



CONTROL DATA®

**LARKTM POWER SUPPLY AND I/O ADAPTER
(PIO)**

**GENERAL DESCRIPTION
OPERATION
INSTALLATION AND CHECKOUT**

MAGNETIC PERIPHERALS INC.

 a subsidiary of
CONTROL DATA CORPORATION

VOLUME 1

HARDWARE INSTALLATION/OPERATION MANUAL

PREFACE

This Manual provides the information needed to install and operate the Power Supply and I/O Adapter (PIO) when used with the LARK™ Micro Unit (LMU) and is intended to serve customer engineers and operators who require detailed information about the LARK Module Drive (LMD) installation and operations.

The total content of the Manual is comprised of three sections, each having a unique publication number, and is contained in one volume. The manual's publication number (77683568) should be used when making reference to the PIO Hardware Installation/Operation Manual.

The following table identifies the content of this manual:

SECTION NUMBER /TITLE

1	General Description	77683569
2	Operation	77683570
3	Installation and Checkout	77683571

NOTE

The Lark Micro Unit (LMU) and the power supply with I/O adapter (PIO) are separate and distinct devices with their own unique documentation. The LMU is identified as Model 9454 and requires Installation/Operation Manual (Volume 1) - Publication No. 77683717. The Installation/Operation Manual (Volume 1) for the PIO is Publication No. 77683568. When the equipment configuration includes both the LMU and PIO, it is identified as the Lark Module Drive (LMD) (Model 9455) and requires both Installation/Operation Manuals.

EMI NOTICE: This equipment has been designed as a component to high standards of design and construction. The product, however, must depend on receiving adequate power and environment from its host equipment in order to obtain optimum operation and to comply with applicable industry and governmental regulations. Special attention must be given by the host manufacturers in the area of safety, power distribution, grounding, shielding, audible noise control, temperature regulation of the device to insure specified performance and compliance with all applicable regulations. The equipment is a component applied without its final enclosure and therefore is not subject to standards imposed by FCC Rules for Electro-Magnetic Interference (EMI). Federal Docket 20780/FCC8--148 Part 15.

OPERATOR SAFETY INSTRUCTIONS

1. This unit is designed for use with the Lark Micro Unit.
2. The unit is to be installed according to the installation instructions.
3. The power plug must be connected to a power source that has the protection of not greater than 16 amps. The power plug is to be used as the disconnect device.
4. The unit is to be operated in an ambient temperature between 10° C and 46° C.
5. This unit is to be serviced by qualified technical personnel only after pulling the power plug.

BENUTZER SICHERHEITSAUWEISUNG

1. Dieses Netzgerät ist nur in Verbindung mit dem Magnetplattenlaufwerk Lark Micro Unit zu verwenden.
2. Die Zusammenschaltung wird wie im Manual unter "Installations Information" beschrieben, vorgenommen.
3. Die Netz - Stromversorgung wird über eine Steckdose mit nicht mehr als 16A Absicherung vorgenommen.
4. Das Netzgerät ist konstruiert für eine Umgebungstemperatur von 10°C bis 46°C.
5. Reparaturen am Netzgerät sind nur von qualifizierten Service Technikern, nach Abschalten bzw. durch Ziehen des Netzsteckers, vorzunehmen.

TABLE OF CONTENTS

SECTION	PAGE
PREFACE	iii
EMI NOTICE.....	iii
OPERATOR SAFETY INSTRUCTIONS	iv
(Benutzer Sicherheitsanweisung)	iv
GENERAL DESCRIPTION	
1.1 INTRODUCTION	1-1
1.2 GENERAL DESCRIPTION	1-1
1.3 FUNCTIONAL BLOCK DIAGRAM	1-1
OPERATION	
2.1 INTRODUCTION	2-1
2.2 OPERATOR CONTROLS	2-1
INSTALLATION AND CHECKOUT	
3.1 INTRODUCTION	3-1
3.2 UNPACKING	3-1
3.3 SPACE ALLOCATION	3-1
3.4 PIO COOLING	3-1
3.5 POWER REQUIREMENTS	3-1
3.5.1 Primary Power Requirements	3-1
3.5.2 Power Cable and Mating Connector.....	3-4
3.6 CABLING AND FEATURE SELECTION	3-4
3.6.1 Feature Selection	3-7
3.6.2 Radial or Daisy-Chain Selection	3-7
3.6.3 LMU to PIO Intercabling	3-9
3.6.4 PIO to Controller Cabling	3-9
3.6.5 I/O and Power Cable Routing	3-9
3.7 GROUNDING	3-10
3.8 ENVIRONMENT	3-12
3.9 INITIAL CHECKOUT AND STARTUP PROCEDURE	3-13
3.10 ACCESSORIES	3-13
3.10.1 I/O Interface Accessories-PIO To/From Controller	3-13
3.10.2 I/O Cable Characteristics and Connector Part Numbers ..	3-14

1.1 INTRODUCTION

The LARK Power Supply and Adapter Assembly (PIO) provides the LARK Micro Unit with DC and AC power and provides it with the CDC Module family interface to the host controller.

NOTE

If unit as shipped from the factory is to be changed to a different interface, jumpers W1 through W6 must be configured per Figure 3-12 of Volume 1 of the HMM (77683568).

1.2 GENERAL DESCRIPTION

The PIO consists of a power supply section and a section for the I/O Adapter PWA. See Figure 1-1. The power supply furnishes power to the LARK Micro Unit and also to the I/O Adapter PWA. Voltages generated for the drive are +5 V, -5 V, +16.5 V, and -16.5 V. The I/O PWA requires +5 V and -5 V. The power supply also provides AC voltage for the LMU.

The I/O PWA converts the external SMD interface to an internal microcomputer based interface. The PWA also provides proper line termination and noise isolation for both interfaces.

NOTE

The PIO is a component and therefore does not require a FCC label.

1.3 FUNCTIONAL BLOCK DIAGRAM

A functional block diagram is shown in Figure 1-2. The power supply regulator circuitry is mounted on a single PWA within the power supply section. The I/O Adapter circuitry is mounted on one PWA in a section below the power supply. The Terminator PWA plugs into the I/O PWA.

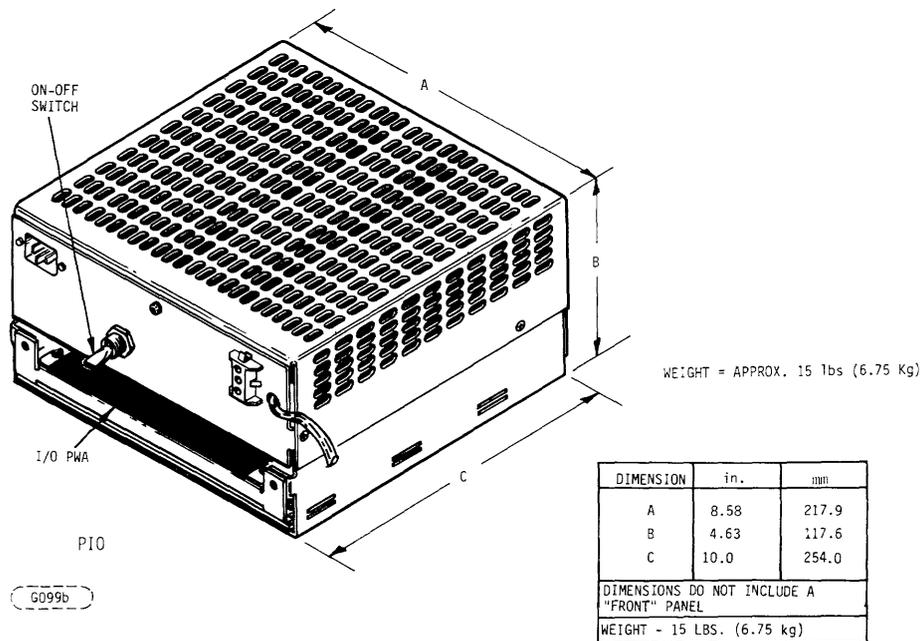


FIGURE 1-1. PIO PHYSICAL CHARACTERISTICS

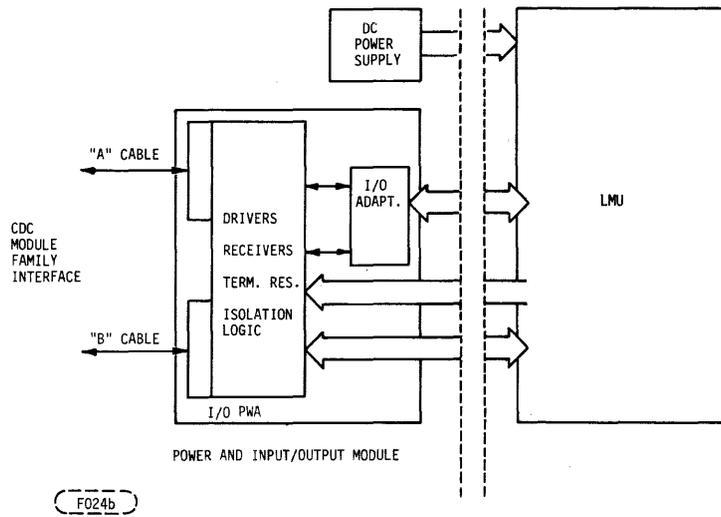


FIGURE 1-2. FUNCTIONAL BLOCK DIAGRAM

2.1 INTRODUCTION

This section provides the instructions and information required to operate the Lark Module Drive PIO.

2.2 CONTROLS

The only control on the PIO is the AC power ON/OFF switch shown in Figure 2-1. This switch operates the AC power circuit breaker CB-1. This switch is not available to the equipment operator. It is expected that only maintenance personnel will operate the ON/OFF switch.

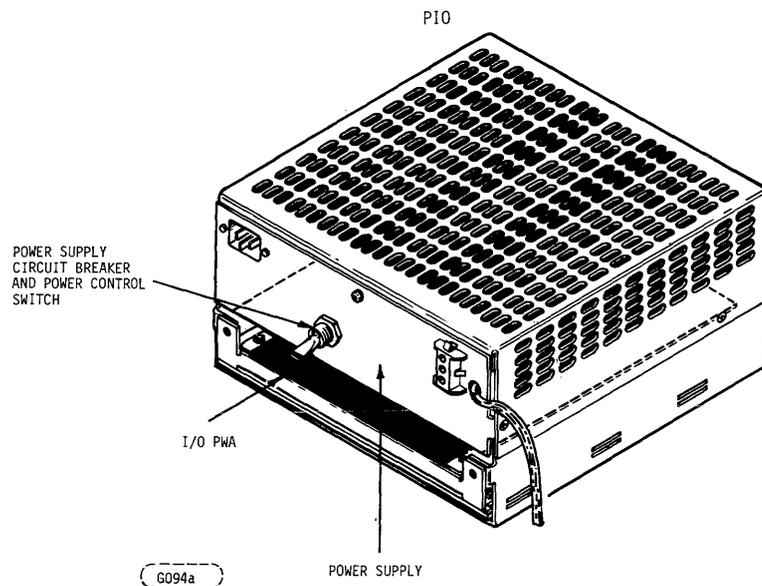


FIGURE 2-1. OPERATOR CONTROLS

3.1 INTRODUCTION

This section provides the information and procedures necessary to install the PIO.

3.2 UNPACKING

During unpacking, exercise care so that tools being used do not cause damage to the unit. As the unit is unpacked, inspect it for possible shipping damage. All claims for this type of damage should be filed promptly with the transporter involved.

Retain the shipping container and packing material if a claim is to be filed for damage, unit is to be reshipped, or shipped to service center.

Unpack the unit as follows:

- a. Remove the tape from the shipping container.
- b. Open the container and remove the PIO and cables.
- c. Do not connect the input power cable between the PIO and LMU until all other installation steps have been completed and the LMU is ready for initial checkout.

3.3 SPACE ALLOCATION

Figure 1-1 shows the PIO overall dimensions for determining space allocation. Detailed mounting hole data is provided in Figure 3-1. Example configurations are shown in Figure 3-2. Four foot (1.2 m) interconnecting cables are supplied to interface the PIO to the LMU.

The PIO is designed so that, in its final installed configuration, only a blank front panel (to be furnished by the user) is to be accessible to the equipment operator.

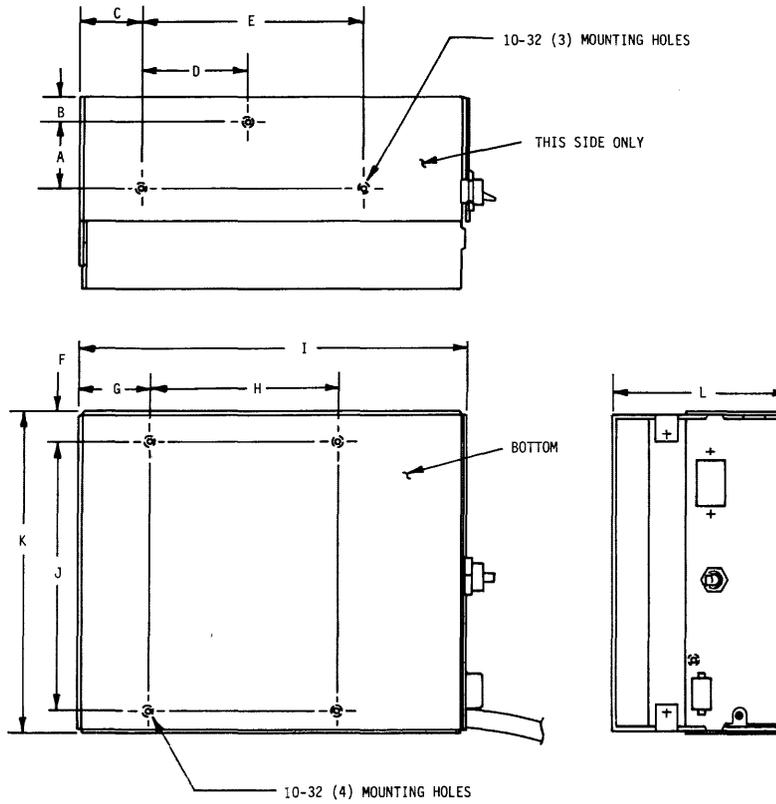
3.4 PIO COOLING

The PIO is cooled by means of convection. Thus, the ambient temperature of incoming air near the bottom of the PIO must not exceed 104°F (40°C) when measured within 1/2 inch of the PIO enclosure.

3.5 POWER REQUIREMENTS

3.5.1 PRIMARY POWER REQUIREMENTS

The primary voltage and current requirements are shown in Tables 3-1 and 3-2 for one PIO and one LMU. The operational line currents are described in Figure 3-3.



NOTE
 PENETRATION OF MOUNTING HARD-
 WARE NOT TO EXCEED 0.25 in
 (6.35 mm). DIMENSIONS DO
 NOT INCLUDE USER FURNISHED
 FRONT PANEL

DIMENSION	INCHES	mm
A	1.50	38.1
B	0.69	17.5
C	1.75	44.5
D	2.50	63.5
E	5.75	146.1
F	0.54	13.7
G	1.81	46.0
H	4.88	123.8
I	10.0	254.0
J	7.50	190.5
K	8.57	217.7
L	4.63	117.6

ZZ169a

FIGURE 3-1. PIO MOUNTING HOLE DATA

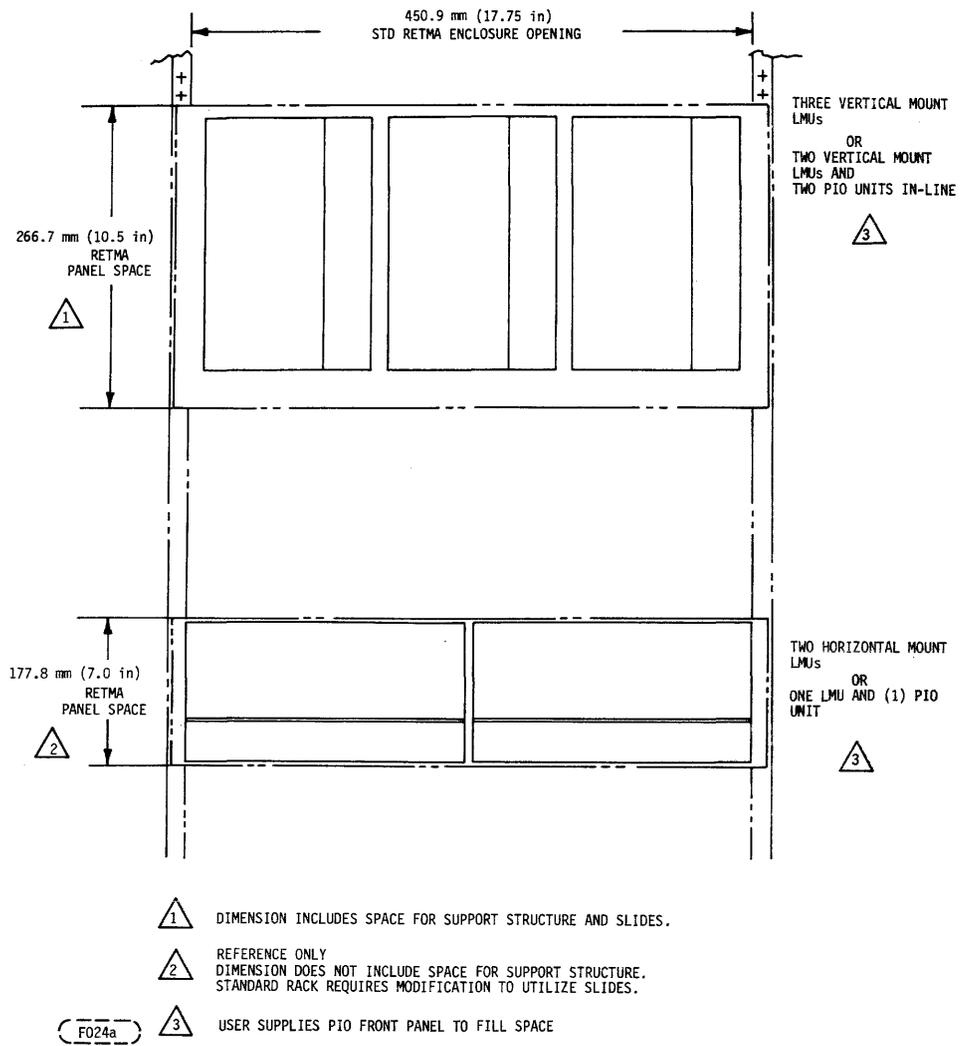


FIGURE 3-2. EXAMPLE LMD CONFIGURATIONS

3.5.2 POWER CABLE AND MATING CONNECTOR

The AC power cable supplied with the drive is 7.5 feet (2.29 meters) long. The cable connector plug requiring a mating receptical is described as follows:

<u>DESCRIPTION</u>	<u>CDC P/N</u>	<u>NEMA Configuration</u>
120 V, 15 A, 60 Hz, 2-pole, 3-wire receptacle connector at PIO end, 2-pole, 3-wire plug connector at power source end (see Figure 3-4).	75778702	5-15 P

The mating receptacle connector required at the AC power source is NEMA Configuration: 5-15R

A color-coded power cable is supplied with the 50 Hz drive, but the 50 Hz power source end connector must be furnished by the user. The cable color code and unit power requirements are as follows:

<u>DESCRIPTION</u>	<u>COLOR-CODE</u>	
220-240 V 50 Hz	Brown	- Phase One
	Blue	- Neutral
	Green and Yellow	- AC Equipment Ground
		#18 AWG WIRE

Do not connect the AC power cable between power source and PIO until all other installation steps have been completed and the drive is ready for initial checkout.

The PIO 60 Hz power supply contains two fuses and the PIO 50 Hz power supply contains four fuses located inside the chassis. Refer to the Maintenance Manual section 6 for removal and replacement procedures.

The connectors for interfacing the PIO to the controller and LMU to the PIO as well as the drive address selection are located on the I/O board. Remove the I/O board as follows:

1. Remove the two screws holding the I/O board in the PIO base pan (see Figure 3-5).
2. Slide out the I/O board until the I/O connectors and drive address selection switch are accessible.

The I/O board is now ready to accomplish drive address selection, terminator board installation and cabling.

3.6 CABLING AND FEATURE SELECTION

The connectors for interfacing the PIO to the controller and LMU to the PIO as well as the drive address selection switch are located on the I/O board. Remove the I/O board as follows:

1. Remove the two screws holding the I/O board in the PIO base pan (see Figure 3-5).
2. Slide out the I/O board until the I/O connectors and drive address selection switch are accessible.

The I/O board is now ready to accomplish drive address selection, terminator board installation and cabling.

TABLE 3-1. PRIMARY VOLTAGE REQUIREMENTS *

VOLTAGE (VAC)	TOLERANCE (VAC)	FREQUENCY (Hz)	TOLERANCE (Hz)
120	-16, +8	60	+0.5, -1.0
220-240	-29, +16	50	+0.5, -1.0

TABLE 3-2. CURRENT/POWER REQUIREMENTS *

DRIVE INPUTS	CURRENTS AND (WATTAGE)					
	ON TRACK		SEEKING		STARTING	
	NOMINAL	MAXIMUM	NOMINAL	MAXIMUM	NOMINAL	MAXIMUM
120 VAC	0.7 A (60 W)		0.7 A (60 W)		1.6 A (190 W)	
220-240 VAC	0.35 A (60 W)		0.35 A (60 W)		0.8 A (190 W)	
+16.5 V	0.4 A (6.6 W)		0.72 A (11.9 W)		-	-
-16.5 V	0.35 A (5.8 W)		0.67 A (11.1 W)		-	-
+5 V	0.91 A (4.55 W)		0.91 A (4.55 W)		-	-
-5 V	2.88 A (14.4 W)		2.88 A (14.4 W)		-	-
TOTAL WATTAGE	(91.1 W)		(102 W)		-	-
I/O INPUTS						
+5.0 V	0.9 A (4.5 W)		0.9 A (4.5 W)			
-5.0 V	0.3 A (1.5 W)		0.3 A (1.5 W)			
TOTAL WATTAGE	(6.0 W)		(6.0 W)			
POWER SUPPLY INPUTS	RUN CURRENT		START CURRENT		START TIME (SECONDS)	
	NOMINAL	MAXIMUM	NOMINAL	MAXIMUM	NOMINAL	MAXIMUM
120 VAC	1.15 A (138 W)		1.6 A (192 W)		60	
220-240	0.7 A (150 W)	0.9 A (200 W)	0.9 A (200 W)		60	

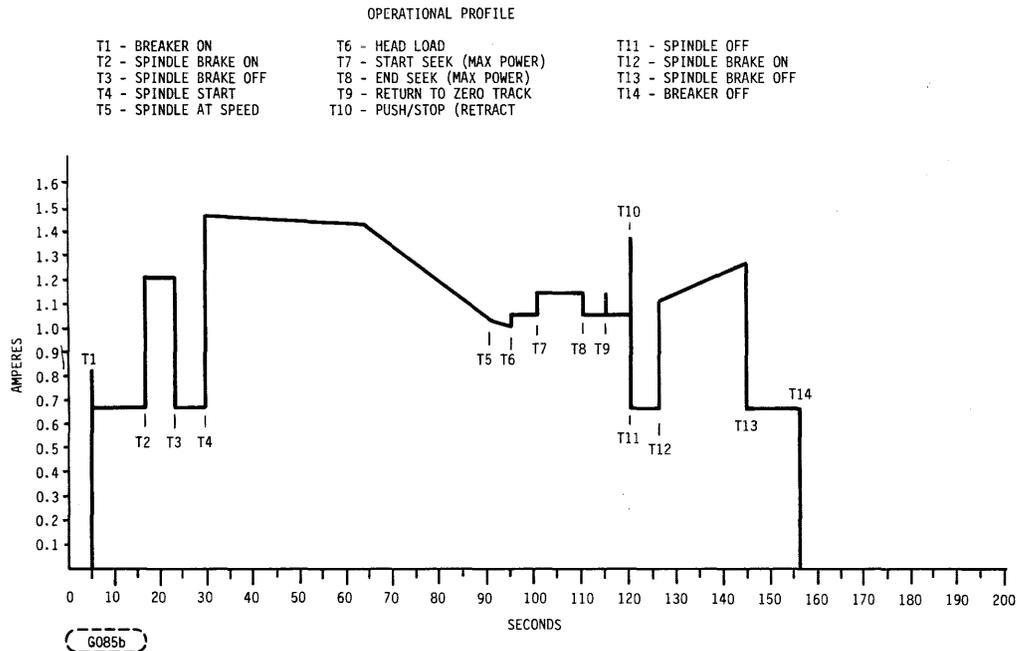


FIGURE 3-3. OPERATIONAL NOMINAL LINE CURRENTS TO POWER SUPPLY VS TIME (120 V INPUT)

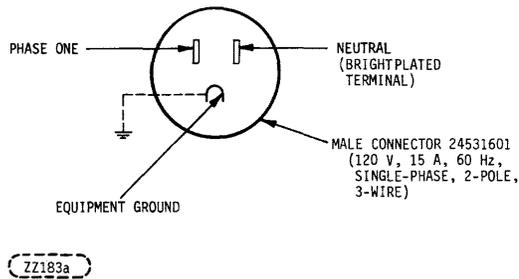


FIGURE 3-4. INPUT POWER CABLE CONNECTOR PLUG (120 V 60 HZ POWER SOURCE END)

3.6.1 FEATURE SELECTION

The PIO is provided with a dip switch module which allows a binary address to be selected to operate in a multiple drive system. The drive can only be selected as unit 0 through 3. The dip switch module is located in the I/O board in the PIO (see Figure 3-5).

3.6.2 RADIAL OR DAISY-CHAIN SELECTION

Figure 3-6 shows the intercabling and terminator placement for various drive arrangements. Shown are the radial cabled system and the daisy chained system. A single drive is connected as shown for the radial configuration.

Insure the terminator PWA is plugged into the PIO I/O Board (J2) and the connector ejector arms are closed (see Figure 3-5).

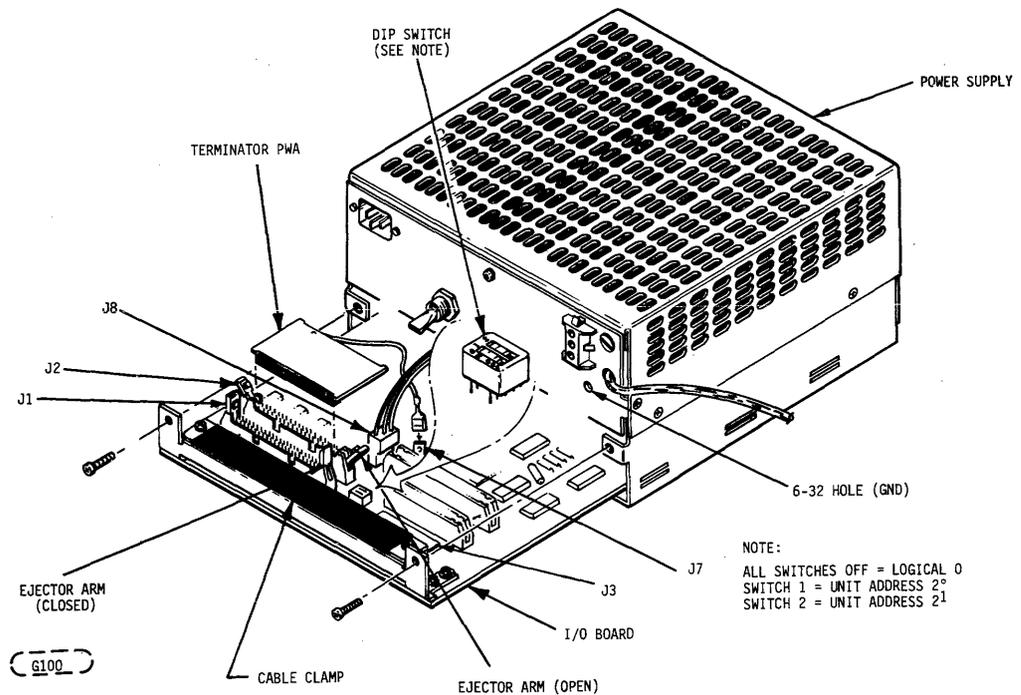
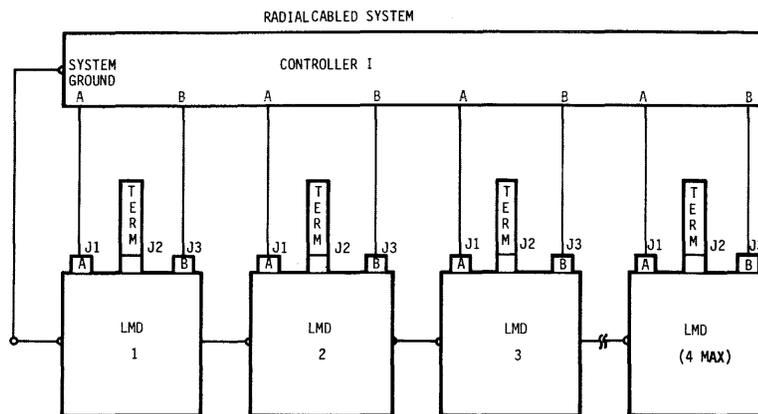
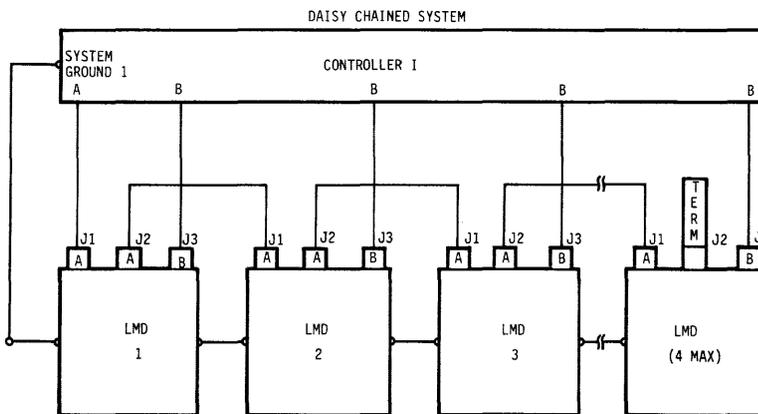


FIGURE 3-5. POWER SUPPLY AND I/O BOARD



NOTES

1. MAXIMUM INDIVIDUAL A CABLE LENGTHS = 100 FEET (30.48 METERS)
2. MAXIMUM INDIVIDUAL B CABLE LENGTHS = 50 FEET (15.24 METERS)



NOTES

1. TERMINATION OF "A" CABLE LINES ARE REQUIRED AT CONTROLLER AND THE LAST UNIT OF THE DAISY CHAIN OR EACH UNIT IN A RADIAL CONFIGURATION.
2. TERMINATION OF "B" CABLE RECEIVER LINES ARE REQUIRED AT THE CONTROLLER AND ARE ON THE UNIT'S RECEIVER CARDS.
3. MAXIMUM CUMULATIVE A CABLE LENGTH PER CONTROLLER = 100 FEET (30.48 METERS) MAXIMUM INDIVIDUAL B CABLE LENGTH = 50 FEET (15.24 METERS).

Z184a

FIGURE 3-6. LMD SYSTEM CABLING

3.6.3 LMU TO PIO INTERCABLING

Four cables are used to connect the LMU to the PIO:

1. One 40 Conductor Flat Ribbon Cable
2. One 26 Conductor Flat Ribbon Cable
3. One AC Power Cable (3-Wire)
4. One DC Power Cable (6-Wire, Part of PIO)

Connect these cables as follows: (See Figure 3-7)

1. Remove two screws holding AC Distr PWA Cover in place and remove the cover.
2. Connect 40 conductor flat ribbon cable between LMU Base PWA (J1 on Base PWA) and PIO I/O PWA (J4).
3. Connect 26 conductor flat ribbon cable between LMU Base PWA (J2) and PIO I/O PWA (J5).
4. Connect DC power cable from PIO to LMU Base PWA (J3).
5. Connect AC power cable between LMU AC Distr PWA (J1) and PIO Power Supply.
6. Reinstall AC Distr PWA Cover.

3.6.4 PIO TO CONTROLLER CABLING

Standard SMD/CMD flat cables can be used to interface the PIO to the controller. Refer to Section 3-10 "ACCESSORIES" for applicable cable/connector part numbers and cable length restrictions. The connector pin and signal name assignments are shown in Figures 3-8 and 3-9. Figure 3-10 is a table that shows the decoding of the TAG bus lines.

Install the cables as follows: (See Figures 3-5 and 3-7)

1. Connect "A" cable to PIO I/O PWA (J1) and close connector ejector arms.
2. Connect "B" cable to PIO I/O PWA (J3). Ensure connectors are oriented correctly on I/O PWA i.e., Pin 1 to Pin 1.
3. Connect other end of cables (Steps 1 and 2) to controller.
4. Route all cables through cable clamp on I/O PWA.

CAUTION

Insure J1 and J2 connector ejector arms are fully closed before reinstalling I/O PWA.

5. Reinstall I/O PWA in base pan of power supply.

3.6.5 I/O AND POWER CABLE ROUTING

For sliding rack mounted drives, it is recommended that a cable retract mechanism be incorporated in the rack design. Retract mechanisms can be purchased from a number of available manufacturers.

3.7 GROUNDING

Connect a low impedance ground strap, 19 mm (0.75 in) braid, from controller system ground-to-PIO (GND on front plate)-to-LMU casting (see Figure 3-5 for location of PIO ground point). Refer to the LMU Installation and Operation Manual for location of system ground point.

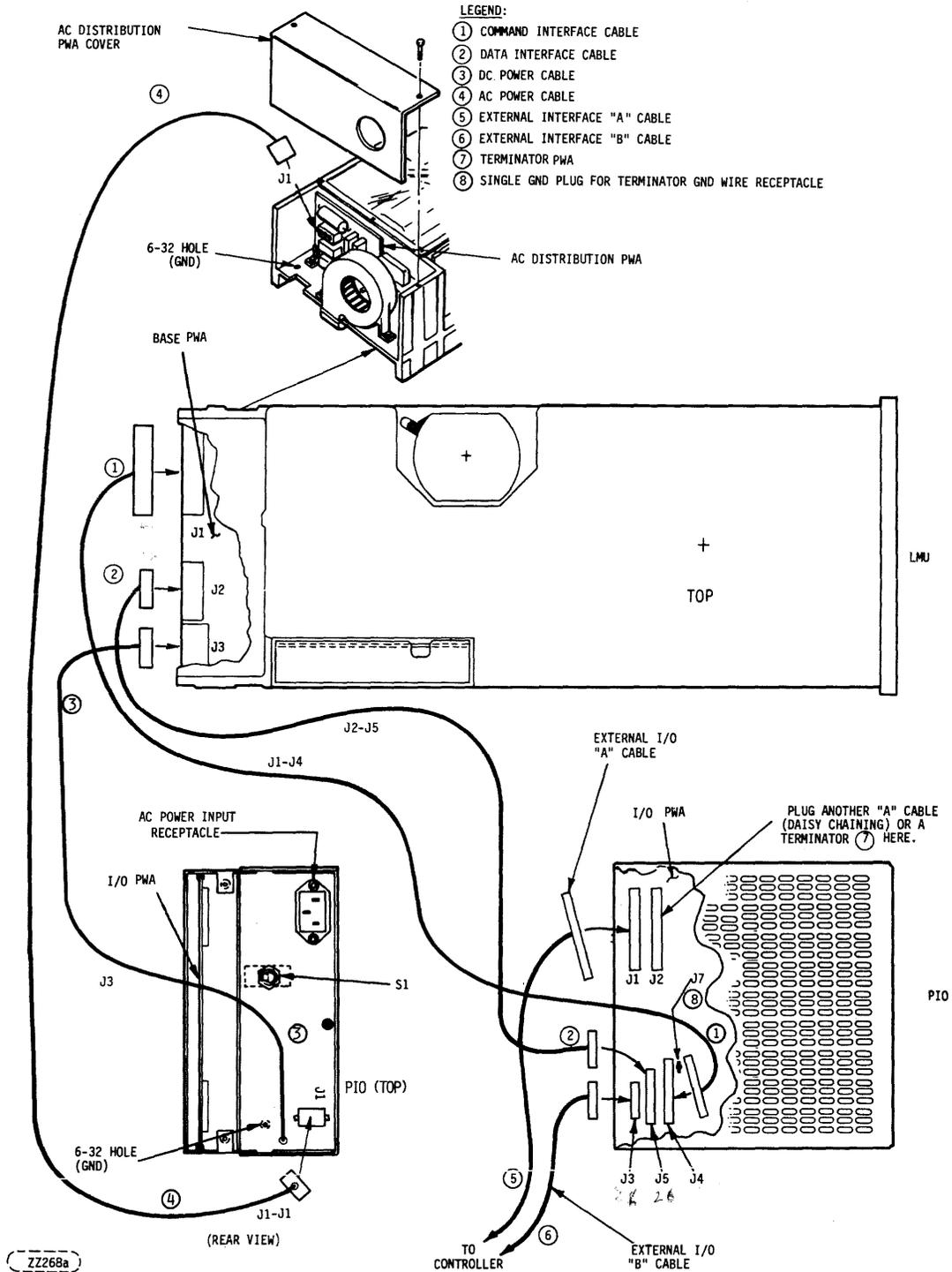
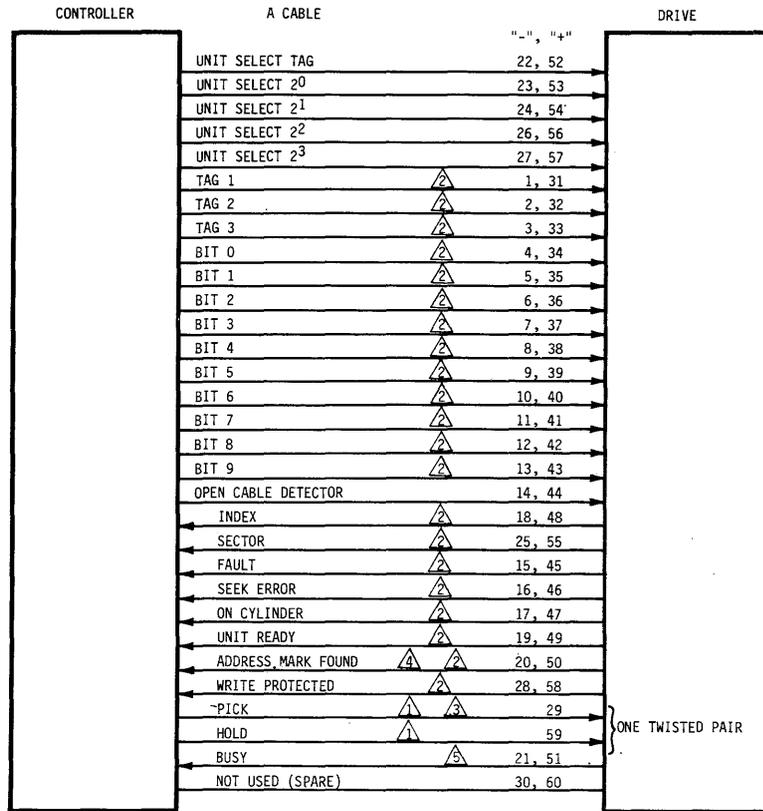


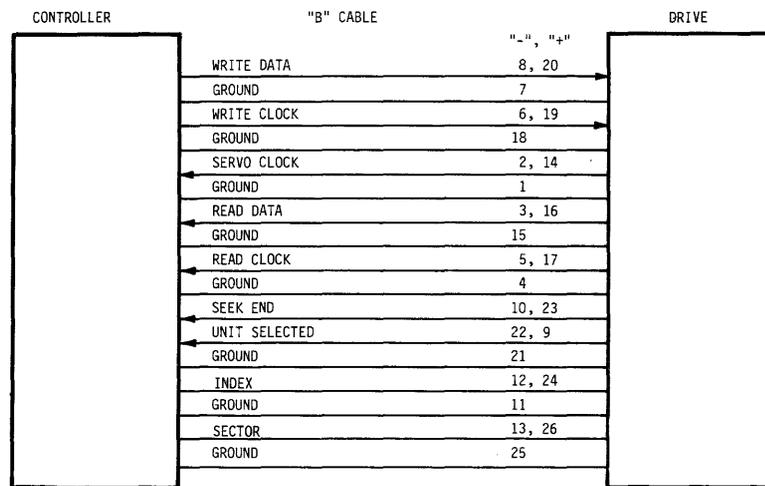
FIGURE 3-7. LMD CABLE CONNECTIONS



NOTE: 60 POSITION
30 TWISTED PAIR - STRAIGHT FLAT CABLE
MAXIMUM LENGTH - 100 FT (30.48 METERS)

- z178a
- ⚠ SPECIAL SIGNAL, NOT A BALANCED TRANSMISSION SIGNAL
 - ⚡ GATED BY UNIT SELECTED
 - ⚠ NOT INTERPRETED, IS DAISY CHAINED, NO DRIVER CONNECTION WITHIN THE LMD.
 - ⚠ NOT ACTIVATED, IS DAISY CHAINED, ALWAYS A LOGIC ZERO OUTPUT IF UNIT IS SELECTED
 - ⚠ NOT GENERATED, IS DAISY CHAINED, NO DRIVER CONNECTION WITHIN THE LMD

FIGURE 3-8. TAG BUS I/O INTERFACE ("A" CABLE)



- NOTES: 1. 26 CONDUCTOR FLAT CABLE.
MAXIMUM LENGTH - 50 FT. (15.24 METERS)
2. NO SIGNALS GATED BY "A" CABLE UNIT SELECT.

z178b

FIGURE 3-9. "B" CABLE INTERFACE

	TAG 1	TAG 2	TAG 3
BUS	CYLINDER ADDRESS	HEAD/VOLUME SELECT	CONTROL SELECT
BIT 0	2 ⁰	2 ⁰	WRITE GATE
BIT 1	2 ¹	2 ¹	READ GATE
BIT 2	2 ²		SERVO OFFSET PLUS
BIT 3	2 ³		SERVO OFFSET MINUS
BIT 4	2 ⁴		FAULT CLEAR
BIT 5	2 ⁵		
BIT 6	2 ⁶		RTZ
BIT 7	2 ⁷		DATA STROBE EARLY
BIT 8	2 ⁸		DATA STROBE LATE
BIT 9	2 ⁹		

- HEAD CHANGES ARE NOT INITIATED UNTIL A VALID SEEK IS RECEIVED FOLLOWING A HEAD CHANGE COMMAND IF THE SEEK-ON-HEAD-CHANGE OPTION IS NOT SELECTED. IF THE SEEK-ON-HEAD-CHANGE OPTION IS SELECTED, THE HEAD CHANGES AND A ZERO DISTANCE SEEK WILL BE INITIATED AS A RESULT OF THE HEAD CHANGE.
- NOT INTERPRETED BY THE LMD.

Z179b

FIGURE 3-10. TAG BUS DECODE

3.8 ENVIRONMENT

Temperature

a. Operating

50°F (10.0°C) to 104°F (40°C) with a maximum gradient of 18°F (10°C) per hour. Maximum operating temperature should be reduced as a function of altitude by 1.95°F/1000 ft. (-15.5°C/304.8 m).

b. Transit Temperatures

-40°F (-40.4°C) to 158°F (70.0°C) with a maximum gradient of 36°F (20°C) per hour. This specification assumes that the PIO is packaged in the shipping container designed by manufacturer for use with the PIO.

c. Storage Temperature

14°F (-10°C) to 122°F (50.0°C) with a maximum gradient of 27°F (15.°C) per hour.

Relative Humidity

a. Operating

20% to 80% RH (providing there is no condensation) with a maximum gradient of 10% per hour.

Transit (as packed for shipment)

5% to 95% (providing there is no condensation).

- b. Storage 10% to 90% (providing there is no condensation).
- c. Altitude (actual or effective)
 - 1. Operating
 - 983 ft (300 m) below sea level to 6560 ft (2000 m) above sea level.
 - 2. Transit (as packed for shipment)
 - 983 ft (300 m) below sea level to 8200 ft (2500 m) above sea level.

3.9 INITIAL CHECKOUT AND STARTUP PROCEDURE

This procedure should be used to make the first power application to the LMD. The procedure assumes that the preceding procedures and requirements of this section have been performed.

1. Insure system AC power circuit breaker is OFF.
2. Insure PIO power switch is positioned to OFF.
3. Verify LMU START/STOP switch is in STOP (out) position.
4. Unscrew LMU carriage locking pin (CCW direction) until head of screw is flush with top of cover (see Figure LMU Installation/Operation Manual). Resistance to turning will be felt as locking pin nears the correct position.
5. Install the AC power cable between power source and PIO AC power input receptical.
6. Turn on Subsystem AC power circuit breaker.
7. Position PIO AC power switch to ON. The LMU cooling fan should operate and front panel door should unlock when START/STOP switch is in STOP position (out).
8. Verify proper disk cartridge is available and insert into LMU.
9. Operate LMU START/STOP switch to START (in). Spindle motor should rotate. Head loading sequence is initiated, START/STOP indicator blinks until heads are loaded then, remains illuminated. Also, front panel door locks when spindle rotation begins.
10. Perform on-line diagnostics, as applicable.

3.10 ACCESSORIES

3.10.1 I/O INTERFACE ACCESSORIES-PIO TO/FROM CONTROLLER

I/O Interface PIO to Controller Accessory items required, but not furnished with the device unless specifically ordered are shown in Table 3-3 and 3-4.

TABLE 3-3. I/O CABLE AND TERMINATOR PART NUMBERS

CABLE	QUANTITY	PART NO.
"A" Cable (Controller to PIO) (Same connector on each end. See Paragraph 3.10.2)	One per PIO in radial, one per multispindle installation in Daisy chain.	775642XX
"A" Cable (Device to PIO) (Same connector on each end. See Paragraph 3.10.2)	One less than total devices in the Daisy chain.	775642XX
"B" Cable (Controller to PIO)	One per PIO	775643XX
Terminator	One per PIO in radial, one per multispindle installation in Daisy chain (One is provided with each I/O PWA).	75886100

⚠ Last two digits denote length. (For cable length, see Table 3-4).

TABLE 3-4. I/O CABLE LENGTH AND TABS

PART NO.	CABLE LENGTH IN METERS									
	1.52 5	1.83 6	2.44 8	3.05 10	4.58 15	6.96 20	7.63 25	9.15 30	12.2 40	15.24 50
TAB (XX) "A" Cable 775642XX	00	01	02	03	04	05	06	07	08	09
"B" Cable 775643XX	00	01	02	03	04	05	06	07	08	09

3.10.2 I/O CABLE CHARACTERISTICS AND CONNECTOR PART NUMBERS

3.10.2.1 "A" CABLE

ITEM*	DESCRIPTION	CDC P/N	BERG P/N	SPECTRA-STRIP P/N
1	Connector (60 Pos)	94361115	65043-007	
3	Contact, Insert	94245603	48048	-----
2	Flat Cable (twisted-pair), 30 pair, 28 AWG	95043902		3CT-6028-7B-05-100

"A" Cable Mating Receptacle on Unit or Controller.

<u>ITEM*</u>	<u>DESCRIPTION</u>	<u>CDC P/N</u>	<u>3M P/N</u>
4	60 pin, vertical header	91904653	3372-2302

3.10.2.2 "B" CABLE

<u>ITEM*</u>	<u>DESCRIPTION</u>	<u>CDC P/N</u>	<u>3M P/N</u>
5	Connector (26 pos.)	65853402	3399-3000
6	Connector Pull Tab	92004801	3490-2
7	Flat Cable (26 pos.) with ground plane and drain wire.	95028509	3476-26

"B" Cable Mating Receptacle on Unit or Controller.

<u>ITEM*</u>	<u>DESCRIPTION</u>	<u>CDC P/N</u>	<u>BERG P/N</u>
8	26 pin, vertical header	96752044	65610-126

3.10.2.3 I/O CABLE CHARACTERISTICS

"A" Cable

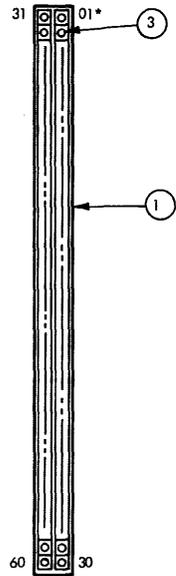
Type: 30 twisted pair, flat-cable
 Twists per inch: 2
 Impedance: 100 ±10 ohms
 Wire Size: 28 AWG, 7 strands
 Propagation time: 1.6 to 1.8 ns/ft (0.49 to 0.55 ns/m)
 Maximum cable length: 100 ft (30.48 meters) cumulative
 Voltage Rating: 300 V rms

"B" Cable (with ground plane)

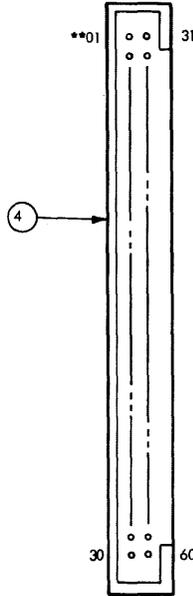
Type: 26 conductor, flat cable with ground plane and drain wire
 Impedance: 65 ohms (3M P/N 3476-26)
 Wire Size: No. 28 AWG, 7 strands
 Propagation time: 1.5 to 1.8 ns/ft (0.46 to 0.55 ns/m)
 Maximum cable length: 50 ft (15.24 meters)
 Voltage Rating: 300 V rms

*See Figure 3-12.

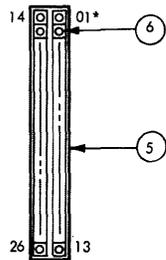
60 PIN RECEPTACLE
CABLE "A" CONNECTOR



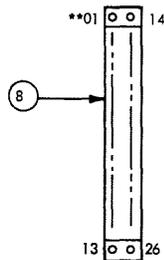
60 PIN MATING
PWB "A" CONNECTOR
ON UNIT OR CONTROLLER



26 PIN RECEPTACLE
CABLE "B" CONNECTOR



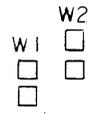
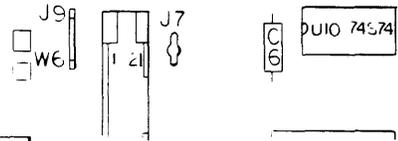
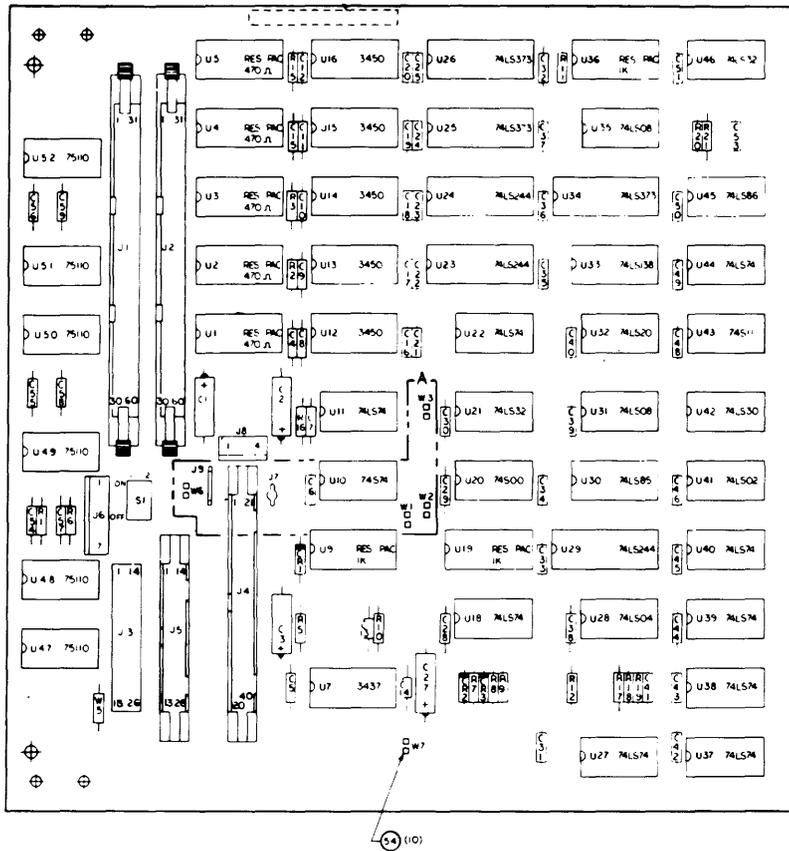
26 PIN MATING
PWB "B" CONNECTOR
ON UNIT OR CONTROLLER



* CONNECTORS AS PURCHASED
MAY NOT HAVE RECEPTACLE
NUMBERS MARKED ON THEM
** PIN NUMBERS ETCHED ON PWB

XX214a

FIGURE 3-11. I/O CONNECTORS



PIO HPC	HERTZ	INTERFACE	JUMPERS INSTALLED	TEST NUMBER OF PIO TESTER
77654800	60	SMD INTERFACE	W3	0F
77654801	50	SMD INTERFACE	W3	0F
77654802	60	SMD INTERFACE WITH DELAYED ON CYLINDER	W3, W1	1E
77654809	50	SMD INTERFACE WITH DELAYED ON CYLINDER	W3, W1	1E
77654803	60	SMD INTERFACE WITH PSUEDO SEEK	W3, W6	2D
77654810	50	SMD INTERFACE WITH PSUEDO SEEK	W3, W6	2D
77654804	60	SMD INTERFACE WITH DELAYED ON CYLINDER AND PSUEDO SEEK	W3, W1, W6	3C
77654811	50	SMD INTERFACE WITH DELAYED ON CYLINDER AND PSUEDO SEEK	W3, W1, W6	3C
77654805	60	CMD COMPATIBLE	W2	4B
77654812	50	CMD COMPATIBLE	W2	4B
77654806	60	CMD COMPATIBLE WITH DELAYED ON CYLINDER	W2, W1	5A
77654813	50	CMD COMPATIBLE WITH DELAYED ON CYLINDER	W2, W1	5A
77654807	60	CMD COMPATIBLE WITH PSUEDO SEEK	W2, W6	69
77654814	50	CMD COMPATIBLE WITH PSUEDO SEEK	W2, W6	69
77654808	60	CMD COMPATIBLE WITH DELAYED ON CYLINDER AND PSUEDO SEEK	W2, W1, W6	78
77654815	50	CMD COMPATIBLE WITH DELAYED ON CYLINDER AND PSUEDO SEEK	W2, W1, W6	78
77654816	50	SAME AS 77654812 MINUS POWER CORD.		
77654817	50	SAME AS 77654814 MINUS POWER CORD.		

DETAIL A

(F154)

FIGURE 3-12. I/O ADAPTER PWA

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