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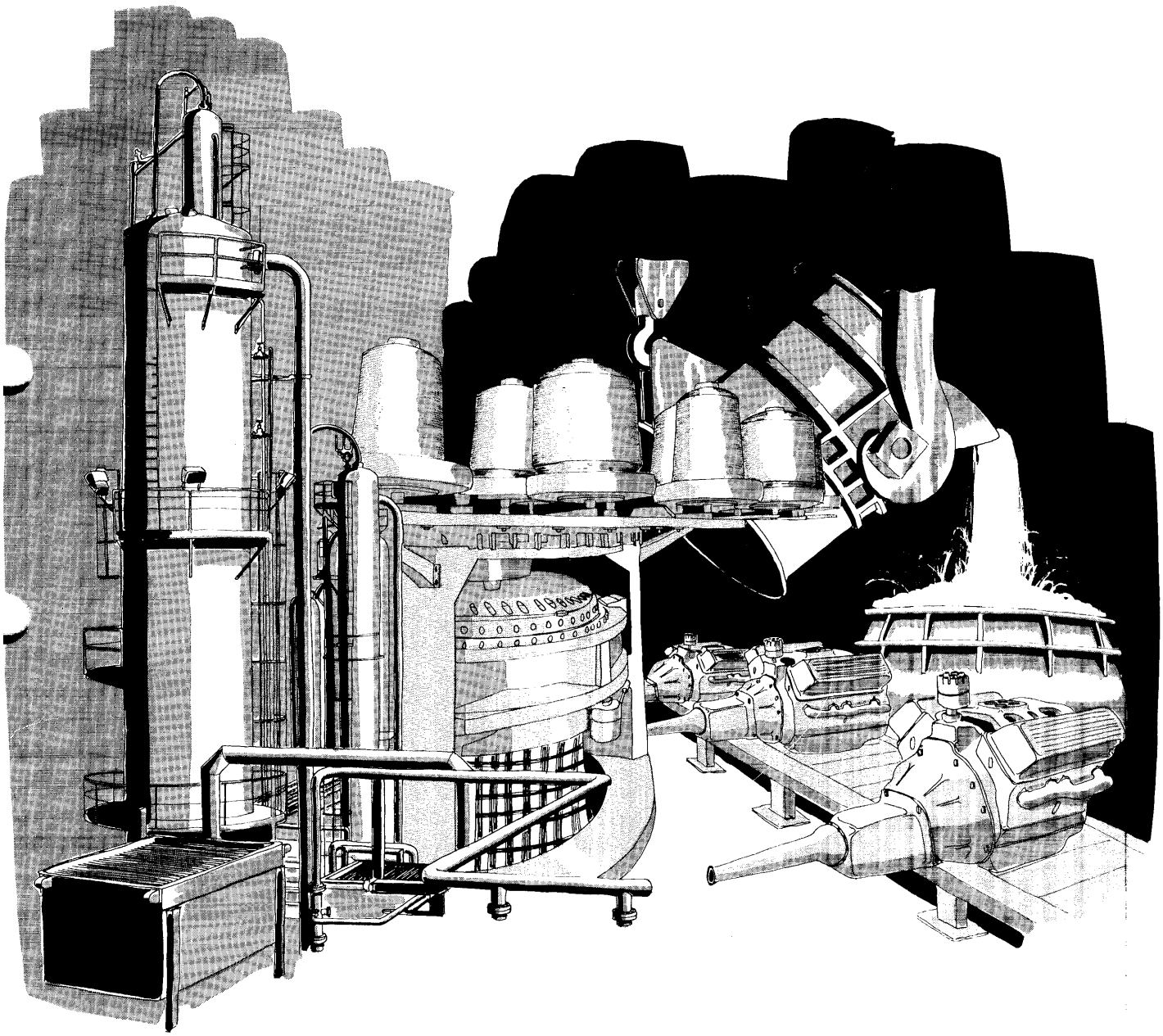
remote terminals RT801, RT803, RT805 user's guide



remote terminals
RT801, RT803, RT805
user's guide

EK-RT80X-UG-001

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CHAPTER 1
GENERAL INFORMATION

1.1 PURPOSE AND USE

This user's guide provides user information on Factory Data Management Remote Terminals RT801, RT803, and RT805. The manual consists of general information, and installation, operating, and maintenance instructions.

1.2 SUPPORT DOCUMENTS

The following support documents are required: DPM Terminals Application Programmer's Reference Manual, Document No. AA-C878A-TC; DECdataway User's Guide, Document No. EK-ISB11-UG; and FDC Terminals Maintenance Print Set, Document No. MP00481.

1.3 GENERAL DESCRIPTION

The RT801, RT803, and RT805 terminals (Figure 1-1) are peripheral devices that interface operator-generated data with a Distributed Plant Management (DPM) system. A brief introduction to each terminal model is provided below and Table 1-1 lists terminal specifications.

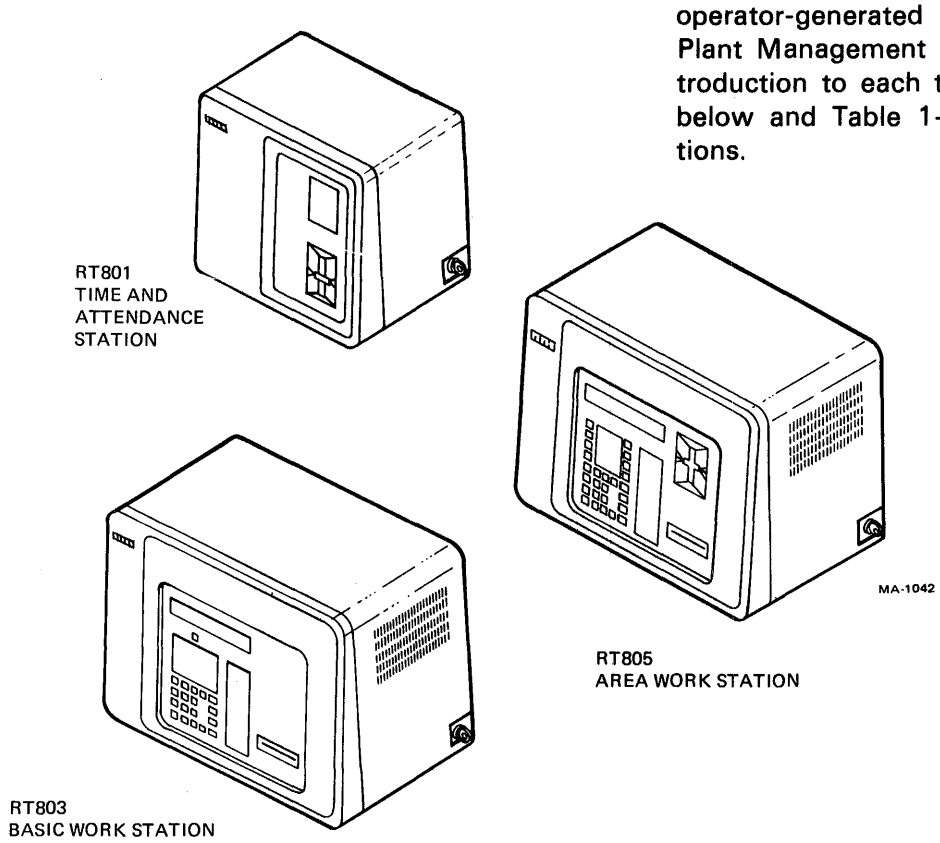


Figure 1-1 Factory Data Management Remote Terminals RT801, RT803, RT805

Table 1-1 Terminal Specifications

Specification	RT801	RT803	RT805
Communications Host Computer-to-Terminal Link	DECdataway or EIA RS-232-C	DECdataway or EIA RS-232-C	DECdataway or EIA RS-232-C
Data Format	Serial	Serial	Serial
Power Requirements Voltage	115 Vac ± 10% 230 Vac ± 10%	115 Vac ± 10% 230 Vac ± 10%	115 Vac ± 10% 230 Vac ± 10%
Frequency	50/60 ± 1 Hz	50/60 ± 1 Hz	50/60 ± 1 Hz
Current (Max)	2 A at 115 V 1 A at 230 V	2 A at 115 V 1 A at 230 V	2 A at 115 V 1 A at 230 V
Power (Max)	80 W	100 W	120 W
Environmental Ambient Operating temperature*	+5° to 50° C (+41° to +122° F)	+5° to 50° C (+41° to +122° F)	+5° to 50° C (+41° to +122° F)
Ambient Non-Operating temperature	−40° to +66° C (−40° to +151° F)	−40° to +66° C (−40° to +151° F)	−40° to +66° C (−40° to +151° F)
Humidity	10% to 95% non-condensing with maximum, wet bulb +32° C (+90° F), and minimum dew +2° C (+36° F)	10% to 95% non-condensing with maximum, wet bulb +32° C (+90° F), and minimum dew +2° C (+36° F)	10% to 95% non-condensing with maximum, wet bulb +32° C (+90° F), and minimum dew +2° C (+36° F)
Cooling	Heat Exchanger	Heat Exchanger	Heat Exchanger
Physical Height Width Depth** Weight Mounting	 35.56 cm (14 in) 39.37 cm (15.5 in) 27.25 cm (10.73 in) 13.63 kg (30 lb) Wall	 44.93 cm (17.69 in) 54.61 cm (21.50 in) 32.56 cm (12.82 in) 22.72 kg (50 lb) Wall or Bench Top	 44.93 cm (17.69 in) 54.61 cm (21.50 in) 32.56 cm (12.82 in) 22.72 kg (50 lb) Wall or Bench Top
Controls/Indicators Display	4-character Red, 7-segment LED 0.6 in high Numeric only	32-character alphanumeric 0.2 in high neon-orange 5X7-dot matrix	32-character alphanumeric 0.2 in high neon-orange 5X7-dot matrix
Readers	Type 5 Badge Reader	Combination 80 or 22-column punched card/22-column type 3 badge reader	Type 5 Badge Reader plus Combination 80 or 22-column punched card/22-column type 3 badge reader
Keypad	None	12 Keys	12 Keys
Transaction Keys	None	One Key	Eight Keys
Function Switches	None	Five	Five
Internal Alarm	2900 Hz 71 dB, 0.1 s duration under firmware control		
Keyswitch	3-position NORMAL, MAINT, SUPVR (SUPVR function is for user-defined application)		
External Contact Closure	Programmable Mercury-Wetted-Contact Relay, form C Normally open, normally closed, and common contacts are available 50 V max dc or peak ac, 0.5 A max		

*Derate by 1.8° C/1000 M (1° F/1000 ft) above sea-level.

**Wall mounting hardware adds one inch to depth of RT801, 1/2-in to RT803 and RT805.

RT801 TIME AND ATTENDANCE STATION
The RT801 Time and Attendance Station, designed to be mounted on a wall in place of the traditional time clock, is intended for applications such as payroll, labor management, and access control. Its two unique components are a time-of-day display and a type 5 badge reader.

RT803 BASIC WORK STATION
The RT803 Basic Work Station is designed for such applications as material tracking, inventory control, and shop floor data entry. The terminal consists of a combination type 3 badge/80-column card/22-column ticket reader, a 32-character alphanumeric display, a 12-position keypad, nine operator guidance indicator lights, a transaction switch, and five function keys.

RT805 AREA WORK STATION
The RT805 Area Work Station is designed for general-purpose use in any application which is transaction-oriented. This terminal includes all of the features of the RT803 Basic Work Station, plus several enhancements and options. The enhanced features include seven additional transaction keys, two additional operator guidance indicator lights, plus a type 5 card/badge reader. The RT805 was designed to be used primarily for work station functions and to double as a time and attendance station when needed. RT805 options allow a digital I/O device and a keyboard/printer to be used with the terminal.

1.3.1 Communications Interface
The RT80X terminals communicate with the host computer via a DECdataway (Figure 1-2). The DECdataway is a 56K bits/second multidrop serial data line to which all distributed plant management remote terminals are connected via 16-pin DECdataway port plugs. Each plug has three pins assigned for communications and twelve for terminal addressing. All of the DECdataway plugs (63 maximum per DECdataway) are wired to different address configurations. A terminal connected to the DECdataway will respond only to data communications that contain the address of the DECdataway plug connected to it. Also, if a terminal is relocated from one port to another, it will respond only to communications directed to its new address.

1.3.2 Hardware
The RT80X terminals contain a microcontroller module which runs a common, ROM-resident program. They also contain a module that drives a display and interfaces with a card/badge reader and a keyswitch. Another module interfaces with a keypad on the RT803 and RT805 terminals.

When a terminal is connected to a DECdataway it will contain a DECdataway module. If it has been configured to communicate with the host computer via an EIA RS-232-C interface it will contain a serial line interface module. All terminal models have self-contained power supplies and only require connection to an ac power source and a DECdataway (or a modem for EIA RS-232-C mode operation) for normal operation. The RT805 Area Work Station can be configured with option modules for special user needs.

1.3.3 Software
User-written tasks for the RT80X terminals run under RSX11-M in the DPM host and are programmed in either FORTRAN, COBOL, or MACRO.

1.4 PHYSICAL DESCRIPTION
Figure 1-3 illustrates terminal features. Physically, the RT801, RT803, and RT805 terminal external features are similar except for size and weight (Table 1-1), and the configuration of the operator's panel and the heat exchanger.

1.4.1 Enclosure
The terminals are housed in rugged, matte-finished, industrialized enclosures for protection from factory environments. All corners are rounded for safety. The operator's panel is recessed and has an easily cleaned, semi-gloss finish.

1.4.2 Mounting
The RT801 was designed to be wall-mounted. The RT803 and RT805 can be bench or wall-mounted.

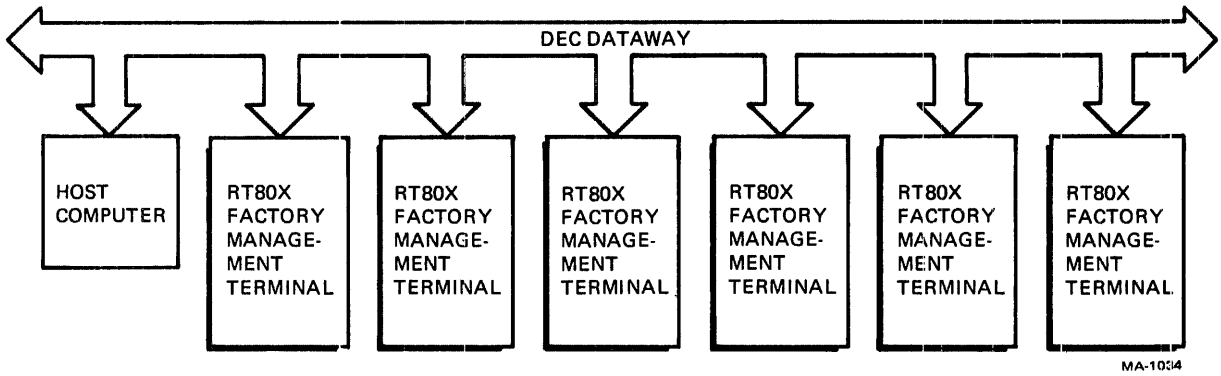
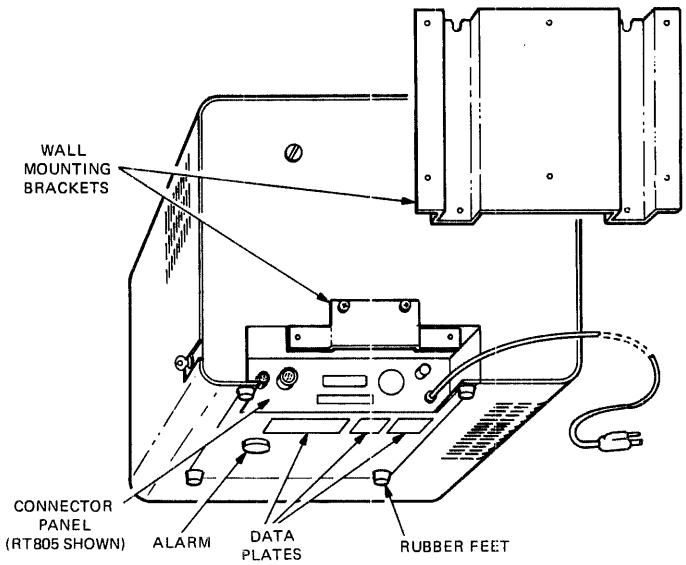


Figure 1-2 Communications Interface



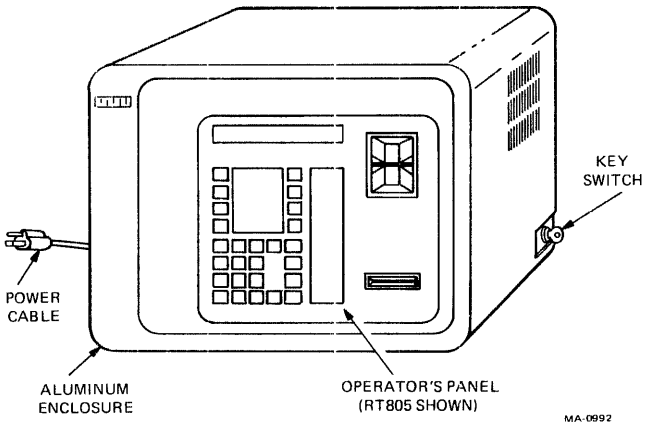


Figure 1-3 Terminal Features

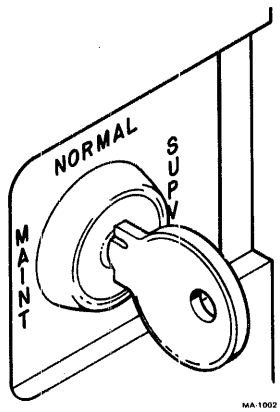


Figure 1-4 Keyswitch

1.4.3 Alarm

An alarm is located at the bottom of the terminals. It emits a 71 dB signal at 2900 Hz. When the application program triggers the alarm it will sound for 0.1 second and then cease to sound until retriggered.

1.4.4 Keyswitch

The keyswitch located on the lower right side of the terminal is a three-position rotary switch (Figure 1-4). The positions are: MAINT (maintenance), NORMAL, and SUPVR (supervisor). During normal terminal operation the switch is set to the NORMAL position. When it is set to MAINT the terminal goes off-line to the host and runs a ROM-resident diagnostics program. When the key is turned to SUPVR, application-defined functions of the user are enabled. The key is removable only from the NORMAL position.

1.4.5 Cooling

The internal environment of the terminal is forced-convection cooled. One wall of the heat exchanger is common to a contaminant-free electronics area where a fan circulates air. Heat dissipated in the electronics area passes along the common wall and is conduction cooled by room ambient air passing along the other side of the wall. The room ambient air is drawn through the heat exchanger by another fan. Figures 1-5 and 1-6 illustrate air flow for the RT801 and for the RT803 and RT805. Should

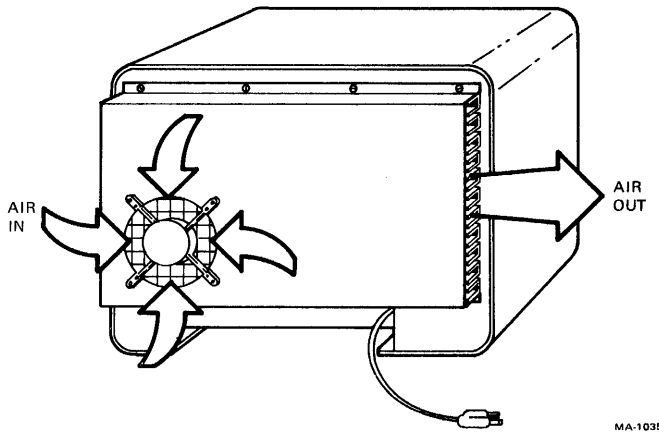


Figure 1-5 RT801 Air Flow

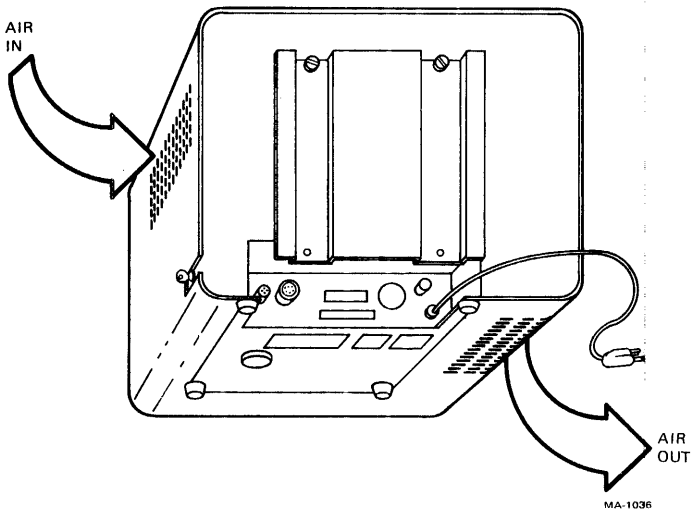


Figure 1-6 RT803/RT805 Air Flow

either fan fail, the terminal will continue to operate. If the internal temperature reaches 65° C (149° F) a manually-resettable sensor (located on the terminal power supply) will cut off power to the terminal.

1.4.6 Operator's Panel

Figures 1-7 through 1-9 illustrate the configuration of the RT801, RT803, and RT805 operator's panel. The function of the RT803 transaction switch and the RT805 transaction switches is defined by the user. Switch function is user-printed on an instruction insert which is installed behind a removable window, as illustrated in Figures 1-10 and 1-11.

1.4.7 Connector Panel

All cables are connected to the terminal via the connector panel. The lower-rear, recessed location protects electrical connections and allows access for both bench and wall-mounted installations. A 3 m ±3 cm (9 ft, 10.12 ±0.25 in) power cable provides terminal connection to a 115/230 V, single-phase, 3-wire power source. Figure 1-12 illustrates configuration of the 115 V and 230 V plugs.

1.4.8 Electrical Data Plates

Figure 1-13 shows the location of the electrical data plates. One plate lists all pertinent electrical information, model number, and serial number. The two other plates are an Underwriters Laboratory listed EDP decal and a Canadian Standards Association label.

1.5 FUNCTIONAL DESCRIPTION

The RT801, RT803, and RT805 terminals contain common printed circuit modules. These are an M7122 microcontroller module; an M7125 FDC card/badge reader control module; and either an M7127 serial bus port module or an M7123 FDC serial line interface module (depending on terminal model). A printed circuit backplane (FDC bus) provides the signal interconnection between printed circuit modules.

The M7122 microcontroller module is the major printed circuit module in the terminals. It controls all data operations on the FDC bus and contains the terminal memory and also ROM-resident diagnostics.

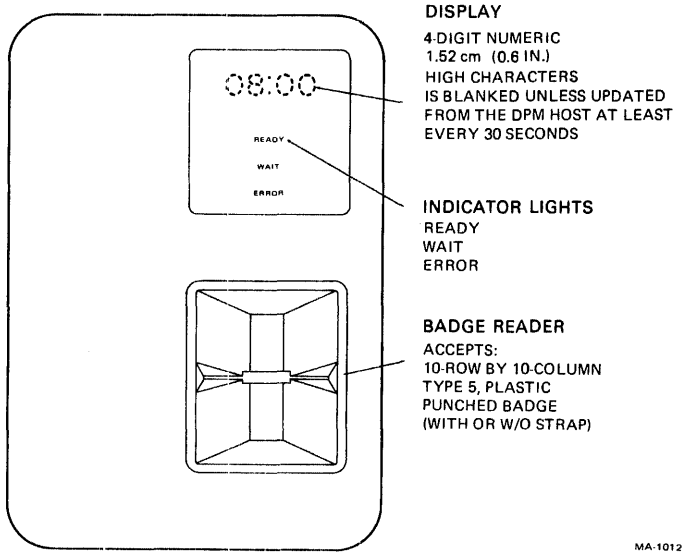


Figure 1-7 RT801 Operator's Panel

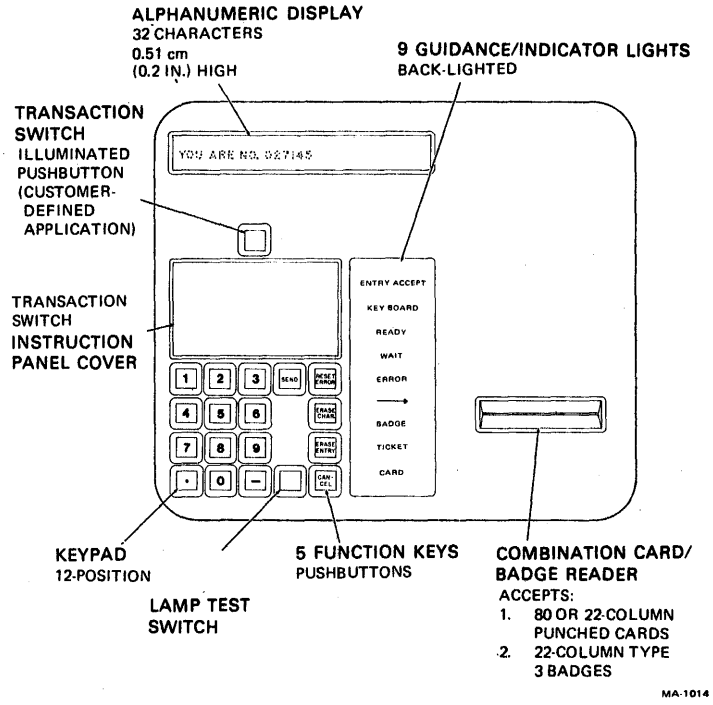


Figure 1-8 RT803 Operator's Panel

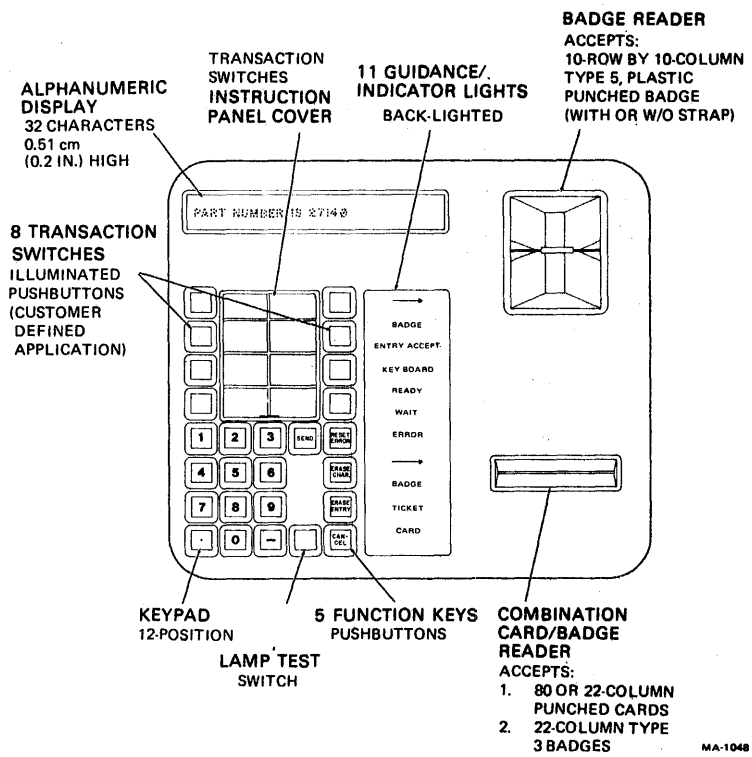


Figure 1-9 RT805 Operator's Panel

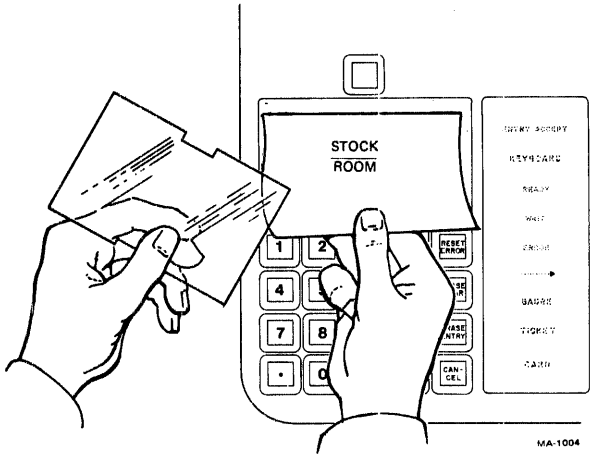


Figure 1-10 RT803 Transaction Switch Instruction Insert

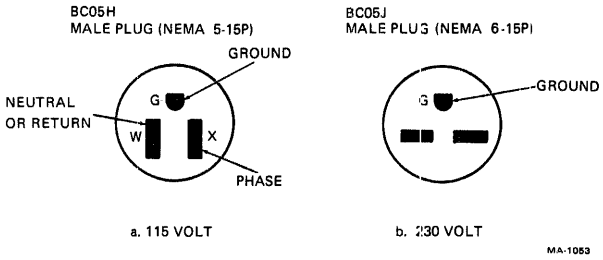


Figure 1-12 Power Plug Configurations

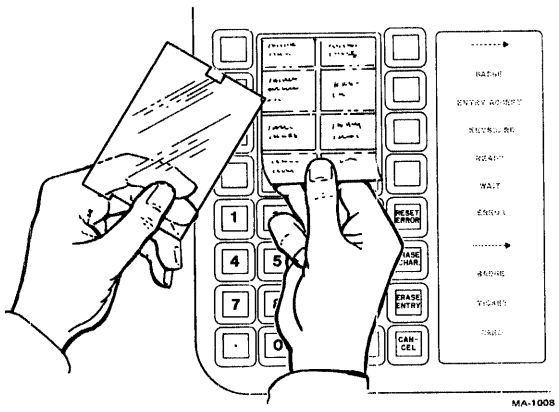


Figure 1-11 RT805 Transaction Switches Instruction Insert

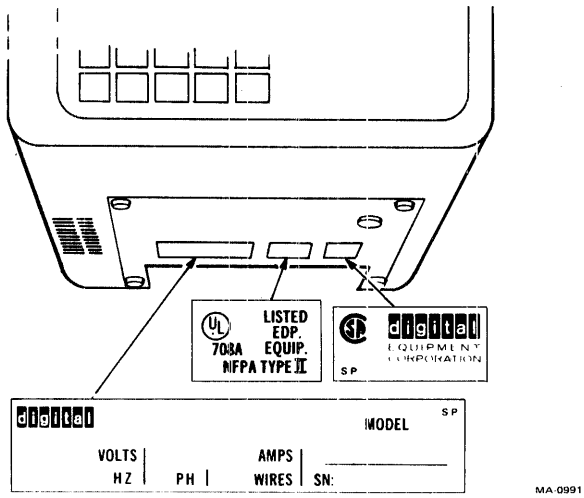


Figure 1-13 Electrical Data Plates

The M7125 FDC card/badge reader control module provides the interface with the terminal operator. It receives inputs from a type 5 badge reader or from a combination type 3 badge/80-column card reader. It also receives inputs from the keyswitch located on the right side of the terminal. This module applies operator-guidance outputs to the alarm, and the READY, WAIT, and ERROR guidance indicators and display (in the form of 24-hour time or guidance messages). All M7125 module operations are controlled by the M7122 module via the FDC bus.

If an RT80X terminal is configured to communicate with the host computer via the DECdataway, it will contain an M7127 serial bus port module for the interface. When the communications link between the host computer and the terminal is composed of modems, an M7123 FDC serial line interface module is used instead of the M7127 module.

The M7127 serial bus port module converts parallel digital outputs on the FDC bus to a serial format for transmission to the host computer. Serial digital data received from the host computer is converted to parallel data by this module, in accordance with control signals from the M7122 module, and is then applied to the FDC bus.

The M7123 module can perform two functions. In the RT801, RT803, and RT805 terminals it can function as an EIA RS-232-C interface when a modem communications link is used between the terminal and the host computer. It can also function as an optional (RT805 only) interface for 20 mA (simplex or full-duplex) communications with a keyboard printer or CRT terminal (LK40-E, LA180, LA36, VT55, etc.). A baud rate selector switch on this module permits selection of communication rates from 50 to 9600 bits/second. The baud rate is factory-set at 300 bits/second. If an LA180 is to be connected to the RT805, the baud rate must be reset to 2400 bits/second. If an LK40-E is to be used, the rate must be reset to 110 bits/second.

The RT803 and RT805 contain an M7126 FDS switch encoder/guidance control module that provides an interface between the FDC bus and the transaction, function, and keypad switches. It also drives the guidance indicators (except READY, WAIT, and ERROR).

The RT801 terminal contains a 7013440-00 power supply assembly that generates all required operating voltages. The 7013440-01 power supply assembly used in the RT803 and RT805 is similar to the RT801 model except that it has an additional high-voltage circuit to drive the displays in these terminals.

The terminals contain four, common, operator-related, functional elements. These are a keyswitch, guidance indicator lights, an alarm, and a relay.

The keyswitch is a 3-position (SUPVR-NORMAL-MAINT) switch. It functions as a special transaction switch when a key is inserted in it and turned clockwise to the SUPVR (supervisor) position. The NORMAL, middle position, is self-explanatory. When the key is turned counter-clockwise to the MAINT (maintenance) position, diagnostics, which are ROM-resident on the M7122 microcontroller module, are run. When the switch is set to the MAINT position the terminal is off-line to the host computer.

The RT80X terminals contain READY, WAIT, and ERROR guidance indicator lights. The READY indicator light indicates whenever one of the readers in the terminal is in a "ready-to-use" state (selected by a host task). It indicates to the user that the terminal is ready for card or badge insertion. The WAIT indicator light is used primarily as an indicator that the terminal is in an intermediate state of execution and not ready for operator use. The ERROR light indicates that a local reader error has occurred, such as a card or badge being inserted upside down, or that punches on a card are improperly justified. All of these indicator lights are controlled by the terminal and are not accessible by the user software.

The alarm is mounted on the bottom of the terminals and emits a 71 dB signal at 2900 Hz. When the application program triggers the alarm it will sound for 0.1 second and then cease to sound until retriggered by the software. The alarm is also used for certain terminal functions (i.e., the ROM-resident diagnostics).

The RT80X terminals contain a program-controlled, form-C relay. The contacts are mercury-wetted and rated for a maximum of 50 V (dc or peak ac) at 0.5 A. The normally-open and normally-closed, plus a common contact, are available at a 4-pin connector located on the terminal connector panel. The relay performs a dry-contact function (no power is supplied by the terminal). Therefore, the external control circuit must contain a power source.

1.5.1 RT801 Functional Description

The unique functional elements of the RT801 are a time display, a type 5 badge reader, and three guidance indicator lights. These are interfaced with the FDC bus via an M7125 card/badge reader control module. Figures 1-14 and 1-15, respectively, illustrate the RT801 circuit configurations for connection to the host computer via either an M7127 serial bus port module or an M7123 FDC serial line interface module.

1.5.1.1 Time Display – The time display (Figures 1-7, 1-14, and 1-15) is driven by the M7125 module and consists of a 4-digit LED readout that indicates 24-hour time. The time function is periodically updated from a task in the DPM host. If the time is not updated for a period of 30–60 seconds, the display will blank, indicating a malfunction.

1.5.1.2 Type 5 Badge Reader – The type 5 badge reader is a manually operated device. The reader logic can read a maximum of 10 numeric characters per badge. Data is read only during removal of a completely inserted badge. An internal alarm will emit an operator-alert beep when a badge is fully inserted. Once a badge has been removed, the terminal will perform a check to see if the badge was correctly

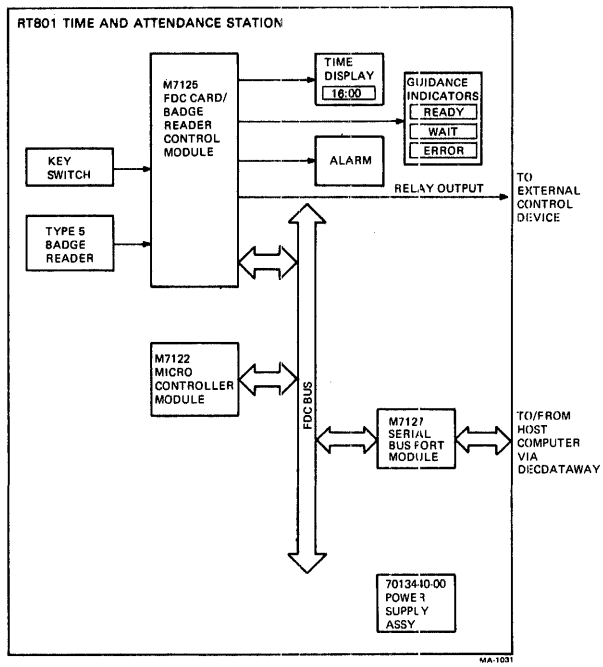


Figure 1-14 RT801-AA/AB with DECdataway Interface — Block Diagram

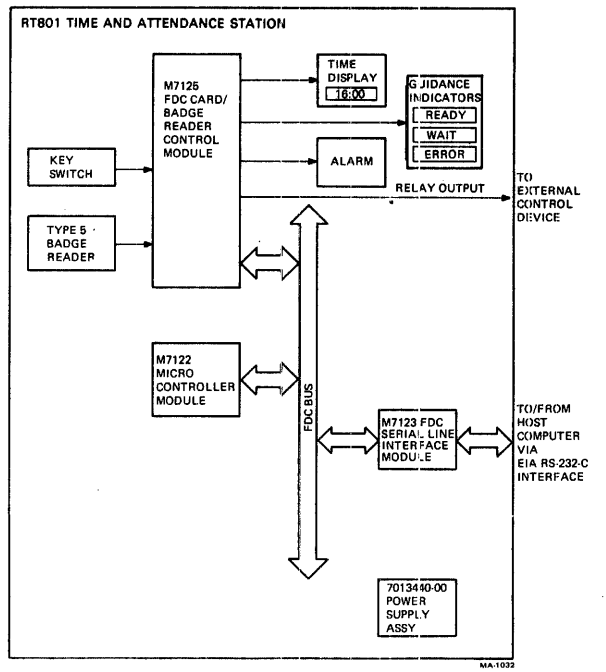


Figure 1-15 RT801-BA/BB with EIA RS-232-C Interface — Block Diagram

inserted and removed. If it was not, an ERROR light will indicate. If a badge was inserted incorrectly, or there was any other error concerning badge mechanical usage, the same error process will occur. Only when a badge is inserted and removed properly will data be transmitted to the host computer.

1.5.1.3 Guidance Indicators – The RT801 contains READY, WAIT, and ERROR guidance indicator lights. These are described in Paragraph 1.5.

1.5.1.4 RT801 Connector Panel – Figure 1-16 illustrates four possible RT801 connector panel configurations. Panel configuration is determined by the type of interface to be made with the host computer. If a DECdataway interface is used, the RT801 will contain an M7127 serial bus port module and the connector panel configuration will be that illustrated in Figure 1-16 a and b. Note that the "-AA" model terminal requires a 115 V power input and that the "-AB" model requires a 230 V input. If the RT801 is to be interfaced to the computer via an EIA RS-232-C modem communications link the terminal connector panel configuration will be that of Figure 1-16 c and d. The "-BA" terminal model requires 115 V input power and the "-BB" model requires 230 V. Cover plates are installed over unused connector panel holes.

1.5.2 RT803 Functional Description

The unique functional elements (Figures 1-17 through 1-19) of the RT803 are a display (that indicates either time-of-day, or operator-cuing or operator-entered data), a transaction switch, guidance indicator lights, a card/badge reader, a keypad, and function switches. The transaction, function, and keypad switches interface with the FDC bus via the M7126 FDC switch encoder/guidance control module. The display, card/badge reader, and READY, WAIT, and ERROR guidance indicator lights interface with the FDC bus via the M7125 FDC card/badge reader control module.

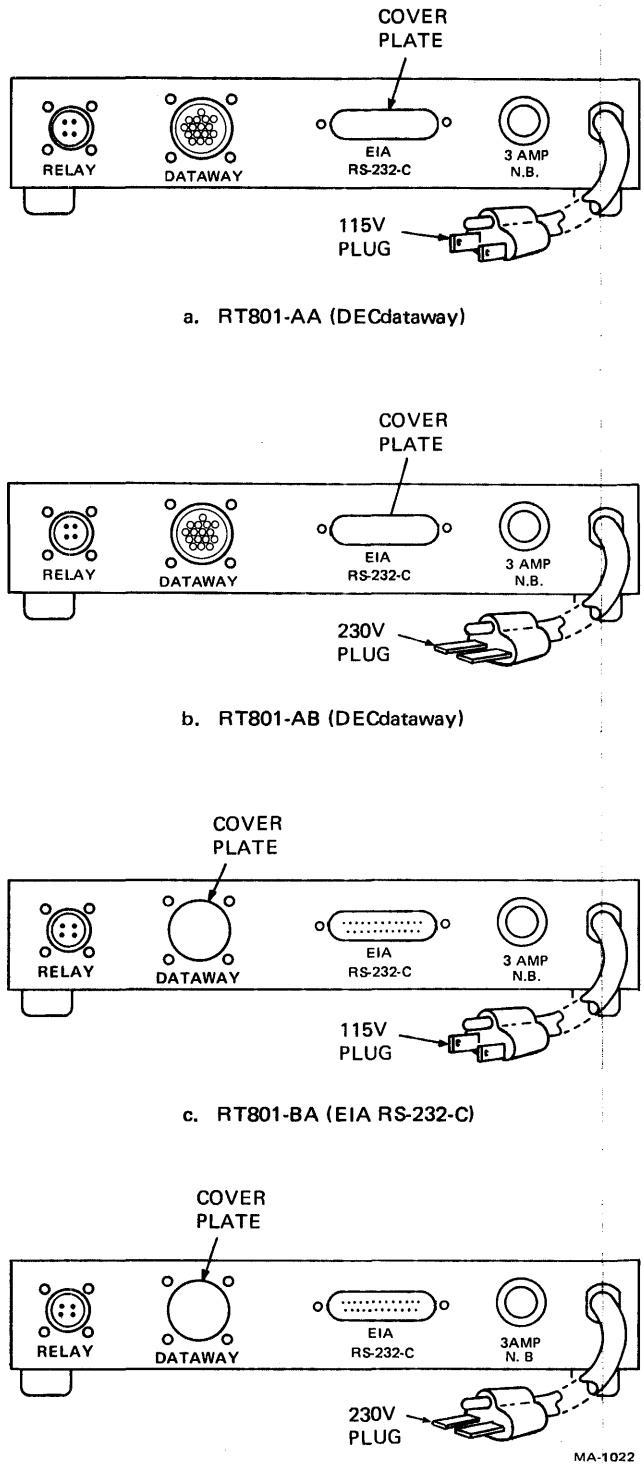


Figure 1-16 RT801 Connector Panel Configurations

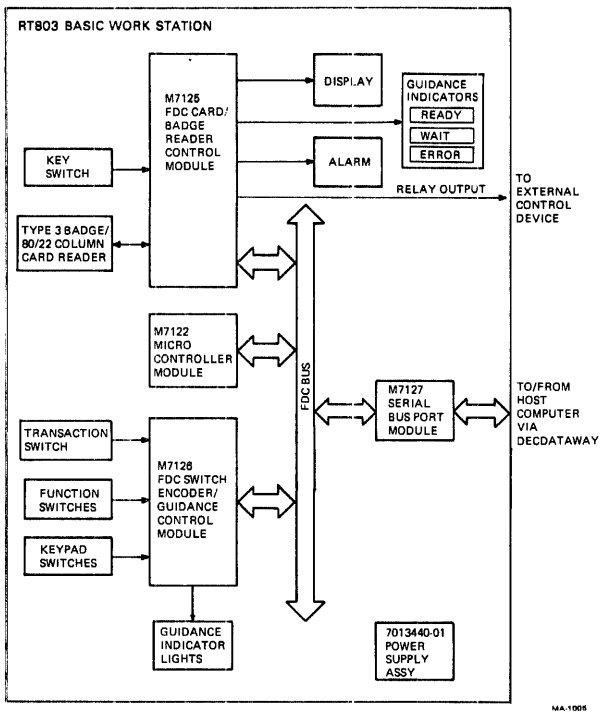
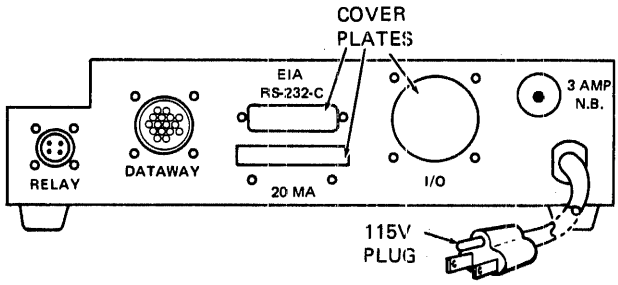
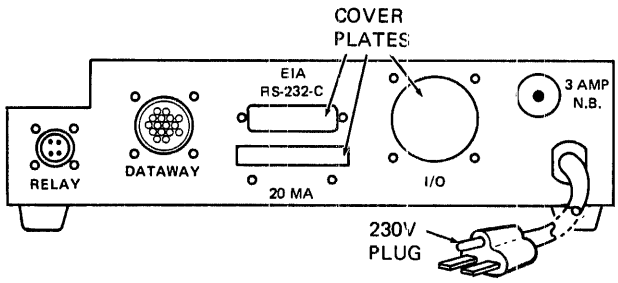


Figure 1-17 RT803-AA/AB (DECdataway) — Block Diagram



a. RT803-AA (DECdataway)



b. RT803-AB (DECdataway)

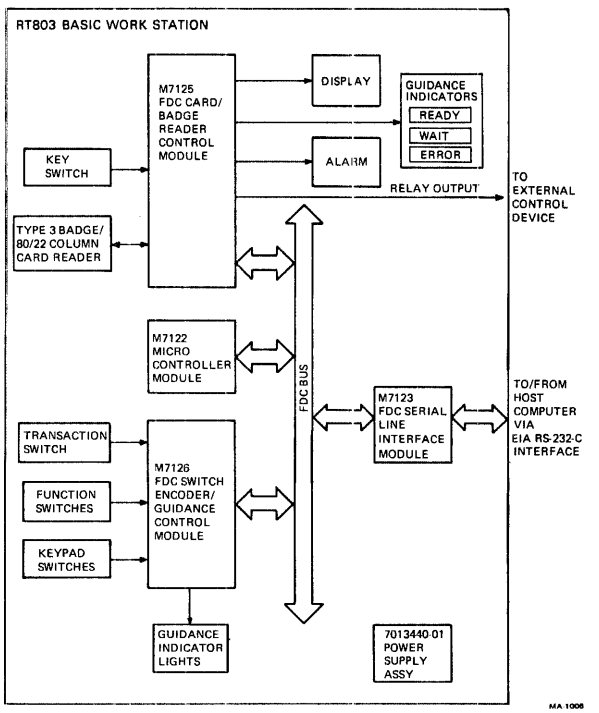
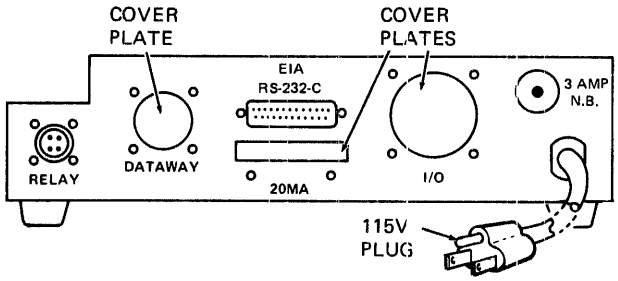
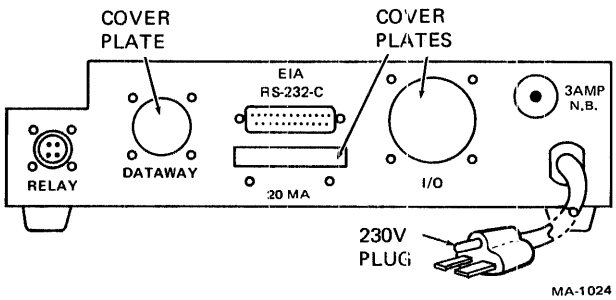


Figure 1-18 RT803-BA/BB (EIA RS-232-C) — Block Diagram



c. RT803-BA (EIA RS-232-C)



d. RT803-BB (EIA RS-232-C)

Figure 1-19 RT803 Connector Panel Configurations

1.5.2.1 Display – The RT803 32-character alphanumeric display indicates either 24-hour time or printable ASCII characters. Characters are blanked unless updated every 30 seconds by the program. The character set which may be displayed is listed in Table 1-2. It is the primary graphic subset of ASCII, except for the tilde and the left and right braces.

1.5.2.2 Transaction Switch – The RT803 contains a white transaction switch which, when pressed, enables the keypad to be used for a transaction code entry. Typically, if the display indicates time, the operator will press the transaction switch and then enter a code via the keypad.

1.5.2.3 Guidance Indicator Lights – The RT803 contains nine guidance indicator lights (Figure 1-8) that prompt the operator in the use of the terminal.

The ENTRY ACCEPT guidance indicator light typically indicates when an operator has made a valid data entry. Illumination of the KEYBOARD indicator is a cue for the operator to use the keypad. The READY, WAIT, and ERROR indicators are described in Paragraph 1.5. The arrow indicator (→) light illuminates to point to the card/badge reader into which the operator must insert a badge, ticket, or card (depending upon whether the BADGE, TICKET, or CARD guidance indicator is illuminated by the application program).

1.5.2.4 Card/Badge Reader – The card/badge reader is a motor driven, optical-mechanical device that reads 80-column cards, 22-column tickets, and type 3 badges. The typical time for an 80-column card to be completely inserted and then ejected is 2.8 seconds. For a 22-column ticket or type 3 badge the typical insertion-ejection cycle time is 0.9 seconds. The cards/badges must contain only valid Hollerith-coded data (no binary data).

1.5.2.5 Keypad – Transaction codes are typically entered into the RT803 via the blue, 12-position keypad. The keypad includes cardinal numbers 0 through 9, plus decimal (.), and minus (–) signs. The operator can verify data entered through the keypad via the display.

1.5.2.6 Function Keys – The RT803 contains five function keys. One key is green (SEND) and the other four are red (RESET ERROR, ERASE CHAR, ERASE ENTRY, CANCEL). These keys provide a data entry/data editing function to the operator when the operator enters data into the terminal via its keypad. The SEND key is used to send data entered into the terminal via the keypad to the host computer.

Table 1-2 32-Character Display Set

ASCII Code	Character	ASCII Code	Character
040	(Space)	100	@ (At)
041	!	101	A
042	" (Quotes)	102	B
043	# (Pound)	103	C
044	$ (Dollar)	104	D
045	%	105	E
046	& (Ampersand)	106	F
047	' (Apostrophe)	107	G
050	(	110	H
051	)	111	I
052	*	112	J
053	+	113	K
054	, (Comma)	114	L
055	-	115	M
056	. (Decimal)	116	N
057	/	117	O
060	0	120	P
061	1	121	Q
062	2	122	R
063	3	123	S
064	4	124	T
065	5	125	U
066	6	126	V
067	7	127	W
070	8	130	X
071	9	131	Y
072	:	132	Z
073	;	133	[
074	<	134	~ (Tilde)
075	=	135	]
076	>	136	{ (Left Brace)
077	?	137	} (Right Brace)

The RESET ERROR key is illuminated by the software program to cue the operator that the data entry (from whatever source) is erroneous and needs to be retried. The RESET ERROR key must be pressed by the operator before he can proceed. The operator can edit or erase the data entry via the ERASE CHAR and ERASE ENTRY keys, respectively. The CANCEL key permits the operator to cancel the entire transaction that has been initiated.

1.5.2.7 Lamp Test Switch – The black, non-illuminating, lamp test switch permits the operator to test all operator panel lights. If the lamp test switch is pressed when the keyswitch is set to MAINT the card reader motor will operate in reverse.

1.5.2.8 RT803 Connector Panel – Figure 1-19 illustrates four possible RT803 connector panel configurations. Panel configuration is determined by the type of interface to be made with the host computer. If a DECdataway interface is used, the RT803 will contain an M7127 serial bus port module and the connector panel configuration will be that illustrated in Figures 1-19 a and b. Note that the "-AA" model terminal requires a 115 V power input and the "-AB" model requires 230 V power. If the RT803 is to be interfaced to the computer via an EIA RS-232-C modem communications link, the terminal connector panel configuration will be that of Figure 1-19 c and d. The "-BA" terminal model requires a 115 V input power and the "-BB" model requires 230 V. Cover plates are installed over unused connector panel holes.

1.5.3 RT805 Functional Description

The RT805 is functionally similar to the RT803 except that it contains additional transaction switches and guidance indicator lights, plus a type 5 badge reader (Figures 1-20 and 1-21).

There are eight transaction switches on the RT805 compared with only one on the RT803. This allows use of the terminal to service a wider variety of application functions. Each transaction switch on the RT805 functions the same as the switch on the RT803. The host

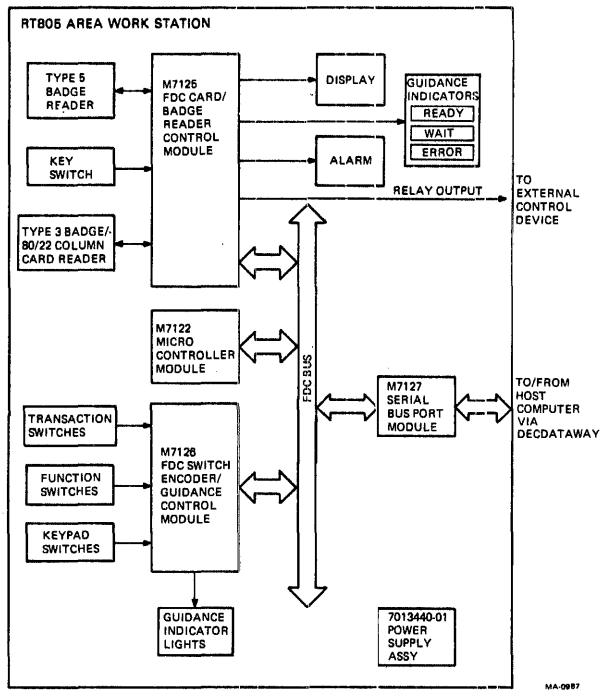


Figure 1-20 RT805-AA/AB (DECdataway) – Block Diagram

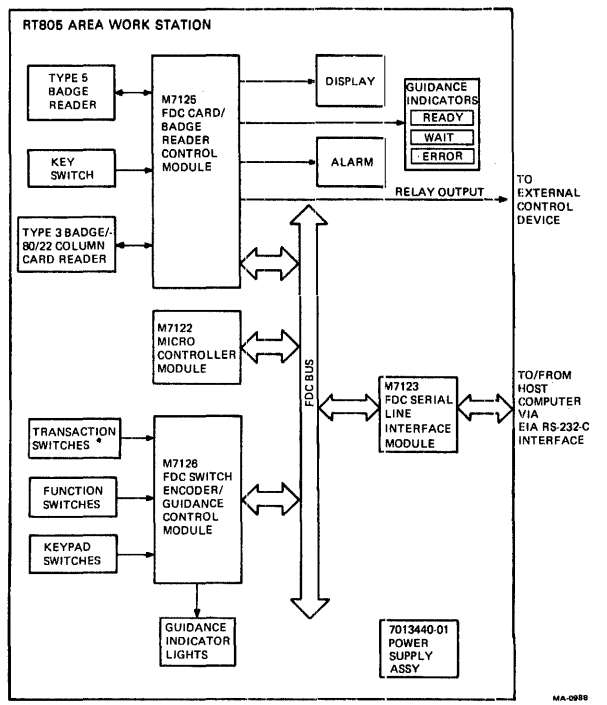
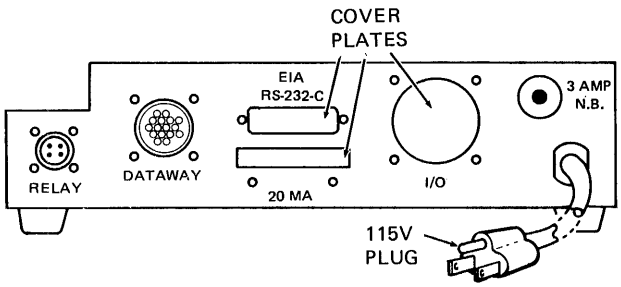


Figure 1-21 RT805-BA/BB (EIA RS-232-C) – Block Diagram

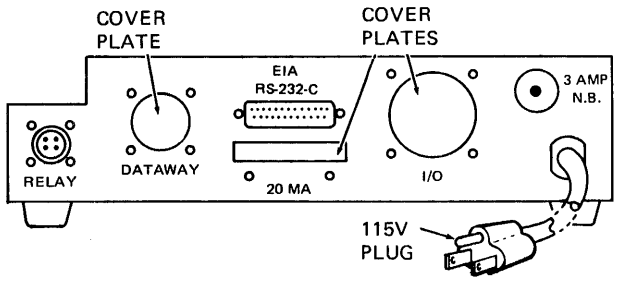
task commands the terminal to accept a transaction. When one of the transaction switches is pressed, the terminal will return the identity of the transaction switch to the calling task. Thus, up to eight unique transactions may be simply selected by the use of one switch. Each of the switches is back-lit to allow the operator to observe which transaction is in progress.

The RT805 contains two readers. One is the type 5 badge reader used on the RT801. The other is the combination card/type 3 badge reader used on the RT803. Combined in the same terminal, these readers give the RT805 an expanded range of capability for reading encoded data. One major advantage of this design is to allow the terminal to be used for work station functions the bulk of the time, and to double as a time and attendance station when needed, as during the morning and evening time-keeping periods.

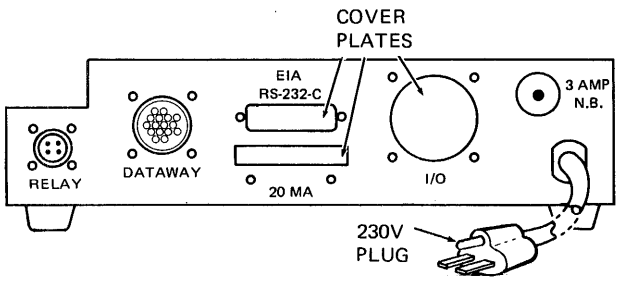
Figure 1-22 illustrates the four possible RT805 connector panel configurations. Configuration criteria is the same as that described for the RT801 and RT803.



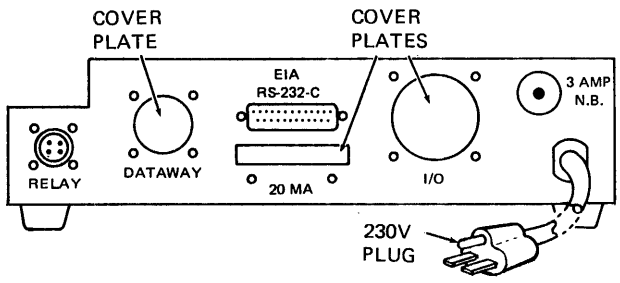
a. RT805-AA (DECdataway)



c. RT805-BA (EIA RS-232-C)



b. RT805-AB (DECdataway)



d. RT805-BB (EIA RS-232-C)

Figure 1-22 RT805 Basic Model Connector Panel Configurations

1.6 RT805 AREA WORK STATION OPTIONS

The RT805 Area Work Station terminal may be optionally configured to include one M7124 digital I/O module, or one M7123 serial line interface (configured for 20 mA) module, or one M7123 plus one M7124. Figures 1-23 through 1-28 show various optional model terminals and Figure 1-29 illustrates connector panel configurations when options are installed in the RT805.

1.6.1 M7123 Serial Line Interface Option Module

The M7123 serial line interface option module allows connection of a terminal such as an LA35 printer, LA36 DECwriter, or LK40-E keyboard to the RT805. This option allows a full alphanumeric input capability from a keyboard, and also enables a hardcopy printer to be remotely connected to the RT805. The echo for the keyboard is host (software) controllable and may be directed to either the 32-character display of the RT805 or to the printer, if the external device is a LA36 or LA35.

1.6.2 M7124 Digital I/O Module Option

The M7124 digital I/O module option is designed to accept DTL, TTL, or switched ground inputs. Its output circuits are designed to switch 0 to +55 Vdc absolute maximum of field-supplied potential. This option will accomodate digital devices such as a Toledo 8130 scale, which generates six bytes of binary-coded decimal parallel, DTL-level data.

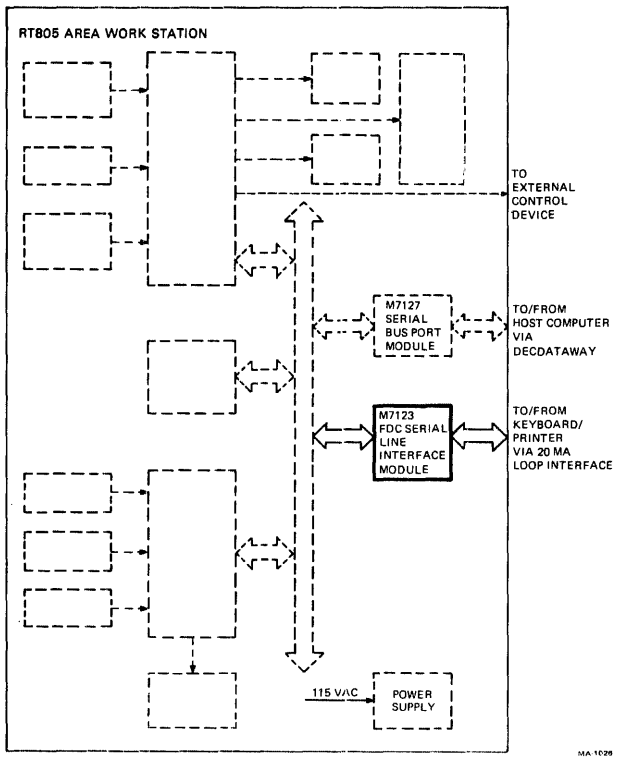


Figure 1-23 RT805-AA/AB (DECdataway) with XC (20 mA) Option – Block Diagram

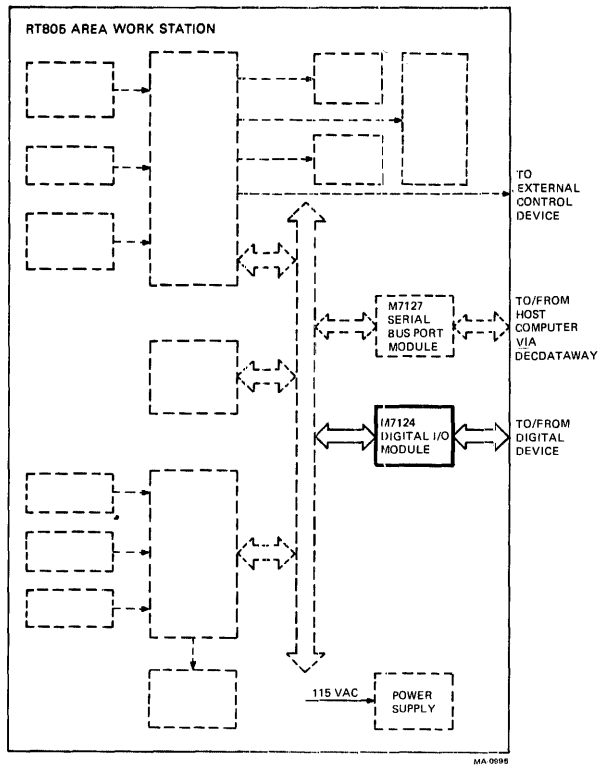


Figure 1-24 RT805-AA/AB (DECdataway) with XD (I/O) Option – Block Diagram

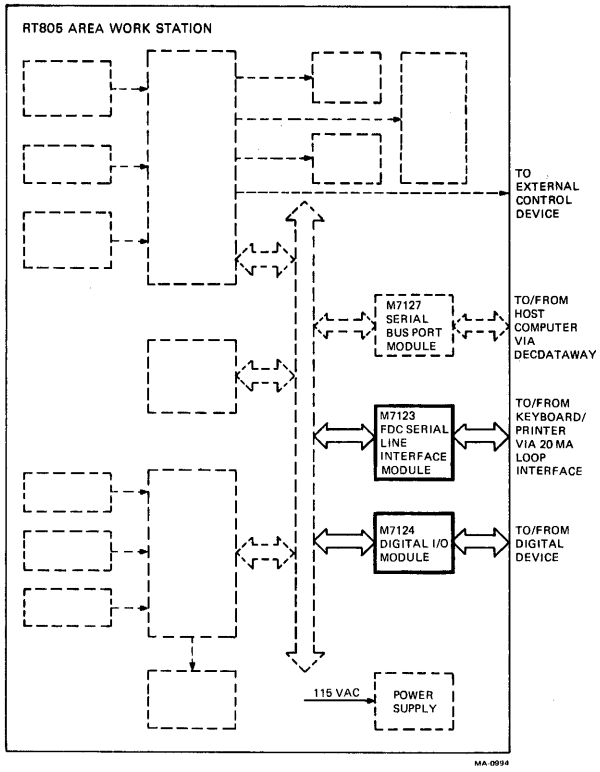


Figure 1-25 RT805-AA/AB (DECdataway) with XC (20 mA), XD (I/O) Options – Block Diagram

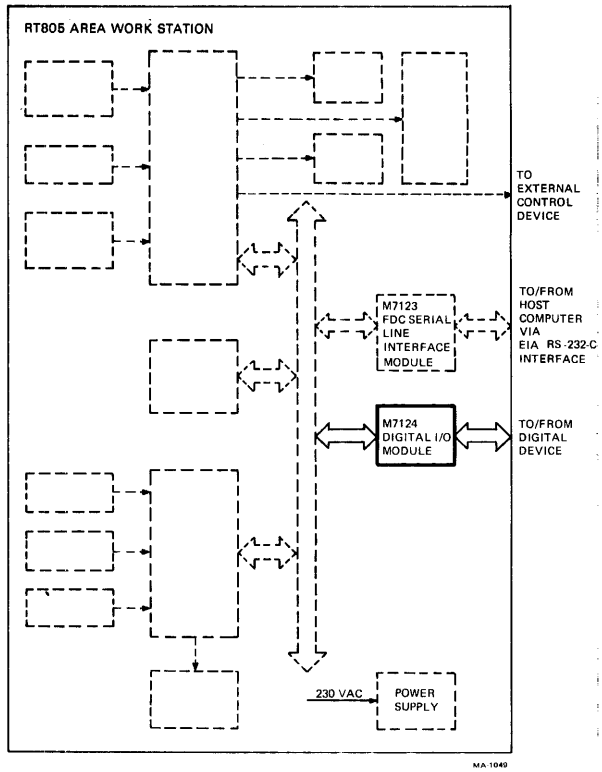


Figure 1-27 RT805-BA/BB (EIA RS-232-C) with XD (I/O) Option – Block Diagram

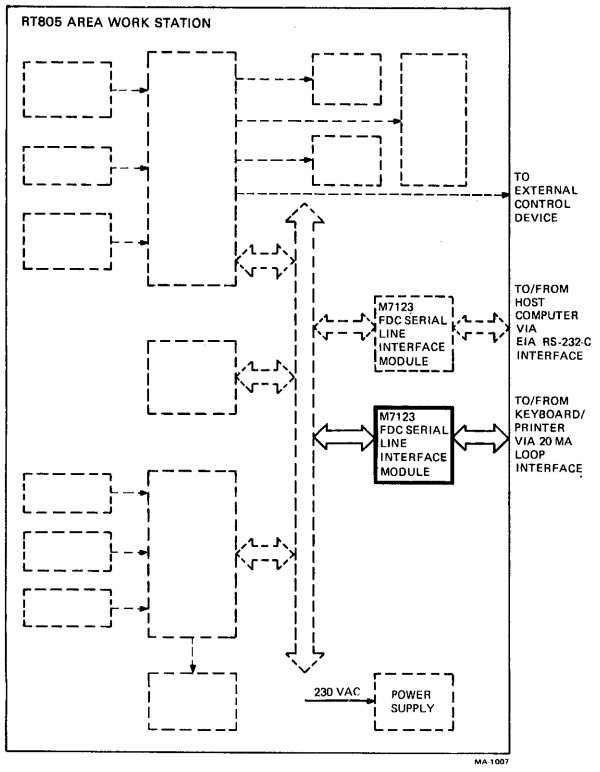


Figure 1-26 RT805-BA/BB (EIA RS-232-C) with XC (20 mA) Option – Block Diagram

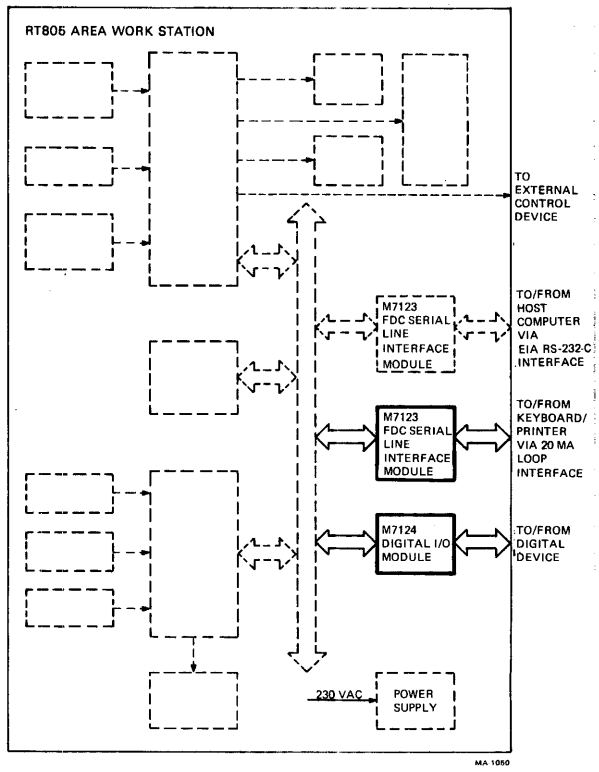
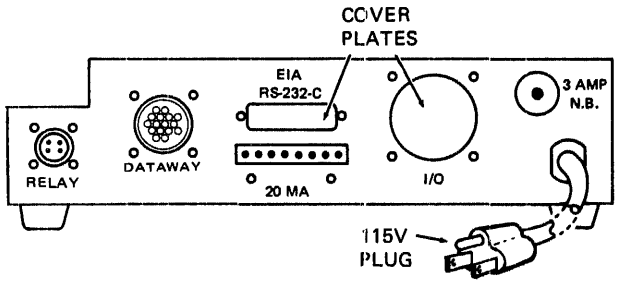
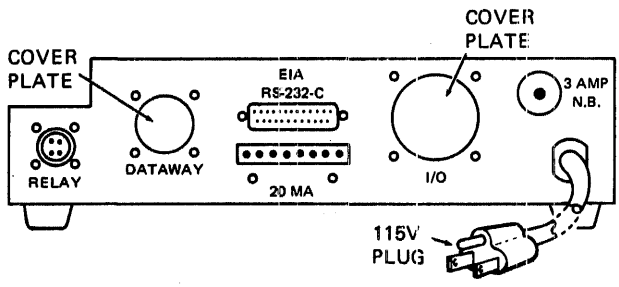


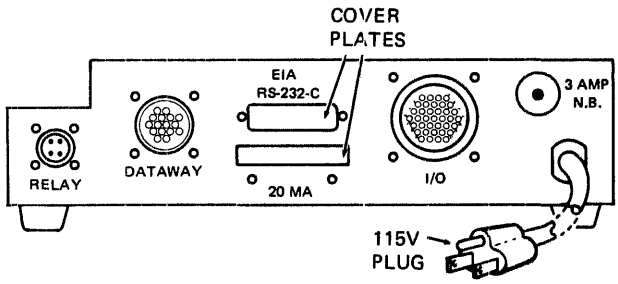
Figure 1-28 RT805-BA/BB (EIA RS-232-C) with XC (20 mA), XD (I/O) Options – Block Diagram



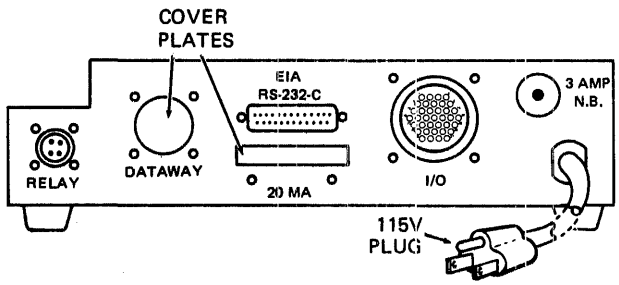
a. RT805-AA (DECdataway) with XC (20 mA) Option



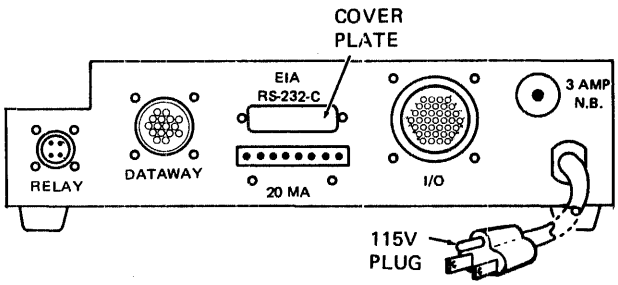
d. RT805-BA (EIA RS-232-C) with XC (20 mA) Option



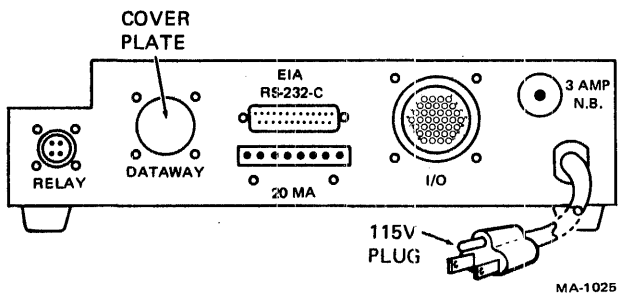
b. RT805-AA (DECdataway) with XD (I/O) Option



e. RT805-BA (EIA RS-232-C) with XD (I/O) Option

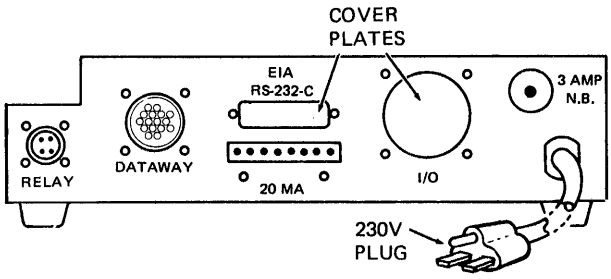


c. RT805-AA (DECdataway) with XC (20 mA), XD (I/O) Options

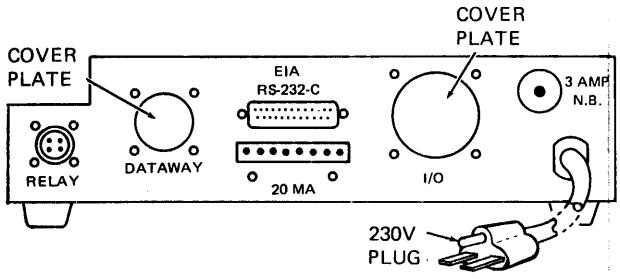


f. RT805-BA (EIA RS-232-C) with XC (20 mA), XD (I/O) Options

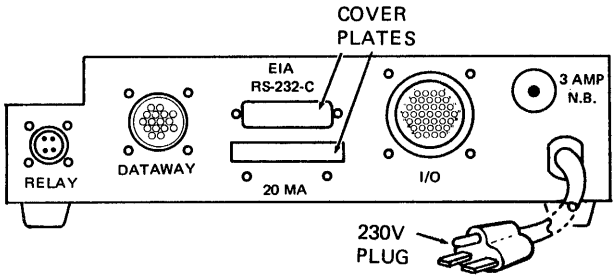
Figure 1-29 RT805 Option Model Connector Panel Configurations



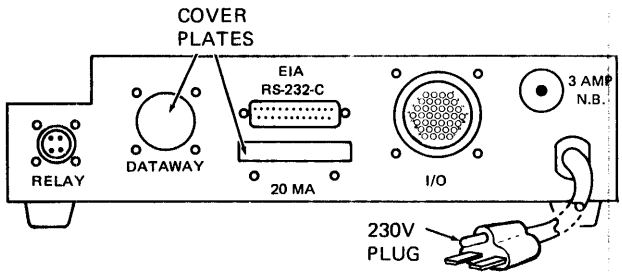
g. RT805-AB (DECdataway) with XC (20 mA) Option



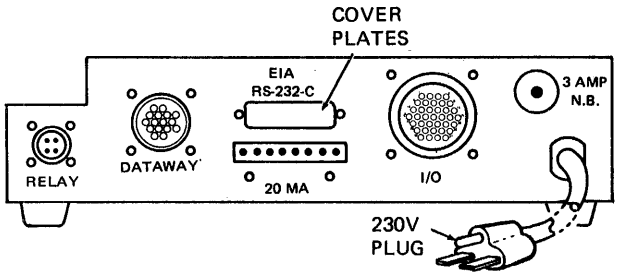
j. RT805-BB (EIA RS-232-C) with XC (20 mA) Option



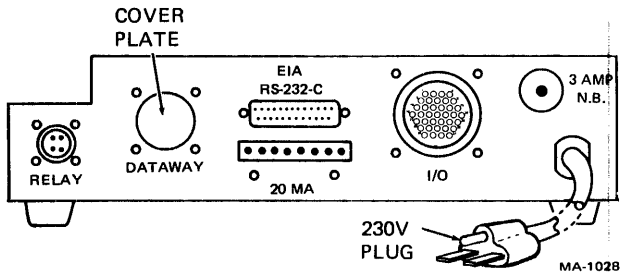
h. RT805-AB (DECdataway) with XD (I/O) Option



k. RT805-BB (EIA RS-232-C) with XD (I/O) Option



i. RT805-AB (DECdataway) with XC (20 mA), XD (I/O) Options



l. RT805-BB (EIA RS-232-C) with XC (20 mA), XD (I/O) Options

Figure 1-29 RT805 Option Model Connector Panel Configurations (Cont)

CHAPTER 2
INSTALLATION

2.1 GENERAL

Prior to user-installation of the terminals, DEC Field Service organization personnel will perform an acceptance procedure to ensure that all warranted equipment is operational after delivery. Upon completion of this procedure, the terminals are installed by the user and connected to the DECdataway or modem. The user also performs any optional connections, such as for the external control circuit, or RT805-XC/-XD options.

2.2 UNPACKING

During unpacking the contents of the shipping container should be compared to the enclosed shipping list and any discrepancies reported. The terminals should be unpacked only be a DEC Field Service representative. Any damage should be reported to the local DEC office and to the delivering carrier immediately.

2.3 RT80X-AA/AB DEC FIELD ACCEPTANCE PROCEDURE

1. After the terminal has been unpacked and checked for physical damage, verify items shipped per shipping list.

2. Connect the power cord to an AC power source and observe whether the terminal runs a power-up diagnostic sequence.

NOTE

Refer to Chapter 4 for use of terminal internal diagnostics.

3. Insert a key in the keyswitch and turn it to MAINT. Observe that the terminal restarts the diagnostic and runs without error.

NOTE

For RT801 terminals, non-intervention tests will exit to badge reader test 40; read 15 type 5 test badges to complete the test. For RT803 or RT805 terminals, non-intervention tests will exit to a mode of operator-selected tests (00 displayed); select and run all selectable tests in any order. For badge and card reader tests, which will cycle indefinitely until cancelled, read at least ten test documents of each type.

4. After all tests have been run at least once, perform the following to lock the terminal into the non-intervention tests for an extended run:

   a. Turn the keyswitch to NORMAL

   b. Turn the keyswitch to MAINT (to start the diagnostics)

   c. Turn the keyswitch immediately to SUPVR to lock the terminal into the non-intervention diagnostics.

5. Allow the terminal to cycle for at least 0.5 hour to allow internal temperature stabilization while performing acceptance procedures on other terminals.

6. Repeat step 3.

7. Turn the keyswitch to NORMAL and connect the terminal to the DPM host system using the DECdataway controller test cable (DEC Part No. 7014152).

8. Boot the RSX11-M test disk pack (Chapter 4), or use the diagnostic tasks with the user's software, and run MAINDEC-11-DZKCH and MAINDEC-11-DZKCI, error free for a minimum of 15 minutes each.

NOTE

The user's DECdataway cable may be used in place of the test cable, if convenient. If any problems occur, revert to using the test cable for terminal acceptance.

9. The terminal is now ready for user-installation. Should the user desire additional checkout (i.e., with the terminal in its final location) DEC Field Service personnel will perform such work at the currently prevailing per-call rates.

2.4 INSTALLATION PROCEDURE

2.4.1 Bench-Top Installation

Bench-top installation requires the supporting structure be adequate for the weight (Table 1-1) of the terminal. The terminal should not be installed near high-temperature equipment. Also, the terminal air intake and exhaust areas should be kept clear to provide for adequate cooling. The bench should not abut shock-producing equipment or machinery.

2.4.2 Wall-Mount Installation

1. Place protective padding on work surface.

2. Carefully tip terminal over on front panel.

3. Remove two 10-32 by 0.31 inch long socket head screws (Figure 2-1) and no. 10 internal tooth lockwashers securing wall mounting plate to terminal (via locking plate).

4. Remove wall mounting plate from terminal.

5. Locate wall mounting plate mounting holes on wall per Figure 2-2.

NOTE

Recommended distance from the uppermost holes in the wall mounting plate to the floor is 137 cm (54 in).

2.5 CABLE CONNECTIONS

2.5.1 External Control Circuit Cable Connections

Figure 2-3 is a schematic diagram of the external control circuit. Figure 2-4 illustrates user-fabricated cable details.

2.5.2 DECdataway Cable Connection

Connection to the DECdataway consists of connecting the DECdataway port plug to the DATAWAY connector (Figure 2-5) on the connector panel. Figure 2-5 illustrates how the DECdataway plug can be addressed per instructions listed in Table 2-1. Refer to DECdataway User's Guide (EK-ISB11-UG) for complete DECdataway installation procedures.

2.5.3 EIA RS-232-C Cable Connection

Connection to a modem consists of connecting a 25-pin connector to the EIA RS-232-C connector. Figure 2-6 illustrates connector pin designations, Figure 2-7 illustrates cable connection, and Table 2-2 lists connector signal assignments.

2.6 RT805 OPTIONS INSTALLATION

2.6.1 RT805-XC (20 mA Current Loop) Option Installation

Figure 2-8 shows the parts contained in the RT805-XC option kit. Figure 2-9 illustrates where the option is installed and Figure 2-10 illustrates RT805 option modules backplane slot assignments. Figure 2-11 depicts installation of the 20 mA current loop cable. The

RT805 must first be disassambled (Figure 2-12) prior to option module installation. Figure 2-13 illustrates how the baud rate is selected on the module per instructions listed in Table 2-3. Figure 2-14 illustrates 20 mA connector pin designations and Table 2-4 lists 20 mA connector signal assignments. Figure 2-15 illustrates 20 mA cable assembly details.

2.6.2 RT805-XD (Digital I/O) Option Installation

Figure 2-16 shows the parts contained in the RT805-XD option kit. Figure 2-17 illustrates where the option is installed and Figure 2-18 shows cable installation. The RT805 must first be disassembled per Figure 2-12 prior to option module installation. Figure 2-19 illustrates I/O connector pin designations and Table 2-5 lists I/O connector signal pin assignments. Figure 2-20 illustrates how the external user-fabricated I/O cable can be fabricated.

2.7 RT803/805 TRANSACTION SWITCHES INSTRUCTION INSERT FABRICATION

The RT803 and the RT805 instruction insert (Figures 1-10, 1-11, 2-21 and 2-22) is user-fabricated as follows:

1. Remove panel insert from pad.
2. Type Key nomenclature on panel insert.
3. Tear off panel insert along dotted line.
4. Remove panel insert cover from terminal.
5. Install panel insert on terminal.
6. Reinstall panel insert cover.

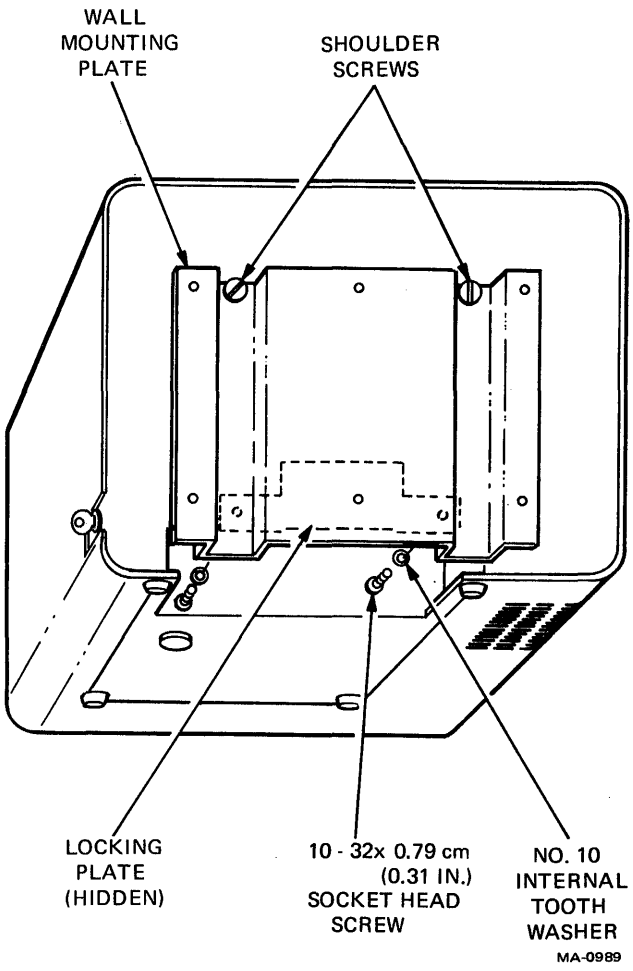


Figure 2-1 Wall-Mounting Hardware Details

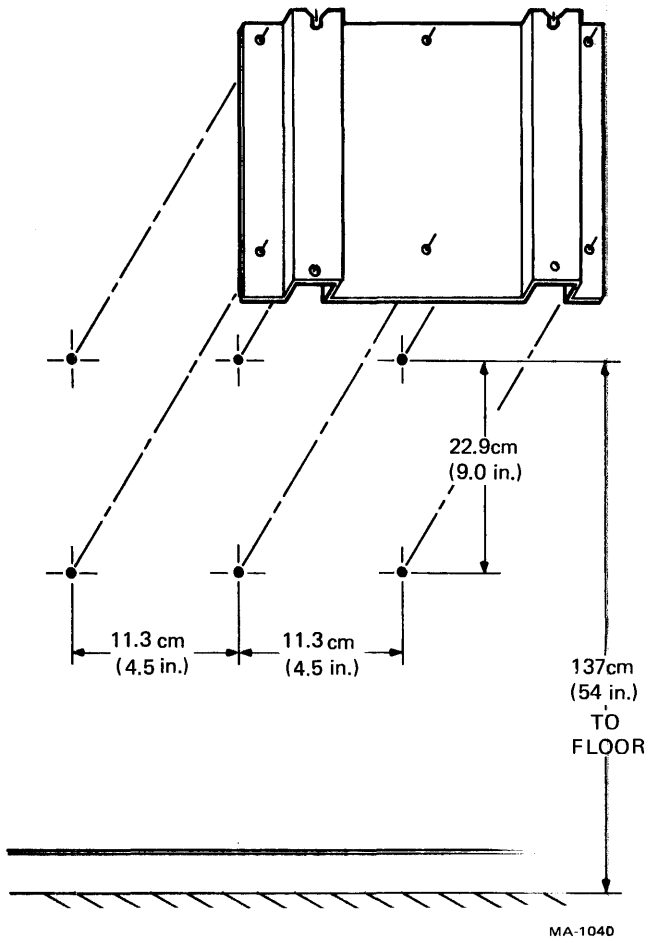


Figure 2-2 Wall-Mount Hole Location Data

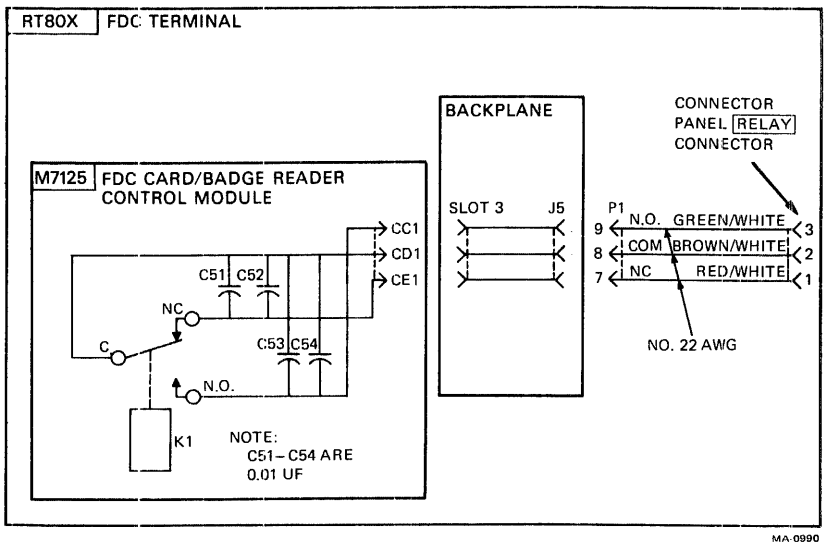


Figure 2-3 External Control Circuit – Schematic Diagram

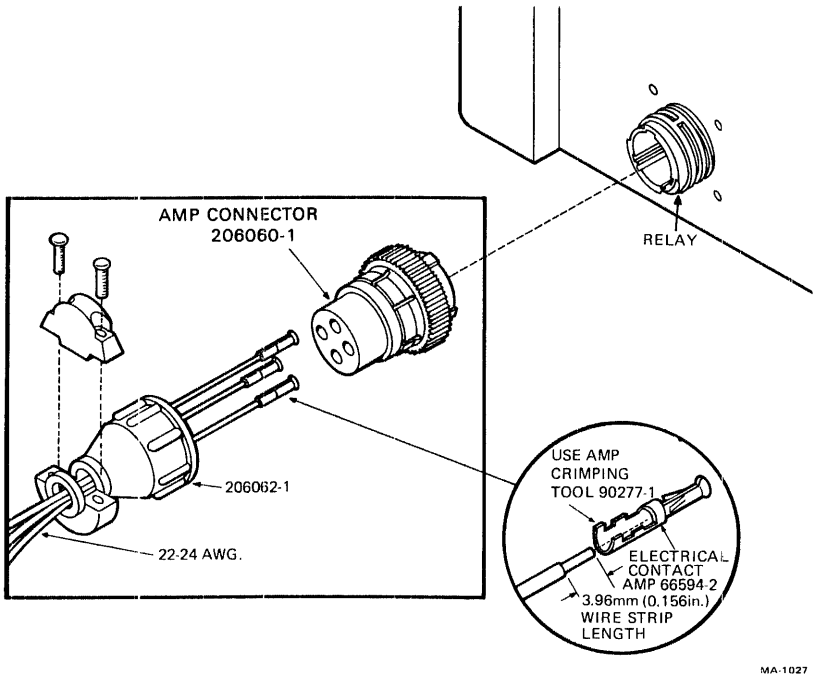


Figure 2-4 External Control Circuit Connector Details

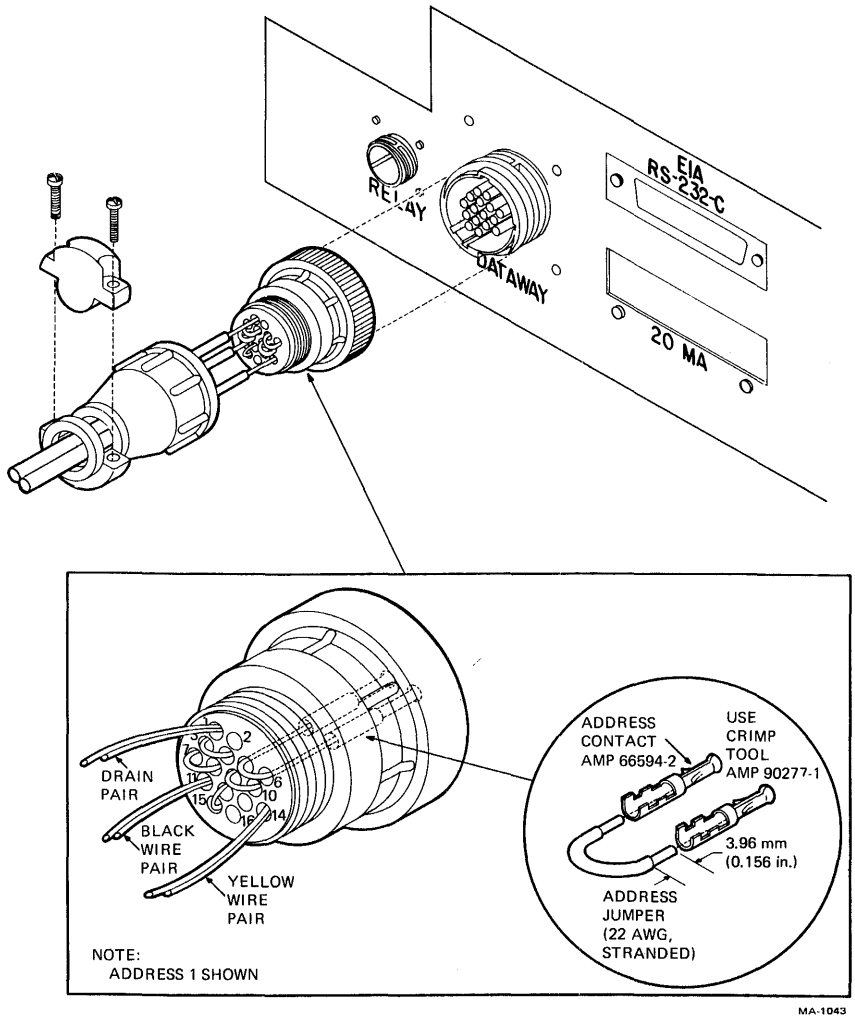


Figure 2-5 DECdataway Connector Addressing Details

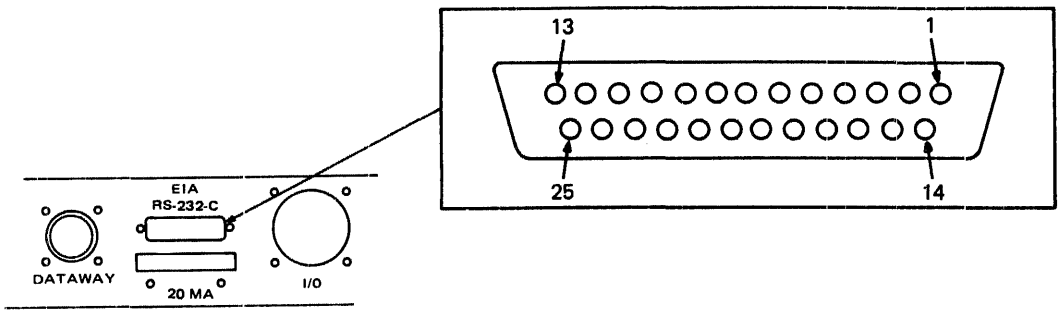


Figure 2-6 EIA RS-232-C Connector Pin Designations

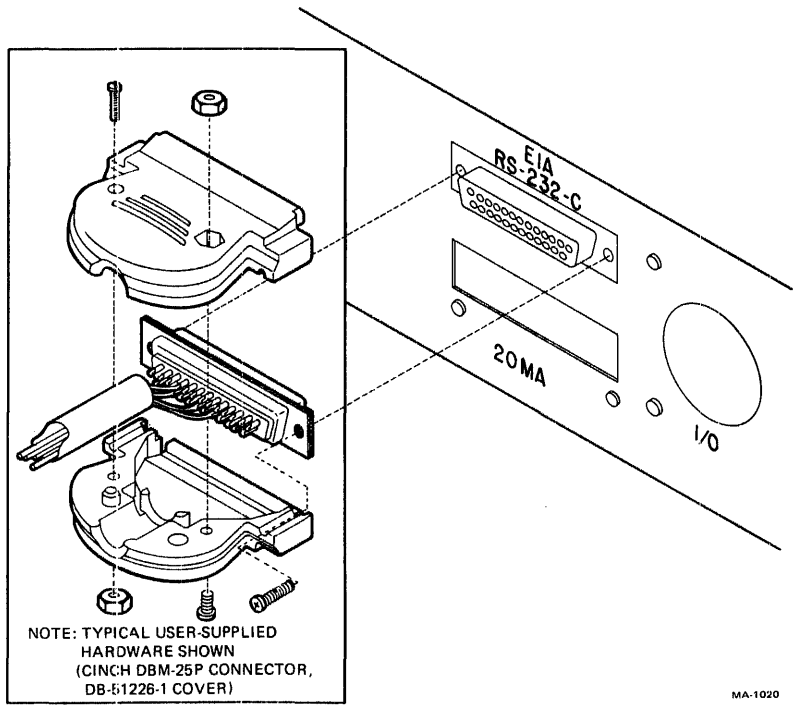


Figure 2-7 Typical EIA RS-232-C Cable Connection

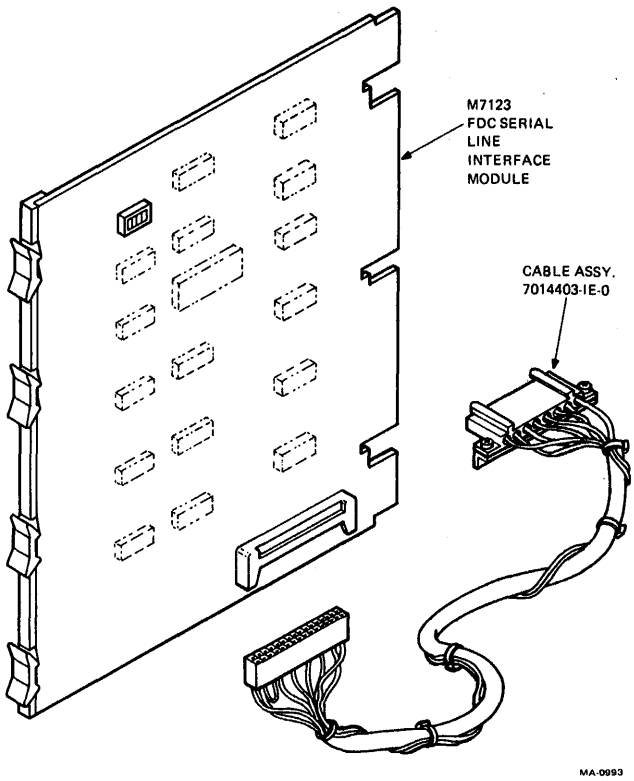


Figure 2-8 RT805-XC (20 mA Current Loop) Option Kit

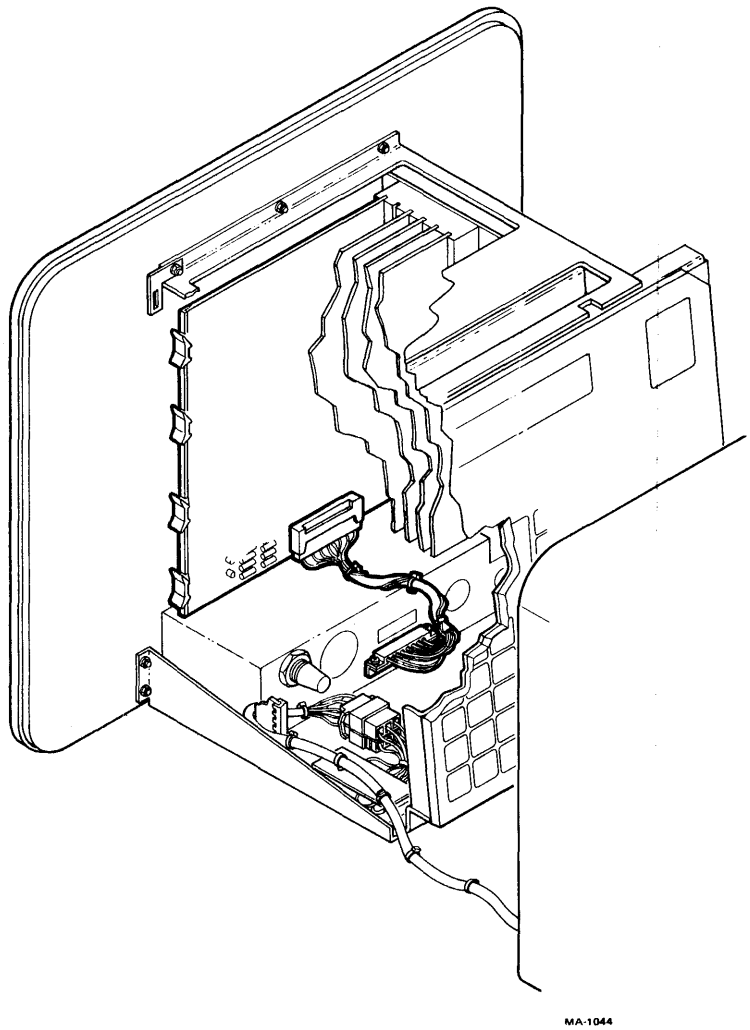


Figure 2-9 RT805-XC (20 mA Current Loop) Option Location

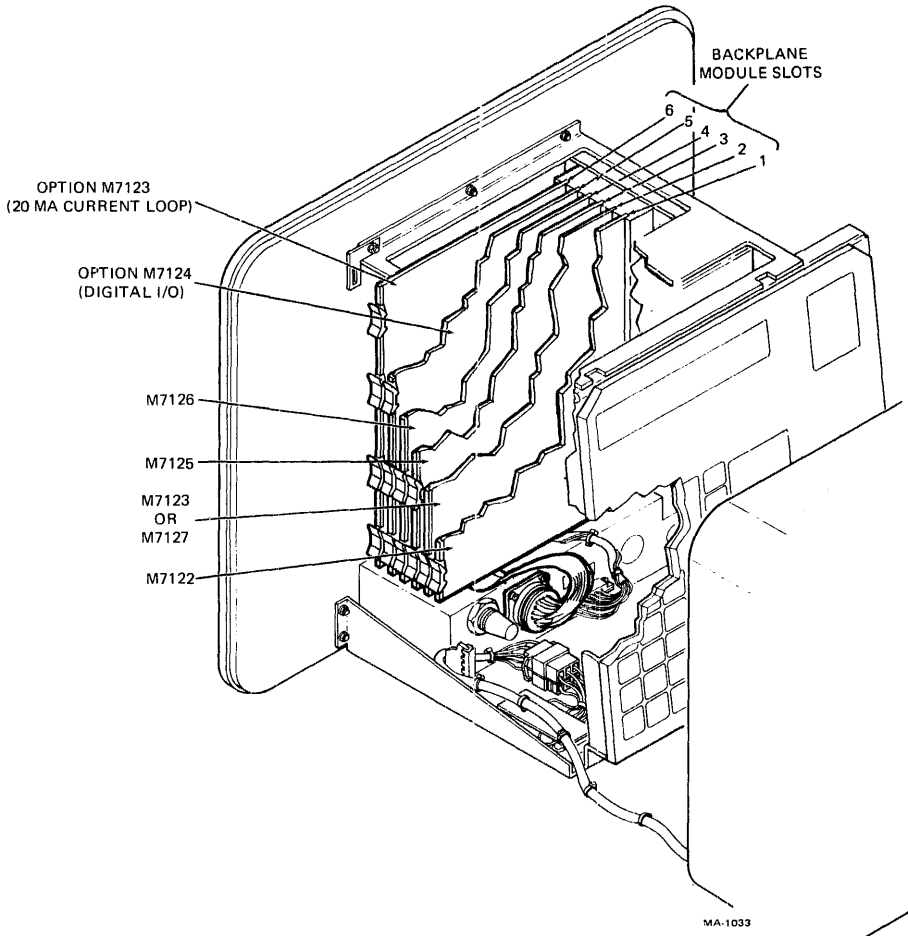


Figure 2-10 RT805 Option Modules Backplane Slot Assignments

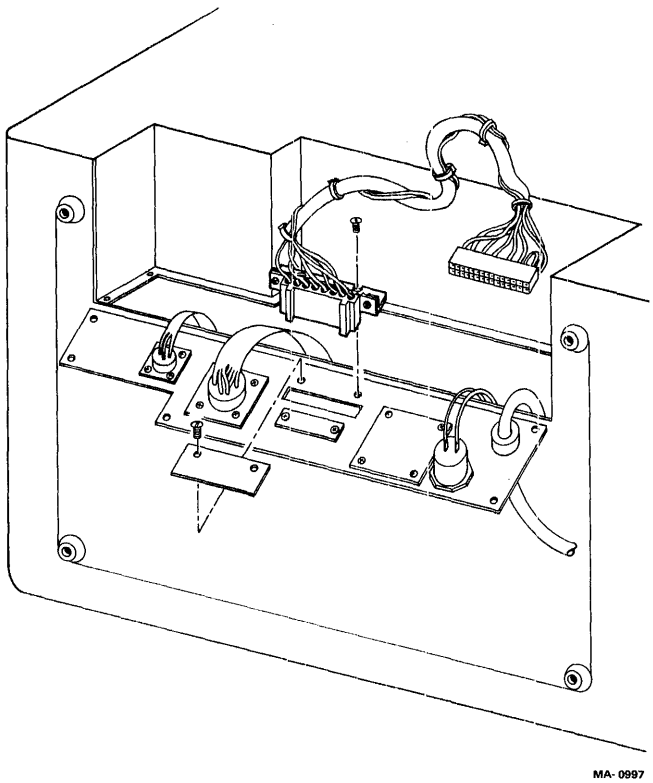


Figure 2-11 RT805-XC (20 mA Current Loop) Cable Installation

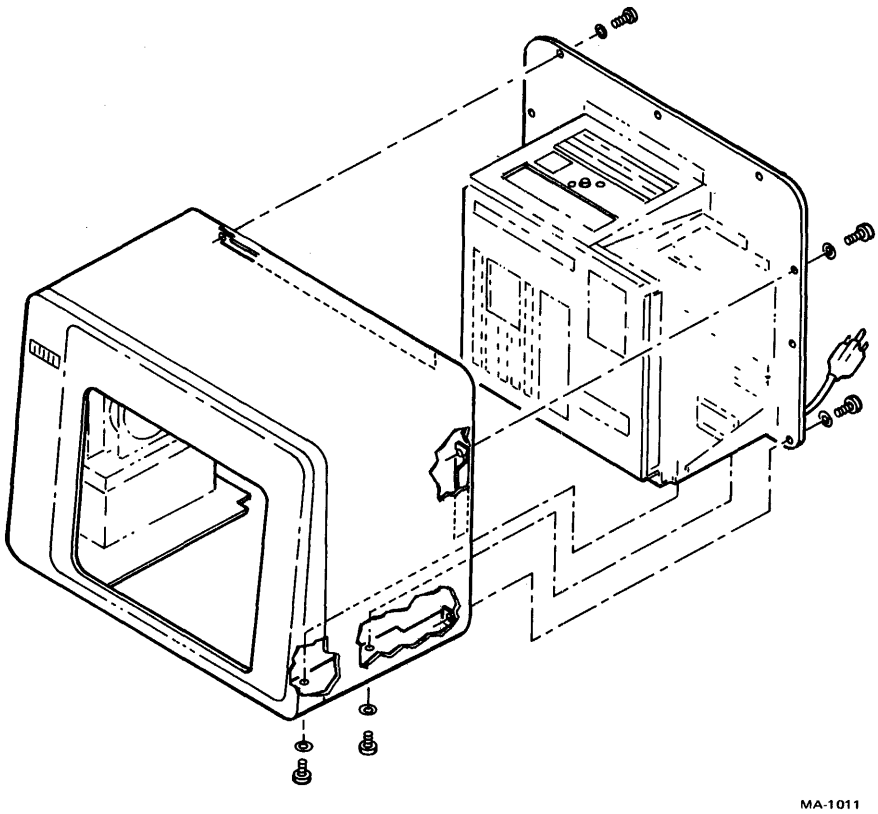


Figure 2-12 RT805 Disassembly for Option Modules Installation

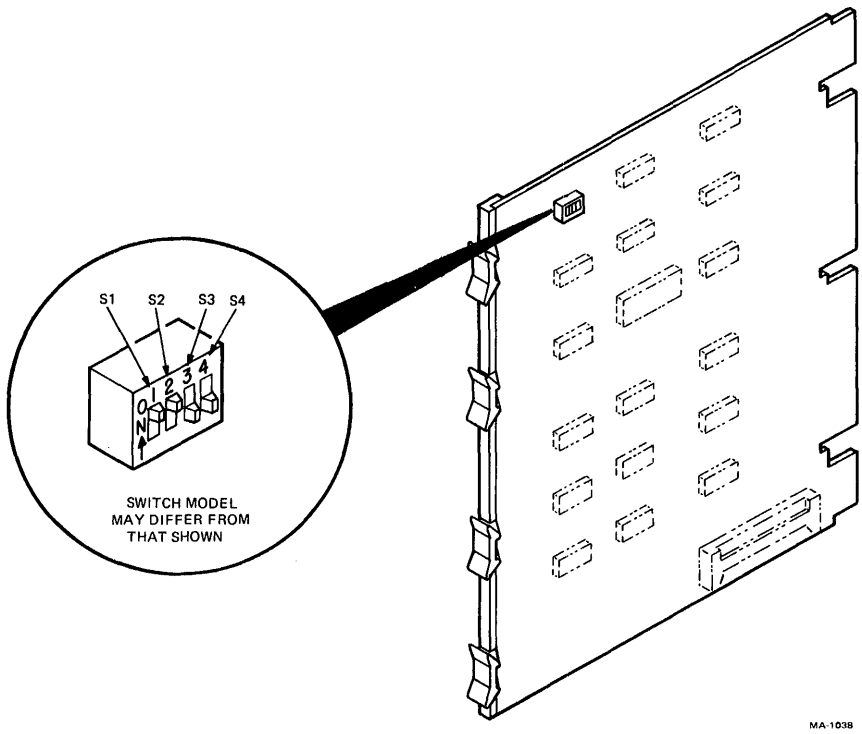


Figure 2-13 Baud Rate Switch Details

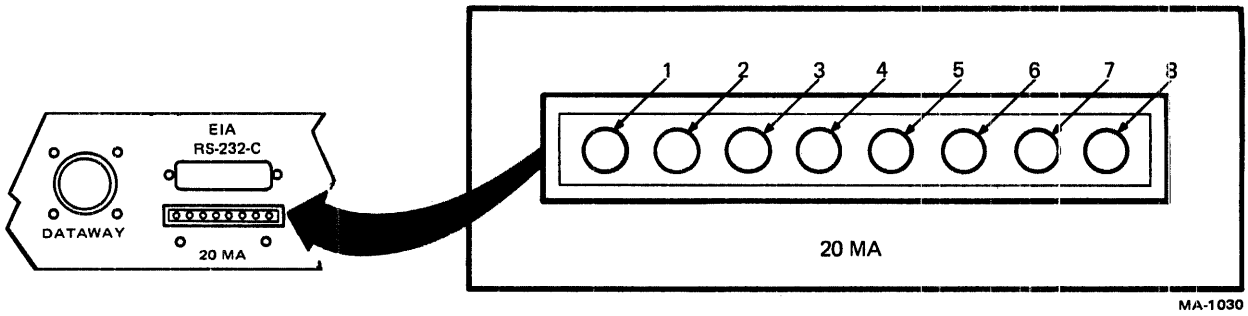


Figure 2-14 20 mA Connector Pin Designations

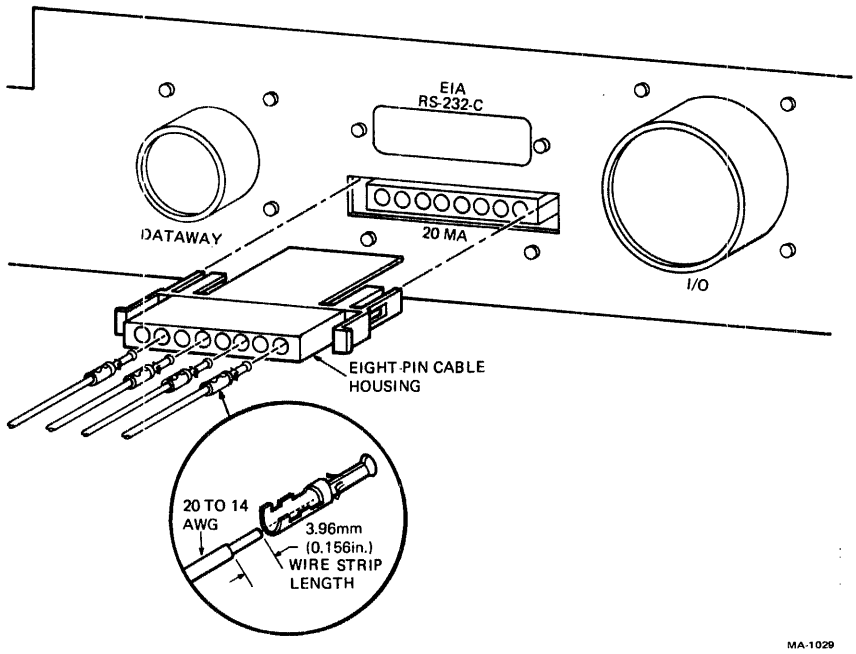


Figure 2-15 20 mA Cable Assembly Details

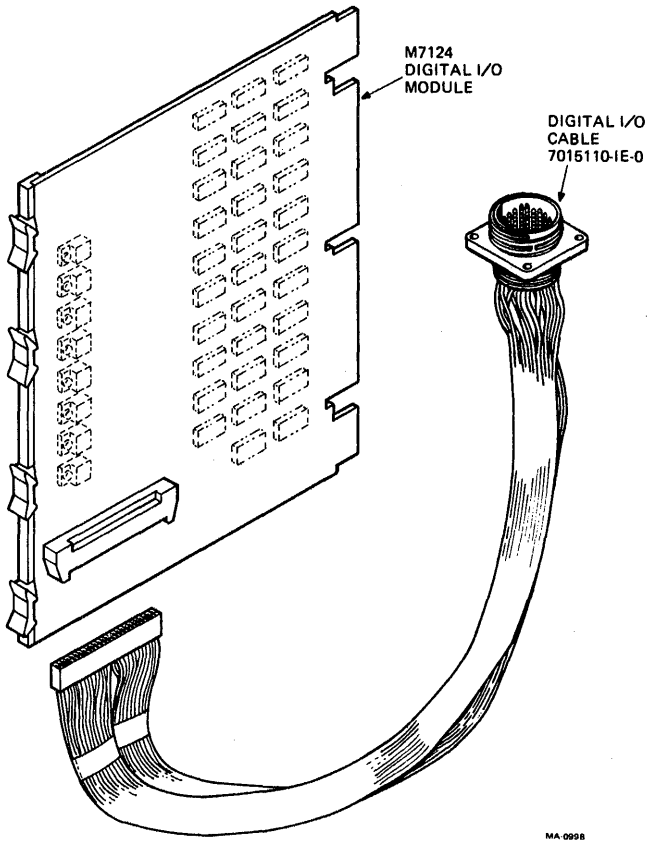


Figure 2-16 RT805-XD (Digital I/O) Option Kit

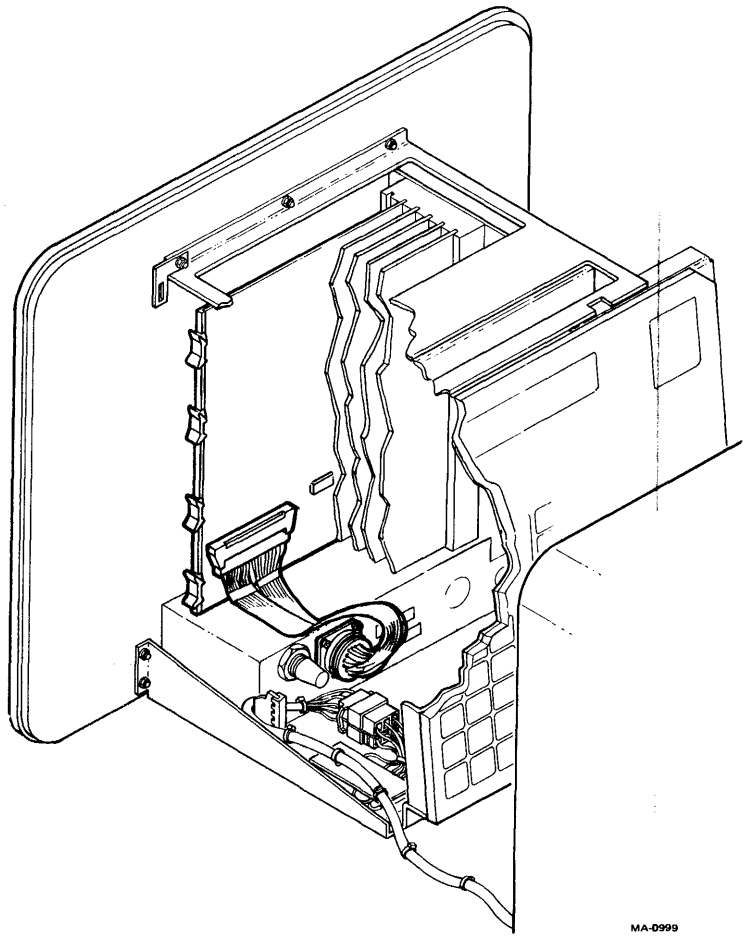


Figure 2-17 RT805-XD (Digital I/O) Option Location

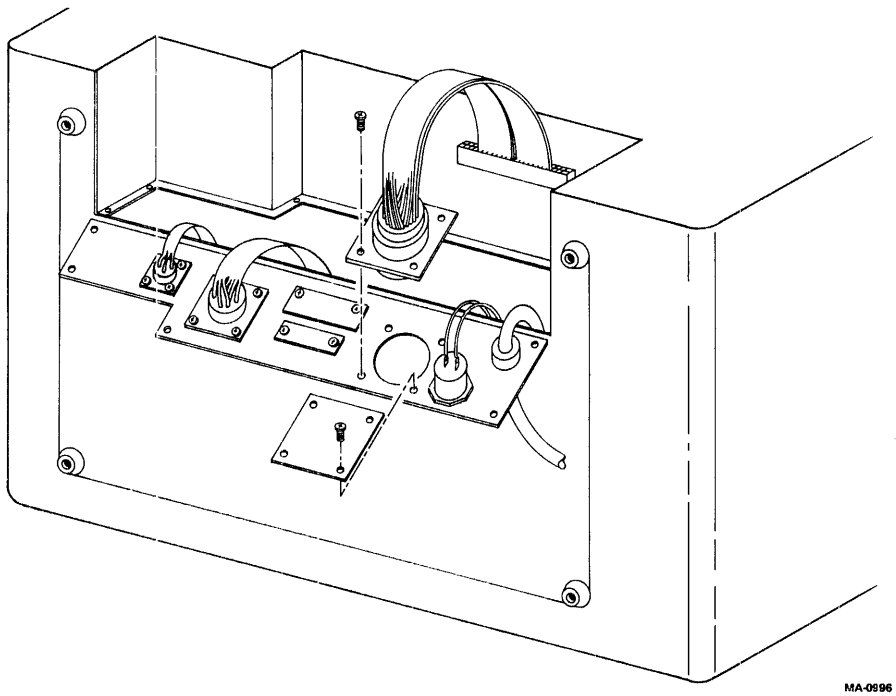


Figure 2-18 RT805-XD (Digital I/O) Cable Installation

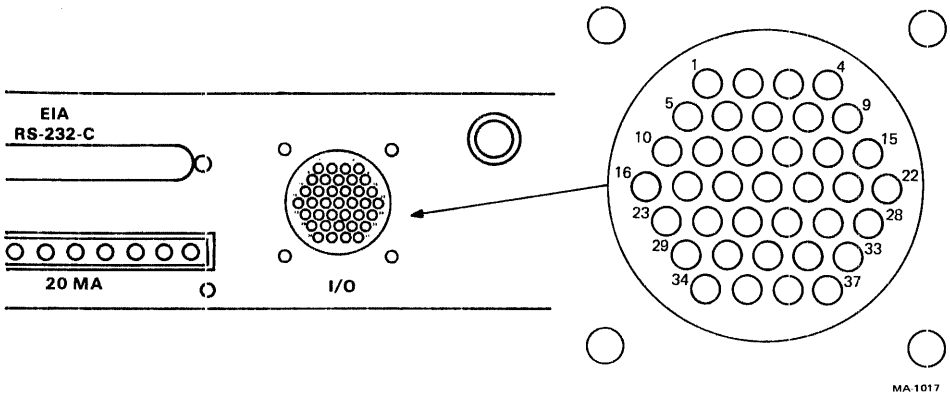


Figure 2-19 I/O Connector Pin Designations

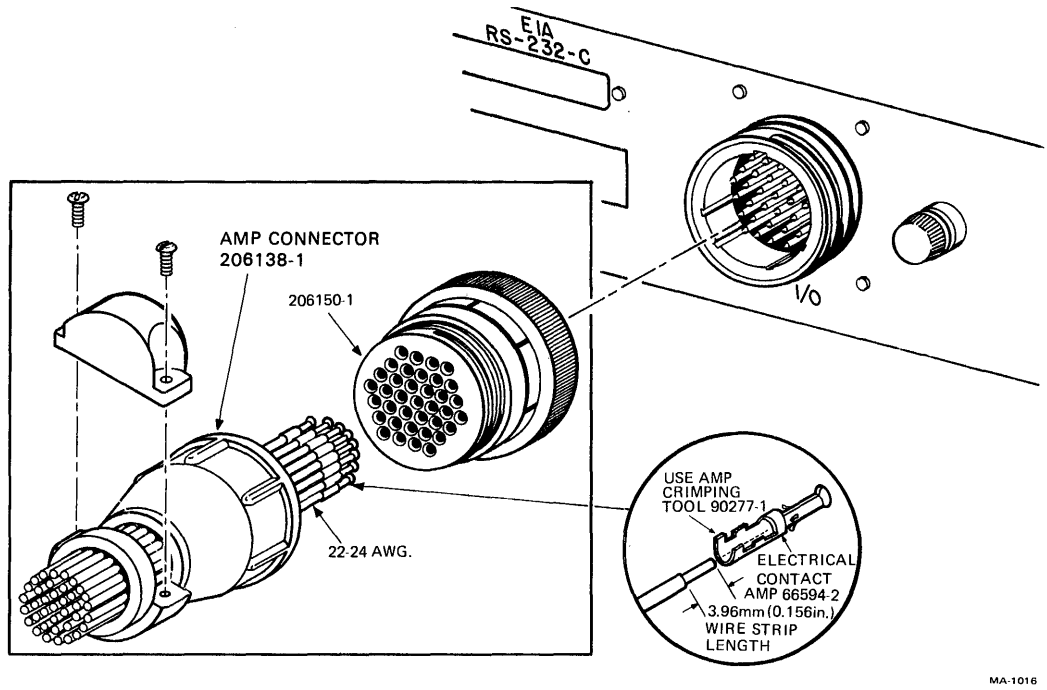


Figure 2-20 User-Fabricated I/O Cable Assembly Details

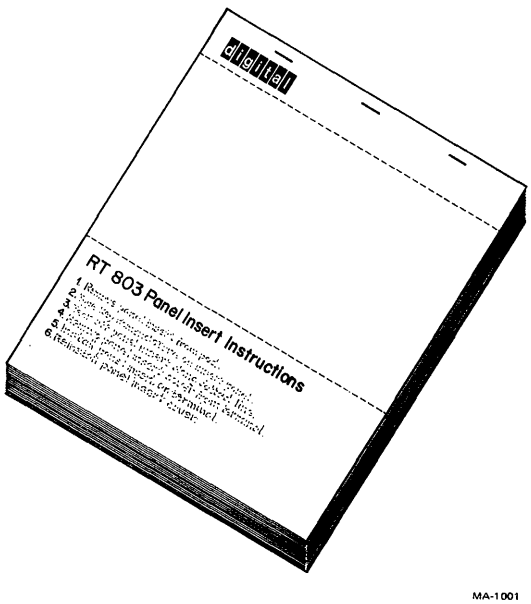


Figure 2-21 RT803 Panel Insert

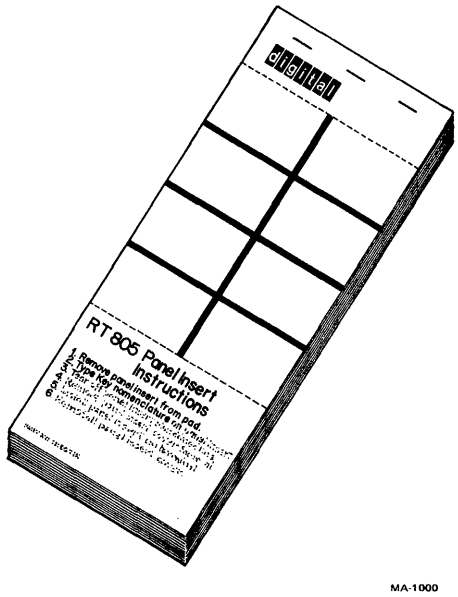


Figure 2-22 RT805 Panel Insert

Table 2-1 DECdataway Connector Addressing Data

Terminal Address		Address Jumper (Fig. 2-5) Connected Between Contacts	Terminal Address		Address Jumper (Fig. 2-5) Connected Between Contacts
Octal	Decimal		Octal	Decimal	
1	1	3&4, 5&6, 7&8, 9&10, 12&15	41	33	5&6, 7&8, 9&10, 12&15
2	2	3&4, 5&6, 7&8, 9&10, 13&16	42	34	5&6, 7&8, 9&10, 13&16
3	3	3&4, 5&6, 7&8, 9&10	43	35	5&6, 7&8, 9&10
4	4	3&4, 5&6, 7&8, 12&15, 13&16	44	36	5&6, 7&8, 12&15, 13&16
5	5	3&4, 5&6, 7&8, 12&15	45	37	5&6, 7&8, 12&15
6	6	3&4, 5&6, 7&8, 13&16	46	38	5&6, 7&8, 13&16
7	7	3&4, 5&6, 7&8	47	39	5&6, 7&8
10	8	3&4, 5&6, 9&10, 12&15, 13&16	50	40	5&6, 9&10, 12&15, 13&16
11	9	3&4, 5&6, 9&10, 12&15	51	41	5&6, 9&10, 12&15
12	10	3&4, 5&6, 9&10, 13&16	52	42	5&6, 9&10, 13&16
13	11	3&4, 5&6, 9&10	53	43	5&6, 9&10
14	12	3&4, 5&6, 12&15, 13&16	54	44	5&6, 12&15, 13&16
15	13	3&4, 5&6, 12&15	55	45	5&6, 12&15
16	14	3&4, 5&6, 13&16	56	46	5&6, 13&16
17	15	3&4, 5&6	57	47	5&6
20	16	3&4, 7&8, 9&10, 12&15, 13&16	60	48	7&8, 9&10, 12&15, 13&16
21	17	3&4, 7&8, 9&10, 12&15	61	49	7&8, 9&10, 12&15
22	18	3&4, 7&8, 9&10, 13&16	62	50	7&8, 9&10, 13&16
23	19	3&4, 7&8, 9&10	63	51	7&8, 9&10
24	20	3&4, 7&8, 12&15, 13&16	64	52	7&8, 12&15, 13&16
25	21	3&4, 7&8, 12&15	65	53	7&8, 12&15
26	22	3&4, 7&8, 13&16	66	54	7&8, 13&16
27	23	3&4, 7&8	67	55	7&8
30	24	3&4, 9&10, 12&15, 13&16	70	56	9&10, 12&15, 13&16
31	25	3&4, 9&10, 12&15	71	57	9&10, 12&15
32	26	3&4, 9&10, 13&16	72	58	9&10, 13&16
33	27	3&4, 9&10	73	59	9&10
34	28	3&4, 12&15, 13&16	74	60	12&15, 13&16
35	29	3&4, 12&15	75	61	12&15
36	30	3&4, 13&16	76	62	13&16
37	31	3&4	77	63	No Jumpers Used
40	32	5&6, 7&8, 9&10, 12&15, 13&16			

Notes

Address 0 is reserved for the system broadcast.

This pattern of physical addresses is duplicated for each DECdataway on a DPM system.

Table 2-2 EIA RS-232-C Connector Signal Pin Assignments

EIA RS-232-C Connector (Fig. 2-6) Pin	Signal
1	Chassis Ground
2	Data Out
3	Data In
4	Request to Send
5	Clear to Send
6	Data Set Ready
7	Signal Ground
20	Data Terminal Ready

Note
Pins 8–19, 21–25 are not used

Table 2-3 M7123 Module (20 mA Current Loop) Baud Rate Selection

Baud Rate (Bits/ Second)	Switch Setting				Baud Rate (Bits/ Second)	Switch Setting			
	S1	S2	S3	S4		S1	S2	S3	S4
50	On	Off	On	On	1200	Off	Off	On	Off
75	Off	Off	On	On	1800	On	Off	Off	On
110	Off	Off	Off	Off	2400	Off	Off	Off	On
134.5	On	On	Off	On	2400*	On	On	Off	Off
150	On	Off	Off	Off	4800	Off	On	On	Off
200	Off	On	Off	On	9600	On	On	On	Off
300	Off	On	Off	Off	External	On	On	On	On
600	On	Off	Off	On	External	Off	On	On	On

*There are two switch settings for 2400 bits/second

Table 2-4 20 mA Connector Pin Signal Assignments

20 mA Connector (Fig. 2-14) Pin	Signal
1	Ground (Logic)
2	Transmit –20 mA
3	Receive –20 mA
4	External –12 V
5	Transmit +20 mA
6	External Clock
7	Receive +20 mA
8	+5 V

Table 2-5 I/O Connector Pin Signal Assignments

I/O Connector (Fig. 2-19) Pin	Signal Name	Function	I/O Connector (Fig. 2-19) Pin	Signal Name	Function
1	Fld 00	Input Byte 0	20	Output Common	Ground Return For Outputs
2	Fld 01				
3	Fld 02		21	Output Common	(Connected Internally)
4	Fld 03				
5	Fld 04		22	Fld 20	Input Byte 2
6	Fld 05		23	Fld 21	
7	Fld 06		24	Fld 22	
8	Fld 07	Input Byte 0	25	Fld 23	
9	Fld 10	Input Byte 1	26	Fld 24	
10	Fld 11		27	Fld 25	
11	Fld 12		28	Fld 26	
12	Fld 13		29	Fld 27	Input Byte 2
13	Fld 14		30	Field 0	Output Byte
14	Fld 15		31	Field 1	
15	Fld 16		32	Field 2	
16	Fld 17	Input Byte 1	33	Field 3	
17	Fld Sync L	"Low" Enables Input Latch	34	Field 4	
			35	Field 5	
18	(Not Used)		36	Field 6	
19	Input Common	Ground Return For Inputs	37	Field 7	Output Byte

CHAPTER 3
OPERATOR'S GUIDE

3.1 CONTROLS AND INDICATORS

Tables 3-1 and 3-2 describe RT801 and RT803 controls and indicators illustrated in Figures 3-1 through 3-3. RT805 controls and indicators, illustrated on Figures 3-2 and 3-4, are similar to those of the RT803 except for the following:

1. Eight transaction switches versus only one on the RT803
2. A type 5 badge reader
3. Two additional guidance indicators:
   a. →: A white illuminated arrow that directs the operator's attention to the type 5 badge reader
   b. BADGE: A white illuminated BADGE indicator that prompts the operator to insert a badge in the type 5 badge reader being pointed out by the white illuminated arrow.

Table 3-1 RT801 Controls and Indicators

Control or Indicator	Description
Time-of-Day display (Figure 3-1)	4-digit display that indicates 24-hour time in hours and minutes. Is updated periodically by a host computer task. Red characters on a black background.
Guidance Indicators (Figure 3-1)	Guide operator in use of the badge reader.
READY	Indicates that terminal is ready to accept a badge input. READY will go off when badge is fully inserted.
WAIT	Cues next badge holder not to insert a badge until previous badge data has been processed. When WAIT goes off, READY will normally go on next. WAIT does not go on when operator-generated fault condition exists.
ERROR	Cues badge holder that operator-generated fault condition exists (i.e., badge inserted backwards, upside down, or not removed smoothly) and that badge must be reinserted.
Badge Reader (Figure 3-1)	Reads type 5 badges for transmission to host computer.
Key Switch (Figure 3-1)	Key-operated switch. Can be set by key to NORMAL, MAINT, or SUPVR. Key can be removed only from NORMAL switch position.
MAINT	Switch position used to initiate terminal testing via ROM-resident diagnostics.
NORMAL	Switch position for normal terminal use.
SUPVR	Switch position used by supervisory personnel to qualify special user-defined tasks or for continuously cycling through diagnostics.

Table 3-2 RT803 Controls and Indicators

Control or Indicator	Description
Display (Figure 3-3)	32-character alphanumeric display. Orange characters on a black background. Displays 24-hour time (in hours and minutes), operator-prompting messages, or operator-generated data. Data is displayed left justified.
Transaction Switch (Figure 3-3)	White illuminated switch used by employee to initiate a transaction. When pressed, the displayed time will typically be blanked and will typically be replaced by an operator-prompting request for a transaction code input (via the keypad).
Transaction Switch Instruction Insert (Figure 3-3)	User-fabricated transaction codes instruction.
Keypad Switches (Figure 3-3)	Twelve non-illuminating, blue switches used by employee to enter data in terminal. Keypad usage is indicated on the display after transaction switch is pressed. 1 Cardinal number one 2 Cardinal number two 3 Cardinal number three 4 Cardinal number four 5 Cardinal number five 6 Cardinal number six 7 Cardinal number seven 8 Cardinal number eight 9 Cardinal number nine 0 Cardinal number zero . Decimal point – Minus sign
Function Keys (Figure 3-3)	One green (SEND) and four red (RESET ERROR, ERASE CHAR, ERASE ENTRY, CANCEL) keys used by employee to input data to the terminal.
SEND	When the employee has made an entry via the keypad, pressing the green SEND key will complete the transaction and send the data to the host computer. The data input generated by use of the keypad will appear on the display until the SEND key is used, after which time the terminal will return to the idle mode and resume displaying time.
RESET ERROR	Illuminates red to indicate operator-generated error was made. RESET ERROR will go off when RESET ERROR or CANCEL is pressed.
ERASE CHAR	Used by operator to erase last character generated via keypad.
ERASE ENTRY	Used by operator to erase entire input that was generated via the keypad.
CANCEL	Used to cancel transaction. CANCEL can be pressed when operator decides to cancel the complete transaction. Pressing CANCEL returns terminal to the idle mode with time being displayed. Pressing CANCEL, when in a card reading mode, will reverse the reader motor and cause the badge or card to be ejected.

Table 3-2 RT803 Controls and Indicators (Cont)

Control or Indicator	Description
Lamp Test Switch (Figure 3-3)	Black, non-illuminating switch used to test all indicator lamps. When pressed all indicators illuminate at a reduced level. If the key switch is set to MAINT, use of the lamp test switch will reverse the card reader motor (used to clear out jammed cards).
Guidance Indicator Lights (Figure 3-3)	Eight white-illuminating backlit indicators (one red) that prompt operator in the use of the terminal.
ENTRY ACCEPT	ENTRY ACCEPT illuminates white to typically inform operator that a valid data entry (i.e,, card/badge, keypad, etc.) was performed by the operator.
KEYBOARD	KEYBOARD illuminates white to prompt operator to enter data via the keyboard.
READY	READY illuminates white to inform the operator that the terminal is ready to accept a card or badge input.
WAIT	WAIT illuminates white to inform the operator to wait before inserting another card/badge.
ERROR	ERROR illuminates red to inform the operator that a card or badge has been incorrectly inserted or that punches on a card are improperly justified.
→	Arrow illuminates white, pointing to the card/badge reader that the operator must use for a data entry.
BADGE	Illuminates white to prompt operator to insert a type 3 badge in the card/badge reader.
TICKET	Illuminates white to prompt operator to insert a 22-column ticket (stub card) in the card/badge reader.
CARD	Illuminates white to prompt operator to insert an 80- column punched card in the card/badge reader.
Keyswitch (Figure 3-2)	Key-operated switch. Can be set by key to NORMAL, MAINT, or SUPVR. Key can be removed only from NORMAL position.
MAINT	Switch position used by maintenance personnel to initiate terminal testing via ROM-resident diagnostics.
SUPVR (Figure 3-2)	Switch position used by supervisory personnel to initiate special user-defined tasks.
NORMAL (Figure 3-2)	Switch position used when terminal is functioning in the normal mode.

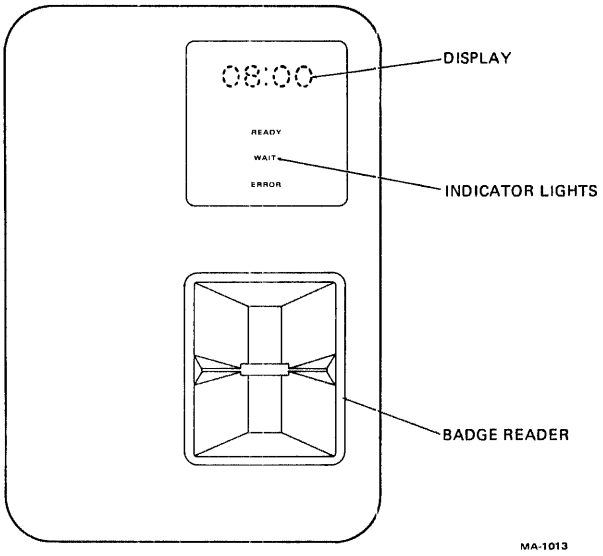


Figure 3-1 RT801 Controls and Indicators

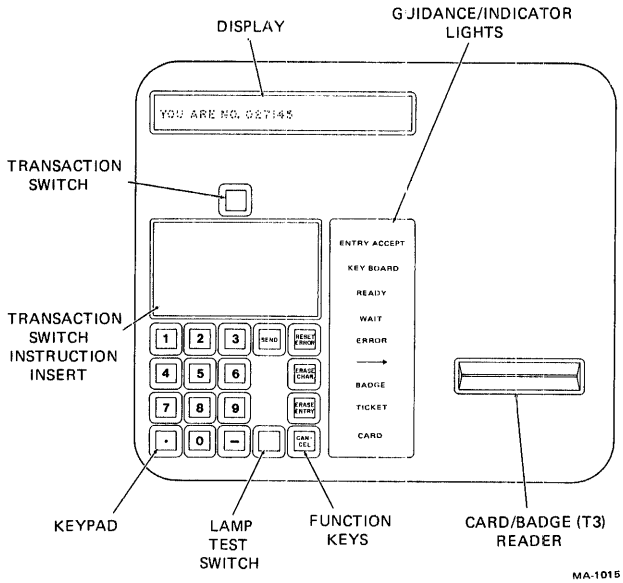


Figure 3-3 RT803 Controls and Indicators

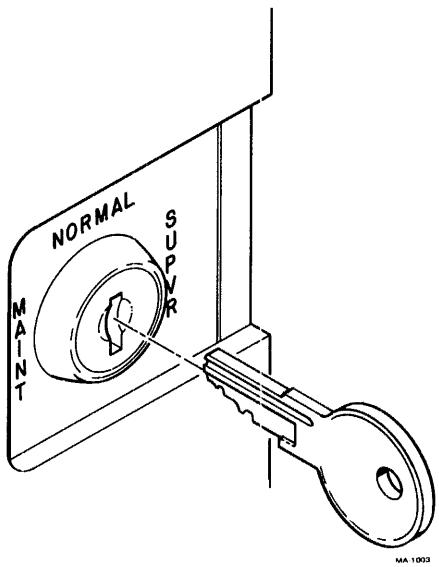


Figure 3-2 RT801/RT803/RT805 Keyswitch

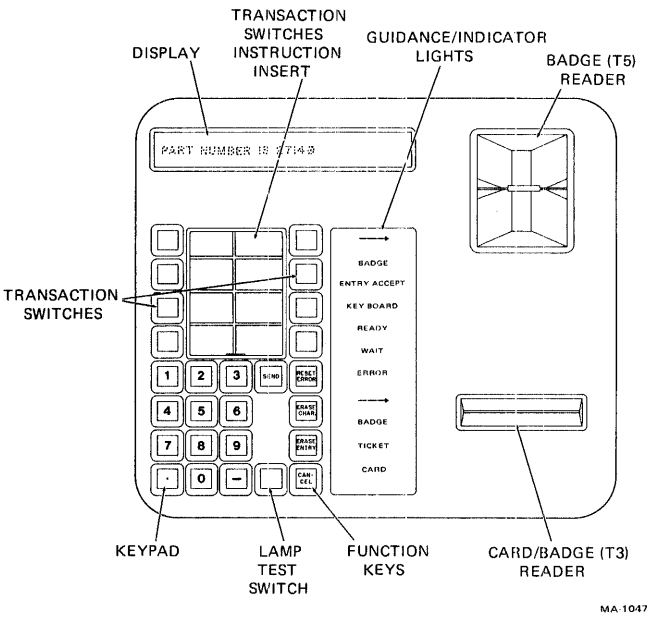


Figure 3-4 RT805 Controls and Indicators

3.2 OPERATING PROCEDURES

Because operating procedures are user-defined and can therefore cover a broad area, only typical procedures are presented here.

3.2.1 Turn-On/Turn-Off Procedure

Turn-on/turn-off of the RT801, RT803, and RT805 consists of connecting the power cable to, or disconnecting it from the ac power source; there is no power switch.

3.2.2 Typical RT801 Operating Procedure

Figure 3-5 illustrates a typical RT801 operating procedure.

3.2.3 Typical RT803 Operating Procedure

Figure 3-6 illustrates a typical RT803 operating procedure.

3.2.4 Typical RT805 Operating Procedure

Figure 3-7 illustrates a typical RT805 operating procedure.

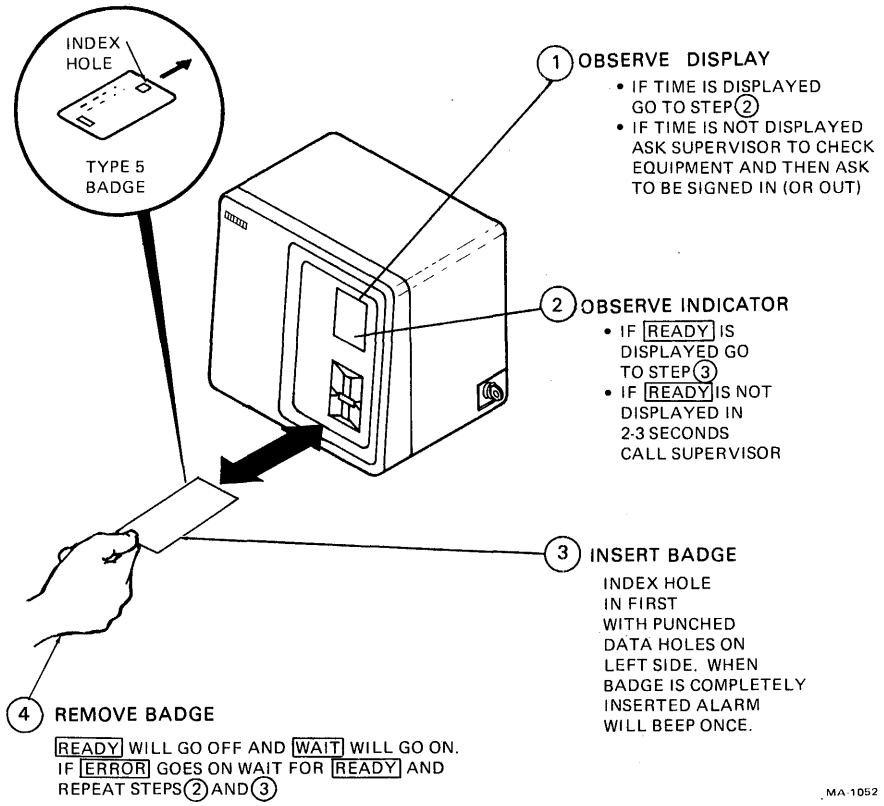


Figure 3-5 Typical RT801 Operating Procedure

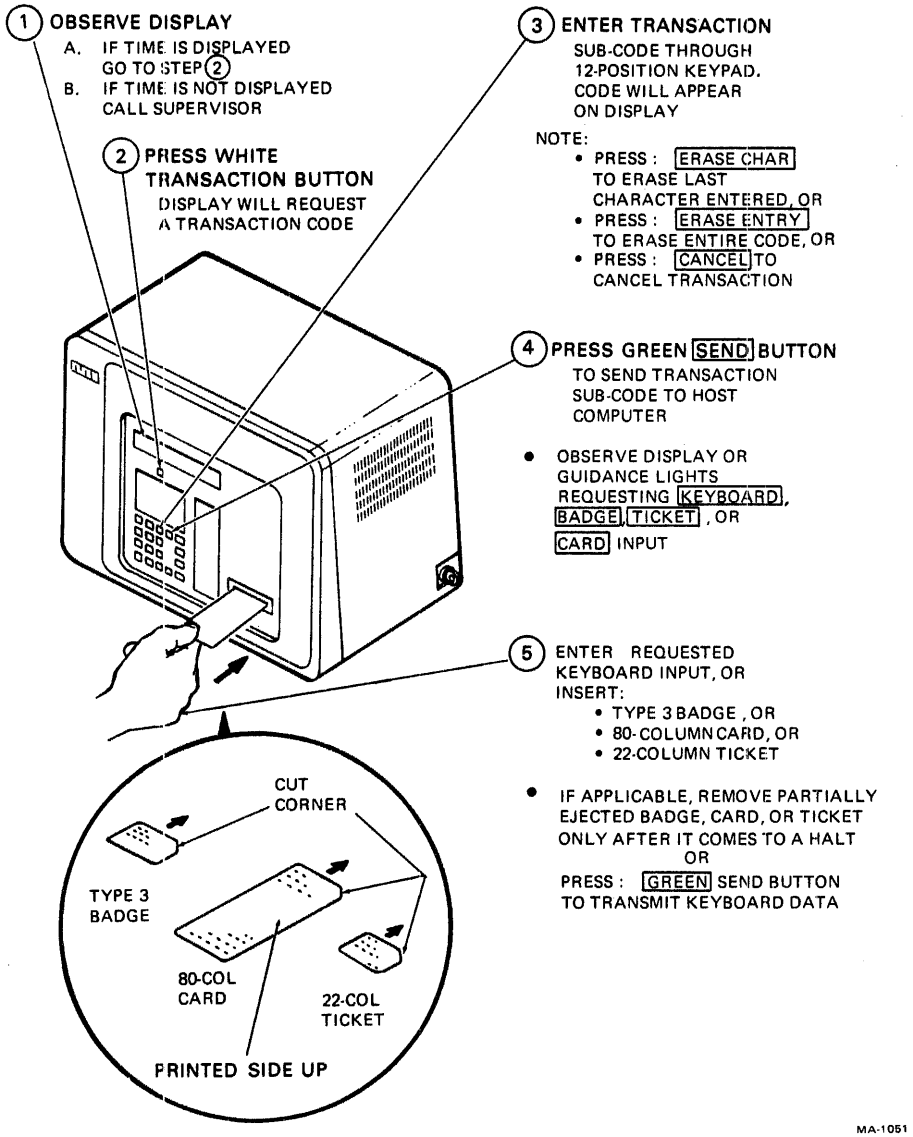
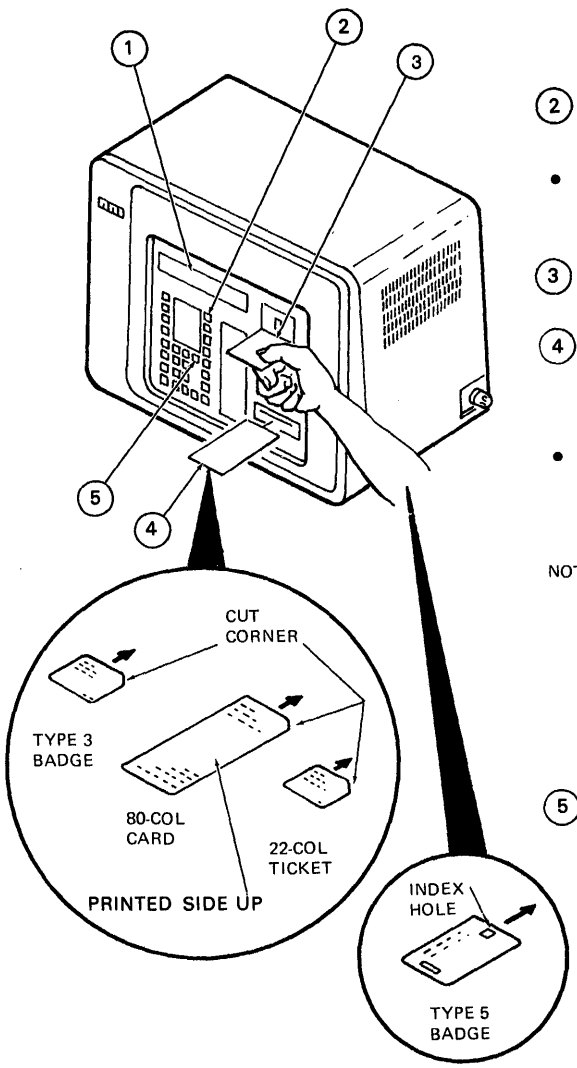


Figure 3-6 Typical RT803 Operating Procedure



(1) OBSERVE DISPLAY

A. IF TIME IS DISPLAYED GO TO STEP (2)
B. IF TIME IS NOT DISPLAYED CALL SUPERVISOR

(2) SELECT AND PRESS

A TRANSACTION KEY

- OBSERVE DISPLAY OR GUIDANCE LIGHTS REQUESTING KEYBOARD, BADGE, TICKET OR CARD INPUT

(3) INSERT AND THEN REMOVE

A TYPE 5 BADGE

(4) INSERT

AN 80 COLUMN CARD AND REMOVE IT UPON EJECTION ONLY AFTER IT COMES TO A HALT

- **OBSERVE DISPLAY**

REQUESTING DATA AND THEN ENTER DATA (e.g. NO. OF PIECES) USING KEYPAD

NOTE:

- PRESS : [ERASE CHAR] TO ERASE LAST CHARACTER ENTERED, OR
- PRESS : [ERASE ENTRY] TO ERASE ENTIRE CODE, OR
- PRESS : [CANCEL] TO CANCEL TRANSACTION

(5) PRESS GREEN [SEND] BUTTON

TO SEND DATA TO HOST COMPUTER

MA-1045

Figure 3-7 Typical RT805 Operating Procedure

CHAPTER 4
MAINTENANCE

4.1 GENERAL

This chapter consists of maintenance procedures based on running the terminal internal diagnostics and replacing field replaceable units (FRU). Appendix A describes the FDC addendum service policy that facilitates terminal repair.

4.2 PREVENTIVE MAINTENANCE

Preventive maintenance on the terminals consists of cleaning the card and badge readers, checking two adjustments on the card reader of the RT803 and RT805, and verifying terminal operation with the internal diagnostics. No maintenance schedule is defined. Instead, these tasks should be performed each time a terminal is opened for service. For details on reader cleaning and adjustment, refer to the reader manuals supplied with each terminal.

4.3 SWITCH SETTING CHECKS

Switch setting checks consist of checking all switch settings to ensure that a replacement module or power supply is correctly configured for terminal compatibility. This includes setting of the normal/single-step switch, a baud rate selector switch, terminal identification switches, a 115/230 V switch, and also the terminal over temperature switch.

4.3.1 Normal/Single-Step Switch

The normal/single-step switch, which is only used for factory test of modules, is located on the M7122 microcontroller module (Figure 2-10). *For normal operation, the switch (Figure 4-1) must be set so the white dot does not show.*

4.3.2 Baud Rate Switch (Figure 2-13)

The baud rate switch is located on the M7123 FDC serial line interface module. Figure 2-13 shows the location of the switch and Table 2-3 lists baud rates versus switch settings.

4.3.3 Terminal Identification Switch Pack

The terminal identification switch pack is located on the FDC card/badge reader control module M7125 (Figure 2-10). This switch is shown on Figure 4-2.

The switch pack is set differently for each type of terminal. Switches SW1 and SW2 identify the terminal type to the terminal control program and they must be set whenever an M7125 is replaced. Switches SW3 and SW4 (Figure 4-2) are used to disable the card or badge reader circuitry when a card or badge reader is not installed, such as on the RT801 and RT803. Table 4-1 shows switch settings for all three types of terminal.

When terminal internal diagnostics are run, test 20 displays the terminal type set by SW1 and SW2. Switch SW3, when ON, disables the type 5 badge reader circuitry. Switch SW4, when ON, disables the combination card/type 3 badge reader circuitry.

4.3.4 115/230 V Switch

The terminal power supply contains a 115/230 V selector switch (Figure 4-3). This switch must be set in accordance with the voltage listed on the electrical data plate (Figure 1-13).

4.3.5 Terminal Over Temperature Switch

Figure 4-4 shows the location of the terminal over temperature switch that should be checked before a terminal is reassembled. The switch does not indicate an over temperature condition. The switch must be pressed to be reset. The operation of both heat exchanger fans

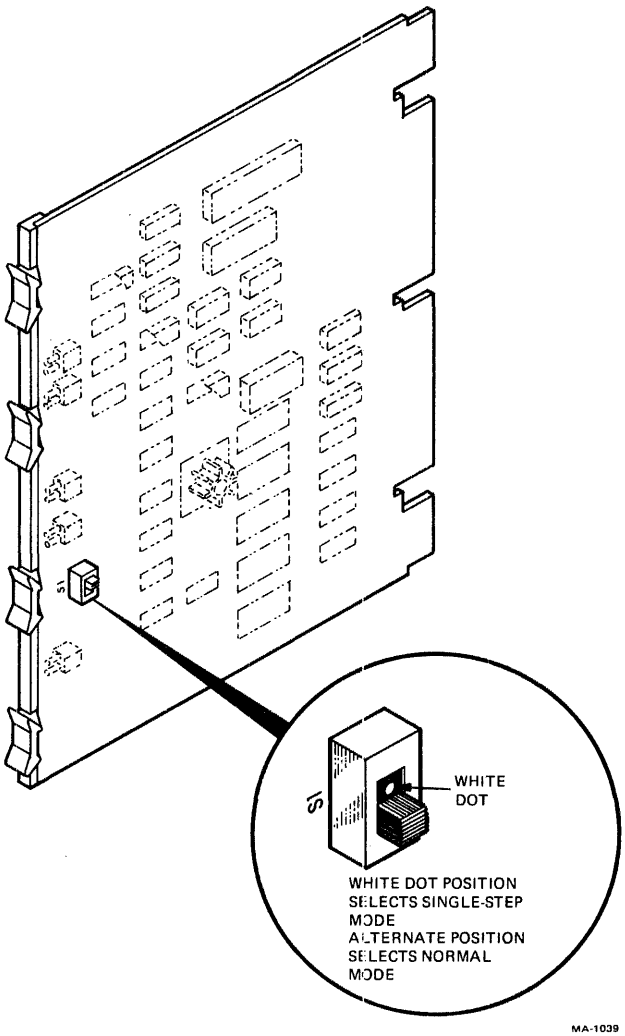


Figure 4-1 M7122 Normal/Single-Step Switch

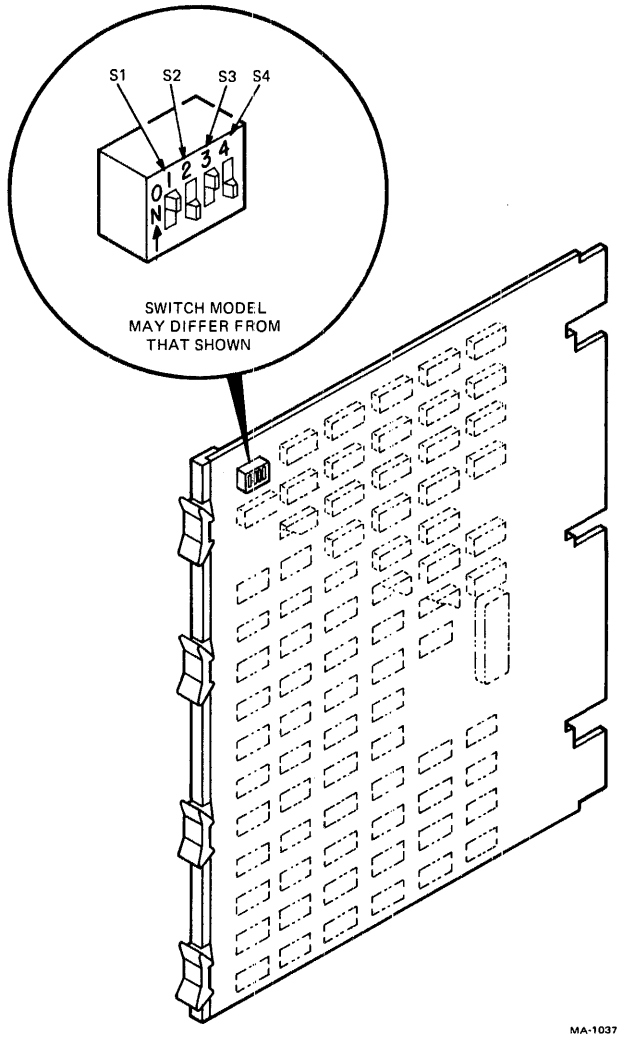


Figure 4-2 M7125 Terminal Identification Switch Pack

Table 4-1 M7125 Terminal Identification Switch Setting Data

Terminal	Switch				Diagnostic Display for Test 20
	SW1	SW2	SW3	SW4	
RT801	Off	On	Off	On	Indicates 20, then 01
RT803	On	Off	On	Off	Indicates 20, then 02
RT805	Off	Off	Off	Off	Indicates 20, then 03

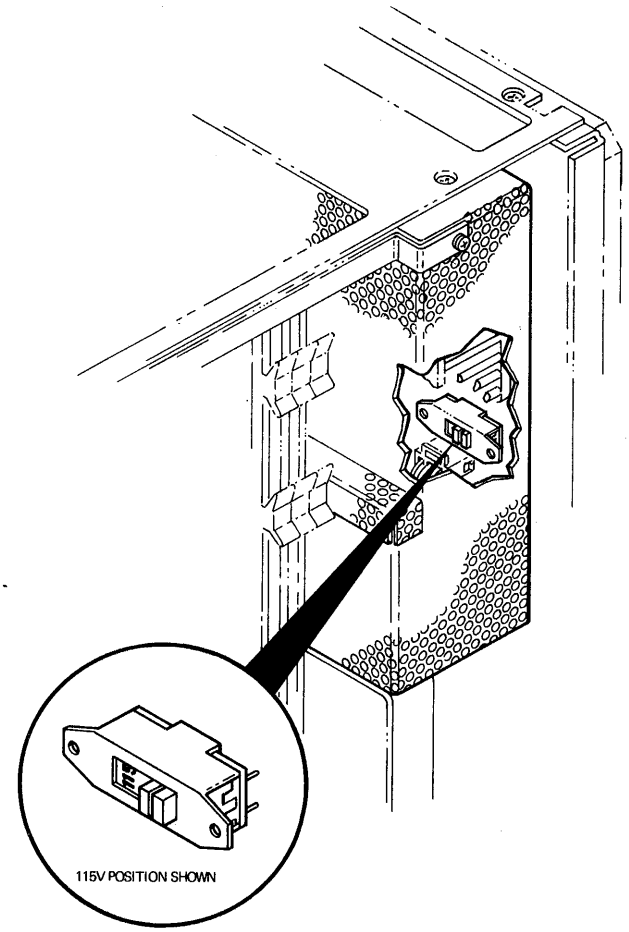


Figure 4-3 115/230 V Switch

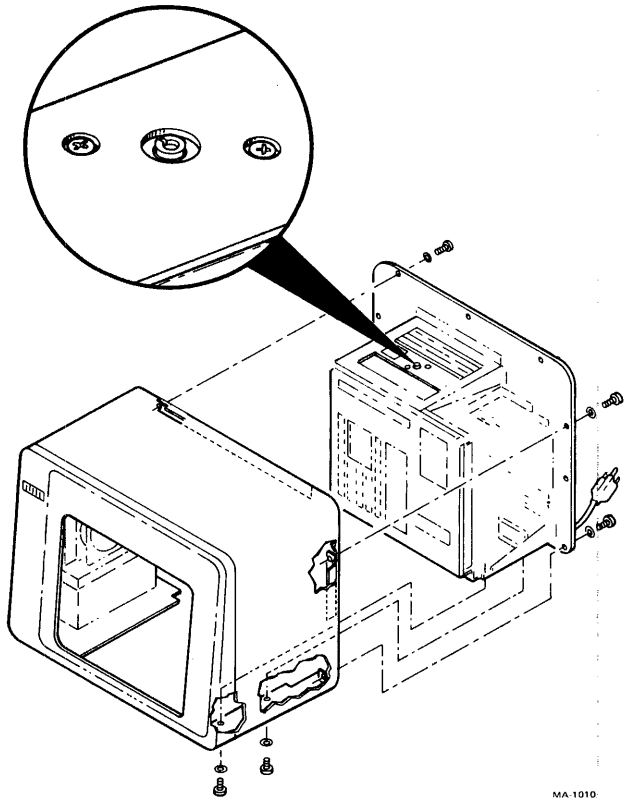


Figure 4-4 Terminal Over Temperature Switch

should be checked and the heat exchanger air passages should be inspected for blockage.

4.4 ON-LINE/INTERNAL TERMINAL DIAGNOSTICS

4.4.1 On-Line Diagnostics

For DECdataway systems, two diagnostic tasks have been developed which run under the RSX11-M operating system. These tasks are distributed with each DPM system (Table 4-2) on an appropriate medium, i.e., if the system device is an RK05, the on-line tasks will be distributed on an RK05 disk pack which has been system generated (sysgened) to run on the system with which it is shipped. The sysgen of each RSX11-M test pack will include all of the basic DPM system hardware, so that a test pack can be booted and the on-line diagnostic tasks can be run with minimum effort.

4.4.1.1 MAINDEC-11-DZKCH – The serial bus exerciser (DZKCH) is a task which exercises the DECdataway communication facilities of up to 63 DECdataway ports at one time. For terminals, it only tests the terminals ability to communicate with the DPM host system. It does not test any specific terminal functions.

For information on the use of the serial bus exerciser, refer to the diagnostic document: MAINDEC-11-DZKCH-D.

Table 4-2 DPM System RSX11-M Test Packs

RSX11-M Test Pack	System Device	DPM System
MAINDEC-11-DZQRA-HC	RK05	DPM61-XA
MAINDEC-11-DZQRB-HC	RK05	DPM61-XB
MAINDEC-11-DZQRA-DC	RK06	DPM64-XA
MAINDEC-11-DZQRB-DC	RK06	DPM64-XB
MAINDEC-11-DZQRA-MC9	RP06	DPM87-XA
MAINDEC-11-DZQRB-MC9	RP06	DPM87-XB

4.4.1.2 MAINDEC-11-DZKCI – The remote terminal tester (DZKCI) is a task which will run the non-intervention tests of up to 63 FDC terminals simultaneously and report the results on the system console terminal which started the task. DZKCI can be used to verify the basic operability of all terminals on a DPM system from the host system. DZKCI will not check the operator interface portions of the terminals, i.e., the displays, keypads, and readers. The internal terminal diagnostics must be used to check operator functions.

For information on the use of the remote terminal tester, refer to the diagnostic document: MAINDEC-11-DZKCI-D.

NOTE

Software for an RP06 system device is distributed on 9-track magtape and must be copied to the system disk before use.

4.4.2 Internal Terminal Diagnostics

Internal terminal diagnostics (MAINDEC-BE-DZRTA-A-D) are listed in Table 4-3 and may be initiated three different ways.

Table 4-3 Test Cards/Badges Package

Terminal	Package
RT801	ZV100-RB
RT803	ZV101-RB
RT805	ZV102-RB

1. Upon power-up, each terminal runs a predetermined sequence of tests. The terminal must be observed by an operator to detect a failure.

2. The same sequence of non-intervention tests can be started from the DPM host system by diagnostic task DZKCI. Failures will be reported on the system console terminal which initiated the task.

3. Internal diagnostics may be initiated by setting the keyswitch to MAINT. The same preselected sequence of non-intervention tests will be executed. The terminal must be observed by an operator to detect a failure.

   If the keyswitch is set to the SUPVR position before the basic test sequence finishes, the diagnostic will loop on the basic non-intervention test sequence until the keyswitch is returned to NORMAL. At that time, the diagnostic will exit to normal online operation if the terminal is connected to a host system.

   If the keyswitch is left in the MAINT position, the terminals will exit to manual intervention tests.

The normal sequence of events is as follows:

1. At the start of the diagnostic test the alarm will beep twice. Then the terminal will appear to do nothing for about 15 seconds. During this time the terminal is executing basic tests 11, 12, 13, and 14.

2. After 15 seconds test 20 will be displayed, followed immediately by a 2-digit terminal designation code, where

   01 = RT801
   02 = RT803
   03 = RT805

3. Next, if the terminal is an RT801, a predetermined sequence of tests will be executed (Paragraph 4.4.2.1).

4. If the terminal is an RT803 or RT805, the extended basic tests will be executed (Paragraph 4.4.2.2).

5. When test 80 is executed, 80 will be displayed, followed immediately by the port address. If the DECdataway is connected to the terminal, the actual port address (decimal number) will be displayed (01–63). If the DECdataway is not connected, the number 63 will be displayed.

6. At completion of the test, the terminals will return to normal on-line operation if the keyswitch is in the NORMAL position. If the keyswitch is left in the MAINT position, refer to Paragraphs 4.4.2.1 and 4.4.2.2.

7. If 00 is displayed, and keyswitch is in NORMAL position, 99 entered on the keypad will return an RT803 or RT805 to on-line mode.

Alarm – The alarm will beep twice when the diagnostics start. The alarm will also beep once at the beginning of each test.

Error Detection – If any test fails, the test number will be flashed in the display once each second for 10 seconds, accompanied by an alarm beep. Some manual intervention tests have additional error reporting. Refer to the test descriptions in Table 4-4 for details.

Cancelling A Test – All tests except 22 and 35 can be cancelled by pressing the CANCEL key. To cancel 22 and 35, turn the keyswitch to NORMAL and back to MAINT to restart the diagnostics.

Lamp Test – The lamp test switch will light all terminal lamps at reduced illumination. If the keyswitch is in MAINT mode, the lamp test switch will also turn on the card/badge reader in reverse to clear a jammed document.

Test Cards and Badges – Packages (Table 4-3) of test documents will be shipped with each system.

4.4.2.1 RT801 Internal Diagnostics – When the internal diagnostics are started with the MAINT keyswitch, an RT801 will run basic tests 11 through 80, then run the following preselected sequence of advanced/peripheral tests:

Test 22 – One pass (check relay).

Test 33 – One pass (observe display).

Test 40 – 15 test badges must be inserted and read correctly to complete this test.

Test 81 – The DECdataway must be disconnected for this test, or the terminal will induce line errors on the DECdataway.

Test 82 – The DECdataway must be reconnected for this test. When 90000 flags have been counted, the RT801 will exit to normal on-line mode.

4.4.2.2 RT803/RT805 Internal Diagnostics – When the internal diagnostics are started with the MAINT keyswitch, the basic and extended basic tests are executed. Upon completion, the terminal will display 00. The operator may then select any valid test by using the keypad, or may cause the terminal to exit to normal on-line mode by placing the keyswitch in NORMAL and selecting 99 on the keypad.

Table 4-4 FDC Terminal Internal Diagnostic Tests

Test Number	Type	Module/Assy Tested	Test Description
11	Basic	M7122	Basic test of CPU time states, registers, and basic instructions
12	Basic	M7122	Complete CPU test of complex instructions
13	Basic	M7122	Calculates ROM checksums and compares to stored checksums.
14	Basic	M7122	Pattern tests for RAM check.
20	Basic	M7125	Checks M7125 module. Check alarm and time update one-shots. Displays terminal type for 1.5 seconds. Terminal type is read from S1 and S2 (Figure 4-2). For RT801 display 01 For RT803 display 02 For RT805 display 03
21	Basic	M7125/Badge and Card Reader Interface	Check M7125 and badge/card reader interface.
22	Advanced/ Peripheral	M7125/Alarm/ External Control Circuit	Check that ALARM one-shot is functioning. Check that DISPLAY TIME-OUT one-shot is functioning (approximately 45 seconds). Sound alarm and toggle relay once per second for 45 seconds. This test can be used for ohmmeter monitoring of the relay functions at the RELAY connector (Figure 2-3). Any external control circuit must be disconnected before this test is selected. The cancel key will not cancel this test. To stop the test before it finishes, turn the keyswitch to NORMAL and then back to MAINT.
30	Basic	M7125/Display Interface	Check display interface.
31	Extended Basic RT803, RT805	M7126	Checks operation of ENTRY ACCEPTED one-shot.
32	Extended Basic RT803, RT805	M7126/Front Panel Assembly	Checks the front panel switch scanner on the M7126.

Table 4-4 FDC Terminal Internal Diagnostic Tests (Cont)

Test Number	Type	Module/Assy Tested	Test Description
33	Advanced Peripheral RT801, RT803, RT805	M7125/Display Assembly	RT801 – displays numbers 0 through 9, then exits to next test. RT803/RT805 – displays a full screen of incrementing alphanumeric characters continuously until cancelled (via CANCEL key).
34	Advanced/ Peripheral RT803, RT805	M7126/Front Panel	Echos to the display the octal value of the switch being pressed. Exits when CANCEL is pressed. Refer to Table 4-5 for switch values.
35	Advanced/ Peripheral RT803, RT805	M7126/Front Panel	Checks for interaction between front panel elements by setting a known value in the switch scanner, exercising the front panel lamps, and then reading the switch scanner. Operating the keypad during this test could cause a false failure, therefore CANCEL cannot be used to exit this test. To exit this test, the keyswitch must be turned to NORMAL and then to MAINT, which then will restart diagnostics.
40	Advanced/ Peripheral	M7125/Type 5 Reader Assembly	Reads type 5 test badges. Badges must be inserted with the index square in first and the data pattern to the operator's left. Functional failures are reported as an ERROR. Data comparison failures are displayed. The first number displayed is the 2-digit decimal column number. The second number displayed is the 4-digit octal representation of the data which failed comparison.
50	Advanced/ Peripheral RT803, RT805	M7125/Type 3 Reader	Reads 22-column tickets and badges. The test data is a sliding ones pattern starting with a 9-row punch in column 1. The test badge must be inserted with the corner cut in first and to the right. Functional failures are reported as an ERROR. Data comparison failures are reported as in test 40.
51	Advanced/ Peripheral RT803, RT805	M7125/Type 3 Reader	Reads 80-column marked cards. The test data is a sliding ones pattern starting with a 9-row punch in column 1. The card must be inserted with the corner cut in first, and to the right. Failures are reported as in test 40.

Table 4-4 FDC Terminal Internal Diagnostic Tests (Cont)

Test Number	Type	Module/Assy Tested	Test Description
52	Advanced/ Peripheral RT803, RT805	M7123/Type 3 Reader	Reads 80-column punched cards. Data format and error reporting are the same as test 51.
60	Advanced/ Peripheral RT805	M7125 (RT805-XC Option)	Basic interface check of RT805-XC option. Loops data internally through use of a maintenance loop feature.
61	Advanced/ Peripheral RT805	M7123 (RT805-XC Option)	Continuously outputs lines of 132 characters in an incrementing sequence, beginning with a line of spaces and ending with a line of brackets. Repeats until CANCEL is pressed.
62	Advanced/ Peripheral RT805	M7123 (RT805-XC Option)	Echos any keyboard key to both the RT805 display and the output device (if present). Control characters such as carriage return and line feed will not echo properly to the RT805 display, but should echo correctly to the output device. Repeats until CANCEL is pressed.
70	Advanced/ Peripheral RT805	M7124 (RT805-XD Option)	Loops the eight outputs back through the 24 inputs internally, using a maintenance function on the M7124. The customer's external digital I/O circuits must be disconnected before this test is selected.
71	Advanced/ Peripheral RT805	M7124 (RT805-XD Option)	Functions the same as test 70 except that the RT805-XD loopback plug (DEC Part No. 7015213-00) must be connected to the digital I/O connector on the RT805 in place of the customer's connector. The data loopback is done through the connector instead of internally.
80	Basic RT801 RT803 RT805	M7127	Checks basic functionality of DECdataway port interface. Displays port address.
81	Advanced/ Peripheral RT803 RT805	M7127	Loops all possible data patterns through the DECdataway interface. Exercises the complete DECdataway interface up to the transformer connection to the line. **Caution** **The DECdataway must be disconnected before selecting this test.**

Table 4-4 FDC Terminal Internal Diagnostic Tests (Cont)

Test Number	Type	Module/Assy Tested	Test Description
82	Advanced/ Peripheral RT801 RT803 RT805	M7127	DECdataway monitor. This test monitors line activity and displays a running count of message flags and data flags detected (only message flags for RT801). For normal line activity both counts will increment rapidly. The DECdataway must be connected for this test to function. If not, the test will display a count of 0 until the connection is made. For RT801, the test will exit after 90000 flags. For RT803 and RT805, the test will exit when CANCEL is pressed.
99	RT803, RT805		When 00 is displayed on an RT803 or RT805, selecting 99 will return the terminal to normal on-line operation, regardless of the keyswitch position. To restart diagnostics, cycle the keyswitch to NORMAL and then to MAINT.
00	RT803, RT805		When 00 is displayed on an RT803 or RT805, any of the tests labelled Extended Basic, or Advanced/Peripheral can be selected through use of the keypad. Valid test numbers are: 22, 33, 34, 35, 40, 50, 51, 52, 60, 61, 62, 70, 71, 81, 82, 99.

Table 4-5 Switch Values Displayed by Test 34

Value	Switch	Value	Switch
1	RT805 Transaction Switch 1	21	ERASE ENTRY
2	RT805 Transaction Switch 2	23	KEY PAD –
3	RT805 Transaction Switch 3	24	.
4	RT805 Transaction Switch 4	25	0
5	RT805 Transaction Switch 5	26	1
6	RT805 Transaction Switch 6	27	2
7	RT805 Transaction Switch 7	30	3
10	RT805 Transaction Switch 8	31	4
11	RT803 Transaction Switch	32	5
15	SEND	33	6
16	CANCEL (Also Cancels Test)	34	7
17	RESET ERROR	35	8
20	ERASE CHAR	36	9

APPENDIX A
FDC SERVICE ADDENDUM

An FDC service addendum policy is available as a rider to the service contract on the DPM host system. The FDC addendum pertains only to terminals connected to the DECdataway. The general terms of the FDC addendum are:

The customer assumes responsibility for first level maintenance by identifying any malfunctioning terminal and replacing it with a spare terminal which the customer has purchased for that purpose. DEC Field Service personnel will maintain a stock of spare parts and effect the actual repair of any fault.

Customer's responsibilities are:

1. To purchase one or more spare terminals of a type and number as defined in the agreement. These will be extra terminals, kept only as spare units and therefore, no maintenance charge will be made for them.

2. To provide storage space for the spare terminals and a maintenance area near the distributed plant management (DPM) host system. The maintenance area should have a work surface, several AC power receptacles, and adequate lighting. An area like this may be necessary even without the FDC addendum, since in many cases a terminal will be operating in an environment where it should not be opened for service. The maintenance area should have a DECdataway port, with address one, available at the workbench in order to use on-line diagnostic tasks in the DPM host system to verify the on-line operation of a repaired terminal.

3. To have maintenance personnel assigned who will replace a malfunctioning terminal, return the failing unit to the maintenance area, and notify the local DEC Field Service office.

DEC responsibilities are:

1. To keep on-hand sufficient spare parts, and expertise, to repair FDC terminals.

2. To repair any malfunctioning FDC terminal, which the customer has returned to his maintenance area, by replacing the defective field replaceable unit.

3. To perform complete operational checks, including any necessary cleaning or adjustment, on any repaired FDC terminal so that FDC terminal can be effectively used as the spare unit.

The normal sequence of events should be as follows:

1. The FDC terminal operator should notify the supervisory or maintenance personnel of any fault.

2. The fault should be verified and identified by use of the internal diagnostics.

3. Remove the defective terminal and install a replacement. If the FDC terminal is malfunctioning, the customer's maintenance personnel should get the spare unit of the same type from its storage area and use it to replace the malfunctioning on-line unit.

4. The customer's maintenance personnel should return the malfunctioning unit to the work area and notify the local DEC Field Service office.

5. The local DEC office will schedule a service representative to repair the unit and check it out so that it can be stored for use as a spare unit.

NOTE

This procedure under the FDC addendum does not preclude the DEC Field Service representative from troubleshooting any FDC terminal problem at the terminal on-line location if that becomes necessary.

APPENDIX B
TYPE 3, 22-COLUMN PLASTIC BADGE

DESCRIPTION

The type 3, 22-column plastic badge (Figure B-1) is used with the RT803 and RT805 terminals. It may contain a maximum of 12 rows and 22 columns of keypunched data. The badge must be opaque and can be mylar, polyvinyl chloride, or polyethylene terephthalate.

NOTE

Mylar is recommended when encountering extreme temperatures.

DIMENSIONS AND LAYOUT TOLERANCES

Badge specifications require nominal dimensions of 5.951 cm (2.343 inches) wide by 8.255 cm (3.250 inches) long by 0.046 cm to 0.076 cm (0.018 to 0.030 inches) thick. Badge layout for punching is on the front side of the badge and is the standard keypunching layout.

REFLECTANCE

The average badge reflectance, including all blemishes and printing, shall be greater than 80 percent as measured on a Kidder Model 08V or MR-8 tester, using a barium sulfate plaque as a standard for 100 percent reflectance.

PRINTING

If printing is required, it shall be legible, without excess ink, and cause no embossment or distortion of the badge. The ink shall be non-blocking when dry, and shall not transfer to the transport roller of the reader.

The ink used must be reflective, non-readable optical character recognition (OCR) ink. The reflectance of the ink must be greater than 80 percent of the reflectance of the badge stock as measured above.

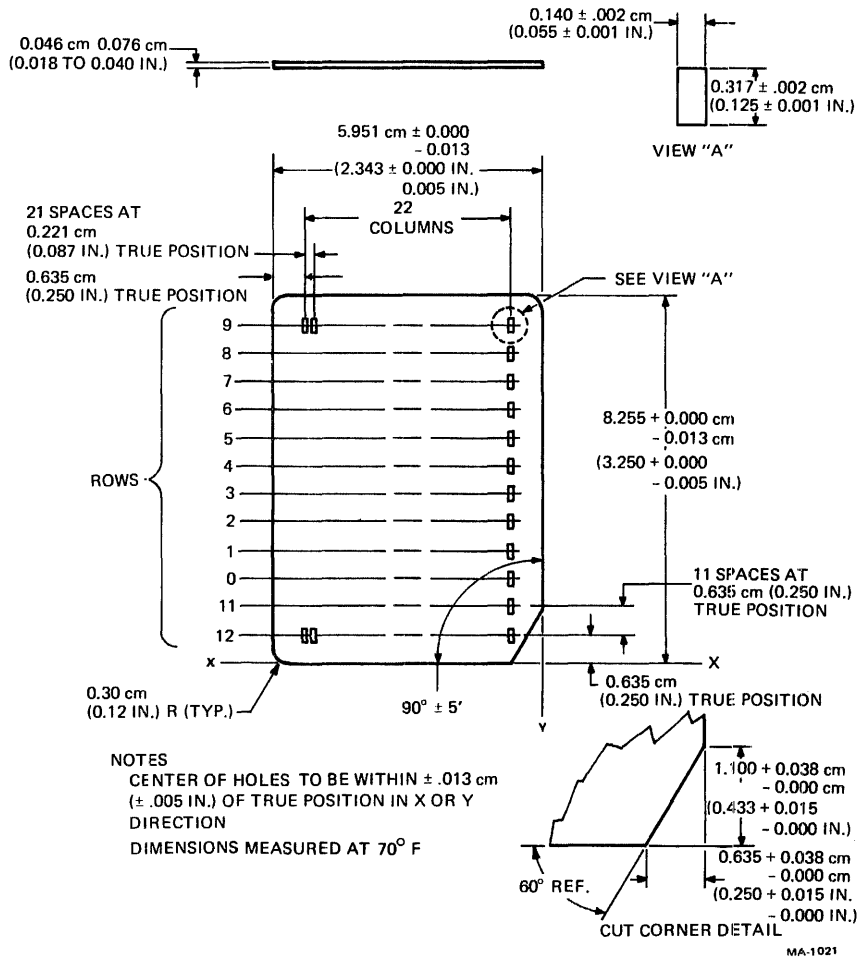


Figure B-1 Type 3 22-Column Plastic Badge

APPENDIX C
TYPE 5 BADGE

The type 5 badge (Figure C-1) is used with the RT801 and RT805 terminals.

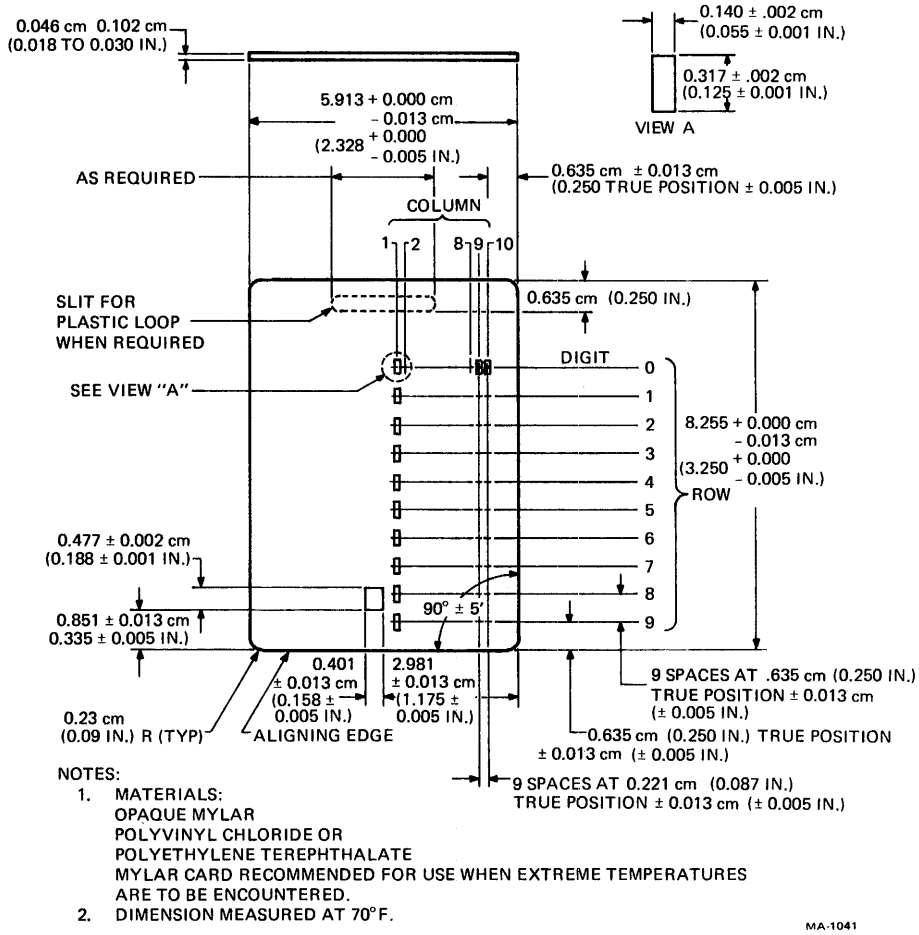


Figure C-1 Type 5 Badge

APPENDIX D
22-COLUMN TICKET

DESCRIPTION

The 22-column ticket (Figure D-1) is used with the RT803 and RT805 terminals. It measures 8.255 cm (3.250 inches) by 5.951 cm (2.343 inches). Each ticket may contain a maximum of 12 rows and 22 columns of keypunched data. Data may be coded by punch.

REFERENCES

USAS STD X3.21 – 1967, USA Standard Rectangular Holes in Twelve Row Punched Cards.
ANSI STD X3.11 – 1969, Specification for General Purpose Cards for Information Processing.

LAYOUT

Layout for punching is on the front side of the ticket and is the standard keypunching layout. Layout for work data entry is on the front side of the ticket.

Keypunched Data Entry

Any keypunch may be used to enter data on the ticket. The ticket should be loaded into the keypunch the standard way with the front side of the ticket toward the operator.

PAPER REFLECTANCE

The average reflectance including blemishes, marking and printing shall be greater than 80 percent as measured on a Kidder Model 08V or MR-8 tester, using a barium sulfate plaque as a standard for 100 percent reflectance.

PRINTING

If printing is required, it shall be legible, without excess ink, and cause no embossment or distortion of the ticket. The printing shall be accurately registered so that columnar characters are properly aligned. The ink shall be non-blocking when dry, and shall not transfer to feed roll of the reader.

The ink used must be reflective, non-readable OCR ink. The reflectance of the ink must be greater than 80 percent of the reflectance of the ticket stock as measured above.

TIMING MARKS

Not required.

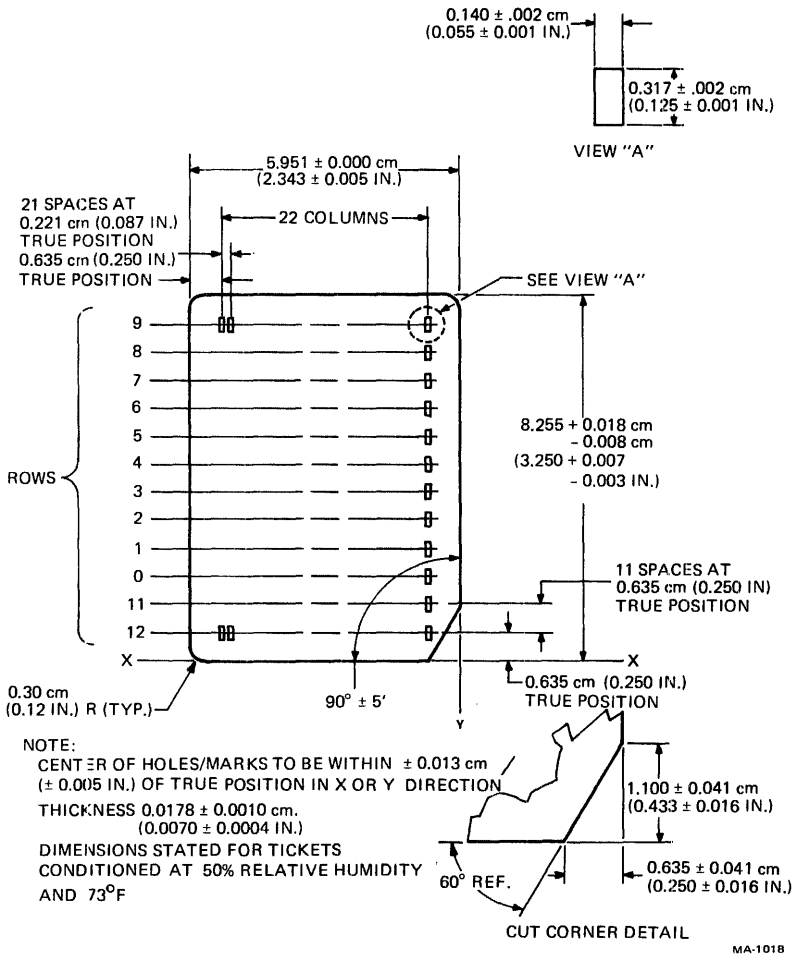


Figure D-1 22-Column Ticket

APPENDIX E
80-COLUMN CARD

DESCRIPTION

The 80-column card (Figure E-1) is used with the RT803 and RT805 terminals. It is a standard size data entry tab card and measures 8.255 by 18.732 cm (3.250 by 7.375 inches). Each card may contain a maximum 12 rows and 80 columns of keypunched data.

REFERENCES

USAS STD X3.21 – 1967, USA Standard Rectangular Holes in Twelve Row Punched Cards.
ANSI STD X3.11 – 1969, Specification for General Purpose Cards for Information Processing.

LAYOUT

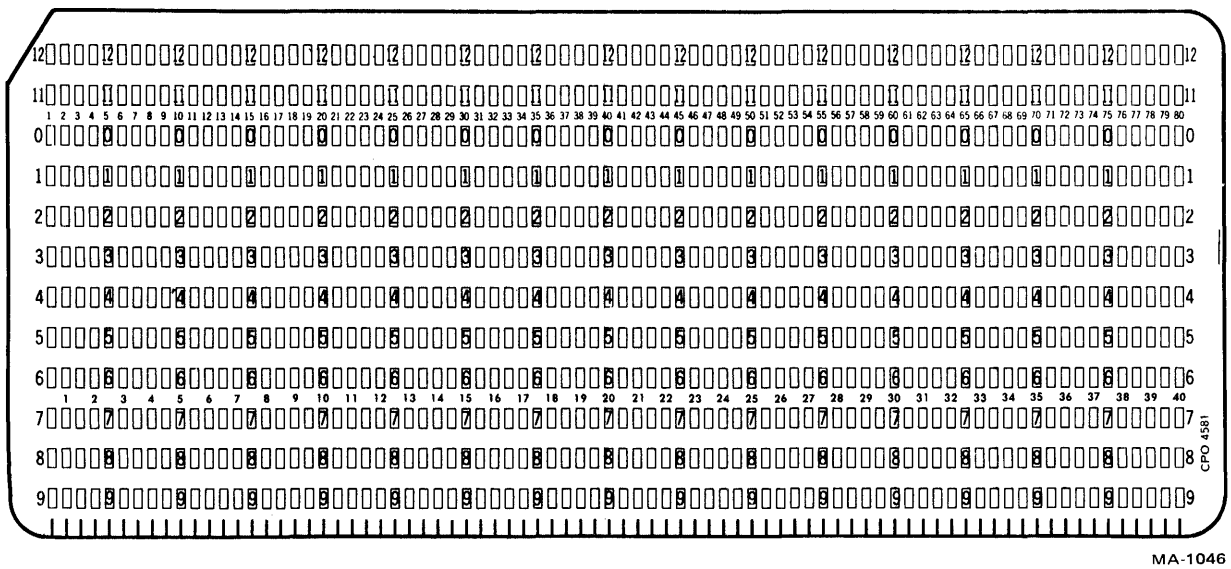
Layout for punching is on the front side of the card and is the standard keypunching layout. Layout for work data entry is on the front side of the ticket.

Keypunched Data Entry

Any keypunch may be used to enter data on the card. The card should be loaded into the keypunch the standard way with the front side of the ticket toward the operator.

PAPER REFLECTANCE

The average reflectance including blemishes,



MA-1046

Figure E-1 80-Column Card

marking and printing shall be greater than 80 percent as measured on a Kidder Model 08 V or MR-8 tester, using a barium sulfate plaque as a standard for 100 percent reflectance.

PRINTING

If printing is required, it shall be legible, without excess ink, and cause no embossment or distortion of the ticket. The printing shall be accurately registered so that columnar characters are properly aligned. The ink shall be non-blocking when dry, and shall not transfer to the feed roll of the reader.

The ink used must be reflective, non-readable OCR ink. The reflectance of the ink must be greater than 80 percent of the reflectance of the card as measured above.

TIMING MARKS

Not required.

TECHNICAL DOCUMENTATION CHANGE NOTICE

RT801, RT803, RT805 TERMINAL USER'S GUIDE
EK-RT80X-UG
ADDENDUM

This addendum provides update and correction information that will be incorporated into the *RT801, RT803, RT805 Terminal User's Guide* (EK-RT80X-UG) in the next reprint.

1. **Mark Sense Capability** – Disregard all references to mark sense capability on card/badge reader. Also, this capability will **not** be available on the RT803, RT805 terminals as currently described. Note in particular, that the internal diagnostic test described on Page 4-7 (Test 51) should not be selected, since it will cause an error indication.

2. **EIA Communication (Host Computer to Terminal Link)** – This feature will not be available on any terminals, therefore, disregard any reference to the following model numbers – RT805 BA, RT805 BB, RT803 BA, RT803 BB, RT801 BA, RT801 BB. All terminals will only interface to a host processor via DECdataway communication channel.

3. **Appendix B, Type 3, 22 Column Badge** – Dimensions on Page B-2 are incorrect. Actual dimensions are as follows.

   2.343 – Should be: 2.328 ± .005 in
   5.951 – Should be: 5.913 ± .013 cm
   8.255 – Should be: 8.255 ± .013 cm
   3.250 – Should be: 3.250 ± .005 in

4. **RT805 XC Option** – The RT805 XC Option provides a 20 mA loop interface for connection to a terminal such as an LA36, VT52, or an LK40-E keyboard. Two versions of the interface module (M7123) exist. The earlier version (etch Revision D, CS Revision C) will support any 20 mA terminal, but not the LK40-E keyboard. The later version (etch Revision E, CS Revision D) will support any 20 mA loop terminal and the LK40-E keyboard. Switch settings for the earlier version M7123 (etch Revision D, CS Revision C) are illustrated in the attached figure and table.

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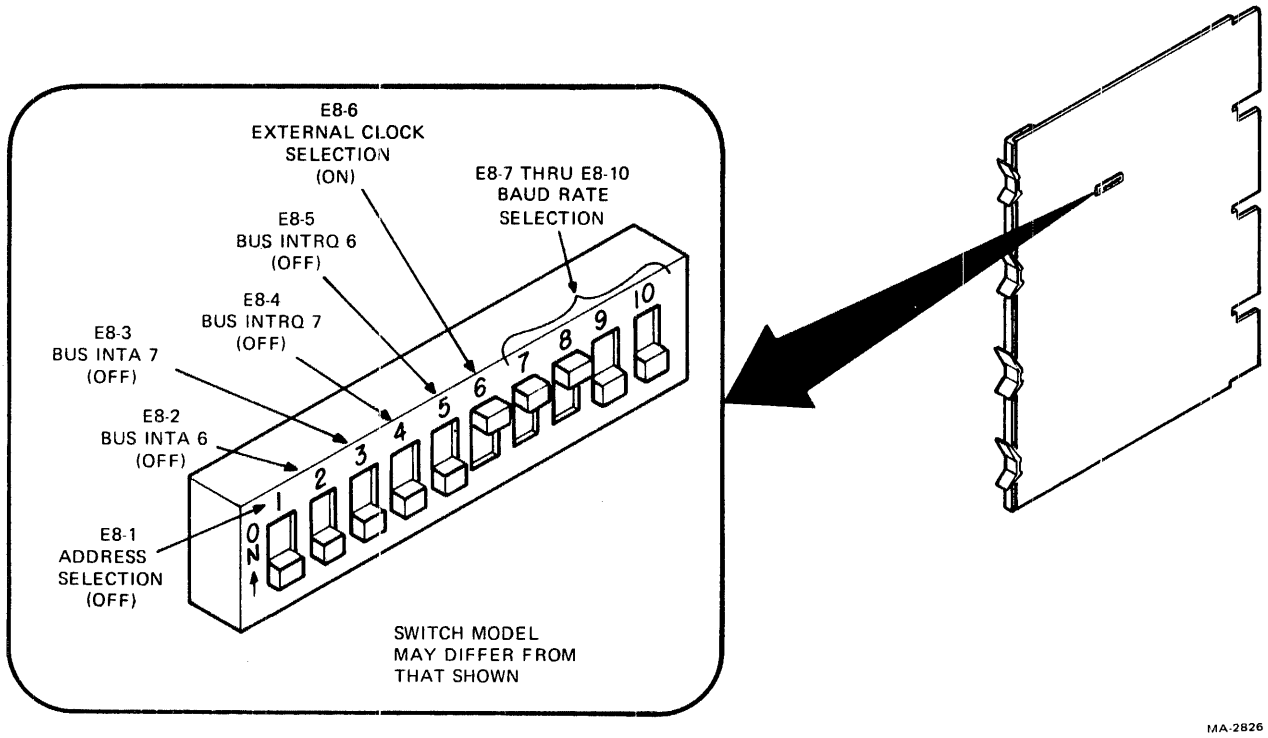
Table 1 M7123 Baud Rate Selection*

Baud Rate	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	SW9	SW10
50	Off	Off	Off	Off	Off	On	On	On	On	On
75	Off	Off	Off	Off	Off	On	Off	On	On	On
110	Off	Off	Off	Off	Off	On	On	Off	On	On
134.5	Off	Off	Off	Off	Off	On	Off	Off	On	On
150	Off	Off	Off	Off	Off	On	On	On	Off	On
300	Off	Off	Off	Off	Off	On	Off	On	Off	On
600	Off	Off	Off	Off	Off	On	On	Off	Off	On
1200	Off	Off	Off	Off	Off	On	Off	Off	Off	On
1800	Off	Off	Off	Off	Off	On	On	On	On	Off
2000	Off	Off	Off	Off	Off	On	Off	On	On	Off
2400	Off	Off	Off	Off	Off	On	On	Off	On	Off
3600	Off	Off	Off	Off	Off	On	Off	Off	On	Off
4800	Off	Off	Off	Off	Off	On	On	On	Off	Off
7200	Off	Off	Off	Off	Off	On	Off	On	Off	Off
9600	Off	Off	Off	Off	Off	On	On	Off	Off	Off
19200	Off	Off	Off	Off	Off	On	Off	Off	Off	Off

*Etch: Revision D, CS Revision C



M7123 (Etch Revision D, CS Revision C) DIP Switchpack Details

REMOTE TERMINALS
RT801, RT803, RT805
USER'S GUIDE
EK-RT80X-UG-001

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What is your general reaction to this manual? In your judgment is it complete, accurate, well organized, well written, etc.? Is it easy to use? _____

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What features are most useful? _____

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What faults or errors have you found in the manual? _____

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