Figure 3-12. The output status when the CTRL (control), NUM (numeric), and SHIFT controls are *not* activated is shown in Figure 3-13. Figures 3-14, 3-15, and 3-16 illustrate, respectively, the output status of the various keys when the SHIFT, CTRL, and NUM controls are activated.

NOTE

Some models of the standard keyboard are equipped with alternate-action LOW SPEED, HALF DUP, ON LINE, and NUM keys instead of rocker switches.

3.6.2 OPTIONAL FULL-ASCII KEYBOARD. The optional full-ASCII keyboard is equipped with 59 single-action keys, four two-position rocker switches, and one carrier detect indicator lamp.

Full-ASCII keyboard layout and symbolization are shown in Figure 3-17. The output status when the CTRL (control) and SHIFT keys are *not* depressed is shown in Figure 3-18. Figures 3-19 and 3-20 depict, respectively, the keyboard output when the SHIFT and CTRL keys are activated.

U. S. ASCII MODE							APL MODE											
b ₇	0	0	1	1	1	1	0	0	1	1	1	1						
b ₆	1	1	0	0	1	1	1	1	0	0	1	1						
b ₅	0	1	0	1	0	1	0	1	0	1	0	1						
b ₄	b ₃	b ₂	b ₁	2	3	4	5	6	7	2	3	4	5	6	7			
0	0	0	0	SPACE	0	1	2	3	4	5	6	7	BLANK	0	NEG SIGN	STAR	DIAMOND	P
0	0	0	1	1	2	3	4	5	6	7	DIERESIS	1	ALPHA	QUERY	A	Q		
0	0	1	0	2	3	4	5	6	7	R PARENTH	2	DECODE	RHO	B	R			
0	0	1	1	3	4	5	6	7	LESS THAN	3	INTERSECTION	CEILING	C	S				
0	1	0	0	4	5	6	7	LESS OR EQUAL	4	FLOOR	LOGIC NOT	D	T					
0	1	0	1	5	6	7	EQUAL	5	EPSILON	DROP	E	U						
0	1	1	0	6	7	GREATER THAN	6	UNDERSCORE	UNION	F	V							
0	1	1	1	7	RT BRACKET	7	DEL	OMEGA	G	W								
1	0	0	0	8	OR	8	DELTA	REV IMPLICATION	H	X								
1	0	0	1	9	AND	9	IOTA	TAKE	I	Y								
1	0	1	0	NOT EQUAL	LFT PARENTH	NUL	IMPLICATION	J	Z									
1	0	1	1	DIVIDE	LFT BRACKET	QUOTE	LFT. ARROW	K	LFT BRACE									
1	1	0	0	COMMA	SEMI-COLON	QUAD	LFT TACK	L	RT TACK									
1	1	0	1	PLUS	TIMES	MODULUS	RT. ARROW	M	RT BRACE									
1	1	1	0	PERIOD	COLON	ENCODE	GREATER OR EQUAL	N	DOLLAR SIGN									
1	1	1	1	SLASH	BACK SLASH	CIRCLE	MINUS	O	DELETE									

NOTE: Lowercase characters are translated and printed as uppercase characters by the standard limited-ASCII keyboard.

A0001393

Figure 3-10. APL and ASCII Character Set Generation

U.S. ASCII MODE							KATAKANA MODE				
Bits	b_7	b_6	b_5	b_4	b_3	b_2	b_1	b_7	b_6	b_5	b_4
	0	1	0	1	0	1	0	1	0	1	0
	0	1	0	1	0	1	0	0	1	0	1
	2	3	4	5	6	7	2	3	4	5	
0 0 0 0											
0 0 0 1											
0 0 1 0											
0 0 1 1											
0 1 0 0											
0 1 0 1											
0 1 1 0											
0 1 1 1											
1 0 0 0											
1 0 0 1											
1 0 1 0											
1 0 1 1											
1 1 0 0											
1 1 0 1											
1 1 1 0											
1 1 1 1											

A0001203

Figure 3-11. Katakana and ASCII Character Set Generation

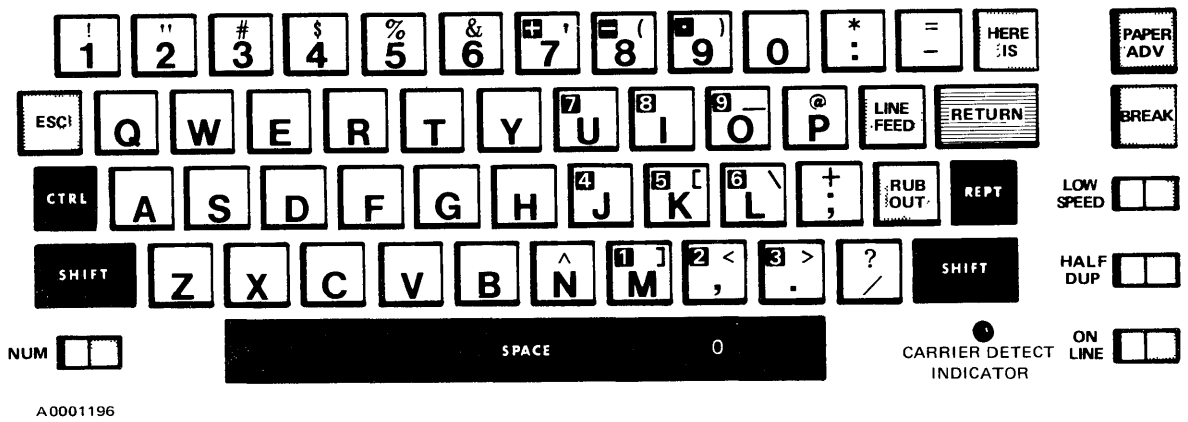


Figure 3-12. Standard Limited-ASCII Keyboard Layout and Symbolization

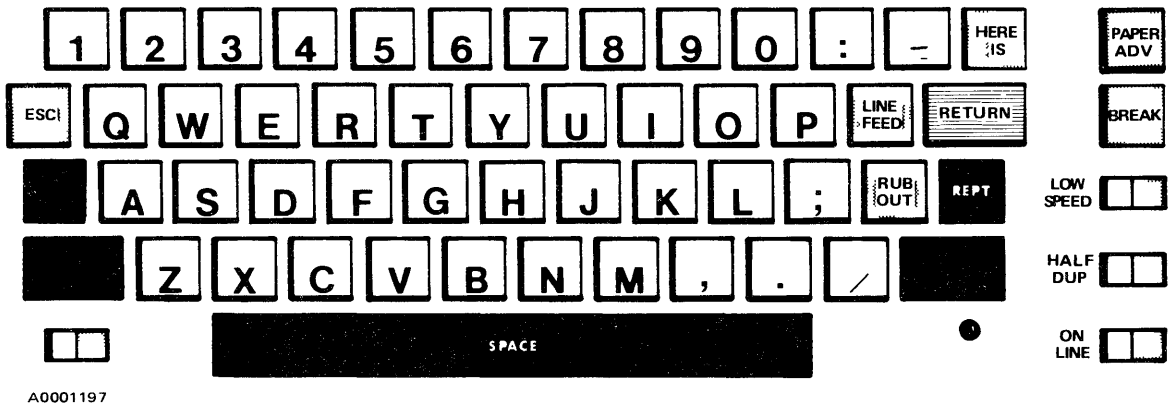
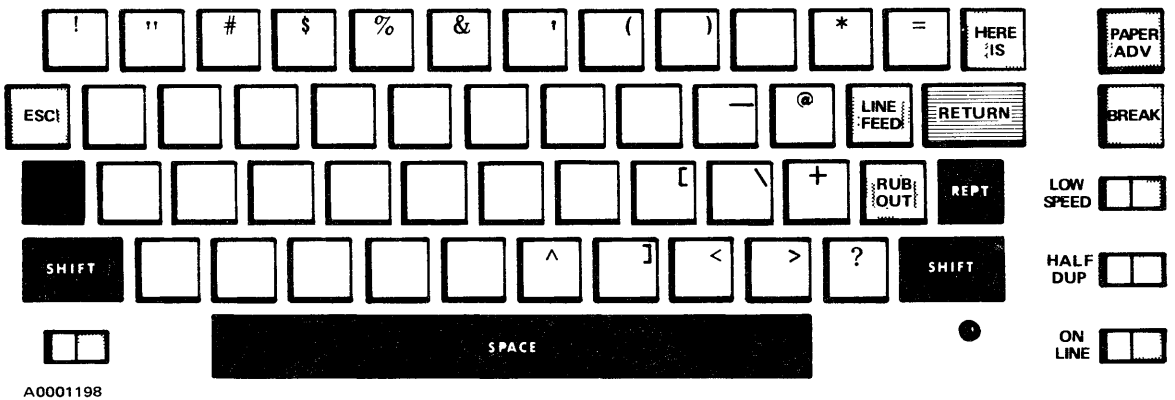
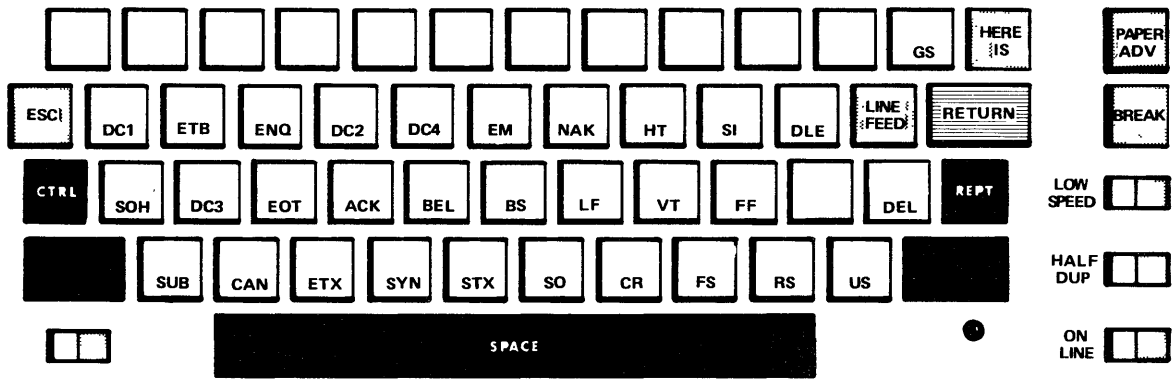


Figure 3-13. Codes Generated with no Mode Keys Activated (Standard Keyboard)



NOTES: A blank key indicates that a NUL code is transmitted.

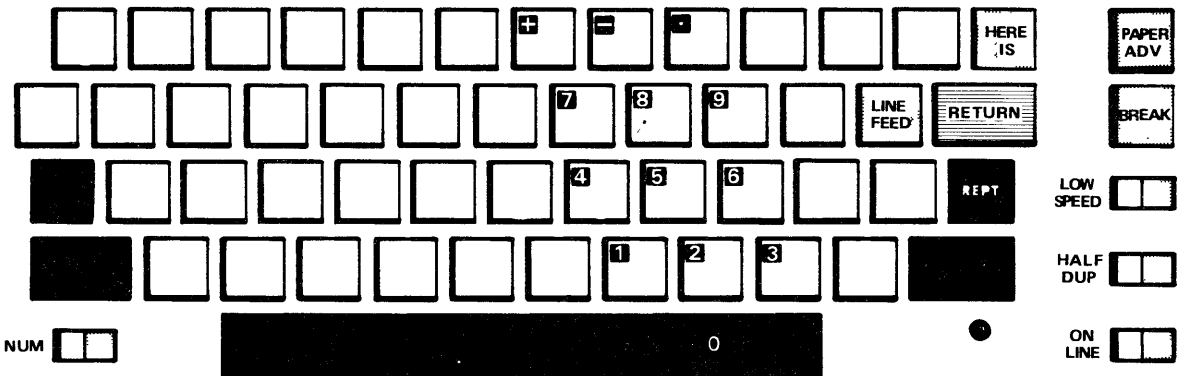
Figure 3-14. Codes Generated with the SHIFT Key Pressed and Held (Standard Keyboard)



A0001199

NOTE : A blank key indicates that a NUL code is transmitted.
 The CTRL (Control) key overrides the SHIFT key.

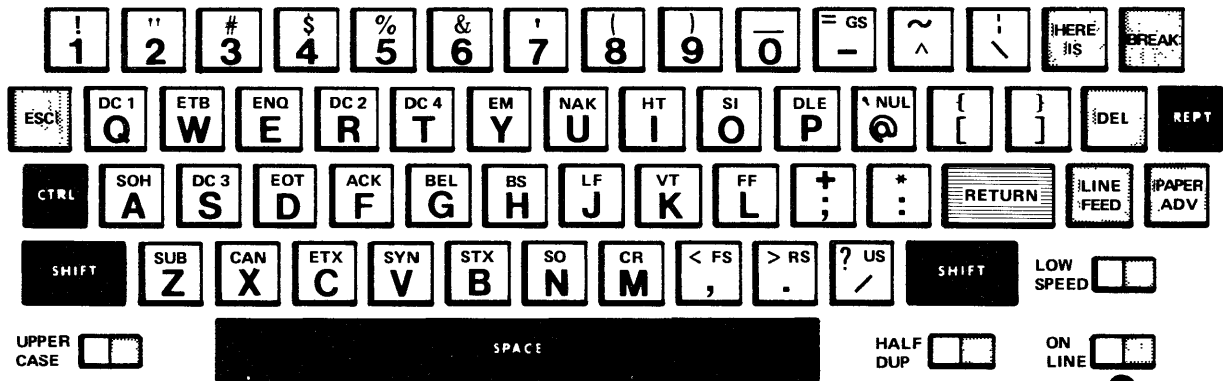
Figure 3-15. Codes Generated with the CTRL Key Pressed and Held (Standard Keyboard)



A0001200

NOTE : A blank key indicates that a NUL code is transmitted.
 The NUM (Numbers) switch overrides the SHIFT and CTRL keys.

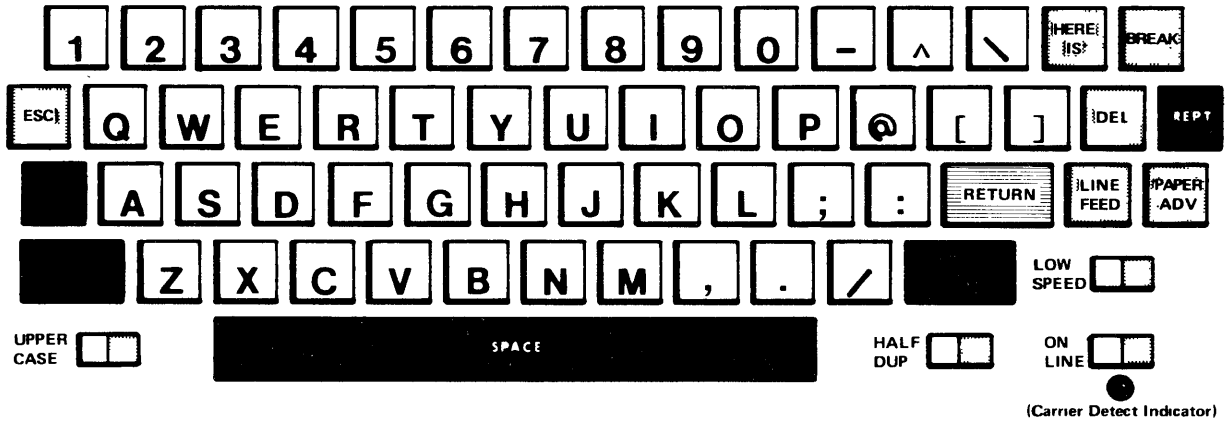
Figure 3-16. Codes Generated with the NUM Switch Set (Standard Keyboard)



A0001192

(Carrier Detect Indicator)

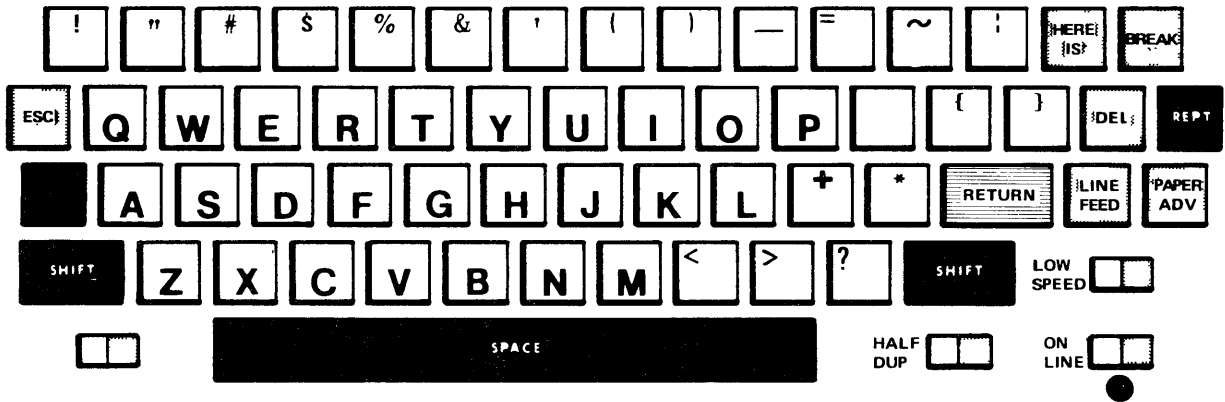
Figure 3-17. Optional Full-ASCII Keyboard Layout and Symbolization



A0001193

NOTE: If UPPER CASE is not selected, a to z are printed in lowercase
 If UPPER CASE is selected, A to Z are printed in UPPERCASE

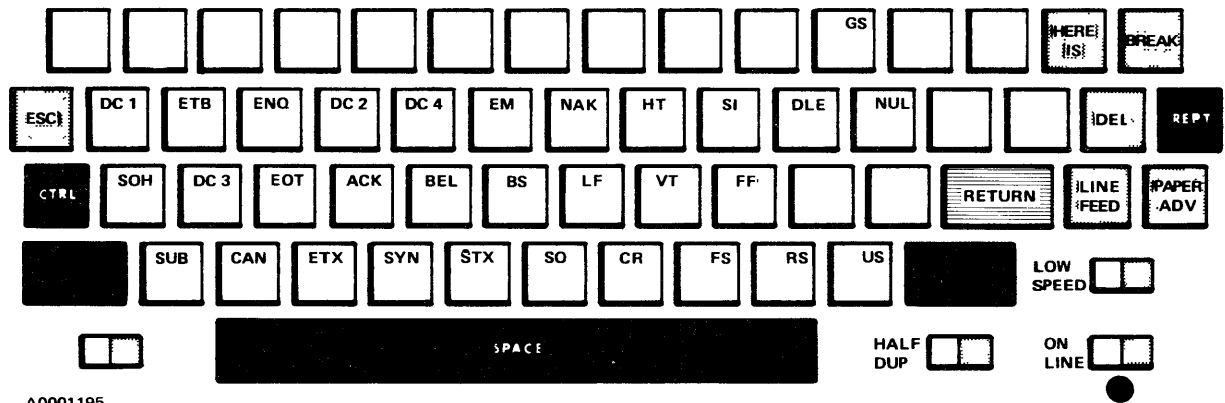
Figure 3-18. Codes Generated with no Mode Keys Activated (Full-ASCII Keyboard)



A0001194

NOTE: The SHIFT key overrides the UPPER CASE switch

Figure 3-19. Codes Generated with the SHIFT Key Pressed and Held (Full-ASCII Keyboard)



A0001195

NOTE :  A blank key indicates that a NUL code is transmitted.

The CTRL (Control) key overrides the SHIFT key and UPPER CASE Switch.

Figure 3-20. Codes Generated with the CTRL Key Pressed and Held (Full-ASCII Keyboard)

NOTE

When the UPPER CASE rocker switch is activated, only uppercase alphabet characters are generated/printed.

3.6.3 OPTIONAL RECEIVE-ONLY CONTROL PANEL.

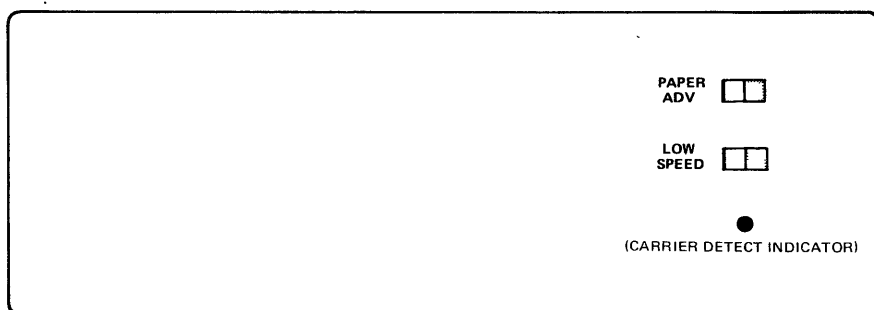
The Models 743 and 745 Receive-Only Data Terminals are equipped with a control panel in place of a keyboard. The control panel shown in Figure 3-21 has PAPER ADVance and LOW SPEED controls and a carrier detect indicator, all of which function the same as on the keyboard models. Limited-ASCII and full-ASCII versions are available, as well as Answer-Back Memory (ABM). A programmable ROM is used to implement the ABM.

3.6.4 OPTIONAL APL/ASCII KEYBOARD. The optional APL/ASCII keyboard is equipped with 59 single action keys, four two-position rocker switches, and one carrier detect indicator lamp.

Table 3-1 shows the code structure of the ASCII and APL codes as interpreted by the keyboard.

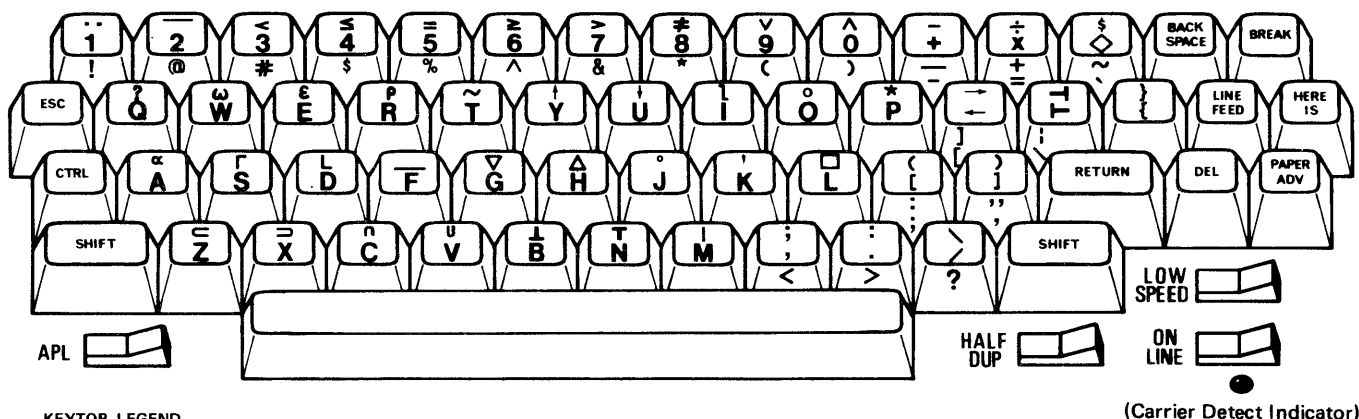
The APL rocker switch on the left front corner of the keyboard permits selection of either the ASCII mode or the APL mode. APL/ASCII keyboard layout and symbolization are shown in Figure 3-22. With the APL rocker switch depressed to the left (APL position), the terminal operates in the APL mode. The output status in the APL mode is shown in Figure 3-23 with no mode key depressed and Figure 3-24 with the SHIFT key depressed.

With the APL rocker switch depressed to the right, the terminal operates in the ASCII mode. The output status in the ASCII mode is shown in Figure 3-25 with no mode keys depressed and Figure 3-26 with the SHIFT key depressed.

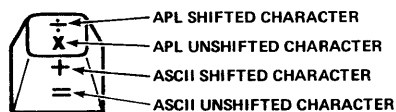


A0001272

Figure 3-21. Optional Receive - Only Control Panel (Replaces the Keyboard).

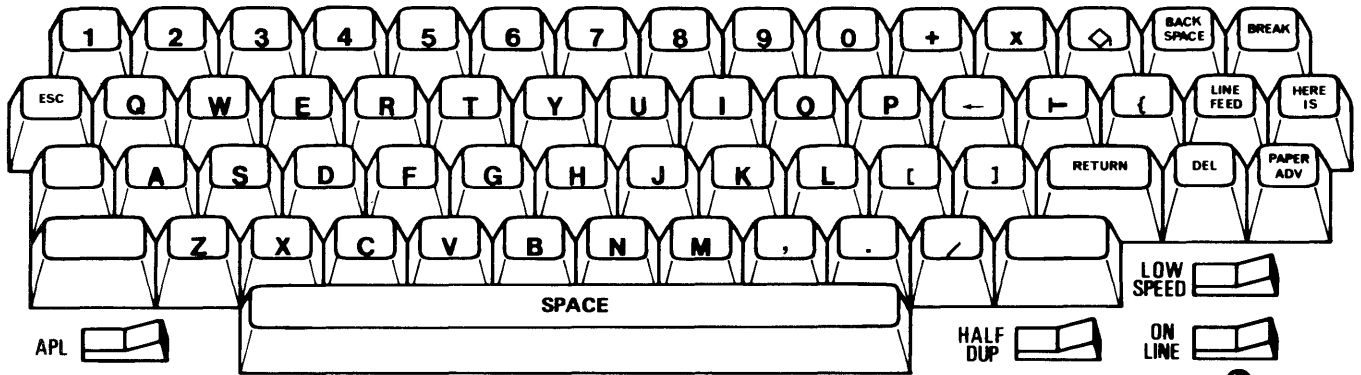


KEYTOP LEGEND



B0001392

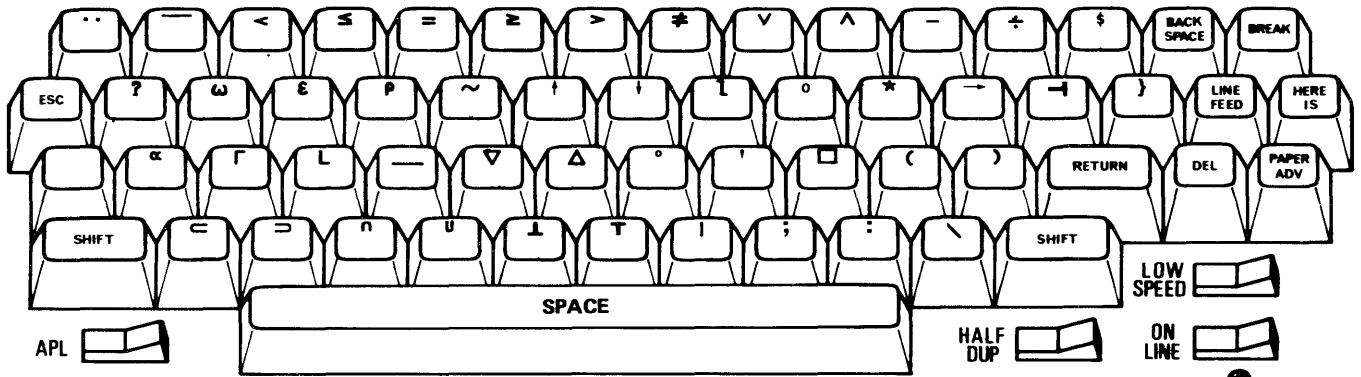
Figure 3-22. Optional APL Keyboard Layout and Symbolization



A0001395

NOTE: Uppercase-only status is ignored in APL mode.

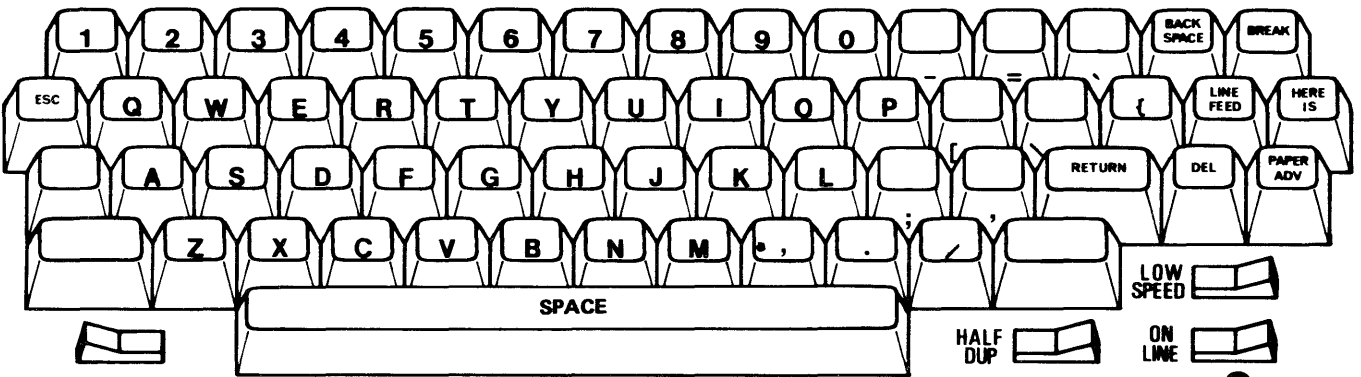
Figure 3-23. Codes Generated in the APL Mode with no Mode Keys Activated (APL Keyboard).



A0001396

NOTE: Uppercase-only status is ignored in APL mode.

Figure 3-24. Codes Generated in the APL Mode with the SHIFT Key Pressed and Held (APL Keyboard).



A0001397

NOTE: If uppercase-only is enabled (CTRL, SHIFT, 5) A to Z are printed in uppercase.
If uppercase-only is not enabled, A to Z are printed in lowercase.

Figure 3-25. Codes Generated in the ASCII Mode with no Mode Keys Activated (APL Keyboard).

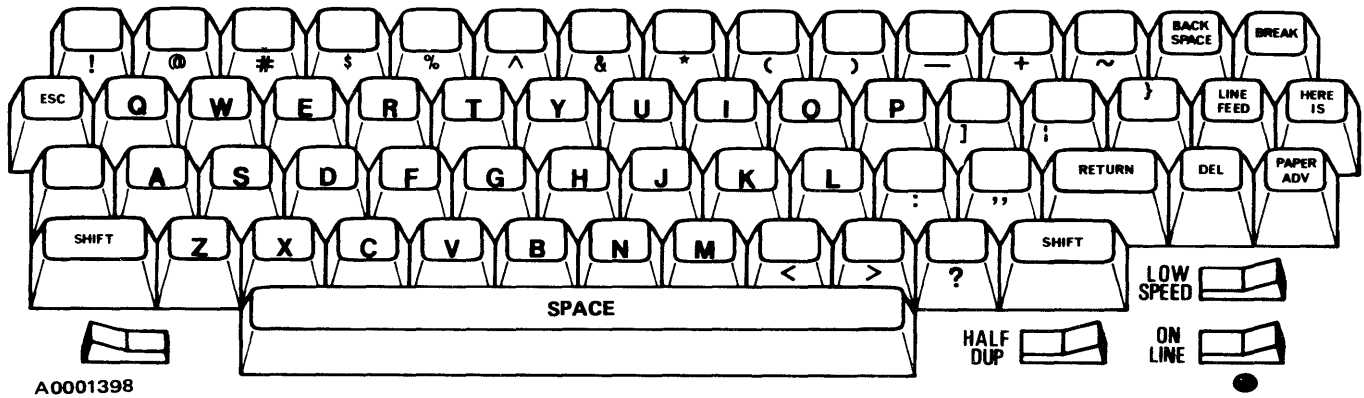


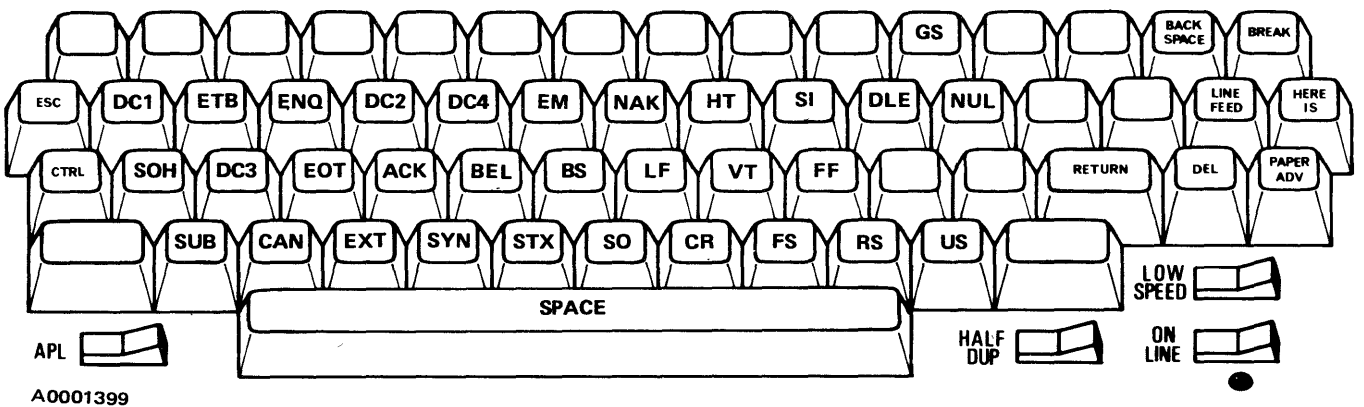
Figure 3-26. Codes Generated in the ASCII Mode with the SHIFT Key Pressed and Held (APL Keyboard).

Control codes, which are common to both the APL and the ASCII modes, are shown in Figure 3-27.

The following special features are provided on the APL/ASCII keyboard:

1. *Repeat* – Automatic character repetition is accomplished by holding a code-generating key depressed for longer than ½ second.
2. *Backspace* – A backspace key is provided to facilitate backspacing in the APL mode for generating overprint characters. This key is active in all modes.
3. *Uppercase/Lowercase* – Uppercase/lowercase capability is available only in the ASCII mode. Following initial application of power, the terminal is automatically in the uppercase-only status. The uppercase/lowercase mode may be selected by *simultaneously* depressing the **CTRL**, **SHIFT**, and **4** keys. *Uppercase-only* may be reselected by *simultaneously* depressing the **CTRL**, **SHIFT**, and **5** keys (or by cycling power OFF-ON). The *uppercase/lowercase* selection is ignored in the APL mode and is not affected by APL/ASCII mode changes.
4. *APL Alphabetical and Underscore* – In the APL mode all alphabetical characters (A through Z) are generated/printed in lowercase with the dot patterns positioned in the upper portion of the 5 x 7 dot matrix. This makes possible true underscoring of alphabetical characters without overprinting.

A programmable ROM is used to implement the APL option with or without ABM.



NOTE: □ A blank key indicates that a NUL code is transmitted.

Figure 3-27. Codes Generated in APL or ASCII Mode with the CTRL Key Pressed and Held (APL Keyboard).

3.6.5 KATAKANA KEYBOARD. The optional katakana keyboard shown in Figure 3-28 enables the terminal to transmit/receive both standard U.S. ASCII characters and katakana characters. Two special keys are provided: the KANA mode key permits generating/printing the characters shown in Figure 3-29 and 3-30. The ALPHA mode key permits generating/printing the characters shown in Figures 3-31 and 3-32. The control codes shown in Figure 3-33 are generated when the CTRL key is depressed.

The following actions occur when the keyboard is set to the Kana or Alpha (ASCII) mode:

- a. In the ALPHA MODE (Alpha mode indicator ON) when ON LINE and in FULL DUPLEX:
 - (1) Pressing the Alpha Mode key causes the terminal to transmit the SI (shift in) code.
 - (2) Pressing the Kana Mode key causes the following:
 - Keyboard enters the Kana mode.
 - Terminal transmits the SO (shift out) code.
 - (3) When the terminal receives SI (shift in) from the line, the printer enters the Alpha mode.
 - (4) When the terminal receives SO (shift out) from the line, the printer enters the Kana mode.
- b. In the KANA MODE (Alpha mode indicator OFF) when ON LINE and in FULL DUPLEX:
 - (1) Pressing the Kana Mode key causes the terminal to transmit the SO (shift out) code.

- (2) Pressing the Alpha Mode key causes the following:
 - Keyboard enters the Alpha mode
 - Terminal transmits the SI (shift in) code.
- (3) When the terminal receives SO (shift out) from the line, the printer enters the Kana mode.
- (4) When the terminal receives SI (shift in) from the line, the printer enters the Alpha mode.

- c. In the *on-line* and *half-duplex* mode (the ON LINE and HALF DUP switches to the left) the ALPHA and KANA modes of both keyboard and printer can be changed from the keyboard. The printer mode also can be changed by received data.
- d. In the *on-line* and *full-duplex* mode (the ON LINE switch to the left and the HALF DUP switch to the right) the ALPHA and KANA mode keys affect only the keyboard mode. The printer mode can be changed only by the SI or SO codes in received data (from the host computer). The keyboard and printer modes are independent of each other; the keyboard could be in the *alpha mode* while the printer is in the *Kana mode*. The keyboard alpha mode indicator lamp indicates *only* the keyboard mode.
- e. Upon power-up or after pressing the RETURN key to clear a paper-out or printhead jam condition, both the keyboard and the printer will be initialized to the ASCII *alpha mode*.

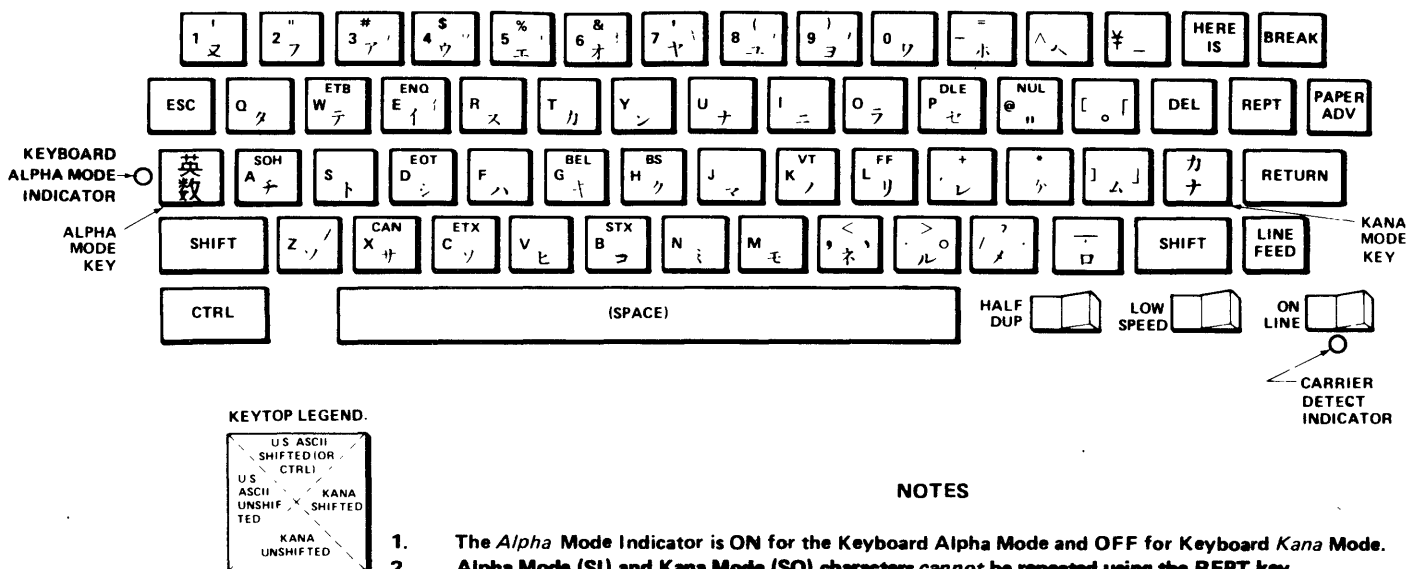
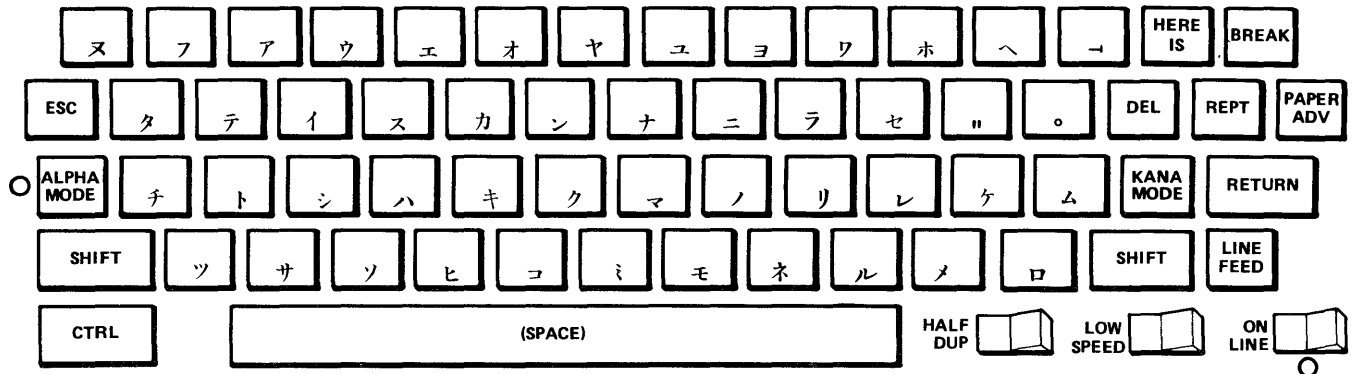
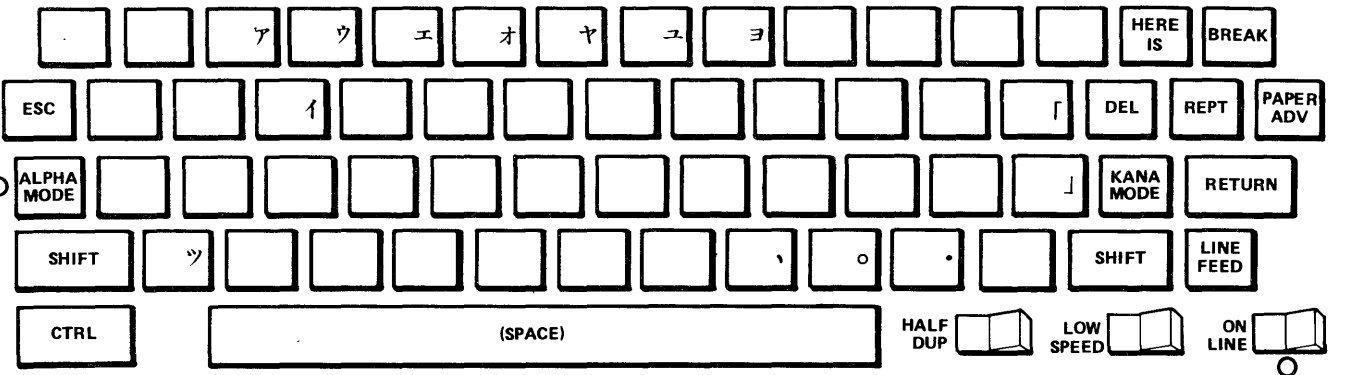


Figure 3-28. Optional Katakana Keyboard Layout and Symbolization



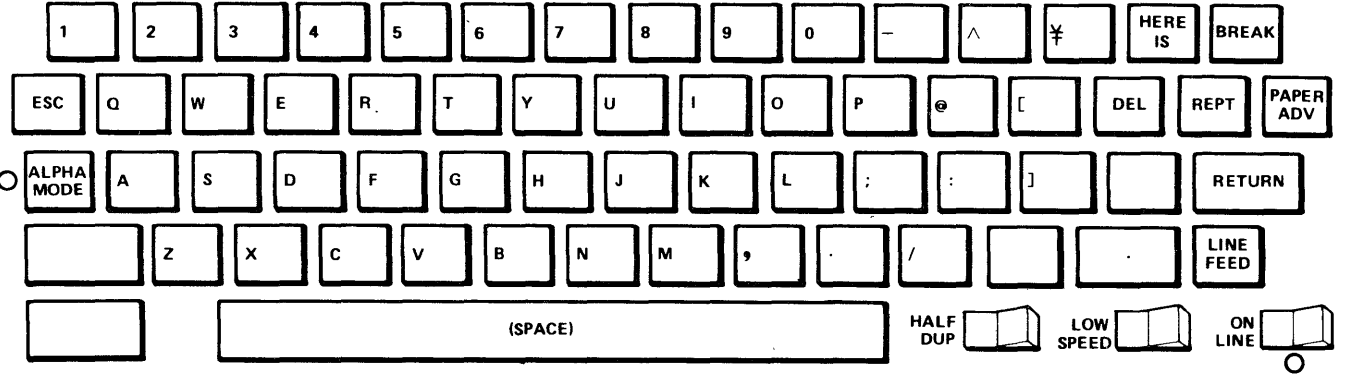
A0001204

Figure 3-29. Katakana Keyboard Codes Generated in the Unshifted Kana Mode (Alpha Mode Indicator OFF)



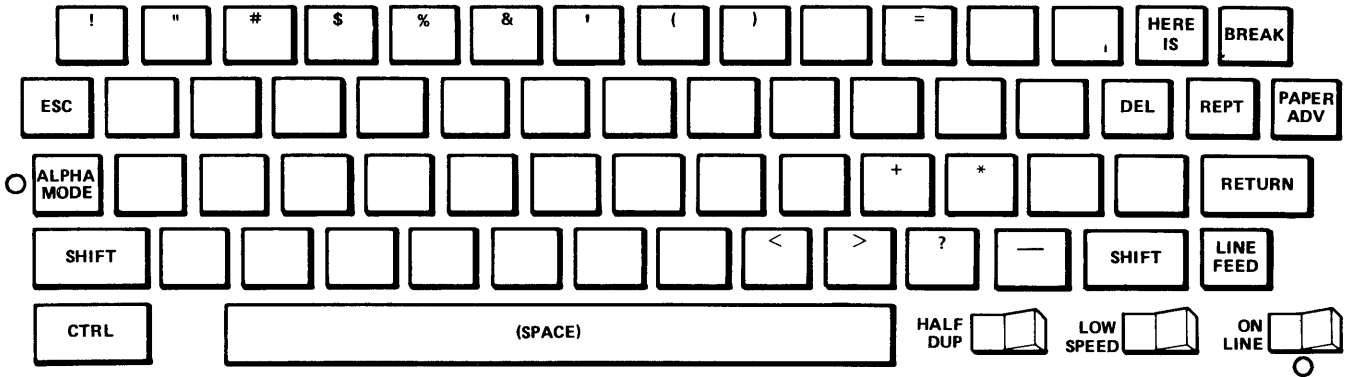
A0001207

Figure 3-30. Katakana Keyboard Codes Generated in the Kana Mode with the SHIFT Key Pressed and Held (Alpha Mode Indicator OFF)



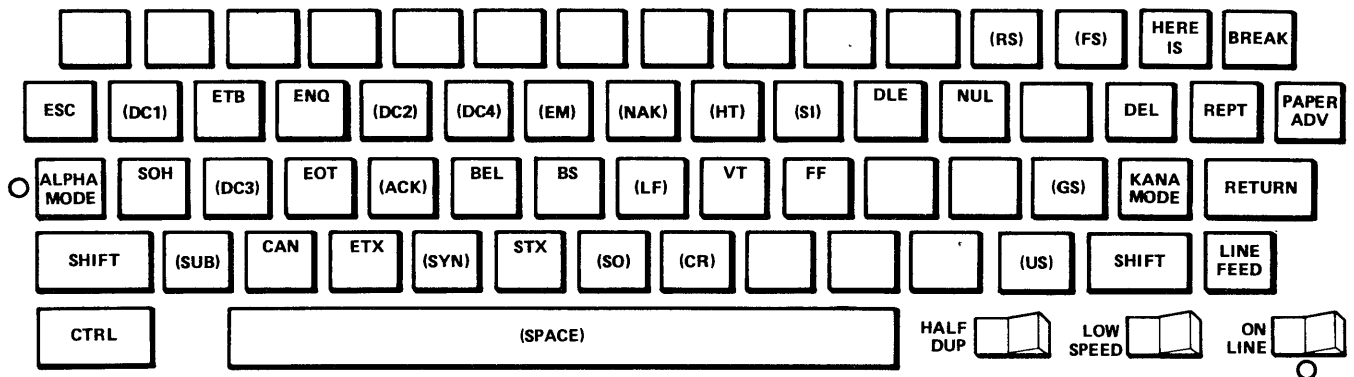
A0001205

Figure 3-31. Katakana Keyboard Codes Generated in the Unshifted Alpha Mode (Alpha Mode Indicator ON)



A0001206

Figure 3-32. Katakana Keyboard Codes Generated in the Alpha Mode with the SHIFT Key Pressed and Held (Alpha Mode Indicator ON)



NOTE: The CTRL (Control) key overrides the SHIFT key in both Kana and U.S. Modes.

A0001208

Figure 3-33. Katakana Keyboard Control Codes Generated with the CTRL (Control) Key Pressed and Held

3.7 OPERATOR CONTROLS AND INDICATORS.

Operator controls and indicators in addition to those contained on the keyboard include the following:

- a. Power Switch — a toggle switch is used to switch both sides of ac line power to the terminal. The switch is located on the top right rear corner of the case.
- b. Bell — a buzzer is provided to produce an audible signal which has a frequency of 3.2 kHz nominal. Duration of the signal is 250 ±25 milliseconds for reception of the ASCII BEL character from the line or local.

3.8 POWER SUPPLY.

The Models 743/745 power supply (see schematic 983842, sheets 1 and 2 or 937298, sheets 1 and 2) converts ac input power to the regulated dc output power required to drive all circuits within the terminal. The output is listed in Table 3-3. The power supply is designed to operate without degraded performance over the full range of steady-state and transient conditions. The Models 743/745 Terminals consume a maximum 75 watts.

The power supply is a multiple output, self-oscillating converter/regulator. The ac input is rectified and filtered in the unregulated supply, converted to regulated pulsating voltage in the converter, and rectified and filtered in the output to provide the

Table 3-3. Power Supply dc Outputs

Output Voltage (Vdc)	Output Current (amps)	Percent Regulation with Transient Line/Load and Offset
+30	1.8	±10%
+12	.25	± 5%
-12	.40	±10%
+ 5	.80	± 5%
- 5	.15	± 5%

appropriate regulated voltages to the load. A block diagram of the power supply is shown in Figure 3-34. A single ferrite core transformer provides drive to the power switch transistor, multiple output voltages, input-output isolation, and output voltage regulation. The power supply operates in the flyback mode; that is, energy stored in the transformer is delivered to the load(s) during the off time of the power transistor. Thus, only a single power transistor is necessary. The required base drive power at the optimum impedance level is provided directly from the transformer.

Input ac power, after passing through a high frequency noise filter (T302-C325-C326), is rectified by diode bridge CR323-326. The resulting dc current then passes through R330 and SCRO310 (normally on) where it is smoothed before storage across filter capacitors C306 and C308, from which the input or primary side dc current is supplied.

3.8.1 POWER TRANSFORMER. The power supply circuit is self-oscillating; the positive feedback path passes from the power transformer primary (terminals

1 and 2) to the base-drive winding (terminals 13 and 14). The base drive signal is coupled through C318 and diode CR315, then through current-setting resistor R322 to the base of power transistor Q311. Oscillation begins when the primary-side dc appears. A current set by R329 and R324 flows through R322 into the base of Q311, biasing it to approximately 50 to 100 mA collector current. Random noise components of the Q311 collector current thus ensures that its collector current will increase because of the positive feedback from primary to base windings. The base current established through R322 ensures that Q311 will saturate. Therefore, the collector current of Q311 will increase linearly as determined by the primary inductance of transformer T301 and the input dc supply voltage impressed across it.

When the voltage drop across R338 produced by the Q311 emitter current has risen to approximately 0.6 volt, Q309 begins to conduct, shunting base drive from the power transistor base which causes it to lose saturation. As soon as its collector voltage begins to rise, Q311 is rapidly switched off by regenerative feedback. Falling collector current causes rising collector voltage (because of the transformer primary inductance), resulting in falling base drive voltage and falling base current. The collector voltage of Q311 "flies back" above the input dc supply voltage (resulting in reverse base drive current coupled through C318) until the rectifier(s) in the transformer secondary circuit(s) become forward biased, and currents flow into the output filter capacitors (and output load resistances). The energy stored in the magnetic field of the transformer during the "on"

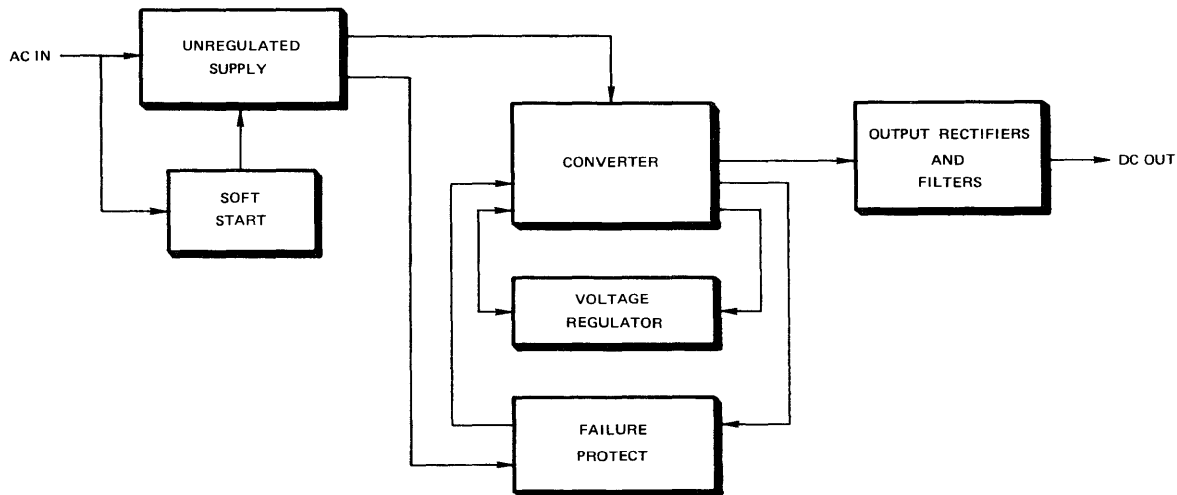


Figure 3-34. Model 743/745 Power Supply Functional Block Diagram

A0001114

time of Q311 is transferred to the output during the "off" time of Q311.

A 30-volt output is obtained from winding 3-4, rectified by CR322, and filtered by C332 and C331. Positive and negative 12 volts are obtained, respectively, from windings 9-10 and 11-12, diodes CR301 and CR304, and capacitors C301 and C303. Positive 5 volts is obtained from winding 7-8, rectified by CR302 and CR303 in series, and filtered by C302. The higher drop of the series-connected diodes permits obtaining 5 and 12 volts from input flyback voltages with a 2 to 1 ratio (about 6.35 and 12.7 volts).

Secondary current(s) continue to flow, decreasing (approximately) linearly with time, until the transformer flux has fallen essentially to zero. The transformer terminal voltages remain at their flyback values during the entire period of secondary current flow. During a single flyback period the output voltages rise only a few percent of their full values, as determined by the output capacitors. As the flyback currents fall to zero, the voltages across the transformer windings decay toward zero. During the flyback interval C318 acquires a charge of about 1 volt (left hand side positive) from current drawn from R322 which is clamped by Q309. Transistor Q309 acts as an emitter follower in the inverted mode (collector acting as emitter and vice-versa) when its collector goes over a diode drop below the primary side dc ground (the current coming from start-up resistors R329 and R324 is much smaller than the currents in R322 and have negligible effect once oscillation is initiated). As the voltage across the base drive winding falls toward zero, the positive voltage across C318 raises the base of Q311 to the threshold of conduction through R322, initiating another regenerative power transistor turn-on cycle.

3.8.2 VOLTAGE REGULATOR. Transistors Q305, Q307, and Q308, along with op-amp U302 and associated resistors and diodes and regulator-winding transformer-terminals 5-6, constitute the voltage regulator portion of the power supply. Until the output voltages reach their correct values, the power transistor collector current ramps up to its current limit (as set by Q309) each cycle, transferring the maximum safe amount of energy (determined principally by transformer heating and core saturation limitations) each cycle to the filter capacitors and output loads. During each flyback cycle C313 is charged through CR310 and series resistors R311 and R312 the same way as the output capacitors.

R311 with C314 and R312, along with the main regulator filter capacitor C313, serve as high-frequency noise and spike filters so that C313 is charged to the average value (less a diode drop) of the flyback voltage appearing across the sense winding during each cycle. As soon as voltage is developed across C313, the negative input of U302, because of the voltage divider formed by R325, R335, and R336, becomes negative with respect to its positive input which, since zener diode CR317 passes essentially zero current until its breakdown voltage is approached, is held at the full output voltage of C313 through R316, R314, and R313. This assures that the op-amp will remain in positive saturation and, therefore, that Q305 will be off. As the regulator outputs rise toward their correct values and the voltage across C313 increases proportionally, the voltage at the U302 positive input is clamped as CR317 begins conducting. Voltage then appears across R313 and R314 because of current in R316 which, as the voltage on the negative input of U302 approaches that of its positive input (because of current through R315), initiates output voltage regulation. As its base voltage falls below the output of C313 by two diode drops, Q305 begins to conduct, acting essentially as a controlled constant current source whose output current flows into timing capacitor C317.

During flyback the base drive winding, which also drives R323, is negative, energizing CR314 and thereby clamping the timing capacitor to ground through the base-collector diode of Q307, sinking the output of current source Q305. When the power transistor Q311 switches on after flyback ends, R323 is taken positive by the base drive winding, thus causing Q307 to operate as an emitter follower, buffering the timing capacitor C317. The voltage across C317 then begins to ramp up at a rate proportional to the current from Q305. When the increasing voltage across C317 reaches approximately two diode drops, the output of buffer Q307 begins to rapidly energize Q308, which shunts drive current from Q311 and causes its regenerative turnoff just as does current limiter Q309. The action of the regulator loop thus controls the power transistor-on time and thereby the peak current flowing in the transformer primary.

The voltage across C313 is held constant (to within 1 millivolt) by U302 operating at its full dc open loop gain to maintain zero differential input voltage. Constant voltage across C313 implies that the flyback voltage feeding CR310 remains constant, and since all windings are very tightly coupled (required for

satisfactory power supply operation) the flyback or output voltage from all windings remains constant (ignoring IR drops). Therefore, almost no cross-coupling to the output voltage from one winding results from changing loads on any other winding, and nearly no effect results from changing primary side dc input voltage. The only significant output voltage deviations, well within tolerances, are the changes in output voltage from its own load change which result from rectifier diode drop and winding IR drops. High frequency ripple and noise components are minimized by the use of four-terminal capacitors.

3.8.3 FAILURE PROTECTION. Transistors Q302, Q303 and associated components form a latch which positively switches off converter switch Q311 in the event of sustained overcurrent (> 500 msec) which is sensed by peak rectifier/filter CR309-C309. The same protection occurs if output overvoltage is sensed by Q304 and associated components and is transmitted directly to the latch. When the latch triggers, it switches on Q306, initially providing a large base drive by the discharge of C316, principally through R320 and CR313. This assures that Q306 will immediately switch off Q311 and hold its base below the threshold of conduction (< 0.2 V) as long as primary side dc is present.

R343, CR333, and CR334 provide a clear for the fail-protect latch when ac power is turned on by pulling the base of transistor Q302 down to primary ground. The fail-protect latch clear is inactive after the soft-start SCR Q310 turns on, which enables the fail-protect latch to set in the event of an output overvoltage or a continuous overcurrent condition.

3.8.4 SOFT START CIRCUIT. SCR Q310 and resistor R330 (with associated components) form a "soft start" circuit to limit the peak inrushing current during initial charging of primary side dc filter capacitors C306 and C308 (to < 25 amps). Initial charging current is limited by R330. Q310 is triggered after approximately 50 msec as determined by C327 and associated resistors. Charging current for C327 disappears immediately upon removal of the ac input, and the Q310 gate voltage falls below the trigger level (in approximately 20 msec) before the main filter capacitors have appreciably discharged. This ensures that R330 will limit surge currents if the ac input should fail for a few cycles and then return.

3.8.5 ELECTROMAGNETIC INTERFERENCE (EMI) FILTER. Switching noise or other EMI from the power supply does not cause circuit errors in the

terminal or interference on the ac power line. The terminal power supply and other circuitry are not susceptible to interference conducted on the ac line.

3.8.6 ELECTRICAL POWER INTERFACE.

- Input Power — Standard input power is 90 to 133 volts ac, 47 to 63 Hz, single-phase. Power consumption does not exceed 75 watts.

NOTE

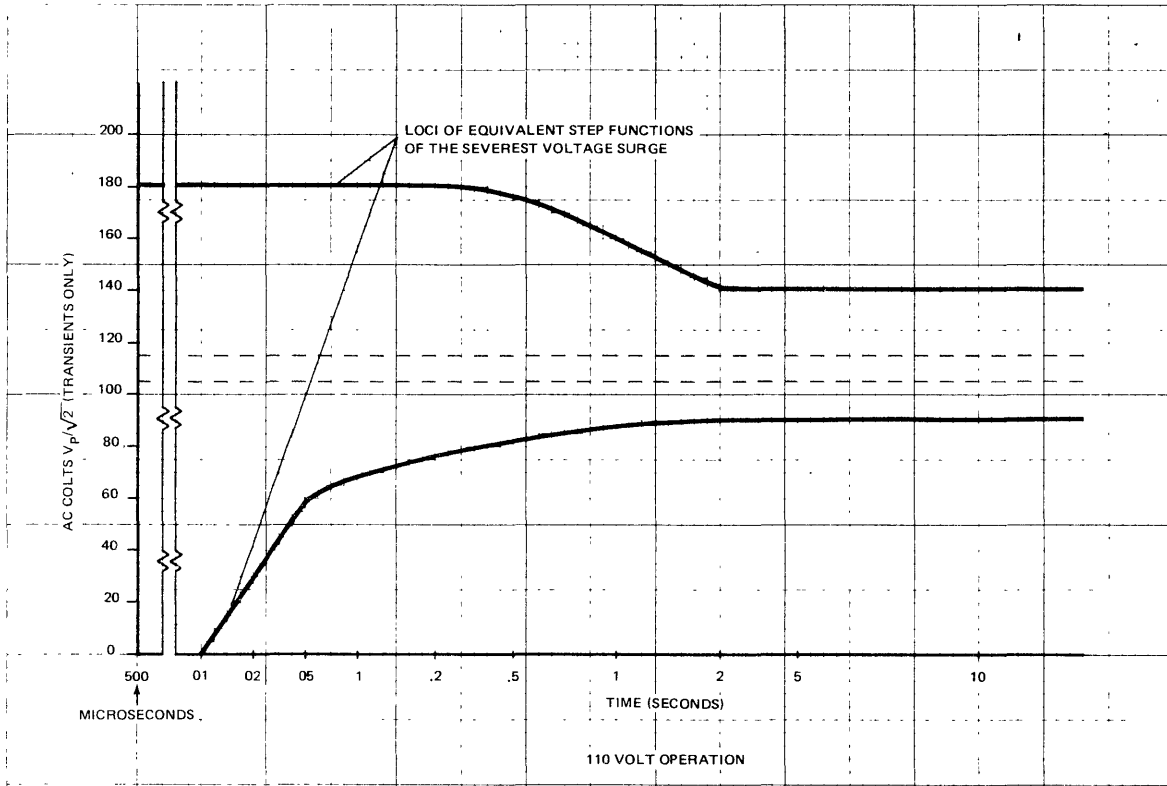
Terminal operating voltage is *not* field-convertible from/to 115/230 volts ac.

- Transient Voltage — Transient voltage must not exceed the limits specified in Figure 3-35.
- Voltage Spike — Voltage spikes on the ac line must not exceed the energy contained in a 175 V, 100-microsecond triangular pulse.
- Power Connector — The ac power line connector is a standard UL and CSA approved, type-U, grounded, three-prong plug with a connecting three-wire UL and CSA approved cable at least 6 feet long.

3.9 CURRENT LOOP INTERFACE.

3.9.1 RECEIVER CIRCUIT. The current loop (TTY) receiver (see schematic 983842, sheet 8 or 937298, sheet 2) consists of the necessary circuitry to sense current from an external source and to convert the current levels to the appropriate EIA-level logic values. The voltage drop across receiver inputs RL1/RL2 is 3 volts (maximum) at 20-mA loop current into RL1. The *mark/space* threshold decision current is nominally 8.5 ± 3.5 mA. The receiver circuit utilizes an optically coupled isolator to isolate the current loop from the terminal circuitry.

A current level at the receiver circuit input above the *mark/space* threshold will forward-bias the photodiode of U302. When the U402 photodiode is forward-biased, the phototransistor is energized, supplying base current drive to energize Q401. With Q401 on, a logic ONE is presented to the input of U401, and the output of U401 is negative (less than -3 volts).



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Figure 3-35. Transient Surge ac Voltage Step Function Loci Limits for 110 Vac Operation

With a current level at the receiver circuit input below the *mark/space* threshold, the photodiode and phototransistor of U402 are off, and Q401 is off since no base drive is available. With Q401 off, a logic ZERO is presented to the input of U401, and the output of U401 is positive (greater than +3 volts).

Receive Circuit Summary:

Current into Terminal RL1 (J403-6)	Logic Designation	Receive DATA (J403-8)
Less than 5 mA	Space (Logic ZERO)	Positive (> +3V)
Greater than 12 mA	Mark (Logic ONE)	Negative (< -3)

3.9.2 TRANSMIT CIRCUIT. The current loop (TTY) transmitter consists of the circuitry necessary to switch the current in the transmit loop (supplied from an external source). The input to the transmitter is an EIA-level logic value. The voltage drop across the transmitter output terminals is less than 1.5 volts at 20-mA loop current. The maximum *Spacing* leakage current is 0.5 mA to 50 Vdc.

A positive voltage level (greater than +3 volts) at the transmitter input (J403-3) will switch off Q403. With Q403 off, the photodiode and phototransistor of U403 are off. With no base current drive, output transistor Q402 is off and the transmitter is "open" (i.e., no current).

A negative voltage level (less than -3 volts) at J403-3 will energize Q403. With Q403 on, the photodiode and phototransistor of U403 are energized. With base drive supplied to Q402, the output transistor remains on, allowing current flow in the transmit loop.

Transmit Circuit Summary:

Transmit Data (J403-3)	Logic Designation	Transmitter Output
Positive (> +3V)	Space (Logic ZERO)	Open (No current)
Negative (< -3V)	Mark (Logic ONE)	Closed (Current flow)

3-10 FIRMWARE.

The basic microprocessor control electronics consists of the central processing unit (CPU) integrated circuits, its ROM and RAM, the input/output (I/O) device, control logic for communication between the CPU and I/O, and buffers for communication of data between the I/O and the control devices. A block diagram of the firmware control system is shown in Figure 3-36. The I/O and timer devices are shown in Figure 3-37.

The ROM is used for program and table-lookup storage. The 64 words of RAM are utilized for program stacking and for software flags, counters, etc. Address decoding logic is included to supply enable signals for the ROM, RAM, I/O, the I/O output buffers, and the printhead line buffers.

The central processing unit (CPU) controls the operations of the I/O through firmware commands. These commands are decoded by the I/O chip from the CPU control signals and five address bus lines from the CPU. The firmware commands include *read receiver buffer*, *read input bus*, *read interrupt reset ROM*, *read I/O status*, *load discrete commands*, *load baud rate command*, *load transmit buffer*, *load output register*, *load interrupt mask register*, and *load one of five timers*.

After loading the I/O output bus and outputting the

correct address, the CPU scans the keyboard one row at a time. After outputting the scan the CPU then reads the I/O input bus to determine the status of the eight keys scanned in that particular row. In the same manner, but with a different address, the CPU controls the printhead stepping motor, the printhead pressure and line feed devices, and the bell.

The printhead line buffers are controlled solely by the CPU address lines. The appropriate data is output on address bits 12 to 15 to the address decode logic to generate a printhead strobe, and the particular printhead line buffer data is output on address bits 0 to 11, thus heating the appropriate printhead elements to create visible images on heat-sensitive printing paper.

The normal state of the CPU is the halt state. The CPU is interrupt-driven out of the halt state when processing is required. An interrupt forces the CPU to one of eight different trap locations. Power-up may be considered an interrupt since it occupies trap location 0. These interrupts are generated within the I/O device but can be controlled by the CPU. The CPU can disable or enable all interrupts, or it can enable any combination of them by loading the *interrupt mask register*.

The firmware package is an operating system responsible for Model 743/745 Data Terminal operations.

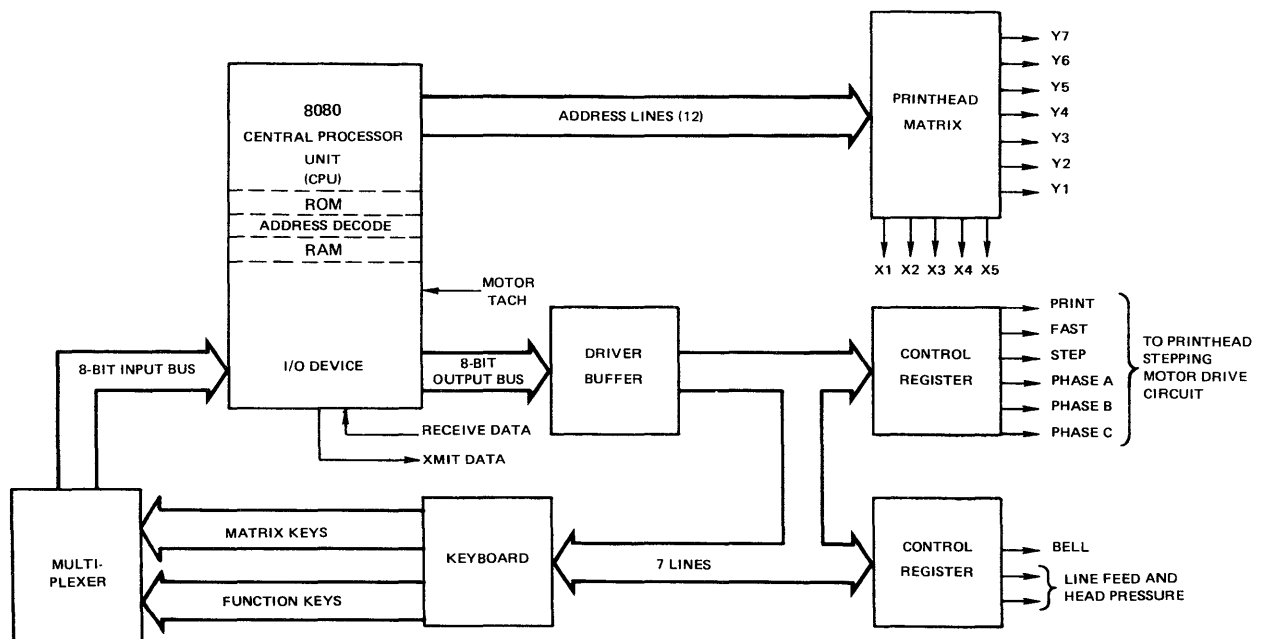
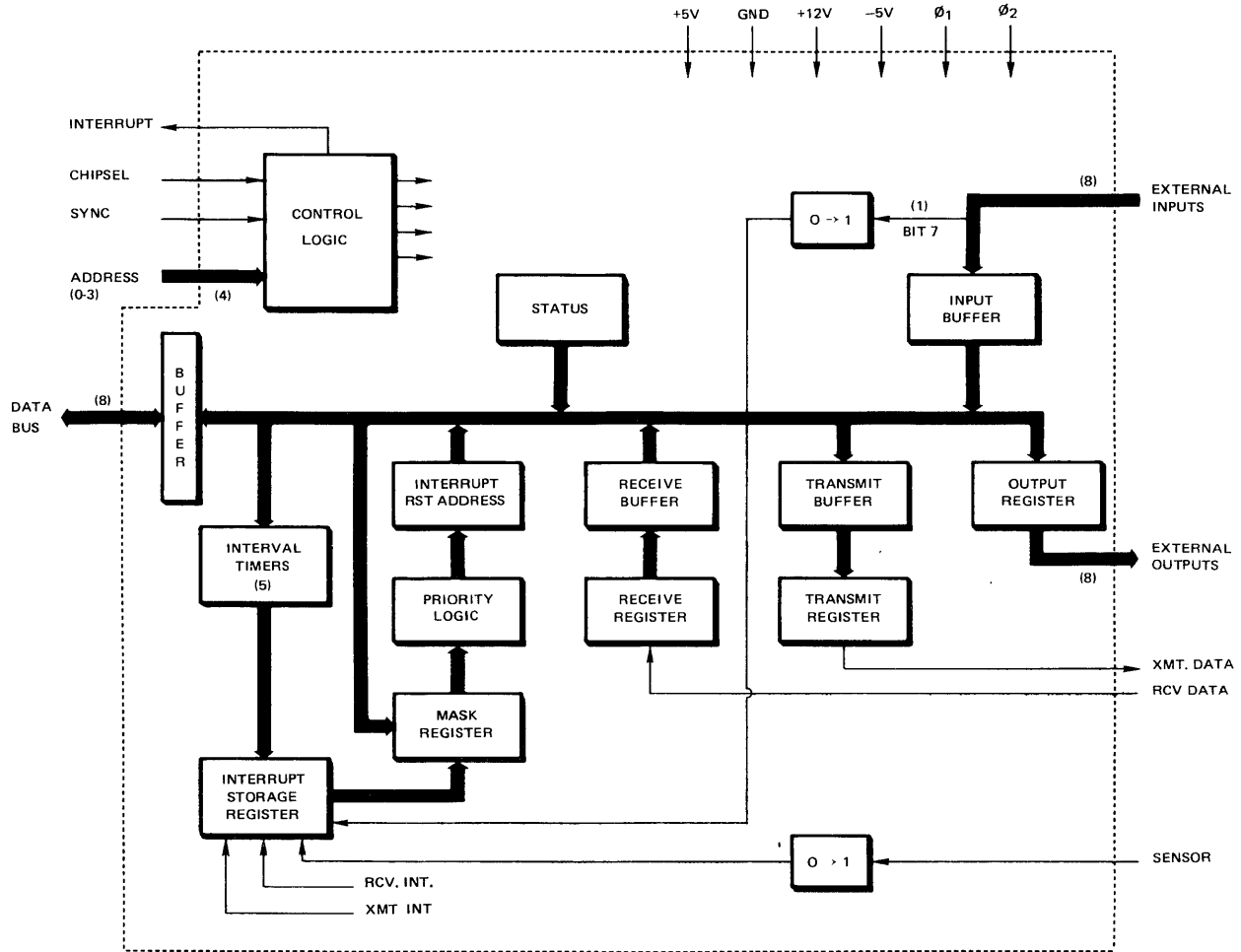


Figure 3-36. Model 743/745 Firmware Control System Block Diagram

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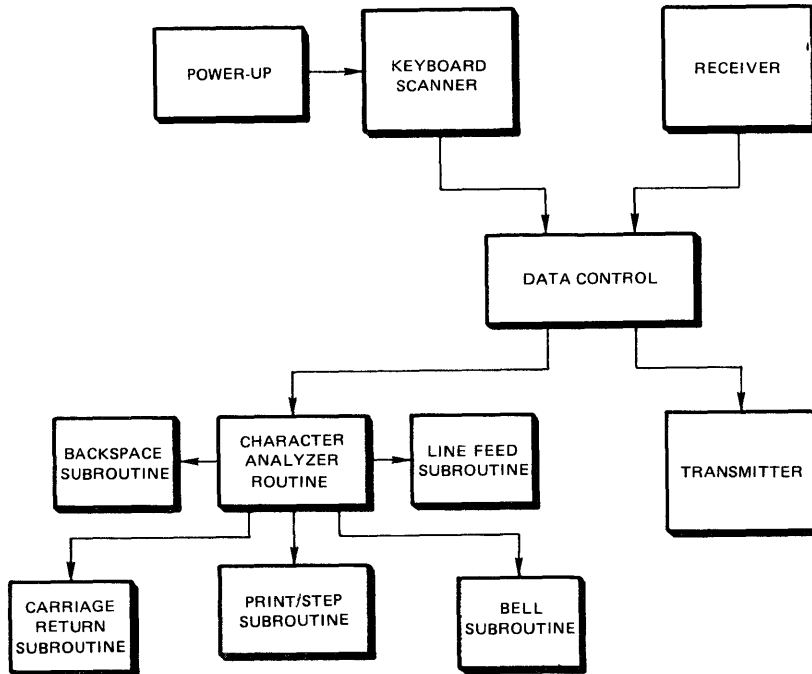
Figure 3-37. Functional Block Diagram I/O and Timer Device

For purposes of discussion, the operating system may be divided into several major subsections as shown in Figure 3-38. The *power-up* routine initializes all system pointers and flags and starts the *keyboard scanner* routine. The *keyboard scanner* routine detects key depressions and encodes them into ASCII characters, and the *data control* routine directs the characters to the appropriate processing program. The *transmitter* routine generates parity and transmits characters. The *character analyzer* routine determines if the mechanism is busy and, if not, passes the character to the appropriate processing subprogram. If the mechanism is busy, the character is queued for later processing.

The operating system is provided with eight interrupts; five interrupts are used by the software system. A brief description of each interrupt is listed in Table

3-4. The software system is divided into three operating levels. The base level (when no interrupts are occurring) is a halt state. All Model 743/745 processing is done in response to an interrupt. No activity occurs at the base level. The next level is composed of the keyboard timer interrupt and the receiver interrupt.

The *receiver* and *keyboard* routines can only interrupt the processor when it is in the halt state; neither routine can interrupt the other. The highest level is composed of the two timers associated with printing/stepping and the sensor interrupt. These routines can interrupt the processor out of the halt state, *keyboard scanner*, or *receiver* routines. Routines running at the highest level cannot be interrupted. This three-level interrupt system is implemented by controlling the contents of the interrupt mask register in the I/O device.



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Figure 3-38. Model 743/745 Firmware Structure

Table 3-4. Firmware Operating System Interrupts

Trap	Location (Hex)	Name	Function
0	00	Power-up	Activates the power-up initialize routine
1	08	Timer 2	Used for step timing
2	10	Sensor	Feedback for motor control
3	18	Timer 3	Used for print/step timing
4	20	Receiver	Character received by I/O
5	28	Transmitter	Transmit buffer empty (not used)
6	30	Timer 4	Keyboard scanner timer
7	38	Timer 5	Spare timer

3.10.1 POWER-UP ROUTINE. When the POWER switch is first set to ON, the power supply generates a reset to the CPU. This starts the CPU with interrupts disabled at trap location 0 or at address 0000. The purpose of this routine is to:

- (1) Initialize the necessary RAM locations such as flags, counters, pointers, etc.
- (2) Reset the I/O
- (3) Set up the CPU stack pointer
- (4) Start the keyboard scanner
- (5) Begin machine functions such as line feed and returning the printhead to column 1 by performing backspaces.

The CPU then enters the halt state and waits for more work in the form of interrupts.

3.10.2 KEYBOARD ROUTINE. The *keyboard* routine scans, encodes, and debounces keys. After each key entry *keyboard* reports to data control the status of the function keys and whether or not a valid key has been detected in the keyboard matrix. The keyboard matrix is diagrammed in Figure 3-39.

3.10.2.1 Scanning (Standard ASCII). In the *keyboard* routine three unique time periods are defined:

- (1) Search period = 4 msec
- (2) Debounce period = 11 msec
- (3) Wait period = 11 msec.

The time at which the *keyboard* routine is re-entered is determined by one of these three modes. For the search and debounce modes, a scan takes place upon every entry. The wait period is utilized when a PAPER ADVance is pressed or when a character is

COLUMN

	C ₀	C ₁	C ₂	C ₃	C ₄	C ₅	C ₆	C ₇
R ₀	REPEAT	HERE IS	FS ,	< GS =	RS >	US / ?	0	1 !
R ₁	2 "	3 #	4 \$	5 %	6 &	7 ' (	8)	9
R ₂}	: *	; +	@ \	[ {	^ |	] }	~ ^	SOH A
ROW R ₃	STX B	ETX C	EOT D	ENQ E	ACK F	BEL G	BS H	HT I
R ₄	LF J	VT K	[FF L \	CR M]	SO N ^	SI O -	DLE P @	DC1 Q
R ₅	DC2 R	DC3 S	DC4 T	NAK U	SYN V	ETB W	CAN X	EM Y
R ₆	SUB Z	LF	CR	DEL	ESC	SPACE	BREAK	PAPER ADVANCE

LEGEND

CONTROL	SHIFT
UNSHIFTED CHARACTER	

- NOTES
1. NUMERIC MODE KEY CODING IS NOT SHOWN.
 2. SHADED BLOCKS DENOTE KEYS PRESENT ONLY ON FULL-ASCII KEYBOARDS.

Figure 3-39. Model 743/745 Keyboard Matrix Encoding Scheme

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repeating. Upon an initial detection of paper advance, scanning is inhibited for 20 wait periods. While repeating a character, scanning takes place only once every third wait period. When a second key (other than the REPT key) is detected in the matrix, the scanning process is immediately stopped and the *keyboard* routine reports to data control that no new key was detected. Otherwise, when one or no key is pressed, a complete scan of the matrix occurs. The scanner utilizes a row and column counter so that when a depressed key is detected, row and column location data is recorded for use in encoding. Function keys are read and their status reported to data control upon every entry into the keyboard routine.

3.10.2.2 Scanning (APL/ASCII). The APL keyboard employs the same three time periods (listed above) used by the standard ASCII keyboard, but the APL keyboard has no REPEAT key. The APL keyboard *repeat* function is, instead, implemented by holding a valid key depressed longer than 0.5 second. The *keyboard* routine scans the matrix and, if a key is held depressed longer than one scan time, a wait period is initialized for 0.5 second. After 0.5 second if the key is still depressed, the next scan time will be set for 4 msec and the character represented by the depressed key will be repeatedly printed at a 10-CPS rate until the depressed key is released. All other APL keyboard scanning functions are identical.

3.10.2.3 Debounce. A debounce period, defined as 11 msec, occurs upon make and break of a key. Debounce of make-of-a-new key and break-of-an-old-key may occur simultaneously. When the CPU is not in the debounce mode, it is considered in the search mode which lasts 4 msec. The search mode occurs also for both make and break, and like debounce, search-for-make-and-break may also occur simultaneously. Therefore, if two keys are pressed almost simultaneously, the second key need only be pressed 4 msec past the break bounce of the first key. The PAPER ADVance and REPT keys are not debounced.

3.10.2.4 Encoding (Standard ASCII). When a new key depression is detected in the matrix, it is encoded immediately. [REPT (repeat), HERE IS, BREAK, and PAPER ADVance are not ASCII-encoded keys.] In the NUMbers mode the row/column data is used to obtain the ASCII code from a look-up table; five special keys are similarly encoded: LINE FEED, carriage RETURN, RUB OUT, the space bar, and ESC. All other keys are positioned in the matrix so that the addition of a constant number to the

row/column number of each key will provide the ASCII code for that key in the unshifted mode. For the CTRL (control) and SHIFT modes the ASCII code is obtained by adding or subtracting an appropriate number depending upon the particular key. After encoding, the new ASCII character is passed to data control for immediate action. Encoding occurs upon detection and not after debounce of the key.

3.10.2.5 Encoding (APL/ASCII). When the APL keyboard is in the APL mode, shifted and unshifted, the row/column data is used to obtain the ASCII code from a look-up table. Encoding in the full-ASCII mode, shifted and unshifted, and in the CTRL (control) mode is identical to standard-ASCII keyboard encoding described above.

3.10.2.6 Repeat Function. Any printable character may be repeated by pressing a character key in conjunction with the REPT key (except for the APL keyboard). The character will be printed continually until the REPT key is released. Pressing a new key causes its character to be repeated as long as the REPT key is held depressed.

3.10.3 RECEIVER ROUTINE. Upon receiving a full-ASCII character the I/O device transfers the character from the receiver register to the receiver buffer and generates an interrupt to the CPU. The CPU then removes that character within 30 msec to prevent loss. The sole purpose of the *receiver* routine is to fetch the character from the receiver buffer and pass it to data control.

3.10.4 DATA CONTROL ROUTINE. Data is supplied to the Models 743/745 from two sources: the keyboard and the receiver. Hence, the data control routine has two major divisions: *keyboard data control* and *receiver data control*.

3.10.4.1 Keyboard Data Control. The first function of *keyboard data control* is to update the baud rate status to the I/O and to update the local flag status in RAM. It then decides whether or not the keyboard has any new data; if not, data control is exited. Transmission of a new character occurs if the terminal is on-line and the transmitter is not busy. The character is transferred to the *character analyzer* to determine what printer action is to be taken if the terminal is in the local mode or if the transmitter is not busy and the terminal is in the half duplex mode.

3.10.4.2 Receiver Data Control. A received character is sent to the *character analyzer* if the terminal is in

the on-line mode, if at least two spaces remain in the eight-character *printer character queue buffer*, and if the paper-out count is not 5. Otherwise, the character is ignored and no action is taken.

3.10.4.3 Print Complete. After completing a printer action, all printer software routines enter *print complete*. This terminates the printer action and indicates that the mechanism is free. Print-complete detects any character that might have been stored in the printer queue buffer and passes it to the character analyzer for processing.

3.10.5 CHARACTER ANALYZER. The *character analyzer* accepts a character from either data control or print-complete and determines what printer action should be taken. A BEL character immediately starts the audible signal. No action is taken on a DELete or NUL character. If the mechanism is not busy, the following procedure is taken on all other characters. Printable characters enter *print state 1* and immediately start printing. CR, LF, and BS enter appropriate printer states, but all other control characters are ignored. If the mechanism is busy, the character is stored in the printer character queue buffer (eight-

character capacity) for later processing.

3.10.5.1 Bell Routine. The time interval for the audible signal to sound upon receipt of a BEL character is 250 msec. To time this period the *bell* routine utilizes the keyboard timer. When a BEL character is received, a counter is set to the appropriate value and the audible signal is energized. The *keyboard* routine then decrements this counter at each entry and when the count reaches zero, the audible signal is switched off.

3.10.5.2 Print/Step Routine. The *print/step routine* generates the pulse train shown in Figure 3-40. The routine can be divided into two sections. The first section energizes the *printhead voltage (PVOLT)*, indexes into the dot matrix table (stored in ROM) by the ASCII character value, chooses the appropriate dot pattern, and loads the printhead one column at a time. Loading is accomplished by generating an address which includes the printhead strobe bit, the column being loaded, and the column dot pattern. The printhead is loaded during the first 200 μ sec of PVOLT-on. The PVOLT signal remains on for 10 msec.

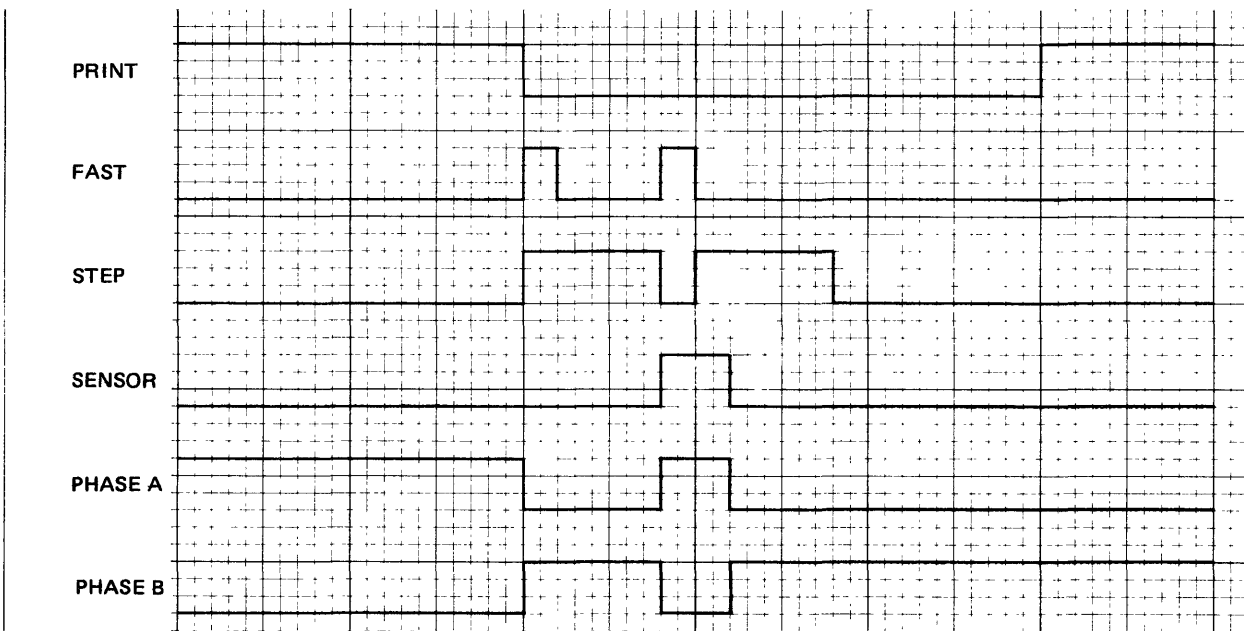


Figure 3-40. Models 743/745 Print/Step Routine Pulse Train

A0001099

The second section steps the printhead one column by using two timers and the sensor. One timer is used to control pulse widths for the fast and step pulses. The *sensor* signals the beginning of braking. The second timer is used to time the total step and is divided into two segments: the first verifies that the sensor occurred, and the second segment defines the end of the step. The use of the second timer makes the step time independent of when the sensor interrupt occurs. Figure 3-41 shows a state diagram of this sequence.

3.10.5.3 Backspace Routine. The *backspace* routine uses the step section of the *print/step routine*. The only difference is that the phase is calculated to cause the printhead to step left instead of right.

3.10.5.4 Line Feed Routine (Solenoid Line Feed Mechanism). The *line feed* routine energizes the printhead lift and line feed solenoids for 15 msec, then off for 16.8 msec. This causes the paper to advance one line.

3.10.5.5 Line Feed Routine (Stepping Motor Line Feed Mechanism). The *line feed* routine energizes the line feed stepping motor by alternately energizing the LF-step A and LF-step B drivers. Each driver phase is energized twice for 6 msec each, producing a complete paper line feed comprising four step segments of 7.5 degrees each for a total 30 degrees. Figure 3-42 shows a stepping motor timing diagram.

3.10.5.6 Carriage Return Routine. A carriage return from column one causes no action. A carriage return from column two is treated as a backspace. Printhead lift is activated until the printhead reaches column two. Stepping current remains on throughout the carriage return to provide the motor sufficient current for acceleration and deceleration. Speed control during carriage return is accomplished by changing phases on the motor feedback sensor (acceleration) or by changing phase after the feedback sensor (deceleration). Figure 3-43 is a state diagram of the carriage return algorithm.

- a. **Acceleration Outside Column 20.** In the *carriage return* routine the timer value is set to 1.5 msec. Since the motor is stopped, the timer will expire and cause an interrupt before the sensor reacts. Motor phases are changed when the sensor reacts, causing acceleration of the motor. Five 1-msec pulses are generated

during the first five steps of acceleration to provide quick acceleration.

- b. **Constant Speed Control.** Once the feedback sensor signal occurs faster than 1.5 msec, the motor phase change occurs when the timer expires, decelerating the motor. Acceleration and deceleration are used for the constant speed region. Note that the change from acceleration (paragraph a. above) to constant speed occurs without a firmware change of state.
- c. **Deceleration at Column 12.** When the printhead reaches column 12 and the phase change to move to column 11 is output, the firmware detects that it is time to decelerate. Instead of setting the timer to 1.5 msec, a longer time is used. For each column throughout the deceleration period, a successively longer time is used when setting the timer. This causes the motor phases to change on the timer, initiating deceleration. The values in the deceleration table were selected to decelerate the motor along a profile which resembles the natural deceleration of the system.
- d. **Acceleration/Deceleration Inside Column 21.** A different rate of acceleration is used for each column inside column 21. A slower acceleration enables the processor to intercept the deceleration profile and bring the printhead to a smooth stop. This time is used until a column is reached inside column 12 where its deceleration time is longer. This represents the point where the deceleration profile is intercepted and deceleration begins.

3.10.6 CHARACTER BUFFERING. There are several advantages to the use of character buffering in a data terminal. Using a character buffer to store a received character while the mechanism is busy eliminates need for the traditional filler characters sent after a carriage return. To implement such a scheme the print/step time of the data terminal must be less than the time consumed to receive a character. Character buffering increases input to the terminal by eliminating the transmission time used to send filler characters. Interfaces to the data terminal are simplified

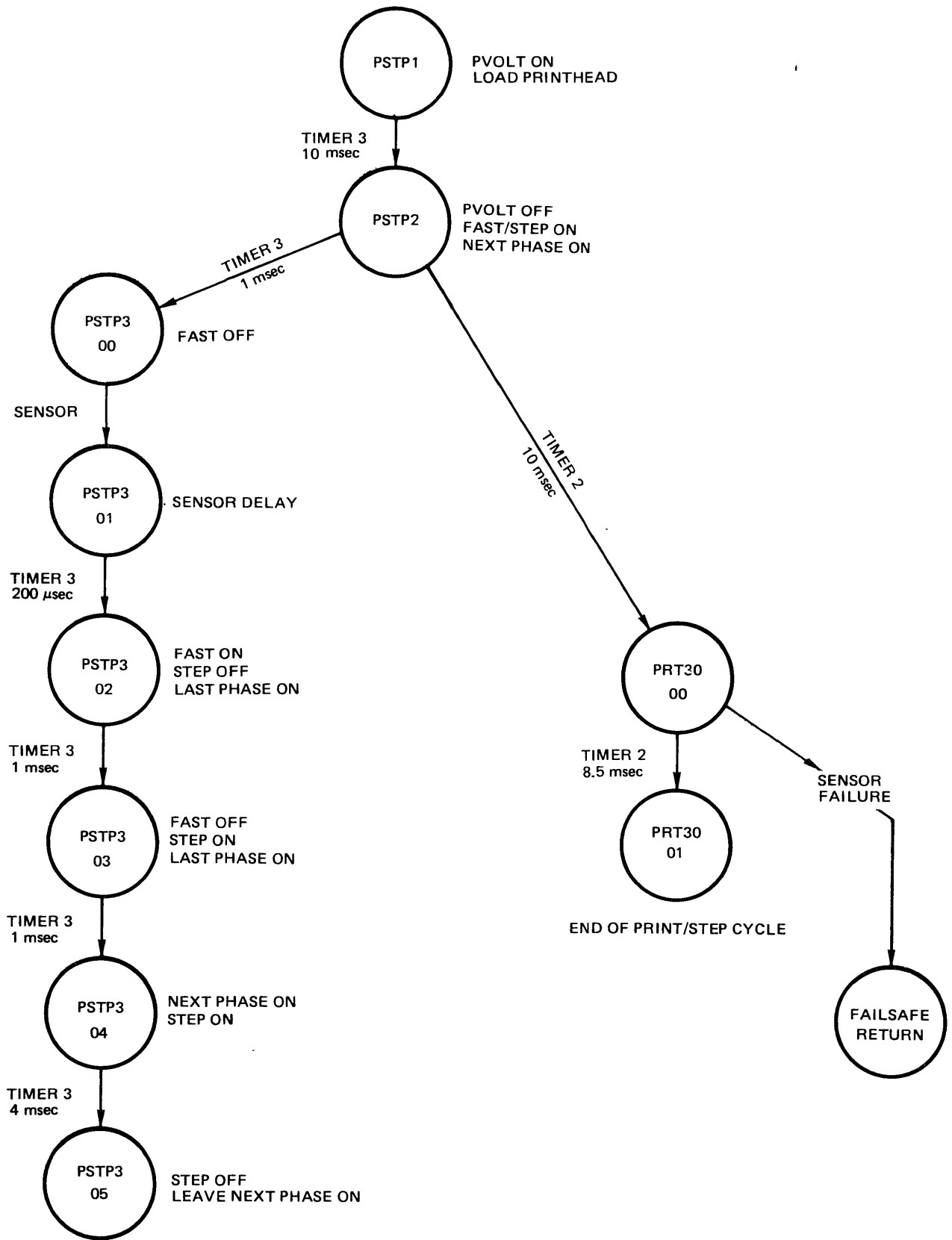


Figure 3-41. Print/Step Routine State Diagram

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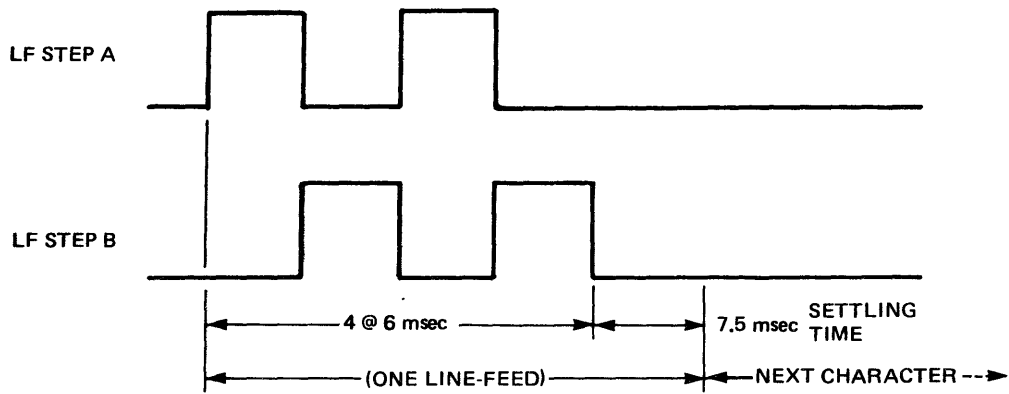
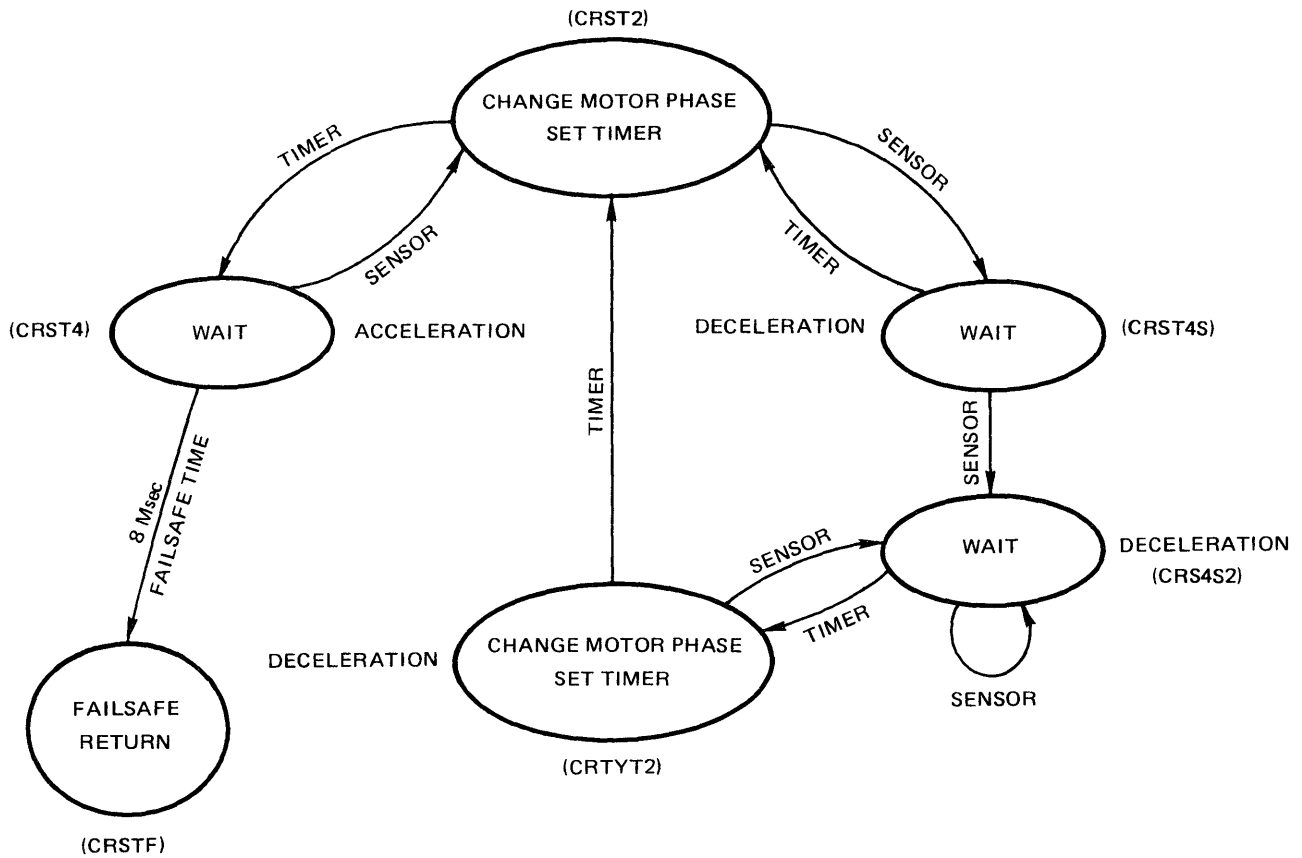


Figure 3-42. Stepping Motor Line Feed (LF) Routine Timing Diagram (Mechanism P/N 999257)



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Figure 3-43. Carriage Return Routine State Diagram

since the transmitting system does not need to recognize certain control characters which require special handling. Because of the desirability of character buffering and the ability of the Models 743/745 to perform a print/step cycle in 28.5 msec, an eight-character buffer is designed into the operating system.

3.10.7 PAPER ADVANCE OPERATION. The paper advance (PA) function is generated by the *keyboard* routine. Upon an initial detection of the PAPER ADV key, the terminal is forced OFF LINE, a carriage return character (CR) is generated, and scanning is inhibited for 20 wait periods. The PA flag is set, and the carriage return character is processed. As long as the PAPER ADV key is depressed, the keyboard scanner sets the PA flag and generates a CR character every third wait period. At the end of the CR, the PA flag is checked and control transfers to the *line feed* routine.

The *line feed* routine causes one line feed and clears the PA flag. A continuous stream of line feeds then are executed as long as the PAPER ADV key is depressed. Received characters will be lost since the terminal is forced into an off-line mode.

3.10.8 ANSWER-BACK MEMORY. The Answer-Back Memory (ABM) option for the Models 743/745 Data Terminals transmits any programmed sequence of one to 21 ASCII characters to serve as station identification. The character string, along with the system software to implement the ABM feature, is included in a 256 x 8 PROM (74S741) which plugs into a socket on the PWB. The message sequence is activated by the HERE IS key or by receipt of an ENQ character if the terminal is on-line. An optional bit in the PROM indicates to the ABM system program if the ABM message is to be printed when operating in the half-duplex mode.

Following is a list of operating characteristics of the ABM option:

- Activated locally by HERE IS key if the terminal is ON LINE
- Activated remotely by receipt of the ENQ character if ON LINE
- While in an ABM sequence, operation of the HERE IS key or receipt of an ENQ character will not cause the ABM sequence to restart
- If the terminal is taken OFF-LINE during an ABM sequence, the sequence will be aborted
- The ABM sequence cannot be activated if the terminal is performing a paper advance.
- If the terminal is in the half-duplex mode and the option to print the ABM message is set, the ABM message will be transmitted and printed. Characters received during the printing of the ABM message will also be printed.
- During an ABM sequence, characters generated at the keyboard are ignored.
- Parity is generated based on the strapable option on the PWB (factory-supplied only).
- If the BREAK key is already activated when an ENQ character is received, the ABM sequence will start; but the transmitter will not transmit the characters because it is in the BREAK mode. If the terminal is in the half-duplex mode and the option to print is enabled, the message will be printed.

3.10.9 LEFT MARGIN/PAPER-OUT DETECTION.

During the step sequence, the *print/step* routine can detect a sensor failure. During normal operation, sensor failures indicate an attempt to step the printhead through an abnormally high friction area (left margin stop or stepping the printhead with no paper between it and the drive roller). This information is used to detect both left margin and paper-out in the Model 743/745 operating system.

3.10.9.1 Left Margin Detect. During power-up, the printhead is stepped to the left by performance of repeated backspaces. A sensor failure is generated when the printhead is stepped against the left margin. Sensor failure also occurs if the motor is told to step to the phase it already is in. By forcing the printhead to step at least three steps during power-up, the operating system gets in step with the motor and the next sensor failure after the initial three steps is considered the left margin.

3.10.9.2 Paper-Out Detection. During step operations after power-up, a sensor failure will activate the

paper-out condition. The friction between the print-head and the platen is too great without paper to perform a normal step. The character analyzer checks this condition before passing control to the print/step state. When paper-out is activated, the character analyzer will only process CR, LF, and BEL characters. The keyboard routine checks for a paper-out condition when the PAPER ADVance key is detected. Instead of generating a series of CR characters, the keyboard routine generates a series of LF characters. Paper can be loaded in the terminal by using the PAPER ADV key or LINE FEED key when the terminal is off-line. Entering a CR with the terminal off-line during a paper-out condition will force a power-up return to the left margin.

3.10.9.3 On Line Operation During Paper-Out. When the terminal is operating in the on-line mode and runs out of paper, the paper-out sequence (see paragraph 3.10.9.2 above) will be entered. If the terminal is unattended, the carriage returns in the input data stream will cause the terminal to repeatedly seek the left margin, then detect no paper. To prevent such a loop from occurring, a paper-out count is incremented each time paper-out is detected. If this count reaches 5, the receiver will start discarding all characters. This count is reset to 0 by a successful carriage return, by a paper advance operation, or by a power off/on sequence.

3.11 ACOUSTIC COUPLER/MODEM.

The acoustic coupler/modem circuitry in the Models 743/745 Data Terminals provides the interface

between the terminal and a standard commercial telephone line. Since the bandwidth of telephone lines is limited, digital information cannot feasibly be transmitted over any but short distances. However, digital information can be converted into analog form which can be transmitted over telephone company voice-grade telephone lines of the direct distance dialing (DDD) network. The acoustic coupler is standard on the Model 745; the modem is an option available on the Model 743.

For 300-baud operation an analog technique called frequency shift keying (FSK) is used to transmit data. Frequency shift keying simply is the shifting of a signal between two frequencies. One frequency represents a logic ONE; the other represents a logic ZERO. Figure 3-44 shows an alternating digital data pattern and its FSK equivalent. The acoustic coupler/modem circuitry in the Model 743/745 converts the digital data to be transmitted into an FSK signal and also converts a received FSK signal into digital data. The bandwidths of the FSK signals are chosen to provide simultaneous transmission and reception of data (full duplex) over a single voice-grade line. The frequencies assigned to the acoustic coupler/modem are listed in Table 3-5. The Bell System frequencies are used primarily in the United States, Canada, and Mexico. The CCITT frequencies are used throughout Europe, Japan, and Australia.

The acoustic coupler interfaces with the telephone line through a standard telephone handset which fits into two rubber muffs on the rear of the Model 745.

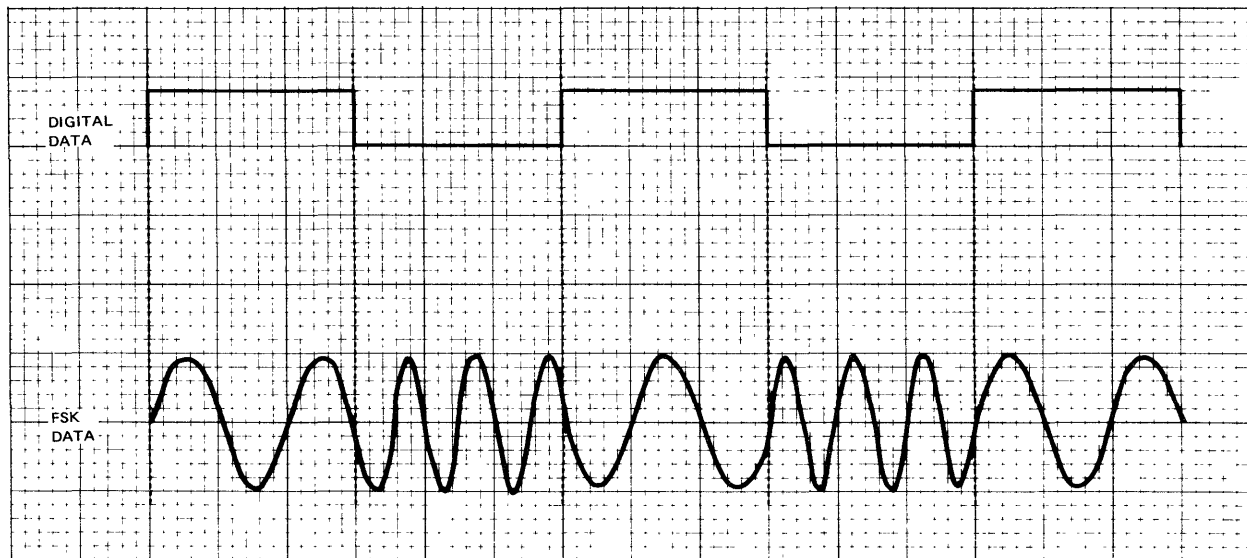


Figure 3-44. Frequency-Shift Keying (FSK) Modulation

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Table 3-5. Acoustic Coupler/Modem FSK Transmission Frequency Assignments

Logic Level	Frequencies (Hz)			
	Bell System		CCITT	
	XMIT	RCV	XMIT	RCV
"1" (MARK)	1270	2225	980	1650
"0" (SPACE)	1070	2025	1180	1850

One muff contains a microphone; the other, a speaker. The interface is entirely acoustic.

The modem (available as an option only on the Model 743) interfaces directly with the telephone line via a transformer contained within a data coupler (DAA) required to connect the modem to the telephone line. A block diagram of the acoustic coupler/modem is shown in Figure 3-45. A schematic of the circuitry is contained in the appendix.

Note that the modem and acoustic coupler share most of the same circuitry; for this reason the

operation of the acoustic coupler is described first and the differences between the acoustic coupler and modem are discerned where appropriate in the text.

3.11.1 RECEIVER SECTION. The receiver section of the acoustic coupler/modem consists of a buffer, bandpass filter, limiter, mark and space filters, difference integrator, data filter, carrier detector, and carrier detect delay circuits. The microphone is connected through the buffer (a high gain amplifier) to a bandpass filter which passes in-band signals and attenuates out-of-band signals and noise, thus providing some selectivity. The output of the bandpass filter is applied to the limiter which provides a constant amplitude signal to the *mark* and *space* filters. The mark filter's greatest output occurs when the mark frequency is received, and the space filter's greatest output occurs when the space frequency is received.

The output of the mark and space filters is applied to a difference integrator which determines which filter has the most output over a bit time. The difference integrator's output is applied to the data filter and carrier detect circuit. The data filter smooths the

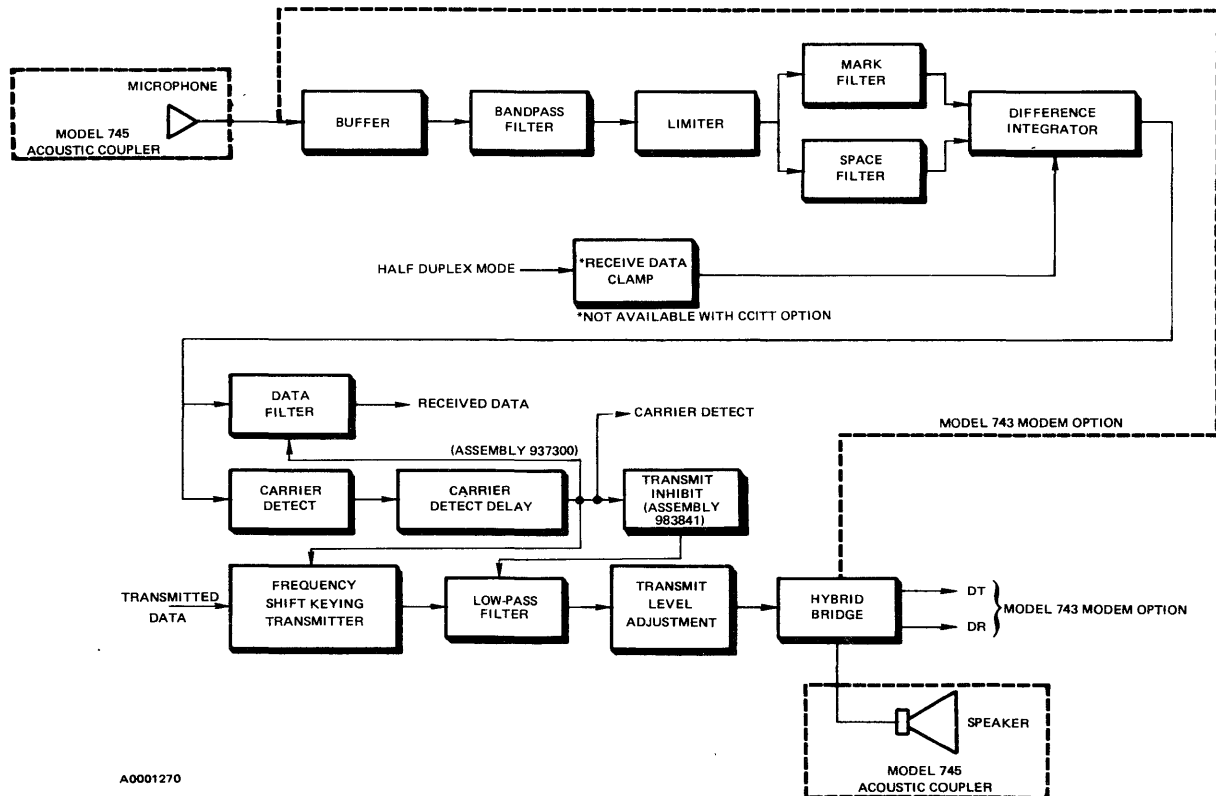


Figure 3-45. Acoustic Coupler/Modem Block Diagram

difference integrator output and converts the signal to ± 10 -volt levels. The carrier detect circuit determines whether an in-band or out-of-band signal is present at the input of the receiver.

An in-band signal starts a 3-to-7-second delay in the carrier detect delay circuit before it provides a valid carrier indication to the terminal and enable transmitter circuit. An out-of-band signal starts a 100- to 300-millisecond delay before a no-carrier indication is provided to the terminal and transmitter.

On assembly 937300 only, jumper E425/E426 provides a long or short carrier detect delay. Installed, the delay is 3 to 7 seconds. If not installed, the delay is 1 to 2 seconds.

The signal input to the acoustic coupler is an audible tone emitted by the telephone handset. This FSK signal is converted to an electrical signal by the microphone. The incoming signal then is amplified by the buffer amplifier (U413, R501, R500, and R495), the gain of which is determined by R501 and R495.

The signal then goes to a three-stage stagger-tuned bandpass filter which amplifies in-band signals and attenuates out-of-band signals and noise. The first stage of the filter (U413, R491, R494, R502, C428, and C427) has a nominal center frequency of 2345 Hz, a gain of 14 dB and a Q of 5. The second stage of the bandpass filter (U407, R489, R490, R450, C418, and C417) has a nominal center frequency of 1915 Hz, a gain of 14 dB, and a Q of 5. The last stage of the filter (U406, R446, R429, R445, C412, and C411) has a nominal center frequency of 2125 Hz, a gain of 3 dB and a Q of 5.

The composite filter response yields an overall gain of 25 dB with relatively linear phase characteristics and a 300-Hz bandwidth. The linear phase characteristics contribute to equal mark and space frequency delays.

The limiter (U406, R442, R444, CR408, CR409) produces a constant amplitude (± 0.7 volt, peak-to-peak) input signal for the mark and space filters by limiting the positive and negative excursions of the output with CR408 and CR409.

The bandwidth of the incoming signal at 300 baud is 300 hertz, centered about the carrier frequency of 2125 Hz (1750 Hz for CCITT). To receive signals of this bandwidth, the mark filter is nominally tuned to 2275 Hz, and the space filter is tuned to 1975 Hz. Both filters have equal gains, and the envelope delay at the center frequency of each filter is equal.

The difference integrator circuitry determines which filter has the most output over a bit time. The outputs of the mark and space filters are subtracted by CR413, R476, CR416, and R479 and by CR415, R481, CR414 and R474. When a mark is received, the output of U410 (pin 1) is in positive saturation; similarly, when a space is received U410 (pin 1) is in negative saturation. Under no-signal conditions, the output of U410 is nominally zero volt.

The data filter stage, R455, R554, and C413, form a low-pass filter which removes any carrier frequency signals still present on the output of the difference integrator. The remaining components of the data filter (U410, R454, and R453) constitute a comparator with hysteresis. The output of U410 (pin 7) is in negative saturation for a mark and in positive saturation for a space.

On assembly 937300 only, the receive-data signal is held in the *mark* condition whenever the carrier detect delay output signal is off (-12 volts), indicating absence of a valid carrier signal.

3.11.1.1 Carrier Detect. The carrier detect circuit determines if a valid FSK signal is being received. The carrier detect circuit receives its input signal from the output of the difference integrator (U410, pin 1) which is $+10$ volts or -10 volts when a signal is received or zero volts when no signal is received.

Under a no-signal condition U404 (pin 1) is $+10$ volts since U404 (pin 2) is pulled to -12 volts through R423, and U404 (pin 3) is at zero volts. When the output of the difference integrator exceeds $+2$ volts, the input (U404, pin 2) becomes more positive than pin 3 (U404), and the output (U404, pin 1) switches to -10 volts.

Similarly, when the output of the difference integrator ranges between the negative saturation voltage of U410 (pin 1) and -5 volts, the noninverting input of the carrier detect op-amp (U404, pin 3) is more negative than the inverting input (U404, pin 2), so the output switches to -10 volts. To prevent a loss of carrier indication while receiving data during which the output of the difference integrator is switching between $+10$ and -10 volts, the voltage stored on C409 and C404 (in conjunction with the RC time constants of C409, R422, and R424 or C404, R402, and R403) are sufficient to prevent the output of U404 (pin 1) from switching to a no-carrier condition ($+10$ volts).

3.11.1.2 Carrier Detect Delay. The carrier detect delay circuit generates the appropriate energizing and de-energizing delays required by the terminal. A -10 volt signal from U404 (pin 1) indicates that a valid carrier is present. Since CR405 is reverse biased, capacitors C410 and C432* are charged to -10 volts through R426. An electronic jumper installed at E425-E426* provides normal turn-on and turn-off delays. With the E425-E426 jumper removed, shorter delays are provided. (Only the standard 3 to 7 second delay is available on PWB 983841.) R426, along with C410 and C432, determine the turn-on time of 3 to 7 seconds. With the short delay option (available only on PWB 937300) the turn-on time is 1 to 2 seconds. When the voltage across C410 is less than the -7.5 volt threshold of the comparator formed by U404, R404, R405, and R406; its output switches to $+10$ volts, indicating the presence of a valid carrier.

When the output of the carrier detect circuit (U404, pin 1) is $+10$ volts, C410 and C432 discharge through R425 and CR405. R425, along with C410 and C432, determine the turn-off time of 100 to 300 milliseconds (50 to 100 milliseconds with the short delay option). When the voltage across C410 is more positive than -4 volts, the comparator output switches to -10 volts, indicating absence of a valid carrier.

***NOTE**

Carrier detect delay jumper E425-E426 and capacitor C432 are supplied on PWB 937300 only.

3.11.1.3 Receive-Data Clamp (Not Available with the CCITT Option). The receive-data clamp circuit is provided to eliminate the effects of erroneous receive data caused by the transmitter second harmonic frequencies overlapping the bandwidth of the receiver. This circuit forces, or clamps, the receive-data signal to a *mark* condition whenever the transmit-data signal is in a *space* condition. The circuit is enabled only when the terminal is in the half-duplex mode.

With a -10 volt level at U405 (pin 1), the transmitter is in the *space* condition. Thus, CR428 is forward-biased, and C431 charges toward -10 volts through R473. Buffer amplifier U415 (pin 1) tracks the capacitor voltage towards -10 volts, which causes the output of U1 (pin 8) to switch to $+5$ volts. This turns on Q551, which causes CR426 and CR427 to turn on, bringing U415 (pin 5) to approximately $+1.5$ volts. If the terminal is in the half-duplex mode, the output latch U25 (pin 7) is turned on and pulled to

$+5$ volts through R22. Thus, U415 (pin 7) is in negative saturation (-10 volts), causing CR425 to be forward-biased. This then forces, or clamps, the output of the difference integrator U410 (pin 1) to $+10$ volts, regardless of the receiver input signal. This causes the receive-data signal to be held in the *mark* condition, and holds the carrier detect signal on. When the transmit-data signal returns to the *mark* condition, U405 (pin 1) switches to $+10$ volts. This turns off CR428 and permits C431 to discharge toward $+10$ volts through R473 and R488. The output of U1 (pin 8) switches to ground, causing Q551 to turn off. This pulls U415 (pin 5) to $+12$ volts through R499 since CR426 and CR427 turn off. This causes U415 (pin 7) to switch to $+10$ volts, which turns off CR425, freeing the difference integrator and allowing it to switch with the incoming signal.

When the terminal is in the full-duplex mode, the output latch U25 (pin 7) is off and held near ground. Thus, since the noninverting input of U415 (pin 5) never falls below ground, the output of U415 (pin 7) always is $+10$ volts, which turns off CR425, effectively disabling the circuit during full-duplex.

3.11.2 TRANSMITTER SECTION. The transmitter section consists of an FSK transmitter, including transmit-inhibit circuitry, a low-pass filter, a transmit-level adjustment, and hybrid bridge circuits.

The FSK transmitter is a triangular-wave oscillator which oscillates at one of the two FSK frequencies selected by the digital transmit-data signal. The transmitter is enabled to oscillate only after a valid carrier is present and the carrier detect signal is on. The low-pass filter removes the higher order harmonics present in the triangular wave. The low-pass filter output is connected through the output level adjustment to the hybrid bridge.

When the PWB is configured as an acoustic coupler (Model 745), the hybrid bridge is used as a buffer amplifier to drive the speaker. When the PWB is configured as a modem (Model 743 option), the hybrid bridge permits the FSK transmit data to be applied to the telephone line via the DT and DR leads. In the modem configuration the received FSK data also is present on the DT and DR leads since it is a two-wire full-duplex system. The hybrid bridge not only applies the received FSK signal to the receiver input (as indicated by the dashed line on Figure 3-45), but it also isolates the transmitter section from the receiver section.

For purposes of discussion, assume that the output of U412 (pin 7) of the FSK transmitter is at -12 volts. CR412 is reverse biased, and CR411 is forward biased. A -4.3 volt reference (-6.3 volts on PWB 983841) is established by CR420, CR417, and CR419. The constant negative voltage at the input of the integrator (U407, C416, and the series combination of R472 and R448) causes the output (U407, pin 7) to ramp linearly positive with time.

When the output passes $+4.3$ volts ($+6.3$ volts on PWB 983841), the noninverting input of U412 is slightly positive because of the voltage divider formed by R487 and R485 between the negative reference and U407 (pin 7).

The positive voltage at U412 (pin 2) causes the output to switch to $+12$ volts, and a $+4.3$ volt reference ($+6.3$ volts on PWB 983841) is established by CR421, CR417, and CR418 at the input to the integrator. The integrator now ramps linearly negative until the output is slightly less than -4.3 volts (-6.3 volts on PWB 983841). The noninverting input of U412 is now slightly negative, so the output switches to -12 volts, and the cycle starts again.

In order to change the frequency of the oscillator, a shunt resistor (R447) is switched across the series combination of R472 and R448 by Q405. Q405 is switched on and off by the output level present at U405 (on during the *mark* frequency, off during the *space* frequency).

The transmitter is enabled and disabled using the carrier detect signal present at U404 (pin 7). When a valid carrier is present, U404 (pin 7) is $+10$ volts which turns on Q406 and turns off Q407. This enables the comparator U412, thus enabling the transmitter. While carrier detect is off, U404 (pin 7) is -10 volts, forcing Q406 off and Q407 on, which disables U412 and the transmitter.

3.11.2.1 Transmit Low-Pass Filter. The triangular-wave output of the transmitter section is altered using a low-pass filter to lower the distortion by attenuating all harmonics of the fundamental frequency. The resultant output is a sine wave of approximately ± 9 volts peak-to-peak.

3.11.2.2 Transmit Level. The output of the low-pass filter is applied through a $10k$ ohm potentiometer which determines the output transmit level. U414 (pins 1, 2, and 3) forms a buffer to drive either the speaker (acoustic coupler) or the duplexer (modem).

The duplexer (U414, pins 5, 6, and 7; R496, R498, and R499) provides the appropriate driving and terminating impedances to match the modem to the data access arrangement (DAA). The duplexer also provides isolation between the transmitter and receiver of the modem to prevent a strong transmitted signal from swamping a small received signal. Back-to-back zener diodes (CR422, CR423) act as clippers to protect the DT and DR leads from high voltage spikes.

SECTION 4

MAINTENANCE

4.1 PREVENTIVE MAINTENANCE.

The TI Models 743/745 Data Terminals are designed and built to provide long term trouble-free operation under rigorous operating conditions. To ensure continuation of the highest performance levels, the machine should be cleaned at regular intervals. The printer mechanism and printhead should be kept clean and free of foreign objects.

To ensure that the printer mechanism continues to provide maximum print quality, the printhead should be cleaned periodically as follows (refer to Figure 4-1 for location of components):

1. Remove the thermal paper from the platen and paper chute. If necessary, cut the paper where it enters the chute. Press and hold the PAPER ADV key until the short piece exits the window/pinch roller.
2. On a sheet of good quality bond paper, wet a 2-inch wide area with denatured alcohol (available from TI in pint containers, Part No. 230007).
3. Insert the alcohol-wetted paper through the paper chute, around the platen, and under the window/pinch roller. Use the PAPER ADV key to advance the bond paper.
4. Type four to six lines on the alcohol-wetted area. Use the REPT key to accelerate the process. Then advance the paper to a dry area and type two more lines.

NOTE

The thermal printhead will not print visibly on conventional paper.

5. Press and hold the PAPER ADV key to remove the cleaning paper and reload the thermal paper supply.

The printhead should be cleaned as instructed above each time a new roll of paper is loaded into the printer. Clean the printhead more often if the printed images start to fade as a result of residue accumulating on the printhead.

4.2 TROUBLESHOOTING.

Troubleshooting data terminal malfunctions is facilitated by use of the flow diagrams starting on page 4-12 to help localize failures to a particular assembly. When one or more subassemblies are removed during the troubleshooting process, each suspected subassembly should be reinstalled, one at a time, to verify it is indeed the cause of the failure. But in the case of a catastrophic failure, such as blown fuses, overheated or burned components, or other obvious physical defects, return the subassembly to the factory for repair and skip the verification step described above.

NOTE

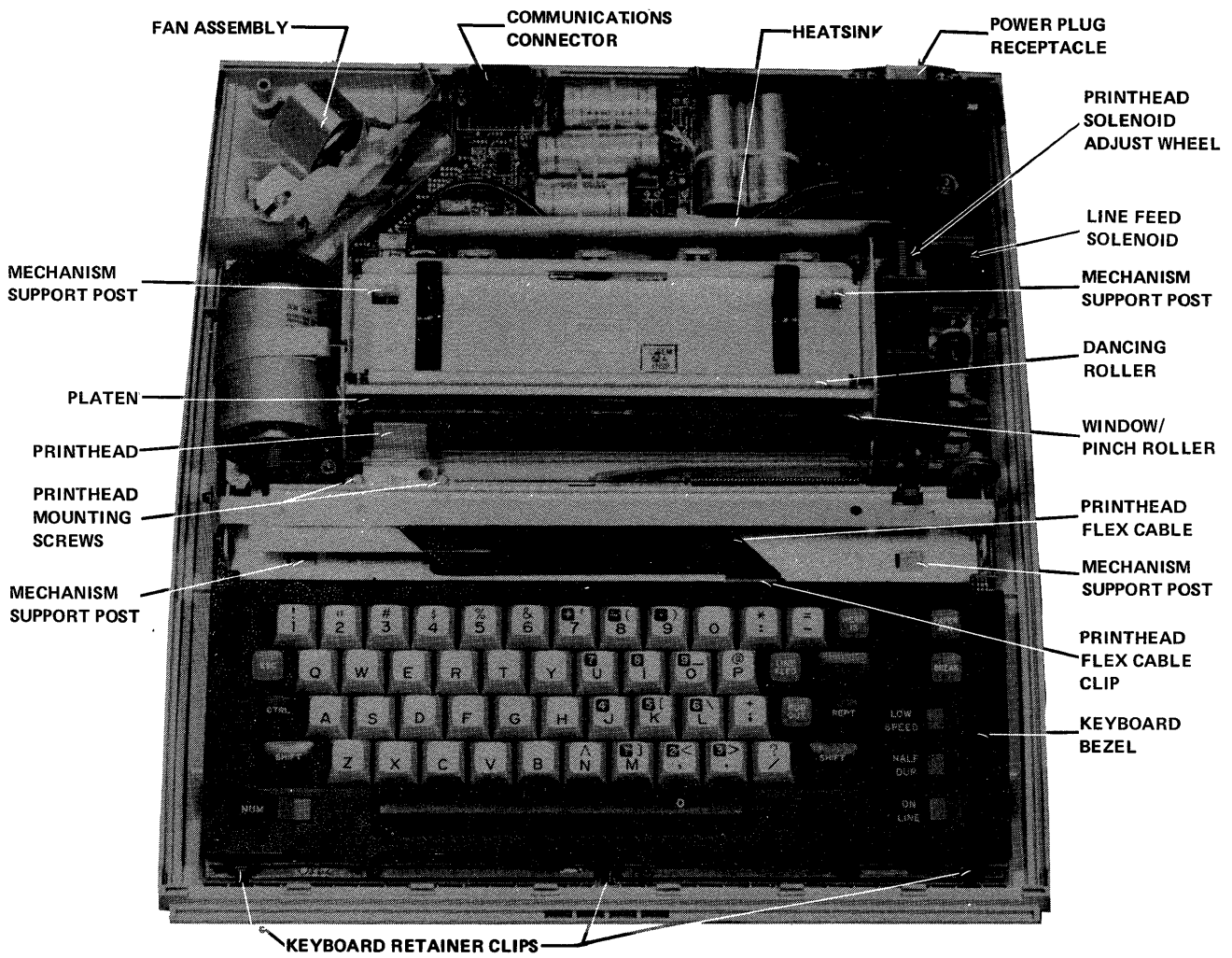
The troubleshooting diagrams are intended for use by trained service personnel.

4.3 ADJUSTMENTS.

The Models 743/745 Data Terminals have only two field adjustments in normal use: print CONTRAST control and the coupler TRANSMIT LEVEL control. All other adjustments are completed at the factory and should not be changed.

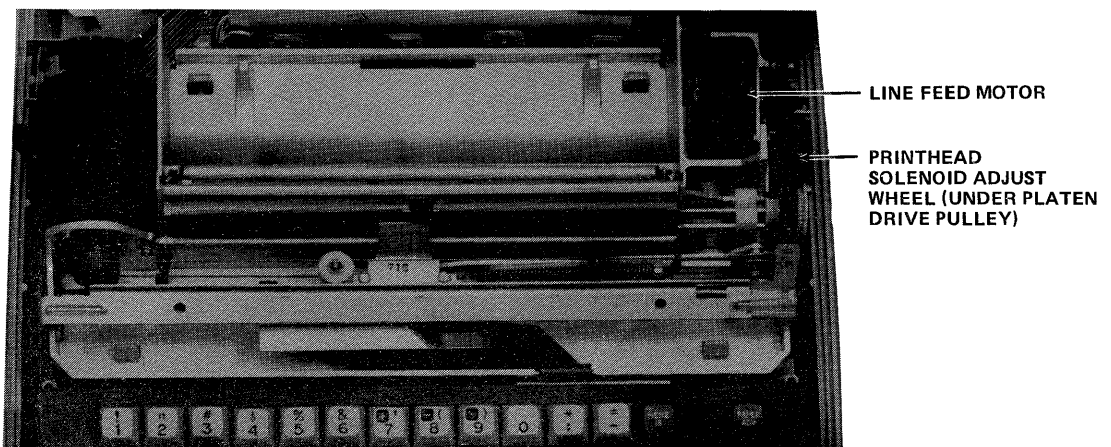
4.3.1 PRINT CONTRAST. To adjust print image contrast, locate the CONTRAST potentiometer clearance hole on the right side of the terminal. Insert a small screwdriver through the clearance hole and gently rotate to seat the screwdriver in the screw slot.

- a. To darken the printed image, slowly rotate the adjustment screw clockwise while printing characters from the keyboard until the desired contrast is achieved.
- b. To lighten the printed image, rotate the adjustment screw counterclockwise.



a. Unit With Solenoid-Driven Line Feed Mechanism

P1000027



b. Unit With Motor-Driven Line Feed Mechanism
(All other components are similar to Figure 4-1a.)

Figure 4-1. Models 743/745 Component Locations

4.3.2 ACOUSTIC COUPLER OR MODEM TRANSMIT ADJUSTMENT. This adjustment controls the transmit level of the signal applied to the telephone line. The transmit level is adjusted at the factory to produce -15 dBm (0 dBm = 1 milliwatt dissipated in a 600-ohm load) on the telephone line after passing through the telephone handset from the acoustic coupler or -9 dBm after passing through the CDT DAA from the modem.

The transmit level is factory-calibrated for optimum performance with most U.S. telephone systems. However, since handset quality differs and line losses occur in some telephone systems, it may be necessary to compensate for unusual conditions by adjusting the transmit level.

The transmit level may be adjusted to accommodate different handsets and telephone systems as follows:

- a. Locate the TRANSMIT LEVEL potentiometer clearance hole on the left side of the terminal. Insert a small screwdriver through the clearance hole and gently rotate to seat the screwdriver in the screw slot.
- b. Establish contact with a remote terminal.
- c. Slowly rotate the TRANSMIT LEVEL adjustment screw clockwise until the terminal begins to receive garbled data from the remote source. Reduce the level slightly to achieve error-free reception.

4.3.3 PRINTER SUBSYSTEM ADJUSTMENTS.

Under normal operating conditions, the closed-loop control circuitry of the printer subsystems will compensate for friction changes caused by wear, temperature variations, and component aging. No field adjustments are required except alignment of the thermal printhead after replacement of the mechanism or printhead assembly. If print quality deteriorates, do not attempt adjustments until the cause is fully understood.

Two versions of the printer subsystem are used on Model 743/745: one version (983811) employs a solenoid-actuated line feed; the other version (999257) is equipped with a motor-driven line feed. Both versions use a solenoid-actuated printhead pressure mechanism, but the solenoids are mounted and linked to the printhead pressure bar differently. The two versions may be differentiated as follows.

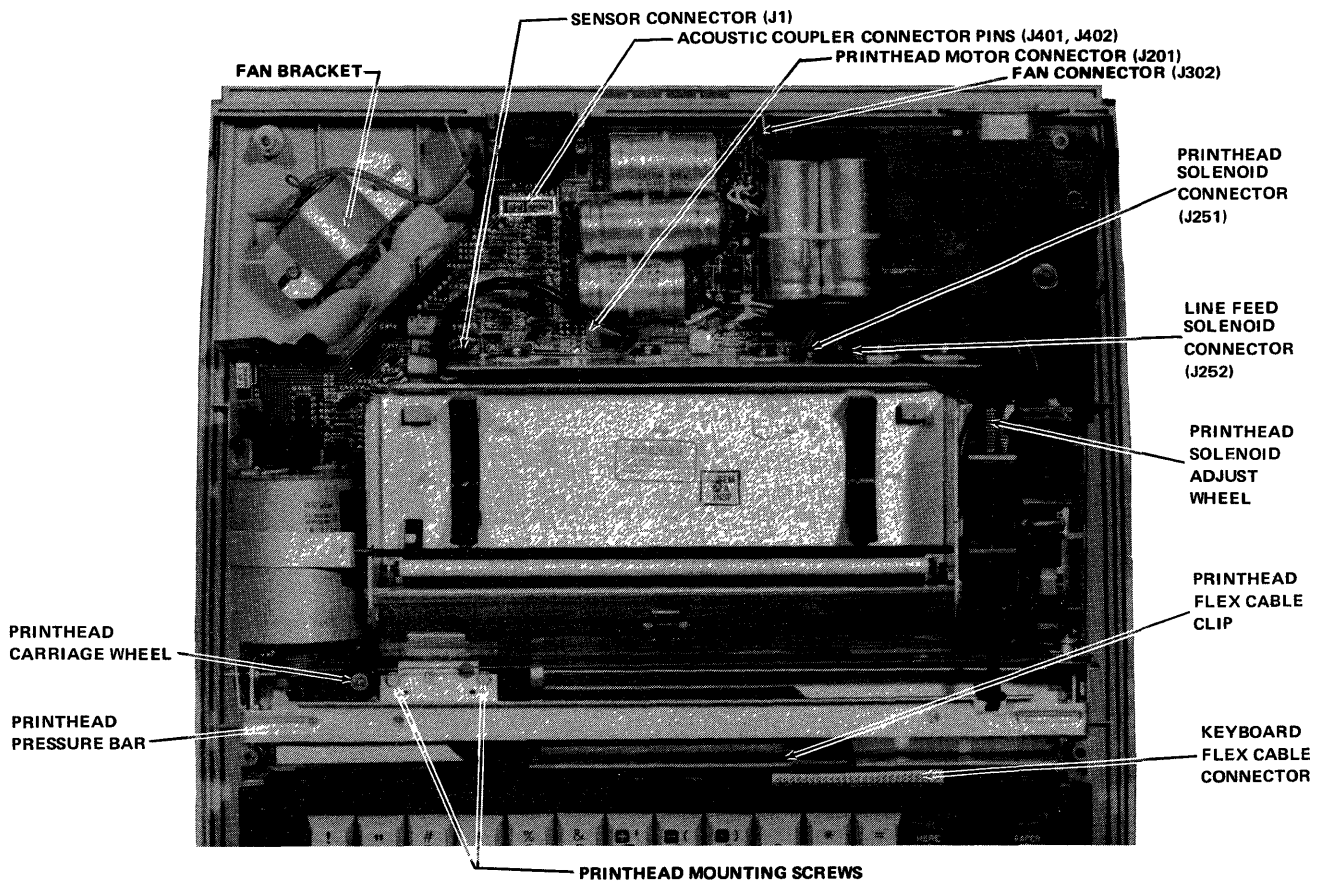
Data Terminal Serial No.	Mechanism Used
0X743YYYYY and 0X745YYYYY	Solenoid-actuated line feed — Part No. 983811
0X744YYYYY and 0X746YYYYY	Motor-driven line feed — Part No. 999257

4.3.3.1 Printhead Pressure Adjustment (Mechanism Part No. 983811).

- a. Remove the inner cover from the terminal as instructed in paragraph 4.4.3 below.
- b. Manually position the printhead approximately 4 inches from the left margin.
- c. Manually compress the printhead solenoid (Figure 4-2a) so that the solenoid is in the fully energized position.
- d. Place a measuring scale along the solenoid linkage and measure the travel distance.
- e. Adjust solenoid travel to at least 0.04 inch but no greater than 0.05 inch by rotating the knurled wheel at one end of the solenoid. (Rotate the wheel clockwise to increase travel, counterclockwise to decrease travel.)
- f. Repeat step e. several times to ascertain that the adjustment is correct.

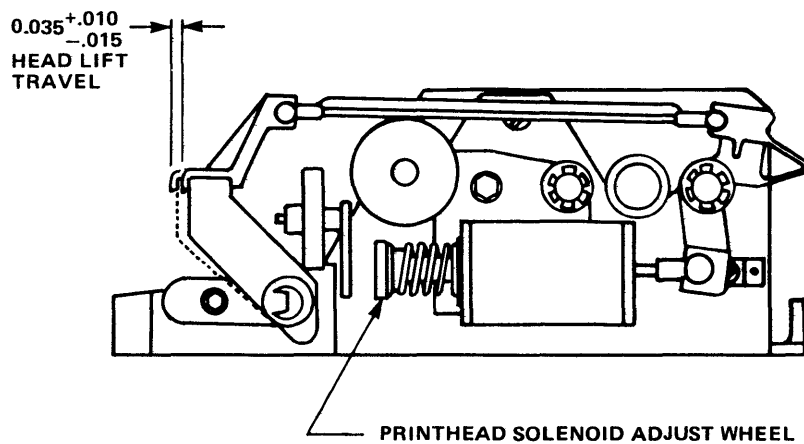
4.3.3.2 Printhead Solenoid Adjustment (Mechanism Part No. 999257).

- a. Remove the inner cover from the terminal as instructed in paragraph 4.4.3 below.
- b. Manually position the printhead approximately 4 inches from the left margin.
- c. Manually compress the printhead solenoid (Figure 4-2b) so that the solenoid is in the fully energized position.
- d. Place a measuring scale atop the printhead pressure bar (Figure 4-3), perpendicular to the platen. Release the printhead solenoid and measure the printhead pressure bar travel.



a. Unit With Solenoid-Driven Line Feed Mechanism

P1000028



b. Right-Side View of Motor-Driven Line Feed Mechanism

Figure 4-2. Module Connectors and Printhead Components

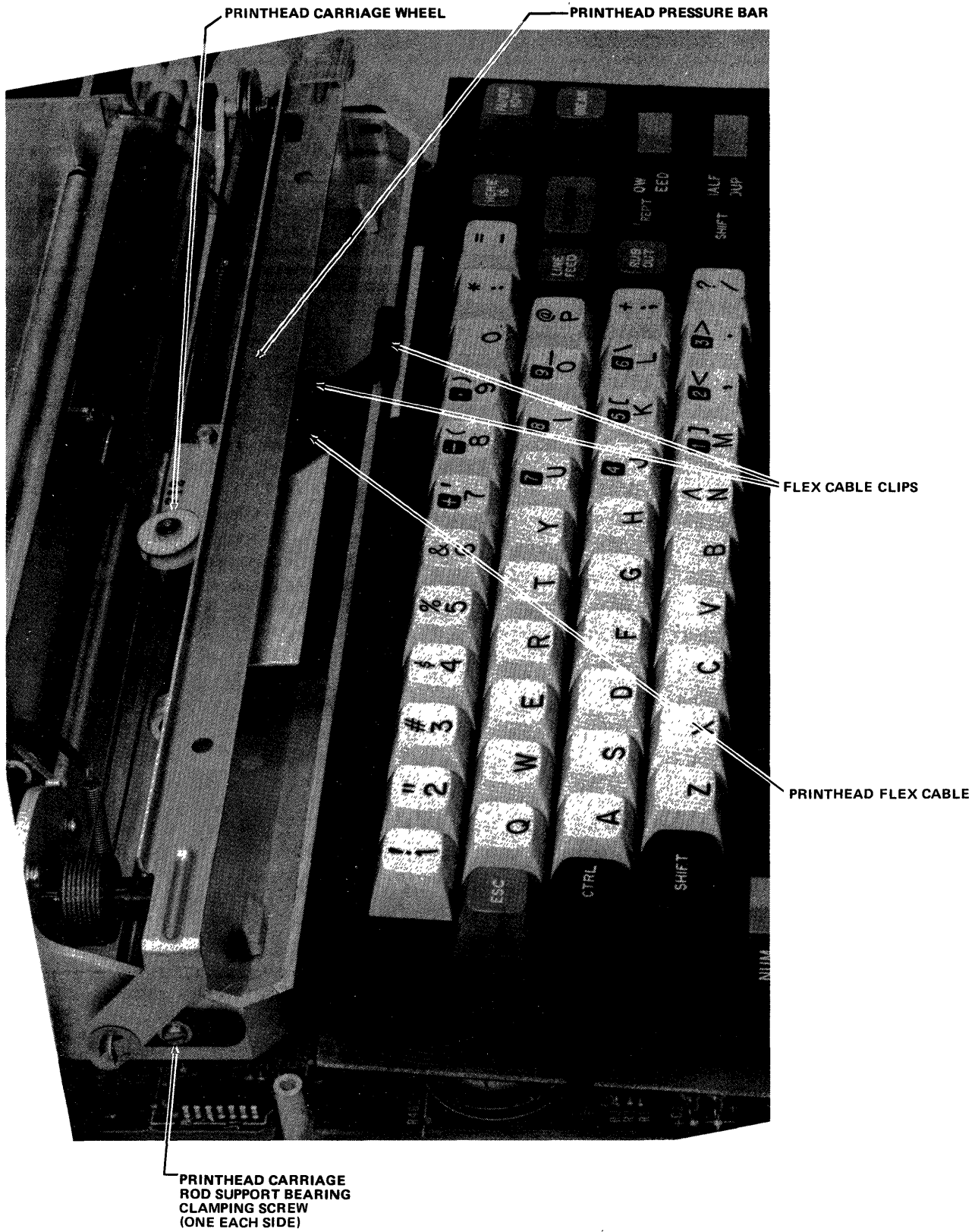


Figure 4-3. Printhead Adjustment and Components

- e. Rotate the knurled wheel at one end of the solenoid to obtain a pressure bar movement between 0.020 and 0.045 inch. (Rotate the wheel clockwise to increase travel, counterclockwise to decrease travel.)
- f. Repeat steps d and e several times to ascertain that the adjustment is correct.



The mechanism incorporates adjustments for both head force and head lift. Head force is preset at the factory and should never need adjustment throughout the mechanism life.

4.3.3.3 Printhead Position Alignment (Both Mechanisms). After installing a new printhead, check a printed line of zeroes (0). If the tops or bottoms of the "0" are missing anywhere along the printed line, correct as follows by repositioning the printhead carriage rod support bearings at each end of the mechanism (see Figure 4-3).

- a. Loosen the screw that clamps the bearing to the frame. Move the bearing up if the bottom of the letters are missing; move down if the tops are missing. Independently adjust each end for the condition observed.
- b. After adjusting, verify that the printhead carriage does not rub against the frame and that the top of the printhead does not interfere with the window/pinch roller.
- c. Retighten the clamping screws and type several more lines of zeros to recheck printing quality. Readjust as necessary.

4.4 SUBASSEMBLY REPLACEMENT.

The modular-design subassemblies may be easily removed to facilitate repair or replacement. Figures 4-1, 4-2, and 4-3 show the important modules and their attachment and plug-in points. Detailed procedures are contained in the following subsections.



Disconnect the data terminal ac power cord from the wall receptacle before

attempting any internal disassembly procedures.

4.4.1 OUTER COVER REMOVAL (MODEL 745 ONLY).

- a. Place the terminal in its normal operating position on a table and release the four latches (two on each side) that secure the outer cover.
- b. Slowly lift the outer cover up and off the terminal.

4.4.2 OUTER COVER INSTALLATION (MODEL 745 ONLY).

- a. Position the bottom rear edge of the outer cover into the base rear groove at an angle and lower the outer cover, engaging the front edge and groove.
- b. Close the four latches.

4.4.3 INNER COVER REMOVAL. (Both Models)

- a. Unplug the ac power cord and communications cable (if present) from the rear of the terminal.
- b. Place the terminal upside down on a padded work surface.
- c. Remove the four 4-40 X 1 inch recessed screws which secure the base to the inner cover.
- d. Manually grasp the cover and base together and turn the terminal right side up.
- e. Lift up the inner cover about 3 inches and rotate toward the rear of the base; then unplug the microphone and speaker (Model 745 only) from the printed wiring board (PWB). The inner cover is then free.

4.4.4 INNER COVER INSTALLATION

- a. Set the inner cover on its back at the rear of the data terminal.
- b. Connect the two telephone muff assembly cables (Model 745 only) to the PWB.

- c. Verify that the fan, mechanism, printhead, and keyboard cables are connected to their PWB connector pins (see Figure 4-2).
- d. Verify that the power cord receptacle is inserted in its groove in the base.
- e. Lower the front of the inner cover, keeping cables and wires off the heatsink and away from the fan blade.
- f. Guide the paper compartment rear wall (on the inner cover) into the slot at the bottom rear of the mechanism paper supply roll compartment.
- g. Verify that the sides, front, and rear of the cover are engaged in their respective grooves in the base.
- h. Grasp the cover and base together and turn the unit upside down.
- i. Install four 4-40 X 1 inch screws through the base and tighten.

4.4.5 MECHANISM REMOVAL.

- a. Check that the ac power cord and communications cable are unplugged from the rear of the terminal and remove the inner cover as instructed in paragraph 4.4.3.
- b. Release the rear of the mechanism by pressing the two rear mechanism support posts (Figure 4-1) inside the paper supply compartment toward the front of the terminal.
- c. Lift the rear of the mechanism sufficiently to clear the two rear posts and slide the mechanism forward to center the front posts in the mechanism slots.
- d. Lift the entire mechanism approximately 4 inches and unplug the printhead connector (J101) from the PWB. The connector is located beneath the mechanism.
- e. Disconnect the four connectors and the ground connector (located beneath the solenoid) from the PWB.



Grasp the connectors only by their plastic bodies when disconnecting. Do not pull on the wires. Needle-nose pliers may be used if more convenient.

- f. Lift the mechanism from the terminal.

4.4.6 MECHANISM INSTALLATION.

- a. Verify that the spring spacers are seated atop each of the four mechanism mounting posts.
- b. Hold the mechanism above the PWB and connect the printhead connector to J101 on the PWB.
- c. **Route the motor and sensor cables under the mechanism and behind the left rear mounting post.**
- d. **Connect the sensor cable (three wires) to J1 and the printhead drive motor cable (four wires) to J201 on the PWB. Connect the printhead solenoid to J251 and the line feed solenoid or stepping motor to J252 on the PWB. Connect the mechanism ground cable.**
- e. Lower the rear mechanism slots over the rear mounting posts and press down the mechanism to engage posts. Pull the mechanism forward to engage the front slots and mounting posts and press down to engage the front posts.

4.4.7 KEYBOARD REMOVAL.

- a. Remove the inner cover as instructed in paragraph 4.4.3.
- b. Remove the keyboard bezel (Figure 4-1) by relieving the snap-on posts on the left and right ends of the keyboard and bezel.
- c. Press the keyboard assembly toward the rear of the terminal until the three front retainer clips are free of the keyboard.
- d. Lift the front of the keyboard assembly up and slide the keyboard assembly forward off the terminal.

- e. Disconnect the flexible cable from the top right rear of the keyboard.

4.4.8 KEYBOARD INSTALLATION.

- a. Lay the keyboard in front of the terminal and connect the keyboard flex cable connector (Figure 4-2) to the keyboard.
- b. Lift the keyboard and insert the rear edge into the three rear keyboard clips of the base while gently folding the cable beneath the keyboard.
- c. Push the keyboard toward the rear of the terminal until the front clips of the base are clear. Lower the front edge of the keyboard and release, inserting the front edge into the three front clips.
- d. Install the keyboard bezel by pushing down on the bezel until the two end posts snap into place.

4.4.9 FAN REMOVAL AND INSTALLATION.

- a. Unplug the fan cable connector from the PWB at J302 (Figure 4-2).
- b. Loosen both fan bracket screws.
- c. Slide the fan motor and blades forward and out of the bracket.

To install the fan complete the above steps in reverse order. Rotate the fan blades manually to ascertain freedom of movement: move the fan as needed.

4.4.10 PWB REMOVAL.

- a. Remove the inner cover (paragraph 4.4.3), keyboard (paragraph 4.4.7), mechanism (paragraph 4.4.5), and the mechanism mounting post springs and spacers.
- b. Slide the ac power receptacle out of its mounting slots.
- c. Remove the PWB by lifting it straight up.

4.4.11 PWB INSTALLATION. PWB installation is accomplished by reversing the order of removal.



Pay particular attention to the jumper plugs and the option PROM to ensure that the PWB replacement configuration is accurate. If there is any question of the correct configuration, refer to Table 4-1 for the jumpers needed for a particular configuration. See paragraph 4.4.14 for the option PROM replacement procedure.

4.4.12 PRINTHEAD REMOVAL. Refer to Figures 4-1, 4-2, and 4-3 for location of printhead components.

- a. Remove the inner cover as instructed in paragraph 4.4.3.
- b. Remove the mechanism assembly from the terminal (see paragraph 4.4.5).
- c. Remove the clip that secures the printhead flex cable to the front edge of the mechanism.
- d. Loosen the two screws which retain the printhead to the printhead carriage assembly.
- e. While lifting up on the printhead assembly, pull back on the printhead assembly.
- f. Gently remove the printhead assembly. (If the printhead will not come off, repeat steps d and e).

4.4.13 PRINTHEAD INSTALLATION. Refer to Figures 4-1, 4-2, and 4-3 for location of printhead components.

- a. Secure the printhead carriage wheel against the printhead pressure bar.
- b. Slide the printhead into position onto the printhead carriage, ascertaining that the plastic pins fit into the holes in the printhead assembly.

option, or APL keyboard option, or Full-ASCII and APL with ABM. The ABM option (only) and APL (with or without ABM) use an SN74S471 (256 x 8) PROM. The Full-ASCII keyboard option (with or without ABM option) uses an SN74S472 (512 x 8) PROM.

When the Option PROM is programmed only with the Full-ASCII keyboard, only one PROM is supplied, installed at network location U12. If the option PROM is programmed with the ABM option, two identical PROM's are supplied: one in use at network location U12 and a spare installed at network location U30. Two ABM Option PROM's are supplied

since the ABM message may be unique for each terminal.

Since the option PROM's are factory-programmed, replacements must be ordered from the factory or a local TI Field Service office. An order for an ABM option PROM must specify the ABM message desired. A label listing the unique customer-specified ABM message is attached to the *inside* surface of the *inner* cover (between acoustic coupler muffs on the Model 745 and in a similar position on the Model 743). The ABM message must be at least one character and not exceed 21 characters. PROM and keyboard replacement part numbers for ordering purposes are listed in Table 4-2.

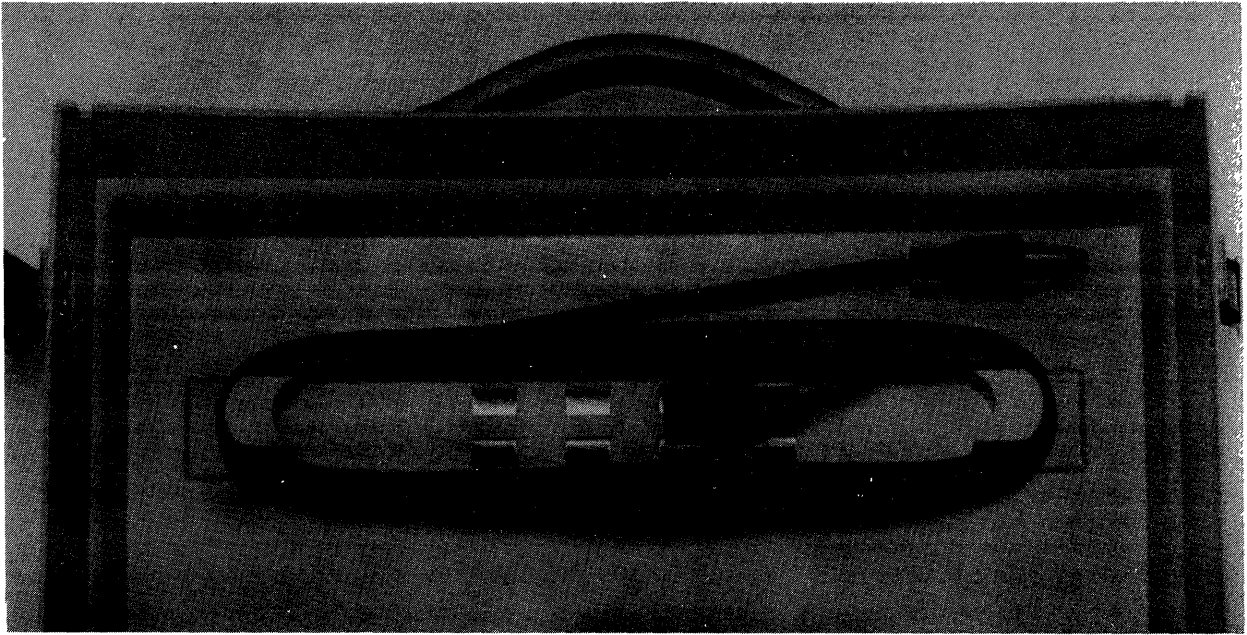
Table 4-2. Keyboard Kit and Option PROM Replacement Part Numbers

Option	TI Part Number (Use 6-Digit Part No. Plus 4-Digit Dash No.)					
	Keyboard Kit ¹ 984037 Plus . . .		Replacement PROM 983941 Plus . . .		Receive-Only Panel Kit 989734 Plus . . .	
	Without ABM	With ABM ²	Without ABM	With ABM ²	Without ABM	With ABM ²
Limited-ASCII (Standard)	-0001	-0101	N/R	-0101	N/R	-0101
Full-ASCII	-0002	-0102	-0002	-0102	-0002	-0102
APL/ASCII	-0020	-0120	-0020	-0120	N/A	N/A
Katakana ³	-0008	-0108	-0008	-0108	N/A	N/A
Katakana with 200 Baud ³	-0009	-0109	-0009	-0109	N/A	N/A
Katakana ⁴	-0010	-0110	-0010	-0110	N/A	N/A
Katakana with 200 Baud ⁴	-0011	-0111	-0011	-0111	N/A	N/A

N/R = Not Required; N/A = Not Available

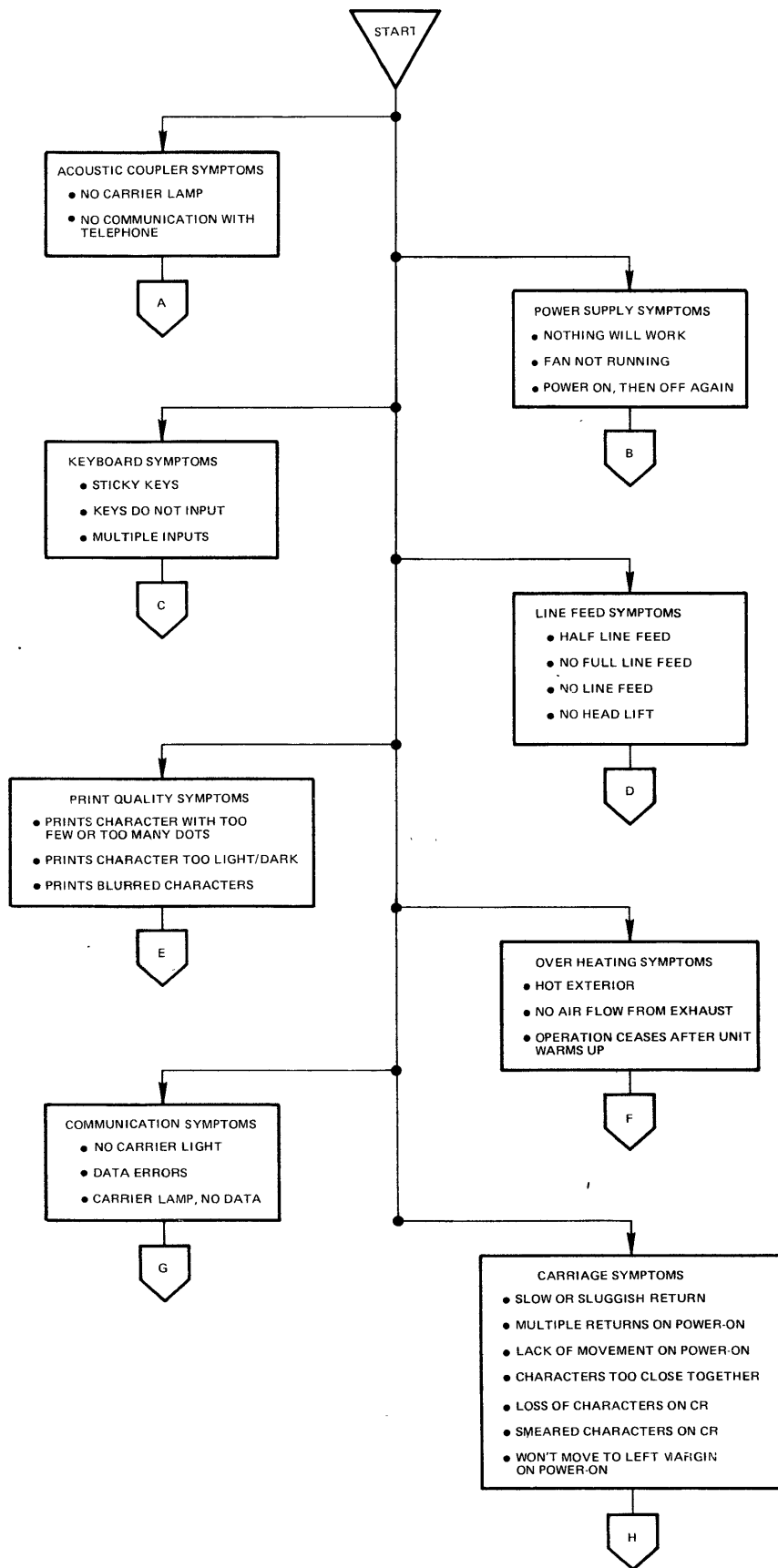
NOTES

- ¹The Keyboard Kit includes keyboard, PROM, and bezel.
- ²Specify ABM (answer-back memory) message with order.
- ³Used only with Electronics PWB 983841.
- ⁴Used only with Electronics PWB 937300.



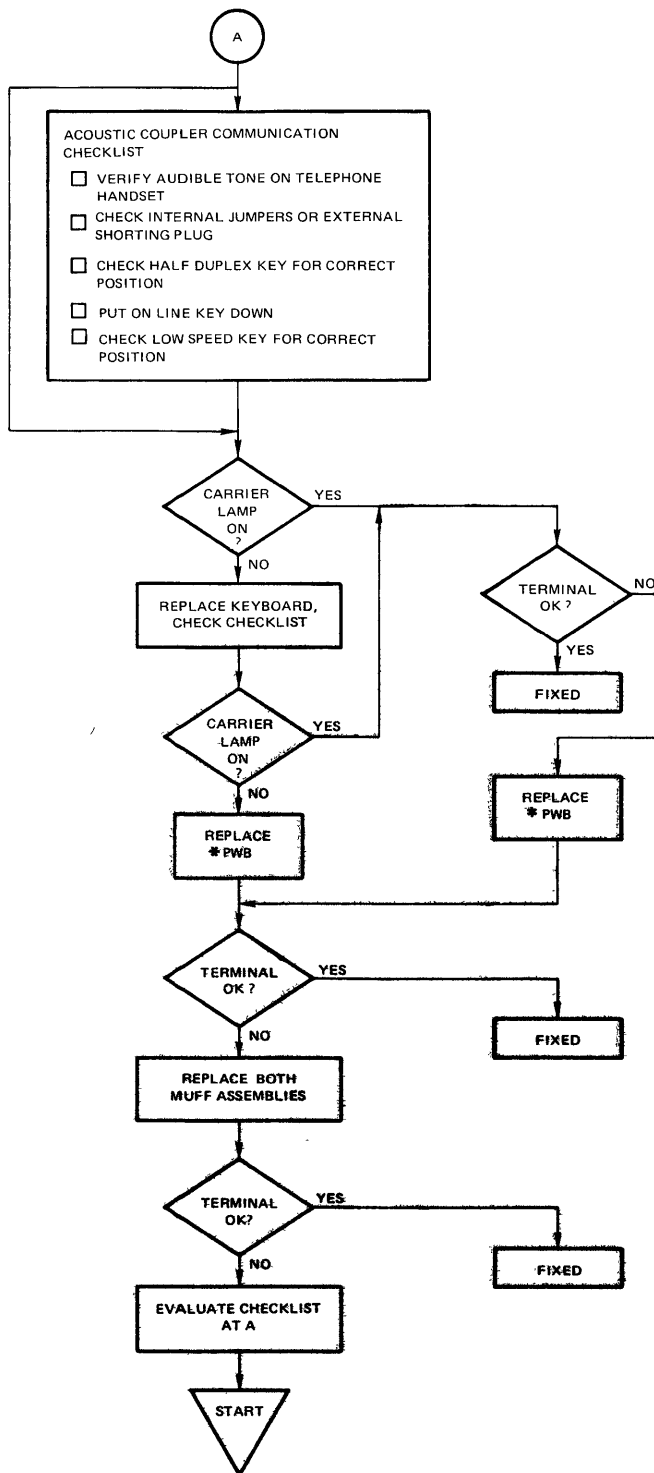
P100030

Figure 4-4. Power Cord Storage in 745 Outer Cover



A0001266

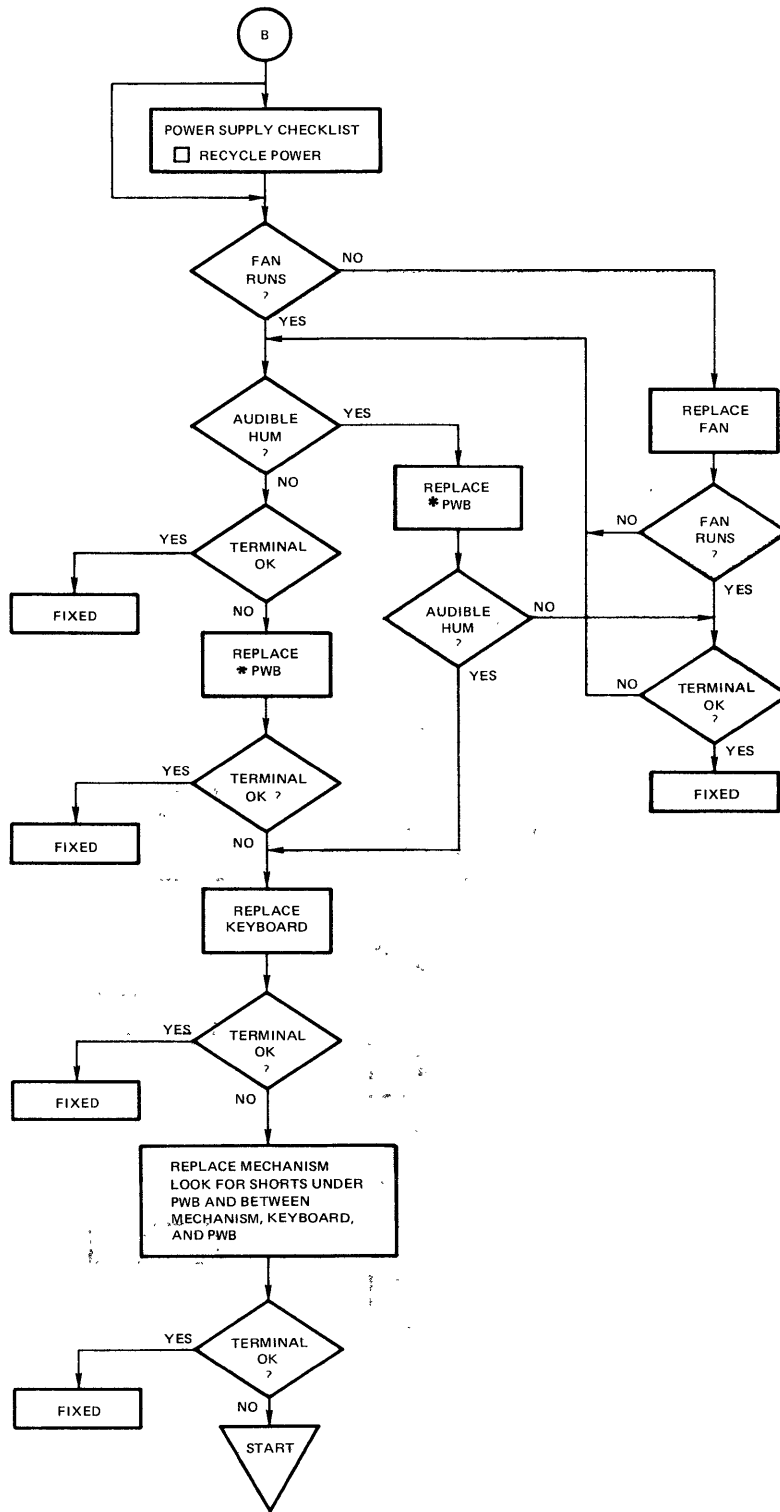
Troubleshooting Flow Diagrams



***NOTES**

1. When replacing PWB 937300, transfer ROM at U10 to new PWB.
2. When replacing either PWB assembly (983841 or 937300), transfer PROM at U12 & U30, if installed.

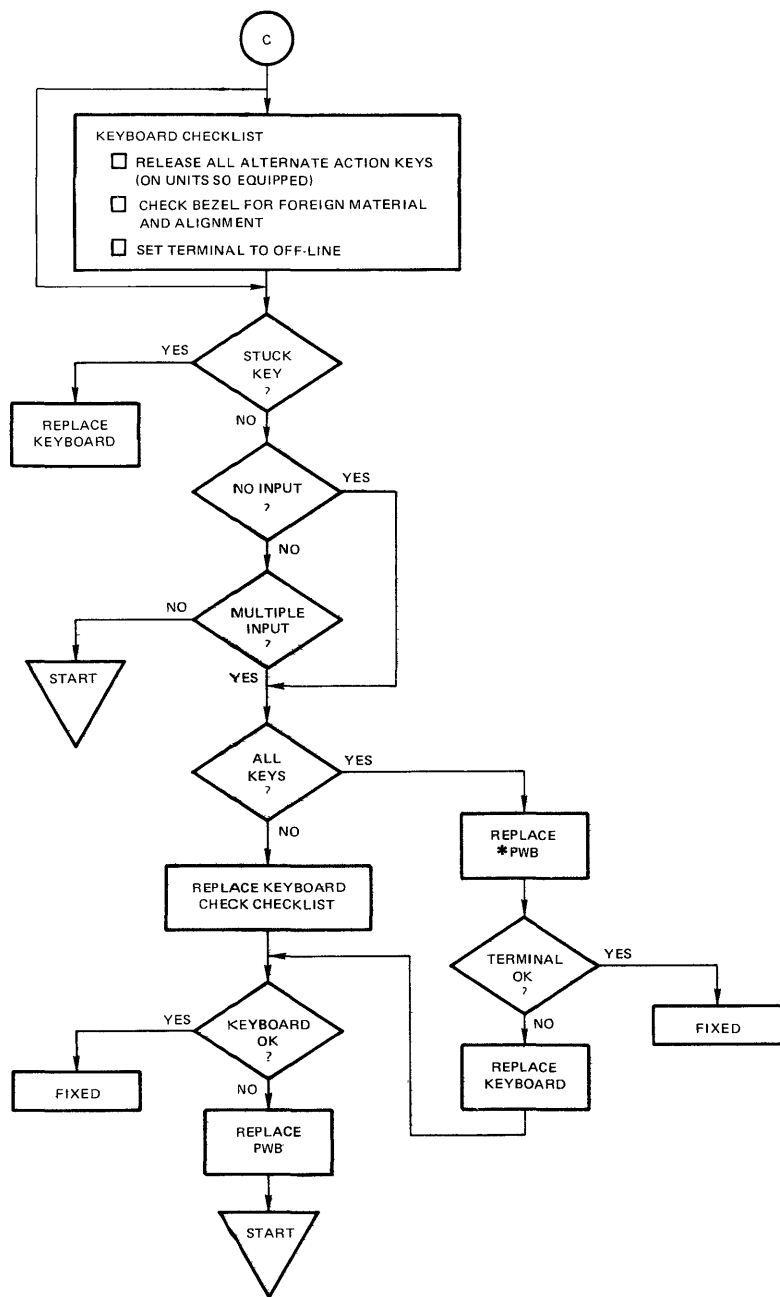
A0001361



*See Note, page 4-13

A0001362

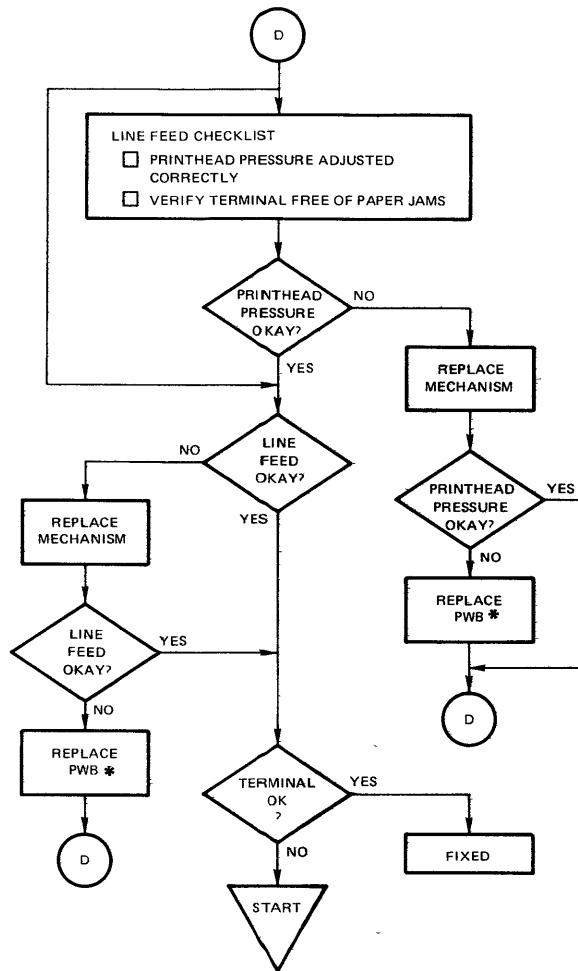
Troubleshooting Flow Diagrams



*See Note, page 4-13

A0001363

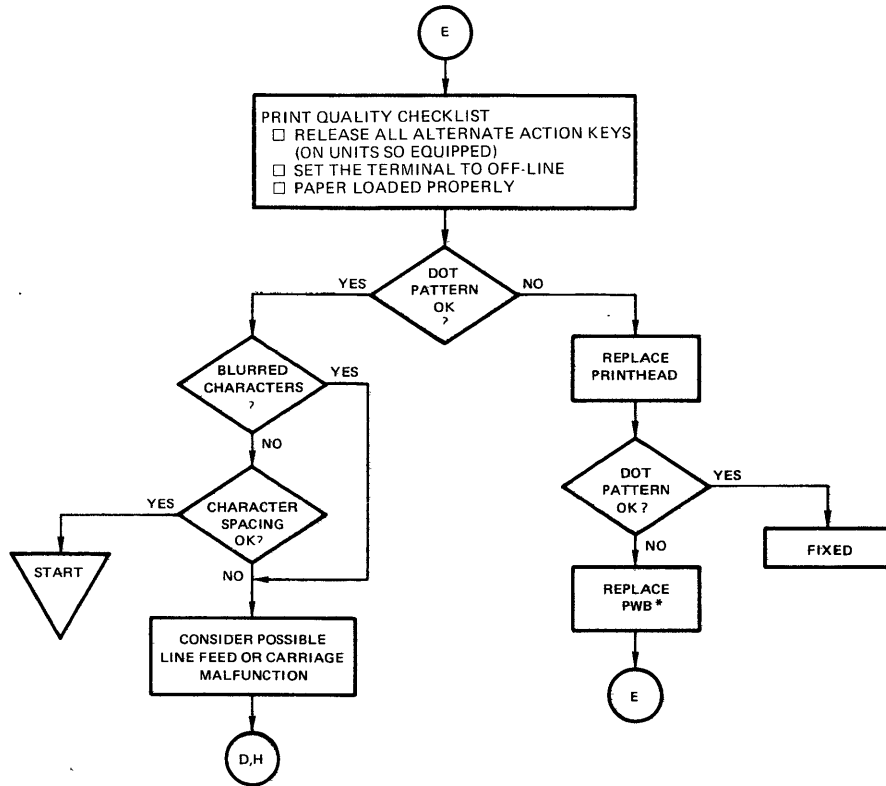
Troubleshooting Flow Diagrams



*See Note, page 4-13

A0001364

Troubleshooting Flow Diagrams

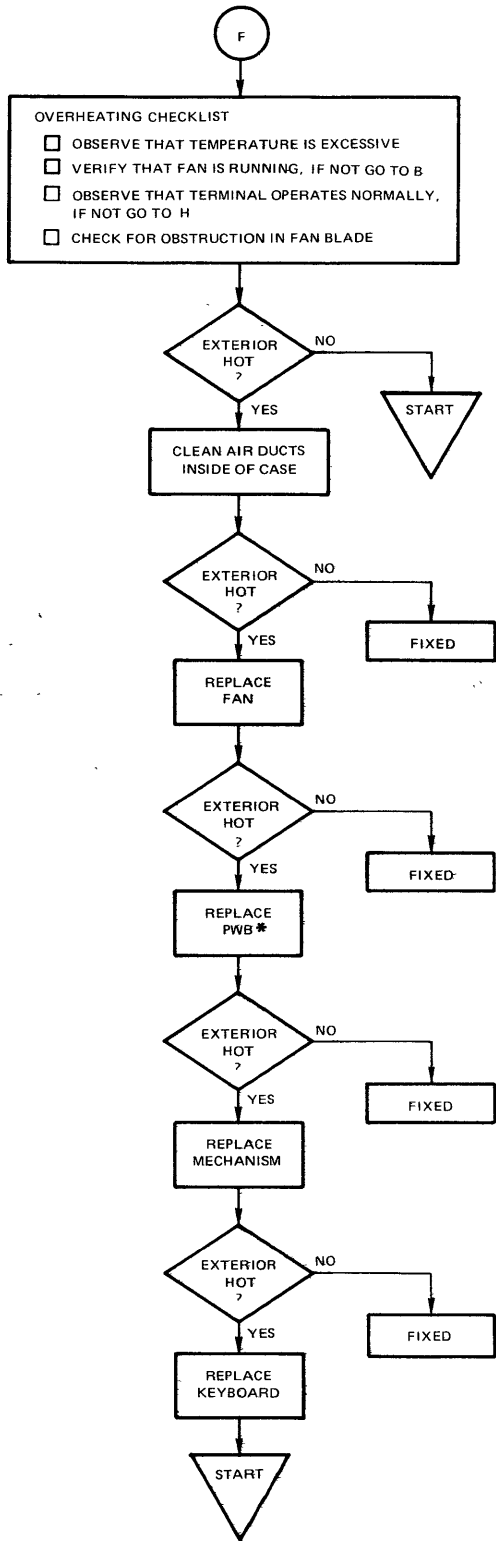


A0001365

*See Note, page 4-13

A0001365

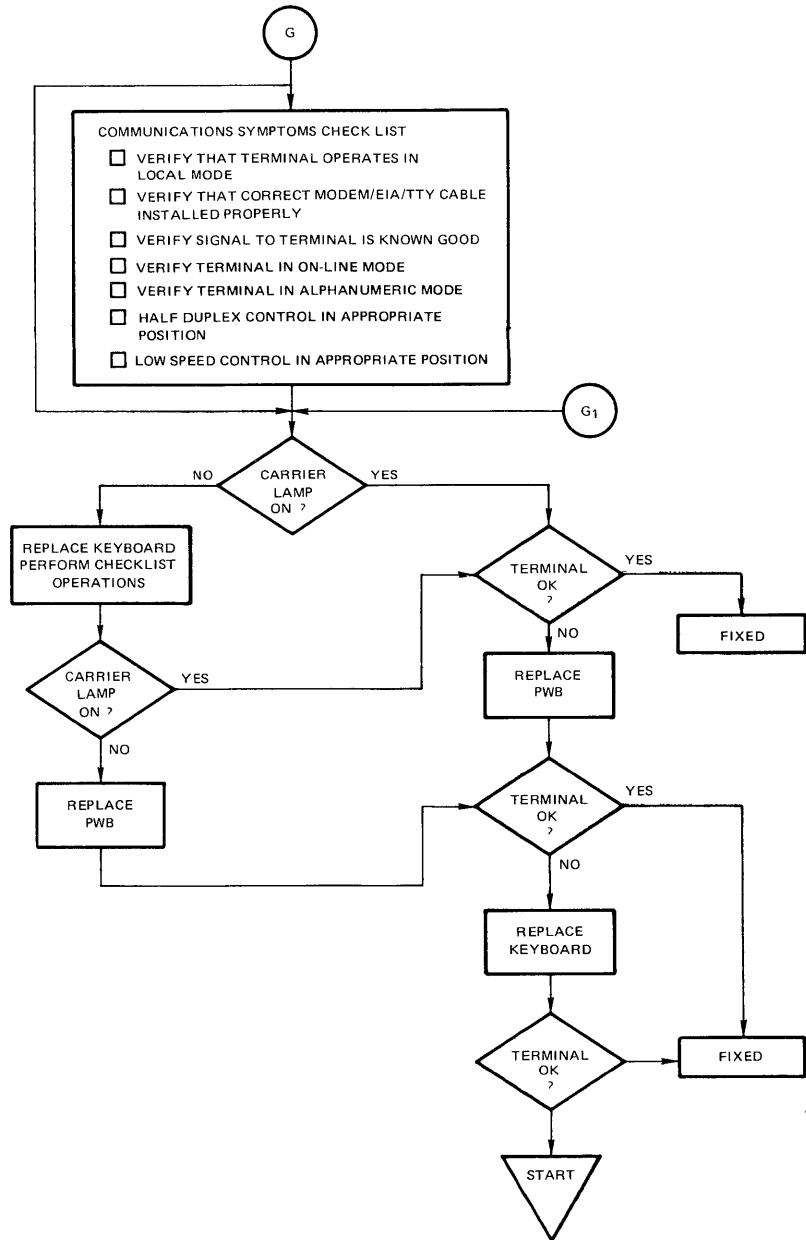
Troubleshooting Flow Diagrams



*See Note, page 4-13

A0001366

Troubleshooting Flow Diagrams

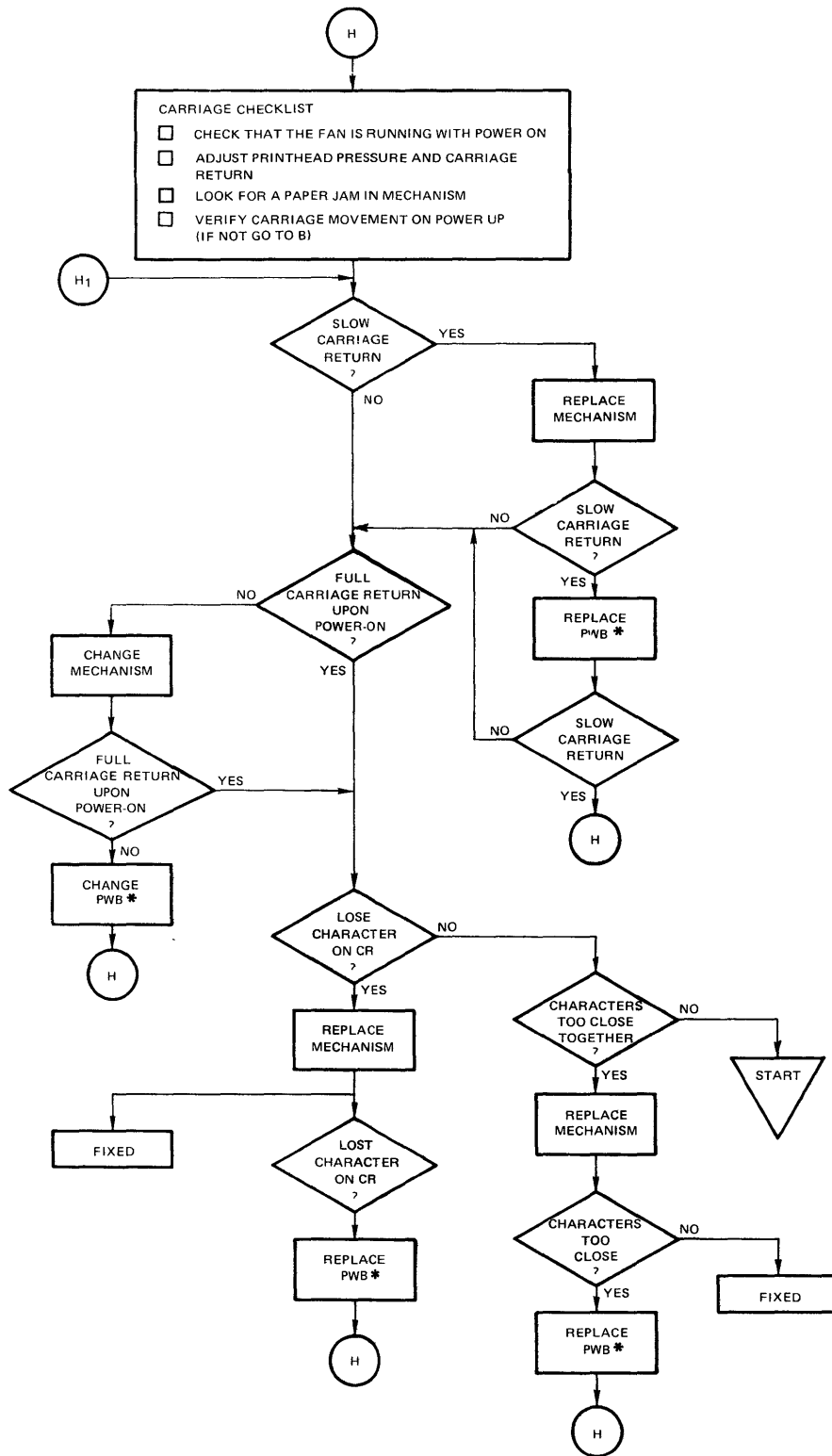


A0001367

*See Note, page 4-13

A0001367

Troubleshooting Flow Diagrams



*See Note, page 4-13

A0001368

Troubleshooting Flow Diagrams

MAJOR ASSEMBLIES AND PART NUMBERS

MODEL 743

MODEL 745

S/N 0X743YYYYY
VERSION

S/N 0X744YYYYY
VERSION

S/N 0X745YYYYY
VERSION

S/N 0X746YYYYY
VERSION

972674-1

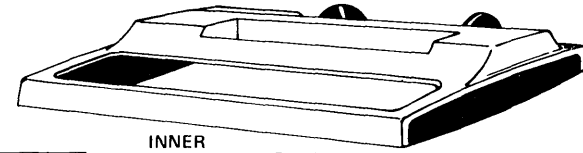
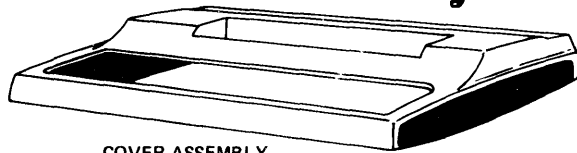
996289-2

972674-1

996289-2

POWER CORD

POWER CORD



983859-2

COVER ASSEMBLY

2200044-1

983808-1

INNER
COVER ASSEMBLY

999239-1

983833-1 (W/PRINTHEAD)
983911-1 (W/O PRINTHEAD)

PRINTER
MECHANISM

999264-1 (W/PRINTHEAD)
999257-1 (W/O PRINTHEAD)

983833-1

PRINTER
MECHANISM

999264-1 (W/PRINTHEAD)
999257-1 (W/O PRINTHEAD)

KEYBOARD*
(NO CHANGE)

KEYBOARD*
(NO CHANGE)

(PRINTHEAD)
983829-1

(PRINTHEAD)
983829-1

983841-2
(EIA/TTY)

PWB
ELECTRONICS
ASSEMBLY

937300-2
(EIA/TTY)

983841-1
(W/MODEM)

PWB
ELECTRONICS
ASSEMBLY

937300-1
(W/MODEM)

983807-1

BASE
ASSEMBLY

983807-2

983807-1

BASE
ASSEMBLY

983807-2

*APL keyboard option
available only on
S/N 744 and 746
versions.

APPENDIX

DRAWINGS AND LISTS OF MATERIALS FOR THE MODELS 743 AND 745 ELECTRONIC DATA TERMINALS

	TI Drawing No.	Page
Drawing Hierarchy Block Diagrams:		
For data terminal serial numbers 0X743YYYYY and 0X745YYYYY		A-3
For data terminal serial numbers 0X744YYYYY and 0X746YYYYY		A-4
Assembly Drawings and Schematics:		
Model 745 Portable Data Terminal (U.S., 115 V)	D0983801R	A-5
Model 743 KSR Data Terminal (U.S., 115V)	D0983802AD	A-9
Model 745 Portable Data Terminal (CCITT, 115 V)	D0983805K	A-12
Model 743 KSR Data Terminal (CCITT, 115V)	D0983806M	A-15
Printing Mechanism w/Printhead (Stepping Motor Line Feed Drive)	D0999264-0001C	A-18
Printing Mechanism w/o Printhead (Stepping Motor Line Feed Drive)	D0999257-0001F	A-20
Printing Mechanism w/Printhead (Solenoid Line Feed Drive)	D0983833E	A-24
Printing Mechanism w/o Printhead (Solenoid Line Feed Drive)	D0983811AB	A-26
Terminal Electronics PWB (For Stepping Motor Line Feed Drive)	D0937300N	A-30
Schematic	D0937298D	A-46
Terminal Electronics PWB (For Solenoid Line Feed Drive)	D0983841AL	A-56
Schematic	D0983842AB	A-74
Inner Cover, Model 745 (Round-Pin Power Connector)	D0983808M	A-85
Base Assembly, Model 745 (Round-Pin Power Connector)	D0983807-0001D	A-88
Inner Cover, Model 745 (Rectangular Pin Power Connector)	D0999239D	A-90
Base Assembly, Model 745 (Rectangular Pin Power Connector)	D0983807-0002D	A-88
Outer Cover, Model 745	D0983809A	A-94
Cover, Model 743 (Round-Pin Power Connector)	D0983859D	A-96
Base Assembly, Model 743 (Round Pin)	D0983807-0002D	A-88
Cover, Model 743 (Rectangular-Pin Power Connector)	D2200044C	A-96
Base Assembly, Model 743 (Rectangular Pin)	D0983807-0002D	A-88
Paper Drive Motor (Stepping Motor)	D2200045B	A-101
Printhead Drive Motor (All Models)	D0983812E	A-103
Printhead Drive Feedback Sensor	C0983814B	A-105
Printhead Assembly	B0983829	A-107
Fan Assembly	C0983825B	A-109

– CONTINUED –

	TI Drawing No.	Page
Cable Drawings:		
Shorting Plug for 745 w/Auxiliary Coupler	B0983846H	A-111
EIA/Auxiliary Coupler, Model 745	C0983847L	A-113
EIA Interface (to 103A), Model 743	C0983848G	A-115
Modem, for Model 743 w/Modem (CDT DAA Interface Only)	C0983849J	A-117
Current Loop, Model 743, TTY Only	C0983850J	A-119
Bell Systems, 113A Interface, Model 743	C0983854G	A-121
EIA/Auxiliary Modem, Model 743	D0983855E	A-123

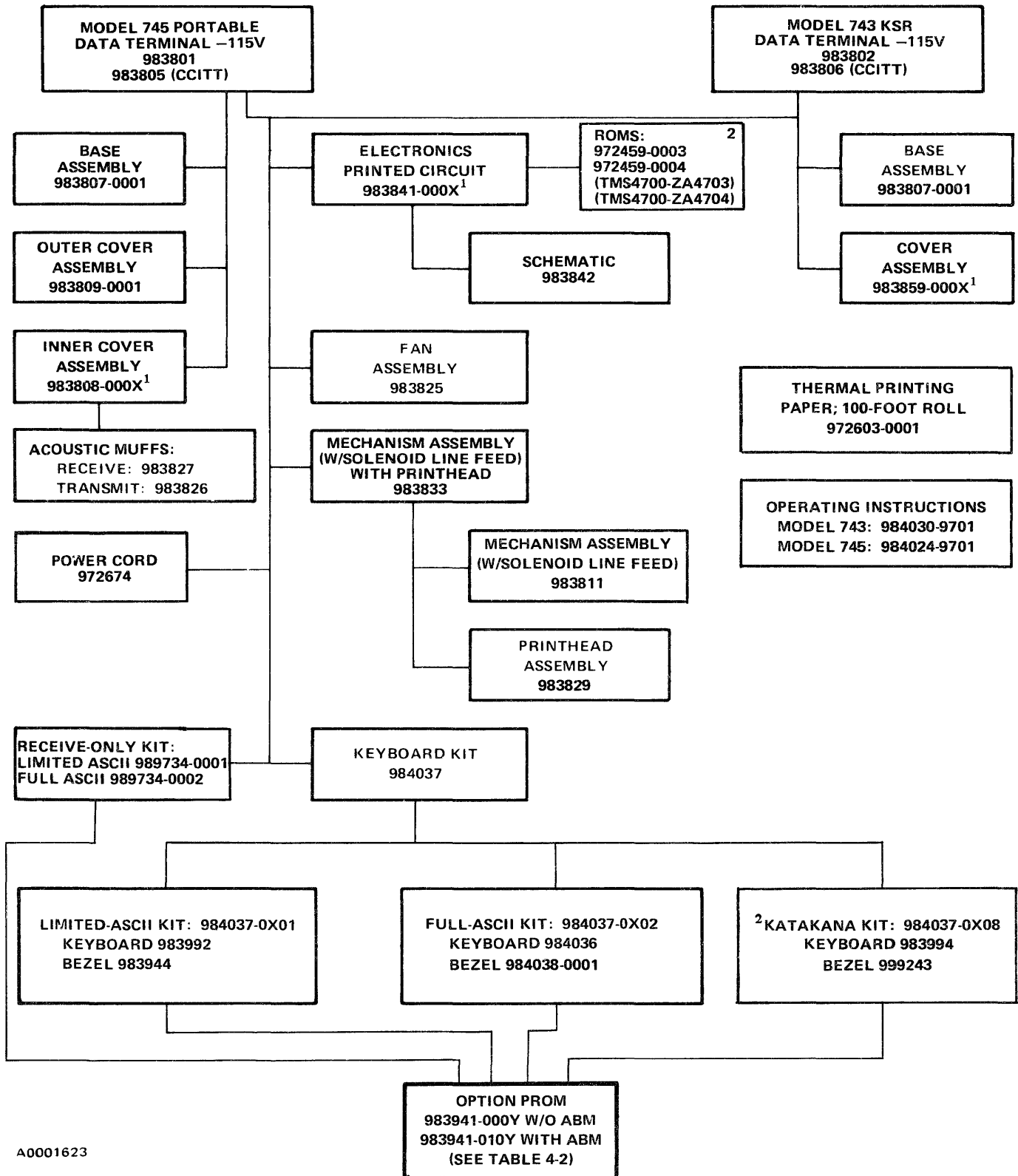
NOTE

When ordering any parts for your data terminal, please include the serial number of your unit. The serial number label is attached to the rear of the terminal next to the power cord connector.

DRAWING HEIRARCHY BLOCK DIAGRAM

TERMINAL WITH SOLENOID
LINE FEED MECHANISM

SERIAL NOS { 0X743 YYYYYY (MODEL 743) }
{ 0X745 YYYYYY (MODEL 745) }



A0001623

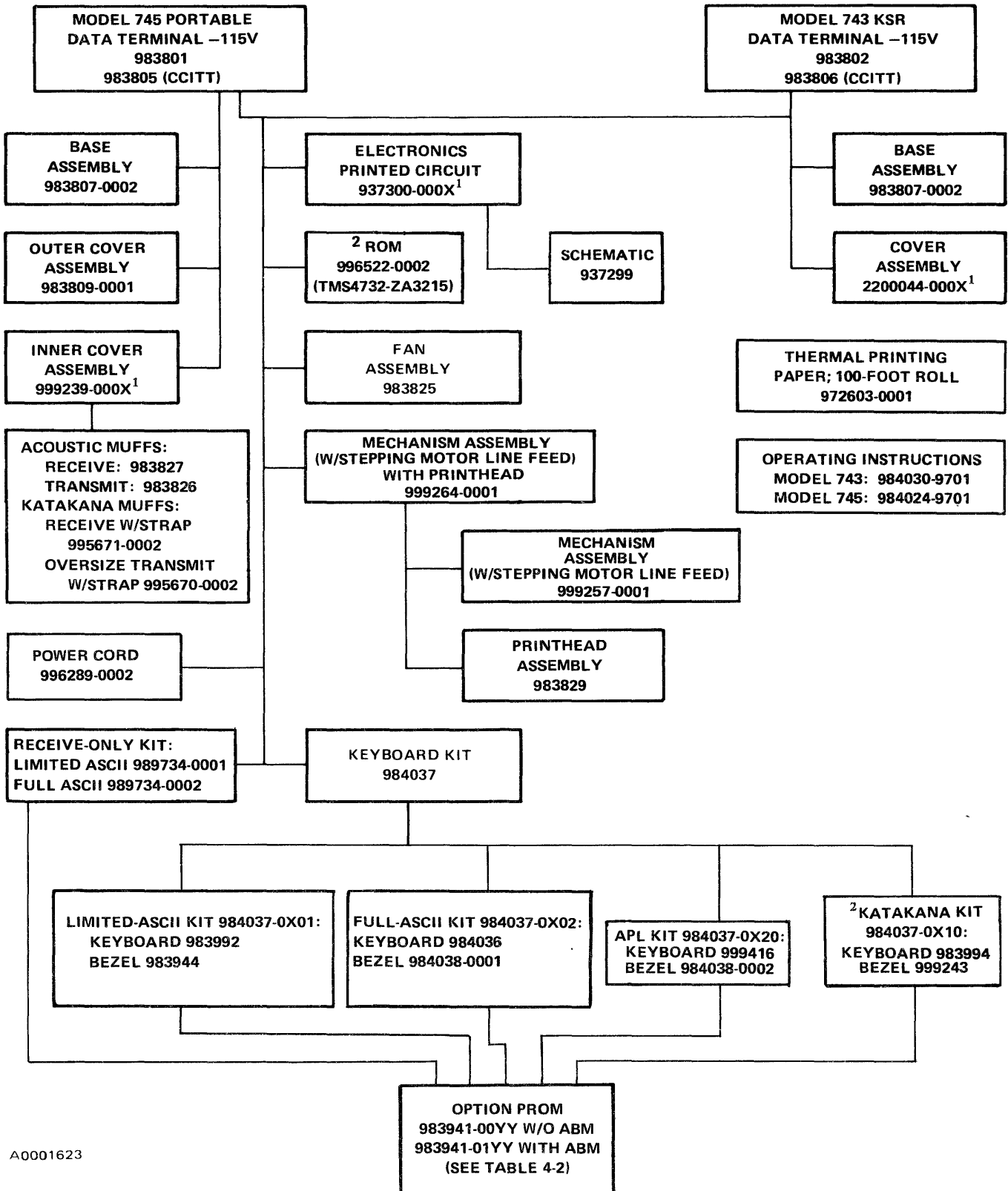
NOTES

¹ Where a dash number is indicated as -0G0X, see the appropriate next assembly drawing for the correct dash number.

² ROM set 972459-0005/972459-0006 (TMS4705/4706) is required when using Katakana Keyboard Kit 984037-0008.

DRAWING HEIRARCHY BLOCK DIAGRAM
 TERMINAL WITH STEPPING MOTOR
 LINE FEED MECHANISM

SERIAL NOS. { 0X744 YYYYY (MODEL 743) }
 { 0X746 YYYYY (MODEL 745) }

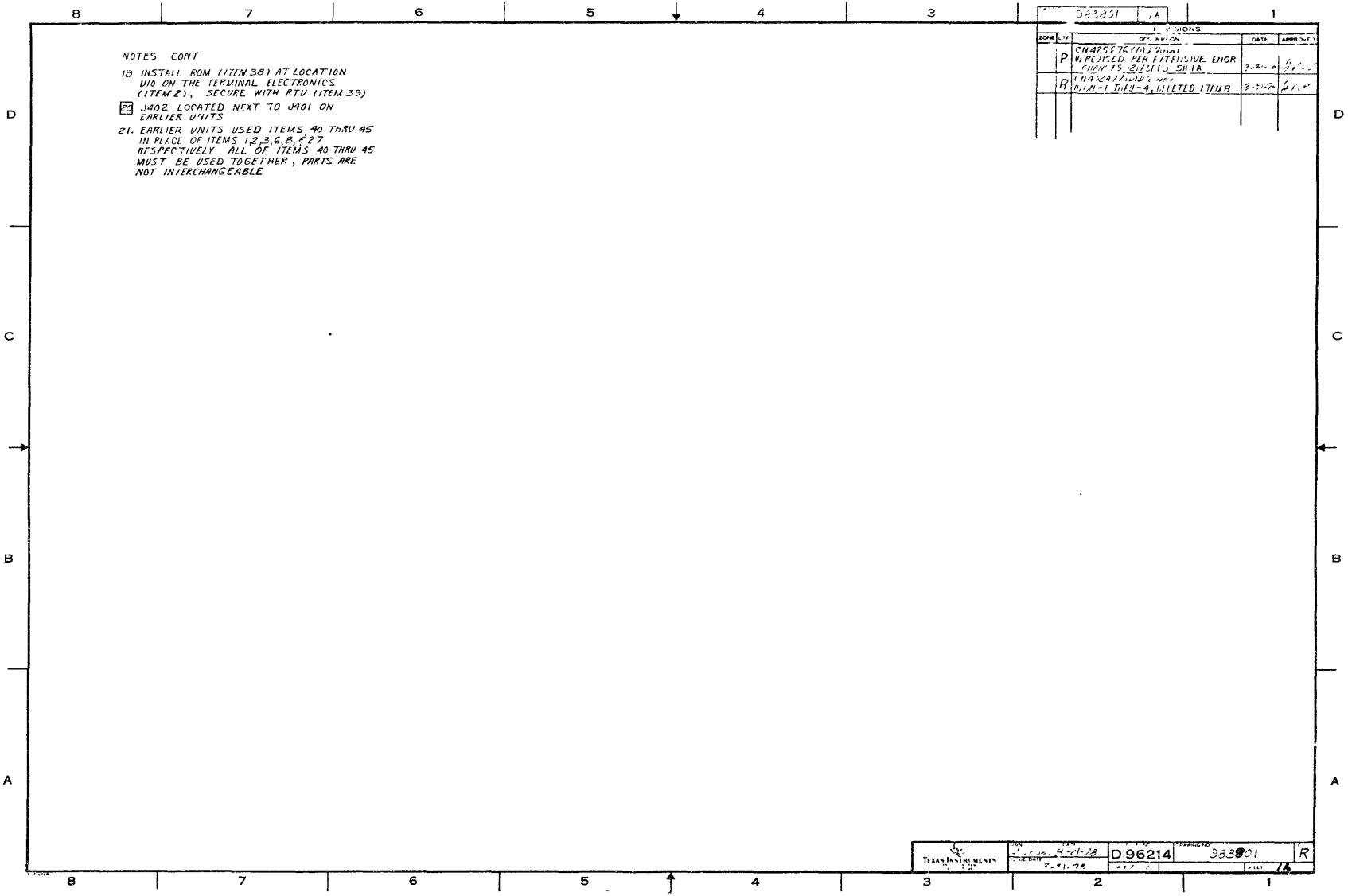


A0001623

NOTES

- ¹ Where a dash number is indicated as -000X, see the appropriate next assembly drawing for the correct dash number.
- ² ROM P/N 996522-0003 (TMS4732-ZA3213) is required when using Katakana Keyboard Kit 984037-0010.

A-6



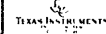
NOTES CONT

19. INSTALL ROM (ITEM 38) AT LOCATION
V10 ON THE TERMINAL ELECTRONICS
(ITEM 2), SECURE WITH RTU (ITEM 39)

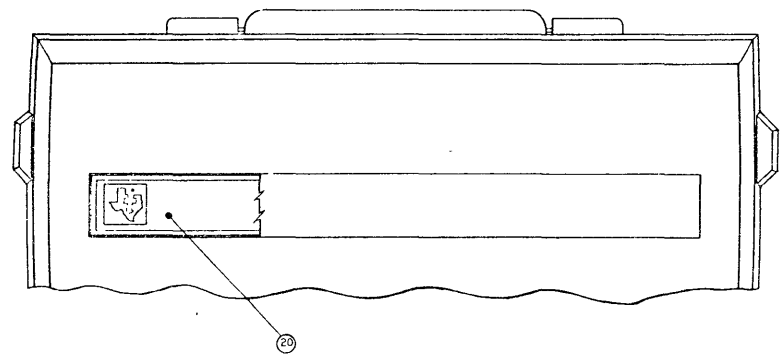
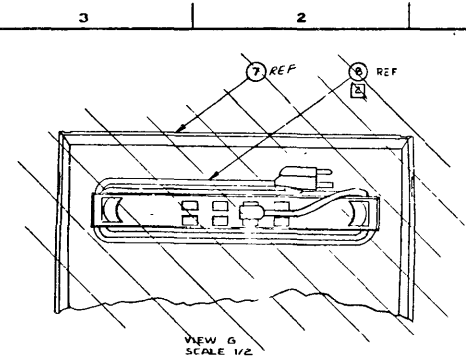
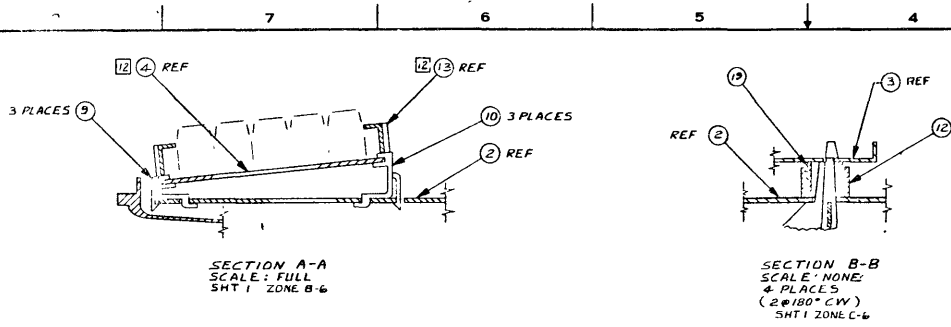
20. J402 LOCATED NEXT TO J401 ON
EARLIER UNITS.

21. EARLIER UNITS USED ITEMS 40 THRU 45
IN PLACE OF ITEMS 1, 2, 3, 6, 8, & 27
RESPECTIVELY. ALL OF ITEMS 40 THRU 45
MUST BE USED TOGETHER, PARTS ARE
NOT INTERCHANGEABLE.

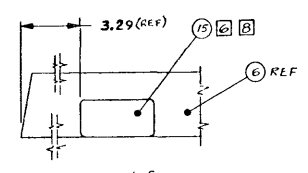
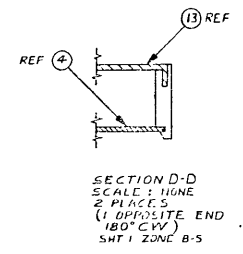
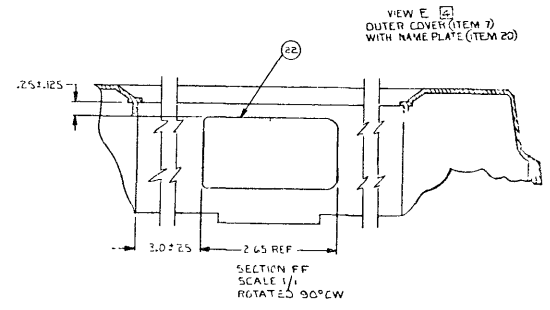
383801 1A		REVISIONS	
ZONE	DESCRIPTION	DATE	APPROVED
P	CH 425876 (11/2) REVISION REPLACED PER INTENSIVE ENGR CHANGING SELECTOR SW IA.	3-2-74	JA
R	SW IA-1 TRU-4, DELETED ITEM B	3-2-74	JA


 TEXAS INSTRUMENTS
 D 96214 383801 R
 FILE DATE: 3-9-74

A-7



CABLE/JUMPER PLUG HOOK-UP SCHEDULE				REMARKS
	DESCRIPTION	START	FINISH	
1	ITEM 5 FAN ASSY	P302	P3-J302	
2	(ITEM 3) PRINTHEAD	P101	P1-J101	PRINTHEAD INCLUDED WITH ITEM 3
3	ITEM 4 KEYBOARD ASSY	W1P1	KYB0-W1P1	
4	POWER CORD (1/4 5755 29 00013 0011 0012 REF P301)		PWB-J301	POWER CORDS TYPED PART D IN PART B OF SPEC. 1-11-11
5	(ITEM 6) SPEAKER	P401	-J401	SPEAKER INCLUDED WITH ITEM 3
6	(ITEM 6) MICROPHONE	P402	-J402	MICROPHONE INCLUDED WITH ITEM 3
7	(ITEM 3) MOTOR DRIVE	P201	-J201	INCLUDED WITH ITEM 3
8	(ITEM 3) HEAD LIFT SOL	P251	-J251	CARRIER MODELS USED
9	(ITEM 3) LINE FEED MOTOR	P252	-J252	LINE FEED SOLENOID
10	(ITEM 3) SENSOR	P1	PWB-J1	
11	ITEM 11 JUMPER PLUG	PWB-E401	PWB-E404	INTERNAL JUMPER PLUGS ARE INSTALLED ON -00014-0162 ASSEMBLIES ONLY
12	ITEM 11 " "	PWB-E402	PWB-E405	
13	ITEM 11 " "	PWB-E403	PWB-E406	



D 95214 983001

D 983601

LIST OF MATERIALS

Assembly DATA TERMINAL, 745 PORTABLE, STANDARD, W/O KEYBOARD DATA TERMINAL, 745 PORTABLE, W/AUXILIARY COUPLER, W/O KEYBOARD	Part No Rev 0983801 0003 R 0983801 0004 R
---	--

Item No.	Quantity	EA	TI Part No.	Description	Remarks
0001	00001.000	EA	0983807-0002	BASE ASSY, 743/745, RECT CONTACT PWR CONN	
0002	00001.000	EA	0937300-0001	TERMINAL ELECTRONICS, 743/745 W/MODEM	
0003	00001.000	EA	0999264-0001	MECHANISM ASSY, STEPPER MOTOR, W/PRINTHD	
0005	00001.000	EA	0983825-0001	FAN ASSY	
0006	00001.000	EA	0999239-0001	COVER ASSY, INNER, 745/765, W/XMIT ADJUST	
0007	00001.000	EA	0983809-0001	OUTER COVER ASSY	
0009	00003.000	EA	0983905-0001	CLIP, KEYBOARD, FRONT	
0010	00003.000	EA	0983904-0001	CLIP, KEYBOARD, REAR	
0011	00003.000	EA	0972487-0001	JUMPER PLUG, CONNECTOR BLACK	for 0003 only
0012	00004.000	EA	0983907-0001	SPACER, SPRING	
0014	00001.000	EA	0983863-0001	BRACKET, FAN MOTOR	
0015	00001.000	EA	0999231-0001	PLATE, IDENTIFICATION-BLANK	
0015A				983903-1 CAN BE USED AS ALT	
0016	00004.000	EA	0972988-0019	SCREW 4-40 X .750 PAN HEAD CRES	
0017	00002.000	EA	0972679-0009	SCREW #4-20 X 3/8" LG THD FORM, HEX	
0018	00002.000	EA	0411101-0057	LOCKWASHER # 4 EXTERNAL TOOTH CRES	
0019	00004.000	EA	0419346-0342	HELICAL COMPRESS SPRING	
0020	00001.000	EA	0983914-0001	NAMEPLATE, OUTER COVER	
0022	00001.000	EA	0960141-0001	LABEL, SERVICE	
0023	REF	EA	0989481-9901	TEST PROCEDURE SIL III FINAL TEST STA	
0024	REF	EA	0993876-9901	TEST PROCEDURE, RUN-IN 743/745	
0025	REF	EA	0984031-9901	TEST PROCEDURE, MANUAL 743/745	
0027	00001.000	EA	0937304-0001	COVER, SAFETY	
0033	00001.000	EA	0937322-0001	TERM ACCESS KIT, 745 PORTABLE, STD	
0035	REF	EA	0984025-9701	MANUAL, MAINTENANCE, 745/743	
0038	00001.000	EA	0996522-0002	IC, TMS4732NL-ZA3215, 4096 X 8-BIT ROM	
0039	AR	TU	0417559-0001	SILICONE RUBBER (RTV) DOW 3140	
0040	00000.000	EA	0983807-0001	BASE ASSY, 743/745, ROUND CONTACT PWR CONN	
0040A				USED ON EARLIER MODELS	
0041	00000.000	EA	0983841-0001	TERMINAL ELECTRONICS, 745 W/ACOUSTIC CPLR	
0041A				USED ON EARLIER MODELS	
0042	00000.000	EA	0983833-0001	MECHANISM ASSEMBLY WITH PRINTHEAD	
0042A				USED ON EARLIER MODELS	
0043	00000.000	EA	0983808-0001	COVER ASSY, WITH XMT LEVEL ADJUSTMENT	
0043A				USED ON EARLIER MODELS	
0044	00000.000	EA	0972674-0001	CABLE #18 AWG 3 COND POWER, ELECTRICAL	
0044A				USED ON EARLIER MODELS	
0045	00000.000	EA	0983911-0001	COVER, SAFETY	
0045A				USED ON EARLIER MODELS	

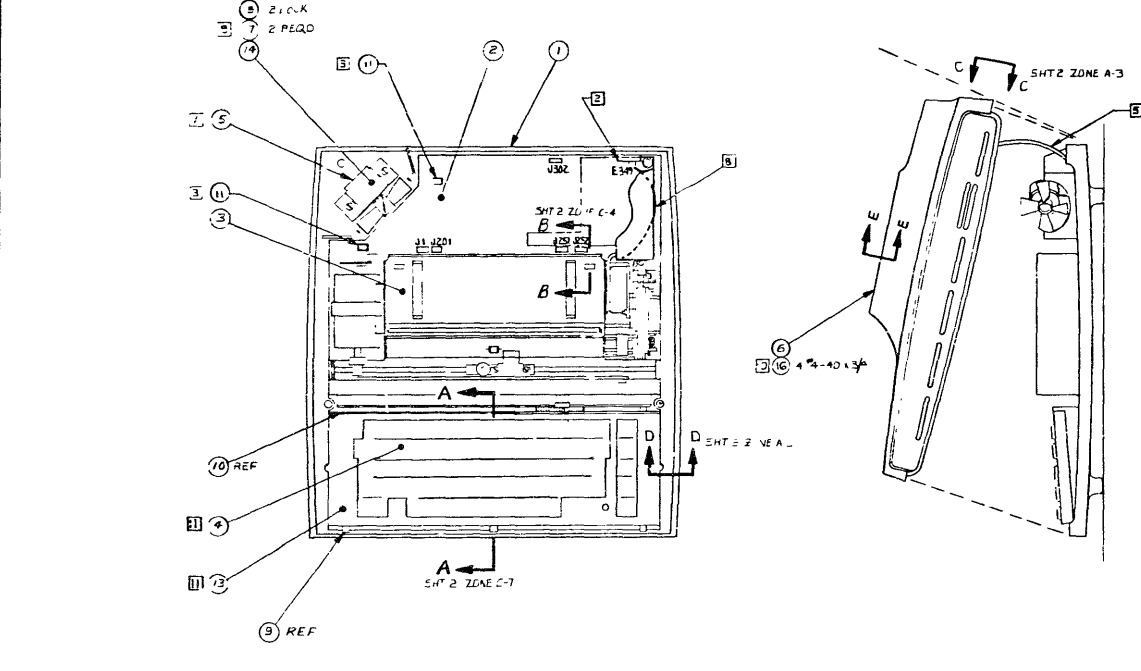
8 7 6 5 4 3 2 1

NOTES (CONTINUED FROM ZONE D-6)
 - MAX GAP BETWEEN OUTER RIB ON SIDE INSERT AND BASE SHALL BE .040 IN.
 15 THERE SHALL BE .050 IN. LIMIT TO LATERAL GAP BETWEEN THE SIDE INSERT AND BASE OF INNER COVER THERE SHALL BE .050 IN. LIMIT TO THE RADIAL GAP BETWEEN THE SIDE INSERT AND BASE OF INNER COVER.
 17 EARLIER JTS USING ITEMS 21-7-RUBS WERE SERIALIZED BY 743 YYY. JTS USING ITEMS 21-7-RUBS ARE SERIAL NO. SERIES 743 YYY.
 (NOTES CONT SHZ 2)

NOTES CONTINUED ZONE D-4
 1 POWER CORD, ITEM B, SHIPPED LOOSE.
 2 ATTACH GROUND CABLE FROM E34P TO ITEM 3 PRIOR TO INSTALLING ITEM 6.
 3 TIGHTEN TO 3.5 IN LBS.
 4 TIGHTEN TO 5 IN LBS.
 5 KEYBODIES, INSERT INCLUDED ON -0001 & -0002 ONLY; SEE V.M. FOR REFERENCE ONLY ON -0003 & -0004.
 6 ~~SEE DRAWING FOR DIMENSIONS AND TOLERANCES~~
 13 MAX GAP BETWEEN OUTER RIB ON SIDE INSERT AND INNER COVER SHALL BE .060 IN.
 (NOTES CONTINUE ZONE D-8)

NOTES UNLESS OTHERWISE SPECIFIED
 1 INSTALL PAN (ITEM 5) AND POSITION SO THAT THE BRACE IS CENTERED BETWEEN THE PAN AND BRACKET (ITEM 1) USING THE P/W (ITEM 2).
 2 INSURE JOINT OF THE PANE ASSY (ITEM 2) IS INSTALLED IN RETAINING SLEETS IN ITEMS 1 AND 6 BEFORE INSTALLING ITEM 10.
 3 INTERNAL JUMPEPS (ITEM 11) INSTALLED ON -0002 & -0004 ASSEMBLY ONLY.
 4 KEEP WIFES CUT OF FAN AND OFF HEATSINK WHEN INSTALLING ITEM 6.
 5 FOR -0001 & -0002, ITEM 15 WILL BE MARKED PER 799231-0015 FOR -0002 & -0004 ITEM 15 WILL BE MARKED PER 999231-0015.
 (NOTES CONTINUE ZONE D-6)

ZONE	REV	DESCRIPTION	DATE	APPROVED
A	409921 (C)	ADD L. ATLY CABLE P LTR IN L	11/03/76	
B	410030 (C)	DELETED (ITEM 20) P/N 383914-0001	11/03/76	
C	409914 (C)	ITEM 22, WAS LOCATED ON RIGHT SIDE BELOW TOP SURFACE. LOC REF SIDE OF LABEL CENTERED ON FLAT SURFACE.	11/03/76	
D	410069 (C)	1 ADDED NOTE 2 ZONE D, 6 CALLOUT ZONE D, 7 2 ADDED NOTE 3 ZONE D, 6 CALLOUT ZONE D, 6 3 ADDED ITEMS 28, 29, 29A TO LHM 4 CHANGED ITEM 17 (CALLOUT 27) HAS 982483-0002	11/03/76	
E	409987 (C)	11 NOTE 4 WAS [] ATLY ITEM IS TO NON TEXTURED AREA 21.541 BOTH VIEWS AND 21.2 SECTION A-A REMOVED COVER SUPPORTING MEMBER ON BASE PLURAL (FRONT REAR OF CASE) 3) LM -0001 & -0002 ITEM 1 P/N WAS 983017-0001 4) LM -0001 & -0002 ITEM 1 P/N WAS 333858-0002	11/03/76	
F	410011 (C)	11 NOTE 4 WAS [] ATLY ITEM IS TO NON TEXTURED AREA 21.541 BOTH VIEWS AND 21.2 SECTION A-A REMOVED COVER SUPPORTING MEMBER ON BASE PLURAL (FRONT REAR OF CASE) 3) LM -0001 & -0002 ITEM 1 P/N WAS 983017-0001 4) LM -0001 & -0002 ITEM 1 P/N WAS 333858-0002	11/03/76	
G	407954 (C)	11 FLAG NOTE 10 WAS 'TIGHTEN 5.5 IN LBS, 2) LM -0001/0002 ITEM B P/N HAS 537408-0001, 3) -0002 TITLE WAS KSP W/MODEM, ADDED ITEM 7 P/N 983616-0001	11/03/76	
H	413911 (C)	ON BOTH LHM: ADDED ITEM 27 (-0001 & -0002)	11/03/76	
I	415131 (C)	2) ADDED FLAG NOTE [] 1) 3) IN CH. 1 FLAG NOTE [] CHANGE 1301 TO E34P 3) RET. CONT. ZONE B-1	11/03/76	



PART NUMBER	DESCRIPTION
983802-0001	DATA TERMINAL, 743 KSR, EIA/TTY
983802-0002	DATA TERMINAL, 743 KSR, W/MODEM
983802-0003	DATA TERMINAL 743 KSR, EIA/TTY, W/O KYBD
983802-0004	DATA TERMINAL 743 KSR, W/MODEM, W/O KYBD

NOTES CONTINUE ZONE B-1
 J REV CLNT ECN 415181
 4) CHANGED FLAG NOTE [] WAS
 ADD THE FOLLOWING INFORMATION TO IT IS PRIOR TO APPLYING:
 DASH 0001, MODEL 743 KSR, EIA/TTY, 50/60HZ,
 983802-0001, 115V, 160W, 5/N KXKX
 DASH 0002, MODEL 743 KSR, W/MODEM, 50/60HZ,
 983802-0002, 115V, 160W, 5/N KXKX
 3) LM-1-1-2
 IT 4 P/N WAS 984015-1, IT 13/P/N WAS 783989-1
 ADDED ITEMS 28, 28A, 29, 29A, 29B
 K) 416929 (C) 11/03/76
 1) DESCRIPTIONS ON -0001, 0003 WERE:
 MODEL 743 KSR, EIA/TTY
 2) DESCRIPTIONS ON -0002, -0004 WERE:
 MODEL 743 KSR, W/MODEM
 L) 416944 (D) 11/03/76
 ADDED ITEM 31831A TO LM
 -0001E-0002 ONLY

TOP VIEW WITH INNER COVER (ITEM E) REMOVED FOR CLARITY

REV	STATUS	REV	AP	AD
1	REVISED	1	APPROVED	APPROVED

(NOTES CONT SHZ 2, ZONE D)

QTY	ITEM	CODE	PART OR IDENTIFYING NUMBER	HOMOLOGATION OR DESCRIPTION	PROCUREMENT SPECIFICATION
1	1				

SYMBOL	IDENT	PROCESS	SPEC	NO	ADDITIONAL CLASSIFICATION

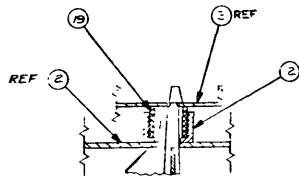
QTY	ITEM	CODE	PART OR IDENTIFYING NUMBER	HOMOLOGATION OR DESCRIPTION	PROCUREMENT SPECIFICATION
1	1				

A-9

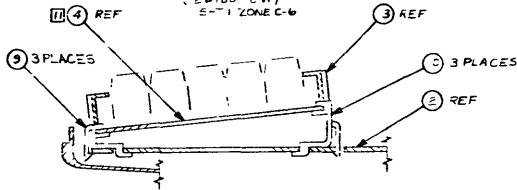
283802

A

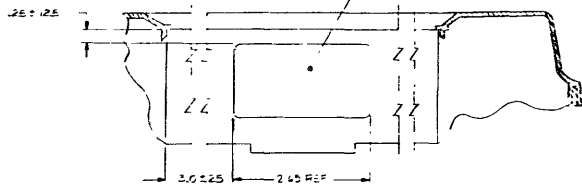
NOTES:
 B. PARTS BY "EM" LOCATED ON D.D.
 C. PARTS BY "CAL" ELECTRONICS (ITEM 2);
 SECURE - BY ITEM 3;
 D. EARLIER ISSUED ITEMS - RJ45 IN
 PLACE OF ITEMS 2 & 3; FEED - VELY;
 ALL OF ITEMS 2 THROUGH 5, BE ISSUED
 TOGETHER; PARTS ARE NOT INTERCHANGEABLE.



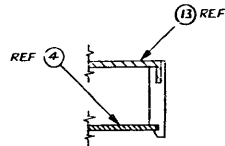
SECTION B-B
 SCALE: NONE
 4 PLACES
 (20.80" CW)
 SHT 1 ZONE C-6



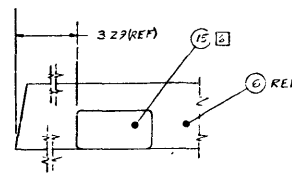
SECTION A-A
 SCALE: FULL
 SHT 1 ZONE B-6



SECTION E-E
 SCALE: NONE
 ROTATED 90° CW



SECTION D-D
 SCALE: NONE
 2 PLACES
 (1 OPPOSITE END
 180° CW)
 SHT 1 ZONE B-5



VIEW C-C
 SCALE: NONE
 SHT 1 ZONE C-4
 ROTATED 30° CW

REVISIONS			
ZONE/LIN	DESCRIPTION	DATE	APPROVED
Y	EN 427249 (C) R. P. ... NLM FOR 2.3 TEM'S HP- 21389-002	8-8-77	[Signature]
N	EN 427372 (C) R. P. ... 4 ONLY IT 2 HUI WAS P21841-00-1 121 DELETED FF.M L/M - 4 ONLY IT 11 WAS 372487-0021	8-11-77	[Signature]
P	EN 427760 (C) R. P. ... ON-2 L/M ITEM 2 1/MS 28336-11	8-11-77	[Signature]
P	EN 427760 (C) R. P. ... REVISOR'S NOTE 6(2) SMALL LMS ADDED ITEM 32	8-11-77	[Signature]
T	EN 427819 (C) R. P. ... ADD 2.3 TO ALL LMS	8-11-77	[Signature]
U	EN 427760 (C) R. P. ... ON-2 L/M ITEM 1 P11 WAS 382336-1 ON ALL WASH NLS	8-11-77	[Signature]
V	EN 427760 (C) R. P. ... REVISOR'S NOTE 121-340-1-121 TEM 18 P/M WAS P213008-00-112-1 AND NLM ADDED 1/MS 28336-11	8-11-77	[Signature]
W	EN 427819 (C) R. P. ... 4 L/M, 50711 0002 0005 DELETED ITEM B 2124 532 24 2111 0002 2 1004 DELETED ITEM 28 AND ITEM 10 5715 L/M, 0001, 0003 ADDED ITEM 3(4) ALL LMS ADDED ITEMS 3(5) REVISOR'S NOTE 16	8-11-77	[Signature]

REV/CONTINUED ZONE A-2

CABLE HOOK-UP SCHEDULE				REMARKS
DESCRIPTION	START	FINISH		
1 ITEM 5 FAN ASSY	P302	PWB - J302		
2 (ITEM 3) PRINTHEAD	P101	PWB - J101		PRINTHEAD INCLUDED WITH ITEM 3
3 ITEM 4 KEYBOARD ASSY	WIPI	KYBD - WIPI		
4 ITEM 6 POWER CORD	P301	PWB - J301		
5 (ITEM 3) MOTOR DRIVE	P201	-J201		INCLUDED WITH ITEM 3 EARLIER MODELS USED LINE FEED SOLENOID
6 (ITEM 3) HEAD LIFT SOL	P251	-J251		
7 (ITEM 3) LINE FEED MOTOR	P252	-J252		INCLUDED WITH ITEM 3
8 (ITEM 3) SENSOR	P1	PWB - J1		
9 ITEM 11 JUMPER PLUG	PWB-E413	PWB-E414		JUMPER PLUGS, ITEM 16, INSTALLED ON ODD C-4-0004 ASSEMBLIES
10 ITEM 11 JUMPER PLUG	PWB-E415	PWB-E416		

REVISIONS			
ZONE/LIN	DESCRIPTION	DATE	APPROVED
Y	EN 427249 (C) R. P. ... ADDED NOTES 13, 14, 15, 16	8-16-77	[Signature]
AA	EN 425847 (C) R. P. ... EXTENSIVE ENGR CHANGES	8-11-77	[Signature]
AB	EN 427760 (C) R. P. ... NOTE 12 (DELETED) ITEMS 1-45 EN ASSY'S: 0001, 0002, 0003 EN 427222 (C) R. P. ... REVISOR'S NOTE 21 L/M, 1121 ADDED ITEM 11 EN 42712 (C) R. P. ... 27642 P/M WAS 38254100 2 5111 201 ITEMS 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42 2 ITEMS 12, 13, 14, 15 WERE ADDED 5125-38	8-11-77	[Signature]
AC	EN 425462 (C) R. P. ... NOTE 12 (DELETED) ITEMS 1-45 5125-38	8-11-77	[Signature]

DATE: 8/22/77
 D 96214
 SCALE: E, V, AD
 DRAWER NO: 983802
 SHEET: 2

A-10

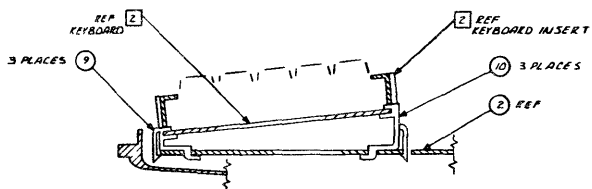
983502

LIST OF MATERIALS

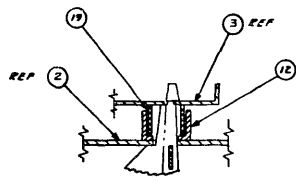
Assembly	Part No.	Rev.
DATA TERMINAL, 743, KSR, EIA/TTY, W/O KYBD	0983802-0003	AE
DATA TERMINAL, 743, KSR, W/MODEM, W/O KYBD	0983802-0004	AE

Item No.	Quantity		TI Part No.	Description	Remarks
0001	00001.000	EA	0983807-0002	BASE ASSY,743/745,RECT CONTACT PWR CONN	
0002	00001.000	EA	0937300-0002	TERMINAL ELECTRONICS,743-EIA/TTY	
0002	00001.000	EA	0937300-0001	TERMINAL ELECTRONICS,743/745 W/MODEM	for-0004
0003	00001.000	EA	0999264-0001	MECHANISM ASSY,STEPPER MOTOR, W/PRINTHD	
0005	00001.000	EA	0983825-0001	FAN ASSY	
0006	00001.000	EA	2200044-0002	COVER ASSY,743/763,WITH XMIT ADJUST	for-0004
0009	00003.000	EA	0983905-0001	CLIP,KEYBOARD,FRONT	
0010	00003.000	EA	0983904-0001	CLIP,KEYBOARD,REAR	
0011	00002.000	EA	0972487-0001	JUMPER PLUG,CONNECTOR BLACK	for-0004 only
0012	00004.000	EA	0983907-0001	SPACER,SPRING	
0014	00001.000	EA	0983863-0001	BRACKET,FAN MOTOR	
0015	00001.000	EA	0999231-0001	PLATE, IDENTIFICATION-BLANK	
0015A				983903-1 CAN BE USED AS ALT	
0016	00004.000	EA	0972988-0019	SCREW 4-40 X .750 PAN HEAD CRES	
0017	00002.000	EA	0972679-0009	SCREW #4-20 X 3/8*LG THD FORM,HEX	
0018	00002.000	EA	0411101-0057	LOCKWASHER # 4 EXTERNAL TOOTH CRES	
0019	00004.000	EA	0419346-0342	HELICAL COMPRESS SPRING	
0022	00001.000	EA	0960141-0001	LABEL,SERVICE	
0023	REF	EA	0989481-9901	TEST PROCEDURE SIL 111 FINAL TEST STA	
0024	REF	EA	0993876-9901	TEST PROCEDURE,RUN-IN 743/745	
0025	REF	EA	0984031-9901	TEST PROCEDURE,MANUAL 743/745	
0032	REF	EA	0983999-9901	743 CONTAINER,SHIPPING ASSY,PACKING SPEC	
0035	REF	EA	0984025-9701	MANUAL,MAINTENANCE,745/743	
0036	00001.000	EA	0937322-0002	TERM ACCESS KIT, 743 KSR, EIA/TTY	
0037	00001.000	EA	0937322-0003	TERM ACCESS KIT, 743 KSR, W/MODEM	for-0004 only
0038	00001.000	EA	0996522-0002	IC,TMS4732NL-ZA3215,4096 X 8-BIT ROM	
0039	AR	TU	0417559-0001	SILICONE RUBBER (RTV) DOW 3140	
0040	00000.000	EA	0983807-0001	BASE ASSY,743/745,ROUND CONTACT PWR CONN	
0040A				USED ON EARLIER MODELS	
0041	00000.000	EA	0983841-0002	TERMINAL ELECTRONICS,743-EIA/TTY	
0041A				USED ON EARLIER MODELS	
0042	00000.000	EA	0983833-0001	MECHANISM ASSEMBLY WITH PRINthead	
0042A				USED ON EARLIER MODELS	
0041	00000.000	EA	0983841-0004	TERMINAL ELECTRONICS,743/745 W/MODEM	
0041A				USED ON EARLIER MODELS	
0042	00000.000	EA	0983833-0001	MECHANISM ASSEMBLY WITH PRINthead	
0042A				USED ON EARLIER MODELS	
0043	00000.000	EA	0983859-0002	COVER ASSY,743,W/O TRANSMIT ADJUST	
0043A				USED ON EARLIER MODELS	
0043	00000.000	EA	0983859-0001	COVER ASSY,743,WITH TRANSMIT ADJUST	
0043A				USED ON EARLIER MODELS	
0044	00001.000	EA	0937286-0001	LABEL,UL,743/745,763/765	

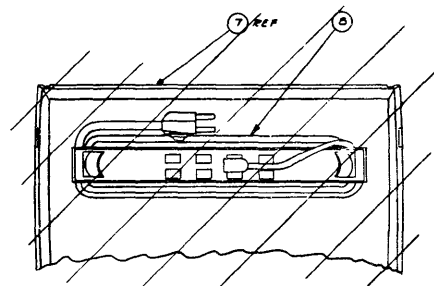
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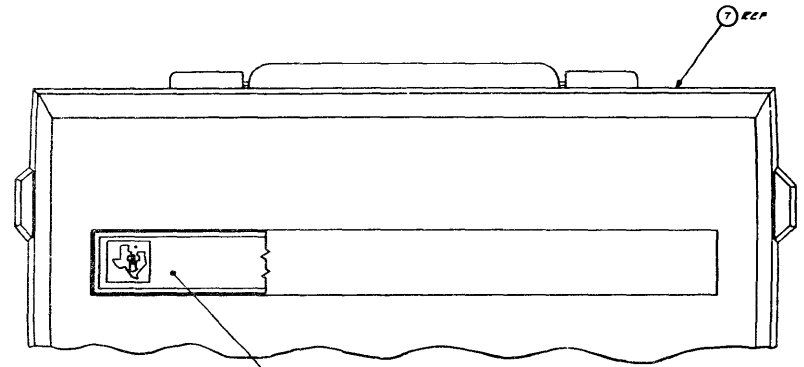
SECTION A-A
SCALE: 1/1
SH 1(B-5)



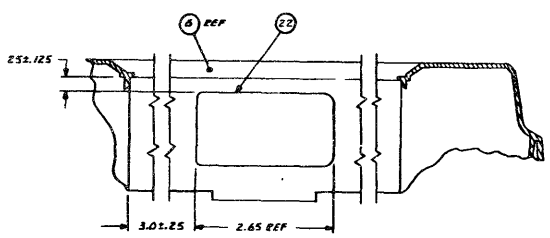
SECTION B-B
SCALE: NONE
2 PLACES (2 @ 180° CW)
SH 1(C-6)



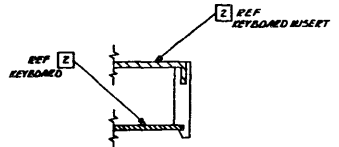
VIEW 6
SCALE 1/2
SH 1(C-5)



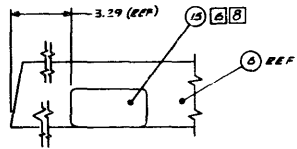
VIEW E
OUTER COVER (ITEM 7)
WITH NAMEPLATE (ITEM 10)
SH 1(C-3)



SECTION F-F
SCALE 1:1
ROTATED 90° CW
SH 1(C-4)



SECTION D-D
SCALE: NONE
2 PLACES
(1 OPPOSITE END
ROTATED 180° CW)
SH 1(B-5)



VIEW C-C
SCALE: NONE
SH 1(C-4)
ROTATED 90° CW

CABLE & JUMPER PLUG HOOK-UP SCHEDULE				REMARKS
DESCRIPTION	START	FINISH		
1 (ITEM 5) FAN ASSY	P30Z	PWB - J30Z		
2 (ITEM 3) PRINTHEAD	P10I	PWB - J10I		PRINTHEAD INCLUDED WITH ITEM 3
3 KEYBOARD ASSY	W1P1	RYBD - W1P1	2	
4 POWER CORD: 996289-0002	P30I	PWB - J30I		POWER CORD SHIPPED IN QUOTE IN OUTER COVER AS SHOWN IN ITEM 7
5 (ITEM 6) SPEAKER	P40I	-J40I		SPEAKER INCLUDED WITH ITEM 6
6 (ITEM 6) MICROPHONE	P40E	-J40E		MICROPHONE INCLUDED WITH ITEM 6
7 (ITEM 3) MOTOR DRIVE	P20I	-J20I		INCLUDED WITH ITEM 3
8 (ITEM 5) HEAD LIFT SOL	P25I	-J25I		EARLIER MODELS USED LINE FEED SOLENOID
9 (ITEM 5) LINE FEED MOTOR	P25E	-J25E		
10 (ITEM 5) SENSOR	P1	PWB - J1		
11 (ITEM 11) JUMPER PLUG	PWB - E40I	PWB - E40E		INTERNAL JUMPER PLUGS, ITEM 11 INSTALLED ON -0101, -0102 & -0105 ASSEMBLY ONLY
12 (ITEM 11) " "	PWB - E40E	PWB - E40S		
13 (ITEM 11) " "	PWB - E40S	PWB - E40E		

DATE: CODE: 96214 DRAWING NO: 983805
SCALE: 1/2 REV: K SHEET: 2 OF 2

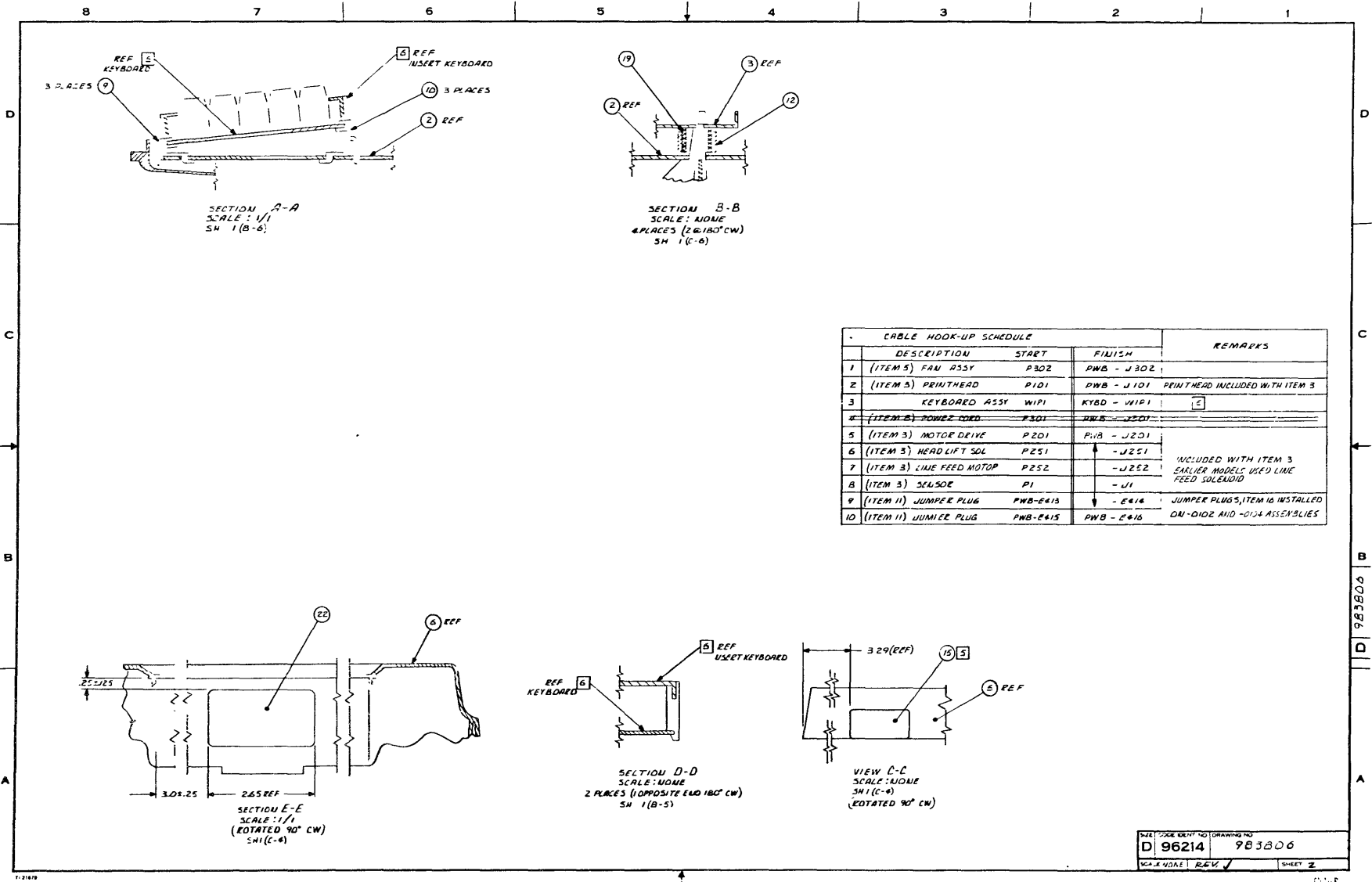
A-13

D 983805

LIST OF MATERIALS

Assembly			Part No.	Rev.	
DATA TERMINAL, 745, KATAKANA, W/O KYBD			0983805-0101	L	
DATA TERMINAL, 745, KANA, W/AUX CPLR, W/O KYBD			0983805-0102	L	
DATA TERMINAL, 745, CCITT, W/O KYBD			0983805-0103	L	
DATA TERMINAL, 745, CCITT, W/AUX CPLR, W/O KYBD			0983805-0104	L	
DATA TERMINAL, 745, JAPAN, W/O KYBD			0983805-0105	L	
DATA TERMINAL, 745, JAPAN, W/AUX CPLR, W/O KYBD			0983805-0106	L	
Item No.	Quantity	TI Part No.	Description		Remarks
0001	00001.000	EA	0983807-0002	BASE ASSY,743/745,RECT CONTACT PWR CONN	
0002	00001.000	EA	0937300-0004	TERMINAL ELEC,743/745 CC ITT MODM (NTT)	for-0101,-0102,-0105,-1016
0002	00001.000	EA	0937300-0003	TERMINAL ELECTRONICS,743/745 CC ITT MODM	for-0103,-0104
0005	00001.000	EA	0983825-0001	FAN ASSY	
0006	00001.000	EA	0999239-0004	COVER ASSY,INNER,745/765,JAPAN	for-0101,-0102,-0105,-0106
0006	00001.000	EA	0999239-0003	COVER ASSY,INNER,745/765,W/O XMIT ADJUST	for-0103,-0104
0007	00001.000	EA	0983809-0001	OUTER COVER ASSY	
0009	00003.000	EA	0983905-0001	CLIP,KEYBOARD,FRONT	
0010	00003.000	EA	0983904-0001	CLIP,KEYBOARD,REAR	
0011	00003.000	EA	0972487-0001	JUMPER PLUG,CONNECTOR BLACK	for-0101,-0103,-0105 only
0012	00004.000	EA	0983907-0001	SPACER,SPRING	
0014	00001.000	EA	0983863-0001	BRACKET,FAN MOTOR	
0015	00001.000	EA	0999231-0001	PLATE, IDENTIFICATION-BLANK	
0015A				983908-1 CAN BE USED AS ALT	
0016	00004.000	EA	0972988-0019	SCREW 4-40 X .750 PAN HEAD CRES	
0017	00002.000	EA	0972679-0009	SCREW #4-20 X 3/8"LG THD FORM,HEX	
0018	00002.000	EA	0411101-0057	LOCKWASHER # 4 EXTERNAL TOOTH CRES	
0019	00004.000	EA	0419346-0342	HELICAL COMPRESS SPRING	
0020	00001.000	EA	0983914-0001	NAMEPLATE,OUTER COVER	
0022	00001.000	EA	0960141-0001	LABEL,SERVICE	
0027	REF	EA	0984026-9901	TEST PROC,SYSTEM TEST,743/745	
0028	REF	EA	0983876-9901	TEST PROCEDURE,RUN-IN	
0029	REF	EA	0984031-9901	TEST PROCEDURE,MANUAL 743/745	
0031	00001.000	EA	0937304-0001	COVER, SAFETY	
0032	REF	EA	0984009-9901	745 CONTAINER,SHIPPING ASSY,PACKING SPEC	
0033	00001.000	EA	0984025-9701	MANUAL,MAINTENANCE,745/743	
0034	00001.000	EA	0937322-0007	TERM ACCESS KIT, 745 W/O KYBD,KATAKANA	
0038	00001.000	EA	0996522-0002	IC,TMS4732NL-2A3215,4096 X 8-BIT ROM	for-0103,-0104,-0105,-0106
0038	00001.000	EA	0996522-0003	IC,TMS4732NL-2A3213,4096 X 8-BIT ROM	for-0101,-0102
0039	AR	TU	0417559-0001	SILICONE RUBBER (RTV) DOW 3140	
0040	00000.000	EA	0983807-0001	BASE ASSY,743/745,ROUND CONTACT PWR CONN	
0040A				USED ON EARLIER MODELS	
0041	00000.000	EA	0983841-0003	TERMINAL ELECT 743/745 CC ITT MODEM	for-0103,-0105,-0106
0041	00000.000	EA	0983841-0005	TERM ELECT 743/745 CC ITT MODEM (JAPAN)	for-0101,-0102
0041A				USED ON EARLIER MODELS	
0042	00000.000	EA	0983833-0001	MECHANISM ASSEMBLY WITH PRINthead	
0042A				USED ON EARLIER MODELS	
0043	00000.000	EA	0983808-0004	COVER ASSY,INNER,745 JAPANESE	for-0101,-0105,-0106
0043	00000.000	EA	0983808-0003	COVER ASSY,W/O TRANSMIT LEVEL ADJUSTMENT	for-0103,-0104
0043A				USED ON EARLIER MODELS	
0044	00000.000	EA	0972674-0001	CABLE #18 AWG 3 COND POWER,ELECTRICAL	
0044A				USED ON EARLIER MODELS	
0045	00000.000	EA	0983911-0001	COVER,SAFETY	
0045A				USED ON EARLIER MODELS	

A-16



SIZE: 11x14	DATE: 10/11/67	NO: 96214	REV: 1	DRAWING NO: 983806	SHEET: 2
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983806

LIST OF MATERIALS

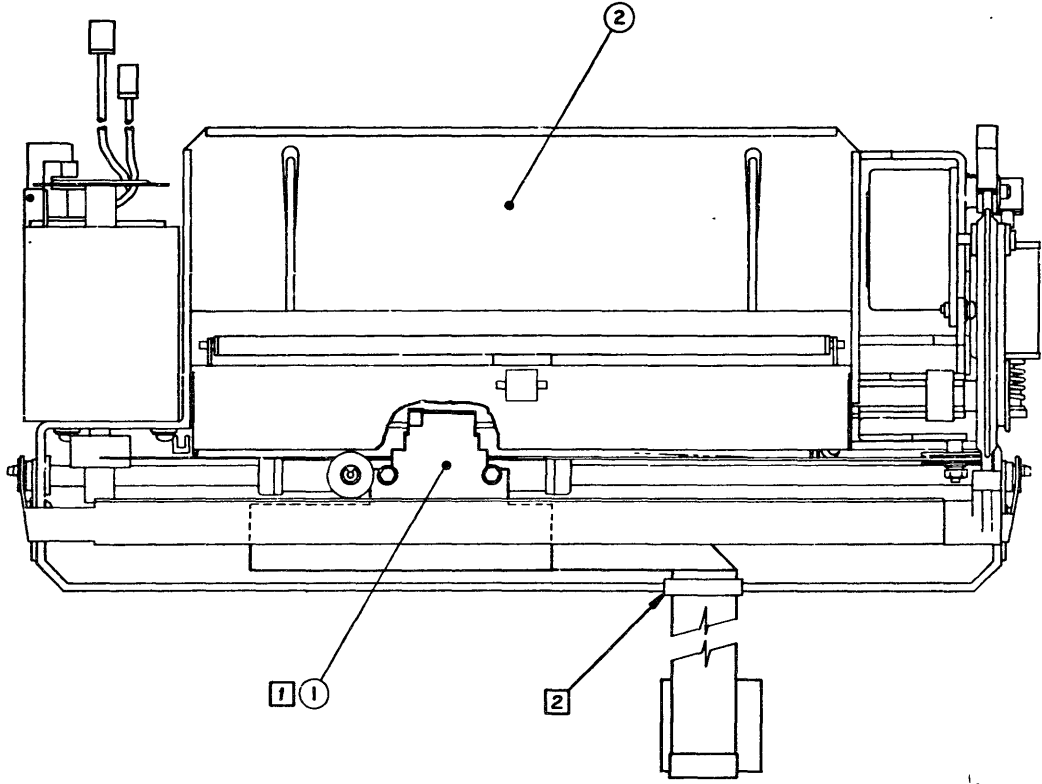
Assembly	Part No.	Rev.
DATA TERMINAL, 743, KANA, EIA/TTY, W/O KYBD	0983806-0101	M
DATA TERMINAL, 743, CCITT, W/MODEM	0983806-0104	M

Item No.	Quantity		TI Part No.	Description	Remarks
0001	00001.000	EA	0983807-0002	BASE ASSY,743/745,RECT CONTACT PWR CONN	
0002	00001.000	EA	0937300-0002	TERMINAL ELECTRONICS,743-EIA/TTY	for-0101
0002	00001.000	EA	0937300-0003	TERMINAL ELECTRONICS,743/745 CC ITT MODM	for-0104
0003	00001.000	EA	0999264-0001	MECHANISM ASSY,STEPPER MOTOR, W/PRINTHD	
0005	00001.000	EA	0983825-0001	FAN ASSY	
0006	00001.000	EA	2200044-0001	COVER ASSY,743/763,W/O XMIT ADJUST	
0008	00001.000	EA	0996289-0002	CORD SET,3-PIN PWR-DOMESTIC GRAY W/CLIP	
0009	00003.000	EA	0983905-0001	CLIP,KEYBOARD,FRONT	
0010	00003.000	EA	0983904-0001	CLIP,KEYBOARD,REAR	
0011	00002.000	EA	0972487-0001	JUMPER PLUG,CONNECTOR BLACK	for-0104 only
0012	00004.000	EA	0983907-0001	SPACER,SPRING	
0014	00001.000	EA	0983863-0001	BRACKET,FAN MOTOR	
0015	00001.000	EA	0999231-0001	PLATE, IDENTIFICATION-BLANK	
0015A				983908-1 CAN BE USED AS ALT	
0016	00004.000	EA	0972988-0019	SCREW 4-40 X .750 PAN HEAD CRES	
0017	00002.000	EA	0972679-0009	SCREW #4-20 X 3/8"LG THD FORM,HEX	
0018	00002.000	EA	0411101-0057	LOCKWASHER # 4 EXTERNAL TOOTH CRES	
0019	00004.000	EA	0419346-0342	HELICAL COMPRESS SPRING	
0022	00001.000	EA	0960141-0001	LABEL,SERVICE	
0025	REF	EA	0984026-9901	TEST PROC,SYSTEM TEST,743/745	
0026	REF	EA	0993876-9901	TEST PROCEDURE,RUN-IN 743/745	
0027	REF	EA	0984031-9901	TEST PROCEDURE,MANUAL 743/745	
0030	REF	EA	0983999-9901	743 CUNTAINER,SHIPPING ASSY,PACKING SPEC	
0031	REF	EA	0984025-9701	MANUAL,MAINTENANCE,745/743	
0032	00001.000	EA	0937322-0008	TERM ACCESS KIT, 743 W/O KYBD, EIA/TTY	
0033	00001.000	EA	0937322-0009	TERM ACCESS KIT, 743 W/O KYBD, W/MODEM	for-0104 only
0038	00001.000	EA	0996522-0002	IC,TMS4732NL-ZA3215,4096 X 8-BIT ROM	
0039	AR	TU	0417559-0001	SILICONE RUBBER (RTV) DOW 3140	
0040	00000.000	EA	0983807-0001	BASE ASSY,743/745,ROUND CONTACT PWR CONN	
0040A				USED ON EARLIER MODELS	
0041	00000.000	EA	0983841-0006	TERMINAL ELECTRONICS,743,EIA/TTY (JAPAN)	for-0101
0041A				USED ON EARLIER MODELS	
0041	00000.000	EA	0983841-0003	TERMINAL ELECT 743/745 CC ITT MODEM	for-0104
0041A				USED ON EARLIER MODELS	
0042	00000.000	EA	0983833-0001	MECHANISM ASSEMBLY WITH PRINTHEAD	
0042A				USED ON EARLIER MODELS	
0043	00000.000	EA	0983859-0002	COVER ASSY,743,W/O TRANSMIT ADJUST	
0043A				USED ON EARLIER MODELS	

NOTES UNLESS OTHERWISE SPECIFIED

- 1 INSTALL ITEM 1 TO ITEM 2 BEING CAREFULL TO ALIGN PROPERLY WITH MOLDED-IN ALIGNMENT PINS USING EXISTING HARDWARE
- 2 DRESS CABLE AND CLIP IN POSITION WITH EXISTING CLIP

3. ON FIELD SERVICE UNITS AND SPARES INSTALL ITEM 4 ON PAPER DEFLECTOR TO COVER ASSEMBLY NUMBER. ITEM 4 SHALL CONTAIN P/N 999257-0001 AND THE APPROPRIATE REVISION LETTER FOR THAT PART NUMBER



REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	CN429254 (C) IS Obsolete (1) ITEM 3 P/N WAS 220004-3 -9901	10-27-77	J.R. [Signature]
B	CN429334 (D) IS Obsolete (1) ADDED ITEM 4 TO LM (2) ADDED NOTE 3	1-16-78	J.R. [Signature]
C	CN429261 (E) IS Obsolete (1) NOTE 3 WAS ... P/N 999257-0001...	2-13-78	J.R. [Signature]

QTY	ITEM NO	PART OR IDENTIFYING NUMBER	NOVENCATURE OR DESCRIPTION	PROCUREMENT SPECIFICATION	NOTES
			PARTS LIST		
			<ul style="list-style-type: none"> * DIMENSIONS UNLESS OTHERWISE SPECIFIED * DIMENSIONS ARE IN INCHES * TOLERANCES: ANGLES .15 * PLACE DECIMALS IF 010 * PLACE DE ZEROES IF 02 * INTERPRET DRAWING PER MIL D 1000 * REMOVE ALL BURRS AND SHARP EDGES * HONE EXTERNAL MATED DIAMETERS .010 DIA * HONING SHALL BE PERFORMED BEFORE PROCESSING * PARTS LISTED IN THIS DRAWING ONLY 		
	2200049	8738	TEXAS INSTRUMENTS MECHANISM ASSY, STEPPER MOTOR W/PRINTHEAD C 96214 999264		
	999230	8738	NEXT ASSY USED ON APPLICATION		

SCO NO	IDENT	SPEC	NO	ADDITIONAL CLASSIFICATION	NOTES

11-99252

4 3 30 2 1 LM PLATED

A-18

999264

LIST OF MATERIALS

Assembly	Part No.	Rev.
MECHANISM ASSY, STEPPER MOTOR, W/PRINTHEAD	0999264-0001	C

Item No.	Quantity	TI Part No.	Description	Remarks
0001	00001.000	EA	0983829-0001	PRINTHEAD ASSY
0002	00001.000	EA	0999257-0001	MECHANISM ASSY-BMC FRAME
0003	REF	EA	0993609-9901	FUNCTIONAL TEST PROCEDURE
0004	AR	SH	0232208-3500	LABEL WIRE MARKER DATABS VINYL CLOTH

- NOTES: UNLESS OTHERWISE SPECIFIED
- 1) AFTER THE CARRIAGE ASSEMBLY (ITEM 4) IS INSTALLED ON THE CARRIAGE ROD (ITEM 19) PLACE ONE DROP OF OIL (ITEM 30) ON THE FELT WASHER UNDER THE "E" RING ON THE CARRIAGE AND ONE DROP ON EACH SIDE OF THE CARRIAGE. MOVE THE CARRIAGE OVER THE OIL SEVERAL TIMES TO WET THE FELT WIPES INSIDE
 - 2) REMOVE PLUNGER FROM SOLENOID (ITEM 3) AND INSTALL "O" RING (ITEM 53) ON PLUNGER. PLACE ONE DROP OF OIL (ITEM 30) ON PLUNGER BEFORE REPLACING. MOUNT SOLENOID TO BRACKET (ITEM 41)
 - 3) INSTALL WASHERS (ITEM 23) AND BEAKING RETAINER (ITEM 35) ON SHAFT OF PAPER DRIVE ROLLER (ITEM 12). PRESS PULLEY (ITEM 40) ONTO ROLLER SHAFT SO THAT A .010 ± .005 GAP EXISTS BETWEEN THE THRUST WASHER (ITEM 25) AND THE SURFACE OF THE MECHANISM FRAME
 - 4) CLAMP CABLE (ITEM 24) ONTO CARRIAGE ASSEMBLY (ITEM 4) SO THAT WHEN MOTOR ASSEMBLY (ITEM 37) IS ENERGIZED IN PHASE "A" (IE: VOLTAGE IS APPLIED TO BROWN AND BLACK MOTOR WIRES) A GAP OF .08 ± .002-.05 EXISTS BETWEEN THE SEATED BUMPER (ITEM 14) AND THE LEFT END OF THE CARRIAGE. THERE MUST ALSO BE TWO TURNS ± 45° OF CABLE ON FRONT OF THE CAPSTAN ON THE MOTOR ASSEMBLY
 - 5) TORQUE SCREW TO 6.0 ± .5 IN/LBS
 - 6) INSURE THAT DANCER SPRING IS NOT WARPED OR PRELOADED. (A NORMAL LOAD APPLIED TO THE CENTER OF THE ROLLER SHOULD MEASURE 10 ± 2 OZ WHEN DANCER ROLLER BOTTOMS ON MECHANISM FRAME)
 - 7) DISTANCE BETWEEN TOP OF BAIL (ITEM 20) AND TOP OF CARRIAGE WHEEL SHALL BE .05 ± .020
 - 8) MARK ITEM 7 PER PROCESS 1 WITH APPROPRIATE REV LTR # SERIAL NO AS INDICATED ON DWG NO 2200030

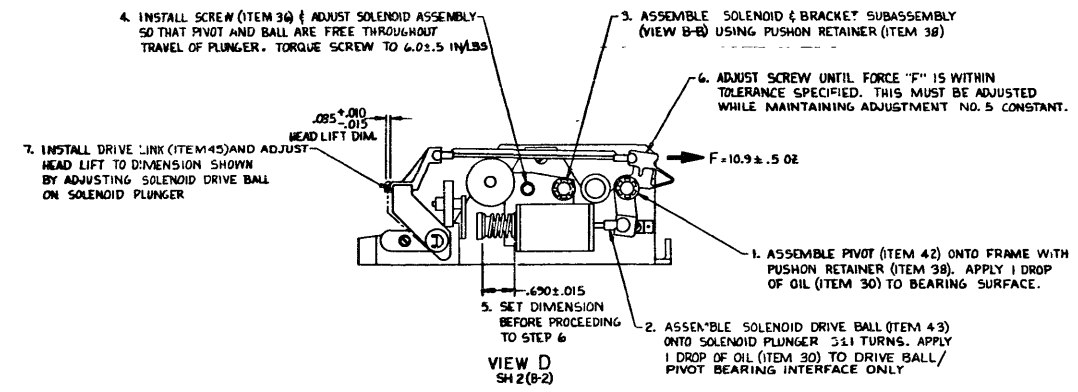
REVISIONS				
REV#	DATE	DESCRIPTION	DATE	APPROVED
A	4/28/77	1) DELE ITEM 26 PN802749 QTY AM 2) ADD ITEM 60	7/6/77	AA
B	5/11/77	3) ADD NOTE 9 (4) ADD PROCESS 1	7/6/77	AA
C	7/11/77	1) DELE ITEM 26 PN802749 QTY AM 2) ADD ITEM 60	7/6/77	AA
D				

1) DELE ITEM 26 PN802749 QTY AM 2) ADD ITEM 60
3) ADD NOTE 9 (4) ADD PROCESS 1

NOTE: 1) DELE ITEM 23 QTY WAS 127 WAS 56.33 WAS 5.28 WAS 1.34 WAS 3 DELETED ITEM 54 REVISED PICTORIALS TO AGREE WITH LM CHANGES

2) DELE ITEM 27 & 28 FROM ITEM 44 ADDED ITEM 56, 2 & 3 ADDED ITEM 27 ADDED ITEM 62 (2) SHT 1 REVISED DIM TO EDGE OF SOLENOID LASE (3) REVISED ITEM 35 ADDED ITEM 41 TO LM FIELD OF DRAWING (4) NOTE 9 WAS MARK SITE ... PARAGRAPH 4 (D.15) REMOVED ITEM 60 FROM LM, ITEM 27 WAS QTY L, P/N 041027-0003, ADDED 62/54 TO LM

A-20



REV STATUS	REV	F	P
OF SHEETS	8	1	2

1	MARK	100-06	61	HEIGHT -12
NO	DEPT	F-08	NO	ADDITIONAL
	PROCESS			CLASSIFICATION
				FOR CORRELATION TO QTY/PRG SPECIFICATIONS SEE DRAWING 220027

2	1	ITEM NO	CODE	IDENT	PART OR IDENTIFYING NUMBER	QUANTITY OF DESCRIPTION	PROCUREMENT SPECIFICATION
PARTS LIST							
UNLESS OTHERWISE SPECIFIED							
1. DIMENSIONS ARE IN INCHES							
2. TOLERANCES ANGLES ±							
3. PLACE DECIMALS ± 0.10							
4. PLACE DECIMALS ± 0.06							
5. PLACE DECIMALS ± 0.005							
6. PLACE DECIMALS ± 0.001							
7. PLACE DECIMALS ± 0.0005							
8. PLACE DECIMALS ± 0.0002							
9. PLACE DECIMALS ± 0.0001							
10. PLACE DECIMALS ± 0.00005							
11. PLACE DECIMALS ± 0.00002							
12. PLACE DECIMALS ± 0.00001							
13. PLACE DECIMALS ± 0.000005							
14. PLACE DECIMALS ± 0.000002							
15. PLACE DECIMALS ± 0.000001							
16. PLACE DECIMALS ± 0.0000005							
17. PLACE DECIMALS ± 0.0000002							
18. PLACE DECIMALS ± 0.0000001							
19. PLACE DECIMALS ± 0.00000005							
20. PLACE DECIMALS ± 0.00000002							
21. PLACE DECIMALS ± 0.00000001							
22. PLACE DECIMALS ± 0.000000005							
23. PLACE DECIMALS ± 0.000000002							
24. PLACE DECIMALS ± 0.000000001							
25. PLACE DECIMALS ± 0.0000000005							
26. PLACE DECIMALS ± 0.0000000002							
27. PLACE DECIMALS ± 0.0000000001							
28. PLACE DECIMALS ± 0.00000000005							
29. PLACE DECIMALS ± 0.00000000002							
30. PLACE DECIMALS ± 0.00000000001							

TEXAS INSTRUMENTS
MECHANISM ASSEMBLY, BMC FRAME

REV # 17
SCALE 1/1

DATE 7/14/77

DRAWING NO 999257

SHEET 1 OF 2

D

02

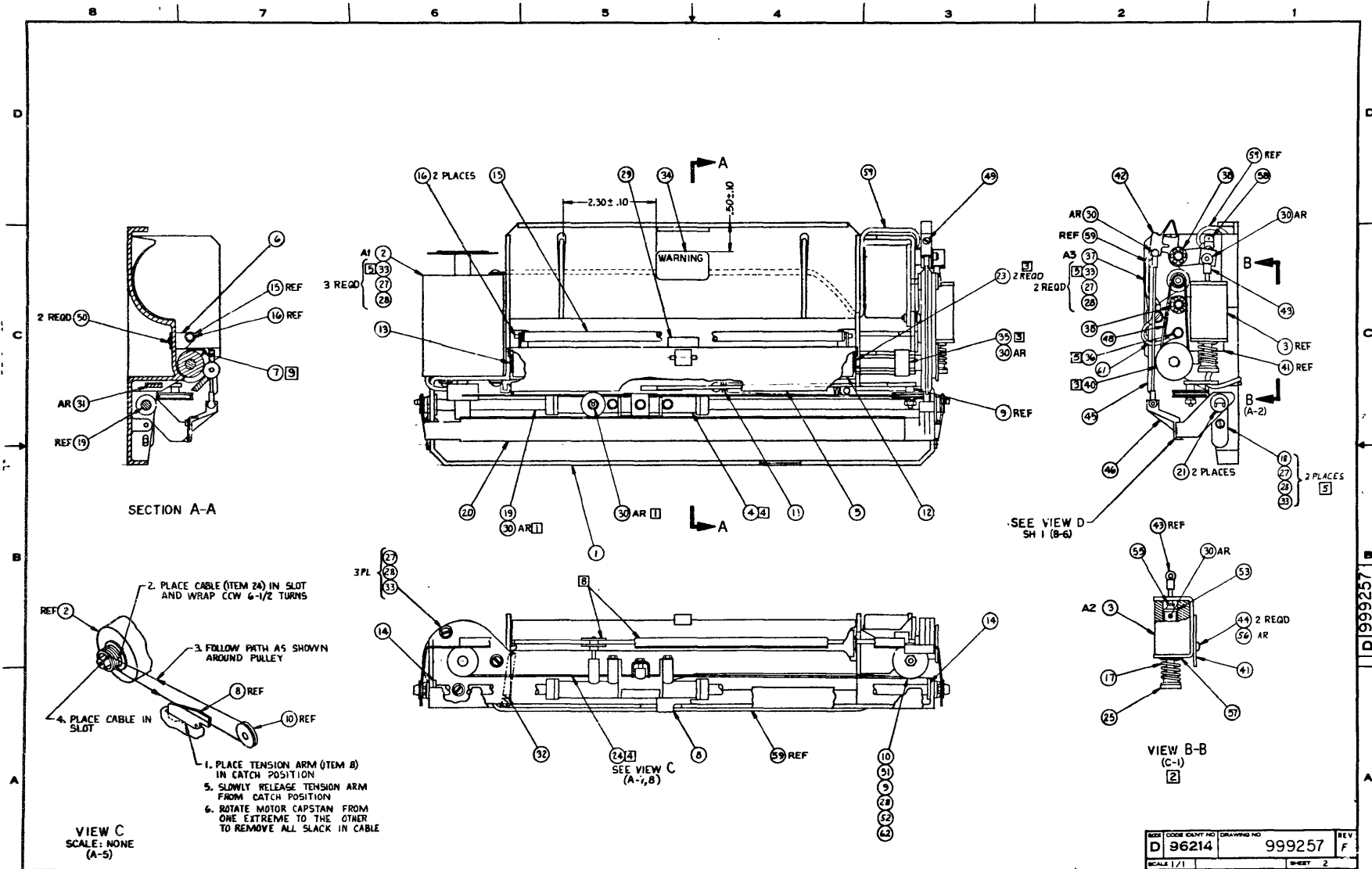
C

D 999257 B

A

TS-7931F

A-21



SECTION A-A

- VIEW C
SCALE: NONE (A-5)
1. PLACE TENSION ARM (ITEM 8) IN CATCH POSITION
 2. PLACE CABLE (ITEM 24) IN SLOT AND WRAP CCW 6-1/2 TURNS
 3. FOLLOW PATH AS SHOWN AROUND PULLEY
 4. PLACE CABLE IN SLOT
 5. SLOWLY RELEASE TENSION ARM FROM CATCH POSITION
 6. ROTATE MOTOR CAPSTAN FROM ONE EXTREME TO THE OTHER TO REMOVE ALL SLACK IN CABLE

REV	CODE	QTY	NO	DRAWING NO	REV
D				96214	999257
SCALE 1/1				SHEET 2	

FILMED

LIST OF MATERIALS

Assembly
MECHANISM ASSY-BMC FRAME

Part No. Rev.
0999257-0001 F

Item No.	Quantity		TI Part No.	Description	Remarks
0001	00001.000	EA	0999247-0001	FRAME, MECHINISM PMT	
0002	00001.000	EA	0983812-0002	MOTOR, DRIVE-PRINTER	
0003	00001.000	EA	0983816-0001	SOLENOID, PRINTHEAD	
0004	00001.000	EA	0983817-0001	CARRIAGE ASSY, PRINTHEAD	
0005	00001.000	EA	0983818-0001	WINDOW ASSY	
0006	00001.000	EA	0983873-0001	SPRING, DANCER	
0007	00001.000	EA	2200030-0001	DEFLECTOR, PAPER	
0008	00001.000	EA	0983880-0001	ARM, PULLEY-TENSION	
0009	00001.000	EA	0983883-0002	SPACER, PULLEY- PMT	
0010	00001.000	EA	0959402-0001	PULLEY, CABLE	
0011	00001.000	EA	0999258-0001	SPRING, CABLE TENSION	
0012	00001.000	EA	0999263-0001	ROLLER, PAPER DRIVE	
0013	00001.000	EA	0772684-0005	BEARINGS, SLEEVE-FLANGED NYLON .2510 ID	
0014	00002.000	EA	0244440-0003	BUMPER, .500 O.D.	
0015	00001.000	EA	0983872-0001	ROLLER, DANCER	
0016	00002.000	EA	0983874-0001	PIVOT	
0017	00001.000	EA	2200031-0001	SPRING, HEAD LIFT (STEPPER)	
0018	00002.000	EA	0983889-0001	BEARING, ROD SUPPORT	
0019	00001.000	EA	0983884-0001	ROD, CARRIAGE	
0020	00001.000	EA	0983886-0001	BRACKET, BAIL	
0021	00002.000	EA	0983938-0001	BAIL RETAINER	
0023	00002.000	EA	0972485-0001	WASHER, STEEL-THRUST	
0024	00001.000	EA	0959297-0002	CABLE, DRIVE- PMT	
0025	00001.000	EA	0983900-0001	KNOB, PLUNGER	
0027	00005.000	EA	0416622-0011	WASHER # 4 FLAT	
0028	00008.000	EA	0411104-0135	WASHER #4 LOCKSPLIT	
0029	00001.000	EA	0999246-0001	PAD, FRICTION	
0030	AR	EA	0232573-0001	CIL #43 TERRESTIC	
0031	AR	TU	0232334-6050	LUBRICANT SILICONE GRS LT GR 2 OZ TUBE	
0032	00001.000	EA	0983916-0001	SPRING, EXTENSION	
0033	00007.000	EA	0972988-0015	SCREW 4-40 X .375 PAN HEAD CRES	
0034	00001.000	EA	0985712-0002	LABEL, WARNING, 743/745	
0035	00001.000	EA	2200032-0001	BEARING, RETAINER	
0036	00001.000	EA	0972969-0003	SCREW 4-24 X 1/2 HEX WASHER HEAD	
0037	00001.000	EA	2200045-0001	MOTOR ASSEMBLY, 4 PH. STEPPER	
0038	00002.000	EA	0972491-0023	RING, RETAINING	
0040	00001.000	EA	2200033-0001	PULLEY, 30T TIMING BELT	
0041	00001.000	EA	2200041-0001	BRACKET, SOLENOID ADJUST	
0042	00001.000	EA	2200034-0001	PIVOT ARM, SOLENOID	
0043	00001.000	EA	2200035-0001	BALL, SOLENOID DRIVE	

LIST OF MATERIALS

Assembly
MECHANISM ASSY-BMC FRAME

Part No. Rev.
0999257-0001 F

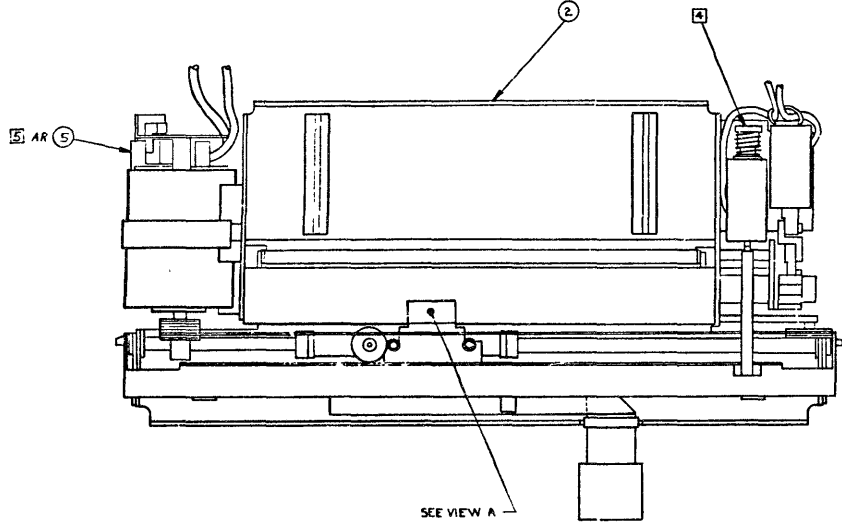
Item No.	Quantity		TI Part No.	Description	Remarks
0044	00002.000	EA	0972988-0012	SCREW 4-40 X .188 PAN HEAD CRES	
0045	00001.000	EA	2200037-0001	DRIVE LINK,BALL	
0046	00001.000	EA	2200038-0001	BAIL LINK,BALL DRIVE	
0048	00001.000	EA	0537711-0005	DRIVE BELT	
0049	00001.000	EA	0996624-0001	SCREW,PLASTITE	
0050	00002.000	EA	0972831-0002	RIVET,1/8X.195,TUBULAR,STEEL,BLIND	
0051	00001.000	EA	0972990-0017	SCREW 4-40 X .625 FLT HEAD CRES	
0052	00001.000	EA	0416453-0021	NUT,PLAIN,4-40 UNC-2B HEX,CRES,SMALL	
0053	00001.000	EA	0983969-0001	O-RING	
0055	00001.000	EA	0983968-0001	WASHER RUBBER 1/32 THK GRAY	
0056	AR	EA	0802749-0222	ADHESIVE,THREAD SEALING AND LOCKING	
0057	00001.000	EA	0983915-0001	WASHER,SHOULDER SPRING	
0058	00001.000	EA	0972172-0003	TERMINAL .187*WD QDISC TAB STYLE	
0059	00001.000	EA	2200061-0001	CABLE, MOTOR GROUND	
0061	00001.000	EA	2200061-0002	CABLE, MOTOR GROUND	
0062	00001.000	EA	0411027-0803	WASHER,.125 X .250 X, .022 FLAT	

8 7 6 5 4 3 2 1

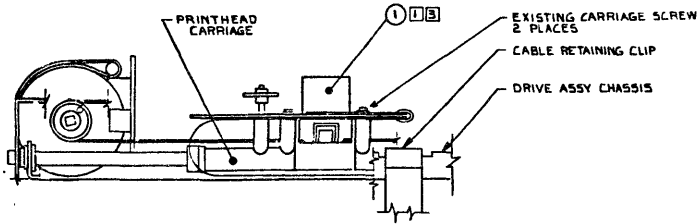
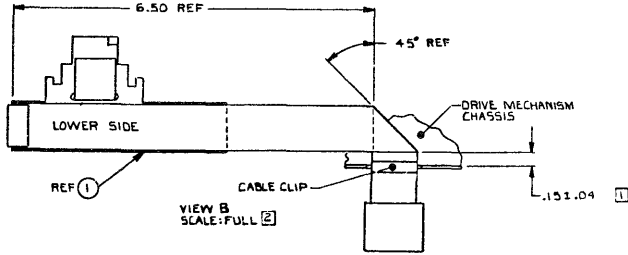
NOTES:
 5) APPLY ITEM 5 TO SUREHEAD ON SENSOR ADJUSTMENT AFTER TEST

NOTES: UNLESS OTHERWISE SPECIFIED
 1) ATTACH THE PRINTHEAD ASSY (ITEM 1) TO THE CARRIAGE BY USING THE TWO EXISTING CARRIAGE SCREWS. REFER TO VIEW A. BE SURE SCREWS ARE ELIMINATED IN HEAD PLATE HOLES.
 2) POSITION AND ATTACH PRINTHEAD ASSEMBLY USING THE EXISTING RETAINING CLIP AT THE BOTTOM FROM THE 45° HOLE TO LEAVE ASSEMBLY FROM THE EDGE.
 3) CAUTION: PRINTHEAD ASSY (ITEM 1) IS VERY FRAGILE EXTREME CARE MUST BE TAKEN TO AVOID DAMAGE.
 4) ADJUST KNOB SO THAT SOLENOID HAS A STROKE OF .045 ± .005 MEASURED AT MAXIMUM DEFLECTION. BAIL MAY HAVE NO MORE THAN .020 WARP WITHIN ONE LINE LENGTH.

REVISIONS				
ZONE	LTN	DESCRIPTION	DATE	APPROVED
05	A	1-000001 (1) OF 1	12-30-75	
05	B	1-000001 (1) OF 1	12-30-75	
05	C	1-000001 (1) OF 1	12-30-75	
C60	3)	HEX WASHER ELIMINATED FROM 1-000001		
	3)	403934 (1) / 1-000001 (1) OF 1		
		DR LHM ADDED ITEMS 3 & 4		
		CHANGED NOTE 4 WAS ADJUST JOB TO T AT SOLENOID HAS A STROKE OF .020 OF.		
	C	42314 D	12-30-75	
		NOTE 4 HAS A STROKE OF .020 MAX .025 MIN 1/10 MORE THAN .020 IF MAXIMUM DEFLECTION.		
	D	424622 (1) OF 1 UNRELETED ITEM		
	4	ADDED ITEM 5 TO LM AND FD (ADDED NOTE 5)		
	C	429270 (1) OF 1 UNRELETED ITEM		
	4,3	RE SCHEDULE (2) ADDED -8001 LM		



-8001	MECHANISM ASSY WITH PRINTHEAD
-0001	MECHANISM ASSY WITH PRINTHEAD
FN	DESCRIPTION



VIEW A
 SCALE: FULL
 (3-6)

QTY REQD	ITEM NO	CODE IDENT	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	PROCUREMENT SPECIFICATION
PARTS LIST					
UNLESS OTHERWISE SPECIFIED					
REMOVE ALL BURRS AND SHARP EDGES					
CONCENTRICITY MACHINED QUARTERS .010 P/R					
DIMENSIONAL LINE'S APPLY BEFORE FINISH PROCESSING					
IDENTIFYING NUMBERS SHOWN IN PARENTHESES FOR REFERENCE ONLY					
INTERPRET DRAWING IN ACCORDANCE WITH MIL-STD-100					
HOLE TOLERANCE					
.013 ± .001	.125 ± .001	.251 ± .001	.375 ± .001	.500 ± .001	.750 ± .001
.013 ± .001	.125 ± .001	.251 ± .001	.375 ± .001	.500 ± .001	.750 ± .001
UNLESS OTHERWISE SPECIFIED					
DIMENSIONS ARE IN INCHES					
TOLERANCES					
ANGLES 1°					
3 PLACE DECIMALS ± .010					
2 PLACE DECIMALS ± .020					
MATERIAL					
DRAWN BY: [Signature]					
CHECKED BY: [Signature]					
ENGR BY: [Signature]					
DATE: 12/30/75					
DESIGN NO: [Number]					
DESIGN ACTIVITY RELEASE: [Number]					
SIZE	CODE IDENT NO	DRAWING NO.			
D	96214	962833			
SCALE			SHEET		

A-24

96308

A

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LM 7-79-01

LIST OF MATERIALS

Assembly
MECHANISM ASSEMBLY WITH PRINTHEAD

Part No Rev
0983833-0001 E

Item No	Quantity		TI Part No.	Description	Remarks
0001	00001.000	EA	0983829-0001	PRINTHEAD ASSY	
0002	00001.000	EA	0983811-0001	DRIVE MECHANISM	
0003	REF	EA	0993609-9901	FUNCTIONAL TEST PROCEDURE	
0005	AR	EA	0231023-0011	CEMENT GLYPTAL,GE-1201 RED ENAMEL	

LIST OF MATERIALS

Assembly
DRIVE MECHANISM(W/SOLENOID LINE FEED)

Part No. Rev.
0983811-0001 AB

Item No.	Quantity		TI Part No.	Description	Remarks
0001	0001.000	EA	0983812-0001	MOTOR, DRIVE-PRINTER	
0002	0001.000	EA	0983815-0001	SOLENOID, PAPER ADVANCE	
0003	0001.000	EA	0983816-0001	SOLENOID, PRINTHEAD	
0004	0001.000	EA	0983817-0001	CARRIAGE ASSY, PRINTHEAD	
0005	0001.000	EA	0983818-0001	WINDOW ASSY	
0006	0001.000	EA	0983819-0001	CHUTE, TENSION - PAPER	
0007	0001.000	EA	0983958-0001	PEDESTAL	
0008	0001.000	EA	0983866-0001	FRAME, DRIVE MECHANISM	
0009	0001.000	EA	0983906-0001	DEFLECTOR, PAPER	
0010	0001.000	EA	0983880-0001	ARM, PULLEY-TENSION	
0011	0001.000	EA	0983883-0001	SPACER, PULLEY	
0012	0001.000	EA	0959402-0001	PULLEY, CABLE	
0013	0001.000	EA	0983924-0001	SPRING CABLE TENSION 743/745 DRIVE MECH	
0014	0001.000	EA	0983871-0001	ROLLER, PAPER DRIVE	
0015	0001.000	EA	0983860-0001	BRACKET, SOLENOID	
0016	0001.000	EA	0983861-0001	STRAP, MOTOR	
0017	0001.000	EA	0983879-0001	NUT, MTR STRAP	
0018	0001.000	EA	0983887-0001	CRADLE, MOTOR	
0019	0001.000	EA	0772684-0005	BEARINGS, SLEEVE-FLANGED NYLON .2510 ID	
0020	0003.000	EA	0244440-0003	BUMPER, .500 O.D.	
0021	0001.000	EA	0983872-0001	ROLLER, DANCER	
0022	0002.000	EA	0983874-0001	PIVOT	
0023	0001.000	EA	0983916-0001	SPRING, EXTENSION	
0024	0002.000	EA	0530933-0013	CLUTCH POSITIVE LUBRICATED WITH OIL	
0025	0001.000	EA	0983896-0001	STAR WHEEL	
0026	0001.000	EA	0983926-0001	CLAW .820	
0027	0001.000	EA	0983956-0001	LINK, MODIFIED SOLENOID-CLAW	
0028	0001.000	EA	0983888-0001	LINK, HEAD FORCE	
0029	0001.000	EA	0983894-0001	SPRING	
0030	0002.000	EA	0983893-0001	SUPPORT, ROLL	
0031	0002.000	EA	0983889-0001	BEARING, ROD SUPPORT	
0032	0001.000	EA	0983884-0001	ROD, CARRIAGE	
0033	0001.000	EA	0983886-0001	BRACKET, BAIL	
0034	0001.000	EA	0983903-0001	CLIP, CABLE	
0035	0001.000	EA	0972485-0001	WASHER, STEEL-THRUST	
0036	0001.000	EA	0959297-0001	CABLE, DRIVE	
0037	0001.000	EA	0983915-0001	WASHER, SHOULDER SPRING	
0038	0002.000	EA	0983969-0001	O-RING	
0039	0001.000	EA	0983910-0001	KNOB, PLUNGER	
0040	0005.000	EA	0972988-0014	SCREW 4-40 X .312 PAN HEAD CRES	

LIST OF MATERIALS

Assembly
DRIVE MECHANISM(W/SOLENOID LINE FEED)

Part No. Rev.
0983811-0001 AB

Item No.	Quantity		TI Part No.	Description	Remarks
0042	00002.000	EA	J972990-0017	SCREW 4-40 X .625 FLT HEAD CRES	
0043	00001.000	EA	J972988-0019	SCREW 4-40 X .750 PAN HEAD CRES	
0044	AR	EA	0802749-0222	ADHESIVE,THREAD SEALING AND LOCKING	
0045	00016.000	EA	J411027-0803	WASHER .125 X .250 X .022 FLAT CRES	
0046	00012.000	EA	0411104-0135	WASHER #4 LOCKSPLIT	
0047	00002.000	EA	J411115-0044	NUT,4-40 HEXAGON CRES STEEL	
0048	00001.000	EA	0411121-0023	SETSCREW 6-32 UNC-3A X .250 CUP POINT	
0049	00001.000	EA	0772458-0001	TAB,2-SIDE QUICK CONNECT-DISCONNECT	
0050	00002.000	EA	J972988-0013	SCREW 4-40 X .250 PAN HEAD CRES	
0051	AR	EA	0232573-0001	OIL #43 TERRESTIC	
0052	AR	TU	0232334-6050	LUBRICANT SILICONE GRS LT GR 2 OZ TUBE	
0053	00001.000	EA	0418212-0040	STRAP,TIEDOWN,ADJUSTABLE,PLASTIC	
0054	00001.000	EA	J983953-0001	SPRING,PAPER ADVANCE	
0055	00001.000	EA	J983929-0001	SPACER SOLENOID MK-10	
0056	00002.000	EA	0972588-0015	SCREW 4-40 X .375 PAN HEAD CRES	
0059	00001.000	EA	J411101-0057	LOCKWASHER # 4 EXTERNAL TOOTH CRES	
0060	00001.000	EA	0056587-0009	RING,RETAINING,TYPE "E"	
0061	00001.000	EA	0983955-0001	LINK,DRIVE ARM	
0062	00001.000	EA	0983957-0001	LINK,CLAW-DRIVE	
0063	00001.000	EA	J983968-0001	WASHER RUBBER 1/32 THK GRAY	
0064	00001.000	EA	0215416-0001	WIPERS-FELT	
0065	00001.000	EA	0083714-0003	GROMMET 1/4 I.D. 1042	
0066	00002.000	EA	0983938-0001	BAIL RETAINER	
0067	00001.000	EA	J416453-0021	NUT,PLAIN,4-40 UNC-2B HEX,CRES,SMALL	
0068	00001.000	EA	J989712-0002	LABEL,WARNING,743/745	
0069	AR	EA	0996514-0001	PLASTIC FILM TAPE	
0070	AR	EA	J996527-0001	ADHESIVE,LOCTITE 416	
0071	00001.000	EA	0996531-0001	PAD,GUM RUBBER	

NOTES UNLESS OTHERWISE SPECIFIED

1. CLIPPING COMPONENT LEADS OPTIONAL.
E. CONDUIT SOLDER ON COMPONENT SIDE.

2. MASK TOOLING HOLES ON 25TH SIDES OF BOARD TO PREVENT SOLDER FROM ENTERING HOLES.

3. MOUNTING HOLES FOR SNAP-UP SAFETY COVER (P/N 937304); 1.57" AFTER TEST.

4. INDICATES COMPONENTS NOT USED.

5. MAX LEAD LENGTH FROM CONDUCTOR SIDE OF BOARD IS .075".

6. SECURE TO PWB USING ITEM 274. ITEM 284

7. INSTALL WITH TIN PLATED CONTACT END OF CABLE IN BOARD.

8. ~~INSTALL WITH TIN PLATED CONTACT END OF CABLE IN BOARD.~~

9. ~~INSTALL WITH TIN PLATED CONTACT END OF CABLE IN BOARD.~~

10. RIBZ ITEM 108 SELECTED AT UNIT TEST. (C261, C316, C365, 422, 511, 619, 732, 687, 1100 OR 1400 GMS.)

11. U10, U12 & U30 USED FOR OPTIONS. INSTALLED AT UNIT CONFIGURATION. IF USED SECURE AS PER NOTE 31.

12. MOUNT DISC (ITEM 231) TO SUPPORT ITEM 287 USING SILICONE CRU. (ITEM 280). 3 POSTS ON SUPPORT USED TO CENTER DISC. DISC SHOULD NOT TOUCH POSTS ON SUPPORT.

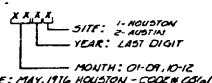
13. INSTALL JUMPER PLUG (ITEM 251) ON PINS (ITEM 225) AT (E311 & E314), (E312 & E315), (E317 & E318), (E32 & E322), (E325 & E326), (E327 & E330), (E387 & E383) AFTER TEST

14. IF THE WRAPS (ITEM 274) ARE USED THE RIBZ SHOULD BE POSITIONED ON THE COMPONENT SIDE OF THE PWB (ITEM 111) (SEE ITEM # ALTERNATE)

15. SOLDER WIRE TO HOLE IN SECOND PLANE ON PWB (E353).

16. INSTALL JUMPER WIRE (ITEM 258) BETWEEN (E360 & E361), (E363 & E364), AND PADS OF R373.
17. INSTALL FUSE CLIP WITH FWD TRAYS TO OUTSIDE OF FUSE POSITIONAL.
18. T301 LEADS SHALL BE RESTRAINED AS NECESSARY USING EXISTING TIE-WRAPPS.
19. POT ADJUSTMENT SHOULD FACE EDGE OF PC BOARD. SECURE TO PWB WITH ITEM 284 ALONGSIDE OF FACING EDGE OF BOARD AND ACCESSIBLE END.
20. TIGHTEN SCREWS ON D31 HEATSINK TO 6 IN-LBS. TIGHTEN ALL OTHER SCREWS TO 3 IN-LBS.
21. CRYSTAL Y1 (ITEM 251) IS TO BE INSTALLED SUCH THAT THE CRYSTAL CRYS IS .030 CMM) FROM THE NEAREST ETCH RUN.
22. JUMPERS INSTALLED AT UNIT CONFIGURATION IF REQUIRED.
23. ITEMS 102, 103, 104, 105, 102, 103 & 104 TO BE INSTALLED WITH THE CLEARANCE OF .020 CMM) & .100 CMM) BETWEEN COMPONENT BODY AND PWB.
24. MAXIMUM INSTALLED HEIGHT ON C323, C324, C328, C329 ITEM AT J15 0.87.
25. SEAL THREADS ON ITEM 281 P22 PROCESS 4

26. STAMP OR MARK SITE CODE IN APPROXIMATE LOCATION INDICATED. THE CODE WILL INDICATE MONTH, YEAR AND SITE OF MANUFACTURE AS FOLLOWS:



27. INSTALL SAFETY GROUND WIRE (ITEM 271) AS FOLLOWS.
28. BETWEEN J301 CENTER PIN AND E355. BETWEEN J301 CENTER PIN AND E349. ADD RTV AS NEEDED
29. STACK C325 AND C326 HORIZONTALLY ON TOP OF T302. SLEEVE ALL FOUR LEAD WITH ITEM 283. INSTALL ONE LEAD OF C325 IN HOLE NEAREST SILK SCREEN "C325". INSTALL SECOND LEAD OF C325 IN HOLE JUST BELOW E355. INSTALL ONE LEAD OF C326 IN HOLE JUST ABOVE E355 AND SECOND IN HOLE JUST ABOVE AND TO THE RIGHT OF R354. USE RTV (ITEM 280) AS NEEDED TO SECURE COMPONENTS.
30. INSTALL JUMPER (WHITE TEFロン WIRE ITEM 218) BETWEEN E388 & E389 AND E370 & E371.
31. SECURE WITH ITEM 280 AT END OPPOSITE LEADS OR ALTERNATE (ITEM 274).
32. SECURE DEVICES TO SOCKETS WITH ITEM 280 AT BOTH ENDS OR WITH ALTERNATE ITEM 274. (SEE VIEW P-P, 54 6).
33. SECURE TO PWB WITH MINCH MIN READ OF ITEM 280 ALONG EACH ACCESSIBLE SIDE AND BETWEEN ADJACENT CAPACITORS (SEE VIEW H-H, 54 5) OR USE ALTERNATE (ITEM 274).
34. IF ITEM 274 (TIE WRAPS) IS USED FOR NOTES 7, 30, 31 AND/OR 32, DO NOT INSTALL UNTIL AFTER TEST ALSO, IF ITEM 280 (RTV) IS USED FOR NOTES 7, 28, 30, 31, 32, DO NOT INSTALL UNTIL AFTER TEST C356, C354 AND CR355 ARE NOT INSTALLED ON DOMESTIC BOARD. INSTALL JUMPER WIRE (ITEM 258) IN PLACE OF C356 ONLY

(NOTES CONT SHIT 6)

REV	DESCRIPTION	DATE	APPROVED
A	CA 421782 (D) P.A. - (REVISED PER EXTENSIVE ENGINEERING CHANGE) (2) UPDATED REVISION LEVEL BLOCK	9-12-77	[Signature]
B	(CA 421781 (C) R. [REVISION] (1) REVISED EXTENSIVE ENG. CHANGES (2) UPDATED REVISION LEVEL BLOCK	12-1-77	[Signature]
C	(CA 429244 (C) R. [REVISION] (1) REVISED L.M.S. ITEM 172, R10 WAS R11. ITEM 154, R11 WAS R10 (2) UPDATED REVISION LEVEL BLOCK	12-1-77	[Signature]
D	(1) 026543 (B) NEW. 1. ADDED NOTE 26 (2) REV REVISION LEVEL BLOCK (3) 1-5-78	1-5-78	[Signature]
E	(1) 024255 (C) NEW. 1. ADDED NOTE 192 (2) REV USER EXTENSIVE ENG. CHANGES (3) UPDATED REVISION LEVEL BLOCK	4-13-78	[Signature]
F	(1) 032479 (B) NEW. 1. ADDED NOTE 42 (2) UPDATED REVISION LEVEL BLOCK	4-13-78	[Signature]
G	(1) 032479 (B) NEW. 1. ADDED NOTE 42 (2) UPDATED REVISION LEVEL BLOCK	4-13-78	[Signature]
H	(1) 032479 (B) NEW. 1. ADDED NOTE 42 (2) UPDATED REVISION LEVEL BLOCK	4-13-78	[Signature]
J	(1) 032479 (B) NEW. 1. ADDED NOTE 42 (2) UPDATED REVISION LEVEL BLOCK	4-13-78	[Signature]
K	(1) 032479 (B) NEW. 1. ADDED NOTE 42 (2) UPDATED REVISION LEVEL BLOCK	4-13-78	[Signature]

PART NUMBER	DESCRIPTION
937300-0004	AUTO INSERTED PARTS LIST FOR 937300-0004
937300-0003	AUTO INSERTED PARTS LIST FOR 937300-0003
937300-0002	AUTO INSERTED PARTS LIST FOR 937300-0002
937300-0001	AUTO INSERTED PARTS LIST FOR 937300-0001
937300-0004	TERMINAL ELECTRONICS, 743/145 W/MODEM (HTT)
937300-0003	TERMINAL ELECTRONICS, 743/145 W/MODEM
937300-0002	TERMINAL ELECTRONICS, 743-21A/TTY
937300-0001	TERMINAL ELECTRONICS, 743/145 W/MODEM
937300-0004	TERMINAL ELECTRONICS, 743/145 W/MODEM (MTP)
937300-0003	TERMINAL ELECTRONICS, 743/145 W/MODEM
937300-0002	TERMINAL ELECTRONICS, 743-21A/TTY
937300-0001	TERMINAL ELECTRONICS, 743/145 W/MODEM

REVISION LEVEL	TEST PROC (937301)	ASSEMBLY (937300)	SCHEMATIC (937298)	PWB (937299)
	* 1 * 1 * # * * * * * * * * * * * *	* A * E * C * D * E * F * G * H * J * K * L * M * N *	* A * E * A * B * B * C * C * C * C * D * D * D * E *	* * C * C * C * E * E * E * E * E * E * E * E *

SEQ NO	IDENT	PROCESS	FILED	NO	ADDITIONAL	NOTES
1	SEAL	650-01	15		USE ITEM 282	
2	SLOT	127-01	00			
3	SLOT	124-02	00			
4	MARK	100-02	21		-12 SH. .09, COLOR BLK	

REV STATUS	REV	N	M	M	M	M	N	L	M
SHEETS, SHEET		2		3	4	5	6	7	
PART OR IDENTIFYING NUMBER		PARTS LIST		PROCUREMENT SPECIFICATION		NOTES			
UNLESS OTHERWISE SPECIFIED		TERMINAL ELECTRONICS		TERMINAL ELECTRONICS		TERMINAL ELECTRONICS		TERMINAL ELECTRONICS	
DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		TOLERANCES UNLESS OTHERWISE SPECIFIED		HOLE TOLERANCE		HOLE TOLERANCE		HOLE TOLERANCE	
DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		TOLERANCES UNLESS OTHERWISE SPECIFIED		HOLE TOLERANCE		HOLE TOLERANCE		HOLE TOLERANCE	
DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		TOLERANCES UNLESS OTHERWISE SPECIFIED		HOLE TOLERANCE		HOLE TOLERANCE		HOLE TOLERANCE	
DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		TOLERANCES UNLESS OTHERWISE SPECIFIED		HOLE TOLERANCE		HOLE TOLERANCE		HOLE TOLERANCE	
DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		TOLERANCES UNLESS OTHERWISE SPECIFIED		HOLE TOLERANCE		HOLE TOLERANCE		HOLE TOLERANCE	
DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		TOLERANCES UNLESS OTHERWISE SPECIFIED		HOLE TOLERANCE		HOLE TOLERANCE		HOLE TOLERANCE	
DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		TOLERANCES UNLESS OTHERWISE SPECIFIED		HOLE TOLERANCE		HOLE TOLERANCE		HOLE TOLERANCE	
DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		TOLERANCES UNLESS OTHERWISE SPECIFIED		HOLE TOLERANCE		HOLE TOLERANCE		HOLE TOLERANCE	

A-30

D

C

B

A

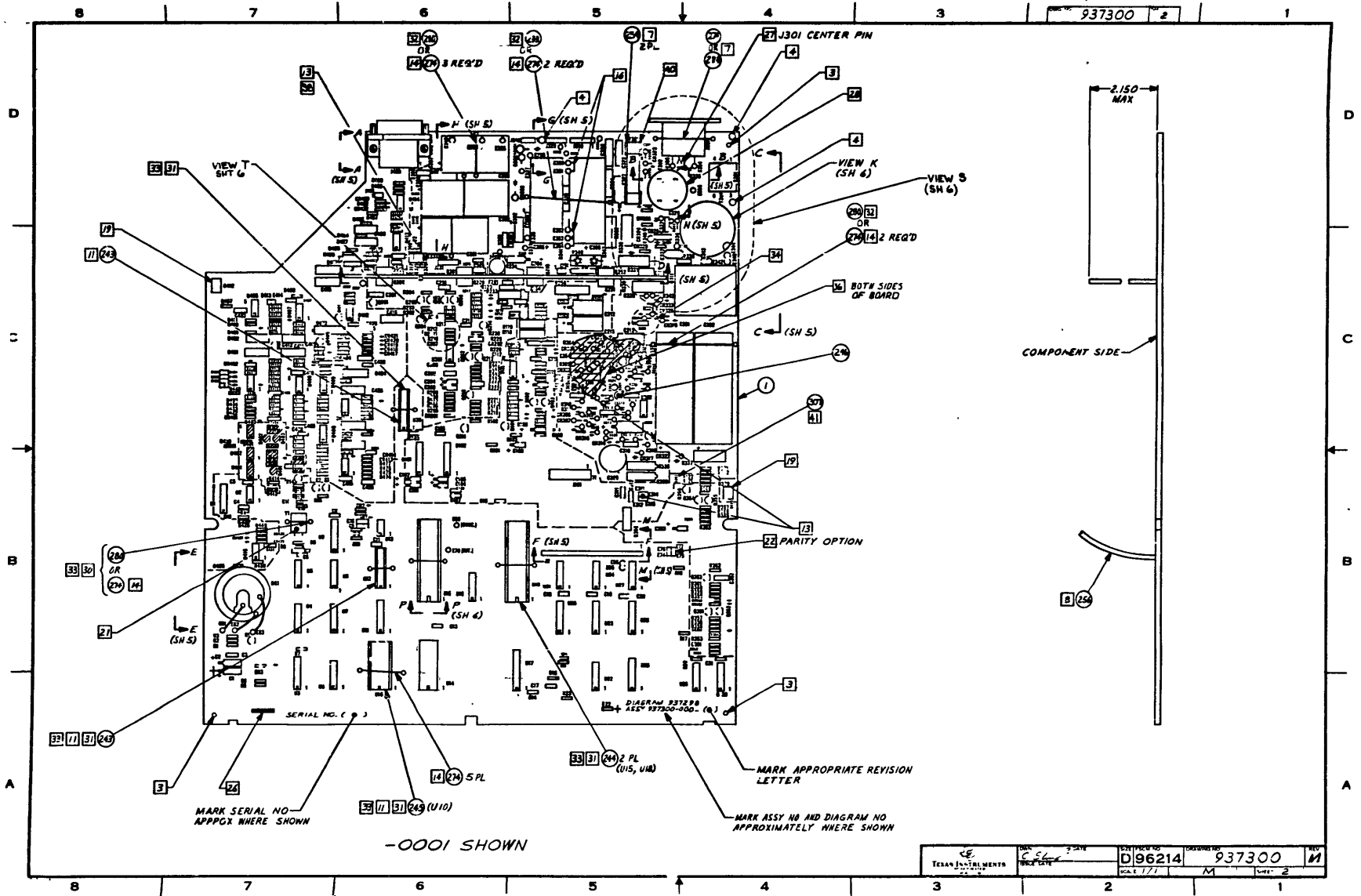
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C

B

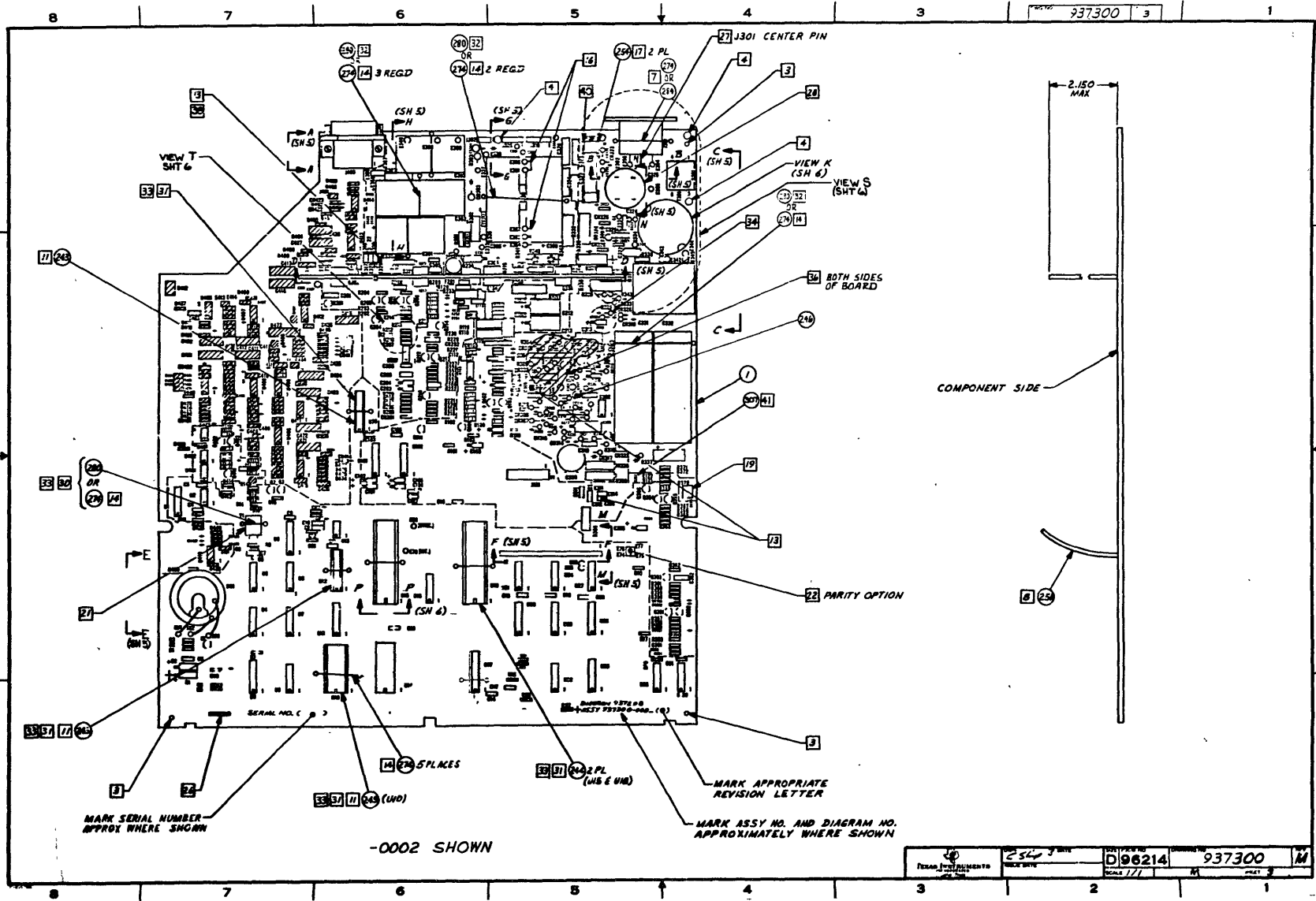
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A-31

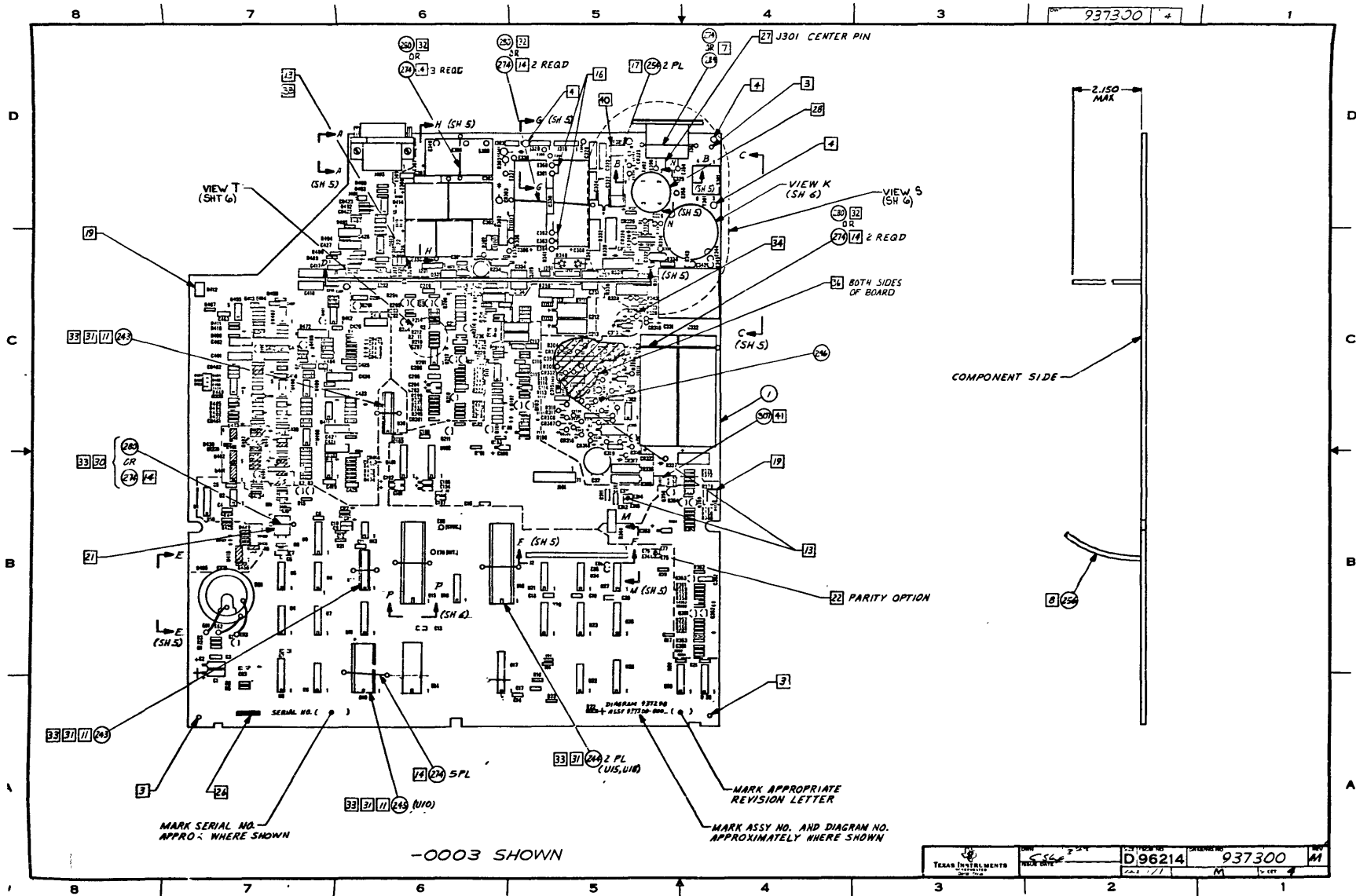


DATE	REV	QUANTITY	DESCRIPTION	UNIT
		D 96214	937300	M
DATE	REV	QUANTITY	DESCRIPTION	UNIT
		M		2

A-32



A-33



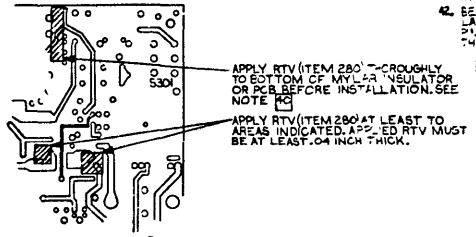
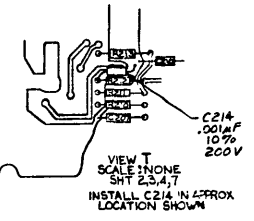
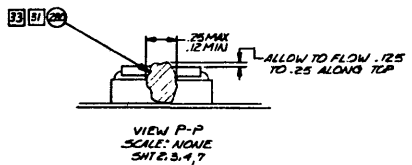
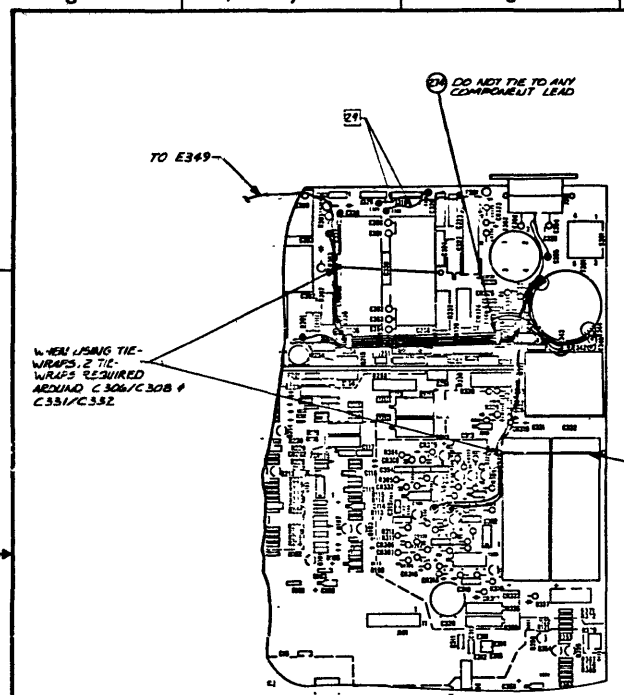
937300

MARK SERIAL NO. APPROX. WHERE SHOWN

-0003 SHOWN

MARK APPROPRIATE REVISION LETTER
MARK ASSY NO. AND DIAGRAM NO. APPROXIMATELY WHERE SHOWN

TEXAS INSTRUMENTS CORPORATION	DESIGN NO. D 96214	REV. NO. M	DATE 2/77	QUANTITY 10,000
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VIEW K SCALE: NONE SHIT 2.3, 4, 7
WIRE ROUTING VIEW (T 301)
FOR ALL DASH NO (SEE TABLE I, BELOW)

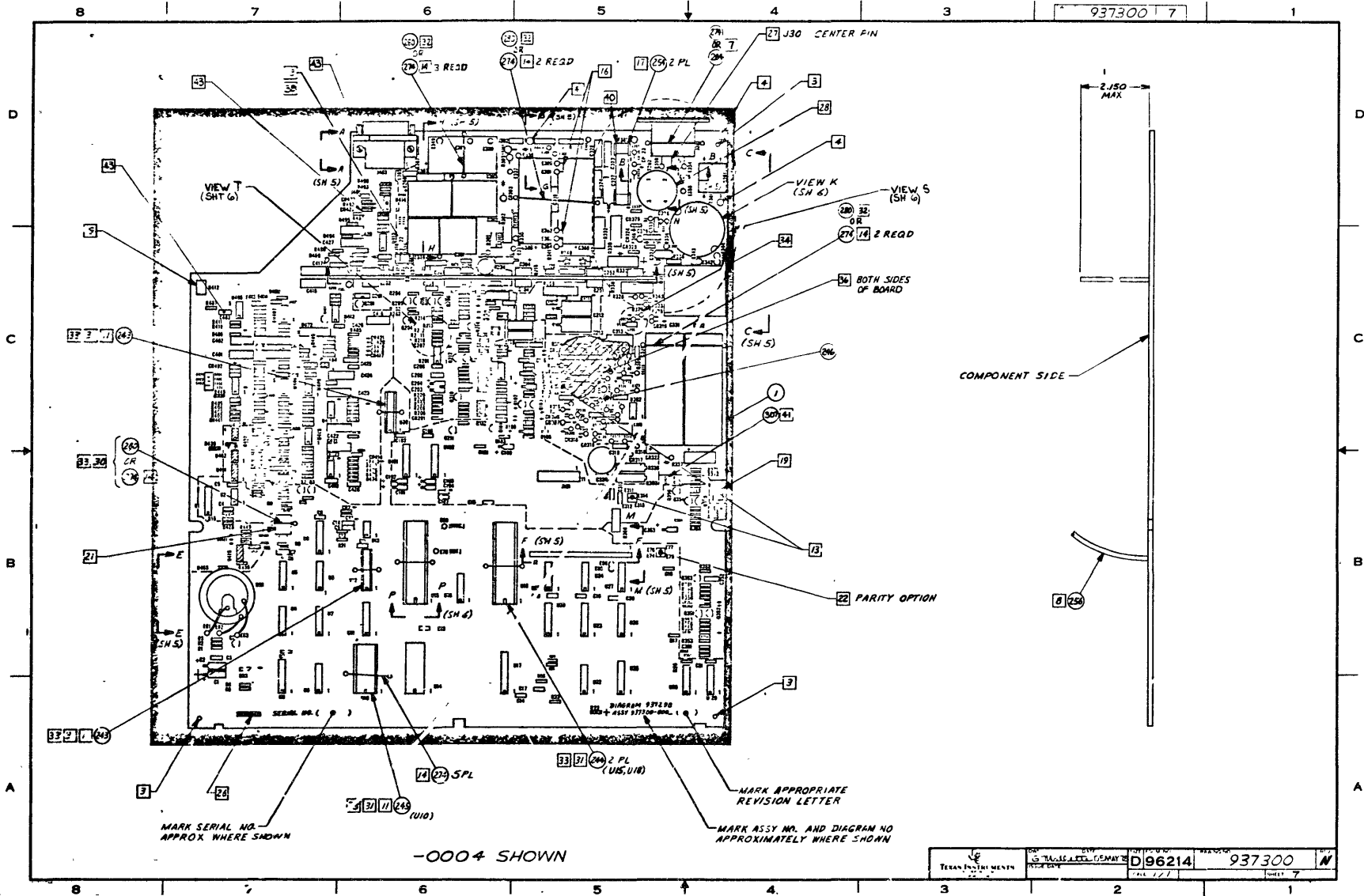
NO	COLOR	FROM	TO
1	BROWN	T301-1	E340
2	RED	-2	E339
3	ORANGE	-3	E349
4	YELLOW	-4	E345
5	GREEN	-5	E302
6	BLUE	-6	E301
7	VIOLET	-7	E356
8	GRAY	-8	E333
9	WHITE	-9	E335
10	BLACK	-10	E352
11	WHY/BDU	-11	E357
12	WHY/RED	-12	E358
13	WHY/GRN	-13	E342
14	W-TYPE	T301-14	E343
15		J301-2	E349

- NOTE: CONT:
- APPLY SILICON GREASE (ITEM 336) TO BACK SIDE OF TRANSISTOR BEFORE INSTALLATION
 - CLEAN DESIGNATED AREAS WITH ALCOHOL, DRY WITH HOT AIR, AND CONFORMAL COAT WITH 5-73140 (ITEM 280). THIS OPERATION TO BE PERFORMED AFTER TEST
 - WHEN USING A REV A PCB (E312721) THE FOLLOWING DIFFERENCES SHOULD BE NOTED:
 - R373 IS LABELED R273 ON THE SILKSCREEN
 - R439 IS LABELED R333 ON THE SILKSCREEN
 - ON THE SILKSCREEN FOR .301, PINS 4 & 6 SHOULD BE REVERSED
 - THE FOLLOWING CAPS SHOULD BE INSTALLED WITH LEADS FACING THE J403 SIDE OF PCB: C301, C302, C303. POLARITY SHOULD BE PER SHIT 2 OF THIS DRAWING. ITEMS C336, C338, C339, AND C355 ARE NOT ON THE REV A PCB AND ALL INSTRUCTIONS CONCERNING THESE PARTS COULD BE IGNORED
 - AFTER TEST AND BEFORE INSTALLING THE POWER SUPPLY JUMPERS, INSTALL A FERRITE BEAD (ITEM 308) ON E310 AND E321. MAKE SURE THE BEADS ARE SEATED FLUSH ON THE PCB. THEN INSTALL JUMPERS ON TOP OF BEADS. IT IS OK FOR BEADS TO TOUCH EACH OTHER OR BOARD EDGE. AFTER INSTALLING JUMPERS (ITEM 257) ON E310 AND E321, USE 302, E325, E326 AND 309, E330. APPLY HOT MELT (ITEM 407) TO THESE JUMPERS. HOT MELT SHOULD BE CAREFULLY APPLIED TO THE TOPS OF THE FOUR JUMPERS. APPLICATION SHOULD BE CONTROLLED TO KEEP HOT MELT OFF THE BOARD OR STAKE PINS (J403). THESE JUMPERS ARE REMOVED FOR ANY REASON WHEN REPLACED THEY MUST BE REAPPLIED WITH HOT MELT. IF HOT MELT (ITEM 407) IS NOT AVAILABLE RTV 3144 (ITEM 311) MAY BE USED AS A SUBSTITUTE.
 - ITEM 309 VIBRATION COSETS OF COMPONENTS WHICH ARE AUTO-INSERTED AND CONTAINED IN THE -5000 SERIES L/M'S.
 - ON REV B AND C 937299 PCB ADD A MYLAR INSULATOR BETWEEN FUSE CLIP NEAREST THE EDGE OF THE BOARD AND C025 CR323, CR325 & CR330. THE INSULATOR SHOULD HAVE THE FOLLOWING DIMENSIONS: 3/4" x 3/4" x .001" THICK. AT LEAST 2 MILS THICK. APPLY RTV (ITEM 280) THOROUGHLY TO PCB OR MYLAR BEFORE INSTALLATION (SEE VIEW S) AND GLUE MYLAR STRIP UNDER LEFT SIDE OF THE FUSE CLIP (BETWEEN CR325 AND FUSE CLIP). EXTEND MYLAR PAST FUSE CLIP APPROX 1/4 INCH.
 - SOLDER WIRE (REV 301) TO HOLE IN GROUND PLANE AT E257 ON REV C PCB'S AND LATER.
 - BERG TRIPIN TIP IN 996805 WILL NEED TO BE USED IN ALL LARGE HOLES THAT WILL NOT ACCEPT PRESENT STAKE PIN (ITEM 225). ALL 937299 REV B PCB'S WILL REQUIRE THIS PIN.
 - ON -0004 ASSY'S ONLY, INSTALL JUMPER WIRE (ITEM 258) AT C403. INSTALL C432 (ITEM 701) ON COMPONENT SIDE AT CR422-280W AND U414 PINS 3. INSTALL C433 (ITEM 701) ON CONDUCTOR SIDE AT U414 PINS 3 & 5

VIEW S SCALE: NONE SHIT 2.3, 4, 7
COMPONENT SIDE ETCH
APPLIES TO ALL DASH NUMBERS
APPLIES TO ONLY 937299 REV B
(REV C PCB'S)

A-35

A-36



MARK SERIAL NO.
APPROX WHERE SHOWN

-0004 SHOWN

MARK APPROPRIATE
REVISION LETTER

MARK ASSY NO. AND DIAGRAM NO
APPROXIMATELY WHERE SHOWN

TEXAS INSTRUMENTS	D 96214	937300	7	N
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LIST OF MATERIALS

Assembly			Part No.	Rev.	
TERMINAL ELECTRONICS, 743/745 W/MODEM			0937300-0001	P	
TERMINAL ELECTRONICS, 743-EIA/TTY			0937300-0002	P	
TERMINAL ELECTRONICS, 743/745 CCITT MODM			0937300-0003	P	
Item No.	Quantity	TI Part No.	Description	Remarks	
0002	00001.000	EA 0222222-7109	NETWORK SN74109N		
0002A			U003		
0003	00002.000	EA 0222222-7157	NETWORK SN74157N		
0003A			U020 U23		
0004	00001.000	EA 0222222-7174	NETWORK SN74174N		
0004A			U026		
0005	00002.000	EA 0222222-7175	NETWORK SN74175N		
0005A			U009 U025		
0006	00002.000	EA 0222222-7404	NETWORK SN7404N		
0006A			U005 U021		
0007	00002.000	EA 0222222-7406	NETWORK SN7406N		
0007A			U024 U027		
0008	00001.000	EA 0222222-7492	NETWORK-SN7492N		
0008A			U028		
0009	00001.000	EA 0222222-7493	NETWORK-SN7493N		
0009A			U029		
0010	00002.000	EA 0222224-2741	NETWORK SN72741P OPERATIONAL AMP		
0010A			U103 U302		
0011	00002.000	EA 0222225-2311	NETWORK LM311N,SN72311P		
0011A			U201 U412		
0012	00001.000	EA 0972788-0001	NETWORK,SN74LS11,POSITIVE AND GATE		
0012A			U008		
0013	00001.000	EA 0244715-7404	NETWORK,SN74L04N		
0013A			U004		
0014	00001.000	EA 0537948-0001	NETWORK SN75150P		
0014A			U002		
0015	00001.000	EA 0944472-0001	NETWORK,TMS-8080 MICRO PROCESSOR		
0015A			U015		
0016	00001.000	EA 0972450-0002	NETWORK,SN75189AN/MC1489AL QUAD LINE RCR		
0016A			U001		
0017	00001.000	EA 0972452-0001	NETWORK,TMS4036NL 64WORD X 8BIT ST RAM		
0017A			U017		
0018	00011.000	EA 0996034-0002	IC,RC4558P OPERATIONAL AMPLIFIER		for-0001 only
0018A			U404 THRU U411 U413 U414		
0018B			U415		
0018	00010.000	EA 0996034-0002	IC,RC4558P OPERATIONAL AMPLIFIER		for-0003 only
0018A			U404 THRU U411 U413 U414		
0019	00001.000	EA 0972469-0002	NETWORK TMS5504,I/O AND TIMER		
0019A			U018		
0020	00001.000	EA 0996093-0001	NETWORK,SN75350P,DUAL NAND DRIVER		
0020A			U013		
0021	00002.000	EA 0972900-7432	NETWORK SN74LS32N		
C021A			U006 U007		

LIST OF MATERIALS

Assembly			Part No.	Rev.	
TERMINAL ELECTRONICS, 743/745 W/MODEM			0937300-0001	P	
TERMINAL ELECTRONICS, 743-EIA/TTY			0937300-0002	P	
TERMINAL ELECTRONICS, 743/745 CCITT MODM			0937300-0003	P	
Item No.	Quantity	TI Part No.	Description	Remarks	
0022	00002.000	EA 0983810-0001	IC,SN98614N DRIVER THERMAL PRINTHEAD		
0022A			U101 U102		
0023	00001.000	EA 0972141-0062	NETWORK,RESISTOR 6.8K OHMS 2 % 14 PIN		
0023A			U016		
0024	00001.000	EA 0972141-0057	NETWORK,RES. 4.7 K OHM 2 % 14 PIN DIP		
0024A			U022		
0025	00001.000	EA 0972900-7138	NETWORK SN74LS138N		
0025A			U011		
0028	00001.000	EA 0971000-0001	IC,OPTICALLY COUPLED ISOLATOR		
0028A			U402		
0029	00001.000	EA 0972625-0001	NETWORK OC1449 OPTICALLY COUPLED	for-0002 only	
0029A			U403		
0030	00001.000	EA 0972018-0004	TRANSISTOR,E176-FET P CHAN SILICON JCT	for-0003 only	
0030A			Q405		
0031	00001.000	EA 0772116-0001	TRANSISTOR T1S75		
0031A			Q102		
0032	00005.000	EA 0800523-0001	TRANSISTOR A5T2907 PNP SILICON		
0032A			Q103 Q213 Q214 Q303 Q305		
0033	00024.000	EA 0972057-0001	TRANSISTOR-A5T2222 NPN SILICON		
0033A			Q001 Q002 Q003 Q101 Q205		
0033B			Q206 Q207 Q210 Q211 Q212		
0033C			Q302 Q304 Q306 Q308 Q309		
0033D			Q351 THRU Q356 Q406 Q407		
0033E			Q551		
0033	00023.000	EA 0972057-0001	TRANSISTOR-A5T2222 NPN SILICON		
0033A			Q001 Q002 Q003 Q101 Q205		
0033B			Q206 Q207 Q210 Q211 Q212		
0033C			Q302 Q304 Q306 Q308 Q309		
0033D			Q351 THRU Q356 Q401 Q403		
0033	00023.000	EA 0972057-0001	TRANSISTOR-A5T2222 NPN SILICON		
0033A			Q001 Q002 Q003 Q101 Q205		
0033B			Q206 Q207 Q210 Q211 Q212		
0033C			Q302 Q304 Q306 Q308 Q309		
0033D			Q351 THRU Q356 Q406		
0033E			Q407		
0034	00003.000	EA 0972455-0004	TRANSISTOR,SILICON-P-N-P,A5T4029		

LIST OF MATERIALS

Assembly	Part No.	Rev.
TERMINAL ELECTRONICS, 743/745 W/MODEM	0937300-0001	P
TERMINAL ELECTRONICS, 743-EIA/TTY	0937300-0002	P
TERMINAL ELECTRONICS, 743/745 CCITT MODM	0937300-0003	P

Item No.	Quantity	EA	TI Part No.	Description	Remarks
0034A				Q201 Q204 Q208	
0035	00001.000	EA	0972465-0002	THYRISTORS,TRIODE P-N-P-N SILICON TIC106	
0035A				Q310	
0036	00001.000	EA	0972499-0001	NETWORK,LM320T-5.0/MC7905CP,-5 VOLT	
0036A				Q301	
0037	00003.000	EA	0972572-0002	TRANSISTOR,TIP121 SILICON N-P-N DARLNGTN	
0037A				Q104 Q251 Q252	
0038	00001.000	EA	0972957-0001	TRANSISTOR,2N930A NPN LOW CUR AMP,TO-18	
0038A				Q307	
0039	00003.000	EA	0972962-0001	TRANSISTOR,TIP41B NPN,PLASTIC	
0039A				Q202 Q203 Q215	
0040	00001.000	EA	0972963-0001	TRANSISTOR,TIP42B PNP,PLASTIC	
0040A				Q209	
0041	00001.000	EA	0974759-0001	TRANSISTOR,EPI580,N-P-N SILICON	
0041A				Q311	
0042	00001.000	EA	0772637-0006	TRANSISTOR,TIS99	for-0002 only
0042A				Q402	
0046	00005.000	EA	0539468-0007	DIODE,1N4007 1AMP 1000PIV RECTIFIER	
0046A				CR315 CR323 CR325 CR326	
0046B				CR330	
0047	00003.000	EA	0996281-0001	DIODE UES 1101	
0047A				CR301 CR302 CR304	
0053	00001.000	EA	0972608-0001	DIODE,1N5820 3AMP SCHOTTKY RECTIFIER	
0053A				CR303	
0054	00016.000	EA	0972932-0001	DIODE,1N914B SWITCHING 75V PIV 75MA 4NS	
0054A				CR306 THRU CR311	
0054B				CR313 CR314 CR316 CR318	
0054C				CR319 CR328 CR332 CR334	
0054D				CR335 CR336	
0056	00001.000	EA	0972934-0008	DIODE,1N753A 6.2 V 5% SIL VOLT REG	
0056A				CR317	
0057	00002.000	EA	0972934-0014	DIODE,1N759A 12.0 V 5% SIL VOLT REG	
0057A				CR305 CR333	
0059	00001.000	EA	0996281-0006	RECTIFIER,SS3892/UES1302,V(R)100V I(O)16A	
0059A				CR322	
0065	00001.000	EA	0419051-0102	CAP FIX FILM FOIL .001 UF 5% 200VDC /	for-0001 & -0003
0065A				C402	
0066	00005.000	EA	0410529-0019	CAPACITOR,.01UF 1000 VDC,FX,CER DIELECT GMV	
0066A				C307 C320 C325 C326 C330	
0067	00004.000	EA	0412645-0019	CAPACITOR, .100 UF 500V +80% -20% FX DI	
0067A				C323 C324 C328 C329	
0071	00002.000	EA	0972225-0510	CAPACITOR,1.0 UF 50V 20% CERAMIC	for-0001
0071	00001.000	EA	0972225-0510	CAPACITOR,1.0 UF 50V 20% CERAMIC	for-0002

LIST OF MATERIALS

Assembly			Part No.	Rev.	
TERMINAL ELECTRONICS, 743/745 W/MODEM			0937300-0001	P	
TERMINAL ELECTRONICS, 743-EIA/TTY			0937300-0002	P	
TERMINAL ELECTRONICS, 743/745 CCITT MODM			0937300-0003	P	
Item No.	Quantity	TI Part No.	Description	Remarks	
0071A			C305 C410		
0071A			C305		
0072	00012.000	EA 0972476-0001	CAP, .01UF, 1% 50WVDC MINIMUM		
0072A			C401 C411 C412 C416 C417		
0072B			C418 C421 C422 C423 C424		for-0001 & -0003
0072C			C427 C428		
0073	00002.000	EA 0972601-0001	CAPACITOR 200UF 200WVDC 10%		
0073A			C306 C308		
0077	00001.000	EA 0972924-0011	CAP FIX TANT SOLID 68 MFD 10 % 15 VOLT		
0077A			C327		
0079	00002.000	EA 0972924-0015	CAP FIX TANT SOLID 47 MFD 10 % 20 VOLT		
0079A			C313 C355		
0081	00001.000	EA 0972928-0005	CAP FIX MICA 500V 1500 PF 5 %		
0081A			C322		
0082	00001.000	EA 0972929-0379	CAP FIX CERAMIC 100 PF 10 % 200 V		
0082A			C007		
0083	00002.000	EA 0972929-0376	CAP FIX CERAMIC 68.0 PF 10 % 200 V		
0083A			C009 C010		
0084	00003.000	EA 0972929-0385	CAP FIX CERAMIC 220 PF 10% 200V		
0084A			C119 C205 C352		
0085	00003.000	EA 0972929-0397	CAP FIX CERAMIC .001 UF 10% 200V		
0085A			C115 C117 C214		
0086	00002.000	EA 0972929-0411	CAP FIX CERAMIC .0056 UF 10% 100V		for-0001 & -0003
0086A			C419 C420		
0087	00001.000	EA 0996615-0002	CAPACITOR, 4400UF 7.5V ELECTROLYTIC		for-0001 & -0003
0087A			C302		
0088	00002.000	EA 0996615-0001	CAPACITOR 2200 UF 16VDC 10% ELECTROLY		
0088A			C301 C303		
0089	00002.000	EA 0996615-0003	CAPACITOR, 1500 UF 40VDC 10% ELECTROLYTIC		for-0001 & -0002
0089A			C331 C332		
0089	00001.000	EA 0996615-0003	CAPACITOR, 1500 UF 40VDC 10% ELECTROLYTIC		for-0003
0089A			C331 C332		
0090	00003.000	EA 0972965-0004	CAP FIX CERAMIC 2200 PF 10% 200V		for-0001 & -0003
0090A			C003 C404 C409		
0090	00001.000	EA 0972965-0004	CAP FIX CERAMIC 2200 PF 10% 200V		for-0002
0090A			C003		
0091	00002.000	EA 0972965-0008	CAP FIX CERAMIC .0047 MF 10% 200 V		
0091A			C317 C354		
0092	00005.000	EA 0972965-0012	CAP FIX CERAMIC .010 MF 10% 200V		
0092A			C118 C201 C202 C208 C209		
0093	00002.000	EA 0972965-0016	CAP FIX CERAMIC .022 MF 10% 100V		
0093A			C315 C321		

LIST OF MATERIALS

Assembly	Part No.	Rev.
TERMINAL ELECTRONICS, 743/745 W/MODEM	0937300-0001	P
TERMINAL ELECTRONICS, 743-EIA/TTY	0937300-0002	P
TERMINAL ELECTRONICS, 743/745 CCITT MODM	0937300-0003	P

Item No.	Quantity	EA	TI Part No.	Description	Remarks
0094	00010.000	EA	0972965-0024	CAP FIX CERAMIC .100 MF 10% 100V	
0094A				C310 C311 C312 C314 C316	for-0001
0094B				C319 C333 C403 C405 C431	
0094	00007.000	EA	0972965-0024	CAP FIX CERAMIC .100 MF 10% 100V	
0094A				C310 C311 C312 C314	for-0002
0094B				C316 C319 C333	
0094	00009.000	EA	0972965-0024	CAP FIX CERAMIC .100 MF 10% 100V	
0094A				C310 C311 C312 C314 C316	for-0003
0094B				C319 C333 C403 C405	
0095	00001.000	EA	0972225-0522	CAPACITOR,2.2 UF 50V 20% CERAMIC	for-0001 & -0003
0095A				C432	
0095	00001.000	EA	0972225-0522	CAPACITOR,2.2 UF 50V 20% CERAMIC	
0095A				C432	
0097	00002.000	EA	0996597-0001	CAPACITOR,25 UF 40V 10% ALUM ELECTROLYTI	
0097A				C212 C213	
0100	00001.000	EA	0983937-0003	RESISTOR,SELECTED,743/745 PWB,MODEM CKT	
0100A				R468 OR R469	
0100	00001.000	EA	0983937-0003	RESISTOR,SELECTED,743/745 PWB,MODEM CKT	for-0001 & -0003
0100A				R468 OR R469	
0101	00001.000	EA	0972630-0018	RES FIX .150 OHM 1W 1% WIREWOUND POWER	
0101A				R338	
0102	00001.000	EA	0972942-0079	RESISTOR,9.0 OHMS 5% FX,WW 5W	
0102A				R330	
0103	00001.000	EA	0972942-0020	RES FIX 600. OHMS 5% 5 WATT WIREWOUND	
0103A				R337	
0104	00002.000	EA	0538425-0115	RES 15000. OHM 5% 2WATT FIX COMP	
0104A				R332 R339	
0105	00001.000	EA	0538425-0123	RES 33000. OHM 5% 2WATT FIX COMP	
0105A				R340	
0106	00001.000	EA	0983937-0001	RESISTOR,SELECTED,743/745 PWB,PVOLTS	
0106A				R122	
0121	00001.000	EA	0539370-0477	RES FIX FILM 9.09K OHM 1% .25 WATT	
0121A				R325	
0123	00001.000	EA	0539370-0497	RES FIX FILM 14.7K OHM 1% .25 WATT	
0123A				R335	
0146	00001.000	EA	0972228-0008	RES,VAR 2 K-OHM CERMET ELEMENT	
0146A				R472	
0147	00001.000	EA	0972228-0010	RESISTOR,VARIABLE 10K OHM CERMET FILM	for-0001 & -0003 only
0147A				R336	
0148	00001.000	EA	0972228-0013	X RES.VAR 100K OHM CERMET FILM	
0148A				R309	

LIST OF MATERIALS

Assembly			Part No.	Rev.	
TERMINAL ELECTRONICS, 743/745 W/MODEM			0937300-0001	P	
TERMINAL ELECTRONICS, 743-EIA/TTY			0937300-0002	P	
TERMINAL ELECTRONICS, 743/745 CCITT MODM			0937300-0003	P	
Item No.	Quantity	TI Part No.	Description	Remarks	
0149	00001.000	EA 0972466-0001	RES, VAR, CERMET-20K, 5%		
0149A			R234		
0150	00001.000	EA 0972619-0004	RESISTOR VAR 500 OHM 5% .5W		
0150A			R123		
0151	00001.000	EA 0996651-0001	RESISTOR, 285 C .5W 10% VARIABLE	for-0001 & -0003 only	
0151A			R412		
0152	00001.000	EA 0972554-0006	RESISTOR, FIXED, WIREWOUND .5 OHM 3W 1%		
0152A			R233		
0153	00001.000	EA 0972942-0013	RES FIX 20.0 OHMS 5% 5 WATT WIREWOUND		
0153A			R258		
0154	00001.000	EA 0972942-0039	RES FIX 400 OHM 5% 5 WATT WIREWOUND		
0154A			R331		
0155	00001.000	EA 0972946-0009	RES FIX 4.7 OHM 5% .25 W. CARBON FILM		
0155A			R311		
0156	00001.000	EA 0972946-0013	RES FIX 6.8 OHM 5%.25W CARBON FILM		
0156A			R312		
0158	00001.000	EA 0972946-0021	RES FIX 15.0 OHM 5% .25 W. CARBON FILM		
0158A			R344		
0159	00001.000	EA 0972946-0025	RES FIX 22.0 OHM 5% .25 W. CARBON FILM		
0159A			R327		
0160	00001.000	EA 0972946-0039	RES FIX 82.0 OHMS 5% .25 W CARBON FILM		
0160A			R313		
0161	00001.000	EA 0972946-0003	RES FIX 2.7 OHM 5% .25 W. CARBON FILM		
0161A			R314		
0162	00002.000	EA 0972946-0045	RES FIX 150 OHM 5% .25 W CARBON FILM		
0162A			R315 R334		
0167	00003.000	EA 0972946-0055	RES FIX 390 OHM 5% .25 W CARBON FILM		
0167A			R316 R318 R320		
0168	00001.000	EA 0972946-0057	RES FIX 470 OHM 5% .25 W CARBON FILM		
0168A			R343		
0170	00001.000	EA 0972946-0059	RES FIX 560 OHM 5% .25 W CARBON FILM		
0170A			R333		
0172	00001.000	EA 0972946-0065	RES FIX 1.0K OHM 5% .25 W CARBON FILM		
0172A			R323		
0173	00001.000	EA 0972946-0069	RES FIX 1.5K OHM 5% .25 W CARBON FILM		
0173A			R304		
0178	00001.000	EA 0972946-0077	RES FIX 3.3K OHM 5% .25 W CARBON FILM		
0178A			R326		
0182	00001.000	EA 0972946-0085	RES FIX 6.8K OHM 5% .25 W CARBON FILM		
0182A			R307		
0184	00002.000	EA 0972946-0089	RES FIX 10K OHM 5% .25 W CARBON FILM		
0184A			R306 R321		

LIST OF MATERIALS

Assembly			Part No.	Rev.	
TERMINAL ELECTRONICS, 743/745 W/MODEM			0937300-0001	P	
TERMINAL ELECTRONICS, 743-EIA/TTY			0937300-0002	P	
TERMINAL ELECTRONICS, 743/745 CCITT MODM			0937300-0003	P	
Item No.	Quantity	EA	TI Part No.	Description	Remarks
0187	00002.000	EA	0972946-0095	RES FIX 18K OHM 5% .25 W CARBON FILM	
0187A				R324 R345	
0192	00001.000	EA	0972946-0105	RES FIX 47 K OHM 5% .25 W CARBON FILM	
0192A				R305	
0199	00001.000	EA	0972946-0129	RES FIX 470K OHM 5% .25 W CARBON FILM	
0199A				R328	
0204	00002.000	EA	0972946-0037	RES FIX 68.0 OHM 5% .25 W CARBON FILM	for-0003 only
0204A				R317 R346	
0207	00001.000	EA	0972947-0029	RES FIX 33 OHM 5% .5 W CARBON FILM	
0207A				R322	
0208	00002.000	EA	0972947-0057	RES FIX 470 OHM 5% .5 W CARBON FILM	
0208A				R301 R303	
0211	00001.000	EA	0972947-0117	RES FIX 150K OHM 5% .5W CARBON FILM	
0211A				R329	
0212	00001.000	EA	0972978-0069	RES FIX COMP 47 OHMS 1.0W 5%	
0212A				R302	
0213	00001.000	EA	0972978-0093	RES FIX COMP 470 OHMS 1.0W 5%	
0213A				R119	
0214	00001.000	EA	0972978-0100	RES FIX COMP 910 OHMS 1.0W 5%	
0214A				R368	
0215	00001.000	EA	0972978-0113	RES FIXED 3.3K OHMS 1.0 WATT 5%	
0215A				R118	
0221	00002.000	EA	0972946-0037	RES FIX 68.0 OHM 5% .25 W CARBON FILM	for-0002 only
0221A				R317 R346	
0226	00001.000	EA	0972498-0001	CONN, DBL ROW, EDGE MTG-20 POSITIONS	
0226A				J101	
0227	00001.000	EA	0996260-0001	RECEPTACLE, 3-PIN AC PWR	
0227A				J301	
0230	00001.000	EA	0416434-0203	FUSE 2.0 A 250V 3AG	
0230A				F301	
0231	00003.000	EA	0530588-0008	FUSE, CARTRIDGE 2 AMP	
0231A				F201 F251 F252	
0234	00001.000	EA	0972602-0001	XFORMER, SW RGLTR, PWR SPLY 596UH+/-60UH	
0234A				T301	
0235	00001.000	EA	0972614-0001	TRANSFORMER, TOROID	
0235A				T302	
0237	00001.000	EA	0972445-0001	CRYSTAL, 12 MHZ, QUARTZ	
0237A				Y001	
0239	00001.000	EA	0972461-0001	DISC, SOUND-PIEZO-ELECT 3200 + 600HZ	
0239A				DS001	
0241	00001.000	EA	0996592-0001	SWITCH, TOGGLE, OPDT 3A/250 VAC 6A/120 VAC	
0241A				S301	

LIST OF MATERIALS

Assembly	Part No.	Rev.
TERMINAL ELECTRONICS, 743/745 W/MODEM	0937300-0001	P
TERMINAL ELECTRONICS, 743-EIA/TTY	0937300-0002	P
TERMINAL ELECTRONICS, 743/745 CCITT MODM	0937300-0003	P

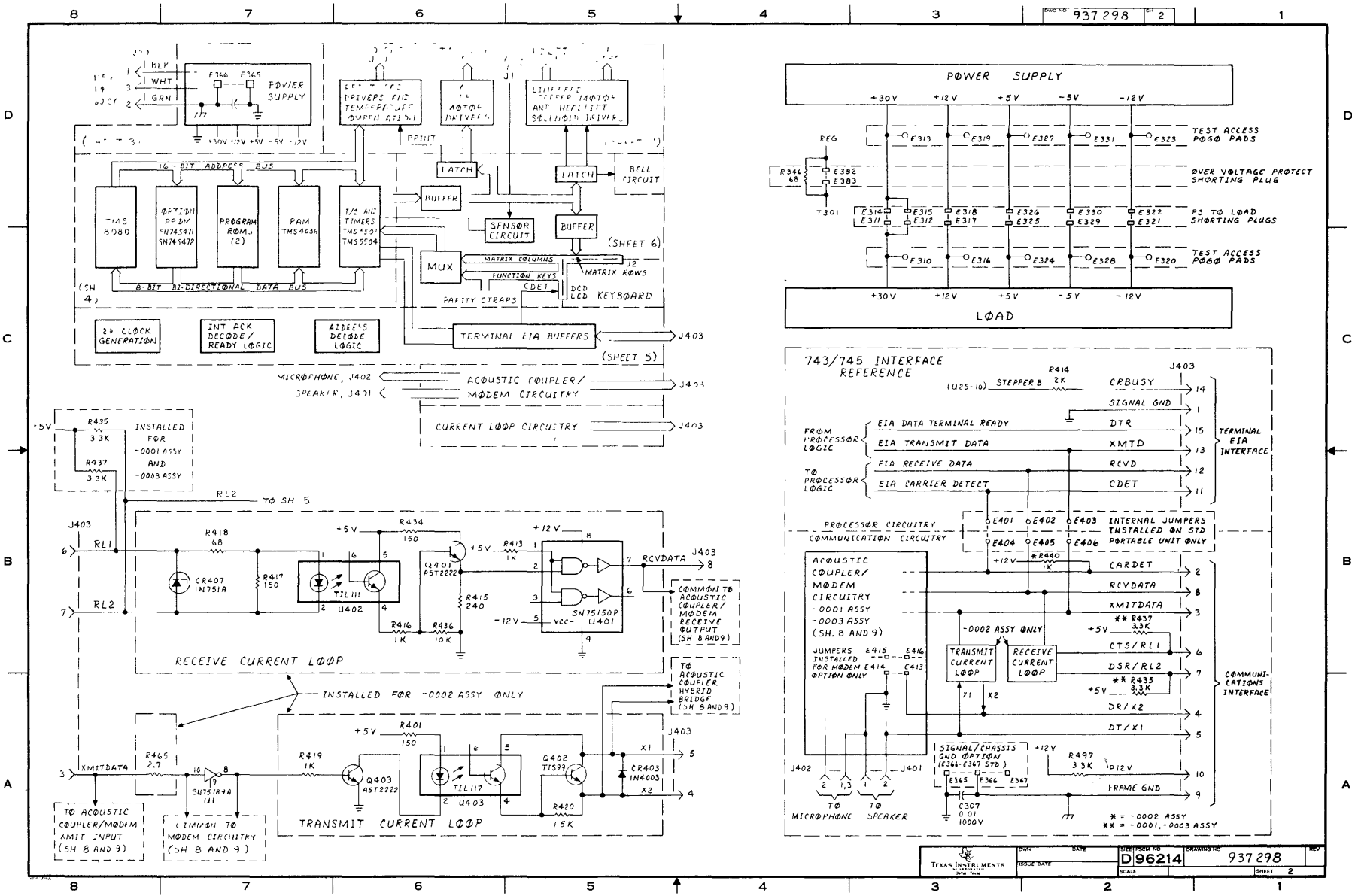
Item No.	Quantity	EA	TI Part No.	Description	Remarks
0243	00002.000	EA	0539544-0010	SOCKET,20PIN IC LOW PROFILE SOLDER TAIL	
0243A				XU012 XU030	
0244	00002.000	EA	0539544-0009	SOCKET,40PIN IC LOW PROFILE SOLDER TAIL	
0244A				XU015 XU018	
0245	00001.000	EA	0539544-0007	SOCKET,24PIN IC LOW PROFILE SOLDER TAIL	
0245A				XU010	
0246	00001.000	EA	0185113-0001	X SPACER XST TG-18 CASE	
0246A				XQ307	
0250	00001.000	EA	0533599-0014	HEAT SINK,.75HT 1.29W 1.63LG ELEC CMPNT	
0250A				PN 533517-1 IS AN ALT PART	
0251	00001.000	EA	0999429-0001	HEATSINK,TIP-POWER SUPPLY,SOFT START	
0252	00001.000	EA	0999428-0001	HEATSINK,DRIVER	
0253	00001.000	EA	0999254-0001	CLIP,HEATSINK RETAINER	
0254	00002.000	EA	0772635-0001	CLIP,FUSE	
0255	00001.000	EA	0983836-0001	CABLE,HEATSINK GROUND	
0256	00001.000	EA	0972493-0001	CABLE ASSEMBLY,FLAT-FLEXIBLE	
0257	00009.000	EA	0972487-0001	JUMPER PLUG,CONNECTOR BLACK	
0258	00000.100	FT	0411400-0022	WIRE 22AWG ELETRO-TIN-PLATED,COPPER	
0259	00001.000	EA	0983910-0001	SUPPORT,TONE GENERATOR	
0260	00016.000	EA	0411027-0803	WASHER .125 X .250 X .022 FLAT CRES	
0261	00008.000	EA	0411104-0135	WASHER #4 LOCKSPLIT	
0262	00009.000	EA	0972628-0001	WASHER,#4 .115ID .2000D-SHLDR NON-MET	
0264	00007.000	EA	0411101-0057	LOCKWASHER # 4 EXTERNAL TOOTH CRES	
0265	00008.000	EA	0972779-0001	INSULATOR,MICA COATED,TO-220 CASE	
0266	00001.000	EA	0972988-0022	SCREW 4-40 X 1.25 PAN HEAD CRES	
0267	00006.000	EA	0972988-0015	SCREW 4-40 X .375 PAN HEAD CRES	
0268	00002.000	EA	0972988-0019	SCREW 4-40 X .750 PAN HEAD CRES	
0270	00003.000	EA	0411115-0044	NUT,4-40 HEXAGON CRES STEEL	
0271	00006.000	EA	0416453-0021	NUT,PLAIN,4-40 UNC-2B HEX,CRES,SMALL	
0272	00002.000	EA	0416925-0400	SPACER,#4 1/8"LG ALUM ANODIZED	
0273	00001.000	EA	0416925-0412	SPACER,#4 7/8"LG ALUM ANODIZED	
0274	00014.000	EA	0972632-0001	STRAP,TIE DOWN,CABLE-NON-STD,0-1-1/4 D.	
0275	00001.000	EA	0972621-0001	SPRING,RING	
0276	00001.000	EA	0972306-0001	COVER,ROUND-ALUMINUM SEAMLESS	
0277	00001.000	FT	0996286-4455	WIRE #20 AWG GRN/YEL	
0278	00001.000	FT	0236528-0000	WIRE 22 AWG 1 COND WHITE TEFLON SOLID	
0279	00000.500	FT	0411400-0018	WIRE,BARE TINNED,18AWG, COPPER BUS	
0280	AR	TU	0417559-0001	SILICONE RUBBER (RTV) DOW 3140	
0281	AR	PT	0417200-0004	PRIMER,SILICONE RUBBER-RED	
0283	00000.200	FT	0410499-0008	INSULATION SLEEVING,TEFLON #18 NATURAL	
0284	AR	EA	0996527-0001	ADHESIVE,LOCTITE 416	
0285	00001.000	EA	0999430-0001	SPACER, SWITCH	

LIST OF MATERIALS

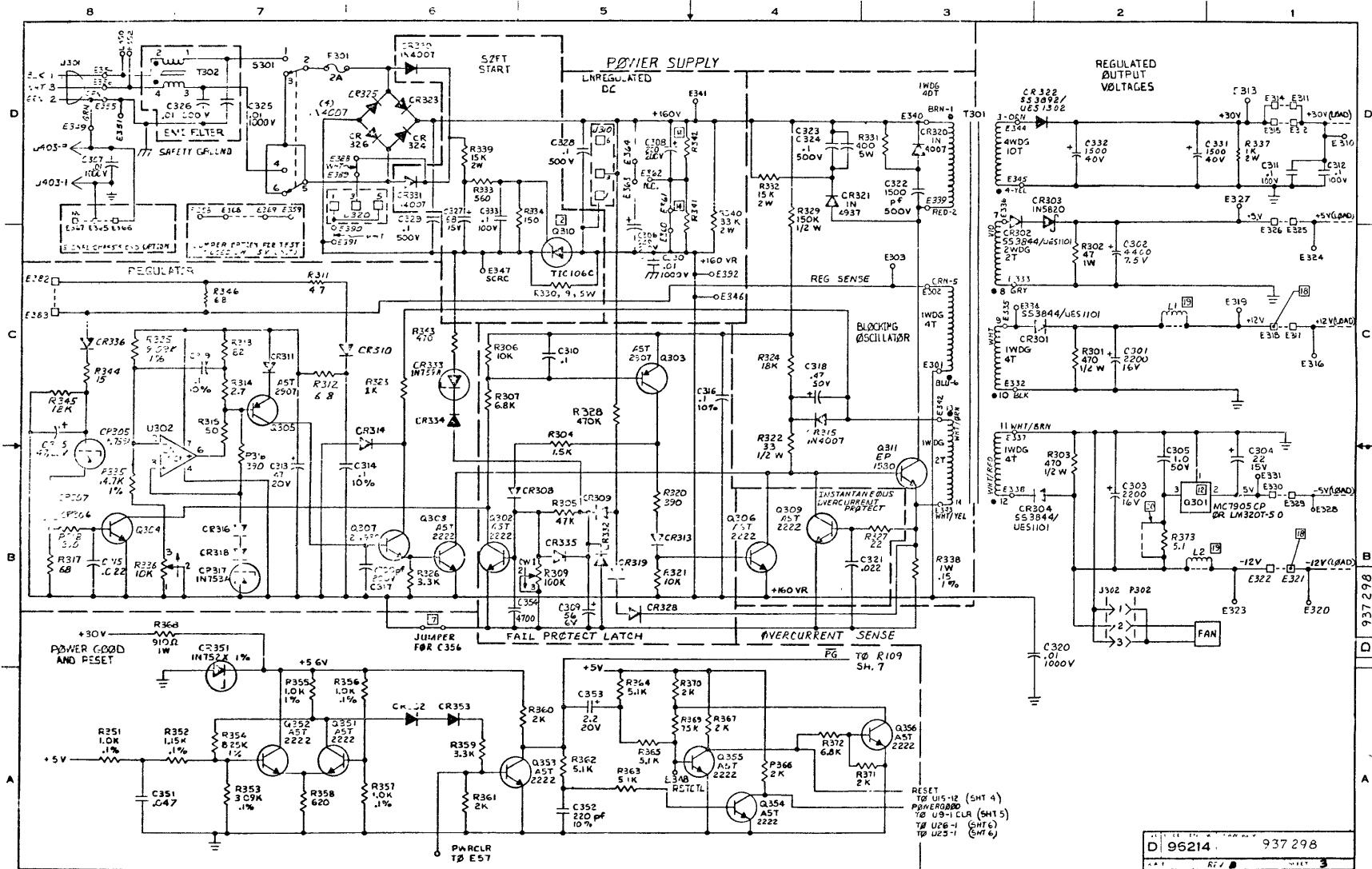
Assembly			Part No.	Rev.
TERMINAL ELECTRONICS, 743/745 W/MODEM			0937300-0001	P
TERMINAL ELECTRONICS, 743-E1A/TTY			0937300-0002	P
TERMINAL ELECTRONICS, 743/745 CCITT MODM			0937300-0003	P

Item No.	Quantity		TI Part No.	Description	Remarks
0300	REF	EA	0937298-9901	DIAGRAM, LOGIC, DETAILED, TERMINAL ELECT.	
0301	REF	EA	0937301-9901	TEST PROCEDURE, TERMINAL ELECTRONICS	
0302	REF	EA	0937302-9901	SPECIFICATION, TERMINAL ELECTRONICS	
0303	REF	EA	0984023-9901	LISTING, PWB INTERFACE SIGNALS, 743/745	
0304	00004.000	EA	0972988-0016	SCREW 4-40 X .438 PAN HEAD CRES	
0305	00002.000	EA	0972988-0014	SCREW 4-40 X .312 PAN HEAD CRES	
0306	AR	EA	0415886-0001	GREASE, SILICONE, HEAT COND. (8 OZ TUBE)	
0307	00001.000	EA	0983837-0001	WIRING HARNESS MECHANISM GROUND	
0308	00002.000	EA	0230029-0001	FERRITE BEAD, SHIELDING, 2900 GAUSS	
0309	00001.000	EA	0937300-5001	AUTO INSERTED PARTS LIST FOR 937300-0001	
0310	AR	EA	0996069-0003	ADH, SOLID, THRMPLSTC 25# BAG ANAEROBIC	
0311	AR	EA	0417486-0004	COMPUUND SILICUN RTV TRANSLUCENT	
0312	00002.000	EA	0538291-0011	COILS, RF .68UH .60 OHMS LT4K349 FX MLD	
0312A				L1, L2	
0313	00001.000	FT	0538555-3399	WIRE 22 AWG HOOKUP UL-1609 DR/WH	EFTE
0314	00001.000	FT	0538555-3499	WIRE 22 AWG HOOKUP UL-1609 YL/WH	EFTE

A47

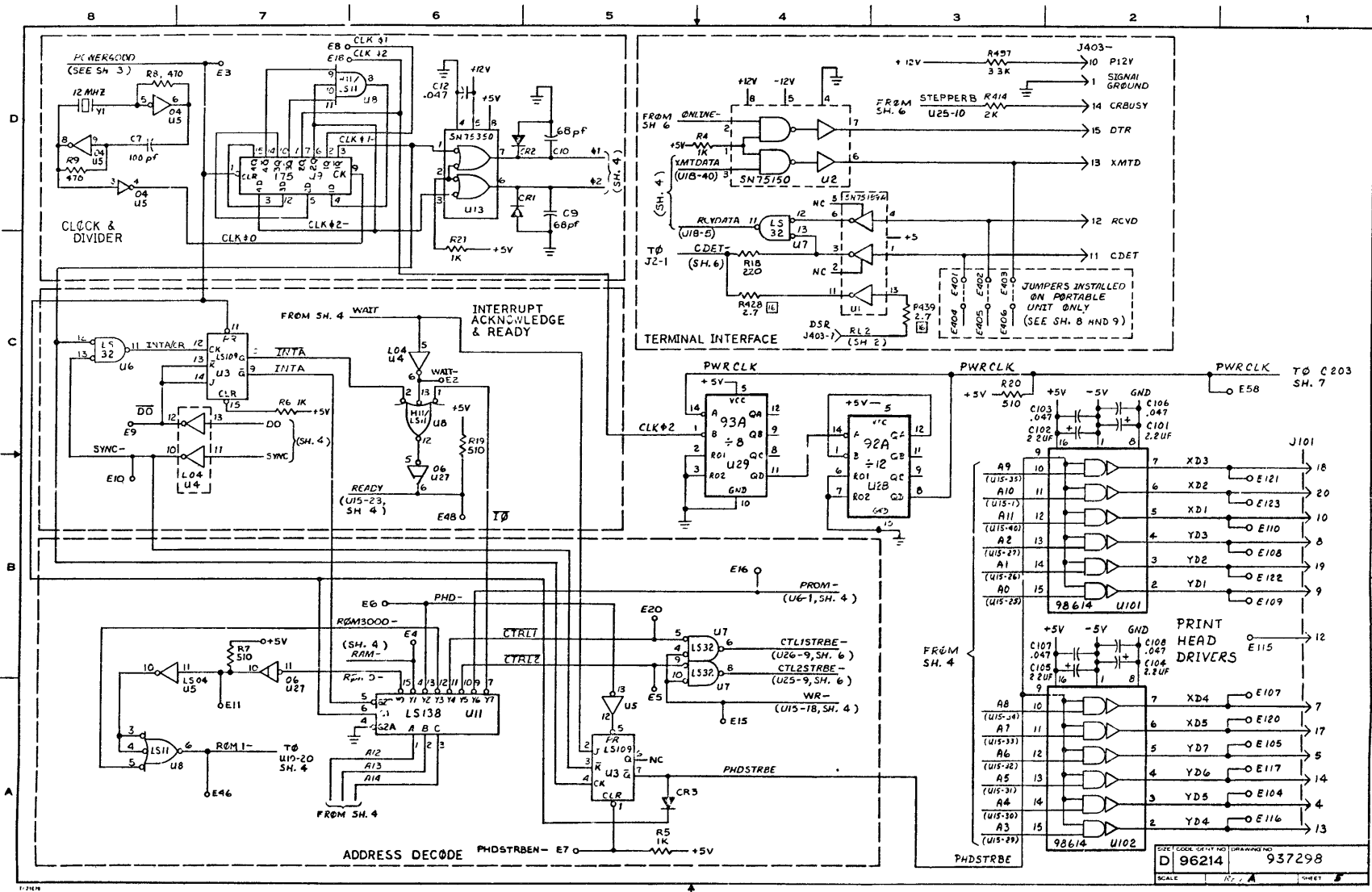


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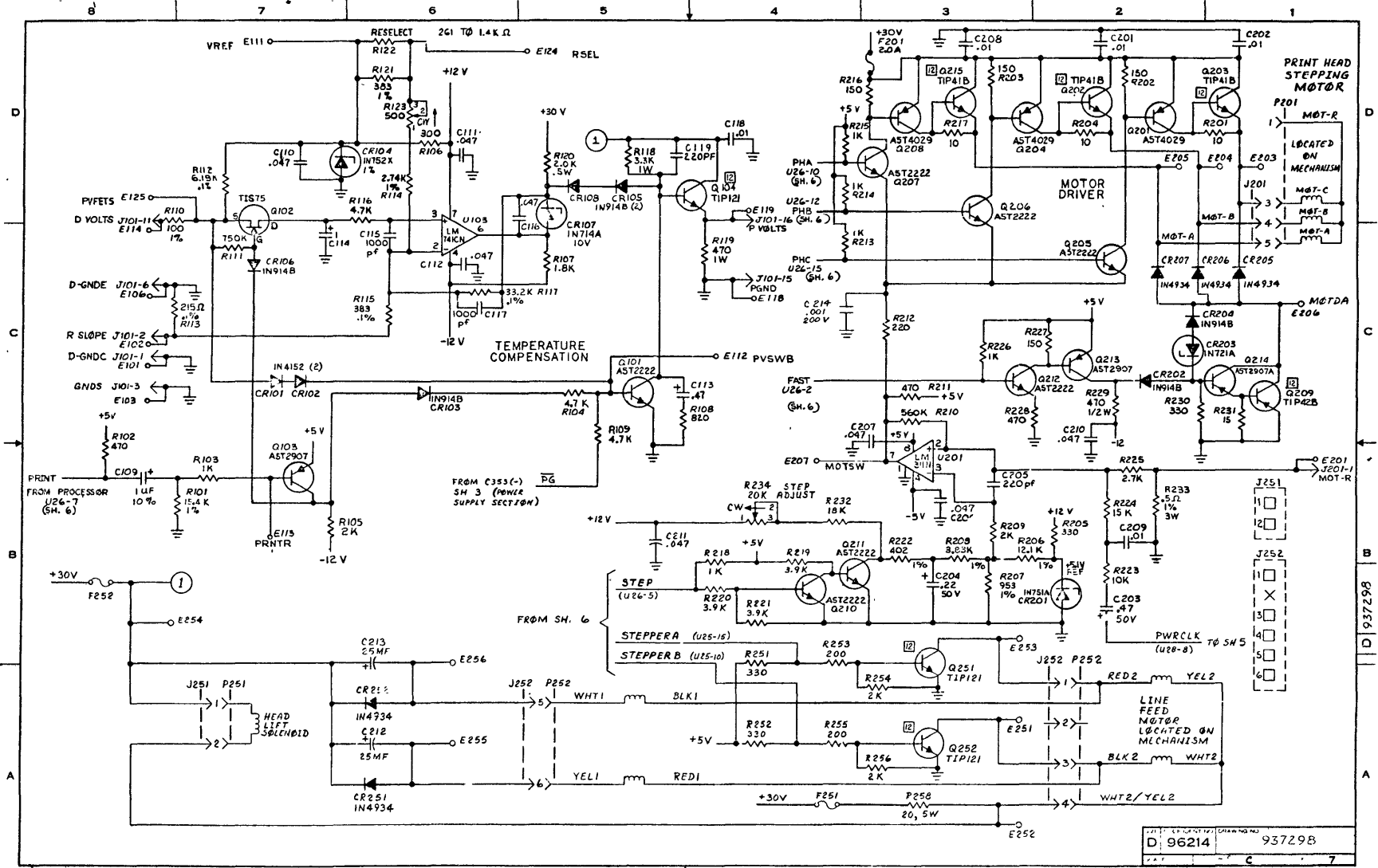


D 96214 937 298

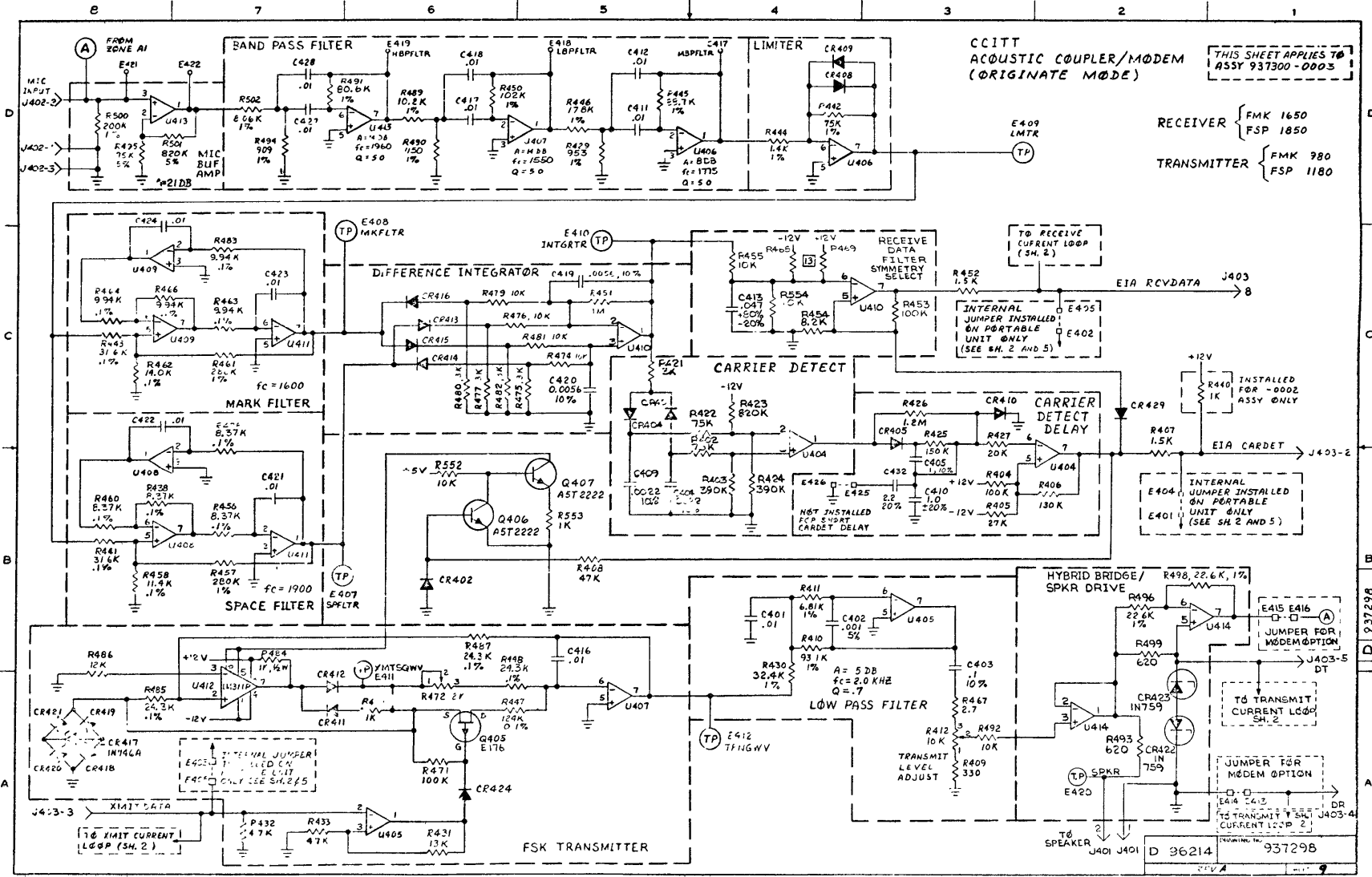
A-50



SHEET LOCAL CATHY NO. 937298
 D 96214
 SCALE 1/2" = 1"
 SHEET 1



A-54



THIS SHEET APPLIES TO ASSY 937300-0005

RECEIVER { FMK 1650, FSP 1850 }
TRANSMITTER { FMK 980, FSP 1180 }

INTERNAL JUMPER INSTALLED ON PORTABLE UNIT ONLY (SEE SH. 2 AND 5)

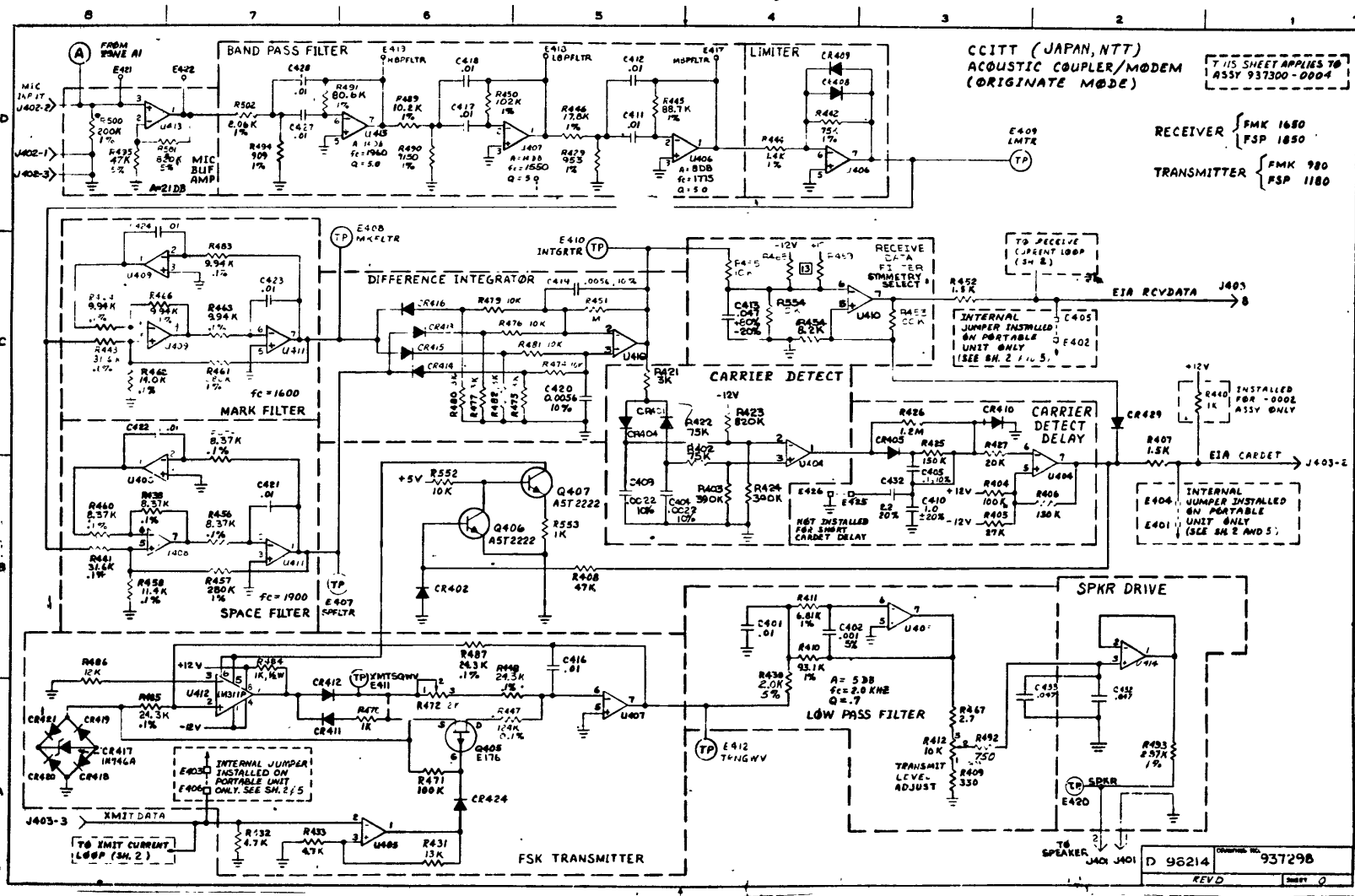
INTERNAL JUMPER INSTALLED ON PORTABLE UNIT ONLY (SEE SH. 2 AND 5)

JUMPER FOR MODEM OPTION

JUMPER FOR MODEM OPTION

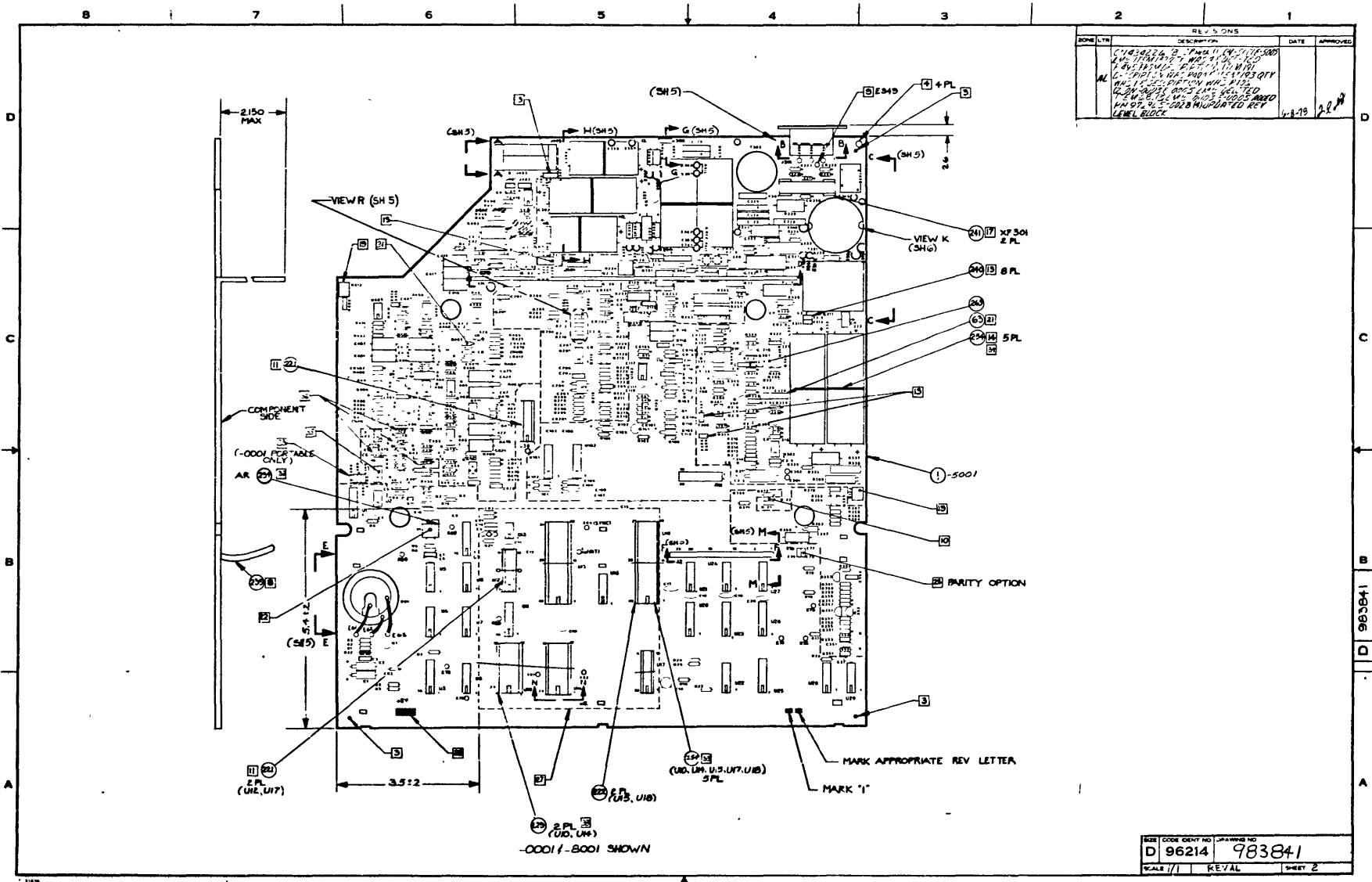
937298

D 36214



A-55

A-57



NO.	DATE	APPROVED
1	4-2-79	[Signature]

REVISIONS

DESCRIPTION

DATE

APPROVED

1. 0001 - 0001 SHOWN

2. 0001 - 0001 SHOWN

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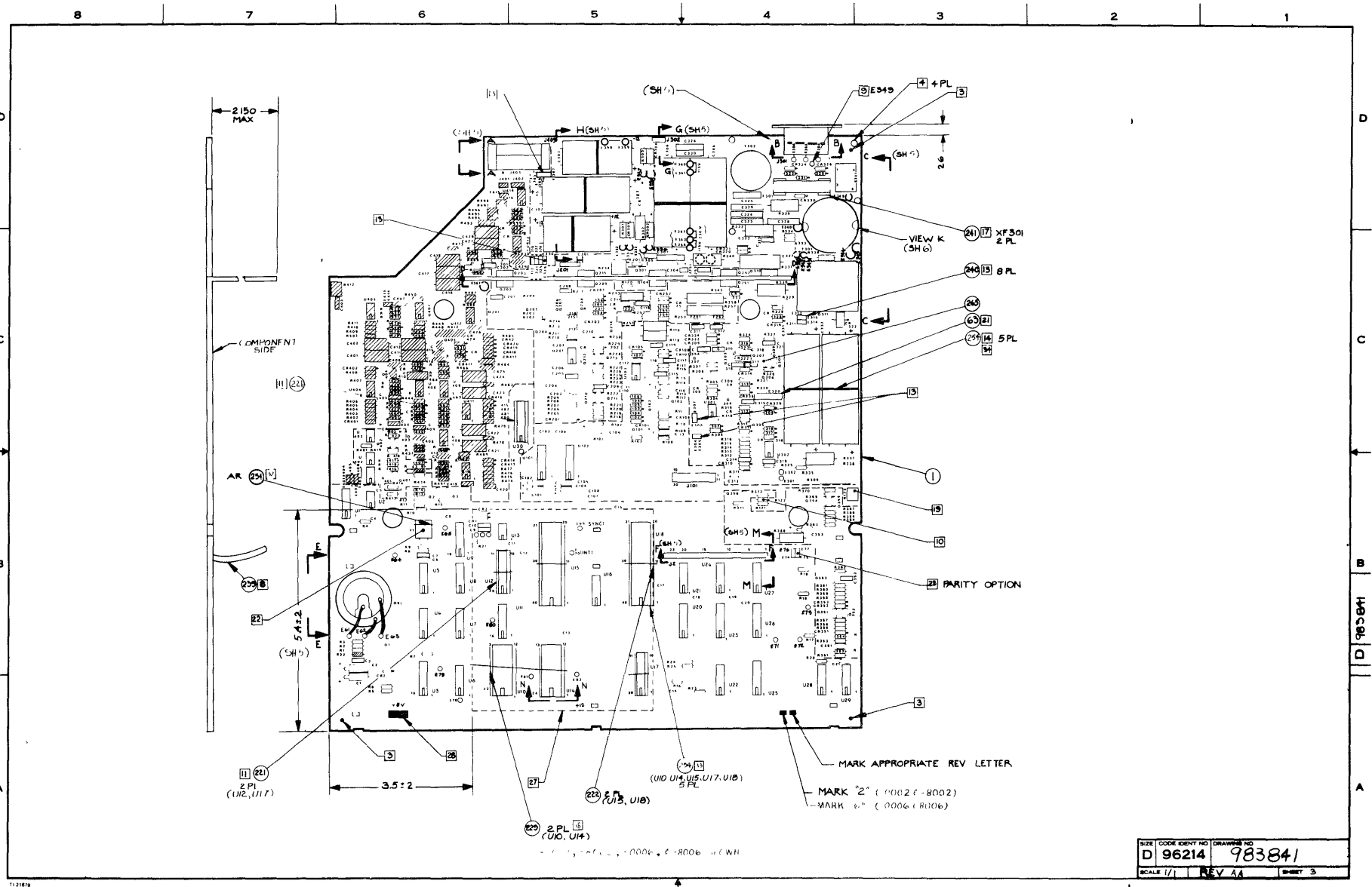
98. 0001 - 0001 SHOWN

99. 0001 - 0001 SHOWN

100. 0001 - 0001 SHOWN

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SCALE	1/1	REVAL	SHEET 2

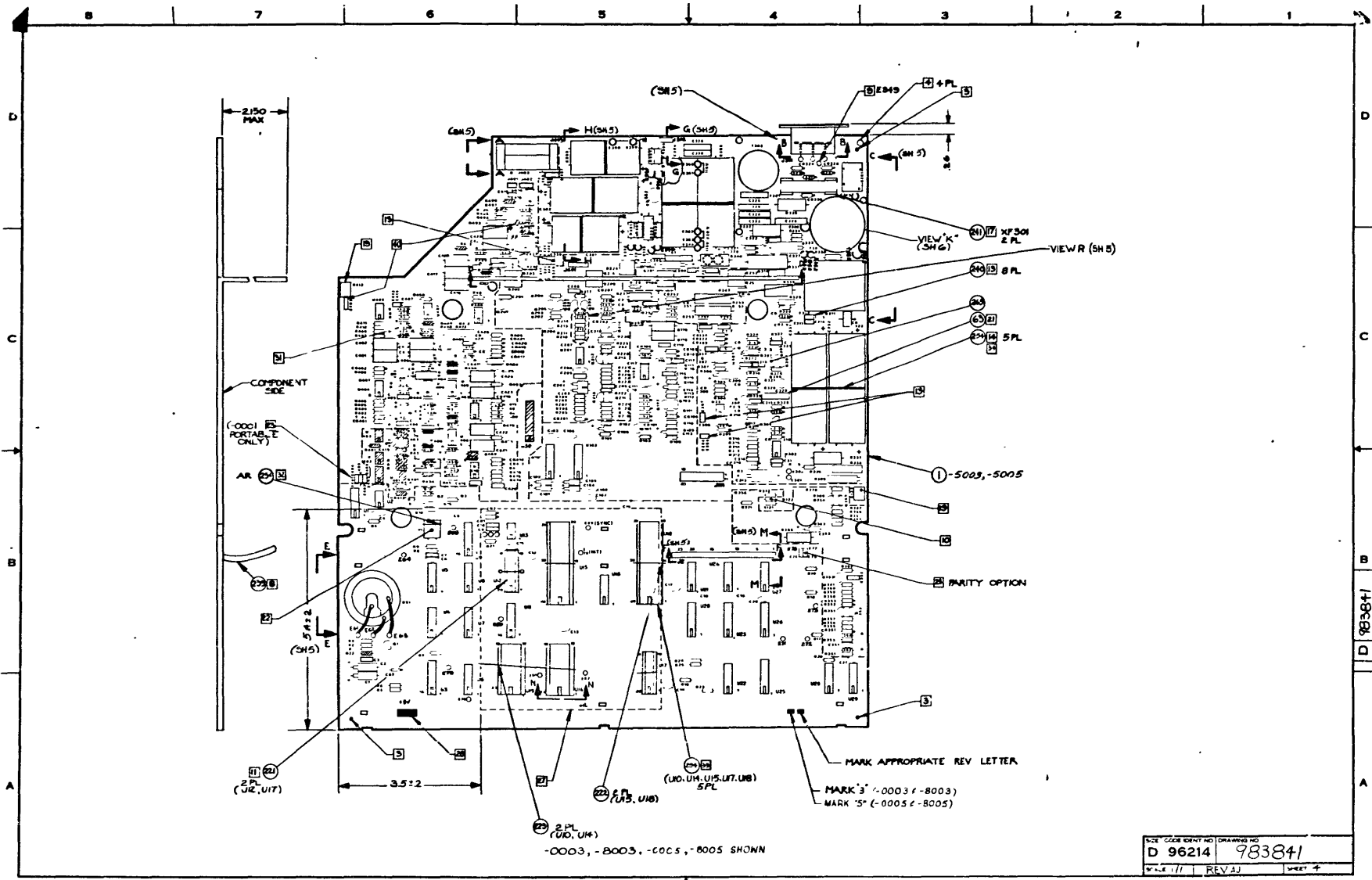
A-58



SIZE	CODE IDENT NO	DRAWING NO
D	96214	983841
SCALE 1/1	REV AA	SHEET 3

1121879

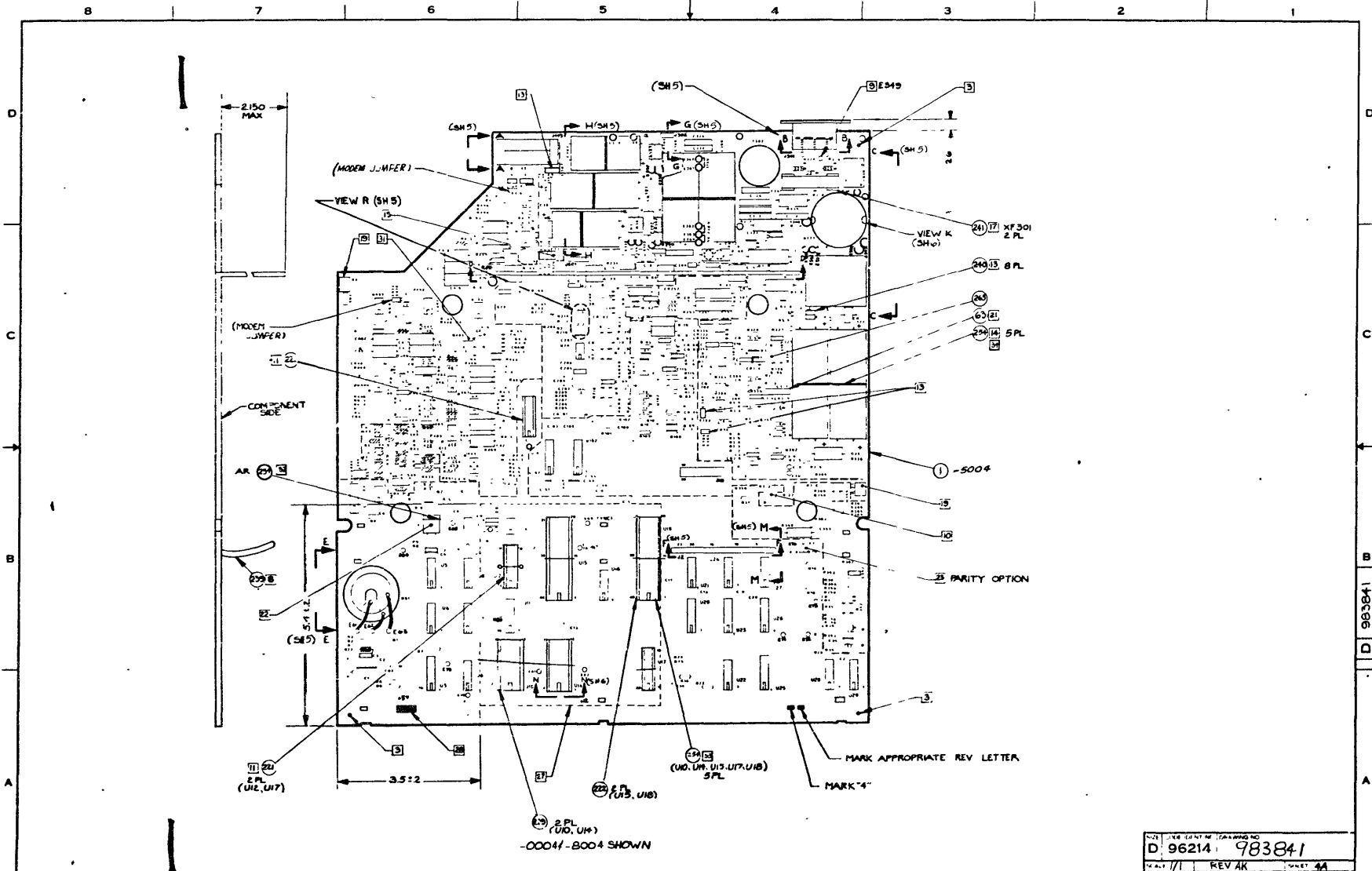
A-59



FILE CASE IDENT NO	DRAWING NO
D 96214	983841
SCALE 1/16"	REV AJ
	SHEET 4

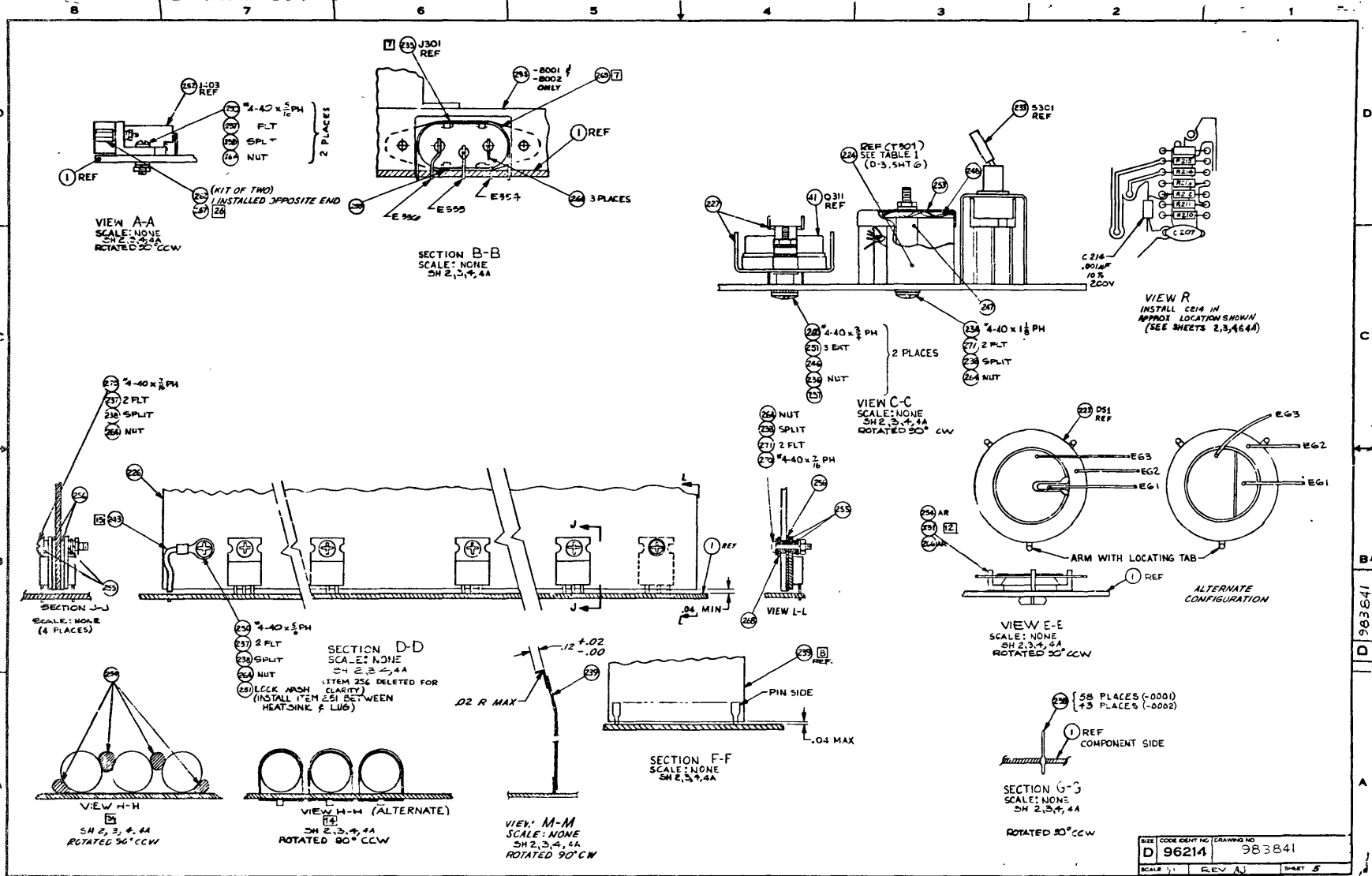
D 983841

A-60



NOTE	DATE	BY	CHKD	APP'D
D: 96214	983841			
REV	AK			44

A-61



SIZE	CODE IDENT NO	DRAWING NO
D	96214	983841
SCALE	REV	SHEET
1/1	AJ	5

112104

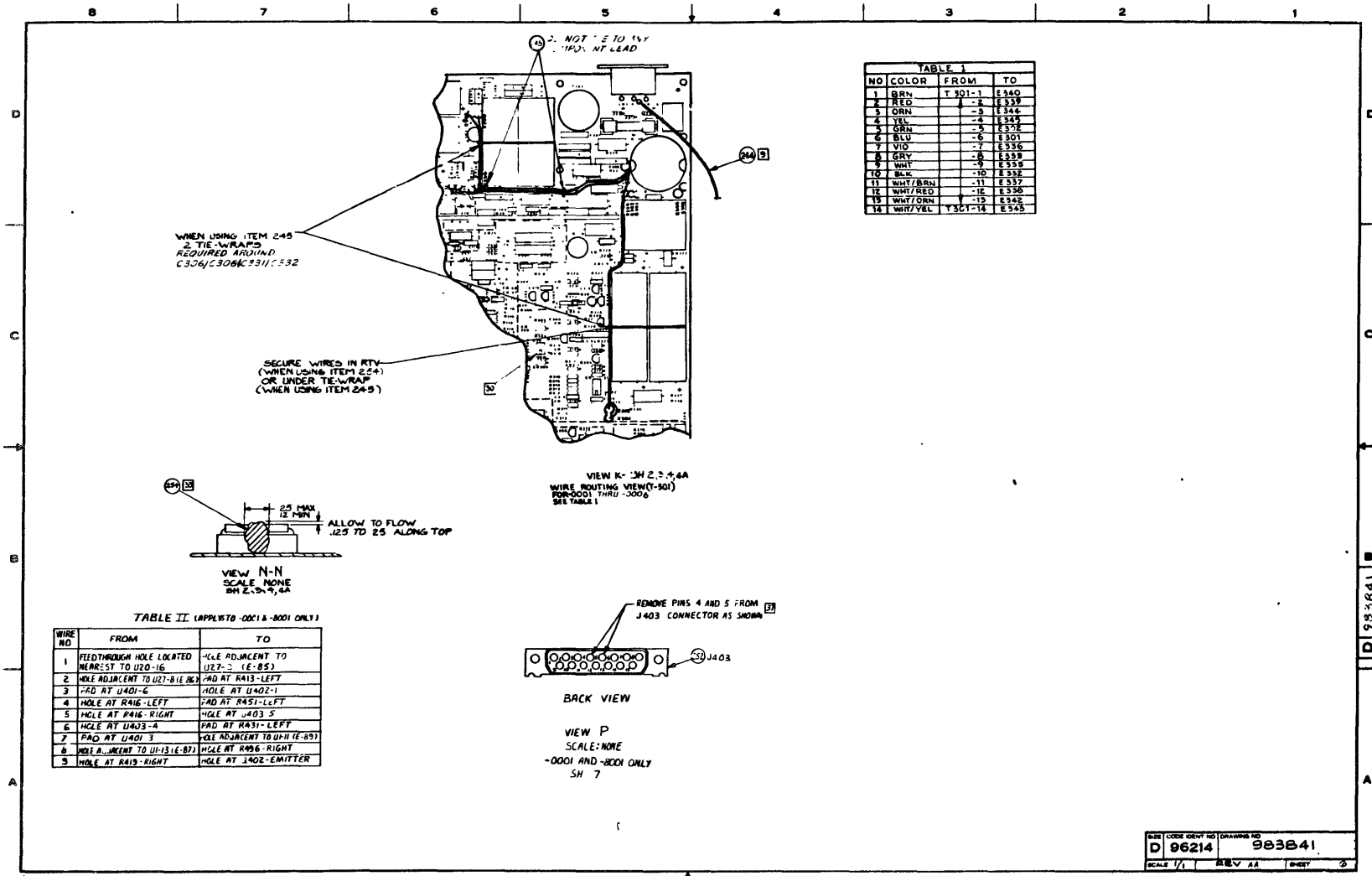
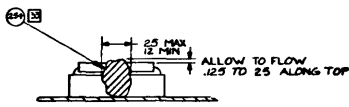


TABLE I

NO	COLOR	FROM	TO
1	BRN	T 301-1	E 340
2	RED	F -2	E 339
3	ORN	-3	E 344
4	YEL	-4	E 345
5	GRN	-5	E 372
6	BLU	-6	E 301
7	VIO	-7	E 356
8	GRY	-8	E 359
9	WHT	-9	E 355
10	BLK	-10	E 352
11	WHT/BRN	-11	E 357
12	WHT/RED	-12	E 358
13	WHT/ORN	-13	E 342
14	WHT/YEL	T 301-14	E 345

WHEN USING ITEM 245
2 TIE WRAPS
REQUIRED AROUND
C306/C306K3311C532

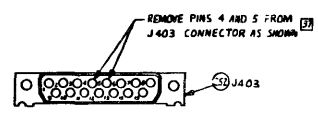
SECURE WIRES IN RTV
(WHEN USING ITEM 224)
OR UNDER TIEWRAP
(WHEN USING ITEM 245)



VIEW R-R SH 2, 3, 4A
WIRE ROUTING VIEW (1-301)
FOR 5001 THRU 3006
SEE TABLE I

TABLE II (APPLYS TO -001 & -301 ONLY)

WIRE NO.	FROM	TO
1	FEEDTHROUGH HOLE LOCATED NEAREST TO U20-16	HOLE ADJACENT TO U27-3 (E-85)
2	HOLE ADJACENT TO U27-B (E-86)	PAD AT R413-LEFT
3	PAD AT U401-6	HOLE AT U402-1
4	HOLE AT R416-LEFT	PAD AT R451-LEFT
5	HOLE AT R416-RIGHT	HOLE AT J403-5
6	HOLE AT U403-4	PAD AT R431-LEFT
7	PAD AT U401-3	HOLE ADJACENT TO U411E-87
8	HOLE ADJACENT TO U413E-87	HOLE AT R456-RIGHT
9	HOLE AT R413-RIGHT	HOLE AT J402-EMITTER



BACK VIEW
VIEW P
SCALE: NONE
-0001 AND -3001 ONLY
SH 7

DATE CODE IDENT NO DRAWING NO
D 96214 983841
 SCALE 1/1 REV AA T-SHRT 2

D 983841

8 7 6 5 4 3 2 1

D

D

C

C

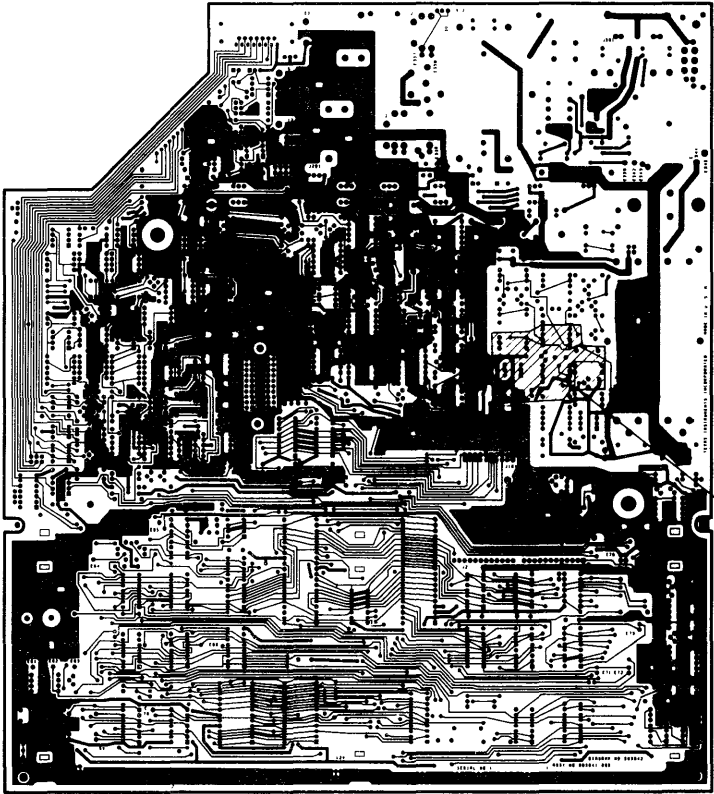
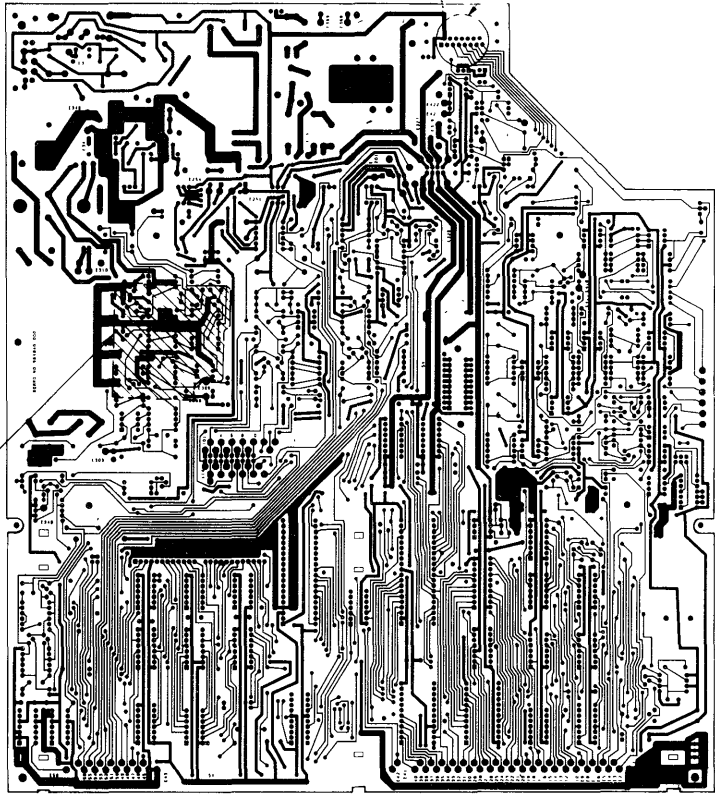
B

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A-63



SIZE	CODE IDENT NO	DRAWING NO
D	96214	983841
SCALE	REV	SHEET
1/1	W	7

D 983841

LIST OF MATERIALS

Assembly

TERMINAL ELECTRONICS, 745 W/ACOUSTIC COUPLER
 TERMINAL ELECTRONICS, 743 EIA/TTY
 TERMINAL ELECTRONICS, 743/745, CCITT MODEM
 TERMINAL ELECTRONICS, 743/745, W/MODEM

Part No. Rev.
 0983841-0001 AH
 0983841-0002 AH
 0983841-0003 AH
 0983841-0004 AH

Item No.	Quantity	FA	TI Part No.	Description	Remarks
0002	00001.000	FA	0222222-7109	NETWORK SN74109M	
0002A				U003 , , , ,	
0003	00002.000	FA	0222222-7157	NETWORK SN74157N	
0003A				U020 ,U023 , , ,	
0004	00001.000	FA	0222222-7174	NETWORK SN74174N	
0004A				U026 , , , ,	
0005	00002.000	FA	0222222-7175	NETWORK SN74175N	
0005A				U009 ,U025 , , ,	
0006	00002.000	FA	0222222-7404	NETWORK SN7404N	
0006A				U005 ,U021 , , ,	
0007	00002.000	FA	0222222-7406	NETWORK SN7406N	
0007A				U024 ,U027 , , ,	
0008	00001.000	FA	0222222-7492	NETWORK-SN7492N	
0008A				U028 , , , ,	
0009	00001.000	FA	0222222-7493	NETWORK-SN7493N	
0009A				U029 , , , ,	
0010	00002.000	FA	0222224-2741	NETWORK SN72741P OPERATIONAL AMP	
0010A				U103 ,U302 , , ,	
0011	00002.000	FA	0222225-2311	NETWORK LM311N,SN72311P	} for -0001, -0003, & -0004
0011A				U201 ,U412 , , ,	
0011	00001.000	FA	0222225-2311	NETWORK LM311N,SN72311P	} for -0002
0011A				U201	
0012	00001.000	FA	0972788-0001	NETWORK,SN74LS11, POSITIVE AND GATE	
0012A				U008	
0012P				P/N 240000-7411 IS AN	
0012C				ALTN PART FOR ITEM 12	
0013	00001.000	FA	0244715-7404	NETWORK,SN74104M	
0013A				U004 , , , ,	
0014	00002.000	FA	0537948-0001	NETWORK SN75150P	} for -0001 & -0002
0014A				U002 U401	
0014	00001.000	FA	0537948-0001	NETWORK SN75150P	} for -0003 & -0004
0014A				U002	
0015	00001.000	FA	0944472-0001	NETWORK, TMS-8080 MICRO PROCESSOR	
0015A				U015	
0016	00001.000	FA	0971000-0001	IC, OPTICALLY COUPLED ISOLATOR	} for -0001, -0003, & -0004
0016A				U301 , , , ,	
0016	00002.000	FA	0971000-0001	IC, OPTICALLY COUPLED ISOLATOR	} for -0002
0016A				U402 U301	

LIST OF MATERIALS

Assembly
 TERMINAL ELECTRONICS, 745 W/ACOUSTIC COUPLER
 TERMINAL ELECTRONICS, 743 EIA/TTY
 TERMINAL ELECTRONICS, 743/745, CCITT MODEM
 TERMINAL ELECTRONICS, 743/745, W/MODEM

Part No. Rev.
 0983841-0001 AH
 0983841-0002 AH
 0983841-0003 AH
 0983841-0004 AH

Item No.	Quantity	FA	TI Part No.	Description	Remarks
0017	00001.000	FA	0972450-0002	NETWORK, SN75189AN/MC1489AL QUAD LINE PCP	
0017A				U001 , , , ,	
0018	00001.000	FA	0972452-0001	NETWORK, TMS4036ML 64WORD X 8BIT ST RAM	
0018A				U017 , , , ,	
0019	00001.000	FA	0972459-0003	NETWORK TMS4703 1K X 8 STATIC ROM	
0019A				U010	
0020	00001.000	FA	0972459-0004	NETWORK TMS4704, 1K X 8 STATIC ROM	
0020A				U014	
0021	00010.000	FA	0996034-0002	IC, PC4558P OPERATIONAL AMPLIFIER	} for -0001 & -0003
0021A				U404, U405, U406, U407, U408,	
0021B				U409, U410, U411, U413, U414	
0021	00010.000	FA	0972463-0001	NETWORK, SN72558P/MC1458P1 OP AMP	} for -0004 only
0021A				U404 U405 U406 U407 U408	
0021B				U409 U410 U411 U413 U414	
0022	00001.000	FA	0972469-0002	NETWORK TMS5504, I/O AND TIMER	} for -0001, -0002, & -0004 only
0022A				U018	
0022B				P/N 0972469-0001 TMS5501,	
0022C				IS AN ALTN FOR ITEM 22	} for -0001 & -0002 only
0023	00001.000	FA	0996093-0001	NETWORK, SN75350P, DUAL NAND DRIVER	
0023A				U013	
0024	00001.000	FA	0972900-7138	NETWORK SN74LS138N	
0024A				U011 , , , ,	
0025	00001.000	FA	0972900-7432	NETWORK SN74LS32N	
0025A				U007 , , , ,	
0026	00001.000	FA	0972900-7451	NETWORK SN74LS51N	
0026A				U006 , , , ,	
0027	00002.000	FA	0983810-0001	IC, SN98614M DRIVER THERMAL PRINTHEAD	
0027A				U101, U102 , , , ,	
0028	00001.000	FA	0972625-0001	NETWORK OCI449 OPTICALLY COUPLED	} for -0002
0028A				U403	
0029	00001.000	FA	0772627-0006	TRANSISTOR, TIS05	
0029A				Q402	
0030	00001.000	FA	0996372-0001	TRANSISTOR, SKA3427 N-CHANNEL FET	} for -0001, & -0004 only
0030A				Q405	
0030B				ITEM 30 IS TIS75, SELECTED	

LIST OF MATERIALS

Assembly
 TERMINAL ELECTRONICS, 745 W/ACOUSTIC COUPLER
 TERMINAL ELECTRONICS, 743 EIA/TTY
 TERMINAL ELECTRONICS, 743/745, CCITT MODEM
 TERMINAL ELECTRONICS, 743/745, W/MODEM

Part No. Rev.
 0983841-0001 AH
 0983841-0002 AH
 0983841-0003 AH
 0983841-0004 AH

Item No.	Quantity	TI Part No.	Description	Remarks
0030C			P/N 772116-0001 IS AN	
0030D			ALTN PART FOR ITEM 30	
0030	00001.000	FA 0972018-0004	TRANSISTOR, E176-FET P CHAN SILICON JCT	} for -0003
0030A			Q405	
0031	00001.000	FA 0772116-0001	TRANSISTOR TIS75	
0031A			Q102	
0032	00005.000	FA 0800523-0001	TRANSISTOR A5T2907 PNP SILICON	
0032A			Q103, Q213, Q214, Q303, Q305	
0033	00022.000	FA 0972057-0001	TRANSISTOR-A5T2222 NPN SILICON	
0033A			Q001, Q002, Q003, Q101, Q205	
0033B			Q206, Q207, Q210, Q211, Q212,	
0033C			Q302, Q304, Q306, Q308, Q309,	
0033D			Q351, Q352, Q353, Q354, Q355	
0033E			Q356, Q404, , ,	
0034	00003.000	FA 0972455-0004	TRANSISTOR, SILICON-P-N-P, A5T4029	
0034A			Q201, Q204, Q208, ,	
0035	00001.000	FA 0972465-0002	THYRISTORS, TRIODE P-N-P-N SILICON TIC106	
0035A			Q310, , , ,	
0036	00001.000	FA 0972499-0001	NETWORK, LM320T-5.0/MC7905CP, -5 VOLT	
0036A			Q301, , , ,	
0037	00003.000	FA 0972572-0002	TRANSISTOR, TIP121 SILICON N-P-N DARLNGTN	
0037A			Q104, Q251, Q252, ,	
0038	00001.000	FA 0972957-0001	TRANSISTOR, 2N930A NPN LOW CUR AMP, TO-18	
0038A			Q307, , , ,	
0039	00003.000	FA 0972962-0001	TRANSISTOR, TIP41B NPN, PLASTIC	
0039A			Q202, Q203, Q215, ,	
0040	00001.000	FA 0972963-0001	TRANSISTOR, TIP42B PNP, PLASTIC	
0040A			Q209, , , ,	
0041	00001.000	FA 0974759-0001	TRANSISTOR, EP1580, N-P-N SILICON	
0041A			Q311, , , ,	
0046	00003.000	FA 0996281-0001	DIODE UFS 1101	
0046A			CR301, CR302, CR304	
0052	00001.000	FA 0972608-0001	DIODE, 1N5820 3AMP SCHOTTKY RECTIFIER	
0052A			CR303, , , ,	
0053	00002.000	FA 0972624-0001	DIODE, 1N5711 SCHOTTKY	} for -0001 only
0053A			CR319, CR328	
0054	00001.000	FA 0972932-0001	DIODE, 1M914B SWITCHING 75V PIV 75MA 4NS	for -0001

LIST OF MATERIALS

Assembly
 TERMINAL ELECTRONICS, 745 W/ACOUSTIC COUPLER
 TERMINAL ELECTRONICS, 743 EIA/TTY
 TERMINAL ELECTRONICS, 743/745, CCITT MODEM
 TERMINAL ELECTRONICS, 743/745, W/MODEM

Part No.
 0983841-0001
 0983841-0002
 0983841-0003
 0983841-0004

AH
 AH
 AH
 AH

Item No.	Quantity	TI Part No.	Description	Remarks	
0054A			CR426		
0067	00001.000	FA 0419051-0107	CAP FIX FILM DIEL .001 UF 5% 200VDC	} for -0001, -0003, & -0004	
0067A			C402		
0067	00005.000	FA 0410529-0103	CAP FIX CERAMIC .010 MF 6MV 1 KV	}	
0067A			C307,C320,C325,C326,C330		
0067	00004.000	FA 0412645-0015	CAPACITOR, .1 UF +80,-20% 500VDC CER DIEL		
0067A			C323 ,C324 ,C328 ,C329 ,		
0067	00037.000	FA 0419058-0003	CAP.FIX CERAMIC .05 MF 20V + 80/-20%	} for -0001, & -0004 only	
0067A			C004,C005,C006,C008,C011,		
0067B			C012,C013,C014,C015,C017,		
0067C			C018,C019,C020,C021,C103,		
0067D			C106,C107,C108,C110,C111,		
0067E			C112,C116,C206,C207,C210,		
0067F			C211,C351,C406,C407,C408,		
0067G			C413,C414,C415,C425,C426,		
0067H			C429,C430		
0067	00027.000	FA 0419058-0003	CAP.FIX CERAMIC .05 MF 20V + 80/-20%		} for -0002
0067A			C004,C005,C006,C008,C011,		
0067B			C012,C013,C014,C015,C017,		
0067C			C018,C019,C020,C021,C103,		
0067D			C106,C107,C108,C110,C111,		
0067E			C112,C116,C206,C207,C210,		
0067F			C211,C351		
0067	00030.000	FA 0419058-0003	CAP.FIX CERAMIC .05 MF 20V + 80/-20%	} for -0003	
0067A			C004,C005,C006,C008,C011		
0067B			C012,C013,C014,C015,C017		
0067C			C018,C019,C020,C021,C103		
0067D			C106,C107,C108,C110,C111		
0067E			C112,C116,C206,C207,C210		
0067F			C211,C351 C406,C407,C408		
0067G			C413,C414,C415,C425,C426		
0067H			C429,C430,C432,C433		
0068	00001.000	FA 0996264-0001	CAP 3.3 MF,50V 20% CERAMIC	} for -0001 & -0003	
0068A			C410		
0068B			P/N 972225-0533 IS AN		
0068C			ALTN PART FOR ITEM 68		
0069	00012.000	FA 0972476-0001	CAP, .01UF, 1% 500VDC MINIMUM		

LIST OF MATERIALS

Assembly
 TERMINAL ELECTRONICS, 745 W/ACOUSTIC COUPLER
 TERMINAL ELECTRONICS, 743 EIA/TTY
 TERMINAL ELECTRONICS, 743/745, CCITT MODEM
 TERMINAL ELECTRONICS, 743/745, W/MODEM

Part No. Rev.
 0983841-0001 AH
 0983841-0002 AH
 0983841-0003 AH
 0983841-0004 AH

Item No.	Quantity	TI Part No.	Description	Remarks
0069A			C401, C411, C412, C416, C417,	
0069B			C418, C421, C422, C423, C424,	
0069C			C427, C428	
0070	00002.000	FA 0972601-0001	CAPACITOR 200UF 200MVDC 10%	
0070A			C306, C308, , ,	
0074	00001.000	FA 0972924-0011	CAP FIX TANT SOLID 68 MFD 10 % 15 VOLT OPL	
0074A			C227, , , ,	
0077	00001.000	FA 0972924-0015	CAP FIX TANT SOLID 47 MFD 10 % 20 VOLT OPL	
0077A			C313, , , ,	
0070	00001.000	FA 0972928-0005	CAP FIX MICA 500V 1500 PF 5 %	
0079A			C322, , , ,	
0080	00001.000	FA 0972929-0379	CAP FIX CERAMIC 100 PF 10 % 200 V	
0080A			C007	
0081	00002.000	FA 0972929-0376	CAP FIX CERAMIC 68.0 PF 10 % 200 V	
0081A			C009, C010, , ,	
0082	00003.000	FA 0972929-0385	CAP FIX CERAMIC 220 PF 10% 200V	
0082A			C119, C205, C352	
0083	00002.000	FA 0972929-0397	CAP FIX CERAMIC .001 UF 10% 200V	
0083A			C115, C117, , ,	
0084	00002.000	FA 0972929-0411	CAP FIX CERAMIC .0056 UF 10% 100V	for -0001, -0003, & -0004
0084A			C419, C420, , ,	
0085	00001.000	FA 0972931-0016	CAPACITOR 4400UF-10/+75% 7.5V	
0085A			C302, , , ,	
0086	00002.000	FA 0972931-0030	CAPACITOR 2100UF-10/+75% 16V	
0086A			C301, C303, , ,	
0087	00002.000	FA 0972931-0083	CAPACITOR 1700UF-10/+75% 40V	
0087A			C331, C332, , ,	
0088	00003.000	FA 0972965-0004	CAP FIX CERAMIC 2200 PF 10% 200V	for -0001, -0003, & -0004
0088A			C003, C404, C409, ,	
0088	00001.000	FA 0972965-0004	CAP FIX CERAMIC 2200 PF 10% 200V	for -0002
0088A			C003	
0089	00002.000	FA 0972965-0008	CAP FIX CERAMIC .0047 MF 10% 200 V	for -0001, -0002, & -0003
0089A			C317, C354	
0089	00001.000	FA 0972965-0008	CAP FIX CERAMIC .0047 MF 10% 200 V	for -0004 only
0089A			C317	
0090	00005.000	FA 0972965-0012	CAP FIX CERAMIC .010 MF 10% 200V	
0090A			C118, C201, C202, C208, C209	

LIST OF MATERIALS

Assembly
 TERMINAL ELECTRONICS, 745 W/ACOUSTIC COUPLER
 TERMINAL ELECTRONICS, 743 EIA/TTY
 TERMINAL ELECTRONICS, 743/745, CCITT MODEM
 TERMINAL ELECTRONICS, 743/745, W/MODEM

Part No. Rev.
 0983841-0001 AH
 0983841-0002 AH
 0983841-0003 AH
 0983841-0004 AH

Item No.	Quantity	TI Part No.	Description	Remarks
0091	00002.000	FA 0572965-0016	CAP FIX CERAMIC .022 MF 10% 100V	
0091A			C315 C321	
0092	00011.000	FA 0972965-0024	CAP FIX CERAMIC .100 MF 10% 100V	} for -0001
0092A			C305,C310,C311,C312,C314,	
0092B			C316,C319,C333,C403,C405	
0092C			C431	
0092	00008.000	FA 0972965-0024	CAP FIX CERAMIC .100 MF 10% 100V	} for -0002
0092A			C305,C311,C312,C314,C316,	
0092B			C310,C319,C333	
0092	00009.000	FA 0972965-0024	CAP FIX CERAMIC .100 MF 10% 100V	} for -0003
0092A			C305,C310,C311,C312,C314	
0092B			C316,C319,C333,C405	
0092	00010.000	FA 0972965-0024	CAP FIX CERAMIC .100 MF 10% 100V	} for -0004 only
0092A			C305 C310 C311 C312 C314	
0092B			C316 C319 C333 C403 C405	
0095	00001.000	FA 0983937-0003	RESISTOR, SELECTED, 743/745 PWR, MODEM CKT	} for -0001
0095A			P/N 0972946-XXXX RESISTOR	
0095B			SELECTED AT UNIT TEST. 20K	
0095C			OHMS TO 200K OHMS.	
0095D			R468 OR R469	
0096	00001.000	FA 0972630-0018	RES FIX .150 OHM 1W 1% WIPEWOUND POWER	} for -0001, -0002, & -0003
0096A			R338	
0097	00001.000	FA 0538425-0045	RES 18. OHM 5% 2WATT FIX COMP	
0097A			R330 , , ,	
0098	00001.000	FA 0538425-0087	RES 1000. OHM 5% 2WATT FIX COMP	
0098A			R337 , , ,	
0099	00002.000	FA 0538425-0115	RES 15000. OHM 5% 2WATT FIX COMP	
0099A			F332 ,R339 , , ,	
0100	00001.000	FA 0538425-0123	RES 33000. OHM 5% 2WATT FIX COMP	
0100A			R340 , , , ,	
0101	00001.000	EA 0983937-0001	RESISTOR, SELECTED, 743/745 PWR, PVOLTS	
0101A			P/N 539370-XXXX SELECTED	
0101B			RESISTOR 261 OHMS TO 1.4K	
0101C			OHMS R122	
0141	00001.000	FA 0972141-0062	NETWORK, RESISTOR 6.8K OHMS 2% 14 PIN	} for -0001, -0002, & -0003
0141A			U016	

LIST OF MATERIALS

Assembly
 TERMINAL ELECTRONICS, 746 W/ACOUSTIC COUPLER
 TERMINAL ELECTRONICS, 743 EIA/TTY
 TERMINAL ELECTRONICS, 743/745, CCITT MODEM
 TERMINAL ELECTRONICS, 743/745, W/MODEM

Part No. Rev.
 0983841-0001 AH
 0983841-0002 AH
 0983841-0003 AH
 0983841-0004 AH

Item No.	Quantity	TI Part No.	Description	Remarks
0141	00002.000	FA 0972141-0062	NETWORK, RESISTOR 6.8K OHMS 2% 14 PIN	}
0141A			U016 U019		for -0004 only
0142	00001.000	FA 0972228-0008	RES, VAR 2 K-OHM CERMET ELEMENT	}
0142A			R472 , , , ,		for -0001, -0003, & -0004
0143	00001.000	FA 0972228-0010	RESISTOR, VARIABLE 10K OHM CERMET FILM	
0143A			R336	
0144	00001.000	EA 0972228-0013	X RES, VAR 100K OHM CERMET FILM	
0144A			R309 , , , ,	
0145	00001.000	FA 0972466-0001	RES, VAR, CERMET-20K, 5%	
0145A			R234 , , , ,	
0146	00001.000	FA 0972619-0004	RESISTOR VAR 500 OHM 5% .5W	
0146A			R123	
0147	00001.000	FA 0972651-0001	RESISTOR, 285 C .5W 10% VARIABLE	}
0147A			R412		for -0001 & -0003 only
0147	00001.000	EA 0972619-0008	RESISTOR VAR 10K OHM 5% .5W	}
0147A			R412		for -0004 only
0148	00001.000	FA 0972554-0006	RESISTOR, FIXED, WIREWOUND .5 OHM 3W 1%	
0148A			R233	
0149	00002.000	FA 0972942-0013	RES FIX 20.0 OHMS 5% 5 WATT WIREWOUND	
0149A			R257 , R258 , , ,	
0150	00001.000	FA 0972942-0020	RES FIX 400 OHM 5% 5 WATT WIREWOUND	
0150A			R331 , , , ,	
0196	00001.000	FA 0972946-0097	RES FIX 22 K OHM 5% .25 W CARBON FILM	
0196A			R344	
0205	00001.000	FA 0972946-0093	RES FIX 15K OHM 5% .25 W CARBON FILM	
0205A			R224	
0206	00003.000	FA 0972947-0057	RES FIX 470 OHM 5% .5 W CARBON FILM	}
0206A			R229 , R301 , R303 , ,		for -0001, -0003, & -0004
0206	00002.000	FA 0972947-0057	RES FIX 470 OHM 5% .5 W CARBON FILM	}
0206A			R301 R303		for -0002
0207	00001.000	FA 0972947-0060	RES FIX 620 OHM 5% .5 W CARBON FILM	}
0207A			R493		for -0001
0210	00001.000	FA 0972978-0069	RES FIX COMP 47 OHMS 1.0W 5%	
0210A			R302 , , , ,	
0211	00001.000	FA 0972978-0093	RES FIX COMP 470 OHMS 1.0W 5%	
0211A			R119 , , , ,	

LIST OF MATERIALS

Assembly

TERMINAL ELECTRONICS, 745 W/ACOUSTIC COUPLER
 TERMINAL ELECTRONICS, 743 EIA/TTY
 TERMINAL ELECTRONICS, 743/745, CCITT MODEM
 TERMINAL ELECTRONICS, 743/745, W/MODEM

Part No.
 0983841-0001
 0983841-0002
 0983841-0003
 0983841-0004

Rev.
 AH
 AH
 AH
 AH

Item No.	Quantity	TI Part No.	Description	Remarks
0212	00001.000	FA 0972978-0100	RES FIX COMP 910 OHMS 1.0W 5%	
0212A			R368 , , , ,	
0213	00001.000	FA 0972978-0113	RES FIXED 3.3K OHMS 1.0 WATT 5%	
0213A			R118	
0214	00001.000	FA 0972141-0057	NETWORK,RES. 4.7 K OHM 2 X 14 PIN DIP	
0214A			U022	
0217	00001.000	FA 0416434-0203	FUSE 2.0 A 250V 3AG	
0217A			F301 , , , ,	
0218	00001.000	FA 0530588-0006	FUSE,CARTRIDGE 1AMP	} for .0004 only
0218A			F251	
0219	00003.000	FA 0530588-0008	FUSE,CARTRIDGE 2 AMP	
0219A			F101 F201 F252	
0220	00001.000	FA 0972445-0001	CRYSTAL,12 MHZ,QUARTZ	
0220A			Y001	
0221	00003.000	FA 0539544-0010	SOCKET,20PIN IC LOW PROFILE SOLDER TAIL	
0221A			XU012 XU017 XU030	
0222	00002.000	FA 0539544-0009	SOCKET,40PIN IC LOW PROFILE SOLDER TAIL	
0222A			XU015, XU018	
0223	00001.000	FA 0972461-0001	DISC, SOUND-REFLECT-ELECT 3200 + 600HZ	
0223A			D5001	
0224	00001.000	FA 0972602-0001	XFORMER, SW BOLT, PWR SPLY 596UH +/- 67UH	
0224A			T301	
0225	00001.000	FA 0972614-0001	TRANSFORMER, TOROID	
0225A			T302	
0226	00001.000	FA 0983999-0001	HEATSINK, DRIVER	
0227	00001.000	FA 0533517-0001	HEATSINK, ELECT-ELECT TOP AND BASE, TO-3	
0228	00001.000	FA 0972498-0001	CONN, DBL ROW, EDGE MTG-20 POSITIONS	
0228A			J101	
0229	00002.000	FA 0539544-0007	SOCKET, 24PIN IC LOW PROFILE SOLDER TAIL	
0229A			XU010 XU014	
0231	00001.000	FA 0983919-0001	SUPPORT, TONE GENERATOR	
0233	00001.000	FA 0972451-0001	SWITCH, TOGGLE, DPST, 5A	
0233A			S301	
0234	00001.000	FA 0972988-0022	SCREW 4-40 X 1.25 PAN HEAD CRPS	
0235	00001.000	FA 0972488-0001	RECEPTACLE, MALE, RECESSED, 3 PRONG	
0235A			J301	
0236	00003.000	FA 0411115-0044	NUT, 4-40 HEXAGON CRPS STEEL	

LIST OF MATERIALS

Assembly
 TERMINAL ELECTRONICS, 745 W/ACOUSTIC COUPLER
 TERMINAL ELECTRONICS, 743 EIA/TTY
 TERMINAL ELECTRONICS, 743/745, CCITT MODEM
 TERMINAL ELECTRONICS, 743/745, W/MODEM

Part No. Rev.
 0983841-0001 AH
 0983841-0002 AH
 0983841-0003 AH
 0983841-0004 AH

Item No.	Quantity		TI Part No.	Description	Remarks
0237	00014.000	EA	0411027-0803	WASHER .125 X .250 X .022 FLAT CRES	
0238	00007.000	EA	0411104-0135	WASHER #4 LOCKSPLIT	
0239	00001.000	EA	0972493-0001	CABLE ASSEMBLY, FLAT-FLEXIBLE	
0240	00009.000	EA	0972487-0001	JUMPER PLUG, CONNECTOR BLACK	
0241	00002.000	EA	0772635-0001	CLIP, FUSE	
0243	00001.000	EA	0983836-0001	CABLE, HEATSINK GROUND	
0244	00001.000	EA	0983837-0001	WIRING HARNESS MECHANISM GROUND	
0245	00008.000	EA	0972632-0001	STRAP, TIE DOWN, CABLE-NON-STD, 0-1-1/4 D.	
0246	00002.000	EA	0416925-0400	SPACER, #4 1/8" LG ALUM ANODIZED	
0247	00001.000	EA	0416925-0412	SPACER, #4 7/8" LG ALUM ANODIZED	
0248	00001.000	EA	0972621-0001	SPRING, RING	
0251	00007.000	EA	0411101-0057	LOCKWASHER #4 EXTERNAL TOOTH CRES	
0253	00001.000	EA	0972306-0001	COVER, ROUND-ALUMINUM SEAMLESS	
0254	AR	TU	0417559-0001	SILICONE RUBBER (PTV) DOW 3140	
0255	00010.000	EA	0972628-0001	WASHER, #4 .115 ID .200 OD-SHLDR NON-MET	
0256	00009.000	EA	0972779-0001	INSULATOR, MICA COATED, TO-220 CASE	
0257	REF	EA	0983842-9901	DIAGRAM, LOGIC, DET-PORTABLE PRINTER	
0259	00009.500	ET	0236528-0000	WIRE 22 AWG 1 COND WHITE TEFLON SOLID	
0260	00002.000	EA	0972988-0019	SCREW 4-40 X .750 PAN HEAD CRES	
0261	00009.500	ET	0411400-0018	WIRE, RAPE TINNED, 18AWG, COPPER BUS	
0263	REF	EA	0993649-9901	TEST PROC, 743/745 TERMINAL ELTRC-960ATS	
0264	00006.000	EA	0416453-0021	NUT, PLAIN, 4-40 UNC-2B HEX, CRES, SMALL	
0265	00001.000	EA	0185113-0001	X SPACER XST TO-18 CASE	
0265A				Q307	
0265B				P/N 972507-1 IS AN	
0265C				ALTERNATE FOR ITEM 265	
0266	AR	PT	0417200-0004	PRIMER, SILICONE RUBBER-RED	
0268	00001.000	EA	0418730-0105	WASHER #6 FLAT TEFLON	
0269	00009.500	ET	0411400-0022	WIRE 22AWG ELECTRO-TIN-PLATED, COPPER	
0270	00005.000	EA	0972988-0016	SCREW 4-40 X .438 PAN HEAD CRES	
0271	00002.000	EA	0416622-0011	WASHER #4 FLAT	
0272	00001.000	EA	0972947-0072	RES FIX 2.0K OHM 5% .5 W CARBON FILM	
0272A				R120	
0273	00001.000	EA	0972946-0063	RES FIX 820 OHM 5% .25 W CARBON FILM	
0273A				R108	
0274	00001.000	EA	0996281-0006	RECTIFIER, SS3892/UES1302, V(R)100V I(O)6A	
0274A				CR322	

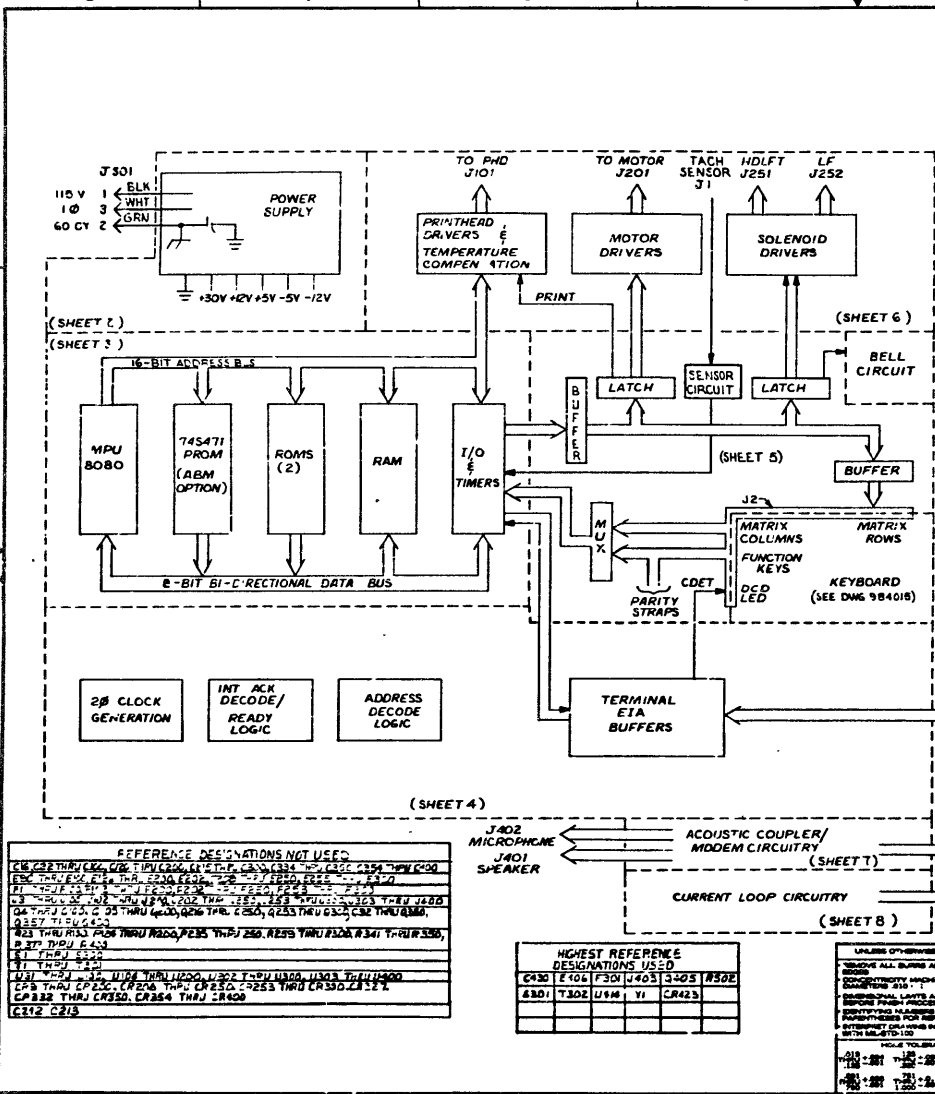
LIST OF MATERIALS

Assembly

TERMINAL ELECTRONICS, 745 W/ACOUSTIC COUPLER
 TERMINAL ELECTRONICS, 743 EIA/TTY
 TERMINAL ELECTRONICS, 743/745, CCITT MODEM
 TERMINAL ELECTRONICS, 743/745, W/MODEM

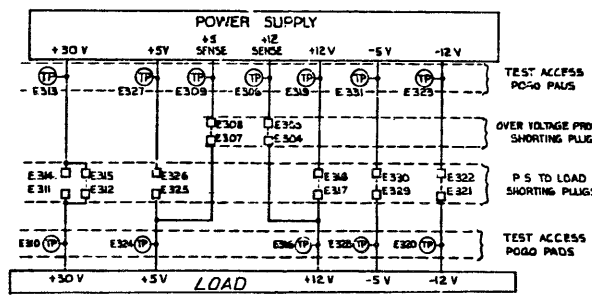
Part No.	Rev.
0983841-0001	AH
0983841-0002	AH
0983841-0003	AH
0983841-0004	AH

Item No.	Quantity	TI Part No.	Description	Remarks
0290	REF	EA	0984023-0001 LISTING, PWR INTERFACE SIGNALS, 743/745	
0299	AD	EA	0972799-0001 ADHESIVE SOLVENTLESS RAPID CURING	
0300	00001.000	EA	0983841-5001 AUTO INSERTED TAPE FOR 983841-1	for -0001
0300	00001.000	EA	0983841-5002 AUTO INSERTED TAPE FOR 983841-2	for -0002
0300	00001.000	EA	0983841-5003 AUTO INSERTED TAPE FOR 983841-3	for -0003
0300	00001.000	EA	0983841-5004 AUTO INSERTED TAPE FOR 983841-4	for -0004 only



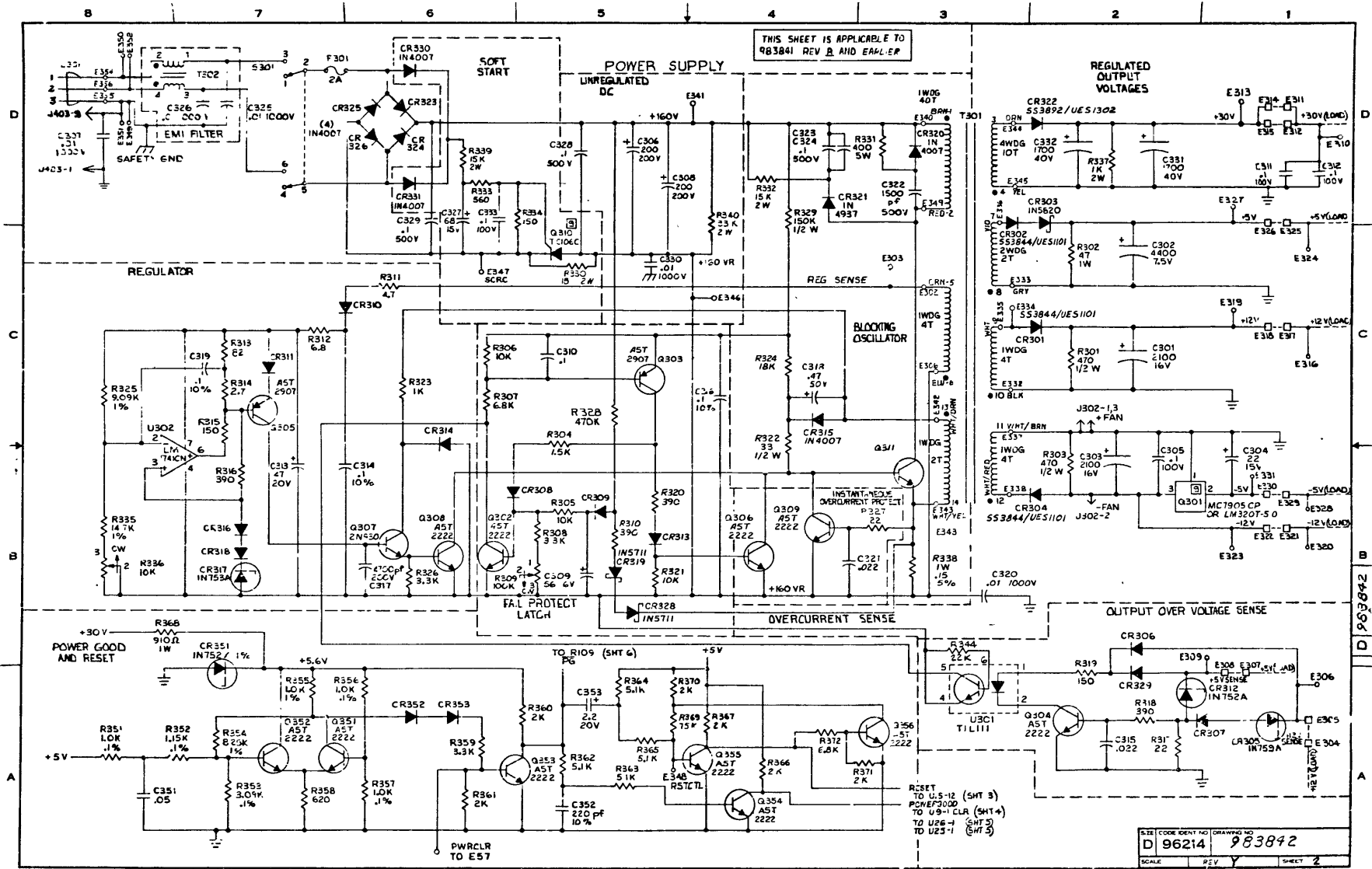
- NOTES: UNLESS OTHERWISE SPECIFIED:
1. DIODES NOT MARKED ARE IN 914 B
 2. RESISTORS 1/4 W, 6%.
 3. AMPLIFIERS ARE RC4558P
 4. ON RC4558P AMPLIFIERS PIN 4 IS TIED TO -12 VOLTS AND PIN 8 IS TIED TO +12 VOLTS
 5. NO TEST POINTS MAY BE MOVED WITHOUT PRIOR APPROVAL BY TEST ENGINEERING
 6. U12 IS USED FOR OPTIONAL ABM: INSTALLED FROM CONFIGURATION GUIDE AT UNIT ASSEMBLY
 7. □ REPRESENT E'NWS WITH SQUARE PIN
 8. △ - REPRESENT OPEN COLLECTOR
 9. TRANSISTORS ARE MOUNTED ON HEATSINK
 10. NETWORKS VCC PIN CONNECTS TO +5V
 11. RESISTORS WITH NO VALUES SPECIFIED ARE NOT INSTALLED
 12. SHEETS 7 & 8A SHOW THE MODEM/Acoustic COUPLER CIRCUITRY: SHEET 7 APPLIES TO ASSY 983841-0001 SHEET 8A APPLIES TO ASSY 983841-0003
 13. U19 USED ON ASSY 983841 REV B & EARLIER REV 2, REV 3, REV 4, REV 5 & LATER
 14. R204 INSTALLED AT LOCATION CR484
 15. IF NECESSARY A SELECTED RESISTOR IS INSTALLED AT UNIT TEST IN LOCATION R468 OR R467, AS REQUIRED IN ORDER TO ACHIEVE PARR/SYMMETRY
 16. POWER SUPPLY CIRCUITRY IS SHOWN ON SHEETS 2 AND 2A; SHEET 2 REPRESENTS ASSY 983841, REV B & EARLIER SHEET 2A REPRESENTS ASSY 983841, REV 5 & LATER
 17. R205, CR21, CR425, CR426 INSTALLED IN LOW-STANDARD LOCATIONS SEE ASSY DRAWING 833841 FOR DETAIL.
 18. ROMS U10 & U16 MUST BE L'ED IN PAKS AS FOLLOWS:
 - 1) TMS 4700-4701 & 4702
 - 2) TMS 4700-4703 & 4704

REVISIONS			
REV	DATE	DESCRIPTION	APPROVED
A	9-11-75	406448 (C) FEE/Engineering	
REVISED PLR ENGINEERING CHANGES			
FORMAL RELEASE			
B	10-20-75	405921E, Subm. (Rev. 10-20-75)	
1. NETWORKS: U10 WAS 50K U19 WAS 4.7K U22 WAS 50K			
C	11-21-75	409829 (E) F. L. Gorman	
D	12-11-75	409685 (E) B. G. B. Gorman	
E	1-24-76	405846 (E) J. Gorman	
F	3-27-76	405543 (C) J. Gorman	
G	5-29-76	406279 (B) J. Gorman	
H	6-9-76	413944 (G) J. Gorman	
J	7-7-76	403358 (G) E. E. Gorman	
K	8-5-76	414137 (B) J. Gorman	
L	10-11-76	416330 (C) J. Gorman	
M	11-9-76	409869 (C) J. Gorman	
N	12-11-76	417347 (C) J. Gorman	
P	1-17-77	419330 (C) J. Gorman	
R	2-27-77	424237 (C) J. Gorman	
T	4-13-77	424237 (C) J. Gorman	
U	6-10-77	424237 (C) J. Gorman	
V	6-10-77	424237 (C) J. Gorman	
W	9-16-77	424237 (C) J. Gorman	
Y	12-17-77	424237 (C) J. Gorman	
Z	1-26-78	424237 (C) J. Gorman	
AA	3-27-78	424237 (C) J. Gorman	



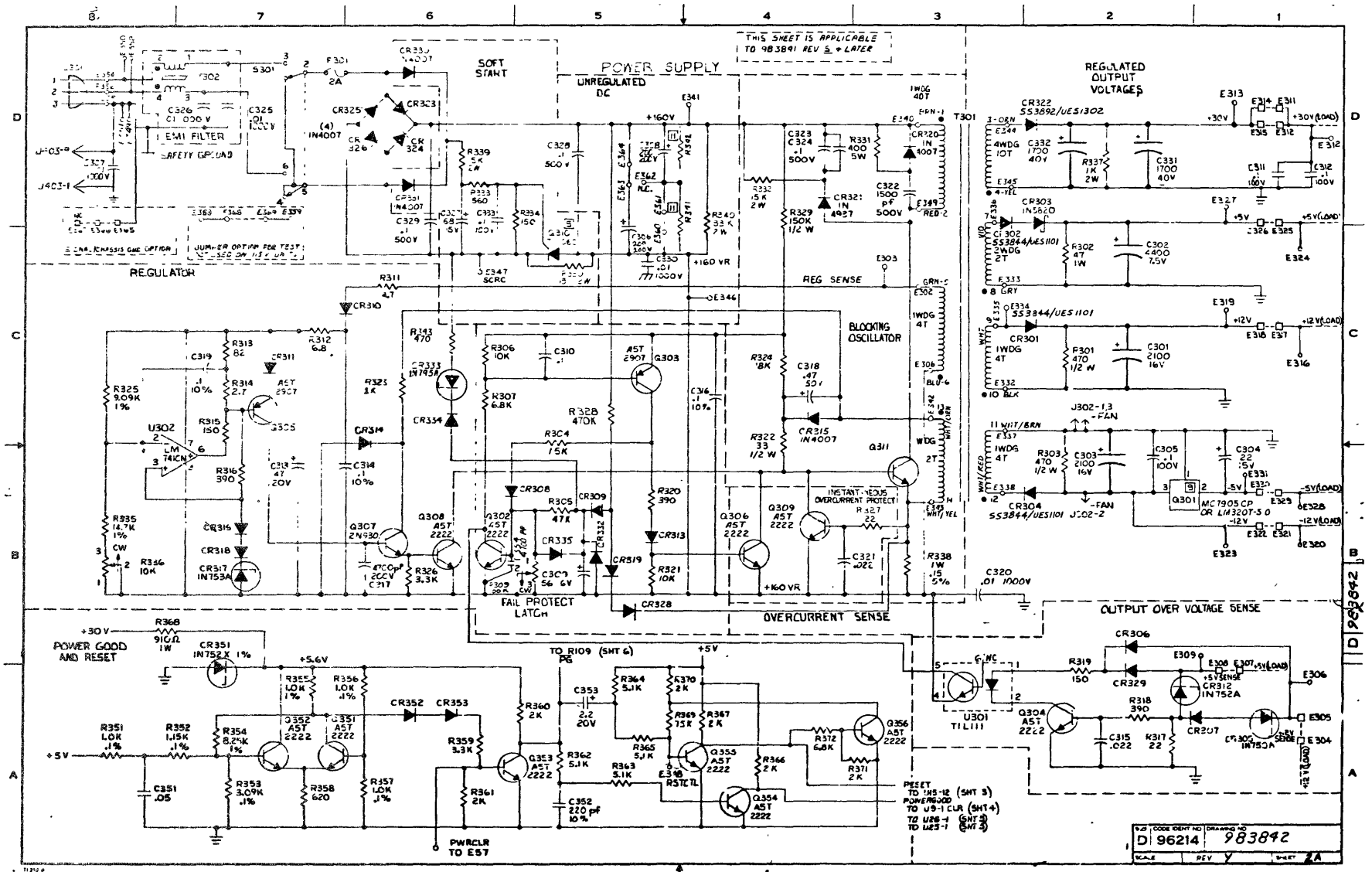
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A-75



SIZE	CODE IDENT NO	DRAWING NO
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SCALE	REV	SHEET
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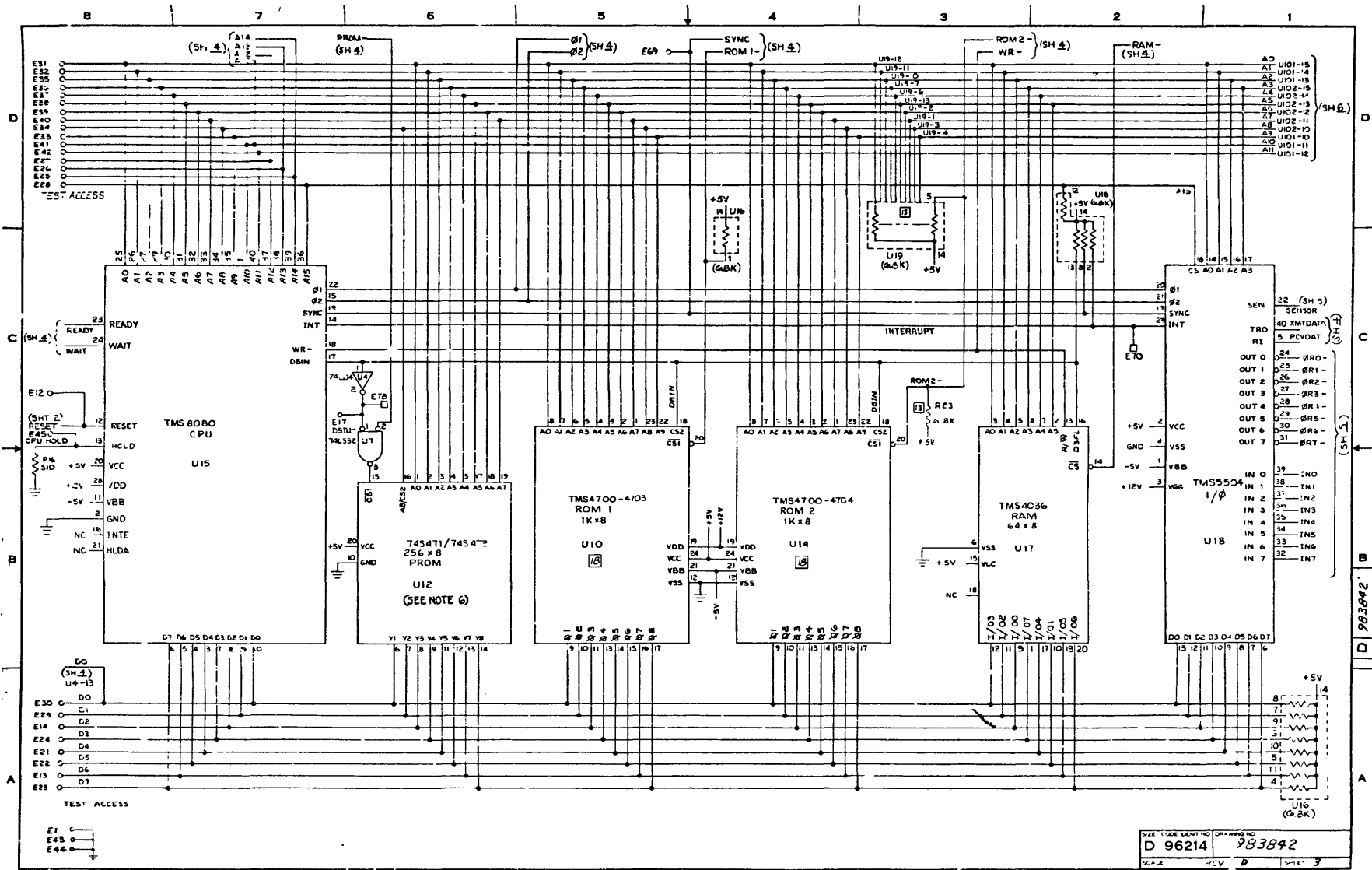
A-76



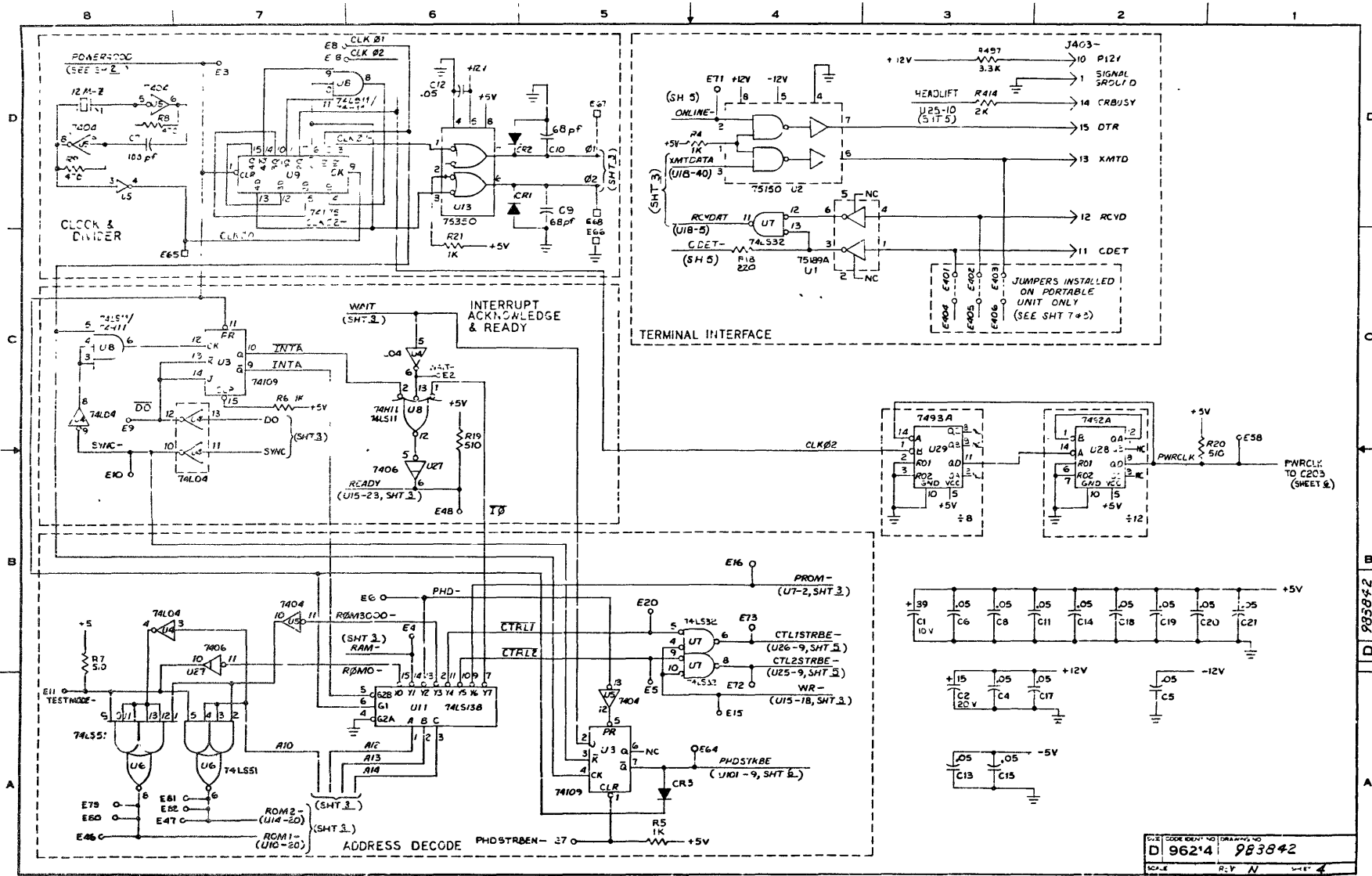
THIS SHEET IS APPLICABLE TO 983891 REV 5, & LATER

U302 CODE IDENT NO DRAWING NO
D 96214 983892
 SCALE REV SHEET 2A

A-77

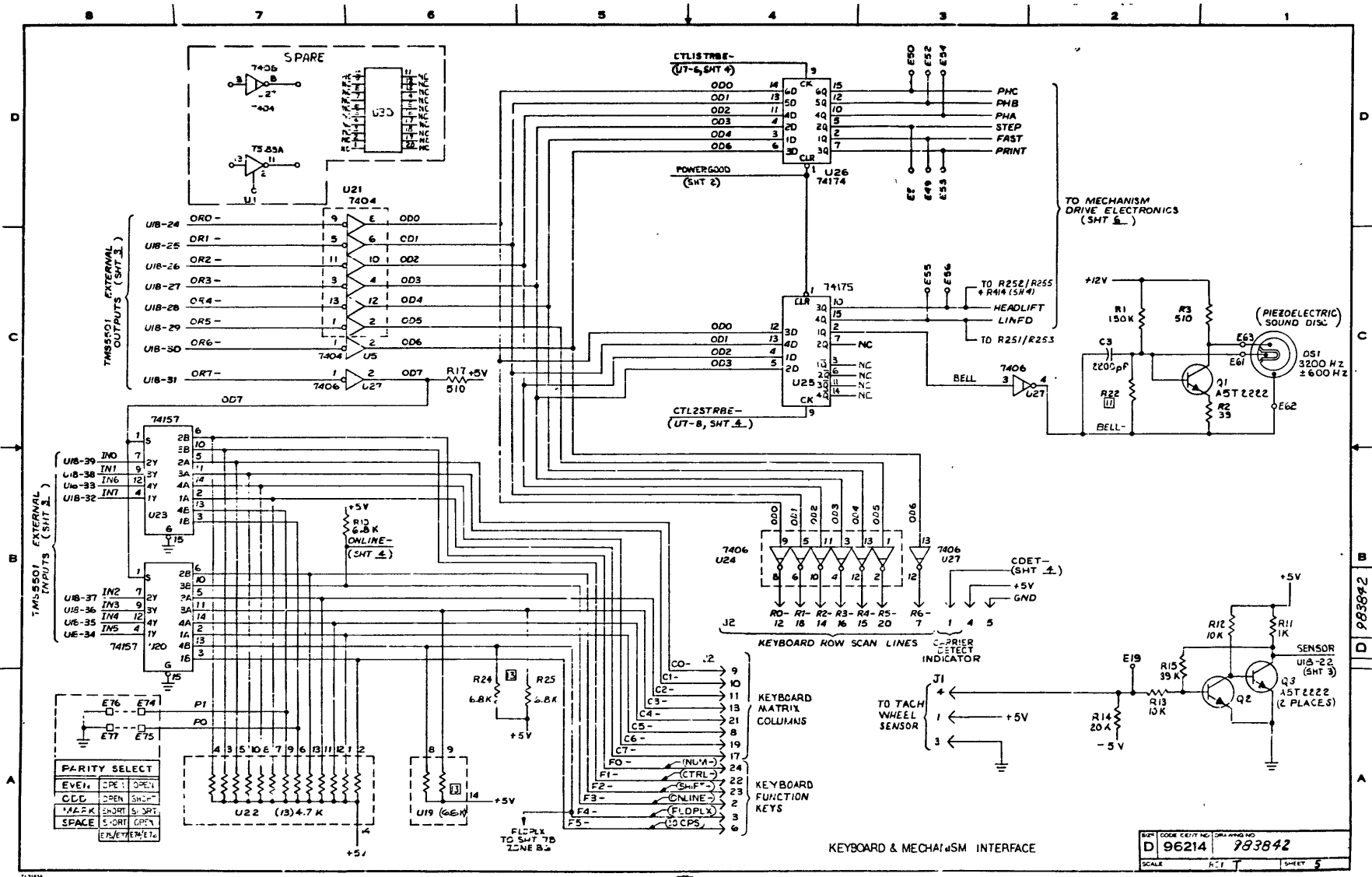


REV 1008 04/78 NO. 01 DRAWING NO.
D 96214 983842
SCALE 1:1



FILE CODE IDENT NO DRAWING NO
 D 96214 983842
 SCALE R:V N SHEET 4

A-79

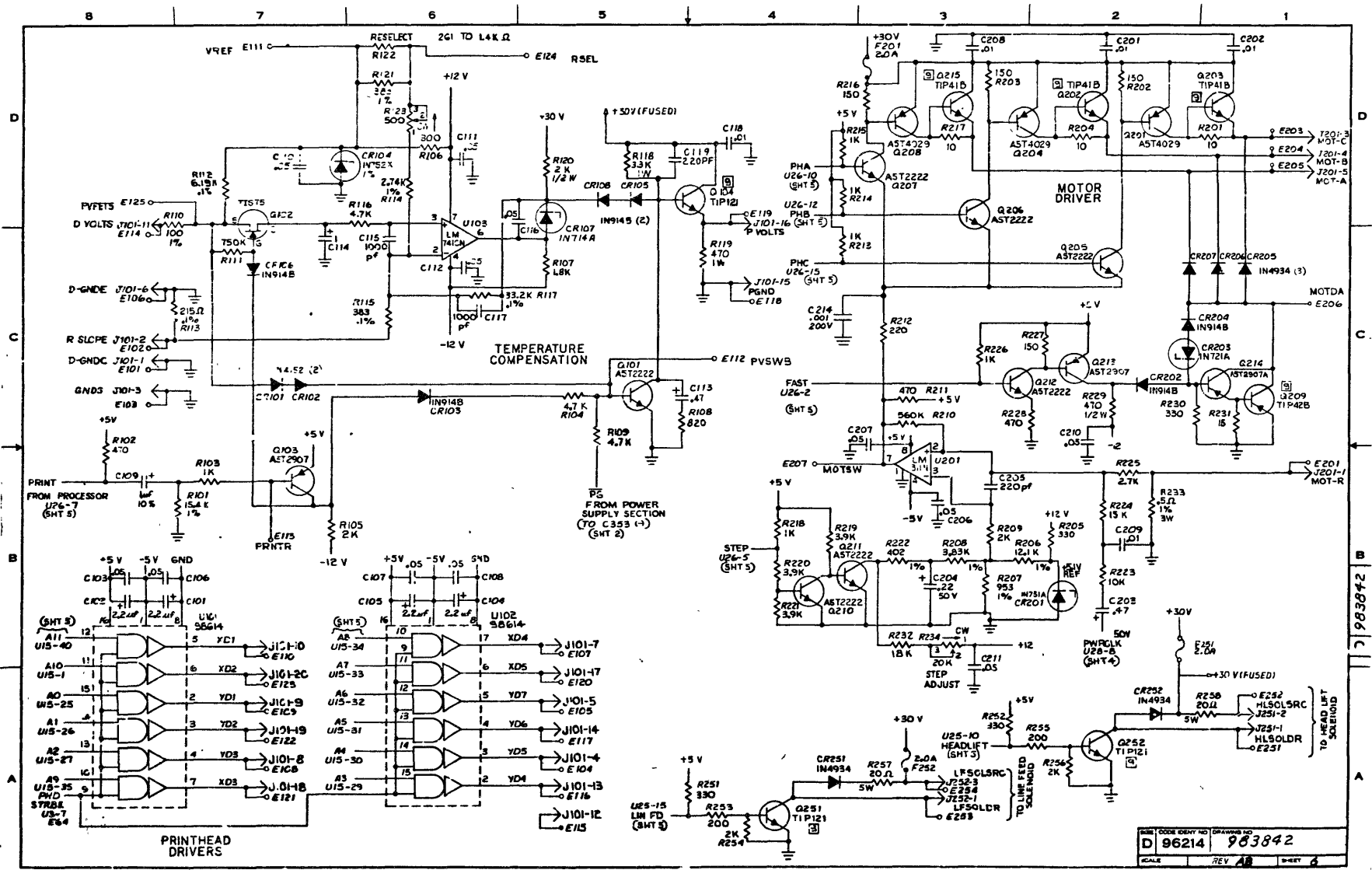


KEYBOARD & MECHANISM INTERFACE

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SCALE	R 1 T	SHEET	5		

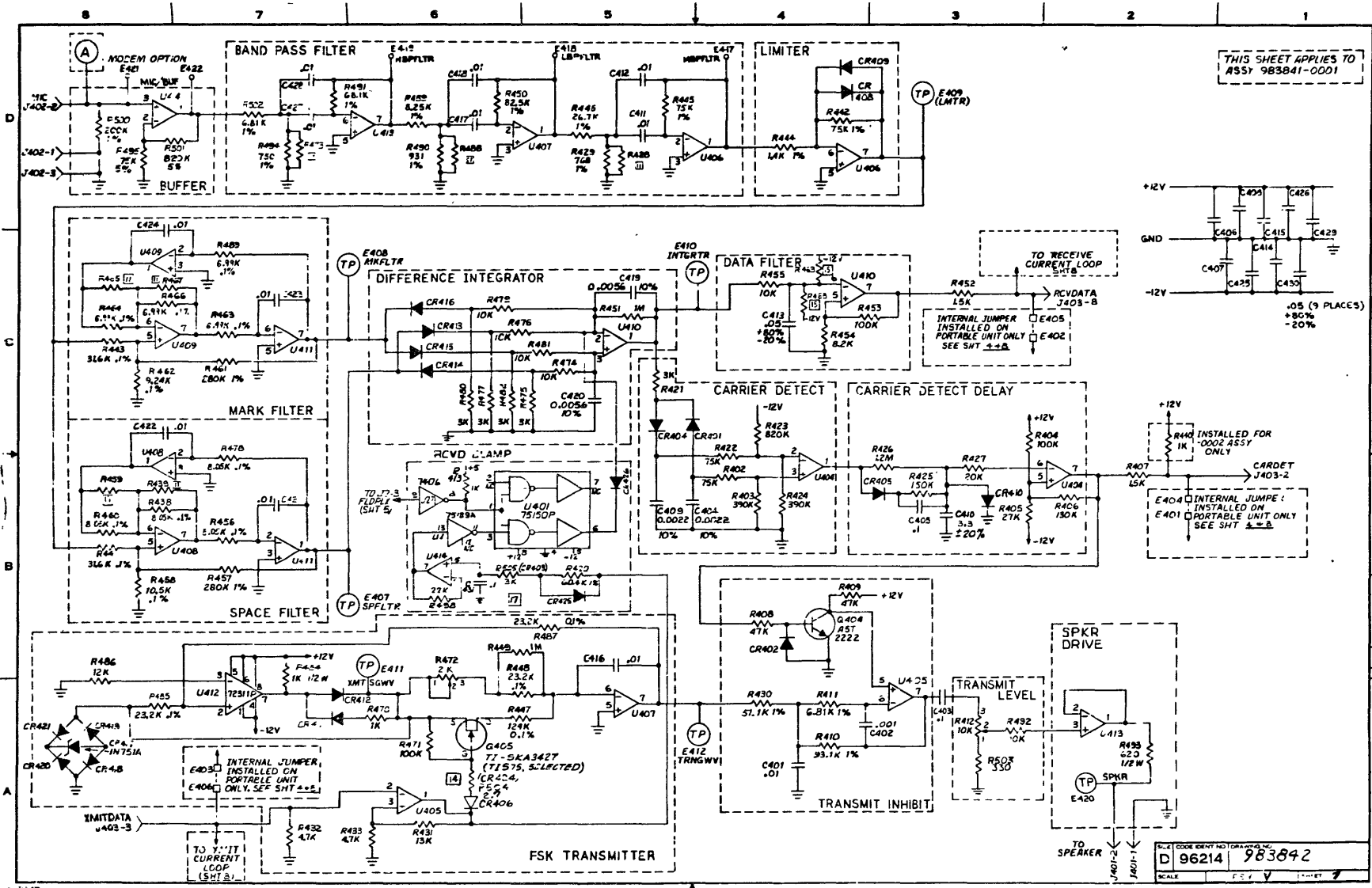
D 983842

A-80

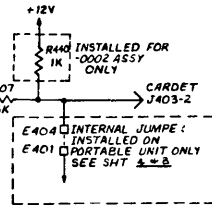
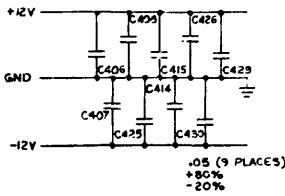


DATE	0000	DRAWING NO.	96214
SCALE	REV	AB	SHEET 6

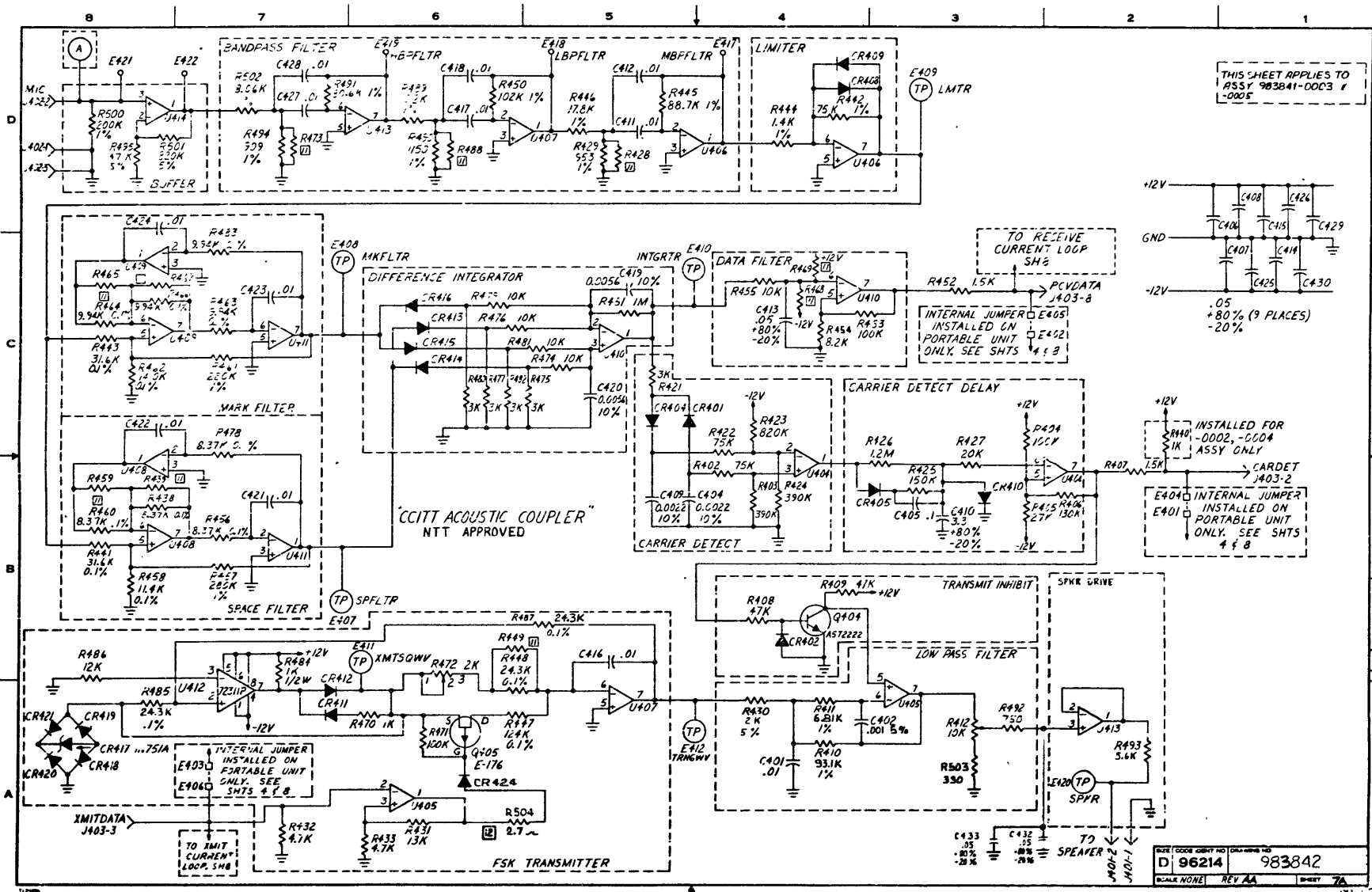
A-81



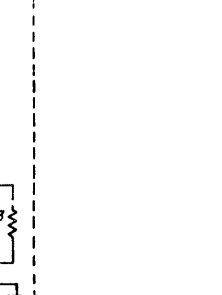
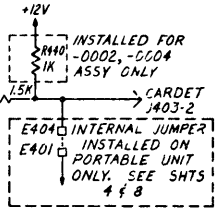
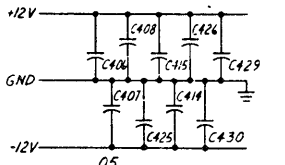
THIS SHEET APPLIES TO ASSY 983841-0001



SCALE	1:1
DATE	08-11-77
REV	1
BY	...
CHECKED BY	...
APPROVED BY	...
PART NO.	D 96214
ASSY NO.	983842

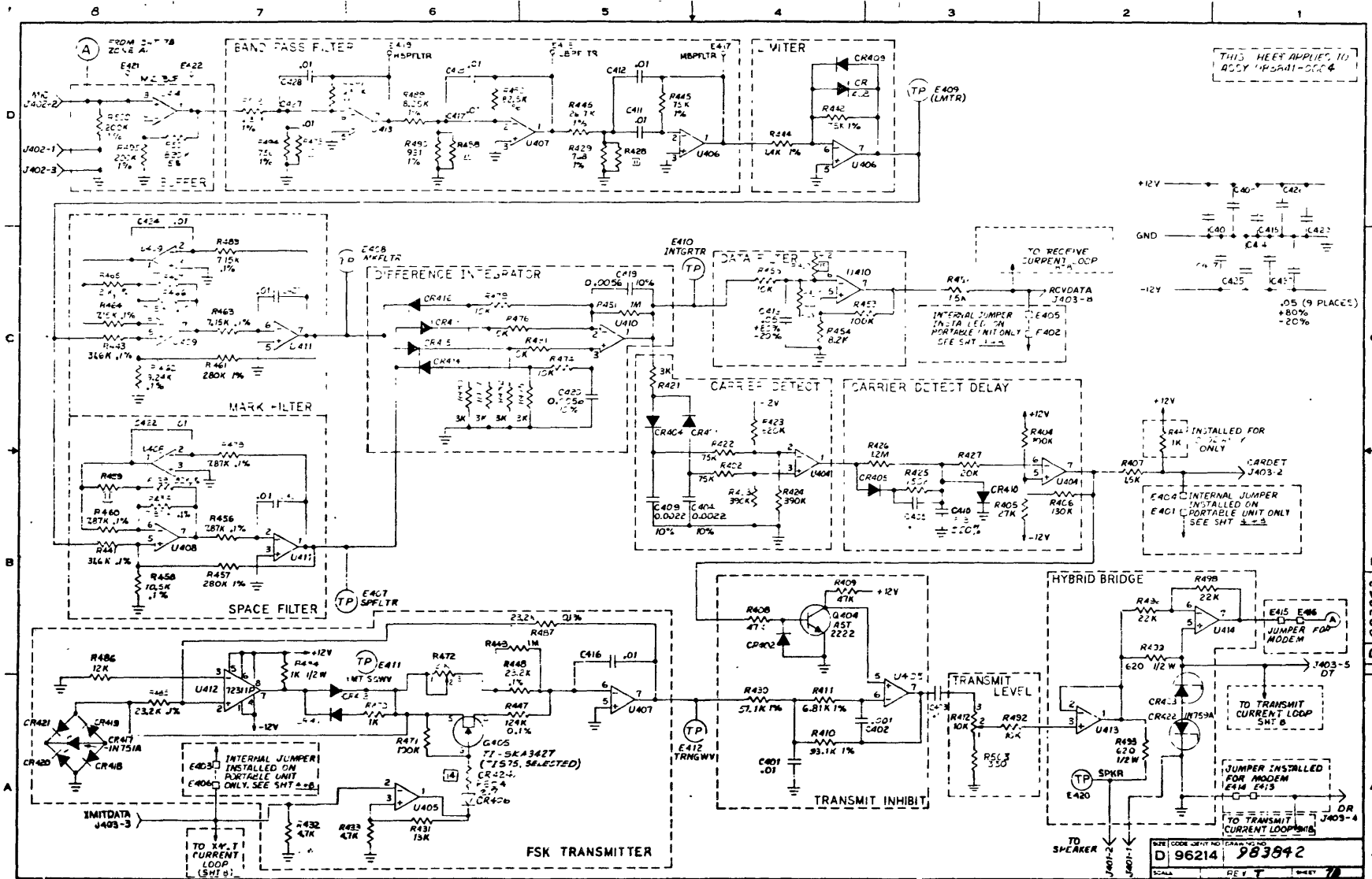


THIS SHEET APPLIES TO
ASSY 983841-0003 &
-0005

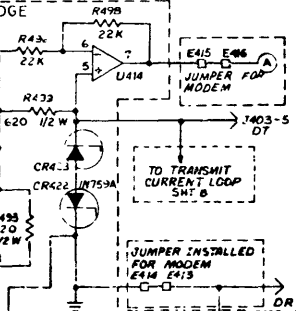
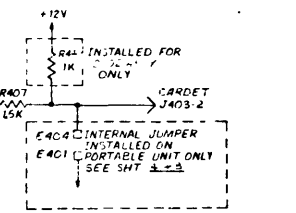
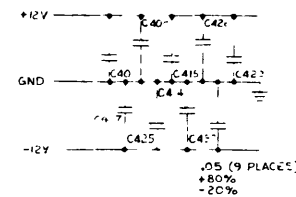


SIZE	CODE	QTY	NO	REV	NO
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SCALE	NONE			REV	AA

983842

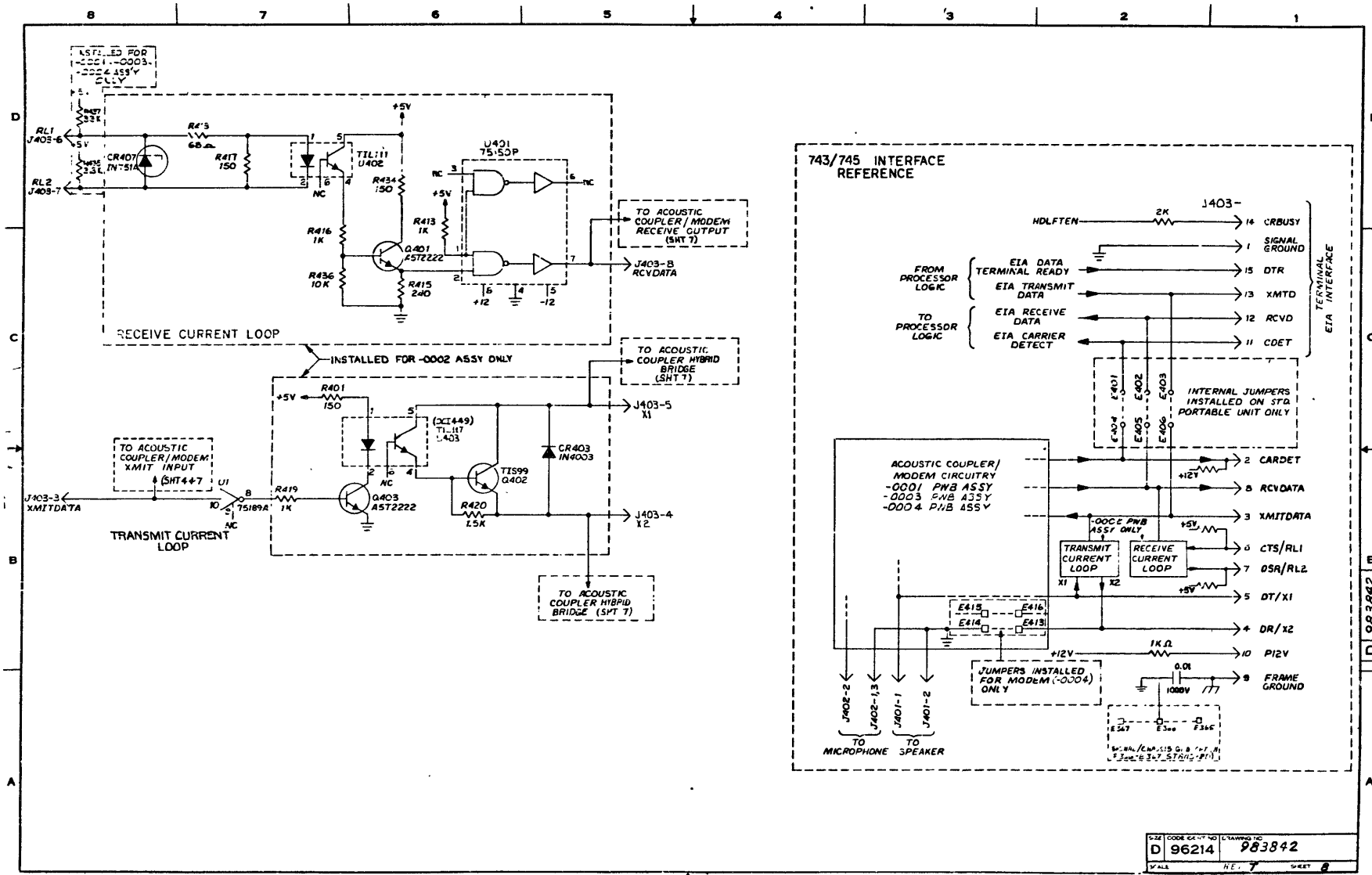


THIS MEET APPLIES TO ASSY #PS5A11-2004



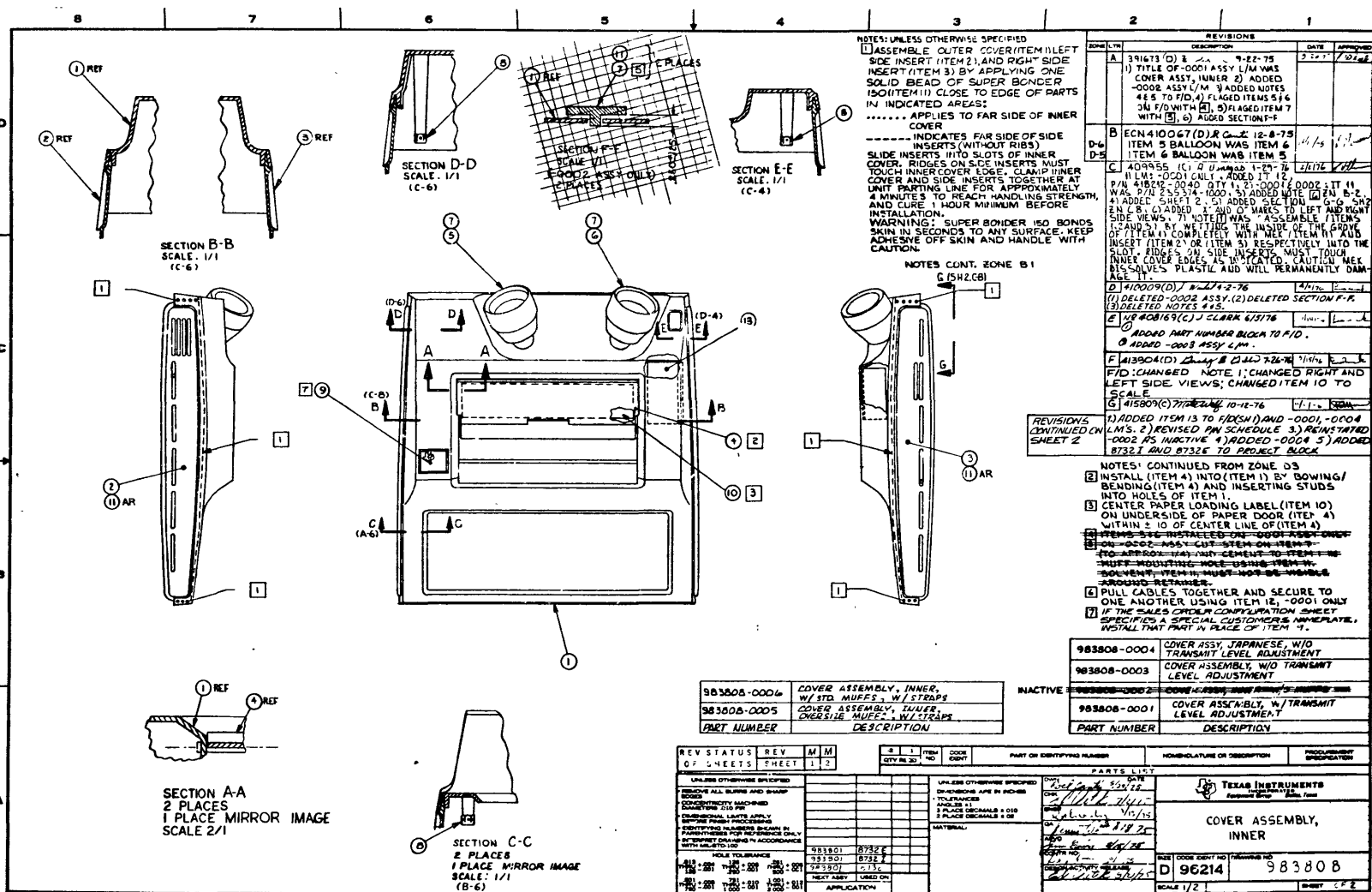
DATE	CODE	REV	NO	ISSUES	NO
	D	96214	983842		
SCALE		REV		SHEET	
		7		78	

A-84



9-22	CODE	REV	NO	DRAWING	NO
D	96214			983842	
DATE	REV	BY	CHKD	APPD	BY

A85



NOTES: UNLESS OTHERWISE SPECIFIED
 1) ASSEMBLE OUTER COVER (ITEM 1) LEFT SIDE INSERT (ITEM 2), AND RIGHT SIDE INSERT (ITEM 3) BY APPLYING ONE SOLID BEAD OF SUPER BONDOR 150 (ITEM 4) CLOSE TO EDGE OF PARTS IN INDICATED AREAS:
 APPLIES TO FAR SIDE OF INNER COVER
 ----- INDICATES FAR SIDE OF SIDE SLIDE INSERTS (WITHOUT RIBS)
 SLIDE INSERTS INTO SLOTS OF INNER COVER. RIDGES ON SIDE INSERTS MUST TOUCH INNER COVER EDGE. CLAMP INNER COVER AND SIDE INSERTS TOGETHER AT UNIT PARTING LINE FOR APPROXIMATELY 4 MINUTES TO REACH HANDLING STRENGTH, AND CURE 1 HOUR MINIMUM BEFORE INSTALLATION.
 WARNING: SUPER BONDOR 150 BONDS SKIN IN SECONDS TO ANY SURFACE. KEEP ADHESIVE OFF SKIN AND HANDLE WITH CAUTION.

NOTES CONT. ZONE B 1
 G (5)(2, C) B

ZONE	REV	DESCRIPTION	DATE	APPROVED
A	1	31613 (D) 8-22-75 9-22-75 1) TITLE OF 0001 ASSY. I/M WAS COVER ASSY, INNER 2) ADDED -0008 ASSY./M 3) ADDED NOTES 4 & 5 TO F.I.D. 4) FLAGGED ITEM 5 & 6 WITH [5], [6] ADDED SECTION F-F	5/27/77	[Signature]
D-6	1	ECN 410067 (D) R C-2 12-8-75 ITEM 5 BALLOON WAS ITEM 6	11/15/75	[Signature]
D-5	1	ADDS: (C) J CLARK 6/15/76 1) LM: -0001 CALL. -ADDED 1/2 P/N 41828 -0040 QTY 11, 2) -0001 0002: IT 11 WAS 9/18 2:5:54 -1000, 3) ADDED NOTE ITEM 6-2, 4) ADDED SHEET 2, 5) ADDED SECTION G-G SWP 2 & 3, 6) ADDED 1 AND 10 MARKS TO LEFT AND RIGHT SIDE VIEWS, 7) NOTED MFG. ASSEMBLY ITEMS 1, 2 AND 3 BY WETTING THE INSIDE OF THE GROOVE OF ITEM 4 COMPLETELY WITH MEL ITEM 11 AND INSERT (ITEM 2) OR (ITEM 3) RESPECTIVELY INTO THE SLOT. RIDGES ON SIDE INSERTS MUST TOUCH INNER COVER EDGES AS INDICATED. CAUTION MEL RESOLVES PLASTIC AND WILL PERMANENTLY DAMAGE.	11/15/76	[Signature]

REVISIONS CONTINUED ON SHEET 2
 (1) DELETED -0002 ASSY. (2) DELETED SECTION F-F
 (3) DELETED NOTES 4 & 5
 (4) FOR 80816 (C) J CLARK 6/15/76
 G ADDED -0008 ASSY. 6/M
 F 415004 (D) J CLARK 6/15/76 10-12-76
 F.I.D. CHANGED. NOTE 11 CHANGED RIGHT AND LEFT SIDE VIEWS; CHANGED ITEM 10 TO SCALE
 G 415009 (D) J CLARK 10-12-76 1/1. S. FROM

REVISIONS CONTINUED ON SHEET 2
 1) ADDED ITEM 13 TO F.I.D. (1) AND -0001 -0004 LMS. 2) REVISED P/W SCHEDULE 3) REINSTATED -0002 AS INACTIVE 4) ADDED -0004 5) ADDED 8732 I AND 8732 E TO PROJECT BLOCK
 NOTES: CONTINUED FROM ZONE D3
 2) INSTALL (ITEM 4) INTO (ITEM 1) BY BOWING/BENDING (ITEM 4) AND INSERTING STUDS INTO HOLES OF ITEM 1.
 3) CENTER PAPER LOADING LABEL (ITEM 10) ON UNDERSIDE OF PAPER DOOR (ITEM 4) WITHIN ± 10 OF CENTER LINE OF (ITEM 4)
 4) PULL CABLES TOGETHER AND SECURE TO ONE ANOTHER USING ITEM 12, -0001 ONLY
 7) IF THE SALES ORDER CONFIGURATION SHEET SPECIFIES A SPECIAL CUSTOMERS ANNEAL, WELD THAT PART IN PLACE OF ITEM 9.

983808-0006	COVER ASSEMBLY, INNER, W/ STD. MUFFS & W/ STRAPS
983808-0005	COVER ASSEMBLY, INNER, OVERSIZ. MUFFS & W/ STRAPS
PART NUMBER	DESCRIPTION

983808-0004	COVER ASSY. JAPANESE, W/O TRANSMIT LEVEL ADJUSTMENT
983808-0003	COVER ASSEMBLY, W/O TRANSMIT LEVEL ADJUSTMENT
983808-0002	COVER ASSEMBLY, W/O TRANSMIT LEVEL ADJUSTMENT
983808-0001	COVER ASSEMBLY, W/ TRANSMIT LEVEL ADJUSTMENT
PART NUMBER	DESCRIPTION

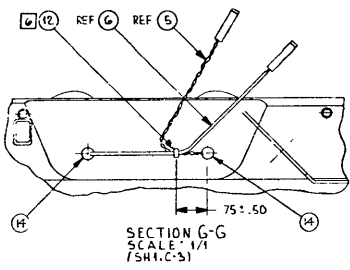
REV	STATUS	REV	M	M	QTY	REV	NO	QTY	NO	CODE	EXPORT	PART OR IDENTIFIED NUMBER	HOMOLOGATION OR DESCRIPTION	PROCUREMENT SPECIFICATION
1		1												

UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
REMOVE ALL BURRS AND SHARP EDGES	OR-DIMENSIONS ARE IN INCHES
CONTOURS TO BE MACHINED	TOLERANCES UNLESS STATED
CHAMFERED ENDS APPLY	3 PLACE DECIMALS ± 0.01
IDENTIFYING NUMBERS BEHIND IN PARALLEL TO PARTING LINE FOR REFERENCE ONLY	2 PLACE DECIMALS ± 0.02
FINISHES TO BE SHOWN IN ACCORDANCE WITH PART DRAWING	
HOLE TOLERANCES	981801 8732 E
±.001	981801 8732 F
±.002	981801 C 7.5
±.005	NEXT KEY USED ON
±.010	APPLICATION

PARTS LIST	TEXAS INSTRUMENTS				
	COVER ASSEMBLY, INNER				
REV	CODE	QTY	NO	TRANSIT NO	983808
D	96214				
SCALE: 1/2 1					

B 7 6 5 4 3 2 1

D
C
B
A



REVISED		DATE	APPROVED
H	CH40824 (2) C SHIP (1) ADDED BALLONS TO SEC G-G, SHIT Z (2) ADDED ITEM 14 TO LM	1-22-77	J. P. 08
J	CH41801 (2) C SHIP (1) ADDED ITEM 7	1-22-77	J. P.
K	CH 423787 (2) L 2.644 (1) -0004 LM ITEM 5 WAS 995637-0001, ITEM 6 WAS 995638-0001 (2) CREATED -0005 8-0006 LM'S	5-2-77	J. P.
L	CH42598 (2) L 2.644 (1) -0003 ADDED ITEM 13 (2) CHANGED ITEM 11 ALL L/M'S, WAS 972799-0001 (2) ITEM 13 BALLON WAS FOR -0001 8-0004 ONLY.	8-25-77	J. P.
M	CH425392 (2) L 2.644 (1) 01N-0001 LM ITEM 2 & 3 WERE 983983-0001 & 983984-0001, CH-0003 THRU-0006 LM, ITEM 2 & 3 WERE 983983-0002 & 983984-0001	3-13-78	J. P.

A-86

B
D | 983808

REV	DATE	NO.	DRAWING NO.
D	96214		983808
SCALE	1/1	REV	M
			SHEET 2 OF 2

LIST OF MATERIALS

Assembly

COVER ASSY, WITH XMT LEVEL ADJUSTMENT
 COVER ASSY, W/O TRANSIT LEVEL ADJUSTMENT
 COVER ASSY, INNER, 745 JAPANESE

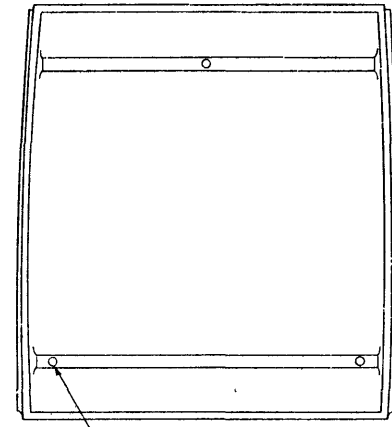
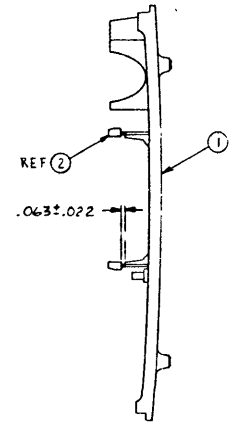
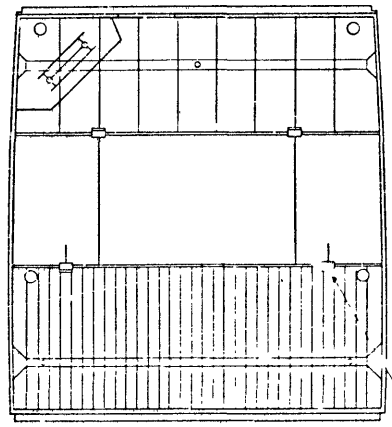
Part No. Rev.

0983808-0001 M
 0983808-0003 M
 0983808-0004 M

Item No.	Quantity		TI Part No.	Description	Remarks
0001	00001.000	EA	0983981-0001	COVER, INNER, 745, ROUND CONT PWR CONN	
0002	00001.000	EA	0999248-0001	INSERT, LEFT SIDE W/XMT LEV ADJ, VENTED	for -0001
0002	00001.000	EA	0999248-0003	INSERT, LEFT SIDE W/O XMT LEV ADJ, VENTED	for -0003 & -0004
0003	00001.000	EA	0999249-0001	INSERT, RIGHT SIDE, VENTED	
0004	00001.000	EA	0983865-0001	DOOR, PAPER	
0005	00001.000	EA	0983826-0001	MUFF ASSY, TRANSMIT, ACOUSTIC COUPLER	
0005	00001.000	EA	0995670-0002	MUFF ASSY, XMIT, OVERSIZE, W/STRAP	for 0004
0006	00001.000	EA	0983827-0001	MUFF ASSY, RECEIVE ACOUSTIC COUPLER	
0006	00001.000	EA	0995671-0001	MUFF ASSY, RECV, STANDARD, W/STRAP	for 0004
0007	00002.000	EA	0983875-0001	RETAINER, MUFF	
0008	00004.000	EA	0772334-0001	FASTNER 4-40 ON-SERT	
0009	00001.000	EA	0983913-0001	NAMEPLATE, INNER COVER	
0010	00001.000	EA	0983912-0001	LABEL, PAPER LOADING	
0011	AR	EA	0996527-0001	ADHESIVE, LOCTITE 416	
0012	00001.000	EA	0418212-0040	STRAP, TIEDOWN, ADJUSTABLE, PLASTIC	
0013	00001.000	EA	0983967-0001	PAD, FOAM 3 X 3 X 1/4	
0014	AR	TU	0417559-0001	SILICONE RUBBER (RTV) DOW 3140	

UNLESS OTHERWISE SPECIFIED:
 ALL PARTS TO BE MADE OF 6061 ALUMINUM
 TO BE ANODIZED AND 60% MECH. SOLUTION
 TO BE ANODIZED. ORIENTATE PER CAP
 TO BE ANODIZED. IN POST OF BASE, APPLY
 BRASS PLATING TO INSIDE OF CAP AND
 BRASS PLATING TO POST UNTIL BOTTOMS CUT.
 ALL CONNECTIONS MUST WITHSTAND TENSILE
 TEST OF 150 LBS. MIN.

ZONE	DATE	APPROVED
A	410005	12-11-75
B	413807(1)	12-11-75
C	41424612 (E) P.P.A.	1-17-76
D	41429343 (E) M.M.M.	1-17-76



② ① } 4 PLACES
 ③ AR

④ 3 PLACES

983507-0002	BASE ASSY. TO THE HEET CONTACT PLATE
983507-0001	BASE ASSY. TO THE SIDE CONTACT PLATE
PART NUMBER	...

QTY REQD	UNIT	CODE	PART OR IDENTIFYING NUMBER	NAME QUANTITY OR DESCRIPTION	PART SPECIFICATION
1	EA				
				TEXAS INSTRUMENTS BASE ASSEMBLY D 93214 983507	

UNLESS OTHERWISE SPECIFIED	
REMOVE ALL BURRS AND SHARP	EDGES
ALL PARTS TO BE MACHINED	TO FINISH
ALL DIMENSIONS UNLESS OTHERWISE	STATED
ALL DIMENSIONS UNLESS OTHERWISE	STATED

UNLESS OTHERWISE SPECIFIED	
ALL DIMENSIONS ARE IN INCHES	
ALL DIMENSIONS UNLESS OTHERWISE	STATED
ALL DIMENSIONS UNLESS OTHERWISE	STATED

A-88

D 983507

LM

LIST OF MATERIALS

Assembly
 BASE ASSEMBLY, ROUND PIN POWER CONNECTOR
 BASE ASSEMBLY, RECTANGULAR PIN POWER CONNECTOR

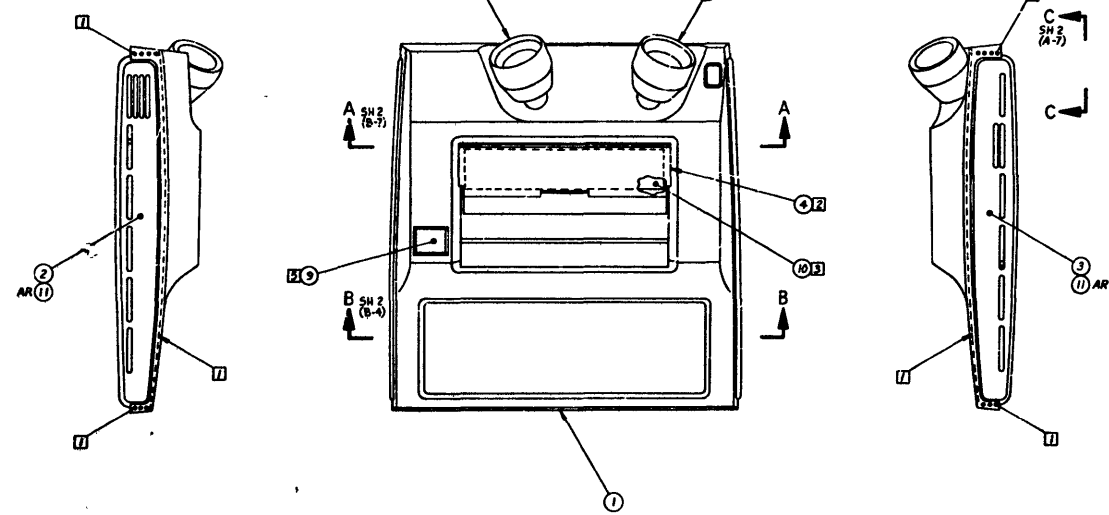
Part No. Rev.
 0983807-0001 C
 0983807-0002 C

Item No.	Quantity		TI Part No.	Description	Remarks
0001	00001.000	EA	098398C-0001	BASE-PRINTER CASE,ROUND PIN POWER CONNECTOR	for -0001
0001	00001.000	EA	098398C-0002	BASE-PRINTER CASE,RECTANGLE PIN POWER CONNECTOR	for -0002
0002	00004.000	EA	0983988-0001	CAP,MECHANISM POST	
0003	AR	GL	0235374-1000	SOLVENT METHYL ETHYL KETONE 99% PPA	
0004	00003.000	EA	0972678-0007	BUMPER,RUBBER	

REV	DESCRIPTION	DATE	APPROVED
A	ECN 424683 R.0mk LM CHANGES	1/18/77	[Signature]
B	ECN 423837 2PMBK LM CHANGES	1/18/77	[Signature]
C	ECN 415821 2PMBK LM CHANGES	1/18/77	[Signature]
D	COVER ASSEMBLY'S PART NUMBER TO TITLE FOR 0001, 0003, 0004, 0005, 0006, W/STWIP COVER ASSY, INNER-765, W/STWIP ADJ., INNER-765, W/STWIP ADJ., INNER-765, W/STWIP ADJ., AND INNER-765, STD W/STWIP W/STWIP, RESPECTIVELY.	1-16-78	[Signature]

- NOTES UNLESS OTHERWISE SPECIFIED:
- ASSEMBLE OUTER COVER (ITEM 1), LEFT SIDE INSERT (ITEM 2), AND RIGHT SIDE INSERT (ITEM 3) BY APPLYING ONE SOLID BEAD OF ADHESIVE (ITEM 11) CLOSE TO EDGE OF PARTS IN AREAS INDICATED; INDICATES AS-FLY TO FAR SIDE OF INNER COVER.
 - INSTALL PAPER DOOR (ITEM 4) BY BOWING OR BENDING AND INSERTING STUDS INTO HOLES ON COVER (ITEM 1).
 - CENTER PAPER LABEL (ITEM 10) ON UNDERSIDE OF PAPER DOOR (ITEM 4) WITHIN ±.10 OF CENTERLINE OF DOOR.
 - PULL LEADS OF MUFF ASSYS (ITEMS 5 AND 6) TOGETHER AND SECURE TO EACH OTHER USING STRAP (ITEM 12).
 - IF THE SALES ORDER CONFIGURATION SHEET SPECIFIES A SPECIAL CUSTOMER NAMEPLATE, INSTALL IT IN PLACE OF THE STANDARD NAMEPLATE (ITEM 7).
- INDICATES APPLY TO FAR SIDE OF INSERTS (WITHOUT RIBS)
- SLIDE INSERTS INTO SLOTS OF INNER COVER. RIDGES ON SIDE INSERTS MUST TOUCH INNER COVER EDGE. CLAMP INNER COVER AND SIDE INSERTS TOGETHER AT UNIT PARTING LINE FOR APPROXIMATELY 4 MINUTES TO REACH HANDLING STRENGTH. CURE 1 HR MIN BEFORE INSTALLATION.
- WARNING: ADHESIVE (ITEM 11) BONDS SKIN TO ANY SURFACE IN SECONDS. KEEP ADHESIVE OFF SKIN AND HANDLE W/TK CAUTION.

USE SILICONE RUBBER (ITEM 14) TO STRAIN RELIEVE CABLE BY APPLYING TO CAVITY OF MUFF RETAINER (ITEM 7) AFTER INSTALLATION. SEE VIEW C-C



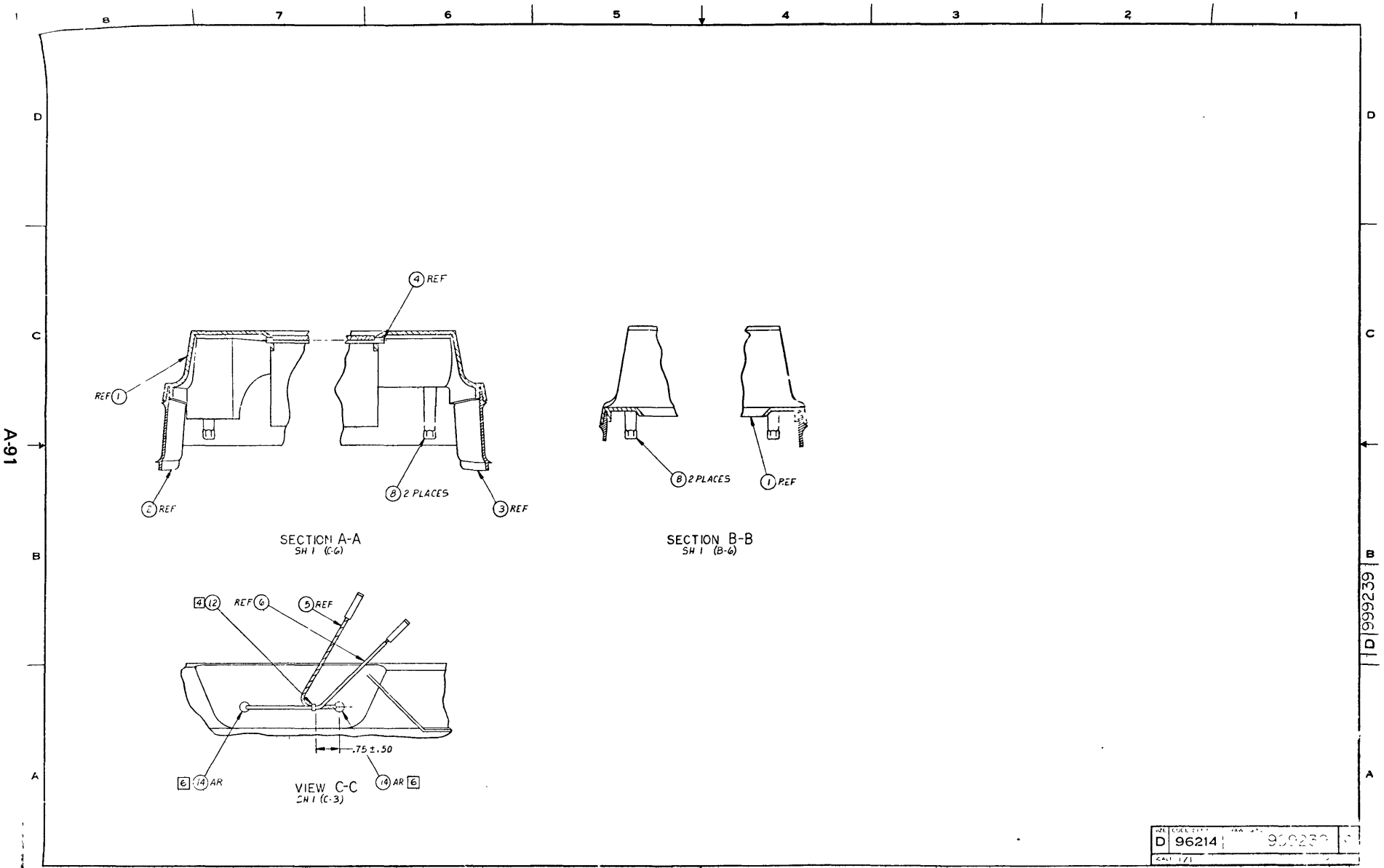
PART NUMBER	DESCRIPTION
999239-0006	COVER ASSY, INNER, 745/765, STD W/STWIP
999239-0005	COVER ASSY, INNER, 745/765, LG MUFF W/STWIP
999239-0004	COVER ASSY, INNER, 745/765, JAPAN
999239-0003	COVER ASSY, INNER, 745/765, W/STWIP ADJUST
999239-0001	COVER ASSY, INNER, 745/765, W/STWIP ADJUST

REV STATUS	REV	D	C
OF SHEETS	1	2	

QTY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	PROCESSMENT SPECIFICATION	NOTES
			UNLESS OTHERWISE SPECIFIED		
			0 DIMENSIONS ARE IN INCHES		
			1 TOLERANCES ARE AS SHOWN		
			2 PLACES DEC		
			3 PLACES DECIMALS & 000		
			4 PLACES DECIMALS & 00		
			5 PLACES DECIMALS & 0000		
			6 ALTERNATE DIMENSIONS FOR MOLDING		
			7 REMOVE ALL PLACES AND ROUND EDGES		
			8 CONDUCTIVITY AND WELD CHARACTERISTICS		
			9 IDENTIFYING MARKS TO BE USED THROUGHOUT		
			10 IDENTIFYING MARKS TO BE USED THROUGHOUT		
			11 IDENTIFYING MARKS TO BE USED THROUGHOUT		
			12 IDENTIFYING MARKS TO BE USED THROUGHOUT		
			13 IDENTIFYING MARKS TO BE USED THROUGHOUT		
			14 IDENTIFYING MARKS TO BE USED THROUGHOUT		
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			79 IDENTIFYING MARKS TO BE USED THROUGHOUT		
			80 IDENTIFYING MARKS TO BE USED THROUGHOUT		

REV	QTY	ITEM NO.	NO.	CLASSIFICATION	NOTES

06-



21	96214	900239
CAL 171		

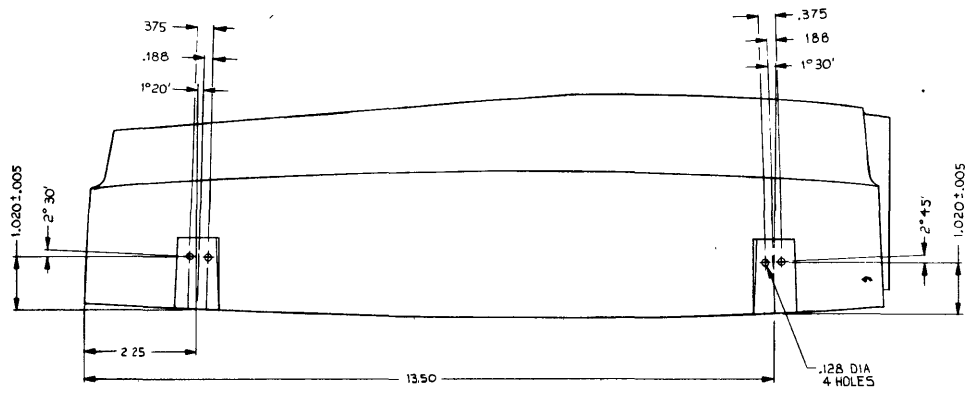
LIST OF MATERIALS

Assembly
 COVER ASSY, INNER-746, W/XMT ADJ
 COVER ASSY, INNER-746, W/O XMT ADJ
 COVER ASSY, INNER-746, JAPANESE

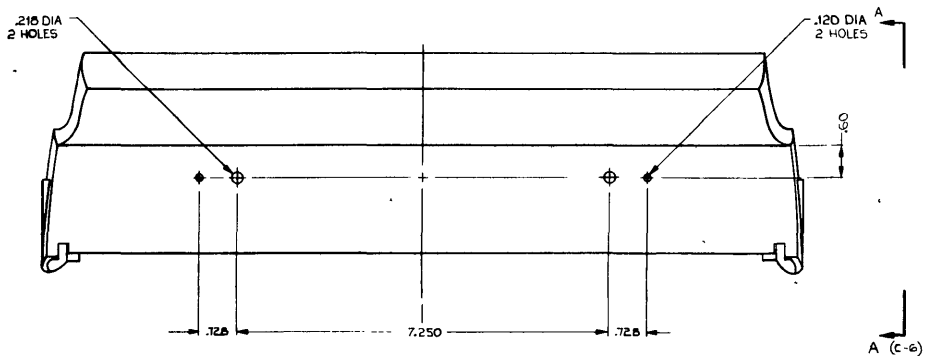
Part No. Rev.
 000230-0001 D
 000230-0003 D
 000230-0004 D

Item No.	Quantity		TI Part No.	Description	Remarks
0001	00001.000	EA	0983981-0002	COVER, INNER-PRINTER CASE	
0002	00001.000	EA	0999248-0001	INSERT, LEFT SIDE W/XMT LEV ADJ, VENTED	
0003	00001.000	EA	0999249-0001	INSERT, RIGHT SIDE, VENTED	
0004	00001.000	EA	0983865-0001	DOOR, PAPER	
0005	00001.000	EA	0983826-0001	MUFF ASSY, TRANSMIT, ACOUSTIC COUPLER	for -0001, -0003,
0005	00001.000	EA	0995670-0002	MUFF ASSY, XMIT, OVERSIZE, W/STRAP	for -0004
0006	00001.000	EA	0983827-0001	MUFF ASSY, RECEIVE ACOUSTIC COUPLER	for -0001 & -0003
0006	00001.000	EA	0995671-0001	MUFF ASSY, /RETAINER-REC-ACOUSTIC COUPLER	for -0004
0007	00002.000	EA	0983875-0001	RETAINER, MUFF	
0008	00004.000	EA	0772334-0001	FASTNER 4-40 ON-SERT	
0009	00001.000	EA	0983913-0001	NAMEPLATE, INNER COVER	
0010	00001.000	EA	0983912-0001	LABEL, PAPER LOADING	
0011	AR	EA	0972799-0001	ADHESIVE SOLVENTLESS RAPID CURING	
0012	00001.000	EA	0418212-0040	STRAP, TIEDOWN, ADJUSTABLE, PLASTIC	
0014	AR	TU	0417559-0001	SILICONE RUBBER (RTV) DOW 3140	

A-93



VIEW A-A
OPPOSITE SIDE IDENTICAL
(B-A)



A (c-e)

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
A		406430 L. M. CARLISLE #22-18 DIM. 2.25 WAS 2.18 DIM. 3.50 WAS 3.43	4/27/57	J. H. K.

QTY REQD	-1	FRM NO	CODE	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	PRELIMINARY SPECIFICATION
					COVER ASSEMBLY, OUTER	

UNLESS OTHERWISE SPECIFIED		UNLESS OTHERWISE SPECIFIED	
REMOVE ALL BURRS AND SHARP EDGES		DIMENSIONS ARE IN INCHES	
FINISH		TOLERANCES	
CONFORMITELY MACHINED		ANGLES ±1°	
DIMENSIONAL LIMITS APPLY		2 PLACE DECIMALS ±.010	
EXCEPT WHERE SHOWN IN		3 PLACE DECIMALS ±.005	
IDENTIFIED BY DIMENSIONS ONLY			
SURFACE FINISHES IN ACCORDANCE			
WITH TABLE 1-2			

FIELD TOLERANCE		MATERIAL	
±.001	±.002	303 STAINLESS STEEL	
±.002	±.005		
±.005	±.010		
±.010	±.020		
±.020	±.050		
±.050	±.100		
±.100	±.200		
±.200	±.500		
±.500	±1.000		
±1.000	±2.000		
±2.000	±5.000		
±5.000	±10.000		
±10.000	±20.000		
±20.000	±50.000		
±50.000	±100.000		
±100.000	±200.000		
±200.000	±500.000		
±500.000	±1000.000		

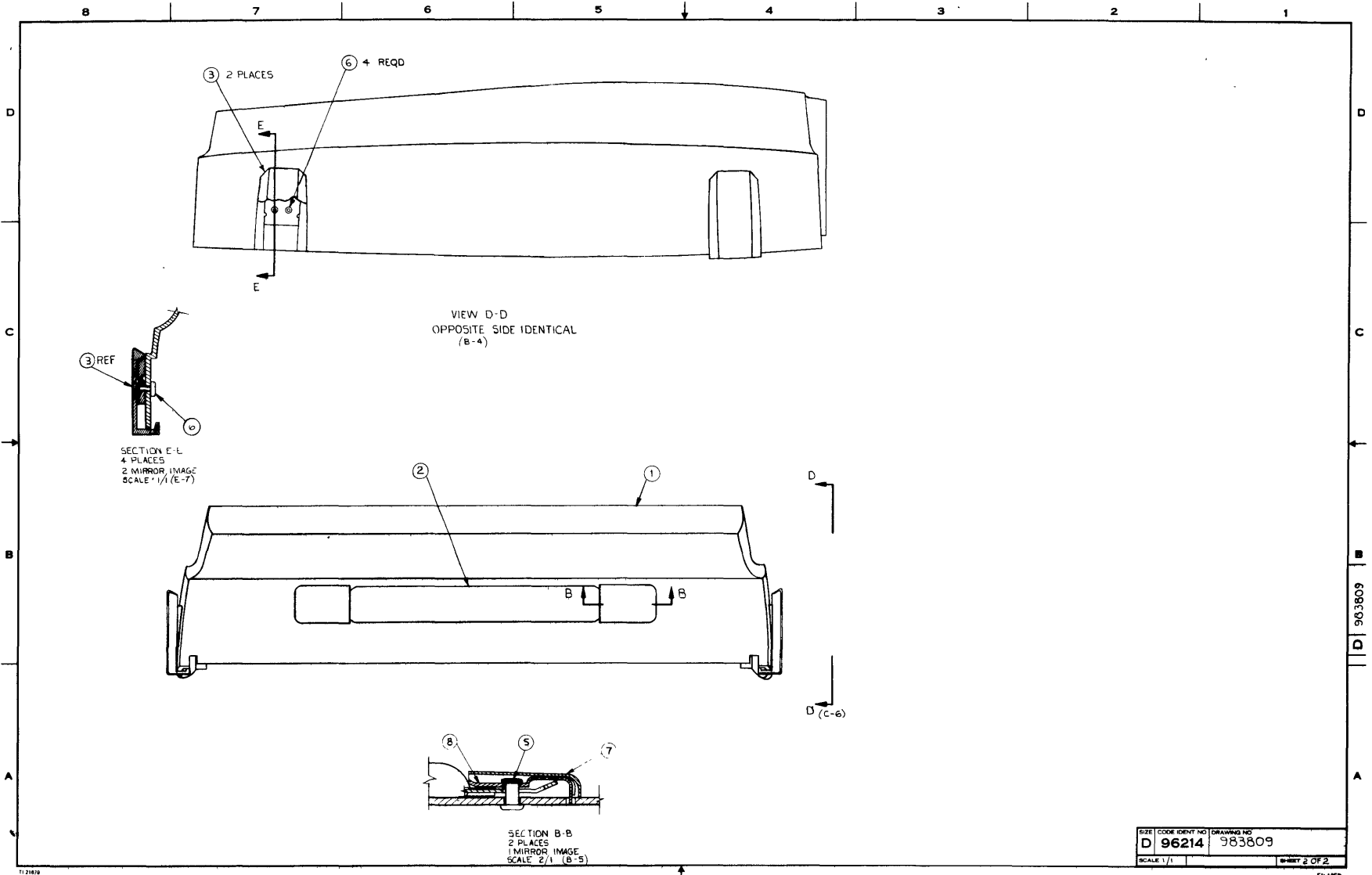
DATE	CODE	QTY	NO	DRAWING NO
4/27/57	D	96214	983509	

SCALE	REV	SHEET	TOTAL
	A	1	1

LM

D 983509

A-94



SIZE	CODE	IDENT NO	DRAWING NO
D	96214	983809	
SCALE 1/1		SHEET 2 OF 2	

603809
 D
 983809
 FILMET

LIST OF MATERIALS

Assembly
OUTER COVER ASSY

Part No. Rev.
0983909-0001 A

Item No.	Quantity		TI Part No.	Description	Remarks
0001	00001.000	EA	0983982-0001	COVER, OUTER-PRINTER CASE	
0002	00001.000	EA	0972449-0001	HANDLE, CASE-CARRYING, SOFT TOUCH	
0003	00004.000	EA	0983901-0001	LATCH CASE	
0005	00002.000	EA	0418606-0190	RIVET .188 X.407 TUBULAR, C'SINK HEAD	
0006	00008.000	EA	0418606-0035	RIVET .123 X.375 TUBULAR, C'SINK HEAD	
0007	00002.000	EA	0972447-0001	CAP, PUSH-ON-HANDLE	
0008	00002.000	EA	0972448-0001	RETAINER, CASE HANDLE	

LIST OF MATERIALS

Assembly
743 COVER ASSYPart No. Rev.
0983859-0001 D

Item No.	Quantity		TI Part No.	Description	Remarks
0001	00001.000	EA	0983991-0001	COVER, INNER, 743, ROUND CONT PWR CONN	
0002	00001.000	EA	0999248-0001	INSERT, LEFT SIDE W/XMT LEV ADJ, VENTED	
0003	00001.000	EA	0999249-0001	INSERT, RIGHT SIDE, VENTED	
0004	00001.000	EA	0983865-0001	DOOR, PAPER	
0005	00001.000	EA	0983931-0001	ADAPTER SWITCH	
0006	00001.000	EA	0983932-0001	COLLAR, SWITCH	
0007	00004.000	EA	0772334-0001	FASTNER 4-40 ON-SERT	
0008	00001.000	EA	0983913-0001	NAMEPLATE, INNER COVER	
0009	00001.000	EA	0983912-0001	LABEL, PAPER LOADING	
0010	AR	EA	0972799-0001	ADHESIVE SOLVENTLESS RAPID CURING	
0011	00001.000	EA	0983967-0001	PAD, FOAM 3 X 3 X 1/4	

8

7

6

5

4

3

2

1

5

NOTES: UNLESS OTHERWISE SPECIFIED

1 ASSEMBLE OUTER COVER (ITEM 1), LEFT SIDE INSERT (ITEM 2), AND RIGHT SIDE INSERT (ITEM 3) BY APPLYING ONE SOUND BEAD OF ADHESIVE (ITEM 11) TO THE EDGE OF PARTS IN AREAS INDICATED. ***** INDICATES APPLY TO FAR SIDE OF INNER COVER

----- INDICATES APPLY TO FAR SIDE OF INSERTS (WITHOUT 4-85)

SLIDE INSERTS INTO SLOTS OF INNER COVER. RIDGES ON SIDE INSERTS MUST TOUCH INNER COVER EDGE. CLAMP INNER COVER AND SIDE INSERTS TOGETHER AT UNIT PARTS LINE FOR APPROXIMATELY 4 MINUTES TO REACH HANDLING STRENGTH BEFORE INSTALLATION.

WARNING: ADHESIVE (ITEM 11) STICKS TO ANY SURFACE. SECONDS KEEP ADHESIVE OFF OF SKIN AND HANDLE WITH CAUTION.

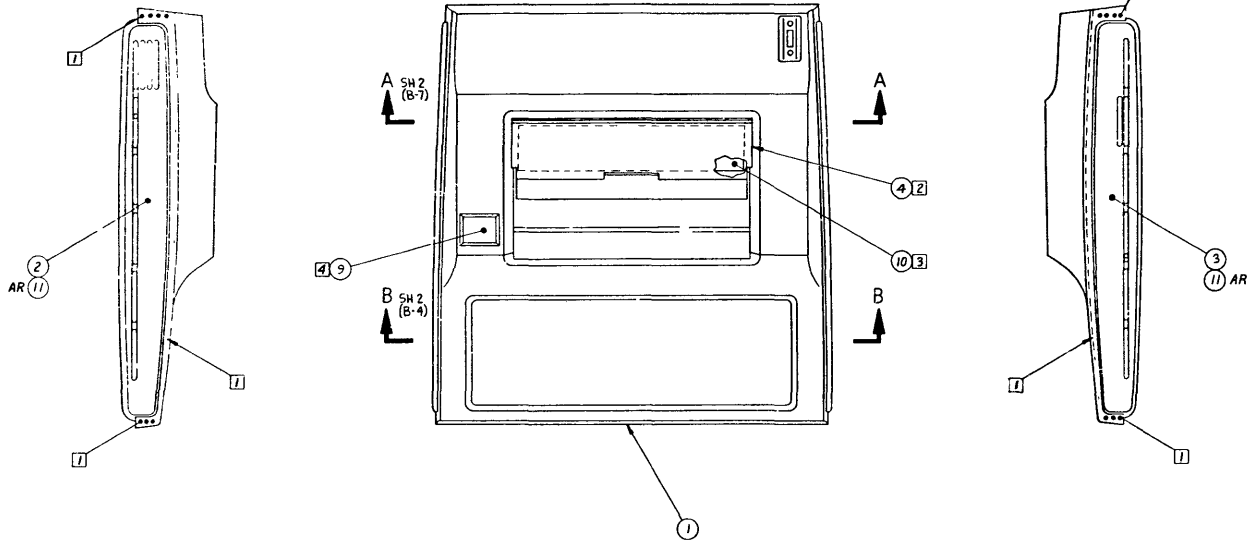
2 INSTALL PAPER DOOR (ITEM 4) BY BOWING OR BENDING AND INSERTING STUDS INTO HOLES ON COVER (ITEM 1)

3 CENTER PAPER LOADING LABEL (ITEM 10) ON UNDERSIDE OF PAPER DOOR (ITEM 4) WITHIN ±.10 OF CENTERLINE OF DOOR

4 IF THE SALES ORDER CONFIGURATION SHEET SPECIFIES A SPECIAL CUSTOMER NAMEPLATE, INSTALL IT IN PLACE OF THE STANDARD NAMEPLATE (ITEM 7)

REV	TH	DESCRIPTION	DATE	APPROVED
A	ECN 423837	LM CHANGES	7/18/77	[Signature]
B	ECN 415422	LM CHANGES	10/77	[Signature]
C	ECN 429343	ENCLOSURE TITLE WAS TOWER AS EARLY 763 (J) DASH 140 BUCK-18-2 DESC WAS COVER ASSY, INJEE 763 PRINTER - ADJUST	11-13-78	[Signature]

A-98



2200044-0002	COVER ASSEMBLY, 743/763, WITH XMIT ADJUST
2200044-0001	COVER ASSEMBLY, 743/763, WITHOUT XMIT ADJUST
PART NUMBER	DESCRIPTION

REV STATUS OF SHEETS	REV	C	B
	SH	1	2

QTY	QTY REQD	ITEM NO	CODE IDENT	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	PROCEDURE OR SPECIFICATION
-----	----------	---------	------------	----------------------------	-----------------------------	----------------------------

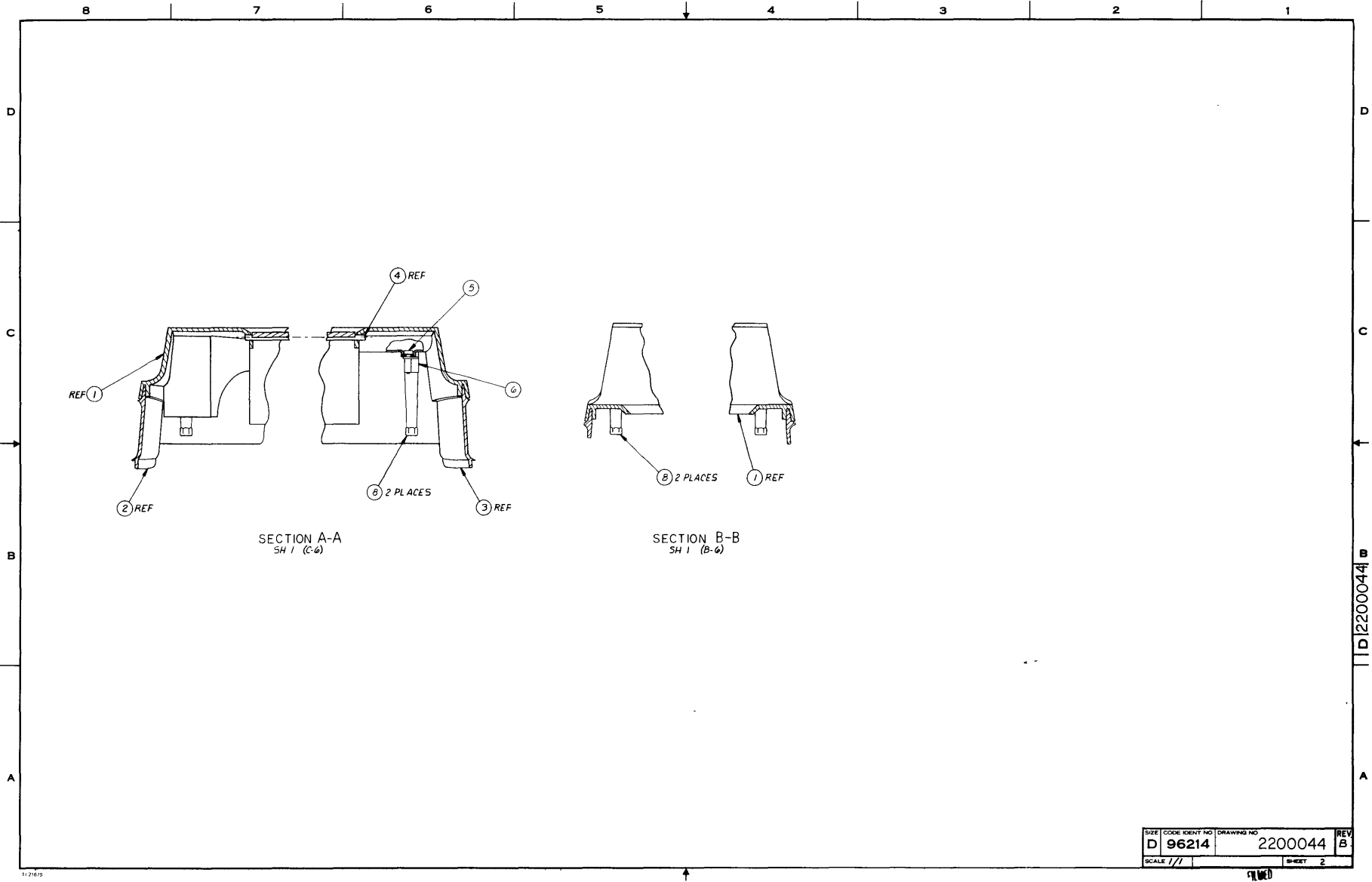
UNLESS OTHERWISE SPECIFIED		UNLESS OTHERWISE SPECIFIED		PARTS LIST	
REMOVE ALL BURRS AND SHARP EDGES		DIMENSIONS ARE IN INCHES		TEXAS INSTRUMENTS	
CONCENTRICITY MACHINED DIAMETERS .010 F8		TOLERANCES		CORPORATION	
DIMENSIONAL LIMITS APPLY BEFORE FINISH PROCESSING		ANGLES 11		CORPORATION	
IDENTIFYING NUMBERS SHOWN IN PARENTHESES FOR REFERENCE ONLY		3 PLACE DECIMALS ± .010		CORPORATION	
INTERPRET DRAWINGS IN ACCORDANCE WITH MIL-STD-100		2 PLACE DECIMALS ± .02		CORPORATION	
HOLE TOLERANCE				CORPORATION	
.013 ± .004				CORPORATION	
.125 ± .003				CORPORATION	
.150 ± .003				CORPORATION	
.250 ± .004				CORPORATION	
.500 ± .005				CORPORATION	
1.000 ± .006				CORPORATION	
2.000 ± .008				CORPORATION	
3.000 ± .010				CORPORATION	
4.000 ± .012				CORPORATION	
5.000 ± .015				CORPORATION	
6.000 ± .018				CORPORATION	
7.000 ± .020				CORPORATION	
8.000 ± .025				CORPORATION	
9.000 ± .030				CORPORATION	
10.000 ± .035				CORPORATION	
11.000 ± .040				CORPORATION	
12.000 ± .045				CORPORATION	
13.000 ± .050				CORPORATION	
14.000 ± .055				CORPORATION	
15.000 ± .060				CORPORATION	
16.000 ± .065				CORPORATION	
17.000 ± .070				CORPORATION	
18.000 ± .075				CORPORATION	
19.000 ± .080				CORPORATION	
20.000 ± .085				CORPORATION	
21.000 ± .090				CORPORATION	
22.000 ± .095				CORPORATION	
23.000 ± .100				CORPORATION	
24.000 ± .105				CORPORATION	
25.000 ± .110				CORPORATION	
26.000 ± .115				CORPORATION	
27.000 ± .120				CORPORATION	
28.000 ± .125				CORPORATION	
29.000 ± .130				CORPORATION	
30.000 ± .135				CORPORATION	
31.000 ± .140				CORPORATION	
32.000 ± .145				CORPORATION	
33.000 ± .150				CORPORATION	
34.000 ± .155				CORPORATION	
35.000 ± .160				CORPORATION	
36.000 ± .165				CORPORATION	
37.000 ± .170				CORPORATION	
38.000 ± .175				CORPORATION	
39.000 ± .180				CORPORATION	
40.000 ± .185				CORPORATION	
41.000 ± .190				CORPORATION	
42.000 ± .195				CORPORATION	
43.000 ± .200				CORPORATION	
44.000 ± .205				CORPORATION	
45.000 ± .210				CORPORATION	
46.000 ± .215				CORPORATION	
47.000 ± .220				CORPORATION	
48.000 ± .225				CORPORATION	
49.000 ± .230				CORPORATION	
50.000 ± .235				CORPORATION	
51.000 ± .240				CORPORATION	
52.000 ± .245				CORPORATION	
53.000 ± .250				CORPORATION	
54.000 ± .255				CORPORATION	
55.000 ± .260				CORPORATION	
56.000 ± .265				CORPORATION	
57.000 ± .270				CORPORATION	
58.000 ± .275				CORPORATION	
59.000 ± .280				CORPORATION	
60.000 ± .285				CORPORATION	
61.000 ± .290				CORPORATION	
62.000 ± .295				CORPORATION	
63.000 ± .300				CORPORATION	
64.000 ± .305				CORPORATION	
65.000 ± .310				CORPORATION	
66.000 ± .315				CORPORATION	
67.000 ± .320				CORPORATION	
68.000 ± .325				CORPORATION	
69.000 ± .330				CORPORATION	
70.000 ± .335				CORPORATION	
71.000 ± .340				CORPORATION	
72.000 ± .345				CORPORATION	
73.000 ± .350				CORPORATION	
74.000 ± .355				CORPORATION	
75.000 ± .360				CORPORATION	
76.000 ± .365				CORPORATION	
77.000 ± .370				CORPORATION	
78.000 ± .375				CORPORATION	
79.000 ± .380				CORPORATION	
80.000 ± .385				CORPORATION	
81.000 ± .390				CORPORATION	
82.000 ± .395				CORPORATION	
83.000 ± .400				CORPORATION	
84.000 ± .405				CORPORATION	
85.000 ± .410				CORPORATION	
86.000 ± .415				CORPORATION	
87.000 ± .420				CORPORATION	
88.000 ± .425				CORPORATION	
89.000 ± .430				CORPORATION	
90.000 ± .435				CORPORATION	
91.000 ± .440				CORPORATION	
92.000 ± .445				CORPORATION	
93.000 ± .450				CORPORATION	
94.000 ± .455				CORPORATION	
95.000 ± .460				CORPORATION	
96.000 ± .465				CORPORATION	
97.000 ± .470				CORPORATION	
98.000 ± .475				CORPORATION	
99.000 ± .480				CORPORATION	
100.000 ± .485				CORPORATION	

02

D 2200044

A

A-99



LIST OF MATERIALS

Assembly
 COVER ASSY, INNER - 743 W/O XMIT ADJUST
 COVER ASSY, INNER - 743 W/O XMIT ADJUST

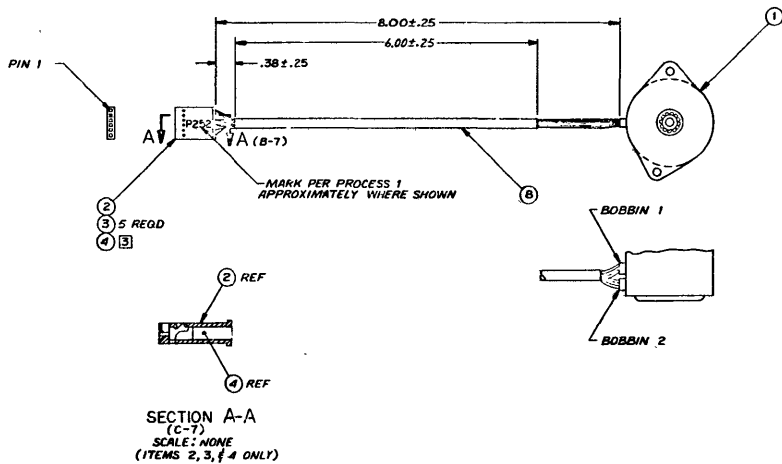
Part No. **Rev.**
 2200044-0001 **C**
 2200044-0002 **C**

Item No.	Quantity		TI Part No.	Description	Remarks
0001	00001.000	EA	0983991-0002	COVER 743	
0002	00001.000	EA	0999248-0003	INSERT,LEFT SIDE W/O XMT LEV ADJ,VENTED	for -0001 only
0002	00001.000	EA	0999248-0001	INSERT,LEFT SIDE W/XMT LEV ADJ,VENTED	for -0002 only
0003	00001.000	EA	0999249-0001	INSERT,RIGHT SIDE,VENTED	
0004	00001.000	EA	0983865-0001	DOOR,PAPER	
0005	00001.000	EA	0983931-0001	ADAPTER SWITCH	
0006	00001.000	EA	2200040-0001	COLLAR, SWITCH	
0008	00004.000	EA	0772334-0001	FASTNER 4-40 ON-SERT	
0009	00001.000	EA	0983913-0001	NAMEPLATE,INNER COVER	
0010	00001.000	EA	0983912-0001	LABEL,PAPER LOADING	
0011	AR	EA	0972799-0001	ADHESIVE SOLVENTLESS RAPID CURING	

- NOTES, UNLESS OTHERWISE SPECIFIED
- 1 COLOR (BLACK, TYPE 6 OR WHITE, TYPE 9) SHALL CONTRAST WITH COLOR OF ITEM 2 OR ALTERNATE ITEM 5
 - 2 WIRES SHALL BE CRIMPED IN COMMON RECEPTACLE PER WIRE LIST REQUIREMENTS
 - 3 HEVING PLUG SHOULD BE INSTALLED SUCH THAT KEYS PROJECS THRU THE APPROPRIATE SLOT IN THE HOUSING AS SHOWN IN SECTION A-A
 4. ALL MATERIALS MUST MEET UL REQUIREMENTS

WIRE NO	DESCRIPTION	START STATION	FINISH STATION	ITEM NO
1	MOTOR	BOBBIN 1 - BLK	P252-1	1
2	MOTOR	RED	P252-3	1
3	MOTOR	YEL	P252-6	1
4	MOTOR	BOBBIN 1 - WHT	P252-5	1
5	MOTOR	BOBBIN 2 - BLK	P252-3	1
6	MOTOR	RED	P252-1	1
7	MOTOR	YEL	P252-4	1
8	MOTOR	BOBBIN 2 - WHT	P252-4	1
---	PLUG	---	P252-2	4

ZONE	REV	DESCRIPTION	DATE	APPROVED
A	1	CH 429301(D) & P.A.L. #121M 6.00 ± .25 HAS 7.38 ± .12	1-11-78	J. R. P.
B	1	CNAIL 312 (C) 1/4" 11) ON L.M. ITEM B HAS 411634-2100 (2) LABBED NOTE 4	2-9-78	J. R. P.



QTY	REQD	UNIT	QTY	DATE	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	PROCUREMENT SPECIFICATION
PARTS LIST							
UNLESS OTHERWISE SPECIFIED				UNLESS OTHERWISE SPECIFIED			
- POLISH ALL SURFS AND SHARP EDGES				- DIMENSIONS ARE IN INCHES			
- CONDUCTIVITY MATCHED				- 1/2 DRAZES			
- DIAMETERS .010 P.P.				- 1/16" DIA			
- DIMENSIONAL LIMITS APPLY BEFORE FINISH PROCESSING				- 2 - PLACE DECIMALS ± 0.01			
- IDENTIFYING NUMBERS SHOWN IN PARENTHESES FOR REFERENCE ONLY				- 2 - PLACE DECIMALS ± 0.01			
- AUTOMATIC DRAWINGS IN ACCORDANCE WITH MIL-STD-103				- 2 - PLACE DECIMALS ± 0.01			
HOLE TOLERANCE				HOLE TOLERANCE			
.015 ± .001				.015 ± .001			
.030 ± .001				.030 ± .001			
.050 ± .001				.050 ± .001			
.075 ± .001				.075 ± .001			
.100 ± .001				.100 ± .001			
.150 ± .001				.150 ± .001			
.200 ± .001				.200 ± .001			
.250 ± .001				.250 ± .001			
.300 ± .001				.300 ± .001			
.400 ± .001				.400 ± .001			
.500 ± .001				.500 ± .001			
.750 ± .001				.750 ± .001			
1.000 ± .001				1.000 ± .001			
1.500 ± .001				1.500 ± .001			
2.000 ± .001				2.000 ± .001			
3.000 ± .001				3.000 ± .001			
4.000 ± .001				4.000 ± .001			
5.000 ± .001				5.000 ± .001			
6.000 ± .001				6.000 ± .001			
7.000 ± .001				7.000 ± .001			
8.000 ± .001				8.000 ± .001			
9.000 ± .001				9.000 ± .001			
10.000 ± .001				10.000 ± .001			
15.000 ± .001				15.000 ± .001			
20.000 ± .001				20.000 ± .001			
30.000 ± .001				30.000 ± .001			
40.000 ± .001				40.000 ± .001			
50.000 ± .001				50.000 ± .001			
60.000 ± .001				60.000 ± .001			
70.000 ± .001				70.000 ± .001			
80.000 ± .001				80.000 ± .001			
90.000 ± .001				90.000 ± .001			
100.000 ± .001				100.000 ± .001			

DATE: 1/11/78
 DRAWN BY: J. R. P.
 CHECKED BY: J. R. P.
 APPROVED BY: J. R. P.
 DATE: 1/11/78

TEXAS INSTRUMENTS
 Fort Worth, Texas

MOTOR ASSEMBLY, 4Pr STEPPER

BASE CODE IDENT NO: D 96214
 DRAWING NO: 2200045

SCALE: 1/1
 SHEET: 1

MARK	100-07	00	ADDITIONAL
NO	NO	NO	NO
PROCESS	CLASSIFICATION		
FOR CORRELATION TO GOVT/IND SPECIFICATIONS SEE 11 DRAWING 72447			

A-101

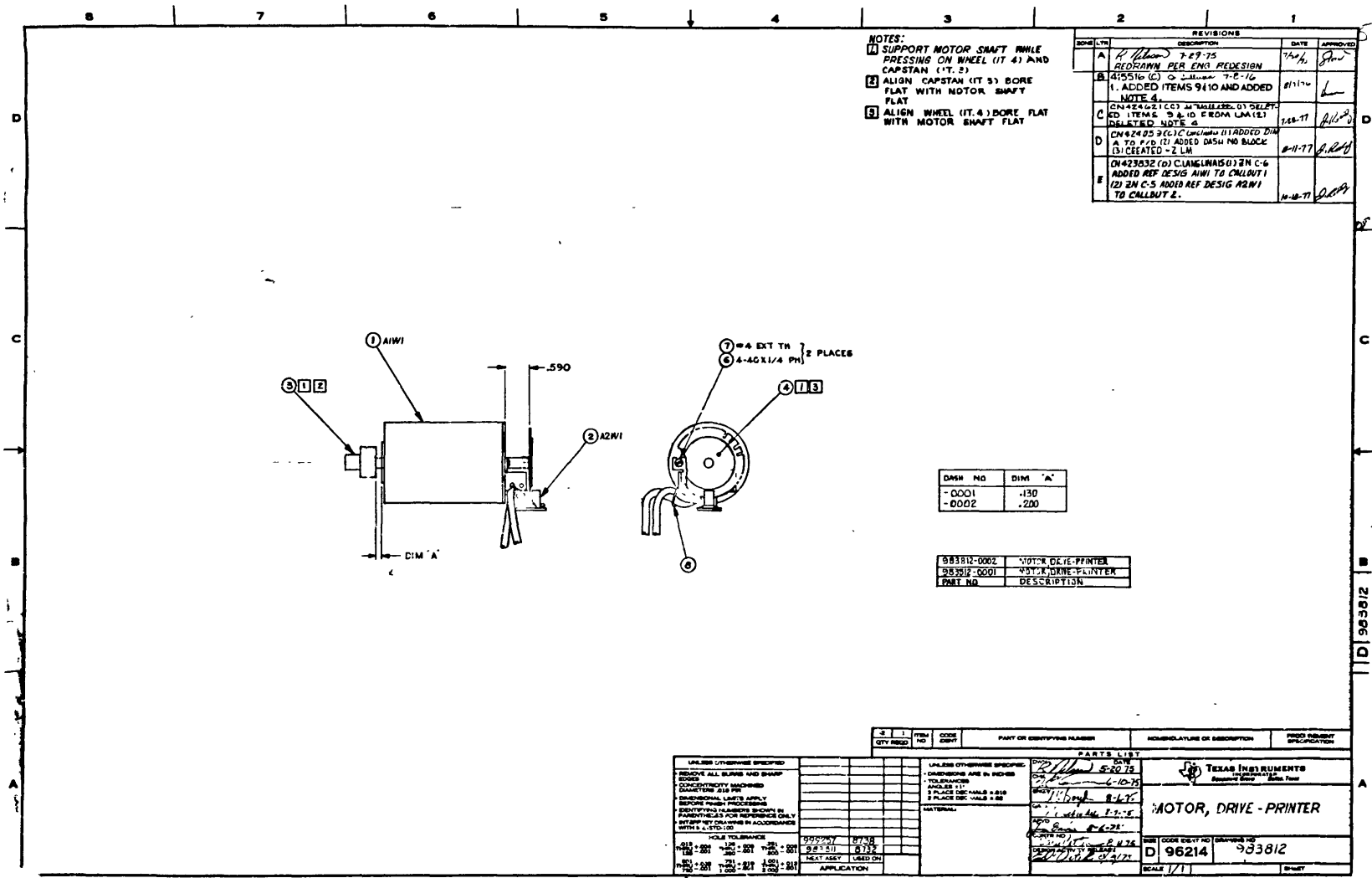
5
D
02
C
B
D 2200045
A

LIST OF MATERIALS

Assembly
MOTOR ASSEMBLY, 4 PH STEPPER

Part No. Rev.
2200045-0001 B

Item No.	Quantity		TI Part No.	Description	Remarks
0001	00001.000	EA	0999256-0001	MOTOR, STEPPING PAPER DRIVE	
0002	00001.000	EA	0972484-0006	CONNECTOR HOUSING 6 CONTACT	
0003	00005.000	EA	0972104-0001	CONTACT ELEC-LOCKING, WIRE-TO.025 SQ POST	
0004	00001.000	EA	0972599-0001	KEY, POLARIZATION, CONNECTOR	
0004A				ITEMS 2, 3, AND 4 CAN ONLY	
0004B				BE USED TOGETHER	
0005	00000.000	EA	0772707-0031	RECEPTACLE, TERMINAL- 6 CAVITIES	
0006	00000.000	EA	0972482-0006	CONTACT, ELECTRICAL, CRIMP	
0007	00000.000	EA	0800335-0001	KEY, POLARIZATION, CONNECTOR	
0007A				ITEMS 5, 6, AND 7 MAYBE	
0007B				USED AS ALTERNATE ITEMS	
0007C				FOR ITEMS 2, 3, AND 4.	
0007D				ITEMS 5, 6, AND 7 CAN ONLY	
0007E				BE USED TOGETHER	
0008	00000.700	FT	0972436-0012	INSULATION, FLEXIBLE	



NOTES:
 (1) SUPPORT MOTOR SHAFT WHILE PRESSING ON WHEEL (IT. 4) AND CAPSTAN (IT. 2)
 (2) ALIGN CAPSTAN (IT. 3) BORE FLAT WITH MOTOR SHAFT FLAT
 (3) ALIGN WHEEL (IT. 4) BORE FLAT WITH MOTOR SHAFT FLAT

REV	BY	DESCRIPTION	DATE	APPROVED
A	A. Blum	7-8-75 REDRAWN PER ENG. REDESIGN	7-8-75	[Signature]
B		4:551G (C) O. Williams 7-8-76 1. ADDED ITEMS 9 & 10 AND ADDED NOTE 4.	8/1/76	[Signature]
C		DN 423832 (C) 31 MILL (D) DELETED ITEMS 9 & 10 FROM LMA (E) DELETED NOTE 4	8-10-77	[Signature]
D		DN 423832 (D) 31 MILL (D) DELETED ITEMS 9 & 10 FROM LMA (E) DELETED NOTE 4 A TO F.D. (1) ADDED DASH NO BLOCK (2) CREATED - Z LM	8-11-77	[Signature]
E		DN 423832 (D) 31 MILL (D) 31 IN C-6 ADDED REF DESIG AHW1 TO CALLOUT 1 (2) IN C-5 ADDED REF DESIG A2W1 TO CALLOUT 2.	8-18-77	[Signature]

DASH NO	DIM 'A'
-0001	.130
-0002	.200

PART NO	DESCRIPTION
963812-0002	107TH DE-JE-PRINTER
963812-0001	107TH DE-JE-PRINTER

QTY	ITEM NO	CODE	EXPT	PART OR IDENTIFY NUMBER	SIGNATURE OR DESCRIPTION	REQ. NUMBER SPECIFICATION

UNLESS OTHERWISE SPECIFIED:		UNLESS OTHERWISE SPECIFIED:	
FINISH ALL SURF AND SHARP EDGES		DIMENSIONS ARE IN INCHES	
CONCENTRICITY MAXIMUM		TOLERANCES	
FORM FINISH PER PRECISION		FRACTIONS (11)	
IDENTIFYING NUMBERS APPLY TO IDENTIFYING NUMBERS SHOWN ON DRAWING FOR IDENTIFICATION ONLY		2 PLACE DECIMALS ±.00	
IDENTIFYING NUMBERS SHOWN ON DRAWING ARE FOR IDENTIFICATION ONLY		3 PLACE DECIMALS ±.00	
IDENTIFYING NUMBERS SHOWN ON DRAWING ARE FOR IDENTIFICATION ONLY		MATERIAL	

HOLE TOLERANCE	DISSIMILAR	APPLY	USED ON
±.001	±.001	±.001	±.001
±.002	±.002	±.002	±.002
±.003	±.003	±.003	±.003
±.004	±.004	±.004	±.004
±.005	±.005	±.005	±.005

QTY	ITEM NO	CODE	EXPT	PART OR IDENTIFY NUMBER	SIGNATURE OR DESCRIPTION	REQ. NUMBER SPECIFICATION

PARTS LIST	
963812-0001	107TH DE-JE-PRINTER
963812-0002	107TH DE-JE-PRINTER

DRAWING NO	ISSUE NO	DATE	SCALE
D 96214	933812		1/1

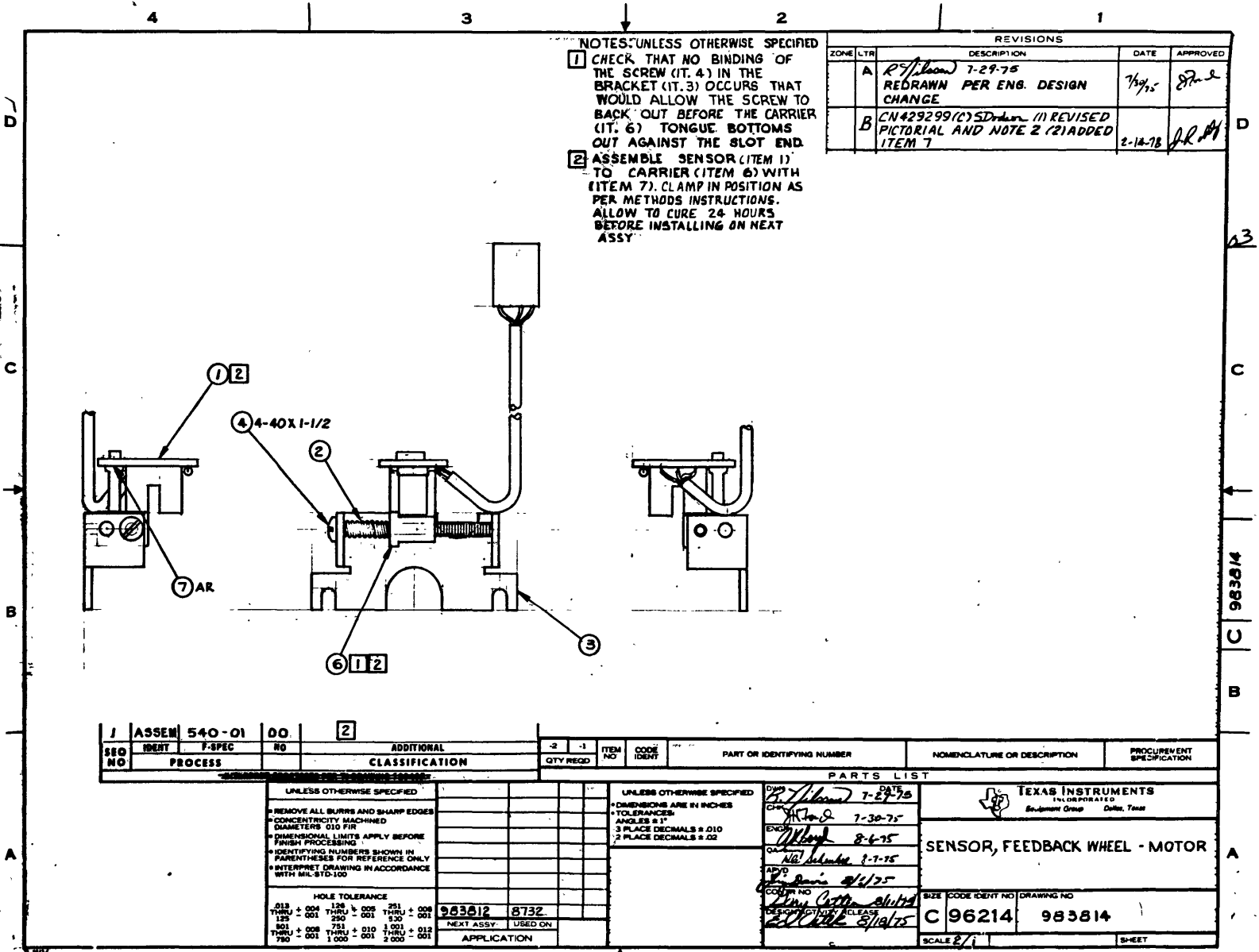
LIST OF MATERIALS

Assembly
MOTOR, DRIVE-PRINTER

Part No. Rev.
0983812-0001 D

Item No.	Quantity		TI Part No.	Description	Remarks
0001	00001.000	EA	0983813-0001	MOTOR, WIRED	
0002	00001.000	EA	0983814-0001	SENSOR, FEEDBACK WHEEL-MOTOR	
0003	00001.000	EA	0983870-0001	CAPSTAN, MOTOR	
0004	00001.000	EA	0215505-0001	WHEEL, FEEDBACK SENSOR	
0006	00002.000	EA	0972988-0013	SCREW 4-40 X .250 PAN HEAD CRES	
0007	00002.000	EA	0411101-0057	LOCKWASHER # 4 EXTERNAL TOOTH CRES	
0008	00001.000	EA	0418212-0040	STRAP, TIEDOWN, ADJUSTABLE, PLASTIC	

A-105



NOTES: UNLESS OTHERWISE SPECIFIED
 1 CHECK THAT NO BINDING OF THE SCREW (IT. 4) IN THE BRACKET (IT. 3) OCCURS THAT WOULD ALLOW THE SCREW TO BACK OUT BEFORE THE CARRIER (IT. 6) TONGUE BOTTOMS OUT AGAINST THE SLOT END.
 2 ASSEMBLE SENSOR (ITEM 1) TO CARRIER (ITEM 6) WITH (ITEM 7). CLAMP IN POSITION AS PER METHODS INSTRUCTIONS. ALLOW TO CURE 24 HOURS BEFORE INSTALLING ON NEXT ASSY.

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
A		R. J. Wilson 7-29-75 REDRAWN PER ENG. DESIGN CHANGE	7/29/75	[Signature]
B		CN 429299 (C) S. D. Wilson (1) REVISED PICTORIAL AND NOTE 2 (2) ADDED ITEM 7	2-18-78	[Signature]

J	ASSEM	540-01	DO	2	ADDITIONAL			CLASSIFICATION		PART OR IDENTIFYING NUMBER		NOMENCLATURE OR DESCRIPTION		PROCUREMENT SPECIFICATION		
SEQ NO	REMT	F-SPEC	NO		-2	-1	ITEM NO	CODE IDENT			PARTS LIST					
											UNLESS OTHERWISE SPECIFIED * REMOVE ALL BURRS AND SHARP EDGES * CONCENTRICITY MACHINED * DIAMETERS .010 FIR * DIMENSIONAL LIMITS APPLY BEFORE FINISH PROCESSING * IDENTIFYING NUMBERS SHOWN IN PARENTHESES FOR REFERENCE ONLY * INTERPRET DRAWING IN ACCORDANCE WITH MIL-STD-100		UNLESS OTHERWISE SPECIFIED * DIMENSIONS ARE IN INCHES * TOLERANCES: ANGLES ± 1° 3 PLACE DECIMALS ± .010 2 PLACE DECIMALS ± .02		TEXAS INSTRUMENTS INCORPORATED Equipment Group Dallas, Texas	
										EXC'D [Signature] 7-29-75 [Signature] 7-30-75 [Signature] 8-6-75 [Signature] 8-7-75 [Signature] 8/11/75 [Signature] 8/14/75		SENSOR, FEEDBACK WHEEL - MOTOR				
										HOLE TOLERANCE .013 + .004 128 005 251 + .008 THRU - .001 250 - .001 THRU - .001 125 .001 + .008 750 + .010 1.001 + .012 THRU - .001 1.000 - .001 2.000 - .001		963812 8732 NEXT ASSY USED ON APPLICATION		SIZE CODE IDENT NO DRAWING NO C 96214 983814		
										SCALE 2/1		SHEET				

30

LM FILMED

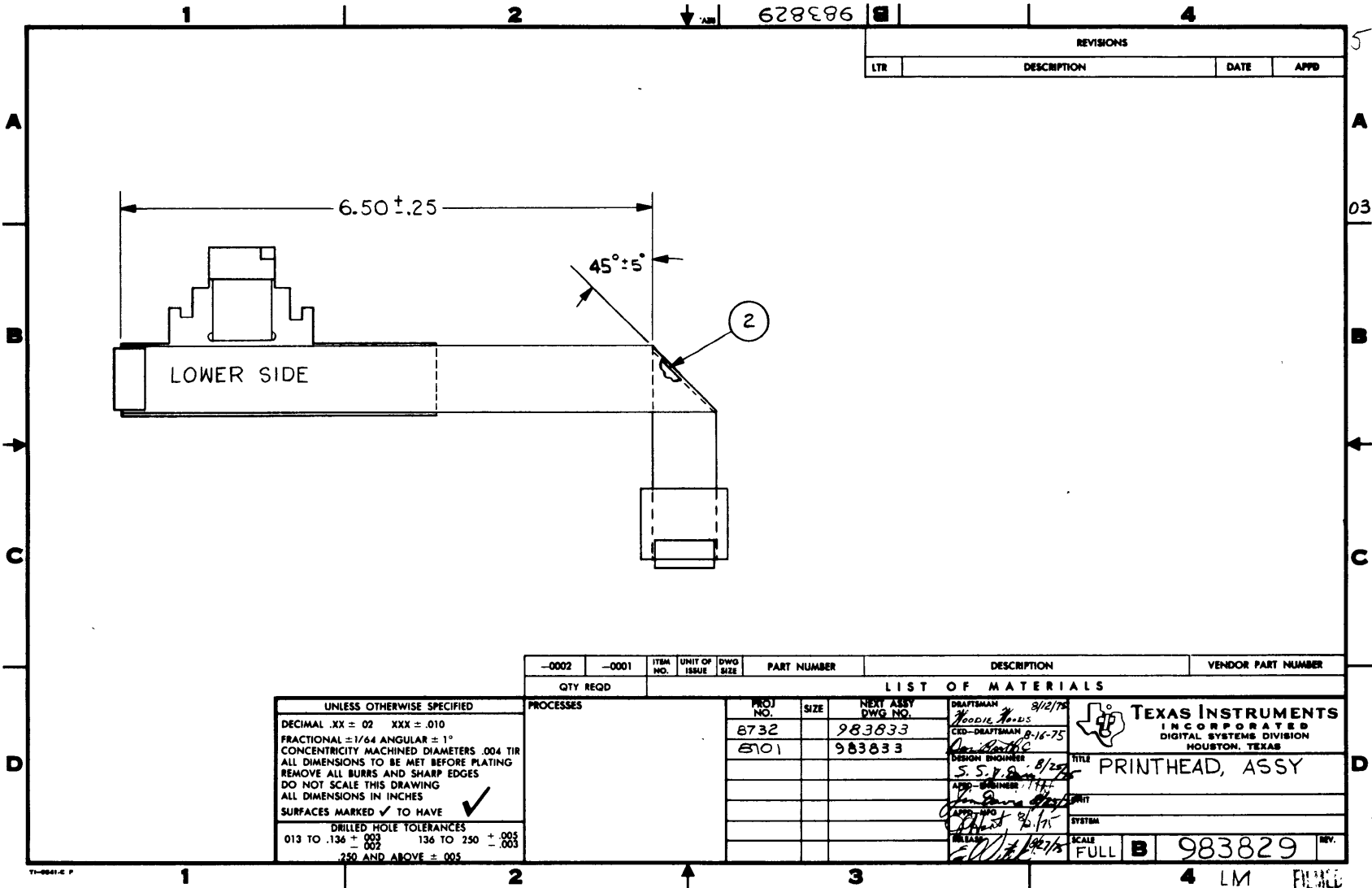
LIST OF MATERIALS

Assembly
 SENSOR, FEEDBACK WHEEL-MOTOR

Part No. Rev.
 0983814-0001 B

Item No.	Quantity		TI Part No.	Description	Remarks
0001	00001.000	EA	0983820-0001	SENSOR	
0002	00001.000	EA	0960177-0001	SPRING, FEEDBACK SENSOR	
0003	00001.000	EA	0983920-0001	BRACKET, MTG-FEEDBACK SENSOR	
0004	00001.000	EA	0972988-0023	SCREW 4-40 X 1.50 PAN HEAD CRES	
0006	00001.000	EA	0983919-0001	CARRIER	
0007	AR	EA	0972799-0001	ADHESIVE SOLVENTLESS RAPID CURING	

A-107



REVISIONS			
LTR	DESCRIPTION	DATE	APPD

QTY REQD	PROCESSES	PROJ NO.	SIZE	NEXT ASSY DWG NO.	DRAFTSMAN	TITLE	SYSTEM	SCALE	PART NUMBER	DESCRIPTION	VENDOR PART NUMBER
		8732		983833	Woodie Woods 8/21/75	PRINTHEAD, ASSY			983829	LM	
		8701		983833							

UNLESS OTHERWISE SPECIFIED
 DECIMAL .XX ± .02 XXX ± .010
 FRACTIONAL ± 1/64 ANGULAR ± 1°
 CONCENTRICITY MACHINED DIAMETERS .004 TIR
 ALL DIMENSIONS TO BE MET BEFORE PLATING
 REMOVE ALL BURRS AND SHARP EDGES
 DO NOT SCALE THIS DRAWING
 ALL DIMENSIONS IN INCHES
 SURFACES MARKED ✓ TO HAVE
 DRILLED HOLE TOLERANCES
 013 TO .136 ± .003 136 TO 250 ± .005
 250 AND ABOVE ± .005

TEXAS INSTRUMENTS
 INCORPORATED
 DIGITAL SYSTEMS DIVISION
 HOUSTON, TEXAS

TI-9941-C P

REV. 4 LM FILMED

LIST OF MATERIALS

Assembly
PRINTHEAD ASSY

Part No. Rev.
0983829-0001 *

Item No.	Quantity		TI Part No.	Description	Remarks
0001	00001.000	EA	0983830-0001	PRINTHEAD ASSY RESISTOR SELECT EPN 2-1	
0002	00001.000	EA	0983922-0001	TAPE, DOUBLE SIDED PRINTHEAD CABLE	

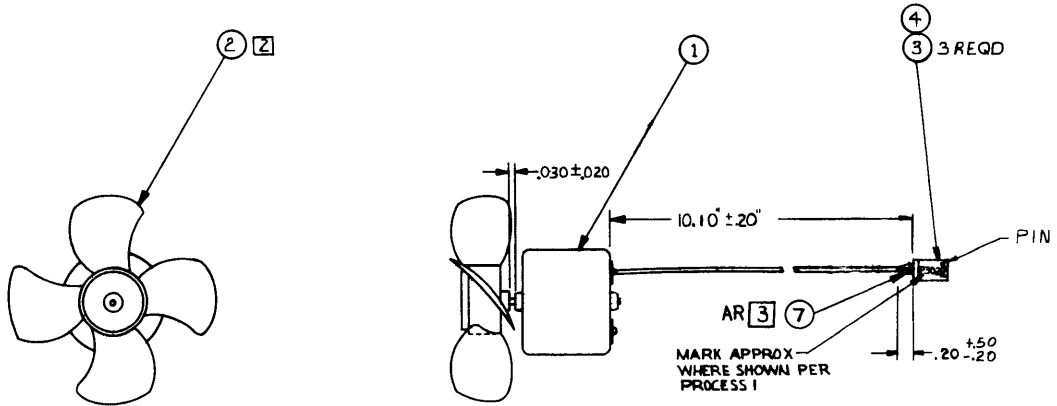
A-109

WIRING LIST					
WIRE NO	DESCRIPTION	COMP CONN START STATION	COMP CONN FINISH STATION	REMARKS	ITEM NO
1	FAN MOTOR	B1-RED	P302-1	PINS 1 AND 3 ARE INTER-CHANGEABLE	1
2	FAN MOTOR	B1-BLACK	P302-2		1
3	FAN MOTOR	B1-SHIELD	P302-3		1

NOTES:

- COLOR (BLACK, TYPE 6 OR WHITE, TYPE 9) SHALL CONTRAST WITH COLOR OF ITEM 4.
- SUPPORT SHAFT OF ITEM 1 WHILE INSTALLING ITEM 2.
- USE ITEM 7 AS NECESSARY TO CONTAIN LOOSE STRANDS OF BRAID.

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
C-2	A	409517 (C) 7 Equip 11-21-75 1) DIM. 10.10 ± .20" WAS 10.10 ± .10" 2) ADDED DIM. .20 ± .20"	11/24/75	[Signature]
G-2	B	415530 (D) 7 Equip 7-14-76 1) ADDED ITEM 7 & NOTE 3 2) 2N C-2 .20 DIM TOL. WAS 3.00	8/12/76	[Signature]



-2	-1	ITEM NO	CODE IDENT	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	PROCUREMENT SPECIFICATION																																	
					PARTS LIST																																		
UNLESS OTHERWISE SPECIFIED				UNLESS OTHERWISE SPECIFIED																																			
<ul style="list-style-type: none"> REMOVE ALL BURRS AND SHARP EDGES CONCENTRICITY MACHINED DIAMETERS .010 FIR DIMENSIONAL LIMITS APPLY BEFORE FINISH PROCESSING IDENTIFYING NUMBERS SHOWN IN PARENTHESES FOR REFERENCE ONLY INTERPRET DRAWING IN ACCORDANCE WITH MIL STD 100 				<ul style="list-style-type: none"> DIMENSIONS ARE IN INCHES TOLERANCES ANGLES ± 1° 3 PLACE DECIMALS ± .010 2 PLACE DECIMALS ± .02 																																			
<table border="1"> <tr> <th>MARK</th> <th>100-OT</th> <th>710</th> <th>CLASSIFICATION</th> </tr> <tr> <td>013</td> <td>004</td> <td>126</td> <td>008</td> </tr> <tr> <td>125</td> <td>001</td> <td>250</td> <td>001</td> </tr> <tr> <td>501</td> <td>008</td> <td>781</td> <td>010</td> </tr> <tr> <td>780</td> <td>001</td> <td>1000</td> <td>001</td> </tr> </table>				MARK	100-OT	710	CLASSIFICATION	013	004	126	008	125	001	250	001	501	008	781	010	780	001	1000	001	<table border="1"> <tr> <td>983801</td> <td>8732</td> <td></td> </tr> <tr> <td>NEXT ASSY</td> <td>USED ON</td> <td></td> </tr> <tr> <td colspan="3">APPLICATION</td> </tr> </table>			983801	8732		NEXT ASSY	USED ON		APPLICATION						
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013	004	126	008																																				
125	001	250	001																																				
501	008	781	010																																				
780	001	1000	001																																				
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<table border="1"> <tr> <th>SIZE</th> <th>CODE IDENT NO</th> <th>DRAWING NO</th> </tr> <tr> <td>C</td> <td>96214</td> <td>983825</td> </tr> </table>				SIZE	CODE IDENT NO	DRAWING NO	C	96214	983825	<table border="1"> <tr> <td>SCALE</td> <td>1/1</td> </tr> <tr> <td>REV</td> <td>B</td> </tr> <tr> <td>SHEET</td> <td></td> </tr> </table>			SCALE	1/1	REV	B	SHEET																						
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TEXAS INSTRUMENTS
INCORPORATED
Equipment Group Dallas, Texas

FAN ASSEMBLY

983825

LM FILMEL

LIST OF MATERIALS

Assembly
FAN ASSY ____

Part No. Rev.
0983825-0001 B

Item No.	Quantity		TI Part No.	Description	Remarks
0001	00001.000	EA	0972486-0002	MOTOR,FAN 12V DC	
0002	00001.000	EA	0972489-0001	BLADE,FAN 2-5/8"DIA .078 BORE CW ROT	
0003	00003.000	EA	0972104-0001	CONTACT ELEC-LOCKING,WIRE-TO.025 SQ POST	
0004	00001.000	EA	0972484-0003	CONNECTOR HOUSING 3 CONTACT	
0004A				ITEMS 3 AND 4 CAN ONLY BE	
0004B				USED TOGETHER	
0005	00000.000	EA	0972482-0006	CONTACT,ELECTRICAL,CRIMP	
0006	00000.000	EA	0772707-0034	RECEPTACLE,TERMINAL- 3 CAVITIES	
0006A				ITEMS 5 AND 6 MAY BE USED A	
0006B				ALTERNATES TO ITEMS 3 AND 4	
0006C				ITEMS 5 AND 6 MAY ONLY BE	
0006D				USED TOGETHER	
0007	AR	FT	0417177-0004	INSUL SLEEVEG,ELECT-HEAT SHRINK INDIA.125	

WIRE NO	DESCRIPTION	TOTAL LENGTH	SIGNATURE	START STA	FINISH STA	REMARKS	ITEM NO	NOTES: UNLESS OTHERWISE SPECIFIED
1	22 AWG IPVC WHITE -0001	3.0	XMTD-XMITDATA	PI-13	PI-3	JUMPER ON PI	4	1 CABLE CLAMP SCREWS AND RETAINER CLIPS AND SCREWS INCLUDED WITH (ITEM 1). 2 RETAINER CLIP INSTALLED WITH THREADED HOLE ON SAME SIDE AS SCREW HEAD. 3 SCREWS MUST BE THREADED COMPLETELY THRU RETAINER CLIPS
2	22 AWG IPVC WHITE	3.0	RCVD-RCV DATA	PI-12	PI-8	JUMPER ON PI	4	
3	22 AWG IPVC WHITE -0002	3.0	CDT-CARD ET	PI-11	PI-2	JUMPER ON PI	4	
1	22 AWG IPVC WHITE	3.0	XMTD-RCVD	PI-13	PI-12	JUMPER	4	
2	22 AWG IPVC WHITE	3.0	DTR-CDT	PI-15	PI-11	JUMPER	4	

2 PLACES 1
2 PLACES 2
2 PLACES 3

1 PIN 1

2 PI
3 6 PLACES (-0001)
4 PLACES (-0002)

MARK T.I. PER PROCESS 1 (FAR SIDE)

MARK PER PROCESS 1 AS SHOWN IN PART NO. SCHEDULE (FAR SIDE)

MARK PER PROCESS 1 APPROPRIATE PART NUMBER AND REVISION (FAR SIDE)

REVISIONS	DESCRIPTION	DATE	APPD
A	406446(E) Waffle Woods	10/22/75	9/29/75 U. K.
B	409820(E) J. Enigma	11-4-75	11/4/75 J. Enigma
C	410063(D) L. Wheat	12-9-75	12-9-75 L. Wheat
D	416851(D) Thomas P. Bumbly	11-4-76	11/4/76 T.P.B.
E	CN 421768(C) R. P. ...	4-19-77	R. P. ...
F	CN 429340(C) C. LANGUNAIS	1-5-78	C. Languna
G	CN 429347(D) S. D. ...	2-14-78	S. D. ...
H	CN 418315(C) J. Johnson	4-3-78	J. Johnson

983846-0002	EIA TEST
983846-0001	P1
PART NUMBER	MARKING

1	MARK	100-D1	712	CLR WHITE TYPE 3
SEO NO	IDENT	F-SPEC	NO	ADDITIONAL CLASSIFICATION
PROCESS		CLASSIFICATION		

QTY REQD	ITEM NO	UNIT OF ISSUE	DWG SIZE	PART NUMBER	DESCRIPTION	VENDOR PART NUMBER
	-0002	-0001				

PROJ NO	SIZE	NEXT ASSY DWG NO	DRAFTSMAN	DATE
8732	A	983800	CC Rodriguez	7-14-75
8732	A	983856	D. Decker	7-24-75

UNLESS OTHERWISE SPECIFIED		PROCESSES	
DECIMAL .XX = .02 .XXX = .010	FRACTIONAL = 1/64 ANGULAR ± 1°	CONCENTRICITY MACHINED DIAMETERS .004 TIR	ALL DIMENSIONS TO BE MET BEFORE PLATING
REMOVE ALL BURRS AND SHARP EDGES	DO NOT SCALE THIS DRAWING	ALL DIMENSIONS IN INCHES	SURFACES MARKED ✓ TO HAVE
DRILLED HOLE TOLERANCES		.013 TO .136 ± .003	
		136 TO 250 ± .003	
		250 AND ABOVE = .005	

APPRO-ENGINEER	5-24-78	TUNY
APPRO-MFG		
RELEASE		

TITLE	SHORTING PLUG
SCALE	NONE
PART NUMBER	983846
REV	

A-111

968E86

LM

LIST OF MATERIALS

Assembly
SHORTING PLUG, 745 W/AUX COUPLER

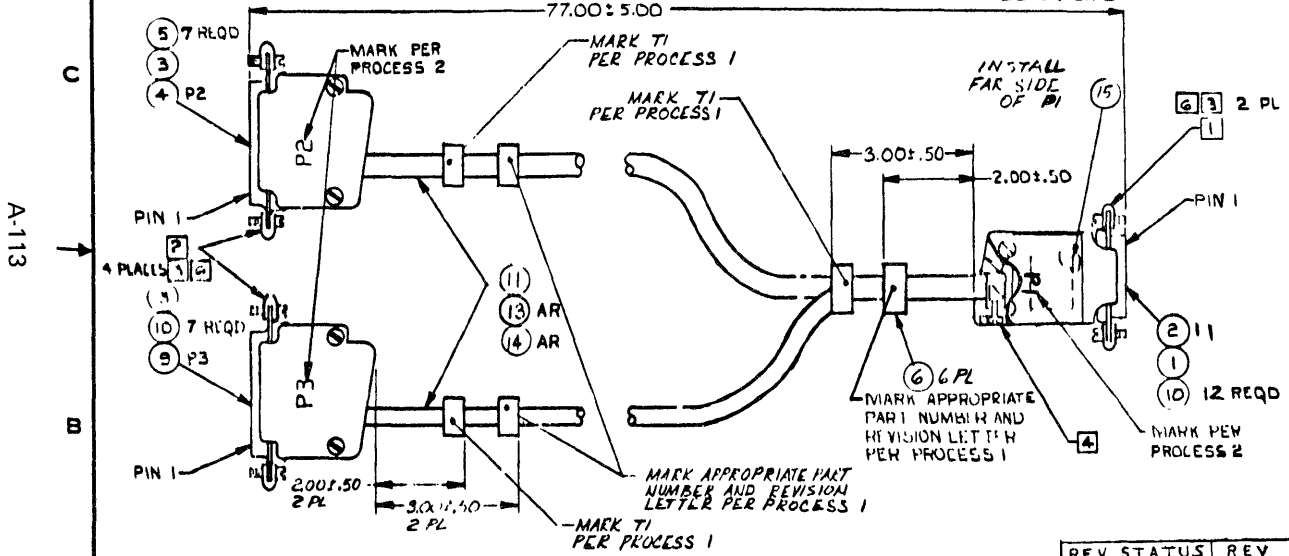
Part No. Rev
0983846-0001 H

Item No.	Quantity		TI Part No	Description	Remarks
0001	00001.000	EA	0539903-0005	HOOD,CONN 15 PIN WITH RETAINERS	
0002	00001.000	EA	0539409-0004	CONECTOR,RCPT 15 PINS	
0002A				P1	
0003	00006.000	EA	0539430-0004	CONTACT,SOCKET 24-20AWG .068 INSUL DIA	
0004	00001.000	FT	0538347-3999	WIRE HOOKUP B-22 AWG 19 STR WHITE	
0005	REF	EA	0970669-9901	OMNI TEST PROGRAM FOR SHORTING PLUG	

WIRES NO.	LY. IDENTIFICATION	SIGNATURE	START STA.	FINISH STA.	REMARKS	ITEM NO.
1	# 24 WHT/RED	PGND	PI-9	P2-1	DATA TERMINAL	13
2	# 22 WHT	XMTD	PI-13	P2-2		14
3	# 22 WHT	RCVD	PI-12	P2-3		14
4	# 22 WHT	PI2V/RT5	PI-10	P2-4		14
5	# 24 WHT/RED	SGND	PI-1	P2-7		13
6	# 22 WHT	CDET/DGD	PI-11	P2-8		14
7	# 22 WHT	DTR	PI-15	P2-20	DATA TERMINAL	14
8	# 22 WHT	RCV DATA	PI-8	P3-3	ACOUSTIC COUPLER	14
9	# 22 WHT	XMIT DATA	PI-3	P3-2		14
10	# 24 WHT/RED	SGND	PI-15	P3-7		13
11	# 22 WHT	CARDGT	PI-2	P3-8		14
12	# 24 WHT/RED	PGND	PI-9	P4-1		13
13	# 22 WHT	CTS	PI-6	P4-5		14
14	# 22 WHT	DSR	PI-7	P3-6	ACOUSTIC COUPLER	14

NOTES: UNLESS OTHERWISE SPECIFIED
 1. CABLE CLAMP SCREWS AND RETAINER CLIPS AND SCREWS INCLUDED WITH ITEM 1.
 2. CABLE CLAMP SCREWS AND RETAINER CLIPS AND SCREWS INCLUDED WITH ITEM 3.
 3. RETAINER CLIP INSTALLED WITH THREADED HOLE ON SAME SIDE AS SCREW HEAD.
 4. CABLE CLAMP DETAIL IN P2 AND P3 SAME AS P1.
 5. SECOND WIRE ON PI END ONLY.
 6. SCREWS MUST BE THREADED COMPLETELY THRU RETAINER CLIPS.
 7. JACKETS ON ITEMS 13 FROM CONNECTORS TO BE EXPANDED INTO THEM TO A MINIMUM OF .001 INCH WITH FORCE NOT EXCEEDING 10 POUNDS.
 8. PINS, SCREWS AND WIRE CONNECTORS ARE NOT USED AND SHALL BE DISCONTINUED INSIDE CONNECTORS WITHIN A MINIMUM OF 50 INCHES FROM PIN TO WIRE CONNECTIONS, AND SHALL NOT BE STRIPPED OF ANY INSULATION.
 NOTES CONTINUED ON SH. 2

REV.	DATE	BY	APP. BY	REVISIONS
A	10/02/73 (E)	R. K. Koberg	B-11 18	1. ITEM 6 P/N WAS 533841-0001, QTY WAS 3 2. ITEM 7 P/N WAS 533347-2999 3. ADDED ITEM 11 4. ITEM 10 QTY WAS 8
B	10/04/73 (E)	R. K. Koberg	B-11 18	1. ITEM 6 P/N WAS 533841-0001, QTY WAS 3 2. ITEM 7 P/N WAS 533347-2999 3. ADDED ITEM 11 4. ITEM 10 QTY WAS 8
C	10/04/73 (E)	R. K. Koberg	B-11 18	1. ITEM 6 P/N WAS 533841-0001, QTY WAS 3 2. ITEM 7 P/N WAS 533347-2999 3. ADDED ITEM 11 4. ITEM 10 QTY WAS 8
D	10/04/73 (E)	R. K. Koberg	B-11 18	1. ITEM 6 P/N WAS 533841-0001, QTY WAS 3 2. ITEM 7 P/N WAS 533347-2999 3. ADDED ITEM 11 4. ITEM 10 QTY WAS 8
E	10/04/73 (E)	R. K. Koberg	B-11 18	1. ITEM 6 P/N WAS 533841-0001, QTY WAS 3 2. ITEM 7 P/N WAS 533347-2999 3. ADDED ITEM 11 4. ITEM 10 QTY WAS 8
F	10/04/73 (E)	R. K. Koberg	B-11 18	1. ITEM 6 P/N WAS 533841-0001, QTY WAS 3 2. ITEM 7 P/N WAS 533347-2999 3. ADDED ITEM 11 4. ITEM 10 QTY WAS 8
G	10/04/73 (E)	R. K. Koberg	B-11 18	1. ITEM 6 P/N WAS 533841-0001, QTY WAS 3 2. ITEM 7 P/N WAS 533347-2999 3. ADDED ITEM 11 4. ITEM 10 QTY WAS 8
H	10/04/73 (E)	R. K. Koberg	B-11 18	1. ITEM 6 P/N WAS 533841-0001, QTY WAS 3 2. ITEM 7 P/N WAS 533347-2999 3. ADDED ITEM 11 4. ITEM 10 QTY WAS 8
J	10/04/73 (E)	R. K. Koberg	B-11 18	1. ITEM 6 P/N WAS 533841-0001, QTY WAS 3 2. ITEM 7 P/N WAS 533347-2999 3. ADDED ITEM 11 4. ITEM 10 QTY WAS 8
K	10/04/73 (E)	R. K. Koberg	B-11 18	1. ITEM 6 P/N WAS 533841-0001, QTY WAS 3 2. ITEM 7 P/N WAS 533347-2999 3. ADDED ITEM 11 4. ITEM 10 QTY WAS 8
L	10/04/73 (E)	R. K. Koberg	B-11 18	1. ITEM 6 P/N WAS 533841-0001, QTY WAS 3 2. ITEM 7 P/N WAS 533347-2999 3. ADDED ITEM 11 4. ITEM 10 QTY WAS 8



REV STATUS	REV	L	L
OF SHEETS	SHEET	1	2

NOTES: (CONT)
 3. THIS CABLE IS TO BE CONSTRUCTED WITH UL LISTED MATERIALS ONLY.

2	MARK 100-07	712	CLR WHITE TYPE 9	
1	MARK 100-07	712	CLR BLACK TYPE 6	
NO	IDENT	F-SPEC	NO	ADDITIONAL CLASSIFICATION

SEQ NO	ITEM NO	CODE IDENT	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	PRICE UNIT WEIGHT SPECIFICATION
2	1	ITEM			
1		QTY REQD			

REMOVE ALL BURRS AND SHARP EDGES	CONCENTRICITY MACHINED DIAMETERS .010 PIR	DIMENSIONAL LIMITS APPLY BEFORE FINISH PICK LAPPING	IDENTIFYING NUMBERS SHOWN IN PARENTHESES FOR REFERENCE ONLY	REFERENCE DRAWING IN ACCORDANCE WITH MIL-BTD-100
HOLE TOLERANCE	.017 THRU .129	.004 THRU .001	.129 THRU .900	.001 THRU .001
THRU .900	.001 THRU .001	.900 THRU 1.000	.001 THRU .001	.001 THRU .001

LINE PER OTHER VIEW SPECIFIED	LINE PER OTHER VIEW SPECIFIED	LINE PER OTHER VIEW SPECIFIED
* DIMENSIONS ARE IN INCHES	* DIMENSIONS ARE IN INCHES	* DIMENSIONS ARE IN INCHES
* TOLERANCE IS:	* TOLERANCE IS:	* TOLERANCE IS:
ANGLES 0.1°	ANGLES 0.1°	ANGLES 0.1°
3 PLACE DECIMALS ± .010	3 PLACE DECIMALS ± .010	3 PLACE DECIMALS ± .010
2 PLACE DECIMALS ± .02	2 PLACE DECIMALS ± .02	2 PLACE DECIMALS ± .02

DATE	10/15/73
CHKD BY	R. K. Koberg
DATE	10/15/73
CHKD BY	R. K. Koberg
DATE	10/15/73
CHKD BY	R. K. Koberg
DATE	10/15/73
CHKD BY	R. K. Koberg
DATE	10/15/73
CHKD BY	R. K. Koberg
DATE	10/15/73
CHKD BY	R. K. Koberg
DATE	10/15/73
CHKD BY	R. K. Koberg

CABLE ASSY, EIA. / AUX ACOUSTIC COUPLER

C 96214 983847

LIST OF MATERIALS

Assembly	Part No.	Rev.
CABLE ASSY, EIA/AUX ACOUSTIC COUPLER	0983847-0001	L

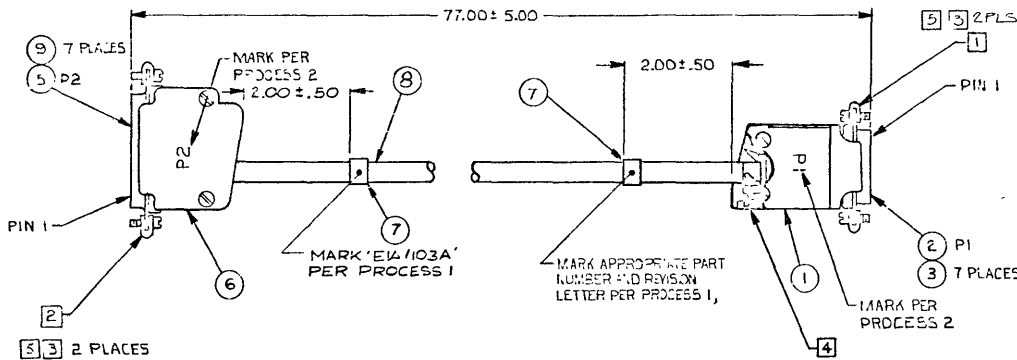
Item No.	Quantity	EA	TI Part No.	Description	Remarks
0001	00001.000	EA	0539903-0005	HOOD,CONN 15 PIN WITH RETAINERS	
0002	00001.000	EA	0539409-0004	CONNECTOR,RCPT 15 PINS	
0002A				P1	
0003	00002.000	EA	0539903-0001	HOOD,CONN 25 PIN WITH RETAINERS	
0004	00001.000	EA	0539409-0005	CONNECTOR,PLUG 25 PINS	
0004A				P2	
0005	00007.000	EA	0539430-0003	CONTACT,PIN 24-20AWG .068 INSUL DIA	
0006	00006.000	EA	0418201-0060	STRAP,MARKER, ADJUSTABLE,PLASTIC	
0009	00001.000	EA	0539409-0006	CONNECTOR,RCPT 25 PINS	
0009A				P3	
0010	00019.000	EA	0539430-0004	CONTACT, SOCKET 24-20AWG .068 INSUL DIA	
0011	00012.500	FT	0972436-0013	INSULATION,SLEEVING 2 X .263 PVC	
0012	REF	EA	0970670-9901	OMNI TEST PROGRAM FOR CABLE ASSY	
0013	00025.000	FT	0538347-2299	WIRE HOOKUP B-24 AWG 19 STR RD/WH	
0014	00064.000	FT	0538347-3999	WIRE HOOKUP B-22 AWG 19 STR WHITE	
0015	00001.000	EA	0962571-0005	PLATE, ID, EDP CABLE	

NO	DESCRIPTION	TOTAL LENGTH	SGW TYPE	ST. STA	FIN. STA	REMARKS	ITEM NO
1	22' CL	4 FT 5 IN	PG-3	P-3	P2-1		8
2	PED		YNTD	P-13	P2-2		
3	RAY		PSID	P-12	P2-3		
4	BU		SGND	P-1	P2-7		
5	JAN		SCD (DET)	P-11	P2-8		
6	BLK		DTF	P-5	P2-2		
7	22' PWS EFN	4 FT 5 IN	PWS (P 2)	P-10	P2-4		8

NOTES UNLESS OTHERWISE SPECIFIED

- CABLE CLAMP SCREWS AND RETAINER CLIPS AND SCREWS INCLUDED WITH (ITEM 1).
- CABLE CLAMP SCREWS AND RETAINER CLIPS AND SCREWS INCLUDED WITH (ITEM 2).
- RETAINER CLIP INSTALLED WITH THREADED HOLE ON SAME SIDE AS SCREW HEAD.
- CABLE CLAMP DETAIL IN P2 SAME AS P1.
- SCREWS MUST BE THREADED COMPLETELY THRU RETAINER CLIPS

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
A		406027 (E) <i>Wheat</i> 8-10-75 1. TITLE WAS CABLE ASSY E.I.A. INTERFACE 2. ITEM 7 P/N WAS 538341-0001		
FORMAL RELEASE				
B		406418 (E) <i>Wheat</i> 10-22-75 ADDED 1) ITEM 10	10/27/75	<i>J. K.</i>
C		409821 (E) <i>Wheat</i> 11-1-75 ADDED NOTE 5	11/1/75	<i>J. K.</i>
D		410063 (D) <i>Wheat</i> 12-9-75 CHANGED NOTE 3 WAS " _____ WITH LARGE HOLE ON SAME SIDE AS SCREW HEAD."	12/9/75	<i>J. K.</i>
E		413102 (C) <i>Wheat B Little</i> 7-20-76 P/D: ADDED DIMENSION 2.00±.50 TO P2; ADDED MARKER STRAP TO SHOW ITEM 7 AND CALLED OUT "MARK 'EIA/103A' PER PROCESS 1"; LM: ITEM 7 P/N 235463-0006 QTY WAS 10	7/21/76	<i>W. L.</i>
F		429240 (D) <i>Wheat</i> 1-4-78 O/I: LM: ITEM 3 PART NO WAS 539433-0005	1-4-78	<i>J. K.</i>
G		CN 924588 (D) <i>Wheat</i> (1) DELETED (2) (1) 2 (1) 2 ITEM 4(2) WIRE LIST, L DESCRIP 1 THRU 7 WAS 22 AWG 1PVC WHT (3) QTY ITEM 8 WAS 45.5 FT (1) ITEM 8 P/N WAS 538347-3959		



2	MARK	100-01	712	CLR WHITE TYPE 9
1	MARK	100-01	712	CLR BLACK TYPE 6
SEQ NO	IDENT	F-SPEC	NO	ADDITIONAL
				CLASSIFICATION

QTY REQ	ITEM NO	CODE IDENT	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	PROCUREMENT SPECIFICATION
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<p>UNLESS OTHERWISE SPECIFIED</p> <ul style="list-style-type: none"> REMOVE ALL BURRS AND SHARP EDGES CONCENTRICITY MAX .002 DIAMETERS .010 F.R. DIMENSIONAL LIMITS APPLY BEFORE FINISH PROCESSING IDENTIFYING NUMBERS SHOWN IN PARENTHESES FOR REFERENCE ONLY INTERPRET DRAWING IN ACCORDANCE WITH MIL STD 100 	<p>UNLESS OTHERWISE SPECIFIED</p> <ul style="list-style-type: none"> DIMENSIONS ARE IN INCHES TOLERANCES ANGLES ± 1° 3 PLACE DECIMALS ± .010 2 PLACE DECIMALS ± .02 	LWR <i>E.E. Kellogg</i> 6-27-75 CHK <i>D. J. ...</i> 1-29-75 EXCD QA APVD <i>James Shabrick</i> 5-85 CONTR NO DESIGN NOT FOR RELEASE <i>Ed ...</i> 8/23/75	TEXAS INSTRUMENTS Equipment Group Dallas Texas		
		HOLE TOLERANCE 013 + .001 126 - .001 251 - .001 THRU - .001 THRU + .001 THRU - .001 125 - .001 THRU + .001 THRU - .001 501 + .001 THRU - .001 THRU - .001 THRU - .001 THRU - .001 THRU - .001		SIZE CODE IDENT NO DRAWING NO C 96214 983848	
		983800 8732 NEXT ASSY U-1100N APPLICATION	CA I NONE REV G		

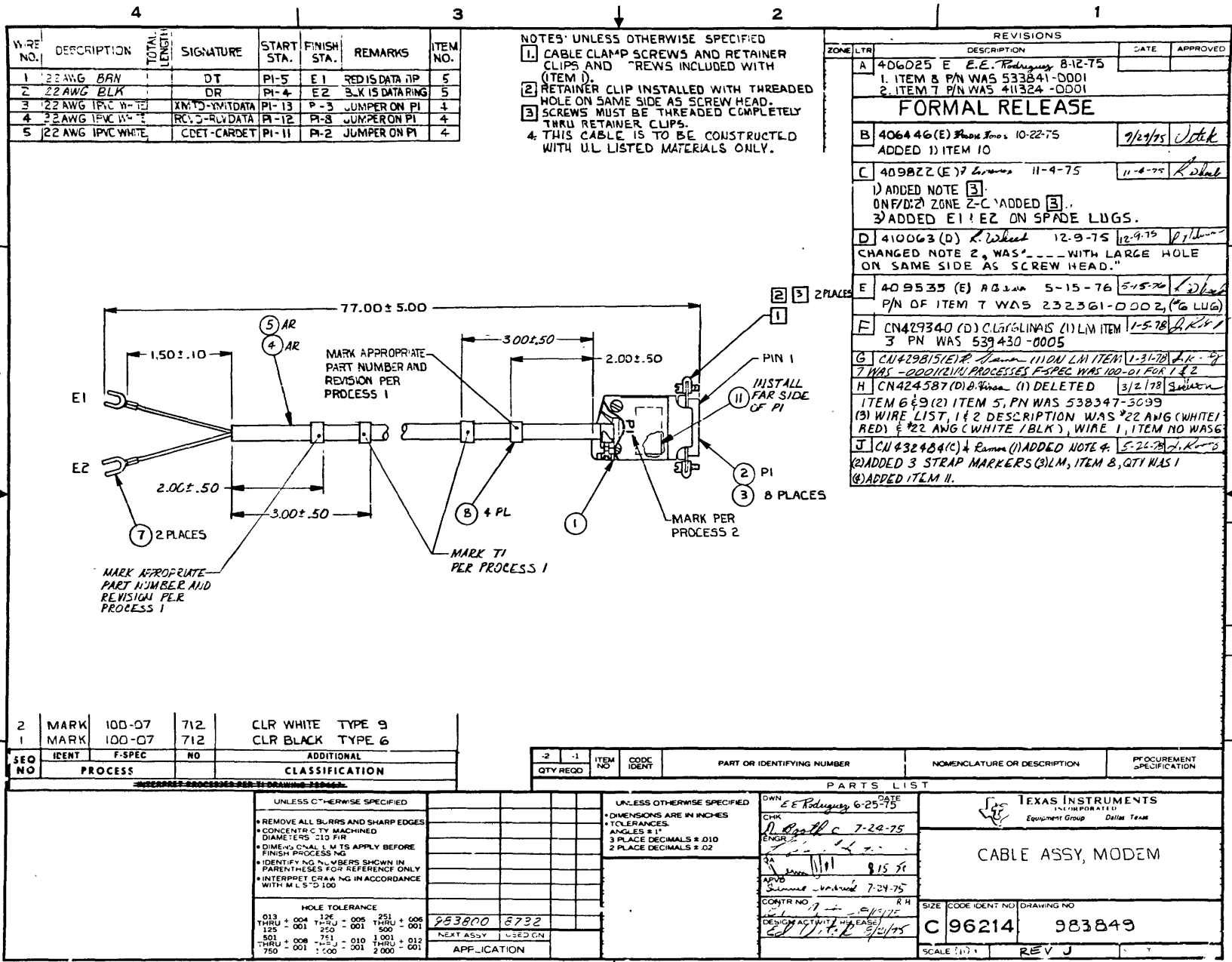
A-115

LIST OF MATERIALS

Assembly
CABLE ASSY, EIA (103A) INTERFACE

Part No. Rev.
0983848-0001 G

Item No.	Quantity		TI Part No	Description	Remarks
0001	00001.000	EA	0539903-0005	HOOD,CONN 15 PIN WITH RETAINERS	
0002	00001.000	EA	0539409-0004	CONNECTOR,RCPT 15 PINS	
0002A				P1	
0003	00007.000	EA	0539430-0004	CONTACT,SOCKET 24-20AWG .068 INSUL DIA	
0005	00001.000	EA	0539409-0005	CONNECTOR,PLUG 25 PINS	
0005A				P2	
0006	00001.000	EA	0539903-0001	HOOD,CONN 25 PIN WITH RETAINERS	
0007	00002.000	EA	0418201-0060	STRAP,MARKER,ADJUSTABLE,PLASTIC	
0008	00006.500	FT	0972444-0014	CABLE,2 SHLD PR W/DRAIN .195 X 1000LG	
0009	00007.000	EA	0539430-0006	CONTACT,PIN 24-20AWG .068 INSUL DIA	
0010	REF	EA	0970671-9901	OMNI TEST PROGRAM FOR CABLE ASSY,INTFC	



WIRE NO.	DESCRIPTION	TOTAL LENGTH	SIGNATURE	START STA.	FINISH STA.	REMARKS	ITEM NO.
1	22 AWG BRN		DT	PI-5	E1	REDIS DATA JP	5
2	22 AWG BLK		DR	PI-4	E2	BLK IS DATING	5
3	22 AWG IPVC WHITE		XM13-YM14DATA	PI-13	P-3	JUMPER ON PI	4
4	22 AWG IPVC WHITE		RC13-RLYDATA	PI-12	PI-8	JUMPER ON PI	4
5	22 AWG IPVC WHITE		CD2T-CARDET	PI-11	PI-2	JUMPER ON PI	4

NOTES UNLESS OTHERWISE SPECIFIED

- CABLE CLAMP SCREWS AND RETAINER CLIPS AND SCREWS INCLUDED WITH (ITEM 1).
- RETAINER CLIP INSTALLED WITH THREADED HOLE ON SAME SIDE AS SCREW HEAD.
- SCREWS MUST BE THREADED COMPLETELY THRU RETAINER CLIP.
- THIS CABLE IS TO BE CONSTRUCTED WITH UL LISTED MATERIALS ONLY.

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
A		4064025 E E.E. Rodriguez 8-12-75 1. ITEM 8 P/N WAS 533841-0001 2. ITEM 7 P/N WAS 411324-0001		
FORMAL RELEASE				
B		406446(E) Phone 10-22-75 ADDED 1) ITEM 10	7/2/75	Jotek
C		409822(E) Phone 11-9-75 1) ADDED NOTE 3. 2) ONF/D; 2) ZONE Z-C ADDED 3. 3) ADDED E1 E2 ON SPADE LUGS.	11-8-75	R. S. ...
D		410063(D) Phone 12-9-75 12-9-75 CHANGED NOTE 2, WAS "___" WITH LARGE HOLE ON SAME SIDE AS SCREW HEAD.		
E		409535(E) Phone 5-15-76 5-15-76 P/N OF ITEM 7 WAS 232361-0002, (6 LUG)		
F		CN429340(D) CLARGLINAVIS (1) LM ITEM 3 P/N WAS 539430-0005	1-5-78	R. S. ...
G		CN429815(E) Phone (1) LM ITEM 1-31-78 7 WAS -00012111 PROCESSES F-SPEC WAS 100-01 FOR 1 & 2		
H		CN424587(D) Phone (1) DELETED ITEM 6 & 9 (2) ITEM 5, P/N WAS 538347-5099 (3) WIRE LIST, 1 & 2 DESCRIPTION WAS *22 AWG (WHITE/RED) & *22 AWG (WHITE/BLK), WIRE 1, ITEM NO WAS 6	3/2/78	Jotek
J		CN432484(C) Phone (1) ADDED NOTE 4. (2) ADDED 3 STRAP MARKERS (3) LM, ITEM 8, QTY WAS 1 (3) ADDED ITEM 11.	5-22-78	J. K. ...

2	MARK	100-07	712	CLR WHITE TYPE 9
1	MARK	100-07	712	CLR BLACK TYPE 6
SEQ NO	IDENT	F-SPEC	NO	ADDITIONAL
	PROCESS			CLASSIFICATION

QTY REQD	-2	-1	ITEM NO	CODE IDENT	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	PROCUREMENT SPECIFICATION
PARTS LIST							
UNLESS OTHERWISE SPECIFIED					DWN E.E. Rodriguez 6-25-75 CHK D. Smith 7-24-75 ENGR 9/15/78 CONTR NO R.H. DESIGN ACTIVITY (RELEASE) 9/20/75		
UNLESS OTHERWISE SPECIFIED * DIMENSIONS ARE IN INCHES * TOLERANCES ANGLES ± 1° 3 PLACE DECIMALS ± .010 2 PLACE DECIMALS ± .02					TEXAS INSTRUMENTS INCORPORATED Equipment Group Dallas Texas CABLE ASSY, MODEM SIZE CODE IDENT NO DRAWING NO C 96214 983849 SCALE 1:1 REV J		
UNLESS OTHERWISE SPECIFIED * REMOVE ALL BURRS AND SHARP EDGES * CONCENTRICITY MACHINED DIAMETERS .010 FIR * DIMENSIONAL LIMITS APPLY BEFORE FINISH PROCESSING * IDENTIFYING NUMBERS SHOWN IN PARENTHESES FOR REFERENCE ONLY * INTERPRET DRAWING IN ACCORDANCE WITH M.L.S. 100					HOLE TOLERANCE .013 ± .004 THRU .125 .013 ± .004 THRU .250 .013 ± .008 THRU .501 .013 ± .001 THRU 1.001 .013 ± .001 THRU 2.000		
983800 8732 NEXT ASSY USED ON APPLICATION							

A-117

983849

A

S

34

LM

LIST OF MATERIALS

Assembly

Part No.

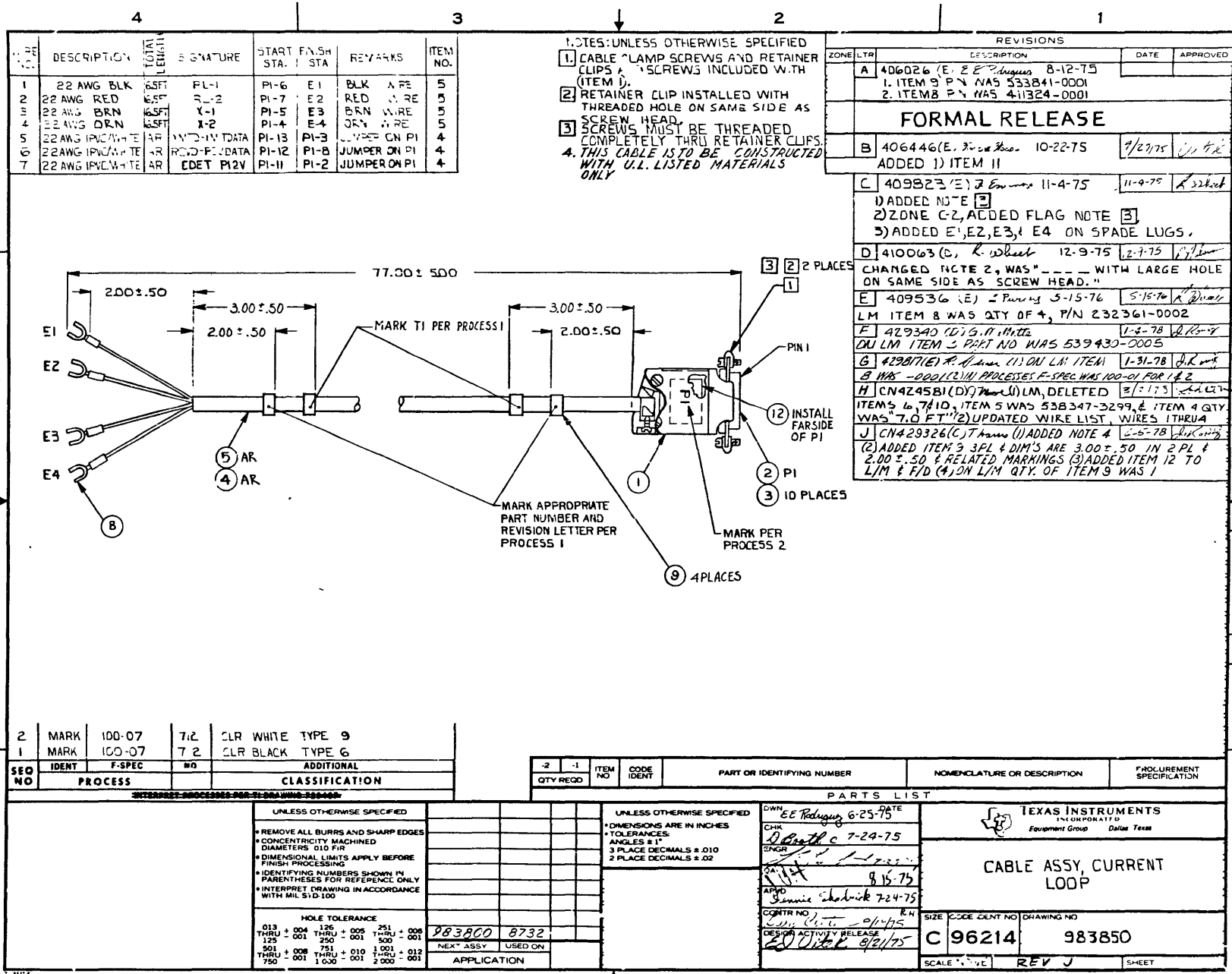
Rev.

CABLE ASSY, MODEM 1/F

0983849-0001

J

Item No.	Quantity		TI Part No.	Description	Remarks
0001	0001.000	EA	0539903-0005	HOOD,CONN 15 PIN WITH RETAINERS	
0002	0001.000	EA	0539409-0004	CONNECTOR,RCPT 15 PINS	
0002A				P1	
0003	0008.000	EA	0539430-0004	CONTACT,SOCKET 24-20AWG .068 INSUL DIA	
0004	0000.500	FT	0538347-3999	WIRE HOOKUP B-22 AWG 19 STR WHITE	
0005	0006.500	FT	0972444-0009	CABLE,2 COND 22 GA .170 UD	
0007	0002.000	EA	0972561-0002	TERMINAL,SLOT TONGUE #4 STUD(TAPE MTG)	
0008	0004.000	EA	0418201-0060	STRAP,MARKER,ADJUSTABLE,PLASTIC	
0010	REF	EA	0970672-9901	OMNI TEST PROGRAM FOR CABLE ASSY,MODEM	
0011	0001.000	EA	0962571-0005	PLATE, 1D, EDP CABLE	



ITEM NO.	DESCRIPTION	TOTAL LENGTH	SIGNATURE	START STA.	FINISH STA.	REMARKS	ITEM NO.
1	22 AWG BLK	6.5 FT	FL-1	PI-6	E1	BLK WIRE	5
2	22 AWG RED	6.5 FT	FL-2	PI-7	E2	RED WIRE	5
3	22 AWG BRN	6.5 FT	Y-1	PI-5	E3	BRN WIRE	5
4	22 AWG ORN	6.5 FT	Y-2	PI-4	E4	ORN WIRE	5
5	22 AWG IPVC WHITE	AR	W/24 IN DATA	PI-13	PI-3	JUMPER ON PI	4
6	22 AWG IPVC WHITE	AR	ROW-FOUN DATA	PI-12	PI-8	JUMPER ON PI	4
7	22 AWG IPVC WHITE	AR	CD ET PI 2V	PI-11	PI-2	JUMPER ON PI	4

NOTES: UNLESS OTHERWISE SPECIFIED
 1. CABLE CLAMP SCREWS AND RETAINER CLIPS AND SCREWS INCLUDED WITH ITEM 1.
 2. RETAINER CLIP INSTALLED WITH THREADED HOLE ON SAME SIDE AS SCREW HEAD.
 3. SCREWS MUST BE THREADED COMPLETELY THRU RETAINER CLIPS.
 4. THIS CABLE IS TO BE CONSTRUCTED WITH U.L. LISTED MATERIALS ONLY

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
A		406026 (E) 2 E. P. Higgins 8-12-75 1. ITEM 9 P/N WAS 533841-0001 2. ITEM 8 P/N WAS 4-11324-0001		
FORMAL RELEASE				
B		406446 (E) 2 E. P. Higgins 10-22-75 ADDED 1) ITEM 11	9/29/75	J. P. Higgins
C		409823 (E) 2 E. P. Higgins 11-4-75 1) ADDED NOTE 2 2) ZONE C-2, ADDED FLAG NOTE 3 3) ADDED E1, E2, E3, E4 ON SPADE LUGS,	11-4-75	J. P. Higgins
D		410063 (C) 2 R. Wheeler 12-9-75 CHANGED NOTE 2, WAS "----- WITH LARGE HOLE ON SAME SIDE AS SCREW HEAD."	12-9-75	R. Wheeler
E		409536 (E) 2 E. P. Higgins 5-15-76 LM ITEM 8 WAS QTY OF 4, P/N 232361-0002	5-15-76	J. P. Higgins
F		429340 (D) 2 G. P. Mittle 1-6-78 DU LM ITEM 3 PART NO WAS 539430-0005	1-6-78	G. P. Mittle
G		429871 (E) 2 E. P. Higgins (1) DU LM ITEM 11 B WAS -0001 (2) IN PROGRESS F-SPEC WAS 100-01 FOR 1 & 2	1-31-78	J. P. Higgins
H		CN424581 (D) 2 G. P. Mittle LM, DELETED ITEMS 6, 7, 10, ITEM 5 WAS 538347-3299, & ITEM 4 QTY WAS 7.0 FT (2) UPDATED WIRE LIST, WIRES THRU	3-1-75	G. P. Mittle
J		CN429326 (C) 2 J. P. Higgins (1) ADDED NOTE 4 (2) ADDED ITEM 3 3PL & DIM'S ARE 3.00 ± .50 IN 2 PL & 2.00 ± .50 & RELATED MARKINGS (3) ADDED ITEM 12 TO L/M & F/D (4) ON L/M QTY. OF ITEMS WAS 1	6-5-78	J. P. Higgins

SEQ NO	IDENT	F-SPEC	NO	ADDITIONAL
2	MARK	100-07	7/2	CLR WHITE TYPE 9
1	MARK	100-07	7/2	CLR BLACK TYPE 6

QTY REQD	ITEM NO	CODE IDENT	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	PROCUREMENT SPECIFICATION

UNLESS OTHERWISE SPECIFIED		UNLESS OTHERWISE SPECIFIED	
* REMOVE ALL BURRS AND SHARP EDGES	* CONCENTRICITY MACHINED DIAMETERS .010 FIR	* DIMENSIONS ARE IN INCHES	* TOLERANCES: ANGLES ± 1°
* DIMENSIONAL LIMITS APPLY BEFORE FINISH PROCESSING	* IDENTIFYING NUMBERS SHOWN IN PARENTHESES FOR REFERENCE ONLY	* 3 PLACE DECIMALS ± .010	* 2 PLACE DECIMALS ± .02
* INTERPRET DRAWING IN ACCORDANCE WITH MIL STD-100			

DATE	BY	CHKD	ENGR	APRD	CONTR NO	DESIGN ACTIVITY RELEASE
6-25-75	EE Redding					
7-24-75	D. Smith					
8-15-75	J. P. Higgins					
7-24-75	Jennie Scholnick					
9-14-75	J. P. Higgins					
9/21/75	J. P. Higgins					

SIZE	CODE IDENT NO	DRAWING NO
C	96214	983850

SCALE	REV	SHEET
	J	

A-119

983850

S

34

LM 5

LIST OF MATERIALS

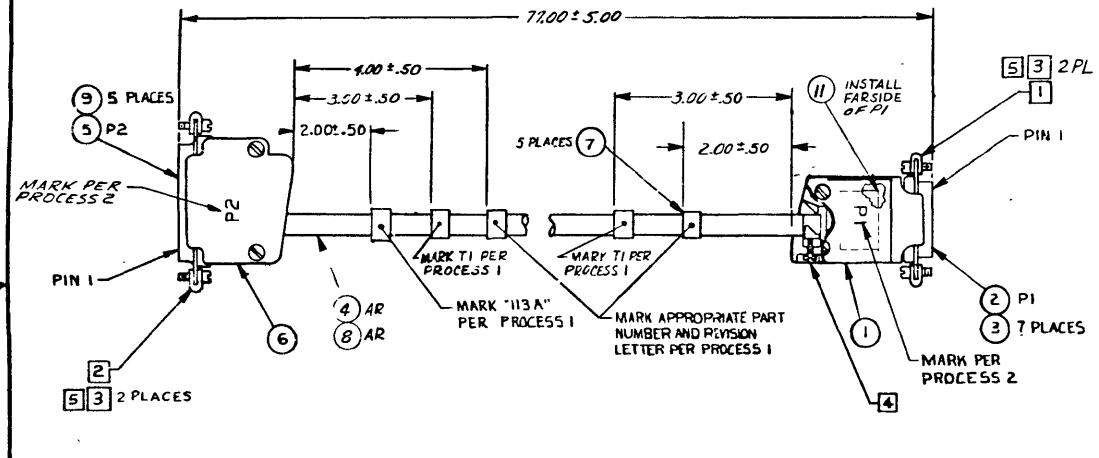
Assembly			Part No.	Rev.	
CABLE ASSY, CURRENT LOOP 1/F			0983850-0001	J	
Item No.	Quantity		TI Part No.	Description	Remarks
0001	00001.000	EA	0539903-0005	HOOD,CONN 15 PIN WITH RETAINERS	
0002	00001.000	EA	0539409-0004	CONNECTOR,RCPT 15 PINS	
0002A				P1	
0003	00010.000	EA	0539430-0004	CONTACT,SOCKET 24-20AWG .068 INSUL DIA	
0004	00000.500	FT	0538347-3999	WIRE HOOKUP 8-22 AWG 19 STR WHITE	
0005	00006.500	FT	0972444-0011	CABLE,4 COND 22 GA .195 OD	
0008	00004.000	EA	0972561-0002	TERMINAL,SLOT TONGUE #4 STUD(TAPE MTG)	
0009	00004.000	EA	0418201-0060	STRAP,MARKER,ADJUSTABLE,PLASTIC	
0011	REF	EA	0970673-9901	CMNI TEST PROGRAM FOR CABLE ASSY,CURRENT	
0012	00001.000	EA	0962571-0005	PLATE, ID, EDP CABLE	

WIRE NO	DESCRIPTION	TOTAL LENGTH	SIGNATURE	START STA.	F.N.SH STA	REMARKS	ITEM NO
1	22 AWG BLK	6 FT 5 IN.	PGND	PI-9	P2-1		4
2	RED		IMTD	PI-13	P2-2		4
3	ORN		PCVD	PI-12	P2-3		4
4	YEL		SGND	PI-1	P2-7		4
5	BRN	6 FT 5 IN	CTR	PI-15	P2-20		4
6	22 AWG WHITE	3 IN	DET/PI2V	PI-11	PI-10		8

NOTES. UNLESS OTHERWISE SPECIFIED

- CABLE CLAMP SCREWS AND RETAINER CLIPS AND SCREWS INCLUDED WITH (ITEM 1).
- CABLE CLAMP SCREWS AND RETAINER CLIPS AND SCREWS INCLUDED WITH (ITEM 6).
- RETAINER CLIP INSTALLED WITH THREADED HOLE ON SAME SIDE AS SCREW HEAD.
- CABLE CLAMP DETAIL IN P2 SAME AS P1.
- SCREWS MUST BE THREADED COMPLETED THRU RETAINER CLIPS.
- THIS CABLE IS TO BE CONSTRUCTED WITH UL LISTED MATERIALS ONLY.

REV. SIGNS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
A		406446 (E) <i>Moira Kooa</i> SEP 22-75 ADDED 1) ITEM 10	9/24/75	<i>Wick</i>
B		409824 (E) <i>Bob</i> 11-4-75 1) ADDED NOTE 5 2) ZONE 4B: Z.C., FLAG NOTED 5.	11-4-75	<i>K. Walsh</i>
C		410063 (D) <i>Wick</i> 12-9-75 CHANGED NOTE 3, WAS "---- WITH LARGE HOLE ON SAME SIDE AS SCREW HEAD."	12-9-75	<i>Wick</i>
D		413103 (C) <i>F. Espino</i> 7-15-76 1) ITEM 7 QTY WAS 1	7/24/76	<i>Wick</i>
E		429340 (D) C LANGRANIS (i) LM ITEM 3 PIN WAS 539430-0005	1-5-78	<i>J. R. Pitt</i>
F		424585 (D) <i>D. F. Jones</i> (i) ITEM 4 P/N WAS 411634-2600, QTY ITEM 3 WAS 35 FT (2) WIRE LIST, 1 THRU 6 DESCRIP. WAS 22 AWG IPVC WHIT, 1 THRU 5 ITEM NO'S WERE B	3/1/78	<i>Wick</i>
G		ON 429377 (C) <i>C. Lopez</i> (i) ADDED NOTE 6 (2) ADDED ITEM 7 3 PL & DIMS 3.00 ± .50 IN 2 PL & 4.00 ± .50 (RELATED MARKINGS (3) ADDED ITEM 11 TO LM & FID (4) ON LM QTY OF ITEM 7 WAS 2 (5) ON LM PIN ON ITEM 9 WAS -0000	6-5-78	<i>J. R. Pitt</i>



2	MARK	100-07	712	CLR WHITE TYPE 9
1	MARK	100-07	712	CLR BLACK TYPE 6

2	1	ITEM	CODE	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	PROCUREMENT SPECIFICATION
QTY REQD	NO	NO	IDENT			

UNLESS OTHERWISE SPECIFIED		UNLESS OTHERWISE SPECIFIED		PARTS LIST	
* REMOVE ALL BURRS AND SHARP EDGES	* DIMENSIONS ARE IN INCHES	OWN	E.E. Redgrave 8-12-75	TEXAS INSTRUMENTS	
* CONCENTRICITY MACHINED	* TOLERANCES	CHK	8-14-75	Equipment Group Dallas Texas	
* DIAMETERS 010 F.R.	* ANGLES ± 1°	ENGR	8-14-75	CABLE ASSY, 113A	
* DIMENSIONAL LIMITS APPLY BEFORE FINISH PROCESSING	* 3 PLACE DECIMALS ± 010	QA	8-15-75	INTERFACE	
* IDENTIFYING NUMBERS SHOWN IN PARENTHESES FOR REFERENCE ONLY	* 2 PLACE DECIMALS ± 02	APVD	8-15-75	SIZE	CODE IDENT NO
* INTERPRET DRAWING IN ACCORDANCE WITH MIL STD 883C		CEC'D BY	8-15-75	C	96214
		DESIGNED BY	8-15-75	DRAWING NO	983854
HOLE TOLERANCE		RELEASED	8-15-75	SCALE	REV G
013 THRU .004	126 THRU .005	251 THRU .006		SHEET	
129 THRU .001	250 THRU .001	500 THRU .001			
501 THRU .008	751 THRU .010	1001 THRU .012			
740 THRU .001	1000 THRU .001	2000 THRU .001			
		APPLICATION			

A-121

983854

A

S

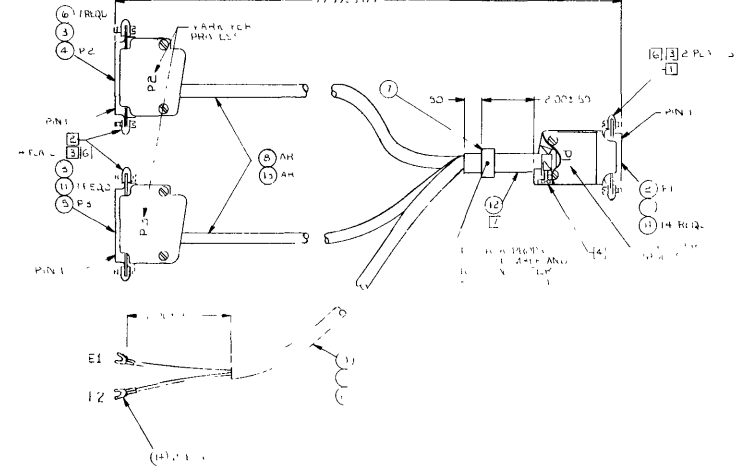
LIST OF MATERIALS

Assembly			Part No.	Rev.
CABLE ASSY, (113A) INTERFACE			0983854-0001	G
Item No.	Quantity	TI Part No.	Description	Remarks
0001	00001.000	EA	0539903-0005 HCCD,CONN 15 PIN WITH RETAINERS	
0002	00001.000	EA	0539409-0004 CONNECTOR,RCPT 15 PINS	
0003	00007.000	EA	0539430-0004 CONTACT,SCKET 24-20AWG .068 INSUL DIA	
0004	00006.500	FT	0972444-0012 CABLE,5COND,22 AWG,300 WV,PVC INSULATED	
0005	00001.000	EA	0539409-0005 CONNECTOR,PLUG 25 PINS	
0006	00001.000	EA	0539903-0001 HCCD,CONN 25 PIN WITH RETAINERS	
0007	00005.000	EA	0418201-0060 STRAP,MARKER,ADJUSTABLE,PLASTIC	
0008	00000.160	FT	0538347-3999 WIRE HOOKUP 8-22 AWG 19 STR WHITE	
0009	00005.000	EA	0539430-0003 CONTACT,PIN 24-20AWG .068 INSUL DIA	
0010	REF	EA	0970674-9901 OMNI TEST PROGRAM FOR CABLE ASSY,INTFC	
0011	00001.000	EA	0962571-0005 PLATE, ID, EDP CABLE	

8		7		6		5		4		3		2		1	
WIRE NO.	DESCRIPTION	PI	ITEM	WIRE NO.	DESCRIPTION	PI	ITEM	WIRE NO.	DESCRIPTION	PI	ITEM	WIRE NO.	DESCRIPTION	PI	ITEM
1	24 AWG (P) PIN	P1	1	2	24 AWG (P) PIN	P1	1	3	24 AWG (P) PIN	P1	1	4	24 AWG (P) PIN	P1	1
4	24 AWG (P) PIN	P1	1	5	24 AWG (P) PIN	P1	1	6	24 AWG (P) PIN	P1	1	7	24 AWG (P) PIN	P1	1
9	24 AWG (P) PIN	P1	1	10	24 AWG (P) PIN	P1	1	11	24 AWG (P) PIN	P1	1	12	24 AWG (P) PIN	P1	1
13	24 AWG (P) PIN	P1	1	14	24 AWG (P) PIN	P1	1	15	24 AWG (P) PIN	P1	1	16	24 AWG (P) PIN	P1	1
18	24 AWG (P) PIN	P1	1	19	24 AWG (P) PIN	P1	1	20	24 AWG (P) PIN	P1	1	21	24 AWG (P) PIN	P1	1
22	24 AWG (P) PIN	P1	1	23	24 AWG (P) PIN	P1	1	24	24 AWG (P) PIN	P1	1	25	24 AWG (P) PIN	P1	1
26	24 AWG (P) PIN	P1	1	27	24 AWG (P) PIN	P1	1	28	24 AWG (P) PIN	P1	1	29	24 AWG (P) PIN	P1	1
30	24 AWG (P) PIN	P1	1	31	24 AWG (P) PIN	P1	1	32	24 AWG (P) PIN	P1	1	33	24 AWG (P) PIN	P1	1

- NOTES (UNLESS OTHERWISE SPECIFIED)
1. CABLE CLAMP SCREWS AND RETAINING LIPS AND SCREWS IN ITEM 1 WITH ITEM 1.
 2. LABEL CLAMP SCREWS AND RETAINING LIPS AND SCREWS IN ITEM 1.
 3. RETAINER LIP INSTALLED WITH THREADED HOLE ON SAME SIDE AS SCREW HEAD.
 4. CABLE CLAMP DI TAIL IN PIN AND P3.
 5. SECOND WIRE IN PIN AND P3 2 WIRES STRIPPED IN 1.
 6. HOLE MUST BE THREADED COMPLETELY THROUGH RETAINER LIPS.
 7. NEEDLING (ITEM 13) FROM CONNECTOR P2, P3, EFFECT EXTENDS INTO ITEM 12 A MINIMUM OF ONE INCH, BUT DOES NOT ENTER PIN CONNECTOR HOUSING.

REVISIONS				
ZONE	DATE	DESCRIPTION	DATE	APPROVED
04	11 2 75	A 410004 (L) - ADDED NOTE [6]		
	12 9 75	B 410004 (D) - CHANGED NOTE 3 WAS "WITH LARGE HOLE ON SAME SIDE AS SCREW HEAD."		
	6 27 76	C 405587 (E) - ON P/D: ADDED NOTE 7. ON LM: ITEM 14 PIN WAS 282361-0002		



A-123

REV. NO.	DATE	PROCESS	FILE	NO.	CLASSIFICATION	ADDITIONAL	HOLE TOLERANCES		UNLESS OTHERWISE SPECIFIED	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	DIMENSIONAL SPECIFICATION
							1	2				
013	004											
128	001											
201	008											
1750	001											

UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
REMOVE ALL BURRS AND SHARP EDGES	DRAWN
CONCENTRICITY MACHINED DIMENSIONS 0.05 PF	CHK
DIMENSIONAL LIMITS APPLY BEFORE FINISH PROCESSING	ENGR
IDENTIFYING NUMBERS SHOWN IN PARENTHESES FOR REFERENCE ONLY	DR
IDENTIFYING NUMBERS SHOWN IN PARENTHESES FOR REFERENCE ONLY	APPD
WITH MIL STD 100	CONTR NO

PARTS LIST					
QTY. REQD.	ITEM NO.	CODE	IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	DIMENSIONAL SPECIFICATION

MATERIAL	

DESIGN ACTIVITY RELEASE
1

SIZE	CODE	IDENTIFYING NUMBER	DRAWING NO.
D	96214		96214

T. L. M. 71914E 18

LIST OF MATERIALS

Assembly
CABLE ASSY, EIA/AUX MODEM

Part No. Rev.
0983855-0001 E

Item No.	Quantity		TI Part No.	Description	Remarks
0001	00001.000	EA	0539903-0005	HOOD,CONN 15 PIN WITH RETAINERS	
0002	00001.000	EA	0539409-0004	CONNECTOR,RCPT 15 PINS	
0002A				P1	
0003	00002.000	EA	0539903-0001	HOOD,CONN 25 PIN WITH RETAINERS	
0004	00001.000	EA	0539409-0005	CONNECTOR,PLUG 25 PINS	
0004A				P2	
0005	00001.000	EA	0539409-0006	CONNECTOR,RCPT 25 PINS	
0005A				P3	
0006	00007.000	EA	0539430-0006	CONTACT,PIN 24-20AWG .068 INSUL DIA	
0007	00001.000	EA	0418201-0001	REPLACED BY 418201-0060	
0008	00091.000	FT	0538347-2999	WIRE HOOKUP 8-24 AWG 19 STR WHITE	
0009	00006.500	FT	0538347-3299	WIRE HOOKUP 8-22 AWG 19 STR RD/WH	
0010	00006.500	FT	0538347-3099	WIRE HOOKUP 8-22 AWG 19 STR BK/WH	
0011	00021.000	EA	0539430-0004	CONTACT, SOCKET 24-20AWG .068 INSUL DIA	
0012	00000.250	FT	0411634-3800	SLEEVE,PVC,3/8 DIA. BLACK	
0013	00019.500	FT	0411634-2600	SLEEVE,PVC .263 DIA .020 WALL	
0014	00002.000	EA	0972561-0002	TERMINAL,SLOTTED TONGUE NO. 4 STUD	
0015	REF	EA	0970675-9901	TEST PROGRAM,CABLE ASSY EIA AUX MODEM	

USER'S RESPONSE SHEET

Manual Title: Model 743/745 Data Terminal Maintenance Manual 984025-9702

Date of Manual: 7-1-78 Date of this Letter: _____

User: _____ Office/Dept. No.: _____

Company: _____

Street Address: _____

City/State/Zip: _____

Please list any discrepancy found in this manual by page, paragraph, figure, or table number in the following space. If there are any other suggestions that you wish to make, feel free to include them. Thank you.

CUT ALONG THIS LINE

Location in Manual	Comment/Suggestion
_____	_____
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