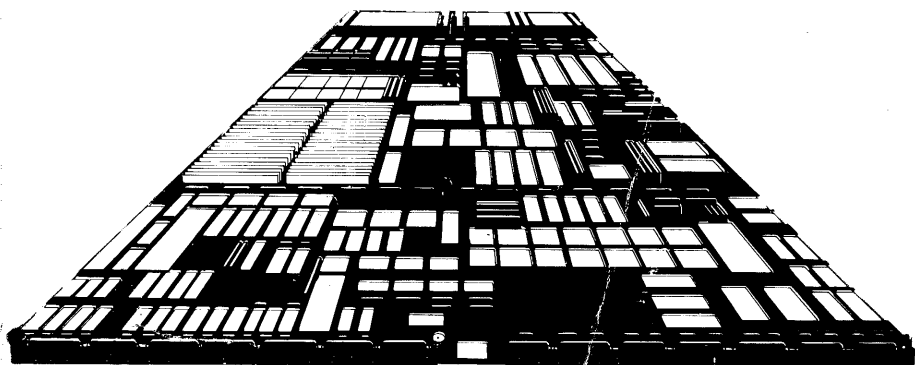


MODEL 3205

SYSTEM OWNERS REFERENCE



PERKIN-ELMER

PERKIN-ELMER

MODEL 3205 SYSTEM

Owner's Manual

47-066 R00

The information in this document is subject to change without notice and should not be construed as a commitment by The Perkin-Elmer Corporation. The Perkin-Elmer Corporation assumes no responsibility for any errors that may appear in this document.

The hardware description in this document is intended solely for use in operation, installation, maintenance, or repair of Perkin-Elmer equipment. Use of this document for all other purposes, without prior written approval from Perkin-Elmer is prohibited.

Any approved copy of this manual must include the Perkin-Elmer copyright notice.

Warning: This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

The Perkin-Elmer Corporation, Data Systems Group,
2 Crescent Place, Oceanport, New Jersey 07757

© 1984 by The Perkin-Elmer Corporation

Printed in the United States of America

TABLE OF CONTENTS

PREFACE

vii

CHAPTERS

1	GENERAL INFORMATION	1
1.1	INTRODUCTION	1
1.2	PURPOSE AND FUNCTION	3
1.3	SYSTEM COMPONENTS	3
1.3.1	Processor Board	4
1.3.2	Multiperipheral Controller (MPC) Board	4
1.3.3	Memory	5
1.3.4	50Mb Cartridge Disk Drive (CDD50)	5
1.3.5	Model 6100 Video Display Unit (VDU)	5
1.3.6	Intelligent Disk Controller (IDC)	6
1.3.7	Consolette	6
2	CONFIGURATIONS	7
2.1	INTRODUCTION	7
2.2	SYSTEM CONFIGURATIONS	7
2.2.1	Basic Model 3205 System	7
2.2.1.1	Model 3205 System Options	9
2.2.2	Model 3205 Processor Subsystem	9
3	SYSTEM CONFIGURATION	11
3.1	INTRODUCTION	11
3.2	UNPACKING	11

CHAPTERS (Continued)

3.3	INITIAL INSPECTION	12
3.3.1	Side and Rear Panel Removal	12
3.3.2	Front Panel Removal	13
3.4	MODEL 3205 SYSTEM SETUP	14
3.5	POWER AND UTILITY REQUIREMENTS	18
3.6	ENVIRONMENT	19
3.6.1	Recommendations	19
3.6.2	Site Considerations	20
3.7	OPERATING PRECAUTIONS	20
3.7.1	Model 3205 System	20
3.7.2	50Mb Cartridge Disk Drive (CDD50)	21
3.7.3	Model 6100 Video Display Unit (VDU)	22
4	CONTROLS AND INDICATORS	23
4.1	INTRODUCTION	23
4.2	CONSOLETTA	23
4.2.1	Function Switches	24
4.2.1.1	Key-Operated Security Lock	24
4.2.1.2	Initialize (INIT) Switch	24
4.2.1.3	Initial Program Load (IPL) ENABLE/DISABLE Switch	25
4.2.1.4	HALT/RUN Switch	25
4.2.1.5	SINGLE Switch	25
4.2.2	Indicators	26
4.2.2.1	Central Processing Unit (CPU) Power	26
4.2.2.2	Memory Power	26
4.2.2.3	WAIT	26
4.2.2.4	FAULT	26
4.3	POWER SUBSYSTEM	27
4.3.1	Circuit Breaker	27
4.3.2	FAULT Indicators	27
4.3.3	Switches	29
4.3.3.1	P5 Margin HI/LO Switch	29
4.3.3.2	P5U Margin HI/LO Switch	30

CHAPTERS (Continued)

4.3.3.3	C5 P5U ON/OFF Switch	30
4.3.4	Fuses	30
4.4	MODEL 6100 VIDEO DISPLAY UNIT (VDU)	30
4.4.1	ON/OFF Switch	31
4.4.2	Video Contrast Control	31
4.4.3	Fuse	33
4.5	50MB CARTRIDGE DISK DRIVE (CDD50)	33
4.5.1	Switches	34
4.5.1.1	START/STOP Switch	34
4.5.1.2	FIXED PROT Switch	34
4.5.2	Indicators	34
4.5.2.1	READY Indicator	34
4.5.2.2	FAULT Indicator	35
4.5.3	Power Supply	35
4.5.4	Removable Cartridge Disk	38
4.5.4.1	Write Protect Operation	40
4.5.4.2	Removable Cartridge Installation	40
4.5.4.3	Removable Cartridge Removal	41
4.6	AC DISTRIBUTION PANEL	43
4.6.1	Fuses	44
4.6.2	Receptacles	44
4.6.3	Fan Power Jacks	44
5	OPTIONS	45
5.1	INTRODUCTION	45
5.2	MEMORY EXPANSION BOARD	45
5.3	BATTERY BACK-UP	45
5.4	MULTIPERIPHERAL CONTROLLER (MPC) EXPANSION BOARD	46
5.5	50MB EXPANSION CARTRIDGE DISK DRIVE (CDD50E)	46
5.6	INPUT/OUTPUT (I/O) EXPANSION CHASSIS	46

CHAPTERS (Continued)

6	TROUBLESHOOTING	47
6.1	INTRODUCTION	47
6.2	TROUBLESHOOTING	47
6.2.1	Model 3205 System	47
6.2.1.1	Fault	48
6.2.1.2	Power Fail	48
6.2.2	50Mb Cartridge Disk Drive (CDD50)	49
6.2.2.1	FAULT Condition	49
6.2.2.2	Power Fail	50
6.2.2.3	Power Fail Cartridge Removal Procedures	51
6.2.3	Model 6100 Video Display Unit (VDU)	52
6.2.3.1	Power Failure	52
6.2.3.2	No Response	53
6.2.4	Power Subsystem	53
6.2.4.1	Fault Condition	54
6.2.4.2	Power Fail	54
6.2.5	AC Distribution Panel	55
6.3	DIAGNOSTIC TESTING	55

APPENDIX

A	TROUBLESHOOTING CHARTS	57
---	------------------------	----

FIGURES

1-1	Model 3205 System	2
1-2	Basic Model 3205 Processor Subsystem	3
2-1	Model 3205 System Configuration	8
2-2	Model 3205 Processor Subsystem with Optional Features	10

FIGURES (Continued)

3-1	Side and Rear Panels	13
3-2	Front Panel	14
3-3	Model 6100 VDU Keyboard (Rear View)	15
3-4	Model 6100 VDU Monitor (Rear View)	16
3-5	I/O Connector Panel	17
4-1	Consolette Function Switches and Indicators	23
4-2	Model 3205 Cabinet (Rear View)	28
4-3	Power Subsystem Front Panel	29
4-4	Model 6100 VDU	31
4-5	Model 6100 VDU Controls (Front View)	32
4-6	Model 6100 VDU Connectors	33
4-7	CDD50	35
4-8	Cabinet Fan Assembly (Rear View)	36
4-9	CDD50 Power Supply	37
4-10	CDD50 Power Supply Front Panel	38
4-11	CDD50 Removable Disk (Top View)	39
4-12	CDD50 Removable Disk (Bottom View)	39
4-13	CDD50 Cartridge Installation and Removal	42
4-14	AC Distribution Panel	43
6-1	CDD50 Emergency Access Door Release	52
6-2	Front Panel Power Subsystem	54

TABLES

3-1	AC POWER REQUIREMENTS	18
-----	-----------------------	----

INDEX

IND-1

PREFACE

This manual is designed to function as an entry-level document for new users of the Perkin-Elmer Model 3205 System and as a guide to the operation of the system.

Chapter 1 contains a description of the hardware and the functions it provides to the system. Chapter 2 contains system configurations. Chapter 3 contains information for unpacking and inspecting the system, as well as environmental recommendations, utility requirements and operating precautions. Chapter 4 covers the controls and indicators for the different components of the system. Chapter 5 describes the options available to the system and how they enhance it. Chapter 6 contains information on troubleshooting the system in the event of a power loss or fault condition. Appendix A contains charts for a quick reference in troubleshooting the Model 3205 System.

For information on the contents of all Perkin-Elmer 32-bit manuals, see the 32-Bit Systems User Documentation Summary.

CHAPTER 1 GENERAL INFORMATION

1.1 INTRODUCTION

The Model 3205 System is one of the least expensive 32-bit minicomputers available today. Perkin-Elmer is able to achieve this breakthrough by using high technology components, space-saving memory packaging and a single-board processing unit.

The Model 3205 System is a fully configured system, and the unbundled or stripped-down version of the Model 3205 System is referred to as the Model 3205 Processor Subsystem. The Model 3205 Processor Subsystem is targeted to the needs of the original equipment manufacturer (OEM).

Figure 1-1 shows a fully configured Model 3205 System in a 76.2cm (30") cabinet consisting of a 17.8cm (7") 8-slot chassis, a power subsystem, a system consolette and a 50Mb cartridge disk drive (CDD50). The 17.8cm (7") chassis contains a processor board configured with 512kb or 1Mb of memory, a multiperipheral controller (MPC) board to handle eight full-duplex data communications channels, a memory expansion board configured with 1, 2 or 3Mb of memory (optional), giving the system a total of 4Mb of real memory, floating point capabilities and a line printer port. This cabinet contains all the capabilities for true 32-bit data processing.

Figure 1-2 shows a Model 3205 Processor Subsystem that contains a 17.8cm (7") chassis, a system consolette, a processor board configured with 512kb or 1Mb of memory, and an MPC board.

8961

2

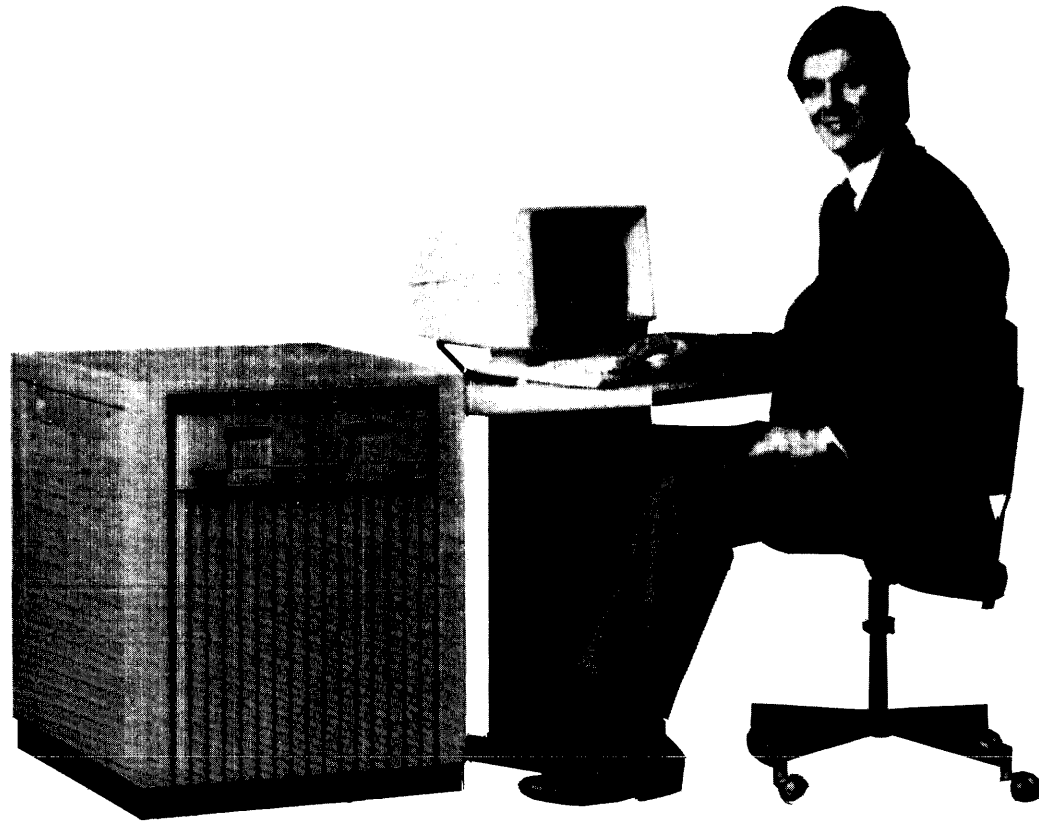


Figure 1-1 Model 3205 System

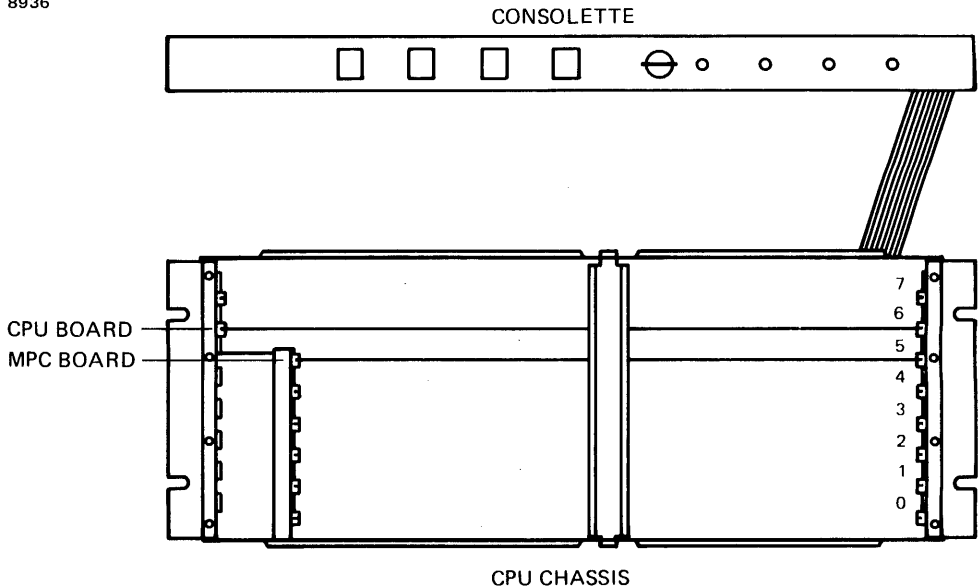


Figure 1-2 Basic Model 3205 Processor Subsystem

1.2 PURPOSE AND FUNCTION

Included in this manual are system setup procedures, component and indicator descriptions, switch and control descriptions, environmental recommendations, operating precautions and diagnostic tests that relate to this system.

1.3 SYSTEM COMPONENTS

The Model 3205 System consists of a processor board configured with 512kb or 1Mb of memory, an MPC board, a memory expansion board configured with up to 3Mb of memory (optional), a CDD50, a Model 6100 video display unit (VDU), a console and an intelligent disk controller (IDC).

1.3.1 Processor Board

The processor board performs the functions listed below.

- Provides a full Perkin-Elmer Series 3200 instruction set
- Manages all system input/output (I/O) by use of the multiplexor (MUX) bus
- Provides memory management
- Provides a private multiplexor (PMUX) bus for direct memory access (DMA)
- Interfaces the console to the system

1.3.2 Multiperipheral Controller (MPC) Board

The MPC board provides the features listed below.

- Eight full-duplex data communications channels
- Data handling assist
- On-board loader storage unit (LSU)
- On-board universal clock (UCLOCK)
- Watchdog timer
- User interface to the system
- Parallel line printer port
- Self-test feature
- Interface of the Model 6100 VDU to the system

1.3.3 Memory

The following are the functions and features of the memory system.

- Error checking and correcting (ECC)
- Error logger
- Memory address translator (MAT)
- 512kb or 1Mb of memory on the processor board
- 1, 2 or 3Mb of memory on the memory expansion board for a maximum of 4Mb of memory in the system
- Battery back-up (optional)

1.3.4 50Mb Cartridge Disk Drive (CDD50)

The CDD50 is a mass storage memory device featuring both removable and fixed storage. The unformatted storage capacity of the CDD50 is 50Mb; 25Mb of storage is provided by removable media (disk cartridge), and 25Mb is provided by nonremovable media.

1.3.5 Model 6100 Video Display Unit (VDU)

The Model 6100 VDU provides the following:

- Video display
- Keyboard

1.3.6 Intelligent Disk Controller (IDC)

The IDC provides the following functions.

- Interfaces the CDD50 to the processor
- Can support up to four CDD50s: two in the system cabinet and two in an external cabinet

1.3.7 Consolette

The consolette provides the user with information on the system's status and controls the following system functions.

- The system's primary power
- The system's initialization sequence
- The choice of either free running or single-instruction mode
- The system's current operational status
- Information from the consolette LEDs about the current state of the system

CHAPTER 2 CONFIGURATIONS

2.1 INTRODUCTION

The Model 3205 System is configured to the customer's specifications. This chapter describes the basic Model 3205 System and its options, including the Model 3205 Processor Subsystem.

2.2 SYSTEM CONFIGURATIONS

The following sections describe the configurations and options of the Model 3205 System and the Model 3205 Processor Subsystem.

2.2.1 Basic Model 3205 System

The Model 3205 System consists of the following components (see Figure 2-1).

- Processor board with 512kb or 1Mb of memory
- Multiperipheral controller (MPC) board
- 50Mb cartridge disk drive (CDD50)
- Model 34-042 Power Subsystem (domestic 115V)
- 8-slot 17.8cm (7") central processing unit (CPU) chassis
- System consolette
- 76.2cm (30") beige cabinet
- Model 6100 video display unit (VDU)
- Intelligent disk controller (IDC)

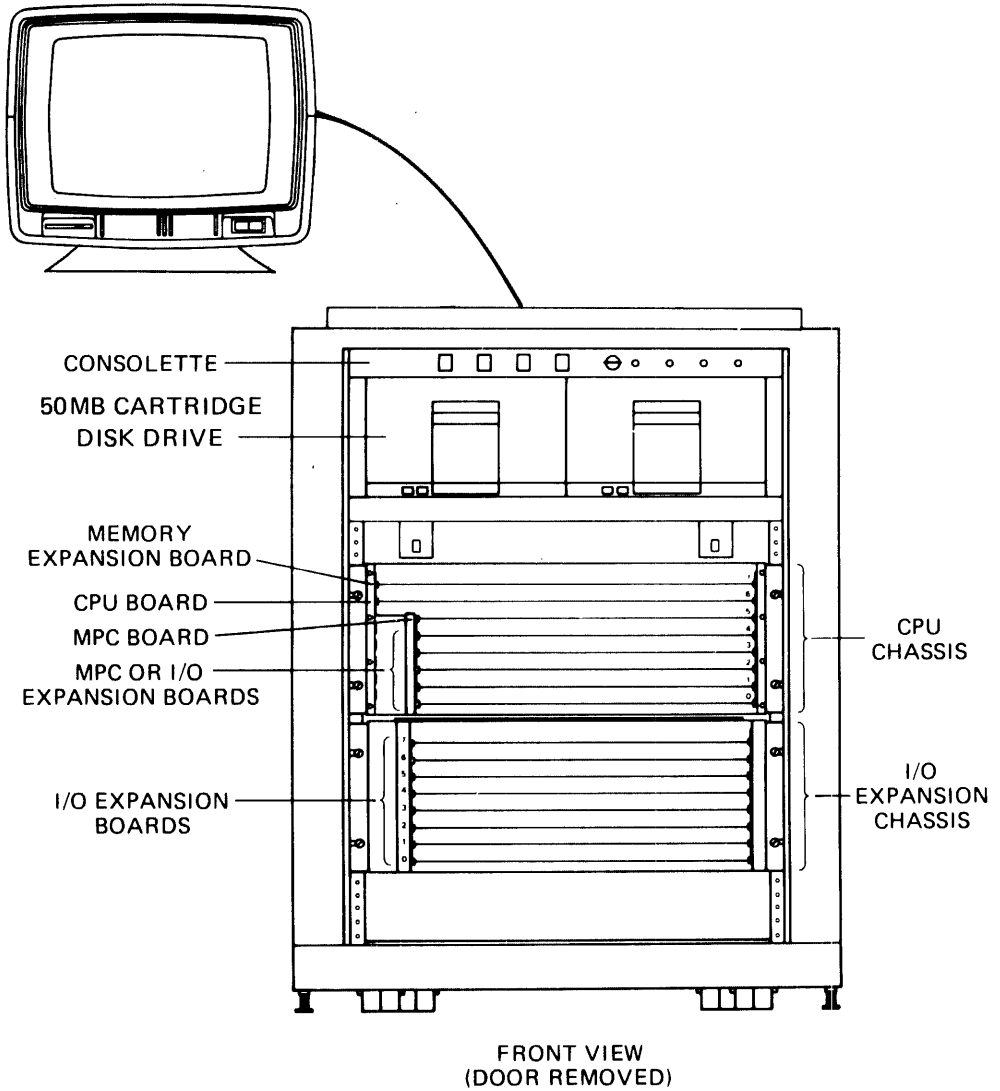


Figure 2-1 Model 3205 System Configuration

2.2.1.1 Model 3205 System Options

The Model 3205 System can be configured with the following components. See Figure 2-1.

- MPC board (additional)
- Expansion memory board with 1, 2 or 3Mb of memory
- Battery back-up
- Input/output (I/O) expansion chassis (208/230V power subsystem is required)
- Model 34-039 Power Subsystem (208/230V domestic and international)

2.2.2 Model 3205 Processor Subsystem

The Model 3205 Processor Subsystem consists of the following components (see Figure 2-2).

- Processor board with 512kb of memory
- MPC board
- 8-slot 17.8cm (7") CPU chassis
- System consolette

8938

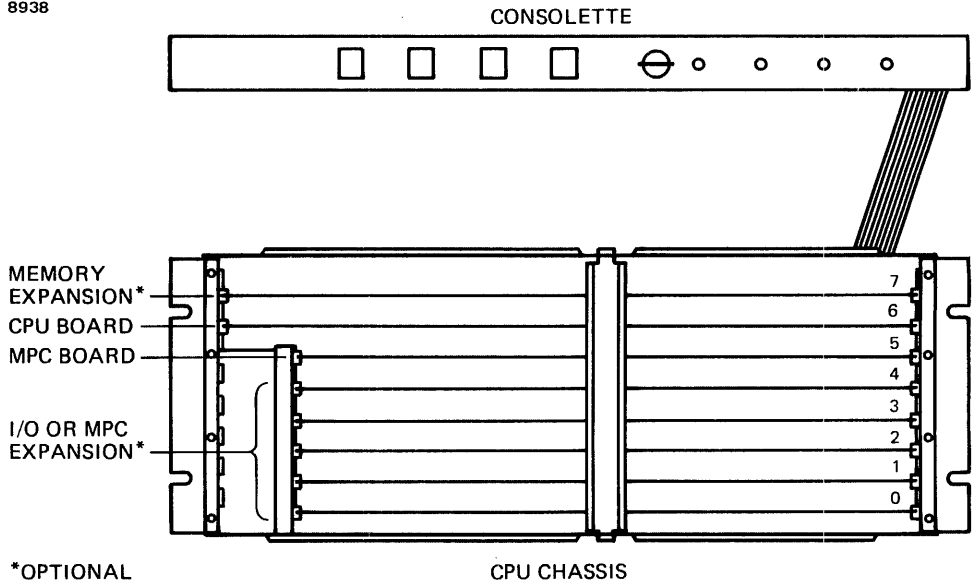


Figure 2-2 Model 3205 Processor Subsystem with Optional Features

CHAPTER 3 SYSTEM CONFIGURATION

3.1 INTRODUCTION

The Model 3205 System is an expandable system that can be configured to the user's processing requirements. Installation and configuration information and circuit descriptions are provided in the appropriate manuals. This chapter provides a general overview to help the owner or user set up the system, check components, choose an appropriate site and connect the system to the proper power source.

3.2 UNPACKING

The Model 3205 System is shipped with all the mounting hardware, cables and plugs required for setup.

Read and follow the procedures listed below before unpacking your system.

1. Inspect each carton or crate for any special unpacking or handling instructions.
2. Carefully remove each component from its carton or crate.
3. Inspect all components for physical damage.
4. If the system is shipped already cabinet-mounted, ensure that all terminals and connectors are properly connected. See Section 3.4.

3.3 INITIAL INSPECTION

Each Model 3205 System and Processor Subsystem is tested, inspected and carefully packaged prior to shipment. Once the system has been unpacked, a visual inspection of the system should be performed using the following checklist.

1. Verify that each item on the sales order packing list has been included in the shipment.
2. Verify that the serial numbers of the components correspond to those shown on the invoice.
3. Check the hardware to determine if any of the assemblies or screws were loosened during shipment.
4. Check the printed circuit (PC) boards and cable connectors to ensure that they are properly connected. To remove the side panels, see Section 3.3.1.
5. Inspect for dust or any foreign material that can impair electrical contact when cable connections are made. Vacuum or brush lightly to remove any dust or foreign material.

3.3.1 Side and Rear Panel Removal

The side and rear panels, sometimes called skins, are removed by turning the two latches located at the top of each panel one-quarter turn. Figure 3-1 shows the location of the latches on the rear and side panels.

3.3.2 Front Panel Removal

The front panel is removed by turning the two screws at the top of the panel. Figure 3-2 shows the location of the screws on the front panel.

8939

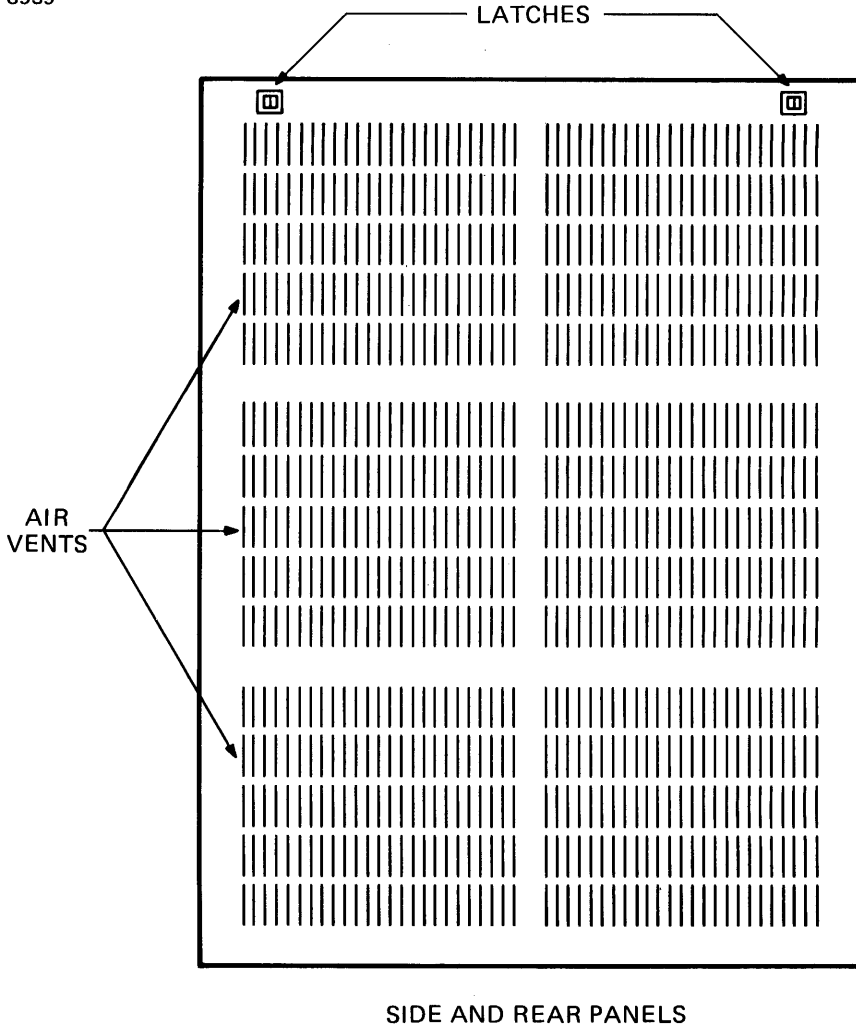
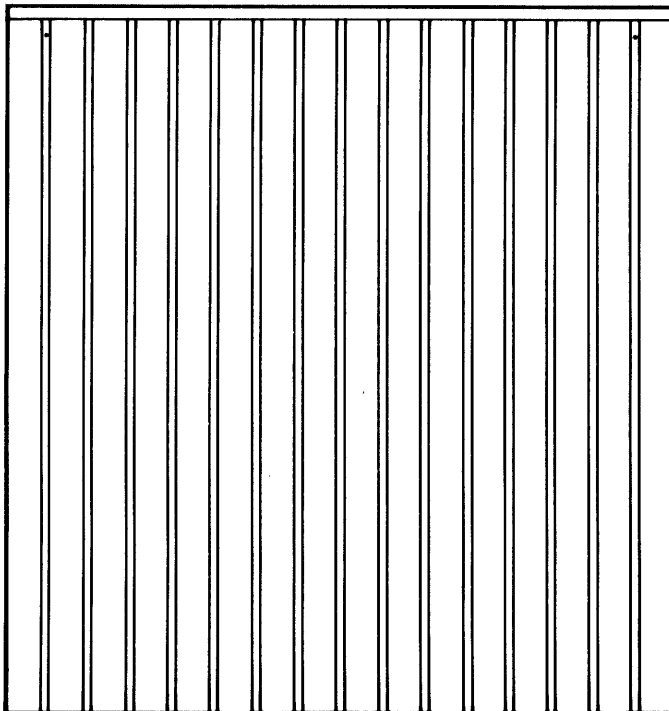


Figure 3-1 Side and Rear Panels



FRONT PANEL

Figure 3-2 Front Panel

3.4 MODEL 3205 SYSTEM SETUP

When the system has been unpacked, the following procedures should be followed to set up the system for operation.

1. The Model 6100 video display unit (VDU) has two cables that must be connected.
 - The first cable connects the keyboard to the monitor. It is a coiled, expandable cable that is connected between the rear of the keyboard and the rear of the monitor as shown in Figures 3-3 and 3-4.

- The second cable connects to the primary modem port on the rear of the monitor and one of eight ports on the input/output (I/O) connector panels. There can be two I/O connector panels in the cabinet: one on the right and one on the left. The I/O connector panels are shown in Figure 3-5.
2. After all ON/OFF switches are placed in the OFF position, the power cord for the cabinet can be connected to the appropriate power source and the Model 6100 VDU can be connected to the AC distribution panel or an appropriate AC receptacle.

CAUTION

BEFORE CONNECTION IS
MADE TO THE MAIN POWER
SOURCE, MAKE CERTAIN
THAT ALL ON/OFF
SWITCHES ARE IN THE OFF
POSITION.

3. See the appropriate sections in Chapter 4 for information on the switches that control the main power to the different components in the system.

8941

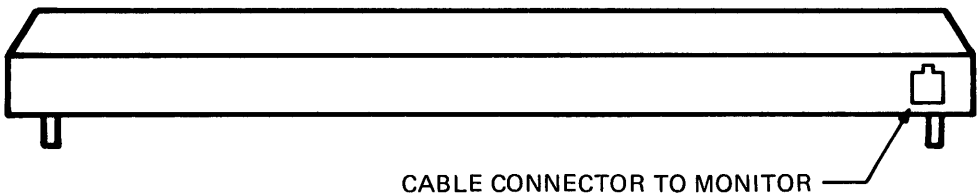


Figure 3-3 Model 6100 VDU Keyboard (Rear View)

8942

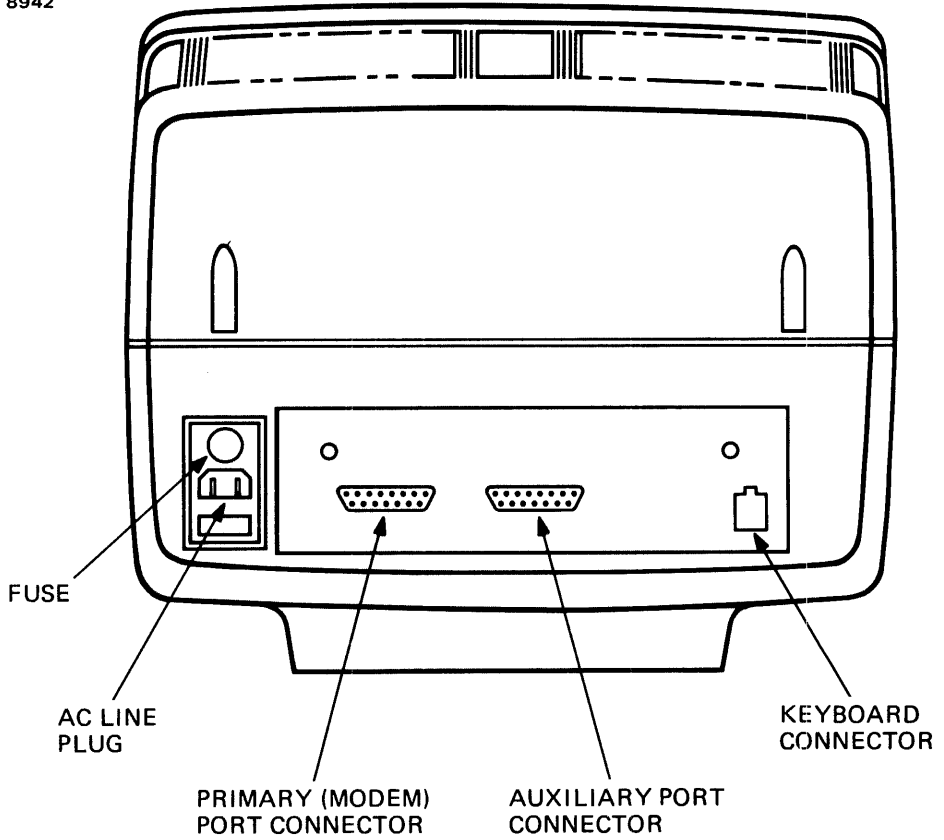


Figure 3-4 Model 6100 VDU Monitor (Rear View)

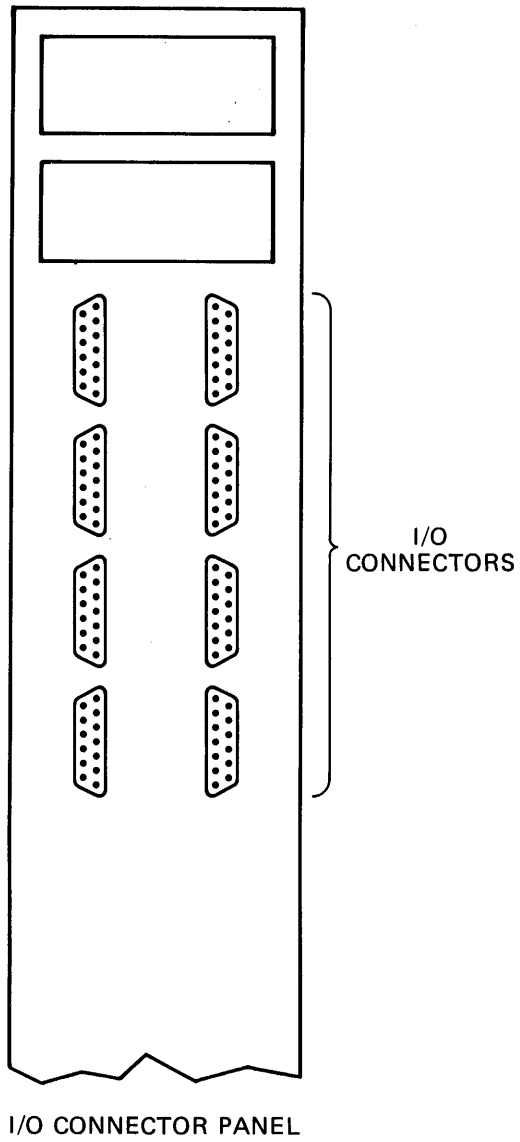


Figure 3-5 I/O Connector Panel

3.5 POWER AND UTILITY REQUIREMENTS

The power and utility requirements for Model 3205 Systems are shown in Table 3-1. This table reflects both domestic and international variations.

TABLE 3-1 AC POWER REQUIREMENTS

	DOMESTIC (125V)	DOMESTIC (208V)	INTERNATIONAL (230V)
Frequency	60Hz	60Hz	50Hz
Phase	Single 3-Wire	Two 4-Wire	Single 3-Wire
Input AC Current	20A	20A	20A
Circuit Breaker Rating	20A	15A	15A
Power Cord Length	71.1cm (28")	71.1cm (28")	71.1cm (28")
Power Cord Plug Hubbell Number	5366-C	2711	45115
NEMA Type/ Rating*	5/125V 20A	L14/125/250V 30A	**

* Hubbell or an Equivalent

** International Systems Only

3.6 ENVIRONMENT

The environmental recommendations and considerations are outlined in the following sections.

3.6.1 Recommendations

The following outlines the temperature ranges, humidity ranges, and the clearance area recommended for the Model 3205 System.

- Temperature:

18°C to 24°C (65°F to 75°F)

- Temperature rate of change:

2°C (3.6°F) per hour

- Relative humidity:

20% to 80% noncondensing

- Humidity rate of change:

±2% per hour

- Equipment area clearance (minimum):

91.4cm (36") behind all equipment

91.4cm (36") in front of all equipment

30.5cm (12") on each side of all equipment

NOTE

If there are any questions on these recommendations, contact your Perkin-Elmer representative.

3.6.2 Site Considerations

When choosing a site for the Model 3205 System, the following considerations should be in accordance with the environmental recommendations stated in the preceding section.

1. The room where the system is installed should be free of dust, lint and dirt.
2. The room should not contain any material that could cause static electricity.
3. The system should be located in a low-traffic area.
4. The system should not be located near other equipment.
5. Food, beverages and smoking should be strictly forbidden in the area where the system is installed.

3.7 OPERATING PRECAUTIONS

Certain operating precautions should be considered to help prevent personal danger and excessive and unnecessary system or component damage due to environmental and/or human causes.

This section is broken down into the different system and component operating precautions.

3.7.1 Model 3205 System

The following precautions for the Model 3205 System should be observed when using the system. This is usually accomplished in the wall receptacle into which the system is plugged.

1. The system should be grounded to avoid the hazard of electrical shock to a user.
2. The room where the system is installed should not have drapes or any other material that could be the source of lint, dust or dirt.
3. If the system is in a carpeted room, the installation of an antistatic mat around the area of the system is advised.
4. The system should be installed in a low-traffic area to keep dust and dirt contamination at a minimum; also, jarring the system could loosen connections.
5. The system should not be located in an area where a printer, card punch or paper tape punch is located. These items produce particles of ink, carbon and paper that can be hazardous to system operation.
6. Food and beverages should be kept away from the area where the system is installed. These products can damage the system and cause unnecessary down-time.
7. Smoking should not be allowed near the system, as particles can clog the filter and become embedded in the cartridge disk.

3.7.2 50Mb Cartridge Disk Drive (CDD50)

The following operating procedures should be observed if the system is configured with one or more CDD50s.

1. A cartridge disk should be kept in the CDD50 at all times and the access door should be kept closed to prevent the entry of any atmospheric contaminants.
2. The cartridge disk installation procedure in Section 4.5.4.2 should be followed to prevent damage to and/or loss of data on the cartridge disk.
3. The operator should never attempt to override any of the CDD50's interlocks.
4. If the CDD50 should at any time make a persistent scratching or pinging sound, it should be turned off immediately.
5. If the access door latch release is inadvertently opened during operation, the CDD50 should be turned off immediately.

NOTE

If any problem occurs with the CDD50, see Chapter 6. If the correction is not included in Chapter 6, the operator should call a Perkin-Elmer representative to make the appropriate repair.

3.7.3 Model 6100 Video Display Unit (VDU)

The contrast control should be set low when the Model 6100 VDU is not in use, if the screen saver option is not used. This prevents permanent damage to the monitor screen.

CHAPTER 4 CONTROLS AND INDICATORS

4.1 INTRODUCTION

The operation and function of the switches and indicators of the Model 3205 System console, power subsystem, Model 6100 video display unit (VDU), AC distribution panel and 50Mb cartridge disk drive (CDD50) are explained in the following sections.

4.2 CONSOLE

The front of the console is shown in Figure 4-1.

2506

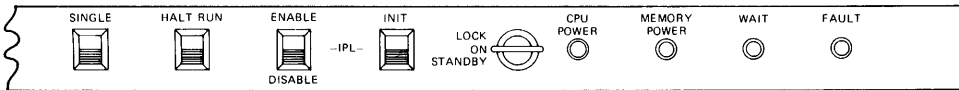


Figure 4-1 Console Function Switches and Indicators

4.2.1 Function Switches

The following sections describe the operation of the five console function switches. The switches are:

- Key-operated security lock
- INIT switch
- IPL ENABLE/DISABLE switch
- HALT/RUN switch
- SINGLE switch

4.2.1.1 Key-Operated Security Lock

This is a 3-position, key-operated locking switch (STANDBY/ON/LOCK) that controls the primary power to the system. The key-operated switch in the corresponding position performs these functions:

STANDBY	Processor 5V (P5) is off. 5V STANDBY (P5U) is on.
ON	Primary power is on.
LOCK	Primary power is on, and the INIT, HALT/RUN and SINGLE switches on the console are disabled. This switch is normally left in the LOCK position.

4.2.1.2 Initialize (INIT) Switch

This is a momentary action switch. When this switch is depressed, it causes the system to initialize. After system initialization, all device controllers on the system multiplexor (MUX) bus are cleared and certain processor functions are reset. This switch is disabled when the key-operated switch is in the LOCK position.

4.2.1.3 Initial Program Load (IPL) ENABLE/DISABLE Switch

The IPL ENABLE/DISABLE switch is a 2-position switch. The system is reloaded from the loader storage unit (LSU) if:

- the switch is in the ENABLE position and AC power is restored;
- the security lock switch is placed in the ON position from the STANDBY position; or
- the INIT switch is depressed.

This switch, when left in the ENABLE position, will autoloading the system after a power restoration. When in the DISABLE position after a power restoration, the system will not reload the LSU bootloader program and the user can continue operation by inputting a GO command.

4.2.1.4 HALT/RUN Switch

When depressed, this single-action switch either causes a running system to halt and enter the processor console service state, or forces a halted system in the processor console service state to enter the run mode.

4.2.1.5 SINGLE Switch

This switch, when in the single instruction position (enabled), places the processor in the single instruction cycle mode and places a running program into the processor console service mode. When in the single instruction cycle mode, the processor is returned to the console service mode after execution of each user instruction. This switch normally remains in the OFF position.

4.2.2 Indicators

The following sections describe the four console indicators.

- CPU power
- Memory power
- WAIT
- FAULT

4.2.2.1 Central Processing Unit (CPU) Power

When lit, this indicates that the 5VDC processor logic power (P5) is on.

4.2.2.2 Memory Power

When lit, this indicates that 5VDC memory (STANDBY) power (P5U) is on.

4.2.2.3 WAIT

The running program can place the processor into the wait state by setting the wait bit of the current PSW. The WAIT indicator is lit to inform the operator of this condition. This indicator is also lit when the processor is in the console service mode.

4.2.2.4 FAULT

This indicator is lit during system initialization and remains lit until the microcode power-up self-test is successfully completed. The indicator remains lit if the processor self-test fails or if a fault occurs during system operation. If the processor self-test fails, see Section 6.2.1.1.

4.3 POWER SUBSYSTEM

The power subsystem is mounted in the rear of the cabinet, as shown in Figure 4-2. To reach the power subsystem, remove the rear panel as described in Section 3.3.1.

There are three variations of the power subsystem. The only difference among the three is in the power ratings that are listed on the front panels.

Figure 4-3 shows the front panel of the power subsystem, which contains placement of the indicators, circuit breaker and fuses.

4.3.1 Circuit Breaker

This is a 3-pole, 15A circuit breaker located on the front panel that controls both the AC input line and the 18VDC battery (if the battery option is included in the system).

4.3.2 FAULT Indicators

The P5 and P5U FAULT indicators are located on the front panel of the power subsystem.

If either of these two indicators is lit, a fault condition exists on the corresponding board.

NOTE

If the power subsystem is not equipped with a P5U board, the P5U fault indicator will constantly be lit.

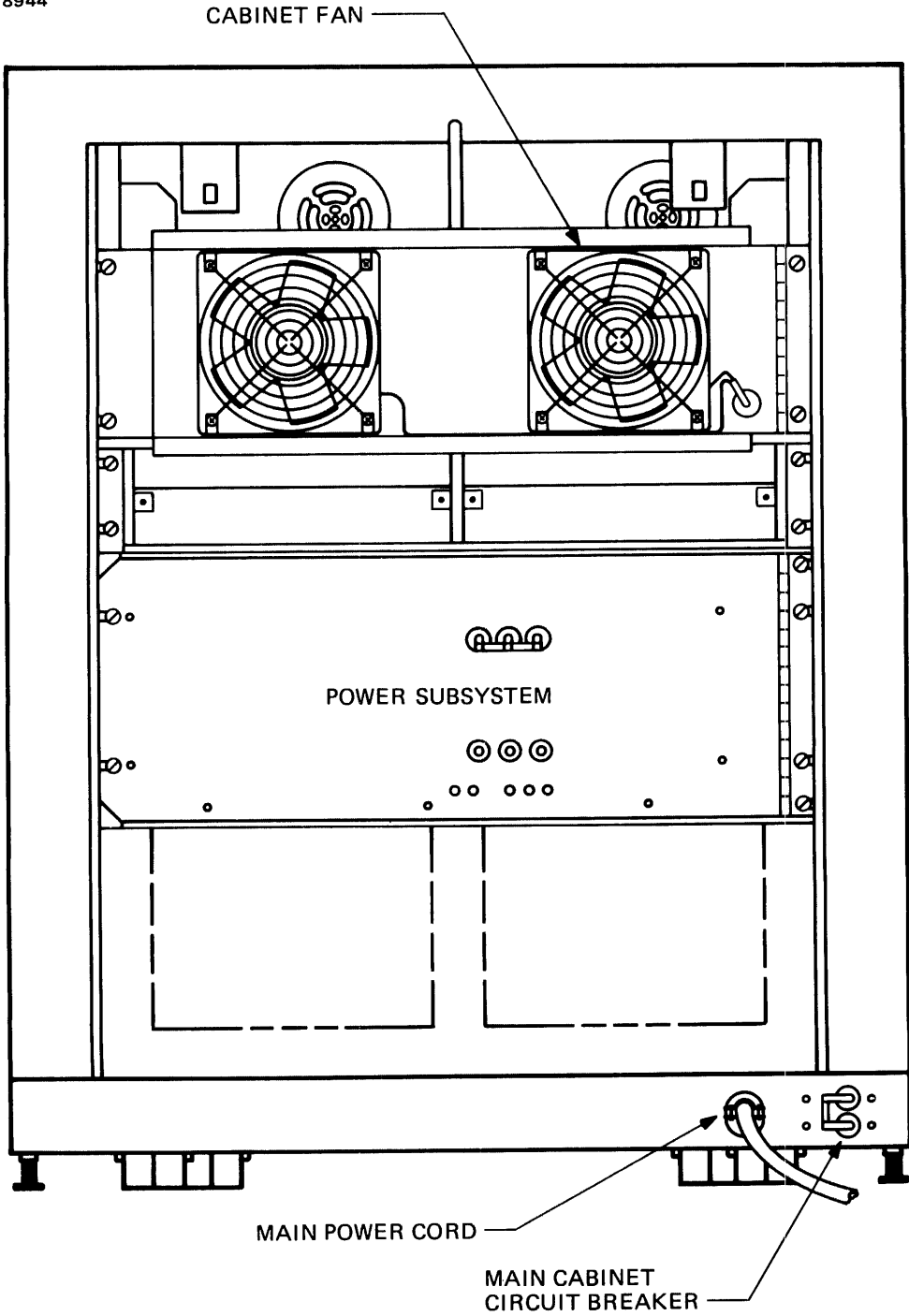


Figure 4-2 Model 3205 Cabinet (Rear View)

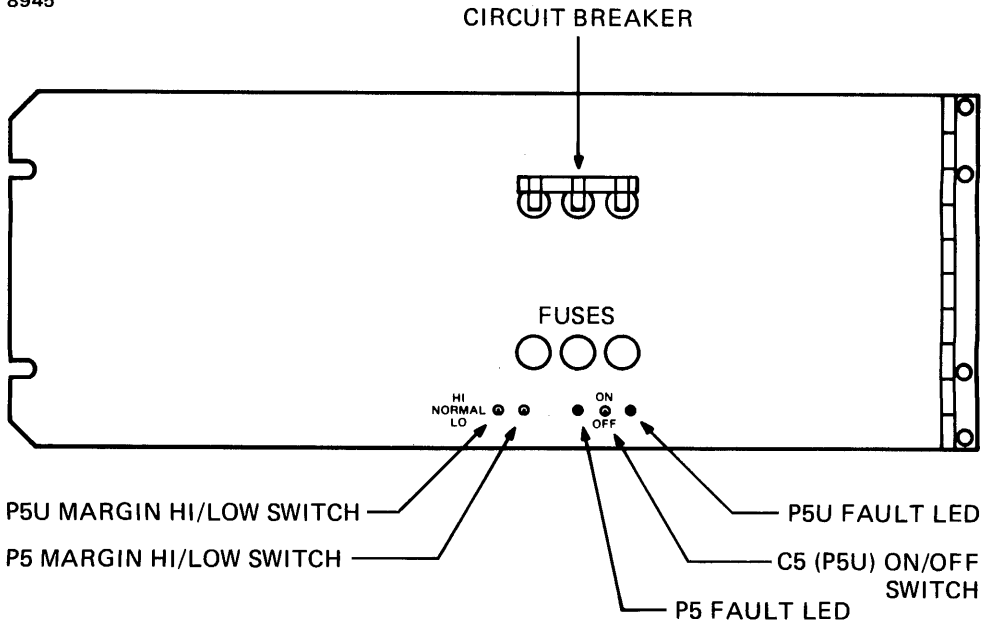


Figure 4-3 Power Subsystem Front Panel

4.3.3 Switches

The power subsystem has the following three switches located on the front panel.

- P5 margin HI/LO switch
- P5U margin HI/LO switch
- C5 P5U ON/OFF switch

4.3.3.1 P5 Margin HI/LO Switch

The P5 margin switch is a 3-position switch. For normal operation this switch is in the center (OFF) position.

4.3.3.2 P5U Margin HI/LO Switch

The P5U margin switch is a 3-position switch. For normal operation this switch is in the center (OFF) position.

4.3.3.3 C5 P5U ON/OFF Switch

The C5 P5U ON/OFF switch is a 2-position switch. For normal operation this switch is in the up (ON) position. This switch should be in the OFF position only when the power subsystem is being repaired.

4.3.4 Fuses

There are three fuses located on the front panel of the power subsystem. These fuses are labeled F1, F2 and F3 and have the appropriate ratings listed.

4.4 MODEL 6100 VIDEO DISPLAY UNIT (VDU)

The Model 6100 VDU has four user programmable keys with eight possible programmed functions, an adjustable low-profile keyboard, 84 stepped and sculptured keycaps, a tilt and swivel monitor, and absolute cursor positioning. The Model 6100 VDU can be placed either on a terminal table or on a desk. See Figure 4-4.

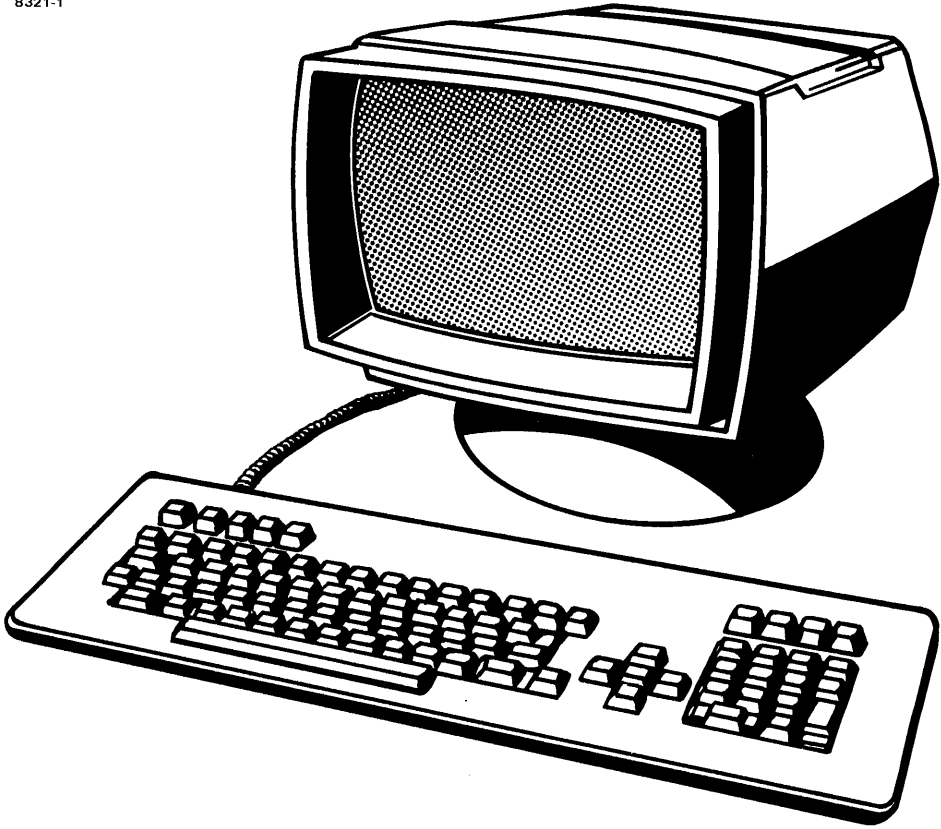


Figure 4-4 Model 6100 VDU

4.4.1 ON/OFF Switch

The ON/OFF switch shown in Figure 4-5 controls the main power to the Model 6100 VDU.

To apply the power to the Model 6100 VDU, place this switch in the ON position, wait 20 seconds for the unit to warm up and adjust the video contrast control to desired brightness.

4.4.2 Video Contrast Control

The video contrast control is a slide control that is mounted below and to the left of the screen. Figure 4-5 shows the location of this control.

When power is applied to the unit, this control determines the brightness of the characters displayed on the screen. When the slide control is moved to the right, the characters brighten; when it is moved to the left, the characters get dimmer.

CAUTION

WHEN THE TERMINAL IS NOT IN USE, OR IS NOT USED FOR A LENGTH OF TIME, THE CONTRAST CONTROL SHOULD BE SET TO LOW IF THE SCREEN SAVER OPTION WAS NOT PROGRAMMED IN THE TERMINAL.

8946

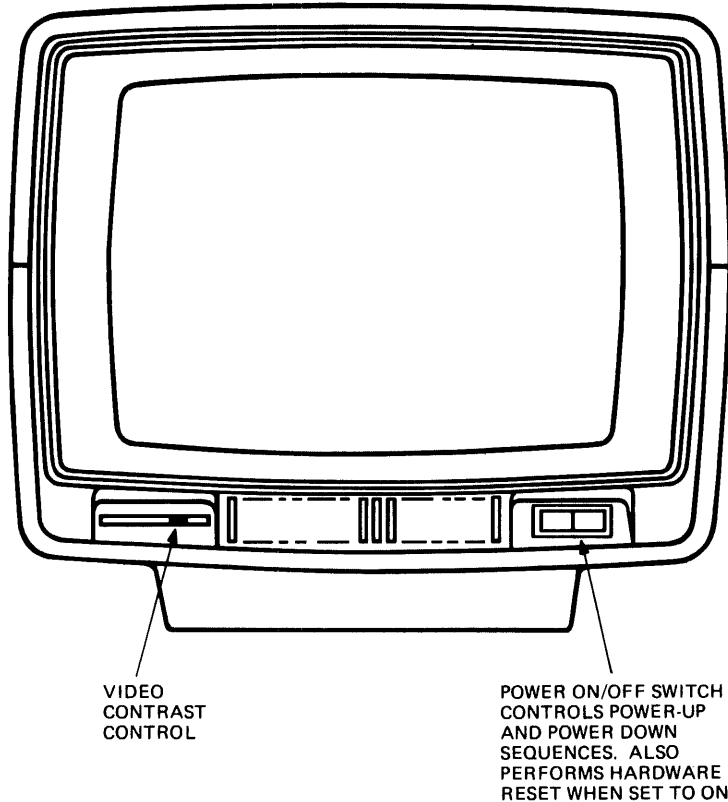


Figure 4-5 Model 6100 VDU Controls (Front View)

4.4.3 Fuse

The Model 6100 VDU has one fuse located on the rear of the monitor, as shown in Figure 4-6.

8947

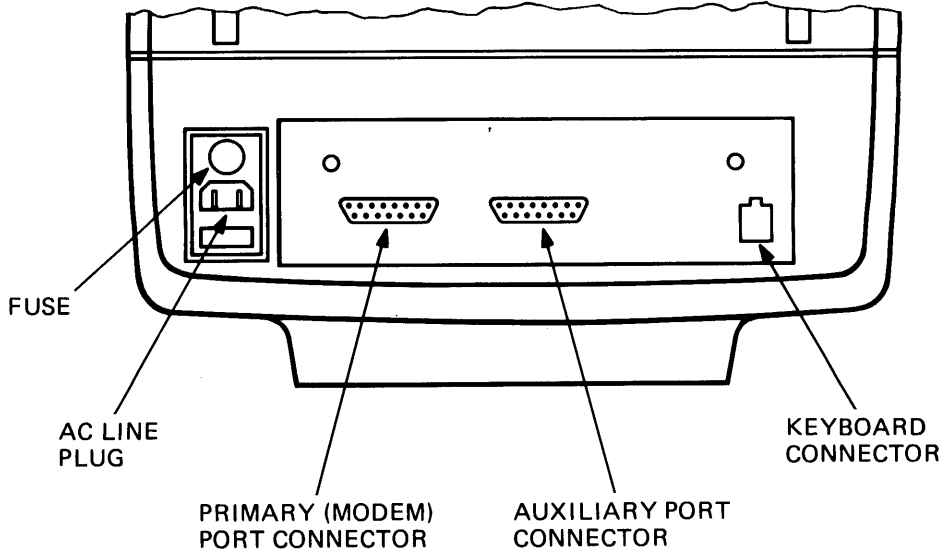


Figure 4-6 Model 6100 VDU Connectors

4.5 50MB CARTRIDGE DISK DRIVE (CDD50)

The location of the controls and indicators for the CDD50 are shown in Figure 4-7. There are two switches and two indicators mounted in the front panel of the CDD50. These switches and indicators are described below.

4.5.1 Switches

There are two push-button switches mounted on the front panel of the CDD50. The two switches are the START/STOP switch and the FIXED PROT switch.

4.5.1.1 START/STOP Switch

This switch energizes the spindle motor and initiates the first seek mode, provided that the following conditions are met.

- The AC power to the CDD50 is on.
- The disk cartridge loading door is closed and latched with the cartridge in place.
- The WRITE PROT indicator is not blinking, which would indicate a fault condition.

4.5.1.2 FIXED PROT Switch

This is an alternate action switch. When in the ON position (in), the WRITE driver to the fixed disk (media) is disabled. With the WRITE driver disabled, the disk is write-protected.

4.5.2 Indicators

There are two indicators on the front panel of the CDD50. These indicators are mounted in the center of the two switches. The READY indicator is located in the START/STOP switch and the FAULT indicator is located in the FIXED PROT switch.

4.5.2.1 READY Indicator

The READY indicator is a green LED which, when lit, steadily indicates that the CDD50's spindle motor is at operating speed and the system is ready for use. This indicator blinks throughout both the start and stop procedures until these steps have been completed.

4.5.2.2 FAULT Indicator

The FAULT indicator is a red LED which, when blinking, indicates either that a fault has occurred or that the fixed disk is write-protected. When the FAULT indicator blinks, a fault condition has occurred or is present. When this indicator is lit constantly, the fixed disk is write-protected and cannot be written to.

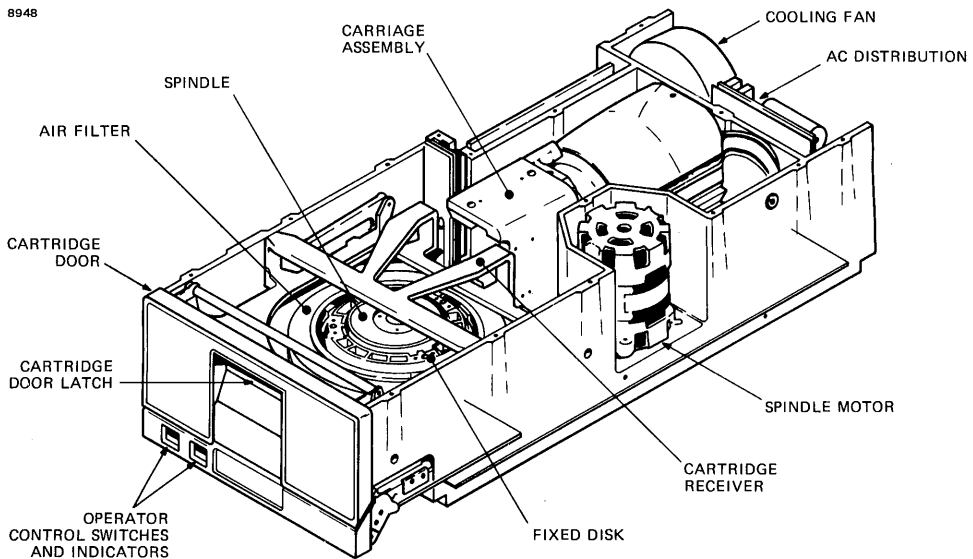


Figure 4-7 CDD50

4.5.3 Power Supply

The power supply for the CDD50 is mounted in the rear of the cabinet behind the cabinet cooling fans. Each CDD50 requires a separate power supply.

The front panel of a CDD50 power supply is shown in Figure 4-10. The circuit breaker or AC power ON/OFF switch shown must be in the 1 or UP position for normal operation of the corresponding CDD50.

8949

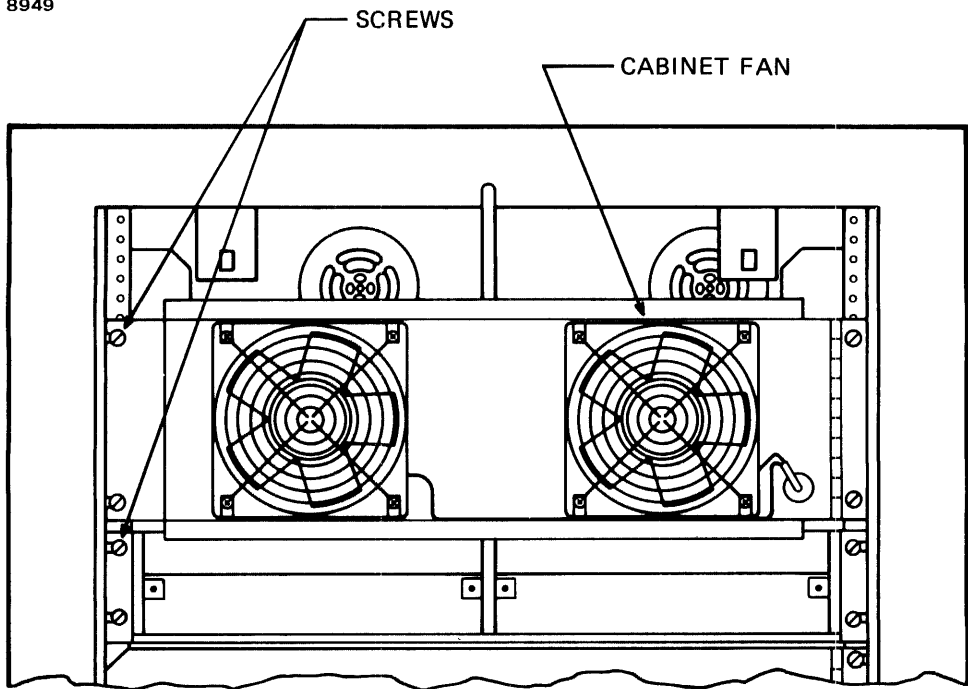


Figure 4-8 Cabinet Fan Assembly (Rear View)

8950

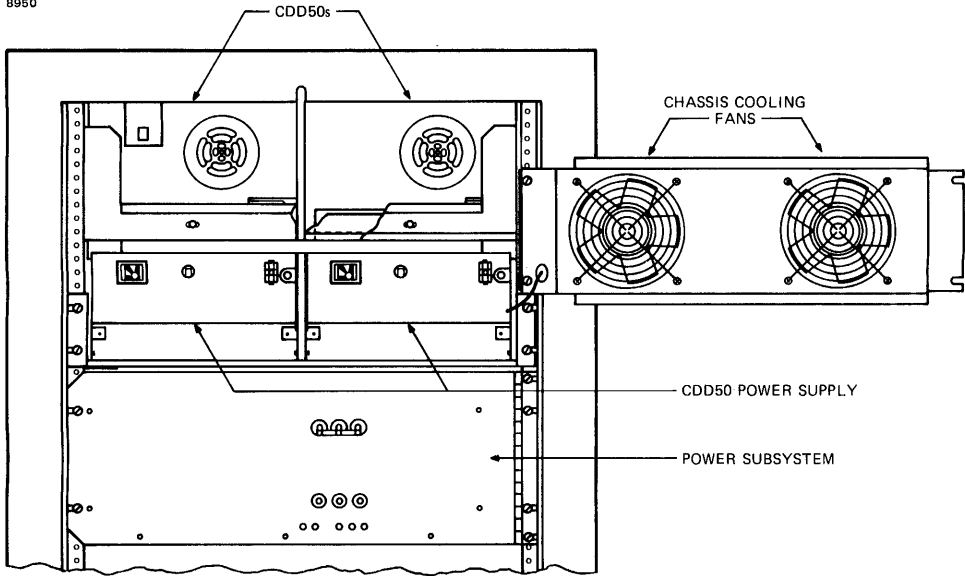


Figure 4-9 CDD50 Power Supply

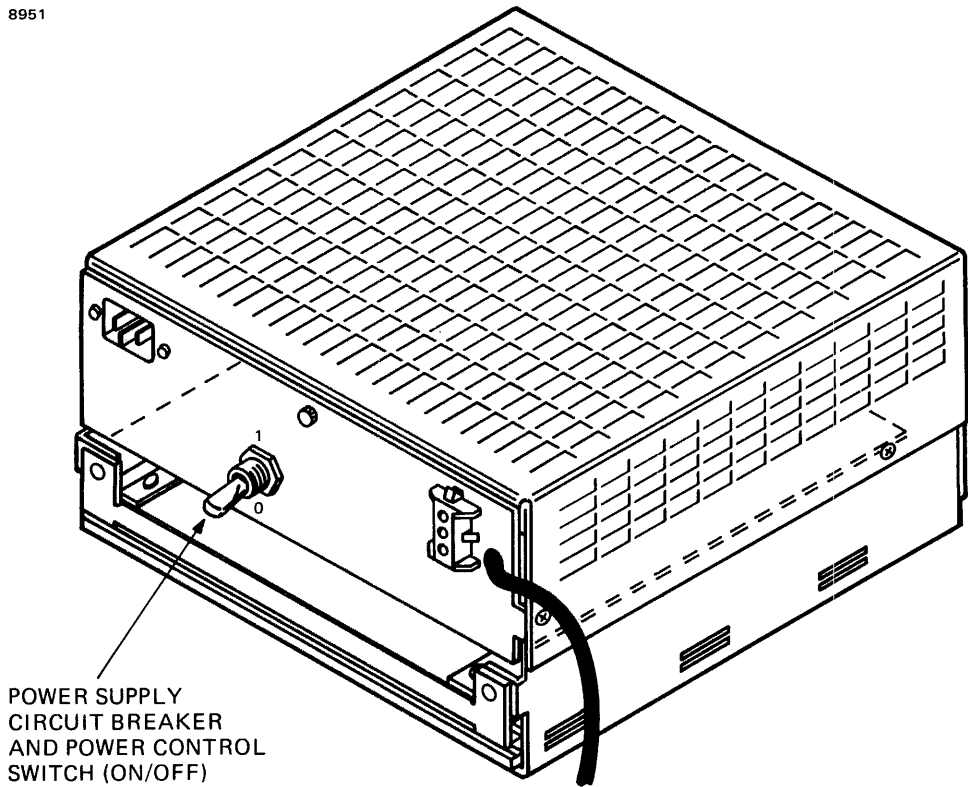


Figure 4-10 CDD50 Power Supply Front Panel

4.5.4 Removable Cartridge Disk

The CDD50 removable cartridge disk is shown in Figures 4-11 and 4-12. These figures show the head access door, the armature plate and the location of the write protect tab.

8952-1

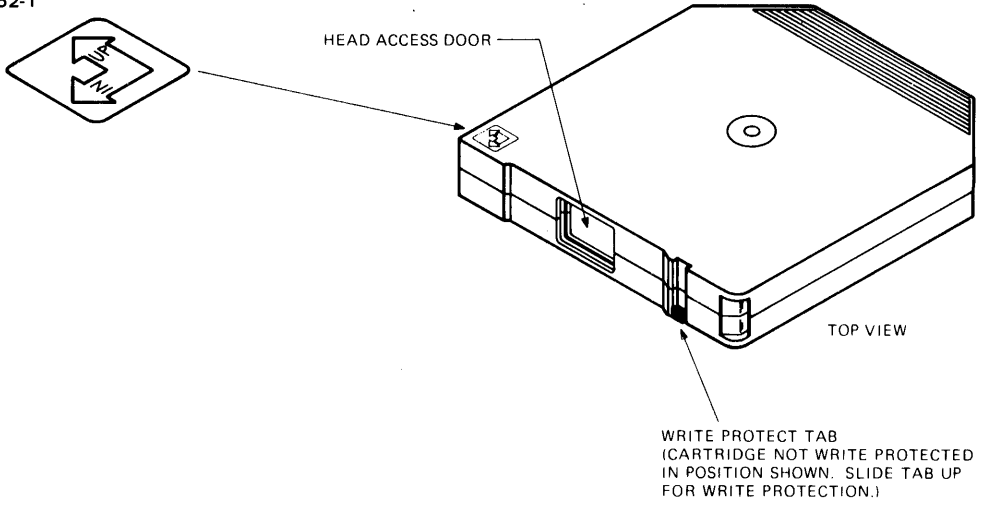


Figure 4-11 CDD50 Removable Disk (Top View)

8953

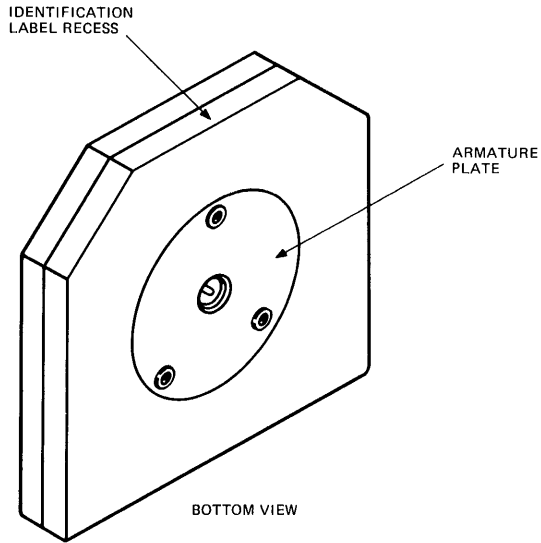


Figure 4-12 CDD50 Removable Disk (Bottom View)

4.5.4.1 Write Protect Operation

The following procedures should be performed to write protect the removable cartridge disk.

1. The disk cartridge should be prepared by sliding the write protect tab to the UP, or write protect, position.
2. Perform the installation procedure and then place the START/STOP switch in the START (in) position.
3. The drive should now be placed into the write protect mode by placing the WRITE PROT switch in the ON (in) position.

4.5.4.2 Removable Cartridge Installation

The removable cartridge disk should be kept in the same room as the CDD50 for at least one hour prior to installation. This is to ensure that if any condensation has formed within the cartridge, it will have time to dissipate. Also, this allows time for the cartridge and drive to be at the same operating temperature. Once the disk cartridge has been allowed to sit and acclimate to the room temperature for an hour, the following procedure should be followed for installation of the disk. See Figures 4-7 and 4-13.

1. Release the latch located under the lip of the front panel door recess and pull the cartridge access door down.

NOTE

Power must be applied to the CDD50, and the START/STOP switch must be in the STOP (out) position. The READY indicator must be off, and the FIXED PROT indicator must not be blinking in order for the latch on the front access door to release (open).

2. Slide the cartridge into the receiver track, ensuring that the head opening is toward the rear of the drive and the top surface (marked TOP) of the cartridge is up. See Figure 4-11.
3. Push the cartridge in until it is fully seated into position (the disk will stop).
4. Close the cartridge access door and press until it is latched. The cartridge disk seats into place on the spindle automatically when the access door is closed.

4.5.4.3 Removable Cartridge Removal

To remove a CDD50 cartridge disk, follow the procedures listed below. See Figure 4-13.

1. The START/STOP switch must be in the STOP (out) position and the READY indicator off.
2. To open the cartridge access door, pull it down.
3. When the access door is completely opened, the disk cartridge is partially ejected out of the receiver. The cartridge can then be removed.

4. If another cartridge is not going to be installed, close the access door to keep any contaminants from entering the drive area.

NOTE

The door on the disk drive must remain closed at all times.

8954

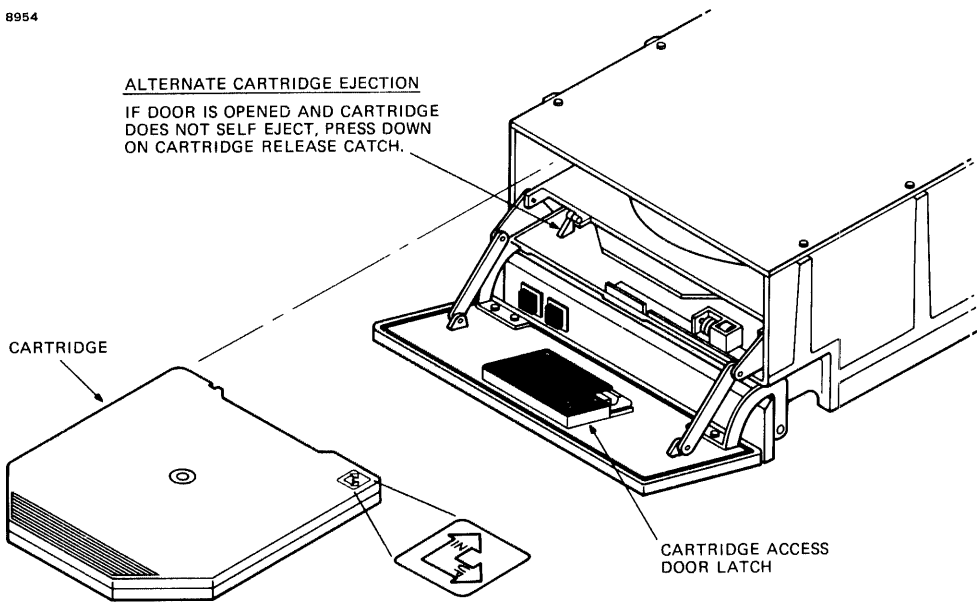


Figure 4-13 CDD50 Cartridge Installation and Removal

The AC distribution panel is located in the bottom right corner in the rear of the cabinet. The receptacles, fuses and fan power jacks that are mounted on the AC distribution panel are shown in Figure 4-14.

The AC distribution panel consists of one single receptacle, two duplex receptacles, two fuses and fan power jacks that supply power for up to four cabinet fans.

8955

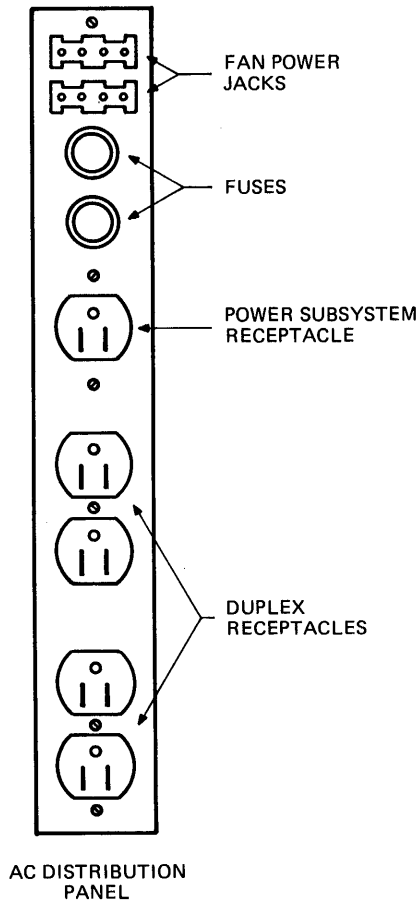


Figure 4-14 AC Distribution Panel

4.6.1 Fuses

There are two 15A fuses located on the AC distribution panel, which limits the receptacles to 15A each.

4.6.2 Receptacles

The two duplex receptacles are used to distribute power to any subsystem within the system's cabinet. These receptacles provide 15A of power.

The single receptacle supplies power to the power subsystem.

4.6.3 Fan Power Jacks

The fan power jacks are located on the top of the panel and can support up to four fans. These fans are used for cooling the system with ambient room air.

CHAPTER 5 OPTIONS

5.1 INTRODUCTION

The options that are available with the Model 3205 System are described in this chapter.

5.2 MEMORY EXPANSION BOARD

The memory expansion board is a 38.1cm x 38.1cm (15" x 15") board configured in the central processing unit (CPU) chassis. The memory expansion board expands the memory to a system total of 4Mb. The memory expansion board contains up to 3Mb of memory in increments of 1Mb.

5.3 BATTERY BACK-UP

Battery back-up protects data that has been entered into the memory system and has not been backed up to a tape or disk storage unit. Battery back-up is enabled in the event of a power failure. The system detects that the power is low and creates an early power failure signal. In this condition, if the system is equipped with battery back-up, then all processor functions will cease and the battery will provide power to the memory system for a specified period of time according to the amount of memory the system contains. This ensures that the data in the memory system is not lost.

5.4 MULTIPERIPHERAL CONTROLLER (MPC) EXPANSION BOARD

The Model 3205 System can be configured with up to four MPC boards. Each additional MPC board provides the user with eight additional full-duplex data communications channels.

5.5 50MB EXPANSION CARTRIDGE DISK DRIVE (CDD50E)

The Model 3205 System can support up to four CDD50s with one intelligent disk controller (IDC). This is accomplished with two CDD50s in the system's cabinet and two additional CDD50s in an external cabinet.

Each CDD50 increases the memory storage on disk by 25Mb of unformatted (17.8Mb formatted) removable media and 25Mb of unformatted (17.8Mb formatted) fixed media.

5.6 INPUT/OUTPUT (I/O) EXPANSION CHASSIS

The Model 3205 System can be configured with an 8-slot, 17.8cm (7") I/O expansion chassis in the processor cabinet configured with 208/230V power subsystem only. I/O expansion chassis are allowed with a system configured with 115V power subsystem in an I/O expansion cabinet configured with 208/230V power subsystem. This chassis can be configured with eight fullboards, 16 halfboards or any combination of the two. The boards contained in the I/O expansion chassis support only multiplexor (MUX) bus operations and cannot be connected for direct memory access (DMA) via the private multiplexor (PMUX).

CHAPTER 6 TROUBLESHOOTING

6.1 INTRODUCTION

The Model 3205 System has been designed so that the user should not have to troubleshoot to chip level. This chapter contains a simple guide for the user's reference in the event of a fault or power failure. If the possible causes and solutions listed in this guide do not correct a fault or restore power, the user should contact his Perkin-Elmer representative immediately.

6.2 TROUBLESHOOTING

This section covers fault conditions and system power loss problems that may occur. The operator should follow the procedures outlined in this section.

CAUTION

THE OPERATOR SHOULD NOT
ATTEMPT TO REPAIR OR ACCESS
ANY PART OF THE SYSTEM THAT
HAS NOT BEEN DESCRIBED IN
THIS CHAPTER.

6.2.1 Model 3205 System

If either a fault or system power fail occurs, see the following sections.

6.2.1.1 Fault

When the consolette FAULT indicator lights, indicating a system fault, perform the following steps.

1. The INIT switch on the consolette should be depressed. This reinitializes the system, and if the fault is temporary, it will clear.
2. The system's power subsystem should be checked. See Section 6.2.4.
3. The boards and cables should be checked to be sure that they are making the proper connections.

6.2.1.2 Power Fail

In case of a power fail to the system, perform the following steps.

1. Check the main power cord to ensure a proper connection.
2. The circuit breaker located on the back lower right corner of the cabinet should be turned off and on to reset it.

CAUTION

IF THE CIRCUIT BREAKER TRIPS A SECOND TIME AFTER BEING RESET, IT SHOULD NOT BE RESET A SECOND TIME. A QUALIFIED TECHNICIAN SHOULD BE CALLED.

3. The AC distribution panel should be checked. See Section 6.2.5.
4. The power subsystem should be checked as described in Section 6.2.4.

6.2.2 50Mb Cartridge Disk Drive (CDD50)

This section covers fault and operating problems that may occur on the CDD50.

6.2.2.1 FAULT Condition

If a FAULT condition occurs on the CDD50, it is indicated by a blinking FIXED PROT indicator. This indicator has two blinking rates, fast or slow. A slow blinking rate indicates that a fault exists in the drive and procedures 1 and 2 should be followed. If this indicator blinks rapidly, this indicates that a fault occurred upon initial power-up and that one of the self-tests failed; procedures 3 and 4 should be followed.

1. The FIXED PROT switch should be activated (depressed) twice, which initiates a FAULT reset. Once this has been done, the FIXED PROT switch is in the original position. If the FIXED PROT has ceased blinking, it is assumed that the FAULT condition has been cleared and normal operation can be resumed. If the FIXED PROT continues to blink, proceed to Step 2.
2. The STOP procedure should be performed by putting the START/STOP switch in the STOP, or out, position. The START/STOP switch should be depressed and in the START (in) position. If the FIXED PROT indicator still blinks, then a qualified technician should be called to repair the unit.

3. The user may reinitiate the self-test procedure by issuing a fault clear command, or the FIXED PROT switch could be activated (depressed) twice. This initiates a FAULT reset, which will restart self-testing. Once this has been done, the FIXED PROT switch is in the original position. If the FIXED PROT has ceased blinking, it is assumed that the FAULT condition has been cleared and normal operation can be resumed. If the FIXED PROT continues to blink, proceed to Step 1 if it is blinking slowly, or Step 4 if it continues blinking rapidly.

CAUTION

THE RETEST MAY BE TRIED A
MAXIMUM OF FIVE TIMES,
AFTER WHICH THE FAULT WILL
NOT BE ABLE TO BE CLEARED.

4. If the FIXED PROT indicator continues to blink rapidly, and if the drive passes any subsequent test, it is recommended that the data be copied from the removable disk immediately and the failing cartridge be removed. This leaves the CDD50 serviceable by installing another cartridge disk.

6.2.2.2 Power Fail

If the CDD50 has no power, the AC power cord to the CDD50 power supply that is plugged into the AC distribution panel should be checked. This plug should be first disconnected and then reconnected to ensure that there is a proper connection.

6.2.2.3 Power Fail Cartridge Removal Procedures

The following procedures should be followed only in the event of an emergency and if the disk cartridge access door will not open.

1. The operator should be certain that the spindle motor has come to a complete stop. This is done by waiting a full three minutes before proceeding.
2. The heads must be fully retracted. This can be done by tilting the unit backwards and the heads will slide back into the unloaded position.

NOTE

Since the user cannot be sure that the heads have fully retracted, no attempt should be made to remove a cartridge unless the CDD50 was previously turned off.

3. Insert a plastic card or similar object into the space between the access door and the lower front panel. See Figure 6-1. The card or other object should then be moved to the right to release the tab that is located behind the front panel. At the same time, push up with your fingers to release the door latch. The door can now be pulled open and the cartridge removed. The front door must now be closed.

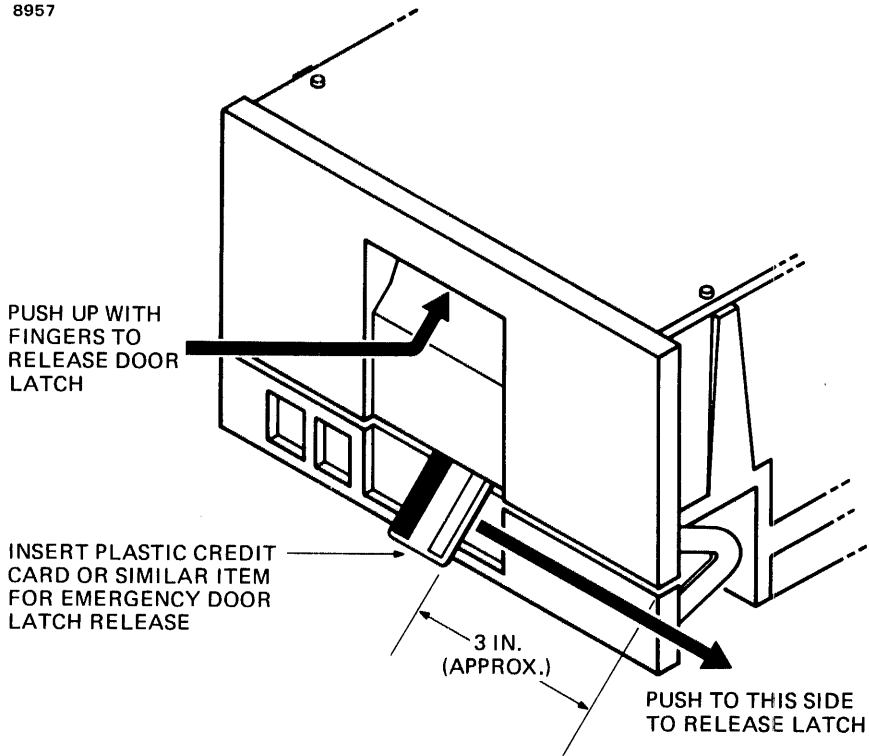


Figure 6-1 CDD50 Emergency Access Door Release

6.2.3 Model 6100 Video Display Unit (VDU)

The Model 6100 VDU is configured with a fuse located on the rear panel of the monitor. If power is lost to the unit or there is no response from the unit, see the following sections.

6.2.3.1 Power Failure

If the Model 6100 VDU loses power, the following procedures should be followed for power restoration.

1. The receptacle that powers the unit should be checked for power.

2. The power cord that supplies the power to the unit should be checked at both the terminal and receptacle end for proper connection.

6.2.3.2 No Response

There can be no response either to the keyboard input or to the host computer from the Model 6100 VDU. The following steps explain what to check if this occurs.

1. The coiled, expandable cable that connects the keyboard to the unit should be checked at both ends to ensure a good connection.
2. The cable that connects the unit with the host computer should be checked to ensure a proper connection. This cable is connected to both the unit and the I/O connector panel.

6.2.4 Power Subsystem

The Model 3205 System is configured with one of three different power subsystems. These three power subsystems have similar front panels. The only difference among the three is in the power ratings that are listed on the front panels. Therefore, the following procedures can be used on any of these systems. Figure 6-2 shows the front panel of a power subsystem, minus the power rating listing that is printed on a front panel.

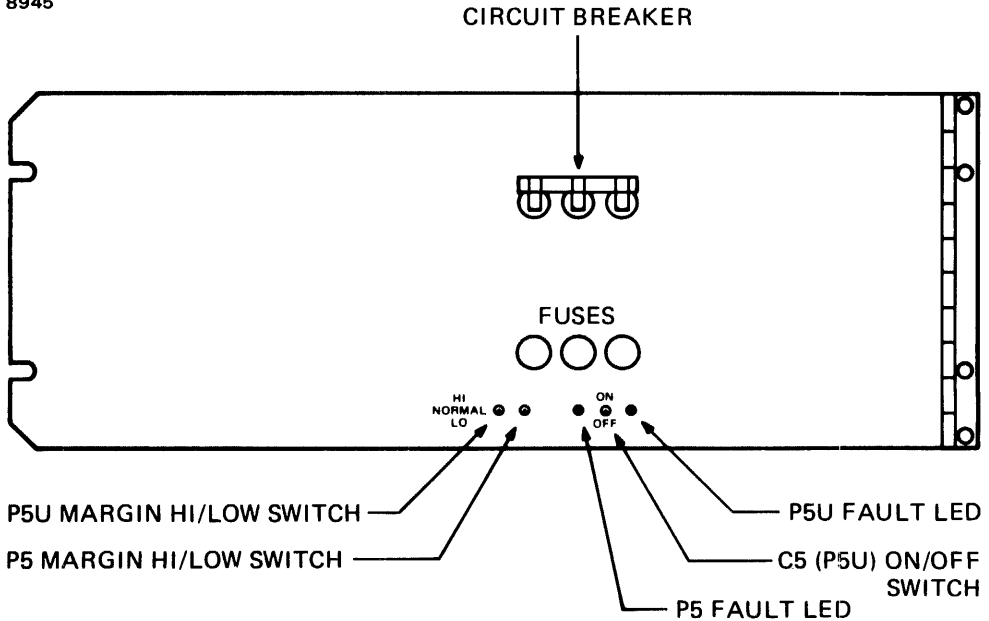


Figure 6-2 Front Panel Power Subsystem

6.2.4.1 Fault Condition

If either the P5 or P5U indicator is lit, then a fault condition exists. It is recommended that the power subsystem circuit breaker be turned off and on again. This procedure causes the power subsystem to reset and correct the fault, if the fault is a temporary condition. If the indicators remain lit, it is suggested that a technician be called in to investigate the problem and repair the system.

6.2.4.2 Power Fail

If a power fail condition exists, the power subsystem's circuit breaker should be turned off and then on to reset it.

6.2.5 AC Distribution Panel

The following procedures should be checked after the circuit breaker on the back of the cabinet has been checked.

1. The circuit breaker on the AC distribution panel should be turned off and then on to reset it.
2. The two fuses should be checked and replaced, if necessary.

6.3 DIAGNOSTIC TESTING

The following diagnostics test the components and/or functions to which their names refer. These diagnostics are contained in the 06-270 Multi-Media Diagnostic.

06-228	Series 3200 Processor Test, Part 1
06-229	Series 3200 Processor Test, Part 2
06-289	Model 3205 Memory Test
06-292	Model 3205 Error Logger Test
06-280	Memory Address Translator (MAT) Test Program
06-161	Series 3200 Selector Channel Test
06-291	Multiperipheral Controller (MPC) Test
06-288	Model 6100 Video Display Unit (VDU) Test Program
06-267	Intelligent Disk Controller (IDC) Disk Test Program
06-268	Intelligent Disk Controller (IDC) Disk Format Program
06-238	Commercial Instruction Set Test
06-231	Series 3200 Floating Point Test

APPENDIX A
TROUBLESHOOTING CHARTS

MODEL 3205 SYSTEM

CONDITION	CAUSE	SOLUTION
FAULT indicator is lit	Fault condition (temporary)	Depress INIT switch on the consolette. Turn off system power and ensure that all boards and connectors are in place.
	Power subsystem	See Section 4.3.
Power Failure	Loose plug	Disconnect and reconnect plug.
	Cabinet circuit breaker tripped	Turn circuit off, then on.
	AC distribution panel	See Section 4.6.
	Power subsystem	See Section 4.3.

CDD50

CONDITION	CAUSE	SOLUTION
Fault	Fault condition in drive (FIXED PROT blinking slowly)	Depress FIXED PROT twice.
	Self-test failure (FIXED PROT blinking rapidly)	Issue a fault clear command.
Power Failure	AC power plug	Disconnect and reconnect.

6100 VDU

CONDITION	CAUSE	SOLUTION
Power Failure	AC Power Plug	Check receptacle for power.
		Disconnect and reconnect AC power plug.
No Response	Loose cable (keyboard to monitor)	Disconnect and reconnect.
	Loose cable (monitor to host computer)	Disconnect and reconnect.

POWER SUBSYSTEM

CONDITION	CAUSE	SOLUTION
Fault	Fault indicator lit	Turn breaker off and on to reset circuit breaker.
Power loss	Loose plug	Disconnect and reconnect AC power plug.

AC DISTRIBUTION PANEL

CONDITION	CAUSE	SOLUTION
Power Failure	Loose plug	Check main power cord plug. Disconnect and reconnect plug.

INDEX

A			
AC distribution panel	43	Controls and indicators	
fan power jacks	44	AC distribution panel	43
fuses	44	CDD50	33
receptacles	44	consolette	23
troubleshooting	59	Model 6100 VDU	30
AC power connection		power subsystem	27
Model 6100 VDU	15	CPU power indicator	26
B		D	
Battery back-up options	45	Diagnostic testing	55
C		E	
C5 P5U ON/OFF switch		Environment	
power subsystem	30	area clearance	19
CDD50	21	humidity	19
	33	recommendations	19
fault	49	temperature	19
FAULT indicator	35	F	
features	5	Fan power jacks	
FIXED PROT switch	34	AC distribution panel	44
indicators	34	Fault	
override interlocks	22	CDD50	49
pinging sound	22	Model 3205 System	48
power fail	50	power subsystem	54
power supply	35	FAULT indicators	26
READY indicator	34	CDD50	35
removable cartridge disk	38	power subsystem	27
scratching sound	22	FIXED PROT switch	
START/STOP switch	34	CDD50	34
switches	34	Front panel removal	13
troubleshooting	58	Fuses	
write protect operation	40	AC distribution panel	44
CDD50 expansion options	46	power subsystem	30
Central processing unit.		G	
See CPU.		General information	
Circuit breaker		Model 3205 System	1
power subsystem	27	processor subsystem	1
Configurations		H	
basic Model 3205	7	HALT/RUN switch	25
Model 3205 processor		Humidity	
subsystem	9	rate of change	19
options	9	I, J	
Consolette	23	I/O expansion chassis options	46
CPU power	26	IDC functions	6
FAULT	26	INIT switch	24
features	6		
HALT/RUN switch	25		
INIT switch	24		
IPL ENABLE/DISABLE switch	25		
key-operated security			
lock	24		
memory power	26		
SINGLE switch	25		
	26		

Requirements		Troubleshooting (Continued)	
power and utility	18	CDD50	49
			58
S		Model 3205 System	47
Setup		Model 6100 VDU	52
Model 3205 System	14	power subsystem	53
Model 6100 VDU	15		59
ON/OFF switches	15	U	
Side panel removal	12	Unpacking procedures	11
SINGLE switch	25		
Site considerations		V	
environmental		Video contrast control	
recommendations	20	Model 6100 VDU	31
START/STOP switch			
CDD50	34	W-Z	
Switches		WAIT indicator	26
power subsystem	29	Write protect operation. See	
		removable cartridge disk.	
T		50Mb cartridge disk drive.	
Temperature		See CDD50.	
humidity	19	50Mb expansion cartridge	
rate of change	19	disk drive. See CDD50E.	
Troubleshooting			
AC distribution panel	55		
	59		
cartridge removal			
procedures	51		