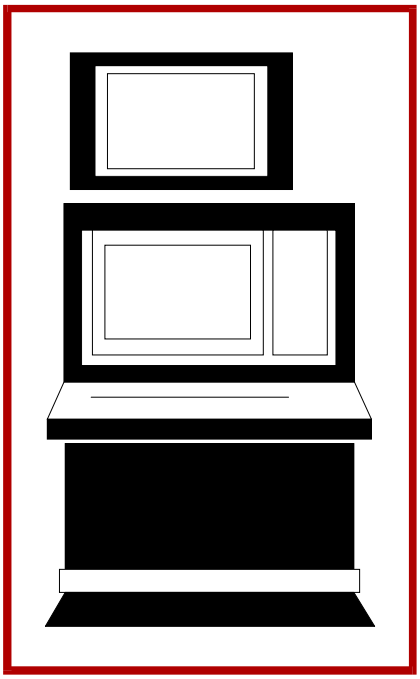
Bailey® infi 90®

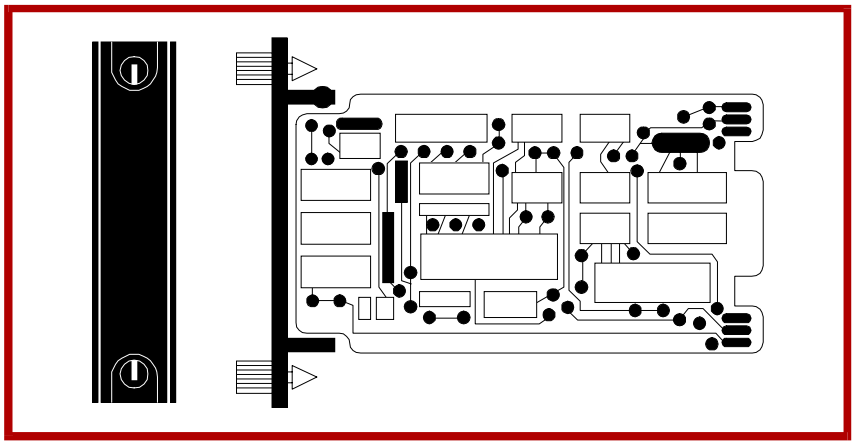
IIOIC43

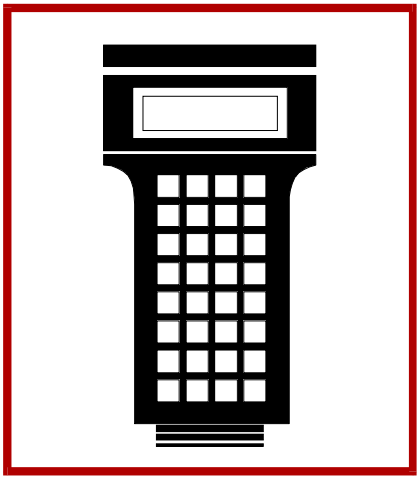
Instruction

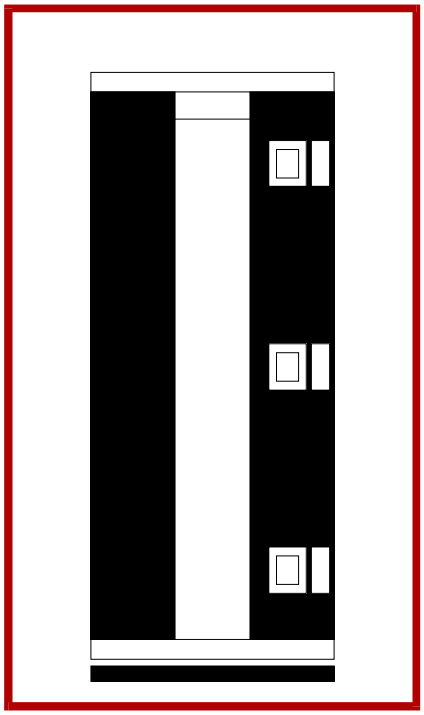
Operator Interface Console (40 Series)

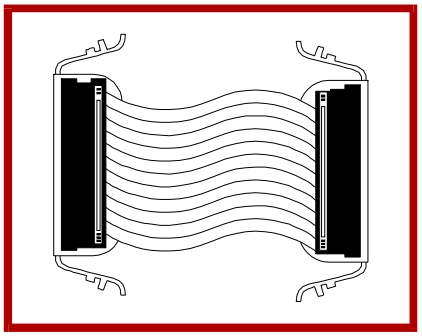
Hardware Manual

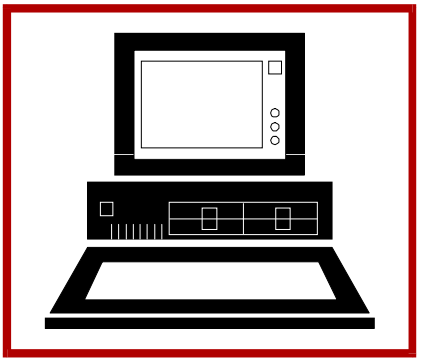












Bailey Process Control and Automation Solutions from Elsag Bailey Group

WARNING notices as used in this instruction apply to hazards or unsafe practices that could result in personal injury or death.

CAUTION notices apply to hazards or unsafe practices that could result in property damage.

NOTES highlight procedures and contain information that assists the operator in understanding the information contained in this instruction.

WARNING

INSTRUCTION MANUALS

DO NOT INSTALL, MAINTAIN, OR OPERATE THIS EQUIPMENT WITHOUT READING, UNDERSTANDING, AND FOLLOWING THE PROPER **Elsag Bailey** INSTRUCTIONS AND MANUALS; OTHERWISE, INJURY OR DAMAGE MAY RESULT.

RADIO FREQUENCY INTERFERENCE

MOST ELECTRONIC EQUIPMENT IS INFLUENCED BY RADIO FREQUENCY INTERFERENCE (RFI). CAUTION SHOULD BE EXERCISED WITH REGARD TO THE USE OF PORTABLE COMMUNICATIONS EQUIPMENT IN THE AREA AROUND SUCH EQUIPMENT. PRUDENT PRACTICE DICTATES THAT SIGNS SHOULD BE POSTED IN THE VICINITY OF THE EQUIPMENT CAUTIONING AGAINST THE USE OF PORTABLE COMMUNICATIONS EQUIPMENT.

POSSIBLE PROCESS UPSETS

MAINTENANCE MUST BE PERFORMED ONLY BY QUALIFIED PERSONNEL AND ONLY AFTER SECURING EQUIPMENT CONTROLLED BY THIS PRODUCT. ADJUSTING OR REMOVING THIS PRODUCT WHILE IT IS IN THE SYSTEM MAY UPSET THE PROCESS BEING CONTROLLED. SOME PROCESS UPSETS MAY CAUSE INJURY OR DAMAGE.

Preface

This instruction provides specific hardware installation, troubleshooting, maintenance, repair and replacement procedures information necessary for the IIOIC43 Operator Interface Console. At this time, the IIOIC4323 dual monitor operator interface console is the only IIOIC43 console available. It is compatible with the IIOIS41, IIOIS42 and IIOIS43 Operator Interface Stations. These stations must use G.3 software or later. This console is also compatible with the IS42 and IS43 Signature Series Work Stations. When additional IIOIC43 consoles become available, they will be added to this instruction.

This instruction should be used in conjunction with the hardware manual for the appropriate IIOIS Operator Interface Station and IS42/43 Signature Series Work Station. There are three additional instructions that explain how to set up and use the OIC console and OIS/IS station. The instructions include:

File Utilities Provides software load, upgrade and maintenance procedures, as well as save and restore configuration procedures.

Operation Gives a brief overview of the console and INFI 90® OPEN system to familiarize the reader. It then explains the operations that can be performed after configuring the OIS/IS console.

Configuration Gives the procedures to configure the OIS/IS console as a system for proper operation with its OIC console and peripherals and the INFI 90 OPEN system. It also explains each function of the OIS console, and gives configuration procedures and requirements.

List of Effective Pages

Total number of pages in this instruction is 76, consisting of the following:

Page No.	Change Date
Preface	Original
List of Effective Pages	Original
iii through ix	Original
1-1 through 1-6	Original
2-1 through 2-2	Original
3-1 through 3-20	Original
4-1 through 4-3	Original
5-1 through 5-5	Original
6-1 through 6-20	Original
7-1 through 7-2	Original
A-1 through A-7	Original
Index-1 through Index-2	Original

When an update is received, insert the latest changed pages and dispose of the superseded pages.

NOTE: On an update page, the changed text or table is indicated by a vertical bar in the outer margin of the page adjacent to the changed area. A changed figure is indicated by a vertical bar in the outer margin next to the figure caption. The date the update was prepared will appear beside the page number.

Table of Contents

Table of Contents (continued)

List of Figures

List of Tables

Safety Summary

GENERAL WARNINGS	**Equipment Environment** All components, whether in transportation, operation or storage, must be in a noncorrosive environment. **Electrical Shock Hazard During Maintenance** Disconnect power or take precautions to insure that contact with energized parts is avoided when servicing.
SPECIFIC WARNINGS	Verify all covers are installed and all doors are closed before operating the console. Exposed electrical connections present a shock hazard that can cause injury or death. (p. 3-2) Never clean electrical parts or components with the power on. Doing so exposes you to a fatal electrical shock hazard. (p. 5-3) Wear eye protection whenever working with cleaning solvents. When removing solvents from printed circuit boards using compressed air, injury to the eyes could result from splashing solvent as it is blown off the printed circuit board. (p. 5-3) The monitor will slide out the rear of the cabinet by itself when the mounting bolts are removed. The monitor weighs approximately 27 kilograms (60 pounds) and can cause bodily injury if it is allowed to slide out by itself. Support the monitor before removing the rear two bolts. (p. 6-14)
SPECIFIC CAUTIONS	Make sure that all voltage labels and voltage switch settings on the peripheral devices, power supply and power entry panel show the correct operating voltage. Equipment damage may result if the incorrect voltage is connected. Make sure the console main power circuit breaker is off before changing operating voltage setting or equipment damage may result. (p. 3-3, 3-18, 6-20) Remove power from all peripheral equipment and the console before installing or removing peripheral equipment. Equipment damage may result. (p. 3-4, 3-18, 6-20) Failure to turn off the main power circuit breaker before removing or inserting modules into the card cage may result in equipment failure. (p. 6-3, 6-4)

Safety Summary (continued)

SPECIFIC CAUTIONS *(continued)*	On the keyboard interface connector board, set positions 5, 6 and 7 of dipswitch SW1 to closed (on). Set positions 1 through 4 and 8 of dipswitch SW1 to open (off). Failure to configure dipswitch SW1 properly will damage the CPU in the console. (p. 6-11)

Trademarks and Registrations

Registrations and trademarks used in this document include:

™ Ethernet	Trademark of Xerox Corporation
® INFI 90	Registered trademark of Elsag Bailey Process Automation
® INFI-NET	Registered trademark of Elsag Bailey Process Automation
® Network 90	Registered trademark of Elsag Bailey Process Automation
™ AlphaStation	Trademark of DEC (Digital Equipment Corporation)

SECTION 1 - INTRODUCTION

OVERVIEW

The IIOIC4323 Operator Interface Console (auxiliary console) is a remote dual monitor and keyboard interface that connects to a main console, either a IIOIS41, IIOIS42 or IIOIS43 Operator Interface Station or a IS42/43 Signature Series Work Station. The main console connects to the Plant Loop® or INFI-NET® communication highway.

Read all of this instruction to get the greatest benefit of the information it contains. Read each procedure before doing the task. Call the local Elsag Bailey sales office for technical assistance.

DOCUMENT CONVENTIONS

In this document, auxiliary terminal refers to an IIOIC4323 console. The term *main console* refers to all of the IIOIS and IS stations listed in ***OVERVIEW***. Therefore, whenever *OIS* is mentioned throughout this instruction, the definition of OIS also includes the IS Signature Series Work Stations as well as the IIOIS Operator Interface Stations.

INTENDED USER

System engineers and technicians with a background in process control systems should read this instruction thoroughly before installing and using the system. ***Do not*** put the console into operation until you read and thoroughly understand this instruction. This instruction is a reference for installers with installation and maintenance experience on process control equipment. It is not a tutorial.

CONSOLE DESCRIPTION

The operator interface console is an auxiliary console for the main console (OIS). It provides a remote operator interface for displaying graphics, alarm summaries, INFI 90® OPEN status and for logging, trending and process control. The auxiliary console allows more than one operator to use a single main console.

An Ethernet™ network cable connects the OIC auxiliary console to an OIS main console. Refer to Section 3 and Section 6 for more hardware information. The OIC4323 is shown in Figure 1-1.

CPU (Central Processing Unit)

The CPU described in this manual is a DEC AlphaStation™ 255, Model 233. Specifications for this CPU are listed in the DEC ***User Information*** manual shipped with the console.

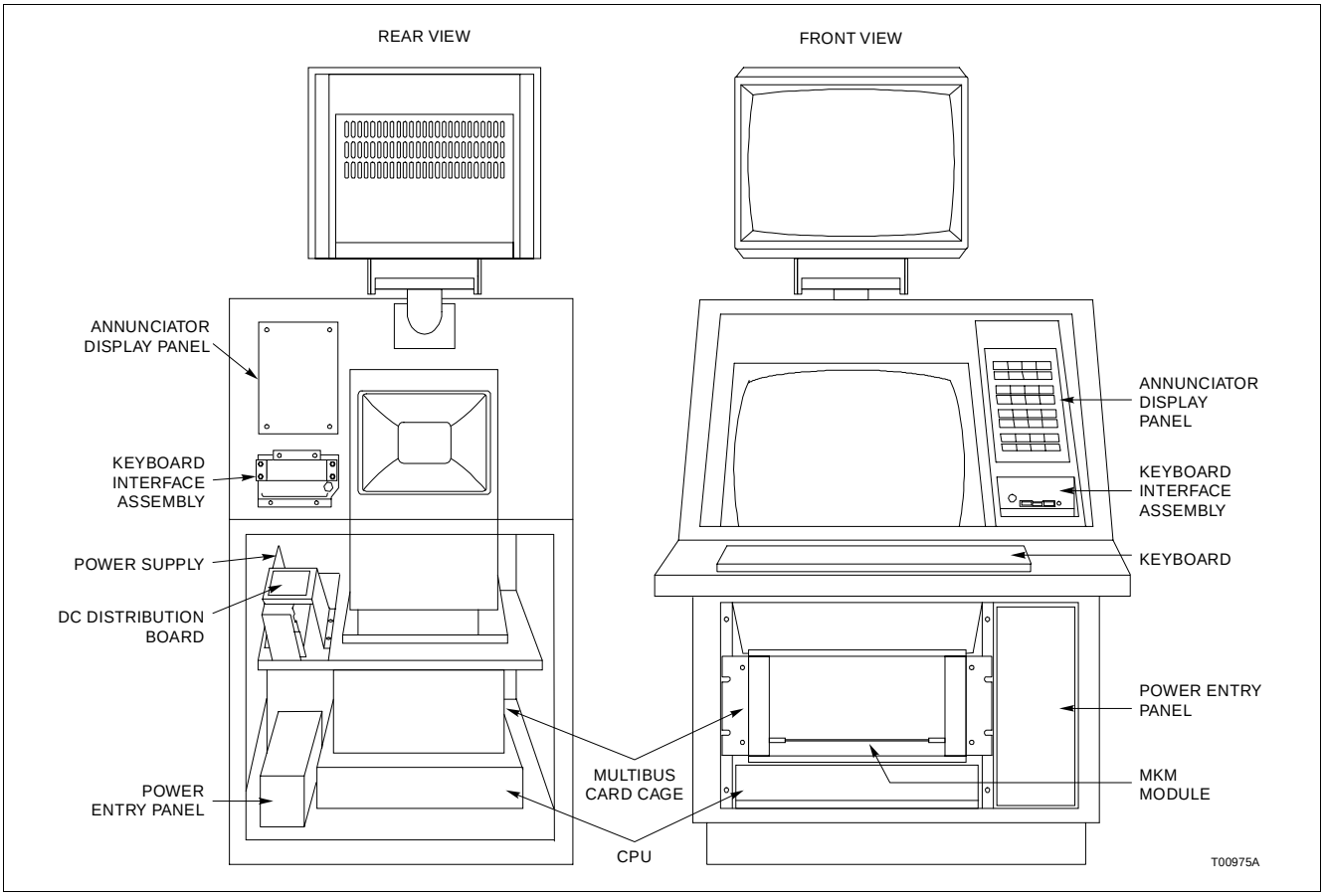


Figure 1-1. IIOIC4323 Console Model

Console

The hardware of the OIC4323 console is very similar to the OIS console. There are several differences. The CPU is different, it has only a multibus keyboard module, it does not have a network interface unit (NIU), it does not have a floppy disk drive and has only one hard disk drive located in the CPU.

The annunciator/display panel and keyboard interface assembly are located to the right of the monitor. The power entry panel is mounted in a vertical position in the lower part of the cabinet and the multibus card cage and MKM module are to the left of the power entry panel. The console has dual monitors.

INSTRUCTION CONTENT

Introduction — Presents an overview of the OIC console and related hardware. It also provides a complete list of specifications.

Description and Operation — Describes the theory of operation of the OIC console and related hardware.

Installation — Describes the installation and cabling. It also describes the jumper settings of the multibus module. Be sure to read and follow all warnings and cautions.

Troubleshooting — Lists troubleshooting steps and provides a troubleshooting guide.

Maintenance — Contains a schedule and procedures for maintenance.

Component Description and Replacement — Describes the hardware associated with the OIC4323 console and replacement procedures for that hardware.

Support Services — Includes a spare parts list and ordering instructions.

Appendix A — Quick reference information. Contains jumper and switch settings and fuse locations.

HOW TO USE THIS INSTRUCTION

Read this entire instruction through in sequence before attempting to install or use the console. It is important to become familiar with the entire content of the instruction prior to installing and operating the console to attain maximum system efficiency.

The instruction is organized into seven sections and one appendix. Its organization enables finding specific information quickly, and using this instruction as a reference after becoming fully familiar with the console.

Be sure to read the notes which provide:

- Additional information.
- Amplifying information.
- Information that should be considered before performing a certain operation or function.

GLOSSARY OF TERMS AND ABBREVIATIONS

Table 1-1 contains those terms and abbreviations that are unique to Elsag Bailey or have a definition that is different from standard industry usage.

Table 1-1. Glossary of Terms and Abbreviations

Term	Definition
ADP	Annunciator/display panel.
CPU	DEC AlphaStation 255 model 233
INFI-NET®	Advanced data communication highway.
MKM	The designation MKM in this manual refers to the IIMKM02A multibus keyboard module.
OIS	Operator interface station. Integrated operator console with data acquisition and reporting capabilities. It provides a digital access into the process for flexible control and monitoring.
PCU	Process control unit. A node on the plant-wide communication network containing control and I/O modules.
PEP	Power entry panel.
Plant Loop	Network 90® data communication highway.

REFERENCE DOCUMENTS

Table 1-2 lists Elsag Bailey instructions referenced in this instruction.

Table 1-2. Reference Documents

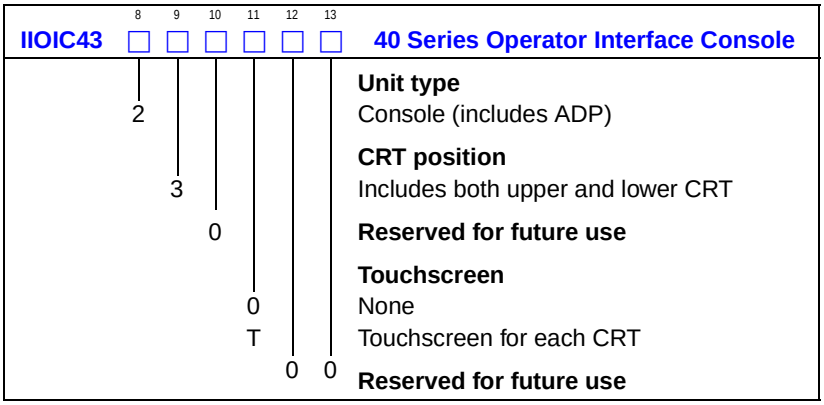
Number	Document
I-E96-191-2	Configuration, Operator Interface Station, IIOIS41
I-E96-191-4	Hardware, Operator Interface Station, IIOIS41
I-E96-192-1	Operation, Operator Interface Station (40 Series) IIOIS42
I-E96-192-2	Configuration, Operator Interface Station (40 Series) IIOIS42
I-E96-192-3	File Utilities, Operator Interface Station (40 Series) IIOIS42
I-E96-192-4	Hardware, Operator Interface Station, IIOIS42
I-E96-500	Site Planning and Preparation
I-E96-197-10	Signature Series Work Station Site Planning and Selection Guide
WBPEEUI220756A0	Operation, Operator Interface Station, IIOIS43 and IS42/43)
WBPEEUI220757A0	Configuration, Operator Interface Station, IIOIS43 and IS42/43)
WBPEEUI220758A0	File Utilities, Operator Interface Station, IIOIS43 and IS42/43
WBPEEUI330760A0	Hardware, Operator Interface Station, IIOIS43
WBPEEUI220761B0	Hardware, Signature Series Work Station, IS43

NOMENCLATURE

Table 1-3 contains the hardware nomenclature used in this instruction. Following the table is the nomenclature for the IIOIC43 console.

Table 1-3. Hardware and OIC Nomenclature

Nomenclature	Description
IIAKB03A	QWERTY style auxiliary (engineering) keyboard.
IIAMS04A	Mouse.
IIATB05	Trackball.
IIMKM02A	Multibus keyboard module.



OIC CONSOLE SPECIFICATIONS

Table 1-4 contains the specifications for the OIC Console.

Table 1-4. IIOIC4323 Console Specifications

<table>
<tr><th>Property</th><th>Characteristic/Value</th></tr>
<tr><td>Power</td><td></td></tr>
<tr><td>Line voltage</td><td>240 V nominal (180 VAC to 264 VAC RMS)
120 V nominal (90 VAC to 132 VAC RMS)
Overvoltage category: III</td></tr>
<tr><td>Line frequency</td><td>47 to 63 Hz</td></tr>
<tr><td>Circuit breaker size</td><td>20 A circuit breaker</td></tr>
<tr><td>Power consumption</td><td>
<table>
<tr><th>Model</th><th>Voltage</th><th>Typical Amps</th><th>Maximum Amps</th><th>Typical Watts</th><th>Maximum Watts</th></tr>
<tr><td rowspan="2">IIOIC4323</td><td>120</td><td>3.79</td><td>5.04</td><td>323</td><td>429.6</td></tr>
<tr><td>240</td><td>2.61</td><td>3.47</td><td>321</td><td>426.9</td></tr>
</table>
</td></tr>
</table>

Table 1-4. IIOIC4323 Console Specifications (continued)

<table>
<tr><th>Property</th><th>Characteristic/Value</th></tr>
<tr><td>Power characteristics</td><td>
<table>
<tr><th>Model</th><th>Voltage</th><th>Crest Factor</th><th>Power Factor (Typical)</th><th>Inrush Current Amps (Typical)</th></tr>
<tr><td rowspan="2">IIOIC4323</td><td>120</td><td>53.3</td><td>2.49</td><td>0.704</td></tr>
<tr><td>240</td><td>64.8</td><td>4.66</td><td>0.510</td></tr>
</table>
</td></tr>
<tr><td>Power supply</td><td>+5 VDC at 20 A, +12 VDC at 4 A, -12 VDC at 4 A</td></tr>
<tr><td>Keyboard interface</td><td>Operator keyboard output relays rated at 250 mA 24-28 VDC per IIMKM02A module.
<table>
<tr><th>Alarm Relays</th><th>Rating</th></tr>
<tr><td>Contact voltage</td><td>24 VDC
Overvoltage category: III</td></tr>
<tr><td>Contact current</td><td>0.25 A</td></tr>
<tr><td>Contact power</td><td>6 W</td></tr>
</table>
</td></tr>
<tr><td>Alarm relays</td><td>6 per keyboard</td></tr>
<tr><td>Alarm tones</td><td>5 per keyboard</td></tr>
<tr><td>Keyboards</td><td>1 Mylar (operator)
1 Engineering (QWERTY)</td></tr>
<tr><td>Annunciator/display panels</td><td>4 (per IIMKM02A module) 32 pushbuttons and 64 LEDs per panel</td></tr>
<tr><td>Environment</td><td></td></tr>
<tr><td>Temperature</td><td>Operating: 10° to 40° C (50° to 104°F)
Nonoperating[1]: -30° to 65°C (-22° to 149°F
Storage: 5° to 50°C (41° to 122°F)</td></tr>
<tr><td>Relative humidity</td><td>Operating: 20% to 90% noncondensing
Recommended minimum: 40%
Storage: 10% to 90% noncondensing</td></tr>
<tr><td>Altitude</td><td>-0.3 to +2.4 km (-0.2 to 1.5 mi.)</td></tr>
<tr><td>Cooling requirements (Heat dissipation)</td><td>1,103 BTU/hr. nominal, 1,467 BTU/hr. maximum</td></tr>
<tr><td>Dimensions</td><td>568.3 cm high x 711.2 cm wide x 1096.1 cm deep
(61.74 in. high x 28.0 in. wide x 42.92 in. deep)</td></tr>
<tr><td>Weight</td><td>240 kg (525 lbs.)</td></tr>
<tr><td>Electrical noise</td><td>Keep cabinet doors closed. Do not use portable transmitting equipment within 2 m (6.5 ft) of a cabinet</td></tr>
<tr><td>Certification (pending)</td><td>CSA certified for use in an ordinary (nonhazardous) controlled environment</td></tr>
</table>

NOTE:
1. Nonoperating environment is defined as a transportation or storage period of less than 60 days.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

SECTION 2 - DESCRIPTION AND OPERATION

INTRODUCTION

This section explains the theory of operation for the operator interface console. An operator uses the OIC console to monitor and control the process through an OIS main console. For OIC operating procedures, refer to the operation instruction.

The OIC console interfaces to INFI-NET and Plant Loop communication highways through the OIS main console. It can monitor and allow manual control of a process through color graphics displays which show equipment status and process state. Figure 2-1 shows a block diagram of the communication process.

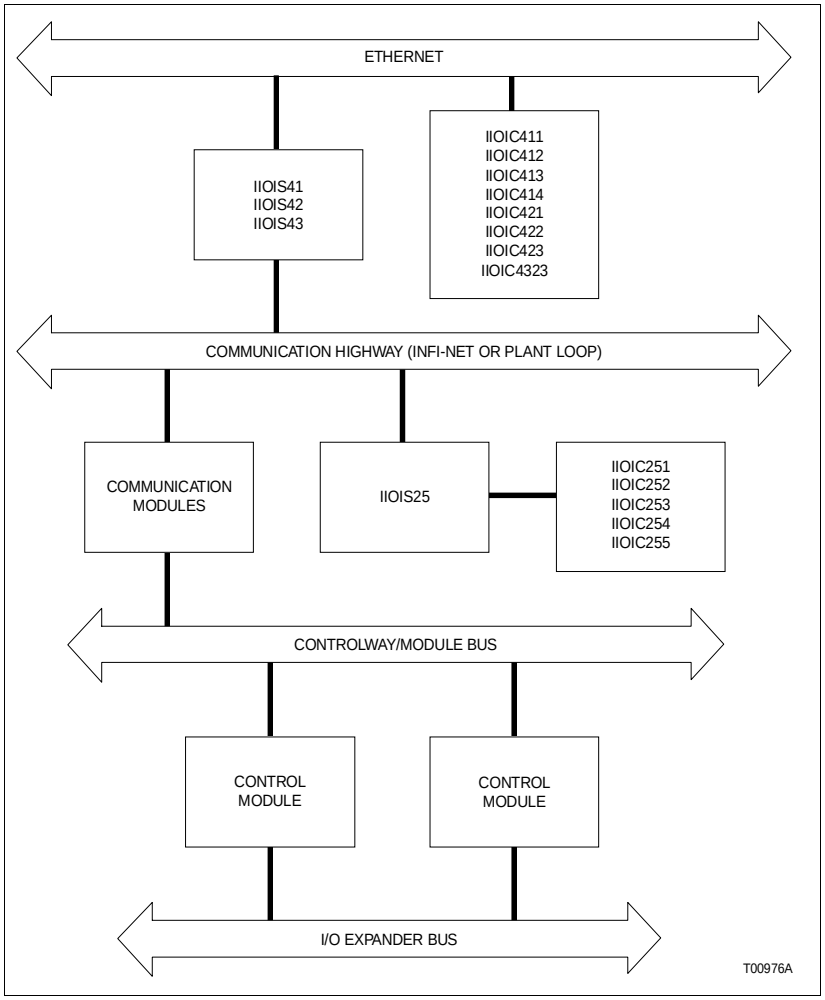


Figure 2-1. OIC Communication Levels

OIC CONSOLE FUNCTIONAL OPERATION

The OIC console controls and monitors a process through the OIS station. The OIC console is a remote operator station with two monitors and keyboard controlled by a CPU. Commands between the OIC and OIS main console pass through an Ethernet network cable using either DECnet or TCP/IP protocol.

The OIC console uses a DEC AlphaStation 255, model 233 CPU. The CPU sends video signals to the monitors. A cable connects the CPU to the VGA connectors on the monitors.

Figure 2-2 is a block diagram of the IIOIC4323 operator interface console. Refer to Section 3 for OIC CPU connections. Refer to Section 6 for a description of the CPU.

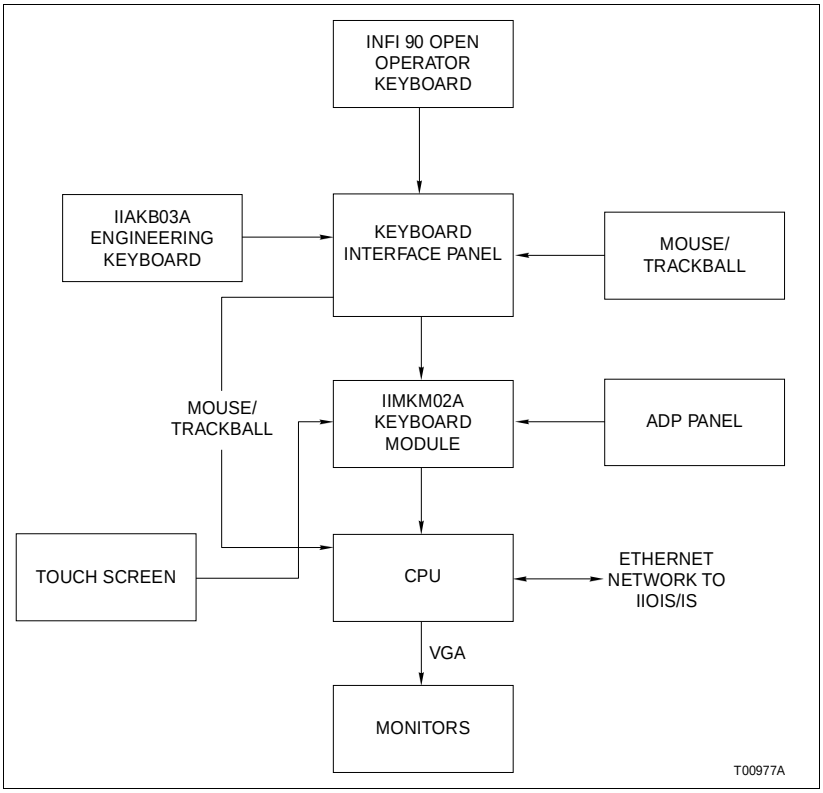


Figure 2-2. IIOIC4323 Block Diagram

SECTION 3 - INSTALLATION

INTRODUCTION

This section explains how to install and prepare the OIC consoles. This section is a guide for the system engineer or technician. Follow the procedures in this instruction carefully to install, maintain and use the system properly. We recommend reading the entire instruction before beginning the installation and powering up the console.

For other installation information, refer to the ***Site Planning and Preparation*** instruction and the appropriate OIS instruction. Refer to Table 1-2 for the instruction number.

SPECIAL HANDLING

Observe these steps when handling electronic circuitry:

Always use the Elsag Bailey Field Static Kit (part number 1948385□1) consisting of two wrist straps, ground cord assembly, alligator clip, and static dissipating work surface when working with static sensitive devices. The kit is designed to connect the technician and the static dissipating work surface to the same ground point to prevent damage to the static sensitive devices by electrostatic discharge.

Use the static grounding wrist strap when installing and removing modules. Static discharge may damage static sensitive devices on modules in the cabinet. Use grounded equipment and static safe practices when working with static sensitive devices.

1. ***Use static shielding bag***. Keep the modules in static shielding bag until you are ready to install them in the system. Save the bag for future use.

2. ***Ground bags before opening***. Before opening a bag containing an assembly with static sensitive devices, touch it to the equipment housing or ground to equalize charges.

3. ***Avoid touching circuitry***. Handle assemblies by the edges; avoid touching the circuitry.

4. ***Avoid partial connection of static sensitive devices***. Verify that all devices connected to the modules are properly grounded before using them.

5. ***Ground test equipment***.

6. ***Use An Antistatic Field Service Vacuum***. Remove dust from the cards if necessary.

7. ***Use a grounded wrist strap***. Connect the wrist strap to the appropriate grounding plug on the power entry panel. The grounding plug on the power entry panel is connected to the cabinet chassis ground.

8. ***Do not use lead pencils to set dipswitches***. To avoid contamination of switch contacts that can result in circuit board malfunction, do not use a lead pencil to set a dipswitch.

UNPACKING AND INSPECTION

These are steps to follow for general handling:

1. Examine the console to make sure that no damage has occurred in transit.

2. Notify the nearest Elsag Bailey sales office of any damage.

3. File a claim for any damage with the shipping company that handled the shipment.

4. Use the original packing material or container to store the console.

5. Store the console in a place with clean air; free of extremes of temperature and humidity. Refer to Section 1 for the console specifications.

INSTALLATION

WARNING	**Verify all covers are installed and all doors are closed before operating the console. Exposed electrical connections present a shock a hazard that can cause injury or death.**

Do not remove or install circuit boards with power applied to the console. The circuit board may be damaged. Remove power to all AC wiring when removing or connecting AC wires to prevent personal injury and equipment damage. Remove DC power to all DC wiring when removing or connecting DC wires or circuit boards to prevent personal injury and equipment damage.

The following steps outline the required procedure to complete the installation of the OIC console. Follow all related safety procedures when doing these steps.

1. Install the cabinet. Refer to the dimension drawings and instructions in the installation and setup sections found later in this section.

2. Vibration during shipping and handling may unseat the multibus keyboard module and connections, causing problems. Verify that the module is seated and that all terminal block screws and stud fasteners are tight.

3. Connect the OIC console to the OIS. Refer to the installation and setup procedure in this section.

4. Verify that no power is present to the OIC when making power wiring connections. Wire AC power according to the procedures in ***INSTALLATION PROCEDURE***. Refer to the ***Site Planning and Preparation*** instruction, the power requirements in Section 1 and ***AC POWER WIRING GUIDELINES*** in this section.

NOTES:

1. Verify that the incoming voltage meets the ratings as shown in Table 1-4.

2. Make certain the voltage selector switch on the rear of the CPU is set to the correct voltage, 120 or 240 VAC. Failure to do so could cause damage to the equipment.

3. Make certain the OICs being installed are powered using the same power source and ground as the OIS console. Failure to do so may cause improper operation.

5. After completing the wiring:

- Check that the keyboards and printers are connected to the correct port. Refer to ***IIOIC4323 Console Wiring Connections and Cabling*** and ***PERIPHERALS***.
- Ethernet network cable requires a terminator at each end of the cable.
- Check the AC voltage sources for proper voltage and current values. Refer to the specifications in Section 1 and ***AC Power Test*** in Section 4.
- Apply power. If problems occur, refer to Section 4 for troubleshooting information.

AC POWER WIRING GUIDELINES

CAUTION	**Make sure that all voltage labels and voltage switch settings on the peripheral devices, power supply, CPU and power entry panel show the correct operating voltage. Equipment damage may result if the incorrect voltage is connected. Make sure the console main power circuit breaker is off before changing operating voltage setting or equipment damage may result.**

IIOIC4323 AC power input connects to a terminal block on the power entry panel. Refer to the following sections under ***INSTALLATION PROCEDURE*** for detailed AC power wiring connection procedures. The operator interface console can operate from 120/240 VAC, 50/60 hertz. The power entry panel provides line filtering, transient suppression and a 20 amp circuit breaker.

Setting up the IIOIC43 console for 240 VAC requires that the voltage selector switch on the CPU be manually set to the appropriate voltage. The color monitors are autosensing and need no changes for 240 VAC operation. Monitors by other vendors may require changes.

The recommended minimum size for power wiring is 14 AWG copper wire with a 600 volt, 75 degrees Celsius (167 degrees Fahrenheit) rating and thermoplastic insulation. Wire with a 300 volt or 150 volt rating may be used if it is accepted by local wiring codes. Wiring must be protected by cable trays or conduit and suited for the service voltage.

Power wiring to the OIC console must include a third-wire grounding conductor. This grounding conductor must not be a smaller gauge than the power wiring and must be either bare, green colored or green/yellow colored if insulated. The grounding conductor must be terminated at the system safety ground connection on the front of the power entry panel.

Over-current protection provided for the AC distribution must be sized to allow for the inrush current required by the OIC hardware. Refer to the specifications in Section 1 for the peak inrush current and duration for the OIC console.

For more information on power wiring, grounding, line conditioning and EMI (electromagnetic interference), refer to the ***Site Planning and Preparation*** instruction.

AC OUTLETS

CAUTION	**Remove power from all equipment and the console before installing or removing peripheral equipment. Equipment damage may result.**

NOTE: Do not connect motors, lights or test equipment to the AC outlets. Electrical noise may cause data to be lost or changed.

INSTALLATION PROCEDURE

This section contains the installation and setup instructions for the IIOIC4323 console auxiliary terminals. Follow all cautions and warnings.

The OIC console is internally wired when it is shipped. Connect the communication loop cables, AC power and any peripheral devices. Peripheral devices connect to the front of the power entry panel. Table 3-1 contains the color codes for the wiring in the OIC console.

Table 3-1. OIC Wiring Color Codes

Color	Function
Brown	AC hot (inside PEP chassis only)
Blue	AC neutral
Green/Yellow	AC common
Brown	+5 VDC
White/Green	DC common
Violet	-12 VDC
White/Violet	+12 VDC
Green	-Remote voltage sense signal wire
White	+Remote voltage sense signal wire

Follow local wiring codes when wiring and installing cableways or conduit. For more information, refer to the ***Site Planning and Preparation*** instruction.

IIOIC4323 Console Setup and Installation

The OIC and OIS consoles are similar, except the OIC console has no floppy disk drives or network interface unit. The cabinet size and installation are the same. Figure 3-1 shows the dimensions.

Before the OIC console cabinet is set into place in a control room, insure that the floor is level in the area where the cabinets will be set. Make sure the location can accommodate the

console. Figure 3-1 shows the console cabinet and anchoring dimensions.

Adjust the leveling screws on all cabinets and connecting tables until the monitor bezel of each cabinet lines up. The leveling screws adjust 25.6 millimeters (1.05 inches). After securing the cabinets, put the tables on the cabinets and lock them into place by sliding the red handle above the front access door to the right until it stops at the bottom of the slot.

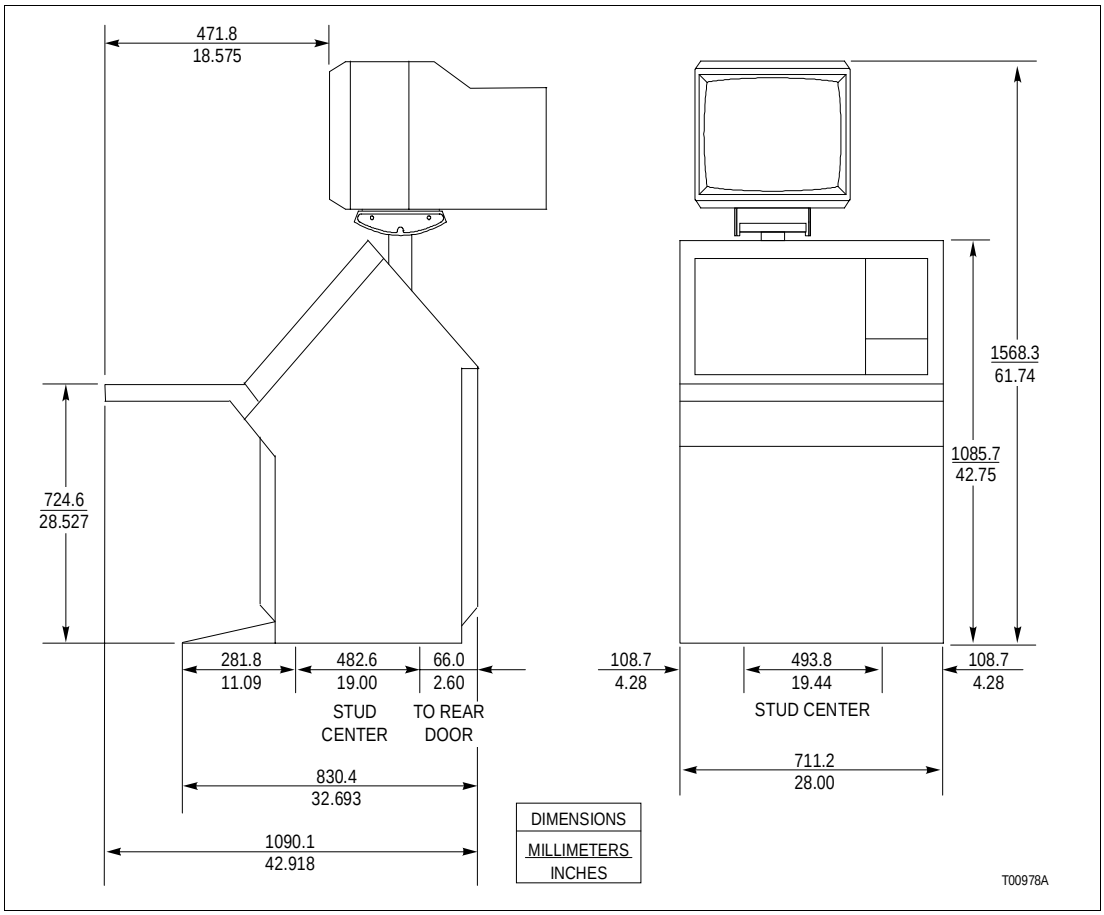


Figure 3-1. IIOIC4323 Console Dimensions

The tabletops are adjustable. The brackets supporting the tabletops are bolted through oversize holes. Loosen the bolts and move the top up to 6.35 millimeters (0.25 inches) up, down, forward or back toward the cabinet to line up the tabletop.

Two chrome table alignment pins are shipped inside the brass bushings located on each side of each tabletop. When two tabletops are lined up, push the pins outward into the bushing of the table to the right of the cabinet. Tighten the three bolts on each tabletop support bracket. Figure 3-2 shows the keyboard table. Figure 3-3 shows the 15 degree wedge table

dimensions, and Figure 3-4 shows the 45 degree wedge table dimensions.

Protect the wires and cabling going to the OIC console. Run cabling through conduit to the rear of the cabinet or under the floor through the bottom of the cabinet. Follow local wiring codes when wiring and installing cableways or conduit. Refer to the ***Site Planning and Preparation*** instruction for more information.

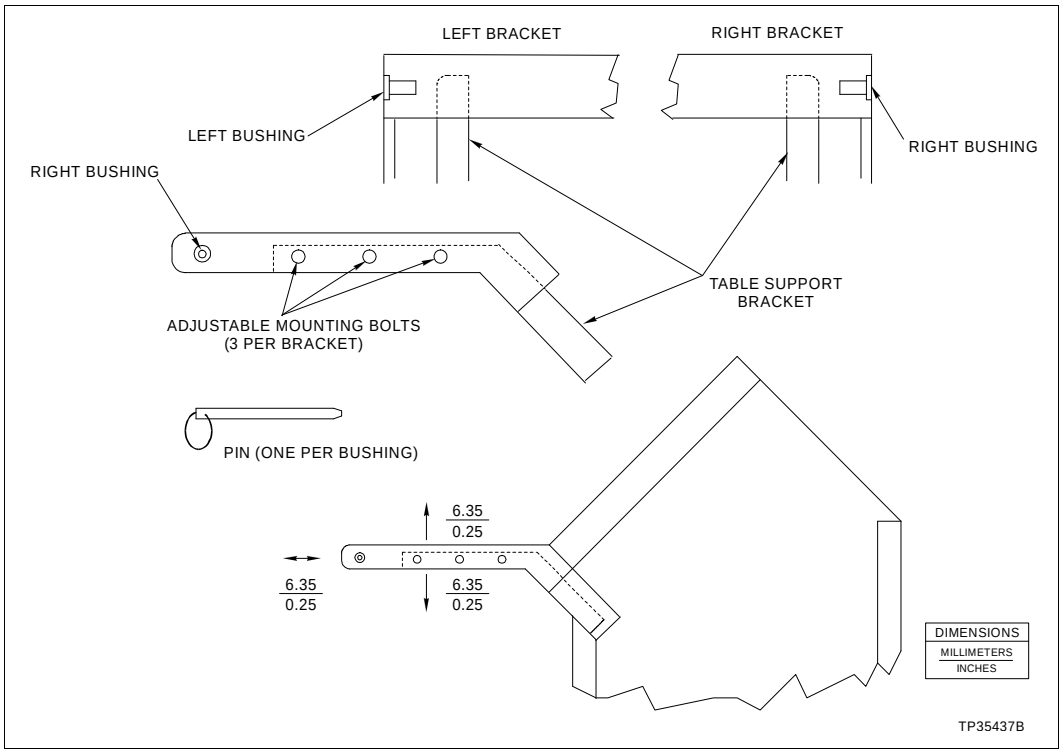


Figure 3-2. IIOIC4323 Console Keyboard Table

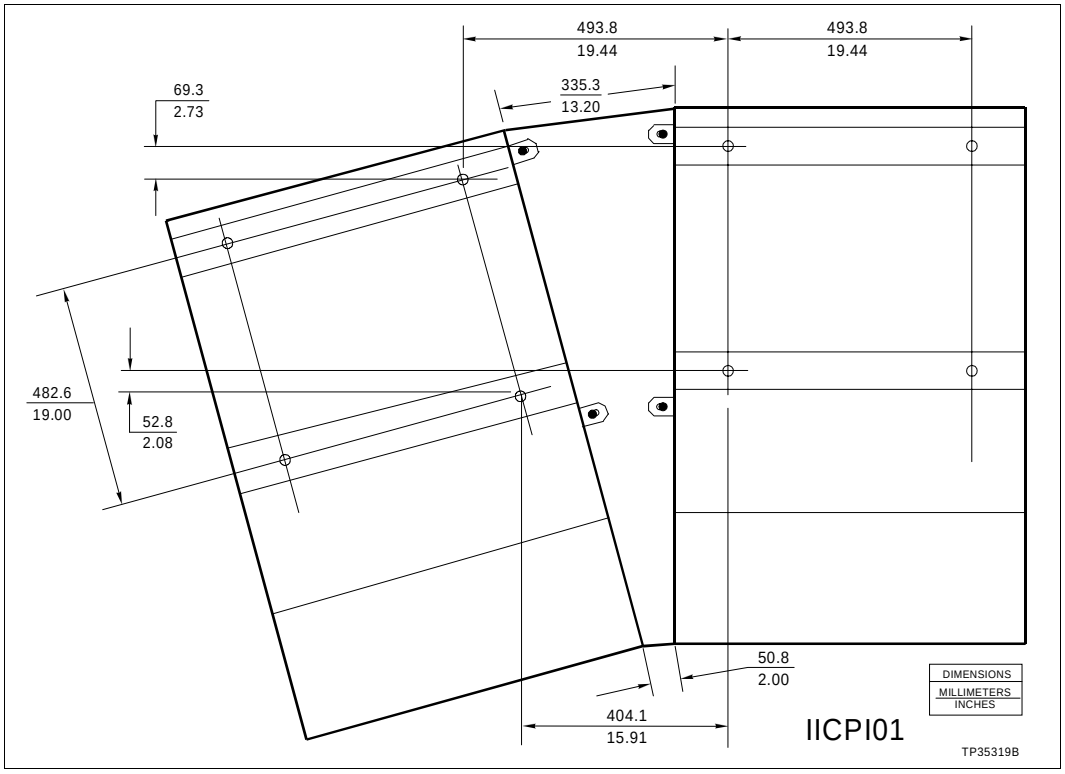


Figure 3-3. IIOIC4323 Console 15 Degree Wedge Dimensions

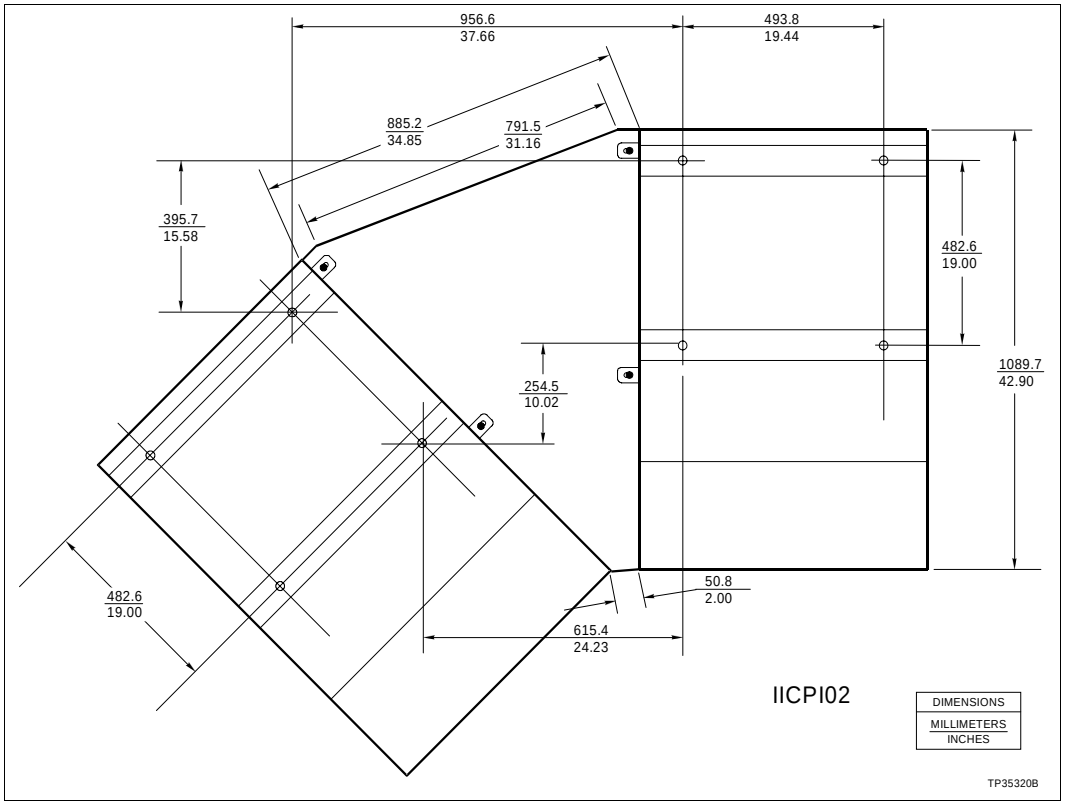


Figure 3-4. IIOIC4323 Console 45 Degree Wedge Dimensions

IIOIC4323 Console Wiring Connections and Cabling

The IIOIC4323 console is internally wired when it is shipped. Connect the AC power and any peripheral devices. Refer to Section 6 for specific instructions on installing and configuring replacement components.

1. Wire AC power to the proper terminals of the power entry panel. Refer to Figure 3-5 for AC input terminal location.

NOTE: Verify that the incoming voltage meets the ratings listed in Table 1-4.

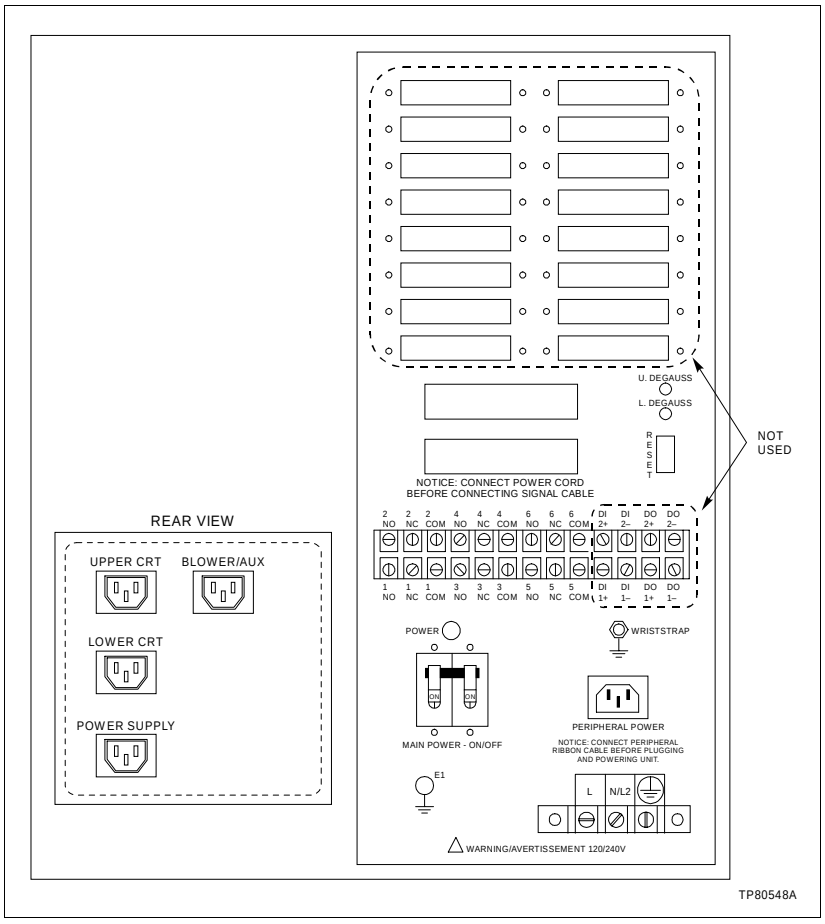


Figure 3-5. IIOIC4323 Console Power Entry Panel Connections

2. Connect only 120/240 VAC at 50/60 hertz into the terminal block on the power entry panel.

Figure 3-6 shows the IIOIC4323 cable connections. The circled numbers represent the cables. Table 3-2 contains the list of those cables and connection descriptions.

NOTE: Make certain the OIC consoles are powered using the same power source and ground as the OIS stations to reduce the chance of communication problems on the network. Failure to do so may cause data to be changed or lost.

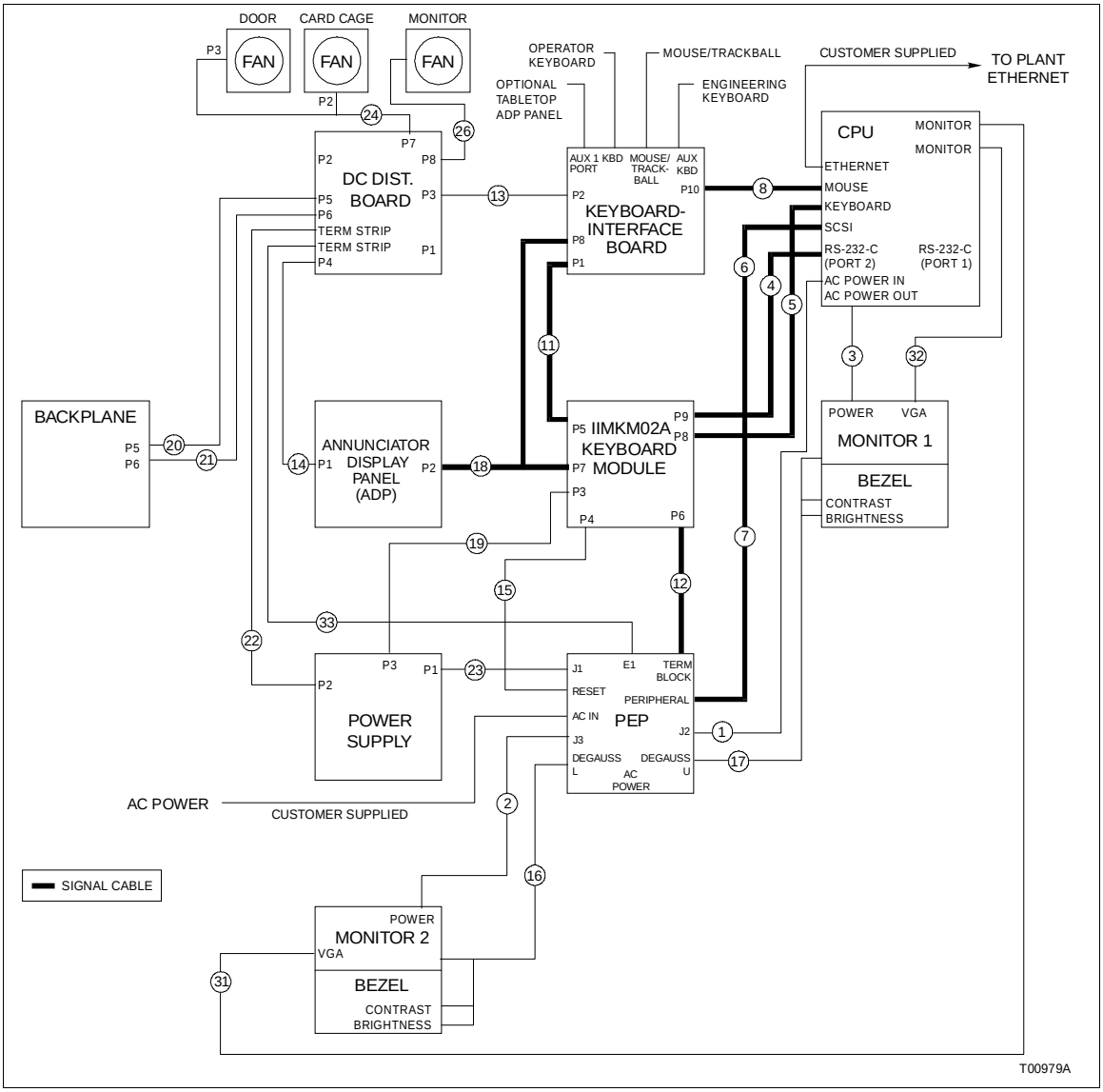


Figure 3-6. IIOIC4323 Console Cable Connections

Table 3-2. IIOIC4323 Console Cable Connections

Figure 3-6 Cable No.	Cable Number	Cable Name	Connect From	Connect To
1	1947950□1	AC power	J2 on power entry panel	AC power in on CPU
2	1947950□5	AC power	J3 on power entry panel	To power connector on monitor 2
3	1947950□	AC power	AC power out on CPU	AC power connector on monitor 1
4	6639637□4	I/O signal (console)	P9 on IIMKM02A	RS-232-C (Port 2) on CPU
5	6642339□1	Keyboard signal	P8 on IIMKM02A	Keyboard port on CPU
6	1949207□5	SCSI cable adapter	SCSI port on CPU	SCSI cable (7) (6641230□1)
7	6641230□1	SCSI cable	Item 6	Peripheral port on the power entry panel
8	6641230□1	Mouse signal	P10 on keyboard interface board	Mouse port on CPU through adapter
11	6634512□26N72	I/O distribution	P5 on IIMKM02A	P1 on keyboard interface board
12	6634512□26N72	I/O distribution	P6 on IIMKM02A	Rear terminal block on power entry panel
13	6638713□1	Peripheral power	P2 on keyboard interface board	P3 on DC distribution board on main power supply
14	6638713□2	Power	P1 on annunciator/display panel board (ADP02)	P4 on DC distribution board
15	6638719□1	Reset cable	Reset switch on power entry panel	P4 on IIMKM02A
16	6638720□4	Lower monitor bright	Bezel brightness and contrast Degaussing switch on power entry panel	9-pin connector on rear of monitor
17	6638720□5	Upper monitor bright	Bezel brightness and contrast Degaussing switch on power entry panel	9-pin connector on rear of monitor
18	6638849□1	Annunciator display panel signal	P7 on IIMKM02A	P8 on keyboard interface board P2 on ADP panel
19	6640113□4	PFI sense	P3 on power supply	P3 on IIMKM02A
20	6640368□1	DC Power	P5 on DC distribution board	P5 on backplane
21	6640368□1	DC Power	P6 on DC distribution board	P6 on backplane
22	6640369□1	DC Power	P2 on power supply	Terminal strip on DC distribution board
23	6640371□1	AC power	J1 on power entry panel	P1 on power supply
24	6640640□1	DC Power	P7 on DC distribution board	Cable P2 to fan on card cage Cable P3 to fan on back door

Table 3-2. IIOIC4323 Console Cable Connections (continued)

Figure 3-6 Cable No.	Cable Number	Cable Name	Connect From	Connect To
26	6640640□4	DC power	P8 on DC distribution board	IIOIC4323 (dual monitors) Cable P2 to fan on lower monitor Cable P3 to fan on lower monitor Cable P4 to fan on lower monitor Cable P5 to fan on upper monitor Cable P6 to fan on upper monitor Cable P7 not used
31	1949138□1	VGA cable	Monitor port on CPU as applicable	VGA on monitor 1
32	1949138□2	VGA cable	Monitor port on CPU as applicable	VGA on monitor 2
33	6638710□19	DC grounding cable	E1 port on power entry panel	Terminal strip on DC distribution board

OPERATOR INTERFACE DEVICES

This section contains information and the installation instructions for the operator and engineering keyboards, mouse/trackball and the annunciator display panels.

Operator Keyboard

The KEYBOARD port on the keyboard interface assembly is for the mylar operator keyboard (Fig. 3-7). The 0.9 meters (3-foot) long coiled cord can be stretched to 2.4 meters (8 feet). Refer to Table 7-1 for the operator keyboard part number.

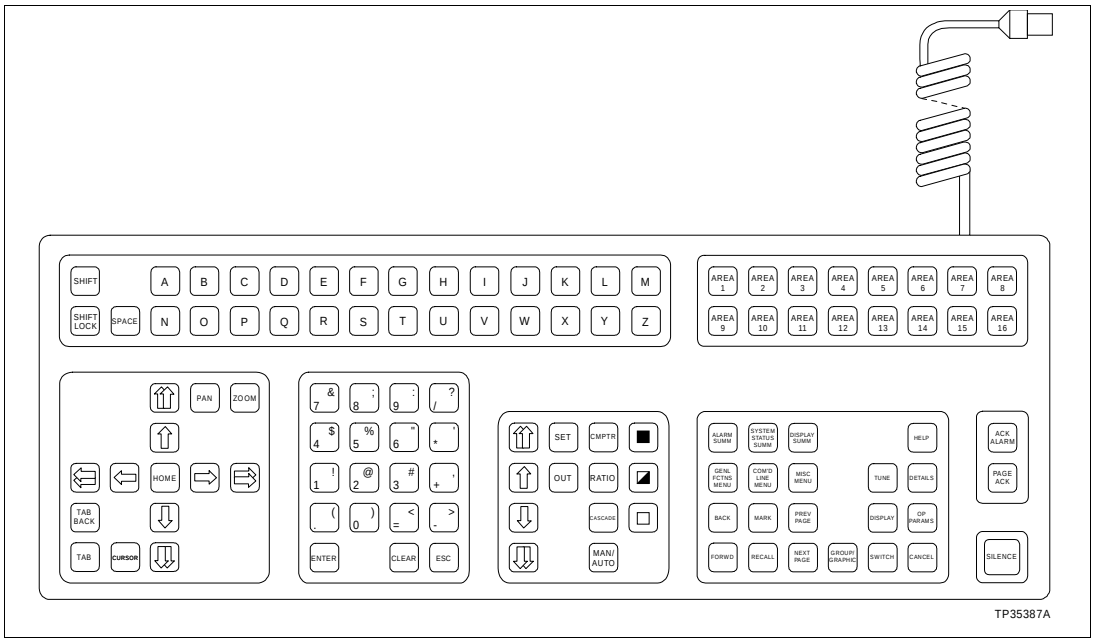


Figure 3-7. Operator Keyboard

Engineering Keyboard

Each IIOIC43 console supports an additional engineering keyboard (QWERTY) (Fig. 3-8). A 6-pin mini DIN to 5-pin DIN adapter is supplied with the keyboard. All OIC consoles have a five-pin DIN connector located on the keyboard interface board. Power does not have to be removed from the OIC console before plugging in or unplugging the keyboard. Initializing the system is not needed after plugging in or unplugging the keyboard. Keyboard mapping information is in the operation instruction.

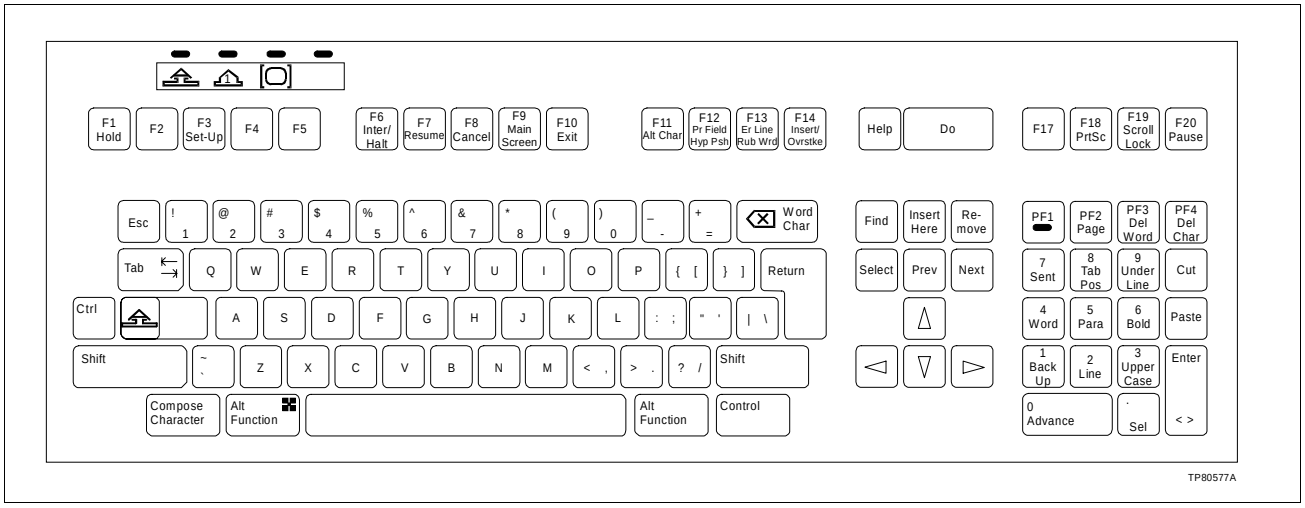


Figure 3-8. Engineering Keyboard

IIATB05 Trackball and IIAMS04A Mouse

The trackball and mouse permit faster cursor positioning during normal operator control or configuration. The trackball or mouse plugs into the keyboard interface board at the MOUSE/ TRACKBALL port.

IIADP01 Annunciator/Display Panel

The IIADP01 annunciator/display panel is a tabletop unit that provides 32 LEDs and pushbuttons. Each LED is assigned to a tag. Each pushbutton may be assigned to a display or a key macro. When a tag goes into an alarm condition, the assigned LED turns on. Once the LED is activated, it will continue flashing until all alarm conditions are acknowledged. Press the pushbutton to call the display or key macro assigned to it.

Up to four annunciator/display panels can be driven from an MKM module. Maximum cable length is 4.5 meters (15 feet). Refer to Figure 3-9 for the dipswitch configuration. Refer to Table 3-3 for cable connections. Refer to the operation and configuration instruction for more information.

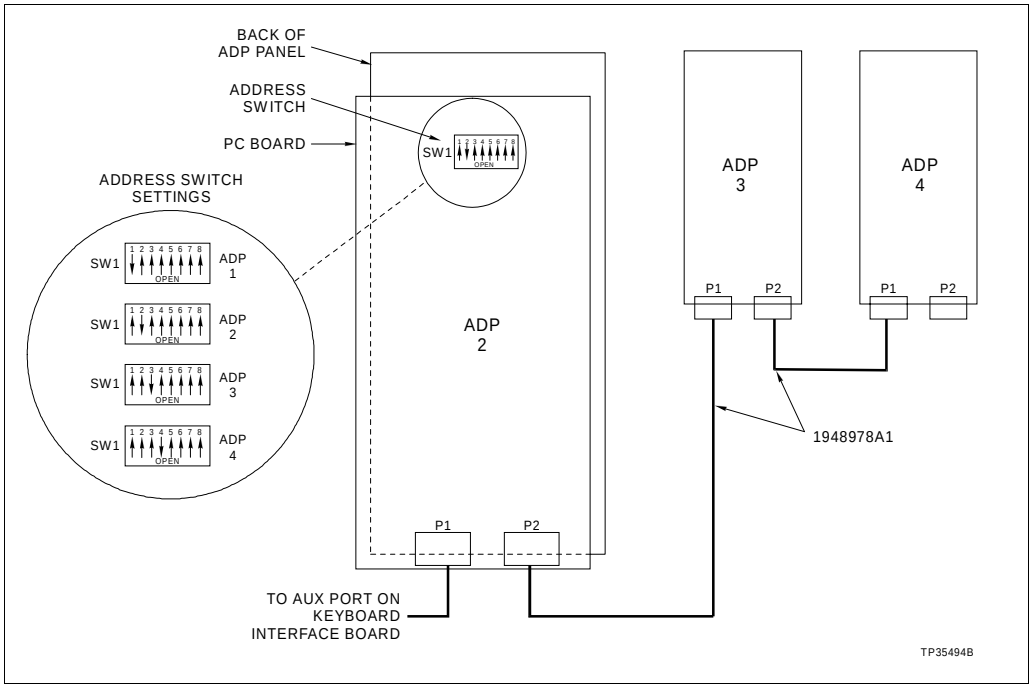


Figure 3-9. IIADP01 Annunciator Display Panel SW1 Settings

Table 3-3. IIADP01 Board Connections

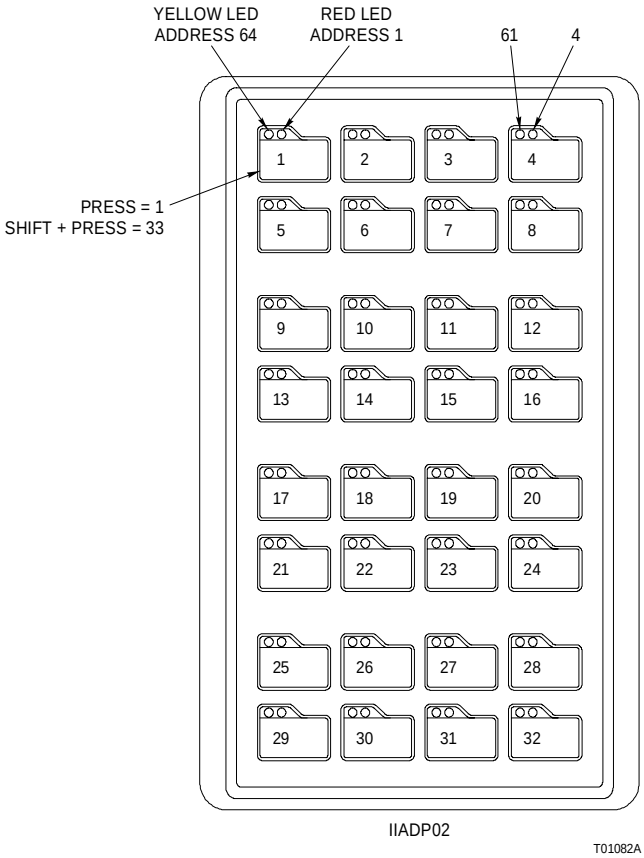
Cable Number	Connect From	Connect To
1948978A1	P1 or P2 on ADP 2 board	AUX 1 port on keyboard interface board, or to: P1 or P2 on ADP 3 board

IIADP02 Annunciator/Display Panel

The IIADP02 annunciator/display panel is a panel mounted unit that provides 64 LEDs; 32 red and 32 yellow and has 32 pushbuttons. Table 3-4 provides the tag/pushbutton/LED relationships. Each red and yellow LED is assigned to an alarm group. Each pushbutton may be assigned to a display or a key macro. Using SHIFT *plus* pushbutton allows a second display or key macro to be called. When a tag goes into an alarm condition, the assigned LED turns on. Once the LED is activated, it will continue flashing until all alarm conditions are acknowledged. If the LED is red, press the ADP pushbutton to call the display or key macro assigned to it. If the LED is yellow, press and hold SHIFT on the mylar keyboard and then press the ADP pushbutton to call the display or key macro assigned to it.

Up to four annunciator/display panels can be driven from an MKM module. Maximum cable length is 4.5 meters (15 feet). Refer to Figure 3-10 for the dipswitch configuration. Refer to the operation and configuration instruction for more information.

Table 3-4. ADP Tag, Pushbutton, LED Relationships

IIADP02 Faceplate	OIC/OIS Console ADP Screen	ADP Panel Pushbutton	Associated Red LED
	1	1	1
	↓	↓	↓
	32	32	32
	Press and hold SHIFT on mylar keyboard and press →→→→→ ↓		**Yellow LED**
	33	1	64
	34	2	63
	35	3	62
	36	4	61
	37	5	60
	38	6	59
	39	7	58
	40	8	57
	41	9	56
	42	10	55
	43	11	54
	44	12	53
	45	13	52
	46	14	51
	47	15	50
	48	16	49
	49	17	48
	50	18	47
	51	19	46
	52	20	45
	53	21	44
	54	22	43
	55	23	42
	56	24	41
	57	25	40
	58	26	39
	59	27	38
	60	28	37
	61	29	36
	62	30	35
	63	31	34
	64	32	33

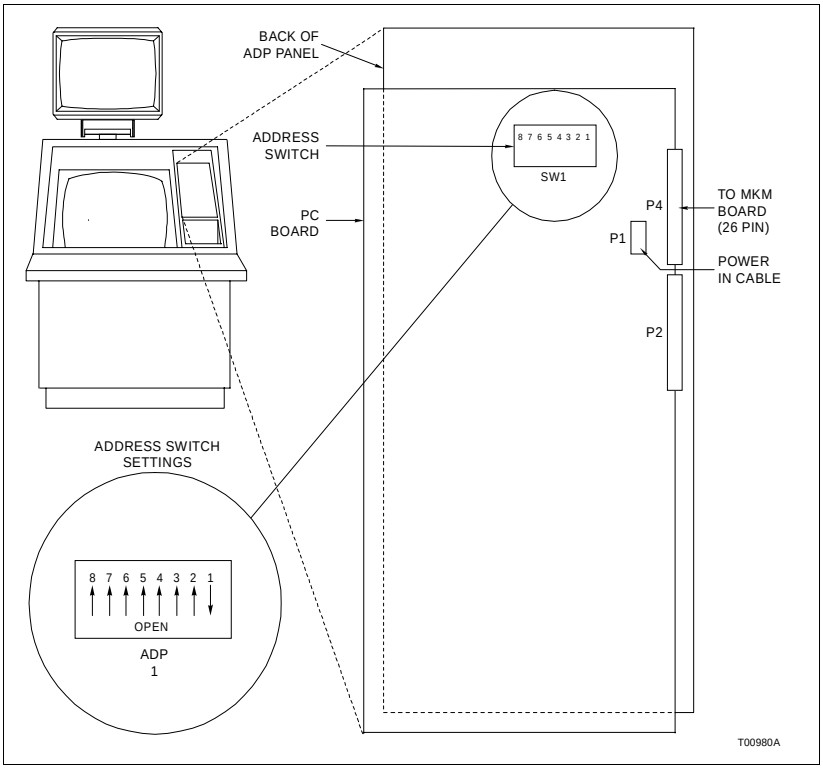


Figure 3-10. IIADP02 Annunciator Display Panel

Touch Screen

The touch screen option provides a means of selecting display options by touching the desired area on the monitor screen. Up to two touch screen controller cards can be mounted onto the IIMKM02A module. The first touch screen controller card mounts onto the component side of the MKM module. The second touch screen controller card is identical to the first and mounts onto the solder side of the MKM module. The touch screen board interprets signals from the touch screen monitor overlay and sends them to the CPU.

CALIBRATING THE TOUCH SCREEN

On-line calibration can be done from the console. For operating information, refer to the operation and configuration instruction.

TOUCH SCREEN JUMPER SETTINGS

Jumpers J6 through J9 on the IIMKM02A keyboard module control the touch screen option (Fig. 3-11).

1. Jumpers J6 through J9 should be factory set at 1 to 2.

2. Switches S1 and S2 on the touch screen controller board should be factory set as shown in Figure 3-11.

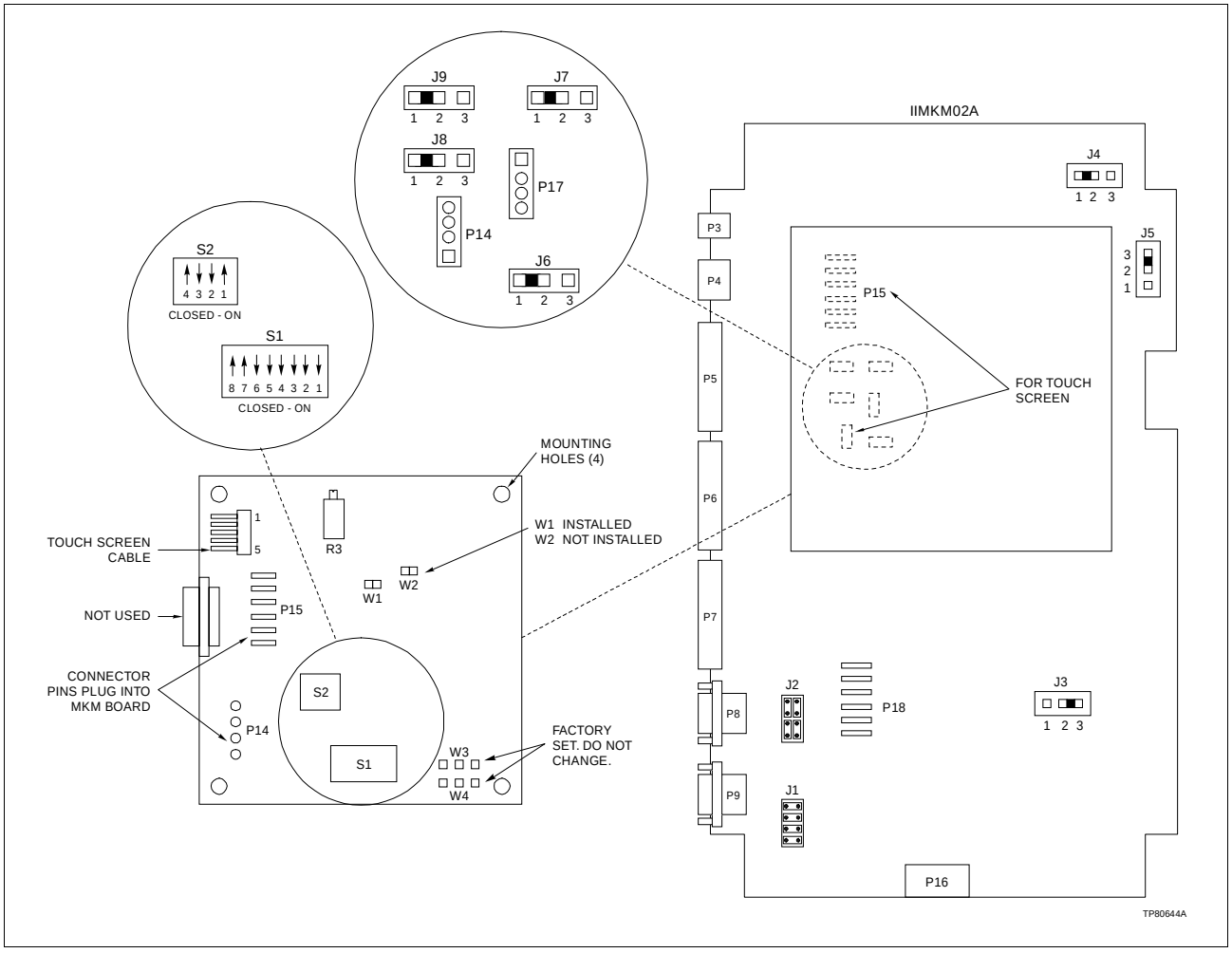


Figure 3-11. Touch Screen Controller Card Switch/Jumper Settings

3. Jumpers W3 and W4 on the touch screen controller board are factory set at pin 2 to 3 and should not be disturbed.

PERIPHERALS

The peripheral devices in this instruction are limited to printers and the DAT tape drive that can be used with the IIOIC4323 operator interface console.

CAUTION

Remove power from all peripheral equipment and the console before installing or removing peripheral equipment. Equipment damage may result.

Make sure that all voltage labels and voltage switch settings on the peripheral devices, power supply, CPU and power entry panel show the correct operating voltage. Equipment damage may result if the incorrect voltage is connected. Make sure the console main power circuit breaker is off before changing operating voltage settings or equipment damage may result.

Either an Okidata or Genicom printer connects to RS-232-C port 1 on the OIC CPU (Fig. 6-11) using cable part number 6642555A1. The optional printer uses device name _OPA1. Refer to the appropriate IIOIS41, IIOIS42, IIOIS43 or IS42/43 hardware instruction manual (Table 1-2) for details on printer configuration, operation and cabling requirements.

The IIDMT03B (TLZ09) tape drive is a tabletop SCSI compatible storage device that reads and writes to digital audio tape.

The tape drive has two SCSI ports. One port for connecting the tape drive to the console SCSI port; the other port is for another SCSI device or terminator or for daisy chaining. Related products for the tape drive are listed in Table 3-5.

Table 3-5. Tape Drive Related Products

Part Number	Description
1947950□5	Power cord
1949011A4	Tape drive
1949012□1	Blank cartridge
1949134□50	External SCSI cable

Tape drive installation consists of configuring the SCSI address switch and connecting the cable. Refer to the manufacturer's ***Owner's Manual*** for detailed installation instructions.

To install a tape drive, use the following procedure:

1. Locate the SCSI ID switch at the rear of the tape drive. It is factory set at 0. The SCSI address for the tape drive should be 5.

2. Press the + or - button until the 5 appears in the window.

3. Turn off all power before connecting the cable and the terminator.

4. Remove the terminator on the power entry panel to connect a DAT tape drive. The drive requires a terminator.

5. Use the SCSI cable provided. Connect one end of the cable to peripheral port on the power entry panel.

6. Connect the remaining end of the SCSI cable to either SCSI connector on the rear of the tape drive.

7. Secure the SCSI cable by snapping the wire cable clamps into place.

8. Connect the SCSI terminator to the other SCSI connector on the rear of the drive. Secure the terminator by snapping the wire cable clamps into place.

9. Make certain the tape drive power switch is in the OFF position.

10. Connect the supplied power cable to the AC power receptacle (AC IN) at the rear of the tape drive.

11. Connect the other end of the power cable to a nearby AC outlet.

> **NOTE:** The tape drive must be powered down and then up for a new SCSI address switch setting to take effect.

To verify operation of the tape drive, execute the power-on self-test. Note that there are four LEDs on the front of the tape drive: power on, busy, tape and status.

- With power on, press the power switch to the on position.
- After a two second delay, with no cassettes in the drive, the LEDs will flash off and on twice, followed by each LED lighting in a sequence from left to right until the completion of the self-tests.
- With a cassette in the drive, the *tape* and *busy* indicators will continue flashing (approximately 20 seconds) after completion of the above sequence until the cassette is loaded.
- After successful completion of the self-test, all LEDs will be extinguished. If a cassette is loaded, the *tape* LED will remain on. If the cassette is write-protected, the *status* LED will also remain on.
- If the *status* LED flashes at a slow rate (about once every four seconds), the self-test failed. Attempt to clear the failure by re-executing the self-test. Power off and power on the drive. If the failure repeats itself, contact your local Elsag Bailey service representative.

> **NOTE:** It is recommended that you perform head cleaning procedures after the first four hours of tape movement with a new cartridge and thereafter once every two weeks, or after every 24 hours of drive usage, whichever comes first. Refer to the manufacturer's documentation for procedure.

Refer to the manufacturer's documentation for detailed information on preventive maintenance and problem solving.

CPU HALT SWITCH SETTING

Before the IIOIC4323 console is put into service, check the switch settings on the CPU motherboard to make certain they are correct.

If SW-4 on the CPU motherboard is set to OFF (Fig. 3-12), the reset button on the front of the CPU will become a HALT button. Use the CPU HALT switch if the console does not respond.

> **NOTE:** Pressing the HALT switch on the CPU halts the CPU and the screen displays the >>> prompt. This requires typing ***B*** and ***Return*** from the engineering or operator keyboard in order to boot the system into the main OIS window. A system boot takes approximately 10 minutes.

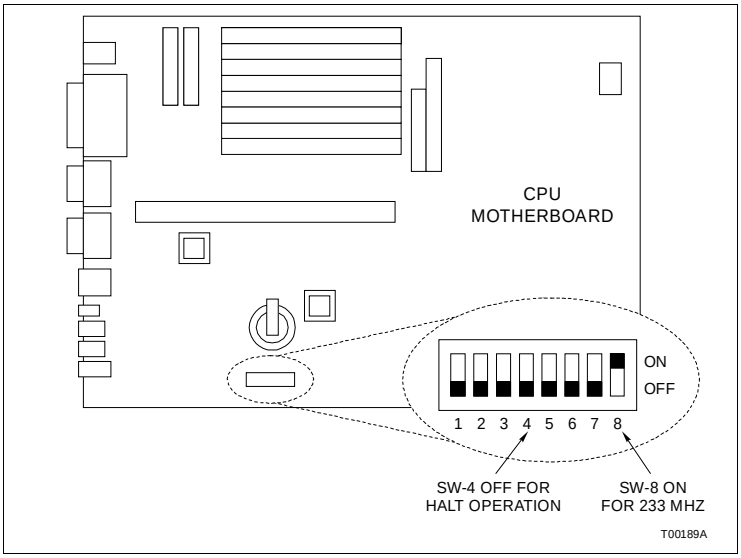


Figure 3-12. Setting CPU Switch SW-4 for HALT Operation

SYSTEM OPERATION AND START-UP

Once the auxiliary consoles are installed, wired and ready for operation, refer to the appropriate OIS manual (listed in ***REFERENCE DOCUMENTS*** in Section 1 for protocol, configurations, software installation, start-up procedures, peripheral equipment settings and system operation.

If the power up diagnostics fail, the screen displays an error code and then the >>> prompt. The DEC AlphaStation 255 ***User Information*** manual for the CPU contains details of diagnostics and error codes.

The red multibus reset switch (RESET) on the OIC power entry panel (Fig. 3-5) resets the MKM module in the multibus card cage and the keyboard. Use the multibus reset if the keyboard does not respond.

SECTION 4 - TROUBLESHOOTING

INTRODUCTION

This section explains how to troubleshoot the OIC4323 operator interface console. It contains a troubleshooting table and techniques for gathering information on software faults.

Replace components by following the procedures in Section 6. Refer to wiring and cabling information in Section 3 when replacing parts. Review specific adjustments associated with replaceable parts before returning the system to normal operation. Close and secure cabinet doors after troubleshooting or replacing parts and before returning the system to normal operation.

Be sure to follow all warnings, cautions and notes. Put circuit boards containing MOS devices into antistatic bags when stored or shipped back to the factory. Do not repair printed circuit boards in the field. All repairs and adjustments should be performed by qualified personnel.

TROUBLESHOOTING

The OIC4323 consoles are shipped ready for configuration. After completing the instructions given in Section 3, prepare the unit for service. The troubleshooting guide in Table 4-1 helps identify problems and suggest solutions.

DIAGNOSTIC POWER UP TESTS

If the troubleshooting guide fails to identify a problem in the OIC console, follow the AC and DC power test procedures. Check the AC voltages at the line input to the power entry panel on all models.

AC Power Test

NOTE: When the instructions state to apply power to the OIC console, switch the main breaker to the ON position. To turn off the power, switch the main circuit breaker to the OFF position.

1. Turn off power to the console. Disconnect AC power to all equipment inside the console by unplugging the line cords from the back of the power entry panel.

2. Apply power to the console by switching on the line circuit breaker located at the front of the power entry panel.

Table 4-1. Troubleshooting Guide

Symptom	Possible Problem or Solution
No power indicator on circuit	No AC power at console. Check AC wiring on input. Check AC on power entry panel. Check breaker light on power entry panel or keyboard interface.
Breaker off but indicator on	Check breaker contacts. Check breaker wiring. Check AC input wiring.
Improper/ incomplete start-up	Refer to the CPU customer hardware information instruction shipped with the console.
Start-up OK but no keyboard response	Check keyboard assignment. Check all cables. Check caps lock position. Check IIMKM02A module seating and jumpers. Check main OIS configuration (keyboards).
Start-up OK but no CRT picture	Check monitor AC power.Check VGA cables. Check monitor switch (set on VGA). Check resistor switches for 75 ohm termination. Check brightness and contrast controls.

3. Use a digital voltmeter to measure the AC power at each of the outlets. Four are marked UPPER CRT, LOWER CRT, POWER SUPPLY, BLOWER AUX. The fifth outlet is on the front of the unit and is marked PERIPHERAL POWER.

4. The line voltage should be 90 to 132 VAC RMS for a 120 VAC input and 180 to 264 VAC for a 240 VAC input. Refer to the ***Site Planning and Preparation*** instruction for specific AC voltages.

5. Use the digital voltmeter to check each outlet and insure that neutral, live and ground are wired correctly, and there are no ground faults. Refer to Section 3 and Section 6.

6. Turn off the power to the console. Verify that it removes power from all outlets.

7. Plug the power cords for the color monitors into the appropriate socket in the rear of the power entry panel. ***Do not*** plug in the main power supply yet. Apply power to the console. Nothing will be displayed on the color monitors until the system software is loaded.

DC Power Test

Follow these steps to test the DC power supply. The necessary test equipment consists of a digital voltmeter. Figure 6-4 shows the main power supply.

1. Turn off power to the console.

   NOTE: Do not disconnect the power wiring from the multibus card cage.

2. Unplug DC power distribution cables from all peripheral devices (ADP panel and keyboard interface board, if present).

Disconnect the power cables at the distribution side of the cables.

3. Make certain the power line cord for the power supply is plugged into the power entry panel.

4. Insure that ***all*** power supply wiring is correct. Refer to ***IIOIC4323 Console Wiring Connections and Cabling*** in Section 3.

5. Apply power to the console.

6. Measure the DC voltages at the multibus card module backplane.

7. Take the voltage measurements with the power supply under load. Measure the +5.00 VDC; the voltage should be +0.25 VDC and -0.0 VDC of the value. Measure the +12.00 VDC and -12.00 VDC; the voltage should be +1.5 VDC and -1.00 VDC of the value.

> **NOTE:** Unstable operation may result if the power supply voltages are not in tolerance.

8. Turn off the power to the console.

9. Connect all DC power distribution cables removed in Step 2.

10. Apply power to the console and check the DC voltage levels again. Adjust the power supply to obtain the voltage within a tolerance of +0.05 V.

SECTION 5 - MAINTENANCE

INTRODUCTION

This section contains a preventive maintenance schedule for the OIC console. Be sure to follow all warnings, cautions and notes. Put boards containing semiconductors into antistatic bags when stored or shipped back to the factory. Do not repair printed circuit boards in the field. All repairs and adjustments should be performed by qualified personnel.

The reliability of any stand alone product or control system is affected by the maintenance of the equipment. Elsag Bailey recommends that all equipment users practice a preventive maintenance program that will keep the equipment operating at an optimum level.

This section presents procedures that the customer should be able to perform on site. These preventive maintenance procedures should be used as a guideline to assist you in establishing good preventive maintenance practices. Select the minimum steps required to meet the cleaning needs of your system.

Personnel performing preventive maintenance should meet the following qualifications.

- Maintenance personnel should be qualified electrical technicians or engineers that know the proper use of test equipment.

- Maintenance personnel should be familiar with both the OIC and the main OIS console, have experience working with process control systems, and know what precautions to take when working on live AC.

PREVENTIVE MAINTENANCE SCHEDULE

Table 5-1 is the preventive maintenance schedule and check list for the OIC console. The table lists the preventive maintenance tasks in groups according to their specified maintenance interval. Some tasks in Table 5-1 are self explanatory. Instruction for tasks that require further explanation are covered under ***STANDARD PREVENTIVE MAINTENANCE PROCEDURES*** or in the manufacturer's documentation supplied with the console.

Table 5-1. Preventive Maintenance Schedule and Check List

Task	Frequency
Check printer, clean and lubricate.[1]	1 month
Be sure fans are turning. With power off, wipe dust off all fan blades.	
Check cabinet and module for dust. Clean as necessary using an antistatic vacuum.	3 months
Adjust printer per manufacturer's instructions.	
Check power supply output. Adjust power supply if needed (***DC Power Test*** in ***DC Power Test*** in Section 4).	
Check alarm and display LEDs.	
Check the cabinet air filters. Clean or replace them as necessary. Check the air filter more frequently in excessively dirty environments.	6 months
Check all signal, power and ground connections within the cabinet and verify that they are secure. Refer to procedure.	
Check power supply outputs. Refer to procedure.	
Check the quality of the plant power and grounding system. Follow the power and grounding system verification procedures in the INFI 90 OPEN site preparation and planning instruction.	12 months
Inspect and check the power entry panel. In high vibration environments testing may be necessary at shorter intervals. Refer to procedure.	2 years
Replace power supply. Call Elsag Bailey sales and service for information.	5 years
Complete all appropriate tasks in this table.	Shutdown

NOTE: 1. Adjust the printer using the procedures in the manufacturer's documentation.

EQUIPMENT AND TOOLS REQUIRED

Following are tools and equipment required for maintenance procedures.

- Antistatic vacuum.
- Bladed torque screwdriver (0 to 2.7 Newton meters - 0 to 24 inch-pounds).
- 4-inch bladed screwdriver.
- 16-inch bladed screwdriver.
- Isopropyl alcohol (99.5 percent electronic grade).
- Foam tipped swabs.
- Eberhard Faber (400A) pink pearl eraser or equivalent.
- Fiberglass burnishing brush.
- Distilled water.
- Lint free cloth.
- Mild, all purpose commercial spray cleaner.

STANDARD PREVENTIVE MAINTENANCE PROCEDURES

These preventive maintenance procedures cover standard procedures for the console preventive maintenance requirements. Read through them before beginning the procedure.

WARNING

Never clean electrical parts or components with the power on. Doing so exposes you to a fatal electrical shock hazard.

Wear eye protection whenever working with cleaning solvents. When removing solvents from printed circuit boards using compressed air, injury to the eyes could result from splashing solvent as it is blown off the printed circuit board.

Checking Connections

Check all signal wiring, power and ground connections within the cabinet to verify their integrity. When checking connections, always turn a screw, nut or other fastening device in the direction to tighten only. If the connection is loose, it will be tightened. If the connection is tight, the tightening action will verify that it is secure. There must not be any motion to loosen the connection.

NOTE: Power to the cabinet must be off while performing this preventive maintenance task.

1. Check and verify that all phase, neutral and grounding conductor connections on the power entry panel are secure.

2. Check and verify that all other power connections within the cabinet, including connections to the power supplies are secure.

3. Check and verify that all field wiring connections to the communication modules are secure.

Cleaning the Monitor

To clean the monitor window, remove dirt, finger prints or grease with a commercial glass cleaner and a soft lint-free cloth.

Cleaning the Operator Keyboard

To clean the operator keyboard:

1. Wipe away dust with a soft lint free cloth.

2. Clean dirt and film from the keyboard using a mild all purpose commercial spray cleaner and lint-free cloth.

Cleaning the Engineering Keyboard

To clean the engineering keyboard:

1. Use a static safe vacuum cleaner to remove dust from the keyboard.

2. Clean the key caps and keyboard enclosure with an all purpose commercial spray cleaner and lint free cloth. Do not spray into the keyboard. Apply cleaner to the cloth only.

Cleaning the Printed Circuit Boards

There are several circuit board cleaning procedures in this section. These procedures cover circuit board cleaning and cleaning edge connectors. Use the procedures that meet the needs of each circuit board. Remove all dust, dirt, oil, corrosion or any other contaminant from the circuit board.

Do all cleaning and handling of the printed circuit boards at static safe work stations. Always observe the proper electrostatic sensitive device handling precautions when handling printed circuit boards.

GENERAL CLEANING AND WASHING

If the printed circuit board needs minor cleaning:

Remove dust and residue from the printed circuit board surface using clean, dry, filtered compressed air or an antistatic field service vacuum cleaner.

Another method of washing the printed circuit board is:

1. Clean the printed circuit board by spraying or wiping the board with isopropyl alcohol (99.5% electronic grade). Use a foam tipped swab to wipe the circuit board.

2. When the circuit board is clean, remove excess solvent by using compressed air to blow it free of the circuit board.

CLEANING EDGE CONNECTOR

To clean edge connector contacts:

1. Use a solvent mixture of 80% isopropyl alcohol (99.5% electronic grade) and 20% percent distilled water.

2. Soak a lint-free cloth with the solvent mixture.

3. Work the cloth back and forth parallel to the edge connector contacts.

4. Repeat with a clean cloth that is soaked with the solvent mixture.

5. Dry the edge connector contact area by wiping with a clean lint-free cloth.

To clean tarnished or deeply stained edge connector contacts:

1. Use an Eberhard Faber (400A) pink pearl eraser, or equivalent to remove tarnish or stains. Fiberglass or nylon burnishing brushes may be used also.

2. Minimize electrostatic discharge by using the 80% to 20% isopropyl alcohol to water solution during burnishing.

3. Do not use excessive force while burnishing. Use only enough force to shine the contact surface. Inspect the edge connector after cleaning to assure no loss of contact surface.

CLEANING FEMALE EDGE CONNECTORS

To clean the contacts on a female edge connector:

1. Use a foam tipped swab or a lint-free cloth wrapped over a piece of scrap circuit board. Soak the swab or cloth in electronic grade isopropyl alcohol.

2. Insert the swab of cloth covered circuit board into edge connector and work it back and forth to clean the contacts.

3. Rinse the edge connector contacts by spraying with isopropyl alcohol.

4. Remove excess alcohol and dry using compressed air.

Checking Power Supply Outputs

To check modular power supply outputs on the power entry panel, refer to the AC and DC power tests in Section 4.

Checking and Inspecting Power Entry Panel

The system must be shutdown to perform this maintenance task.

1. Check the tightness of all power wiring screws within the console. Torque all screws connected to AC power to 1.58 Newton meters (14 in-lbs).

2. Inspect and clean the power entry panel and DC distribution board connections.

SECTION 6 - COMPONENT DESCRIPTION AND REPLACEMENT

INTRODUCTION

This section provides a description of components and explains how to replace the components in the OIC console. It contains jumper and dipswitch settings and also component locations and settings. There are no special tools required.

Components in the OIC consoles are configured at the factory. This information is given in case settings are changed or hardware needs to be replaced.

Table 6-1 lists the hardware used in the OIC4323 operator interface console that is covered in this section.

Table 6-1. Hardware

Nomenclature or Part Number	Hardware Description
1948623A9	19-inch color monitor
6638353AB8	Power entry panel
6638514A1	Keyboard assembly (mylar)
6638553A5	Power supply assembly
6638554A2	Keyboard interface assembly
6640300A1	Four slot multibus card cage
6642865A3	DEC AlphaStation 255/233 CPU
IIADP01	Annunciator/display panel (tabletop - optional)
IIADP02	Annunciator/display panel
IIAKB03A	QWERTY engineering keyboard
IIAMS04A	Mouse
IIATB05	Trackball
IIMKM02A	Multibus keyboard module

IIMKM02A MULTIBUS KEYBOARD MODULE

The multibus keyboard module interfaces the keyboard and other operator input devices to the OIC console. There are nine jumpers on the MKM board to set for proper operation (Fig. 6-1). Refer to Table 6-2 for jumper settings. Bold settings are factory defaults.

Jumpers J1 and J2 control serial ports one (P8) and two (P9).

Jumper J3 resets the OIC multibus card cage when the MKM watchdog timer circuit times out. Factory default is no reset on time-out.

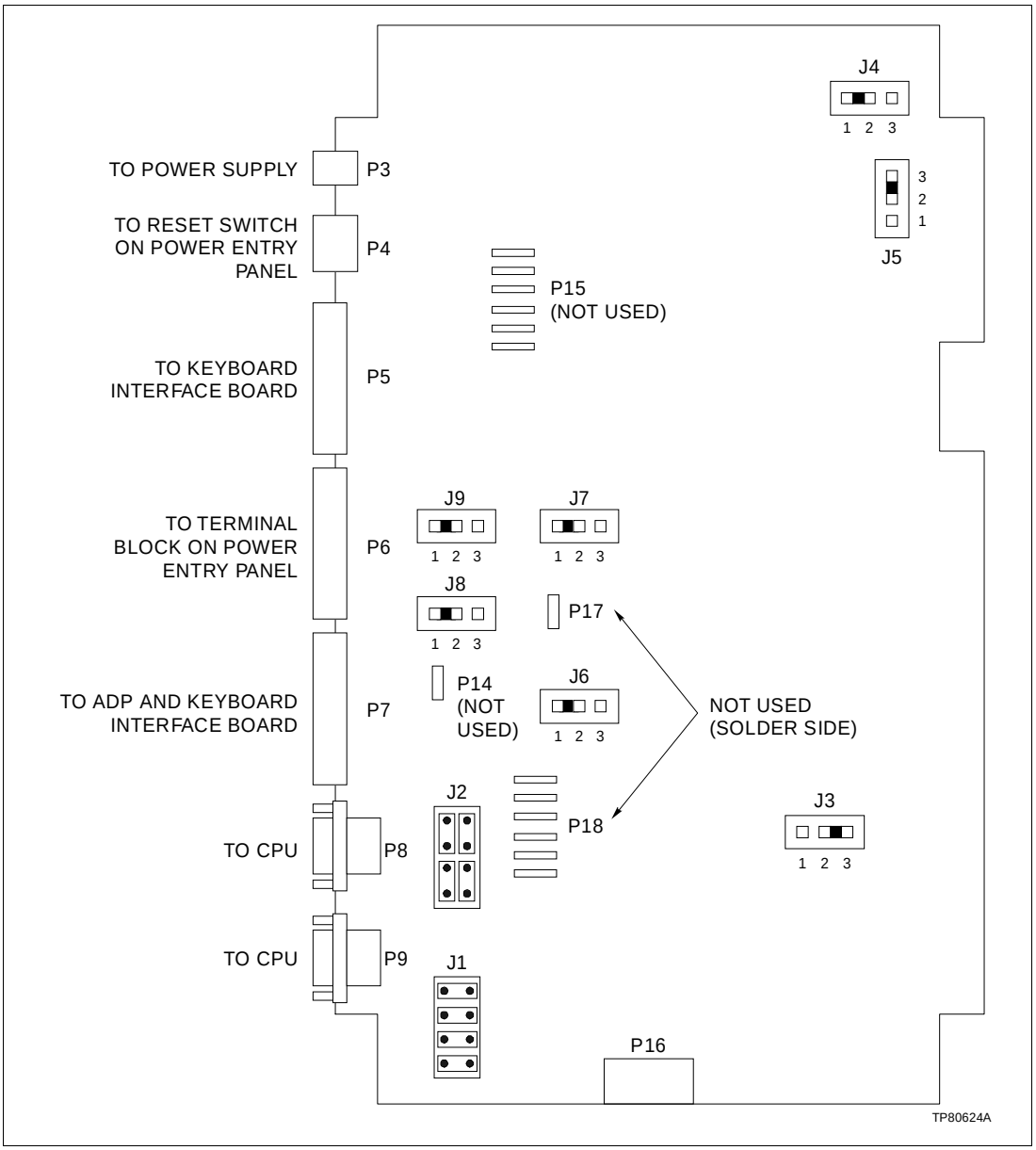


Figure 6-1. IIMKM02A Multibus Keyboard Module

Jumper J4 allows the option of disabling the power supply out-of-tolerance (OOT) signal to reset the MKM module. Factory default is to disable OOT on all OIC consoles.

Jumper J5 must be set to pins two to three.

Jumpers J6/J8 and J7/J9 are for consoles with the touch screen option. One touch screen card (TS1) is mounted on the

component side of the MKM board, the second touch screen card (TS2) is mounted on the solder side.

Table 6-2. IIMKM02A Jumper Settings

Jumper	Setting	Description
J1 and J2	Connect 8 pins horizontally	Serial port data transmitted on pin 3 of connector and received from the connected device on pin 2
	Connect 8 pins vertically	Serial port data transmitted on pin 2 of connector and received from the connected device on pin 3
J3	1-2	OIS reset on time-out
	2-3	**No OIS reset on time-out**
J4	**1-2**	**Disable OOT signal**
	2-3	Enable OOT signal
J5	2-3	Factory setting - no selection
J6 and J8	1-2	Single touch screen board
J7 and J9	1-2	Two touch screen boards (dual monitors)

IIMKM02A MULTIBUS KEYBOARD MODULE REPLACEMENT

CAUTION	**Failure to turn off the main power circuit breaker before removing or inserting modules into the card cage may result in equipment failure.**

The IIMKM02A multibus keyboard module is the only module used in the IIOIC43 console. The multibus keyboard module connects the keyboard interface assembly to the CPU.

In the IIOIC4323 console, the MKM board is located in the multibus card cage. Remove the module from the multibus card cage by following these steps.

1. Open the door on the front of the cabinet and turn off the main power circuit breaker.

2. Remove the required cables.

3. Loosen (do not remove) the two screws in the left and right card retaining brackets.

4. Slide the left and right card retaining brackets out of the way to permit the module removal tabs on the card to pass.

5. To unseat a module, lift the module removal tabs.

6. Carefully slide the module out of the multibus card cage.

7. Check the jumper settings on the new module before assembling into the card cage.

MULTIBUS CARD CAGE

The multibus card cage provides power and mounting for the IIOIC4323 console multibus keyboard module. Figure 1-1 shows the component locations for the IIOIC4323 consoles.

Figure 6-2 shows the front view of the card cage. Figure 6-3 shows the rear view of the multibus card cage.

To remove a multibus card cage, follow this procedure.

CAUTION	**Failure to turn off the main power circuit breaker before removing or inserting modules into the card cage may result in equipment failure.**

1. Turn off the main circuit breaker on the power entry panel. Check the power indicator to see if power is removed.

2. Follow the procedure in this section to remove the MKM multibus keyboard module to a static safe location.

3. Disconnect and label all cables from the card cage.

4. Support the back and front of the card cage and remove the four screws at the front of the card cage (two on each side).

5. Carefully slide the cage out of the front of the cabinet.

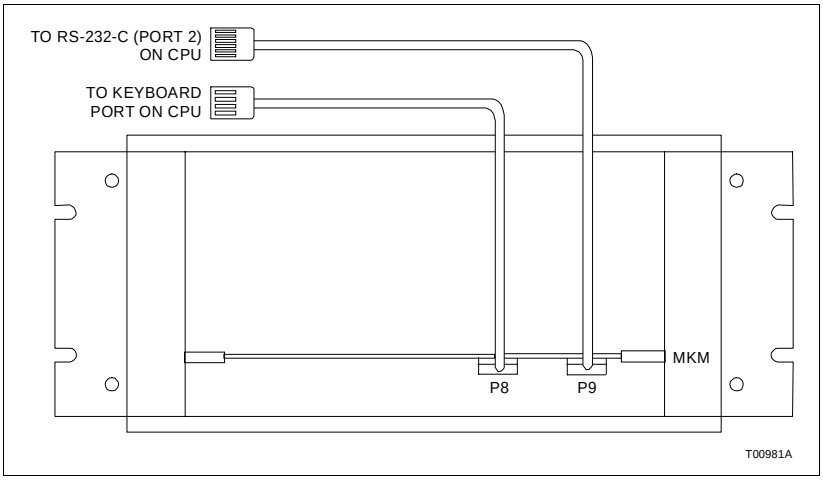


Figure 6-2. Multibus Card Cage (Front View)

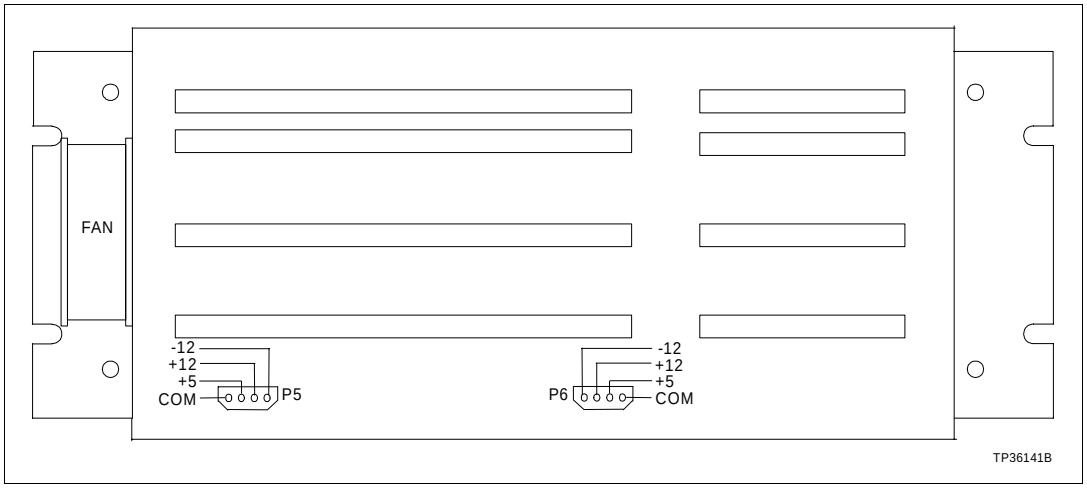


Figure 6-3. Multibus Card Cage (Rear View)

FAN ASSEMBLY FOR THE CARD CAGE

Figure 6-3 shows the fan in a console card cage. Refer to Table 7-1 for the part number for the 11.43 cm (4.5 in) fan. Use this procedure to remove the fan from a console.

1. Turn off the main circuit breaker on the power entry panel. Check the power indicator to see if power is removed. Cut and remove cable ties securing the fan assembly power cord.

2. Remove the two long screws on either side of the fan assembly and slide the fan assembly out around the multibus card cage.

NOTES:

1. Be sure the arrow on the fan being installed points in the direction of the air flow.

2. Be sure the red striped conductor of the power cord is connected to the + (positive) terminal of the fan.

POWER SUPPLY

The 130-watt power supply provides power to the OIC console. Refer to Table 6-1 for the power supply part number. Figure 6-4 shows the location of the main power supply for the console.

IIOIC4323 consoles have a DC distribution board attached to the power supply. Figure 6-5 shows the connections to the DC distribution board. Table 6-3 lists the DC distribution socket connections. Table 6-4 lists the pin outs to the DC distribution board sockets. Each socket on the DC distribution board is wired identically.

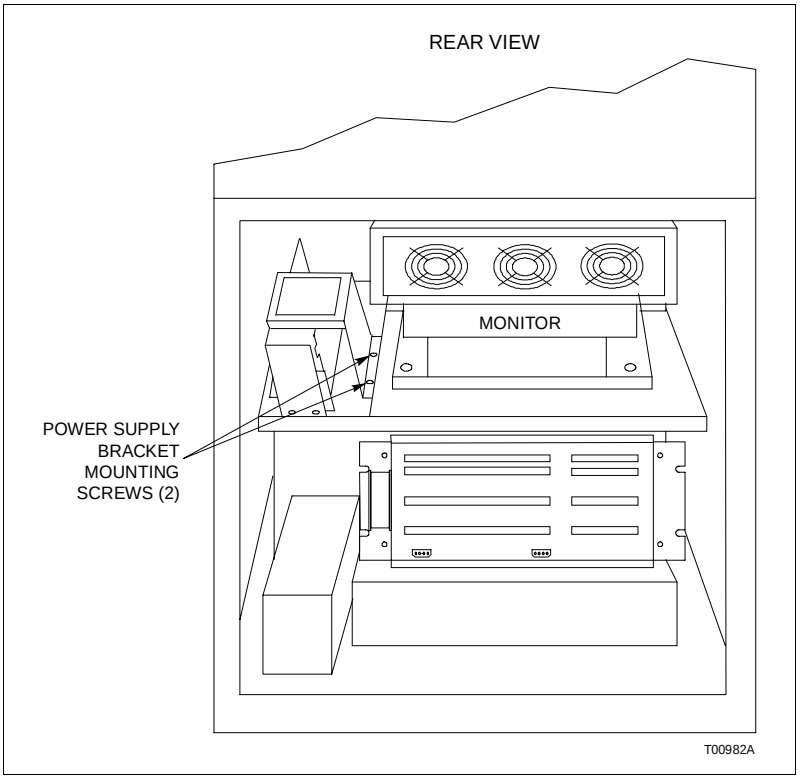


Figure 6-4. IIOIC4323 Main Power Supply Removal

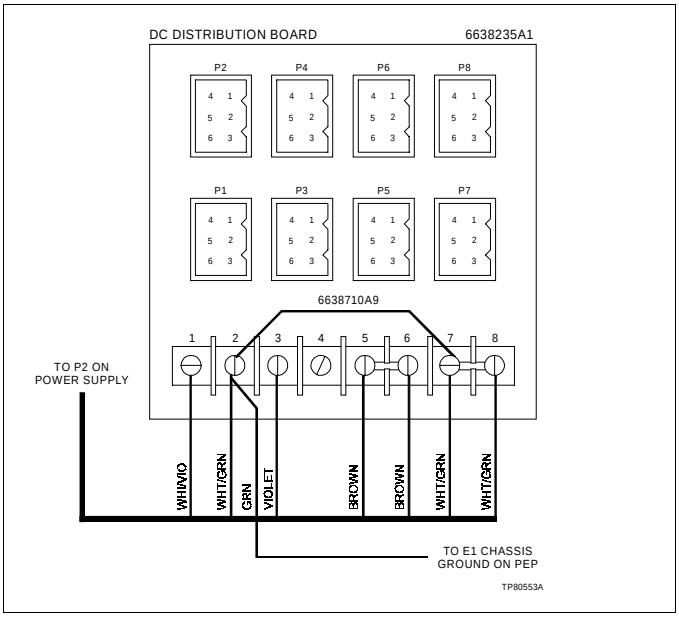


Figure 6-5. Connections to DC Distribution Board

Table 6-3. DC Distribution Board Socket Connections

Socket Number	Console Connection
P1	—
P2	—
P3	Keyboard interface board
P4	IIADP02
P5	Backplane
P6	Backplane
P7	Fans (card cage and door)
P8	Fan (monitor)

Table 6-4. DC Distribution Board Pin Outs

Terminal Block Terminal Number	Socket Pin Number	Description
1	1	+12 V
2	2	Common
3	3	-12 V
4	4	No connection
5-6	5	+5 V
7-8	6	Common

Refer to ***IIOIC4323 Console Wiring Connections and Cabling*** for cable part numbers and connection information.

NOTE: The power supply in the consoles operates on both 120 volts and 240 volts. The power supply is voltage autosensing and has no voltage select jumpers.

POWER SUPPLY REMOVAL

To remove the power supply from an IIOIC4323 console, follow these steps. Refer to Figure 6-4 when using this procedure.

1. Turn off the main circuit breaker on the power entry panel. Check the power indicator to see if power is removed.

2. Remove the power supply plug from the socket on the power entry panel.

3. Mark and disconnect the wires between the power supply, DC distribution board and multibus card cage backplane.

4. Remove the two screws holding the power supply bracket to the monitor mounting platform and slide the unit out the rear of the cabinet.

POWER ENTRY PANEL

The power entry panel contains the incoming AC power terminals and system circuit breakers along with ports for connecting peripheral devices and terminals for alarm contact outputs. The power entry panel also contains the system reset switch and the degaussing switches for the monitors. Refer to Table 6-1 for the power entry panel part number.

Use the upper degauss switch to correct picture distortion due to magnetic fields on the screen of the upper (swivel mounted) monitor. Use the lower degauss switch to correct picture distortion due to magnetic fields on the screen of the lower monitor.

The system reset pushbutton resets the OIC multibus keyboard module (IIMKM02A) to an initial power up condition when pressed.

A terminal block connects annunciators to user-defined alarms. The terminal designation is printed on the panel beside the terminal. The digital in (DI) and digital out (DO) terminals are not used.

The power indicator is lit when the AC power is connected to the power entry panel and the main power circuit breaker is on.

Either 120 or 240 VAC power is used to supply power to the IIOIC4323 operator interface console. The AC in is either hard wired or uses a 3-prong plug connector on the power entry panel.

NOTES:

1. Use the AC outlet for the intended purpose only.

2. Refer to Section 3 for wiring and cable connections. Some of the connections are on the back of the power entry panel and are accessed through the door on the back of the OIC console.

POWER ENTRY PANEL REMOVAL

To remove the power entry panel, follow these steps. Refer to Figure 6-6 when using this procedure.

1. Turn off the main circuit breaker on the power entry panel. Check the power indicator to see if power is removed.

2. Shut down AC line power to cabinet (plant breaker) so that the AC line may be disconnected safely.

3. Remove all cables from the front of the power entry panel.

4. Remove AC cables from the outlets on the power entry panel.

5. Remove the signal cable from the multibus keyboard module that goes to the rear of the power entry panel. Leave the cables on the power entry panel. The new power entry panel comes with cables.

6. Remove the five screws from around the front of the power entry panel. Slide the power entry panel out the front of the cabinet.

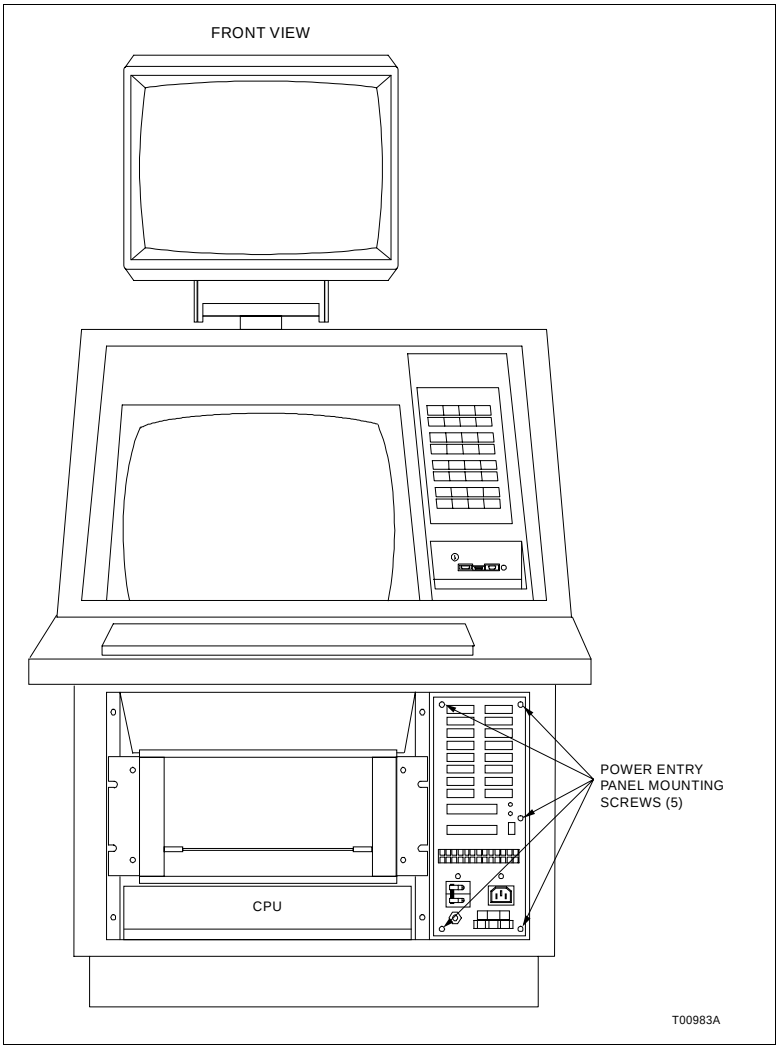


Figure 6-6. Power Entry Panel (PEP) Removal

OPERATOR INTERFACE DEVICES

This section contains information and the removal instructions for the operator and engineering keyboards, mouse/trackball, the annunciator/display panel, keyboard interface assembly and the color monitors. Follow all warnings and cautions.

Operator and Engineering Keyboards, Mouse, Trackball

The mylar operator keyboard plugs into the KEYBOARD port on the keyboard interface assembly. The IIAKB03A engineering keyboard plugs into the AUX KBD port on the keyboard interface assembly. The IIAMS04A mouse or IIATB05 trackball plugs into the keyboard interface assembly at the MOUSE/TRACKBALL port. Unplug these devices to remove them.

Annunciator/Display Panel

There are two types of annunciator/display panels available for the OIC4323 console; the IIADP01 and the IIADP02. The IIADP01 annunciator/display panel is a tabletop unit. The IIADP02 mounts in the cabinet on the front of the console. They provide up to 64 LEDs and pushbuttons. Each LED may be assigned to a tag. When a tag goes into an alarm condition, the assigned LED flashes until acknowledged and then turns solid. Ribbon cable maximum length is 4.5 meters (15 feet). Refer to ***OPERATOR INTERFACE DEVICES*** in Section 3 for installation information.

The console model comes with the IIADP02 assembly mounted in the console (Fig. 6-7). To remove the ADP, use the following steps:

1. Turn off the main circuit breaker on the power entry panel. Check the power indicator to see if power is removed.

2. Disconnect all the cables.

3. Remove the four screws securing the ADP panel to the console. Remove the ADP panel.

4. Refer to Section 3 for address switch settings for new ADP panel.

NOTE: The IIADP01 tabletop panel can be added to an IIOIC4323 console in addition to the IIADP02.

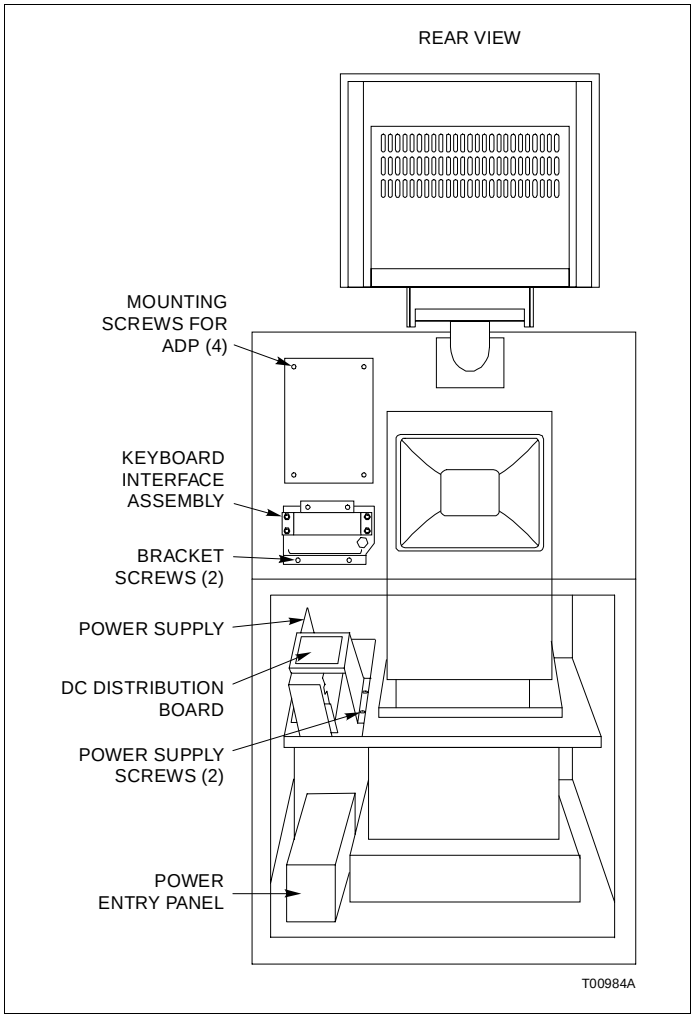


Figure 6-7. ADP02 and Keyboard Interface Assembly Removal from Console

Keyboard Interface Assembly

CAUTION	**On the keyboard interface connector board, set positions 5, 6 and 7 of dipswitch SW1 to closed (on). Set positions 1 through 4 and 8 of dipswitch SW1 to open (off). Failure to configure dipswitch SW1 properly will damage the CPU in the console.**

The keyboard interface assembly is located on the IIOIC4323 console front panel next to the monitor behind a polycarbonate door. Refer to Table 6-1 for the part number.

Refer to Section 7 when replacing fuses for fuse part numbers.

The keyboard socket is for the operator keyboard supplied with the OIC consoles (Fig. 6-8). The AUX 1 port is for a tabletop annunciator/display panel. The auxiliary keyboard connector is for an engineering keyboard. Connector P9 is not used.

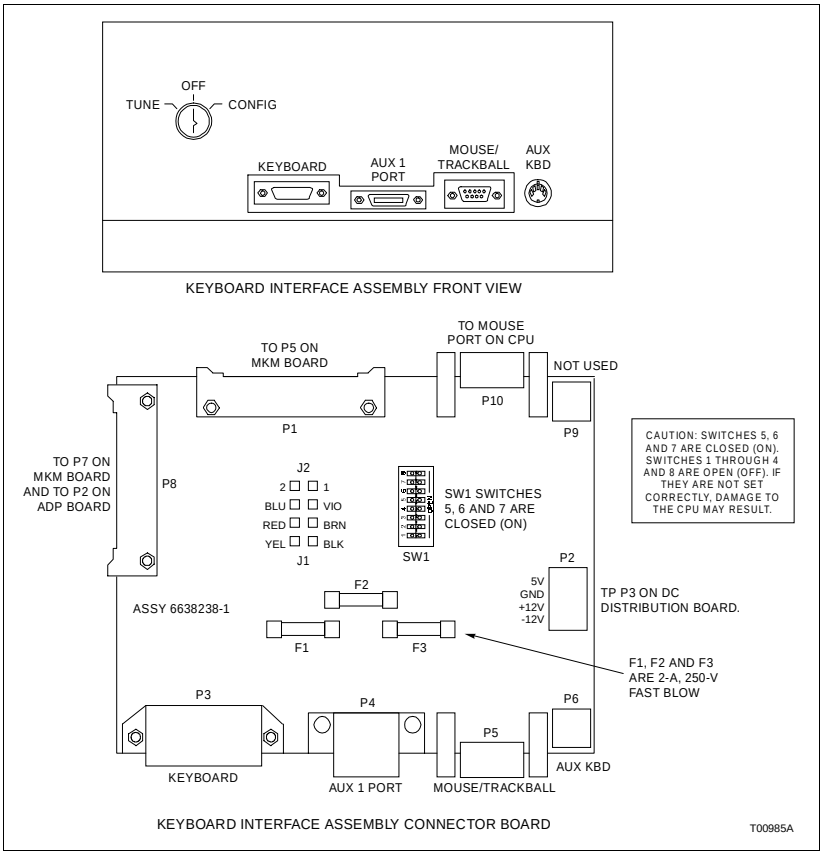


Figure 6-8. Keyboard Interface Assembly

To remove the keyboard interface assembly from the console, refer to Figure 6-7 and follow these steps.

1. Turn off the main circuit breaker on the power entry panel to shut off power to the console. Check indicator to verify power is removed.

2. At the rear of the cabinet, remove the two screws on the bottom of the power supply and slide it out of the cabinet. Cut the cable ties as needed to set the supply on the floor out of the way.

3. Unplug the operator keyboard, mouse and units connected to the front of the keyboard interface assembly.

4. Label and remove all of the cables from the rear of the keyboard interface assembly.

5. Remove the two screws holding the bottom of the keyboard interface assembly to the rear side of the monitor bezel. There are no screws on top or on the sides of the panel.

6. Carefully remove the keyboard interface assembly out of the cabinet.

7. Refer to Figure 6-8 for SW1 settings on new keyboard interface assembly.

Color Monitor

Resolution for the high resolution color monitors is 1280 x 1024 pixels. Refer to Table 6-1 for the monitor part number. Refer to ***IIOIC4323 Console Wiring Connections and Cabling*** in Section 3 for the monitor cable connections.

> **NOTE:** The monitors are autosensing and do not need to be switched if the power to the cabinet is 120 V or 240 V. However, if other monitors are used, they may need to be switched to prevent damage from over voltage or under voltage.

A VGA video cable connects the monitors to the monitor ports on the CPU.

A 9-pin D subconnector connects an external brightness, contrast and degauss control at AUX 1 of the monitor connection panel.

Screen brightness, contrast, width and height controls are mounted on the monitor back connection panel. There are three degauss reset switches; one is located on the monitor connection panel and two are located on the power entry panel.

Figure 6-9 identifies the color monitor connections.

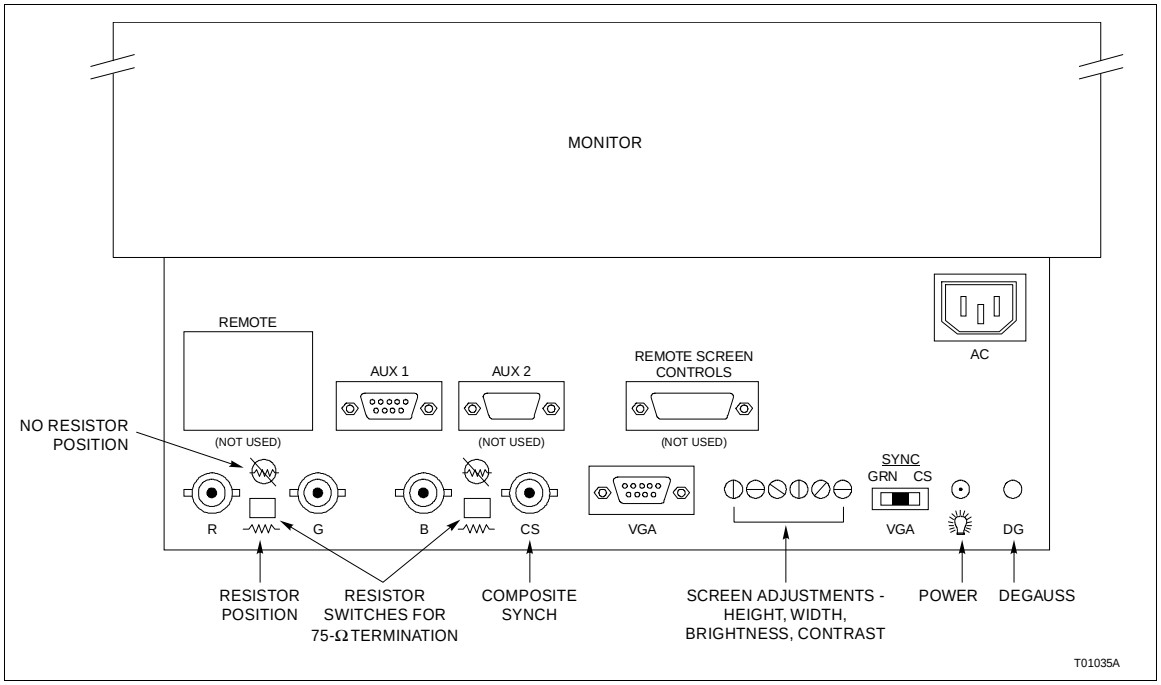


Figure 6-9. Color Monitor Connections

To remove a lower monitor from an IIOIC4323 console, follow these guidelines.

1. In the front of the cabinet, turn off the main circuit breaker on the power entry panel to shut off power to the OIC console. Check the power indicator to see if power is removed from the system.

2. In the rear of the cabinet, remove the power cord and VGA cable from the rear of the monitor. Secure the VGA cable out of the way.

3. Remove the bolt on each side of the monitor mounting tray at the rear of the monitor. These bolts attach the tray to the cabinet shelf.

4. Slide the monitor out of the cabinet.

WARNING	**The monitor will slide out the rear of the cabinet by itself when the mounting bolts are removed. The monitor weighs approximately 27 kilograms (60 pounds) and can cause bodily injury if it is allowed to slide out by itself. Support the monitor before removing the rear two bolts.**

5. After removal, place the monitor and tray onto a solid, flat surface.

6. Protect the screen of the monitor and set the screen down on the protective surface.

7. Remove the monitor from the mounting tray by removing the four screws under the tray.

8. Before installing a new monitor, make certain the resistor switches are set to ***resistor*** to insure that the termination is set for 75 ohms and that the VGA sync switch is set to ***VGA*** (Fig. 6-9).

To remove an upper monitor from a console, follow these steps:

1. Remove the four 10-32 Phillips pan head screws from the rear and top of the rear cover. Remove the front cover mounting screws and carefully remove the front cover.

2. Disconnect the power cord connectors from the fans mounted in the rear cover. Remove the rear cover.

3. Refer to the warning stated for removal of the lower monitor. The monitor weighs 60 pounds (27 kilograms) and will slide forward if not restrained.

4. Remove the four screws holding the monitor to its mounting plate. Detach the VGA cable and slide the monitor forward.

5. If the VGA cable also needs to be replaced, attach the new VGA cable to the old VGA cable and carefully pull the old cable down and through the monitor mounting tube support.

> **NOTE:** It may be necessary to cut several tie wraps that hold the old cable to the OIC structure. To make access easier, remove the front support bracket for the fan/shroud assembly by removing four 10-32 SEMS pan head mounting screws.

6. Detach the new cable from the old one. Finish removing the old cable. Thread the new cable down the left inside of the console (as viewed from the rear).

7. Reverse steps 1 through 4 to install the new monitor. Make certain all cables are installed before assembling the covers. Replace the fan/shroud support.

> **NOTE:** If the upper monitor has a touchscreen, realignment may be necessary to insure clearance between the screen and the upper bezel.

Monitor Assembly

1. Plug the VGA cable for each monitor into the appropriate monitor port on the back of the CPU.

2. Connect the VGA cable to the corresponding connectors on the back of the monitor. Use only supplied cables because of length limitations.

3. Plug the monitor power line into the proper socket on the back of the CPU.

Refer to ***IIOIC4323 Console Wiring Connections and Cabling*** in Section 3 to locate the cable connection drawing.

CPU

This section contains information and the removal instructions for the DEC AlphaStation 255, model 233 CPU inside the OIC console. Read the instructions before beginning. Refer to the manufacturer's documentation for maintenance instructions.

The CPU has a lithium battery located on the mother board. The battery supplies power to the real time clock while the system is off. Refer to the DEC ***User Information*** manual for important and cautionary information on replacing the battery. Suggested replacement is Panasonic BR2032 or CR2032. After replacement, system configuration and setup data must be verified.

CPU Removal

The CPU is mounted horizontally in the console. To remove the CPU, follow these steps and refer to Figure 6-10. Refer to Table 6-1 for part numbers.

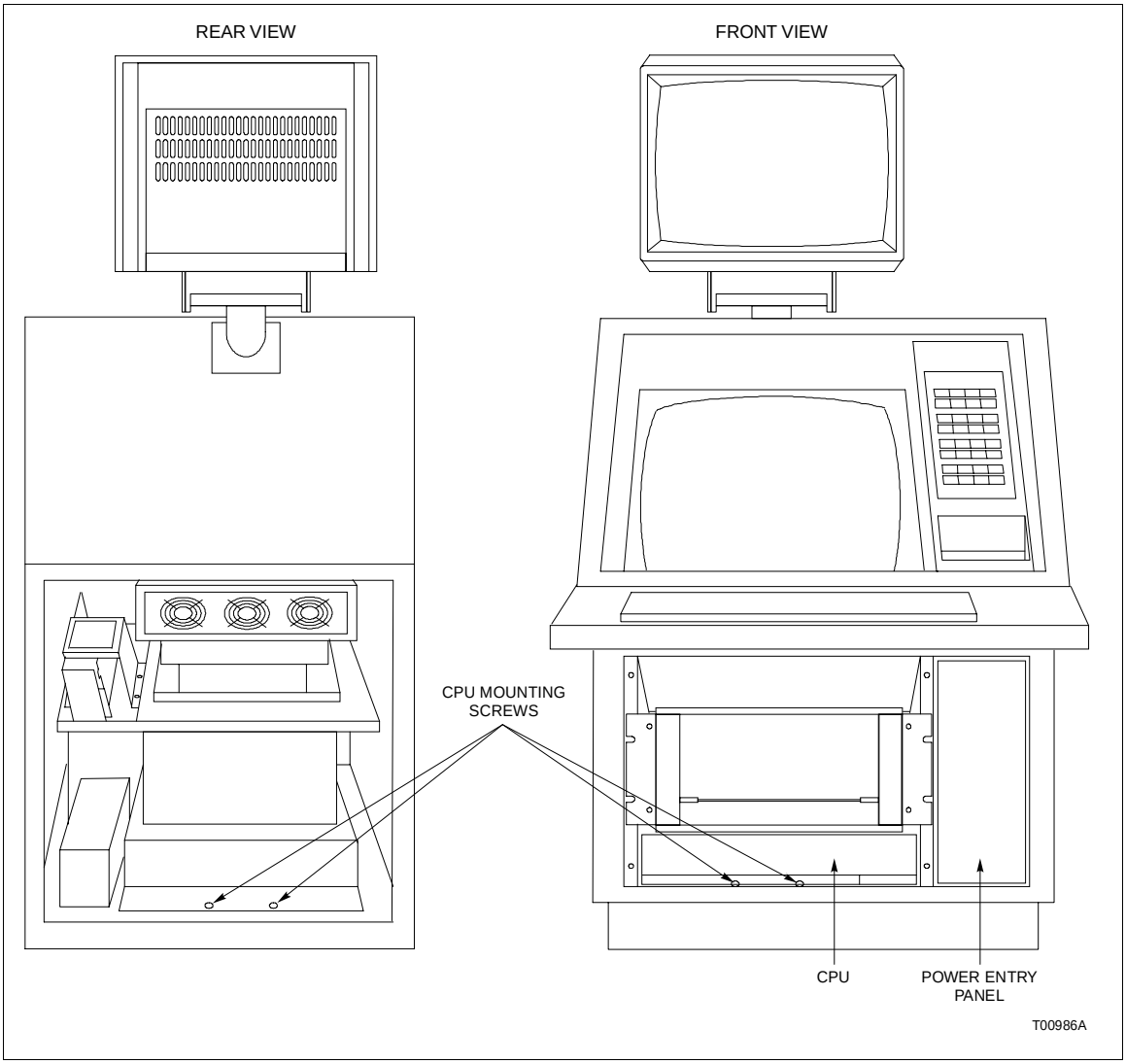


Figure 6-10. CPU Removal for Consoles

1. Turn off the main circuit breaker on the power entry panel. Check the power indicator to see if power is removed.

2. Remove and label all cables from the CPU.

3. Remove the two screws that hold the front of the mounting plate to the shelf. Remove the two screws that hold the rear of the mounting plate to the support bracket.

4. Slide the CPU and mounting plate out the back of the console cabinet.

When assembling a new CPU, refer to Figure 6-11 for connector callouts and to Figure 3-6 for the cable connections. It will also be necessary to set the SW-4 switch on the motherboard of the CPU. Refer to ***SYSTEM OPERATION AND START-UP*** in Section 3 for switch information.

NOTE: Make certain the voltage selector switch is in the correct position.

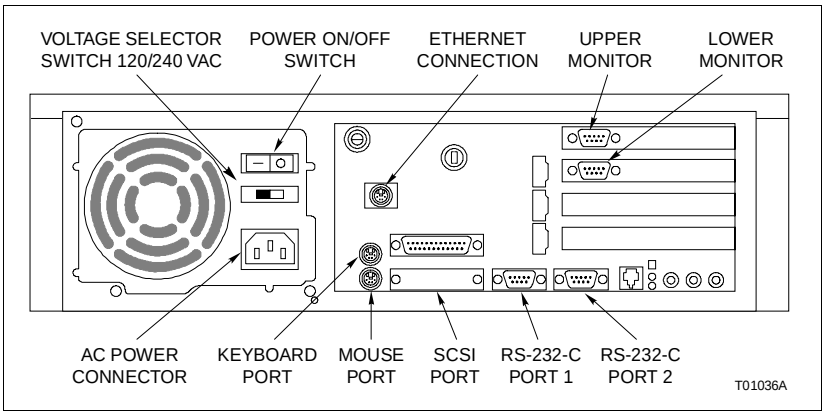


Figure 6-11. CPU Connector Identification

Graphics Board Settings

Figure 6-12 shows the location of CPU components. This figure shows the front access door of the CPU installed, normally it is removed. If either graphics board in the CPU has to be replaced, refer to the DEC ***User Information*** manual shipped with the console for instructions. If either graphics board is replaced, make certain the settings are as shown in Figure 6-13.

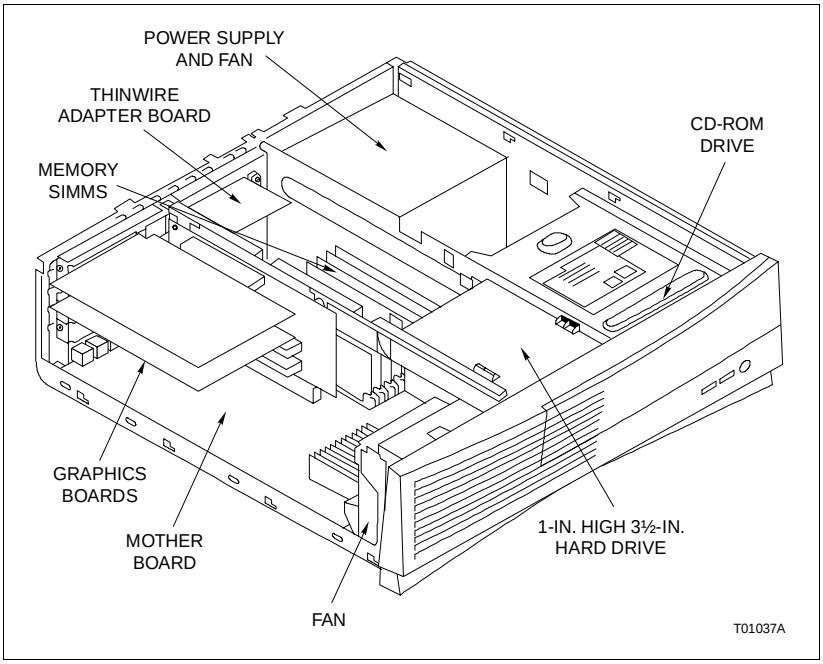


Figure 6-12. CPU Components

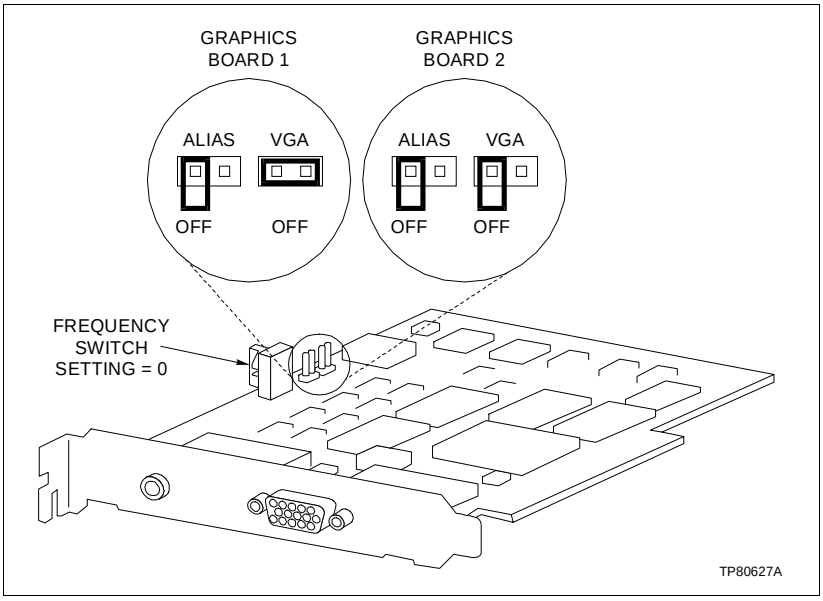


Figure 6-13. Graphics Board Settings

Hard Drive Settings

If the hard drive in the CPU is replaced, check to make certain the settings are as shown in Figure 6-14 prior to installation.

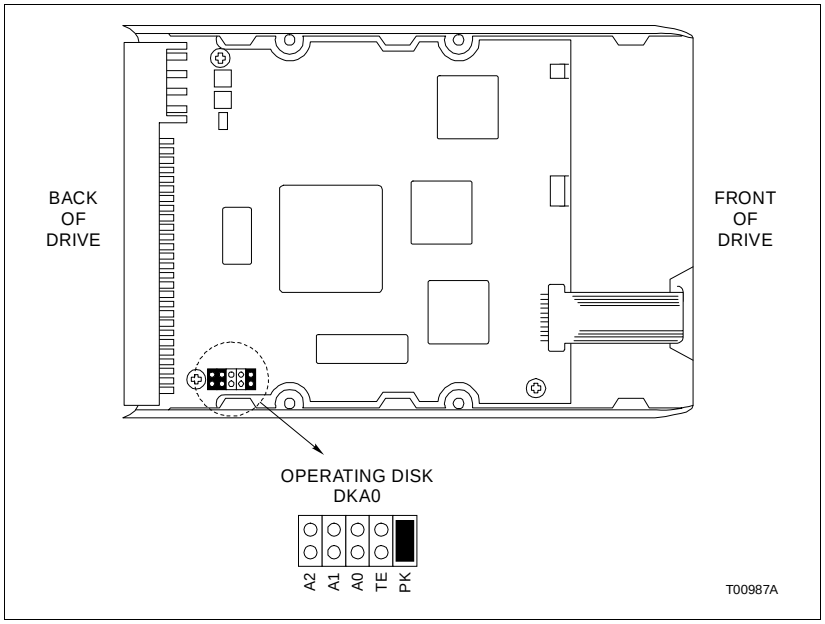


Figure 6-14. Hard Drive Settings

CD-ROM Drive Settings

If the CD-ROM drive in the CPU is replaced, before installing the new drive check to make certain the settings are as shown in Figure 6-15.

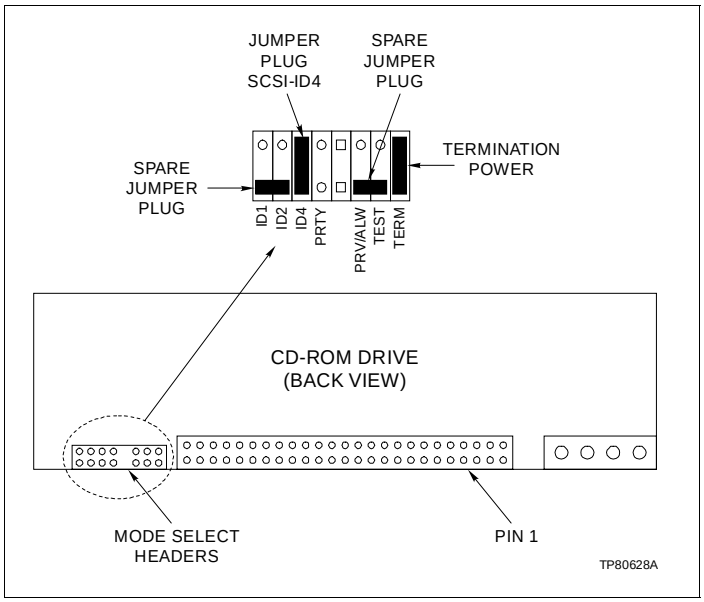


Figure 6-15. CD-ROM Drive Jumper Settings

CPU Assembly

When assembling a new CPU, refer to Figure 6-11 for connector callouts and to ***IIOIC4323 Console Wiring Connections and Cabling*** in Section 3 for the cable connections.

PERIPHERALS

The supported peripherals (printer and DAT tape drive) are portable and require no replacement instructions. To remove, disconnect cabling. Refer to ***INSTALLATION*** in Section 3 for additional information.

Refer to the manufacturer's documentation for more information on peripheral devices and for repair information.

CAUTION	**Remove power from all peripheral equipment and the console before installing or removing peripheral equipment. Equipment damage may result.** **Make sure that all voltage labels and voltage switch settings on the peripheral devices, power supply, CPU and power entry panel show the correct operating voltage. Equipment damage may result if the incorrect voltage is connected. Make sure the console main power circuit breaker is off before changing operating voltage settings or equipment damage may result.**

SECTION 7 - SUPPORT SERVICES

INTRODUCTION

Elsag Bailey Process Automation is always ready to assist in the operation and repair of its products. Send requests for sales or application services to your nearest sales or service office. Elsag Bailey can also provide installation, repair and maintenance contract services.

REPLACEMENT PARTS AND ORDERING INSTRUCTIONS

Order replacement parts through a Elsag Bailey sales or service office. Provide the following information when ordering parts:

1. Part description, part number and quantity.

2. Model and serial number (if applicable) and ratings of the assembly the part has been ordered for.

3. Publication number and reference used in identifying the part.

When ordering parts, use part numbers and part descriptions from equipment manuals. Parts with no commercial description must be ordered from your nearest sales or service office. Recommended spare parts lists, including prices, on standard assemblies are available through your nearest sales or service office.

TRAINING

Elsag Bailey Process Automation has a modern training facility available for training your personnel. On-site training is also available. Contact a Elsag Bailey sales office for specific information and scheduling.

TECHNICAL DOCUMENTATION

Price and delivery of additional copies of this publication can be obtained through your nearest sales or service office.

SPARE PARTS

Spare parts Table 7-1 lists the recommended spare parts for the IIOIC4323 operator interface console. Elsag Bailey suggests stocking one item each to minimize the duration and cost of downtime.

Table 7-1. Recommended Spare Parts

Description	Nomenclature or Part Number
Fan 11.43 cm (4-1/2 in)	1947419A7
Fuse 2 A, 250V fast acting (keyboard interface board)	1948182A22001
Monitor (19-inch)	1948623A9
50-ohm ThinWire terminator	1949009A1
SCSI cable, 2.5 ft.	1949207B5
1.08 GB hard drive	1949514A2
5.25 in., 600 MB CD ROM drive	1949514A3
Graphics board	1949514A4
32 MB SIMM memory	1949514A5
Power entry panel	6638353AB8
Keyboard, operator (mylar)	6638514A1
Power supply	6638553A5
Keyboard interface assembly	6638554A2
Monitor brightness cable (lower monitor)	6638720A4
Monitor brightness cable (upper monitor)	6638720A5
Fan assembly (3-inch)	6640639A1
CPU - DEC AlphaStation 255, Model 233	6642865A3
Annunciator/display panel	IIADP02
Keyboard, QWERTY (auxiliary engineering)	IIAKB03A
Mouse	IIAMS04A
Trackball	IIATB05
Multibus keyboard module	IIMKM02A

APPENDIX A - QUICK REFERENCE INFORMATION

INTRODUCTION

This section provides a source for reference information. It contains the jumper and switch settings and fuse locations for the OIC4323 operator interface console.

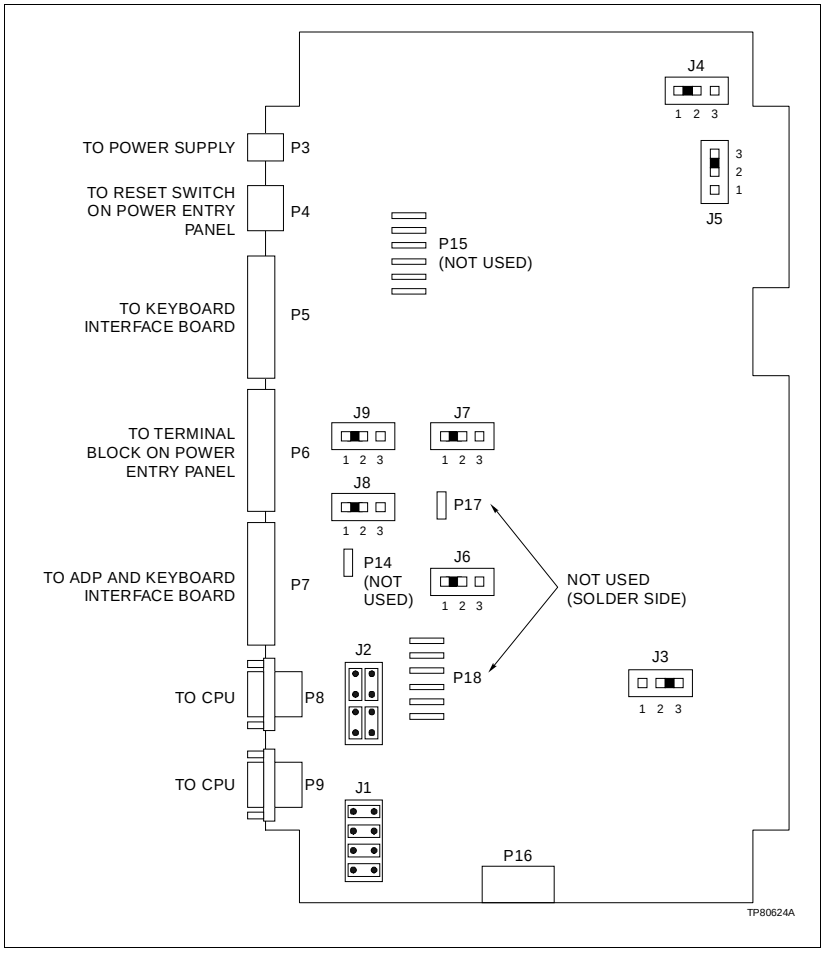


Figure A-1. IIMKM02A Multibus Keyboard Module

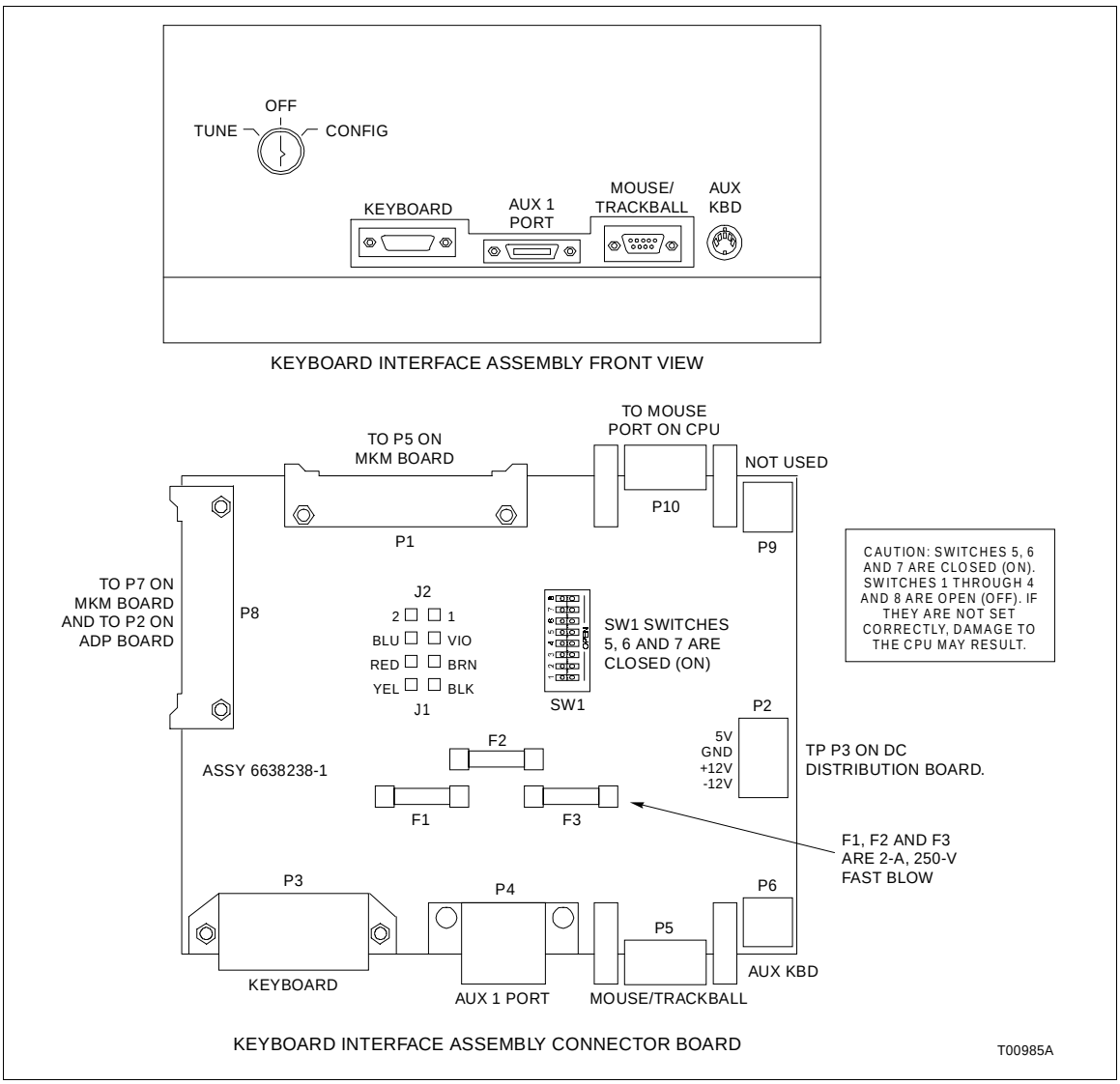


Figure A-2. Keyboard Interface Assembly

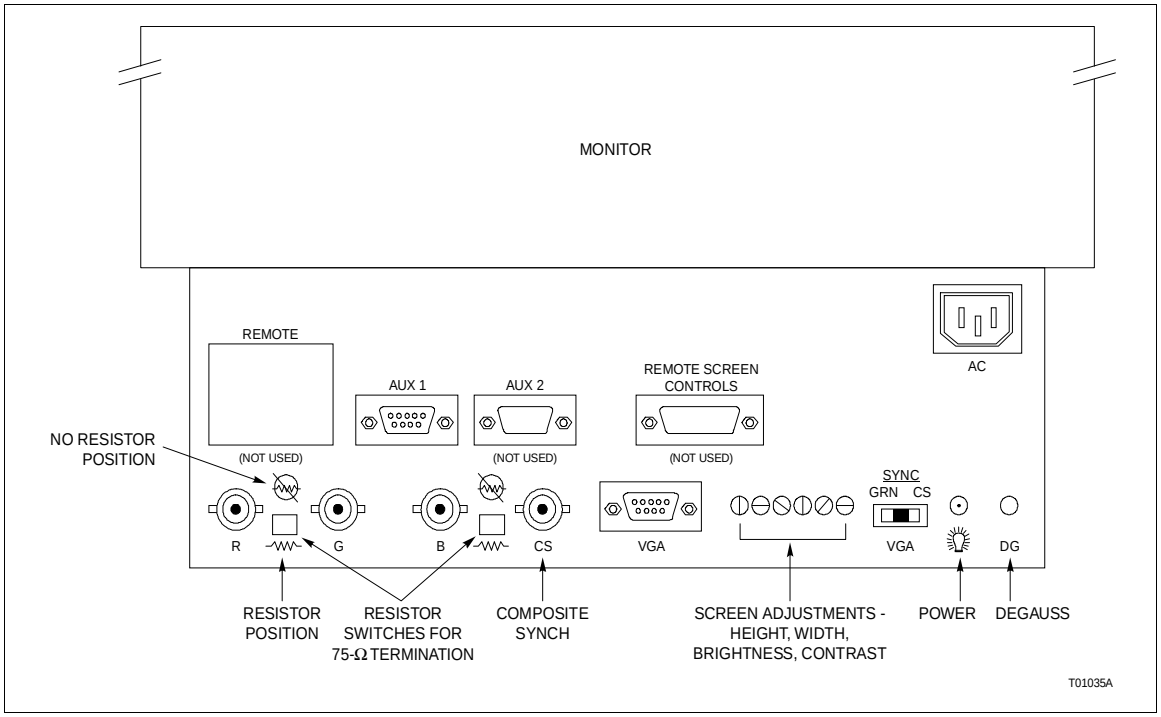


Figure A-3. Color Monitor

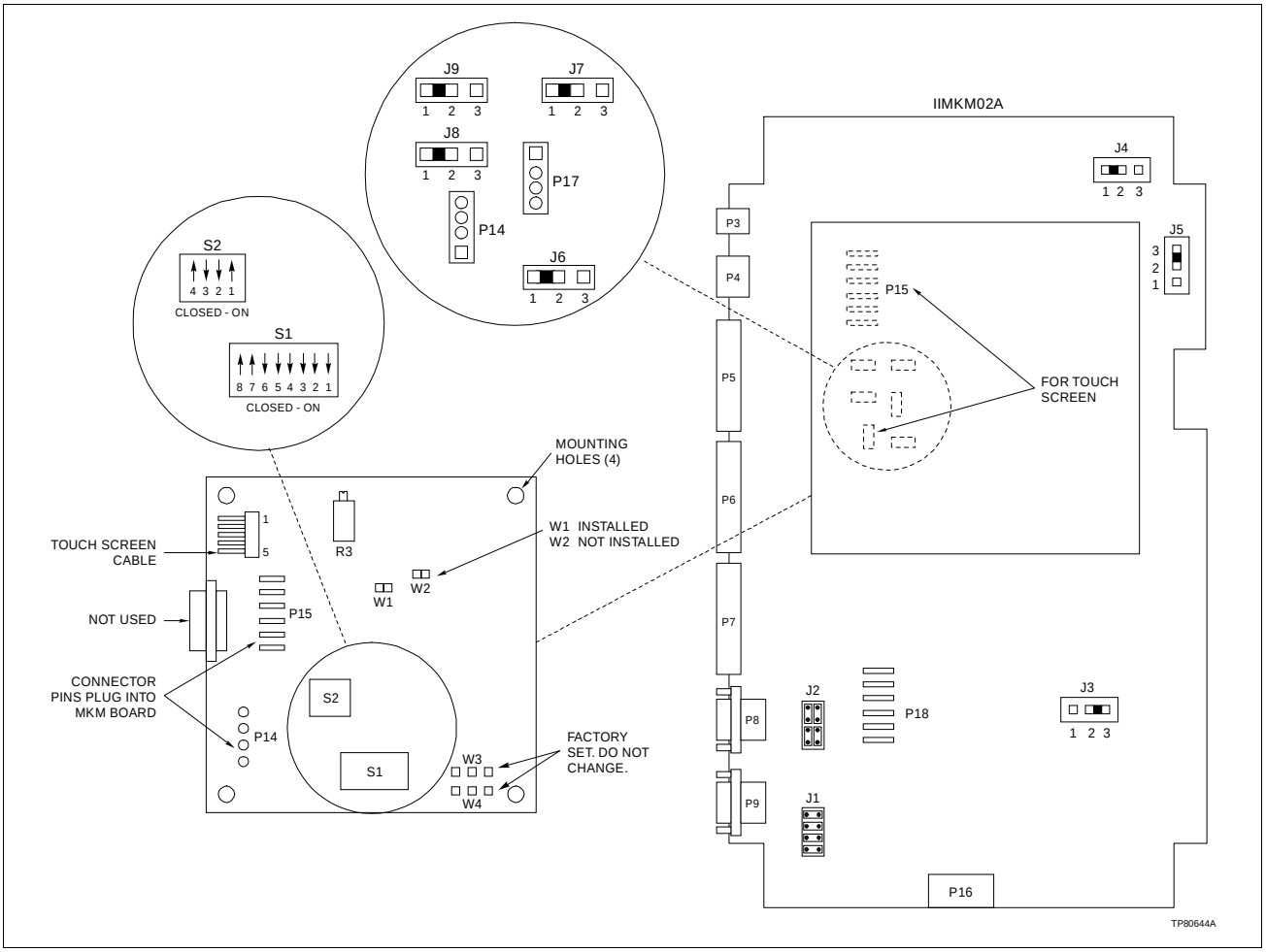


Figure A-4. Touch Screen Controller Settings

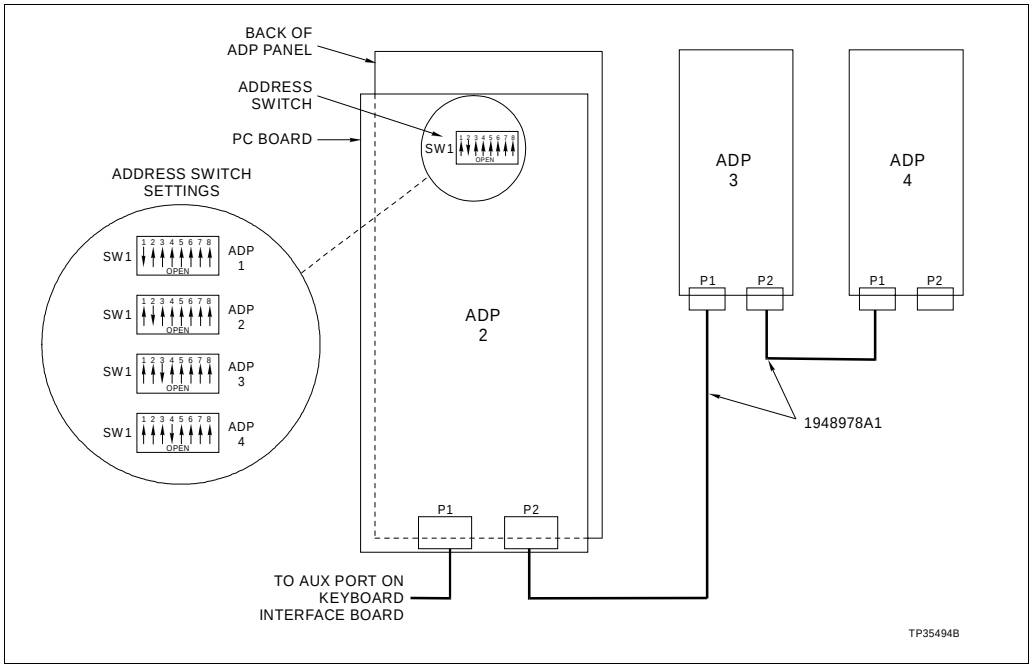


Figure A-5. IIADP01 Tabletop Annunciator Display Panel SW1 Settings

Table A-1. IIADP01 Board Connections

Cable Number	Connect From	Connect To
1948978A1	P1 or P2 on ADP 2 board	AUX 1 port on keyboard interface board, or to P1 or P2 on ADP 3 board

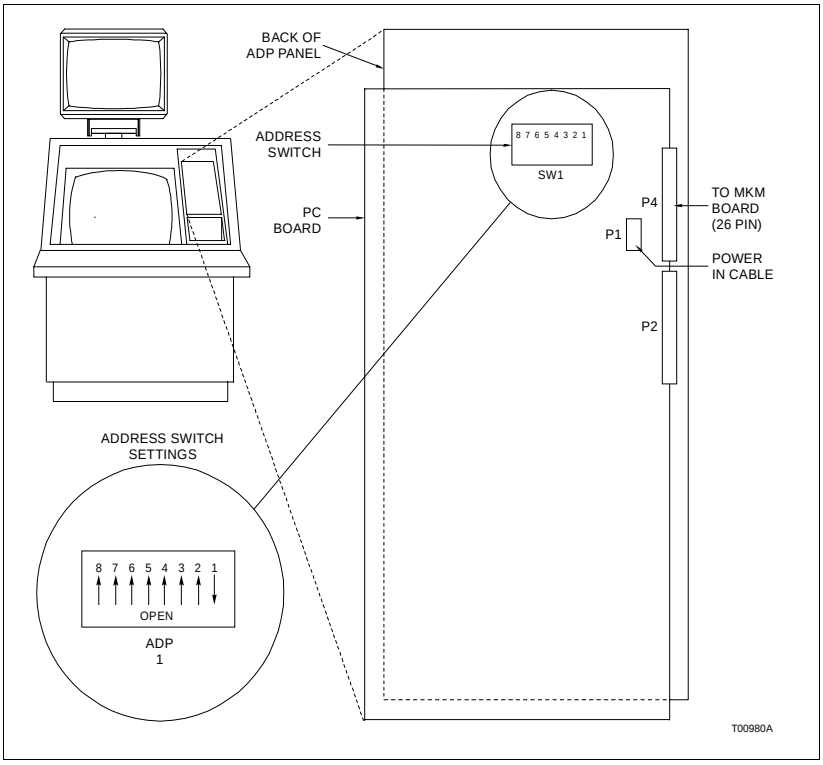


Figure A-6. IIADP02 Annunciator Display Panel

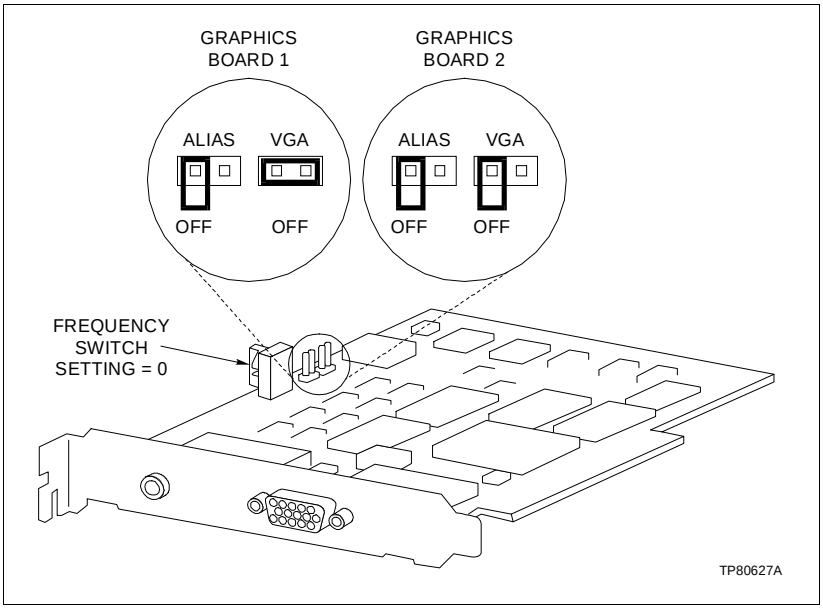


Figure A-7. Graphics Board Settings

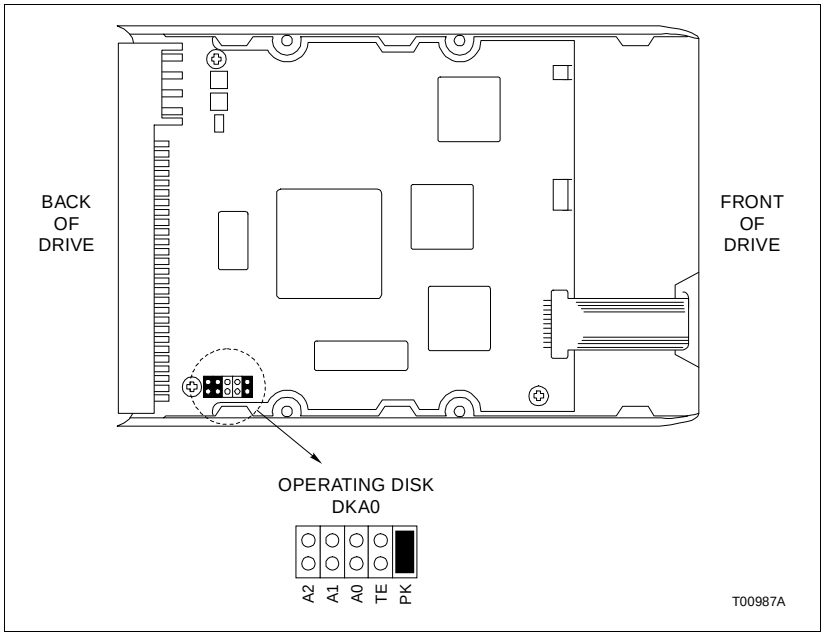


Figure A-8. Hard Drive Settings

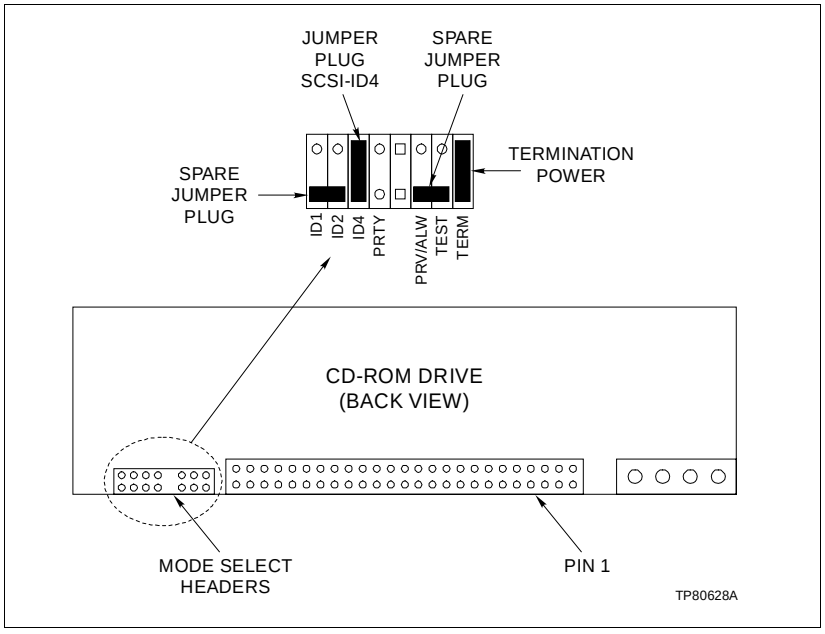


Figure A-9. CD-ROM Drive Jumper Settings

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Index (continued)

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