

**CADDStation
SYSTEMS**

**Hardware
Installation
Guide**

CADDStation System Hardware Installation Guide

UNIX 4.2 bsd Revision 4.0

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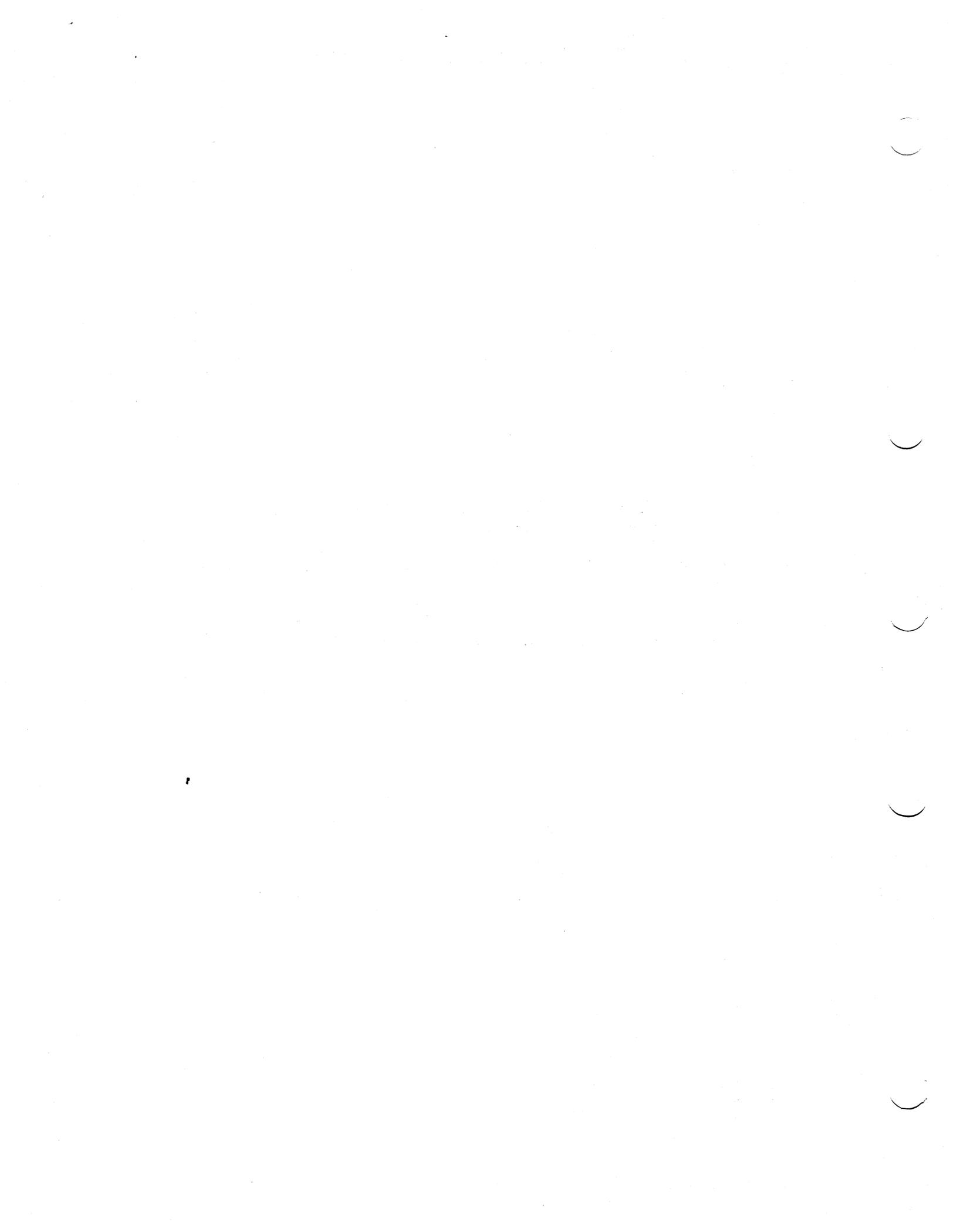
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Preface

This *CADDStation System Hardware Installation Guide* tells field service engineers how to install CADDStation Systems hardware.

This version supports CADDStation Systems Revision 2.0 operating with UNIX 4.2 bsd Revision 4.0.

For information on how to report hardware and software problems and for other product-related issues consult your Regional Technical Support office.



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How to Use This Book

The *CADDStation System Hardware Installation Guide* provides procedures for installing CADDStation Systems hardware.

Product Revision Support

This book supports CADDStation Systems Revision 2.0 operating with UNIX 4.2 bsd Revision 4.0. Hardware and software enhancements may make some of this information obsolete. See *Introducing CADDStation Systems* to determine whether more current versions of this book are available.

Who Should Read This Book

This book is for Computervision's field service engineers, and its use requires some previous knowledge of CADDStation and CDS 3000 systems.

How This Book Is Organized

This book has the following structure:

- Section 1 provides unpacking instructions.
- Section 2 describes the system setup.
- Section 3 describes switch settings and device addresses.
- Section 4 describes printed circuit board installation.
- Section 5 contains instructions for cabling external devices.
- Section 6 provides instructions for adjusting and testing the hardware.
- Section 7 provides instructions for installing optional disk drives.
- Section 8 contains electrical diagrams.

Other Useful Books

The following books provide information pertinent to hardware installation:

- For communications installation procedures, including Ethernet Local Area Network (LAN) installation procedures, refer to the *CDS 3000 Communications Installation Guide*.
- For on-line diagnostics information, see *Using the SYSAID Diagnostic Program*.
- For off-line diagnostics information, refer to the *CADDStation CDEX Diagnostic User Guide*.
- For site preparation information, see the *CADDStation System Site Preparation Guide*.
- For maintenance information, see the *CADDStation/MEDUSA Maintenance Handbook*.

Special Typographical Conventions

boldface	Text in boldface defines exactly what you must enter on your keyboard. It is used in computer display (screen) examples to indicate what you must type. It is also used in text to distinguish user input, UNIX file names and commands, or special characters.
typewriter font	Typewriter font indicates computer output or lines of code.
CAPITALS	Capital letters name either I/O panel markings (e.g., PUCK, MOUSE, etc.), or indicate what action an operator needs to take (e.g., turn power switch to ON).

Section 1
Unpacking the CADDStation System

Unpacking the CADDStation System

1

This section tells you how to unpack a CADDStation System.

When this book refers to Model 32 series CADDStations or to CADDServers, it intends and includes the following models:

- CADDStation 32C¹, 12-slot diskful with GPU
- CADDStation 32M², 12-slot diskful with GPU
- CADDStation 32C, 12-slot diskful without GPU
- CADDStation 32M, 12-slot diskful without GPU
- CADDStation 32C, 12-slot diskless without GPU
- CADDStation 32M, 12-slot diskless without GPU
- CADDStation 32CV³, 3-slot diskless
- CADDStation 32MV, 3-slot diskless
- CADDServer 32S, with GPU
- CADDServer 32S

When this book refers to Model 31 CADDStations, it intends and includes the following models:

- CADDStation 31C
- CADDStation 31M

When this book refers to Model 30 series, it intends and includes the following model:

- CADDStation 30M

¹C = Color

²M = Monochrome

³V = 3 slots

Unpacking Model 32 and 31 CADDStations

For Model 32 and 31 CADDStations, the following components are all packaged together:

- Deskside module
- Monitor
- Keyboard
- Mouse
- Cables

Note

Second optional disk drives are packaged and shipped separately.

To unpack the CADDStation you need the following items:

- Metal shears, to cut steel straps
- Knife, to cut straps and packing tape

Use the following procedure to unpack the equipment:

1. Cut the two steel straps that secure the box to the pallet. See Figure 1-1.
2. Lift the outer carton (sleeve) off the packaged material.
3. Remove the piece of plywood (which will serve you as a ramp) to the right of the deskside module.
4. Remove the foam block covering the deskside module.
5. Cut the outer edge of the carton protecting the deskside module, and lift the carton off the deskside module.
6. Line up the two bolts on the plywood ramp with the two holes on the pallet. See Figure 1-2.
7. Unlock the casters on the deskside module.
8. Using the ramp, roll the deskside module off the pallet.
9. Position the deskside module in the designated installation area.
10. Remove the box containing the keyboard, mouse, and mouse pad.
11. Remove the cables from the shipping box.
12. Remove the monitor from the box.

Unpacking Model 32 and 31 CADDStations (cont)

Figure 1-1 shows the shipping configuration for Model 32 and 31 CADDStations.

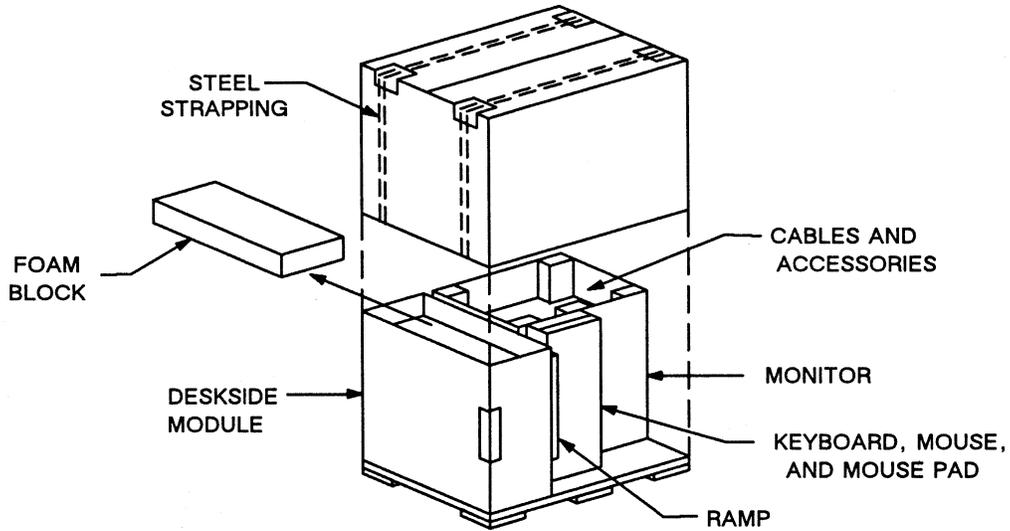


Figure 1-1. Shipping Configuration for Model 32 and 31 CADDStations

Figure 1-2 shows you how to unpack Model 32 and 31 CADDStations.

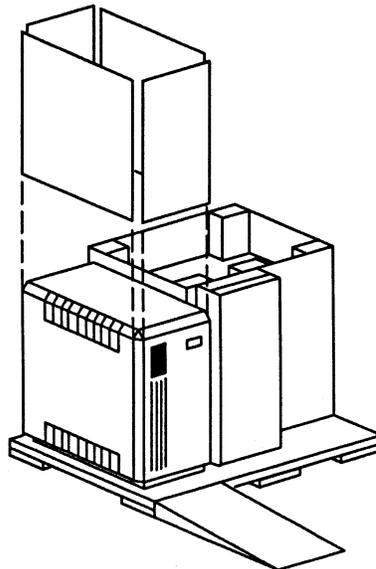


Figure 1-2. Unpacking Model 32 and 31 CADDStations

Unpacking Model 32CV/32MV CADDStations

For Model 32CV/32MV CADDStations, the following components are all packaged together:

- Base unit
- Monitor
- Keyboard
- Mouse
- Cables

To unpack the CADDStation you need the following items:

- Metal shears, to cut steel straps
- Knife, to cut straps and packing tape

Use the following procedure to unpack the equipment:

1. Cut the metal straps that secure the box to the pallet.
2. Cut the tape holding down the carton flaps.
3. Open the flaps, and lift the outer carton (sleeve) off the packaged material.
4. Cut the walls of the inner carton at the corners nearest to the base unit.
5. Remove the box containing the base unit. See Figure 1-3.
6. Remove the small box containing the keyboard.
7. Remove the cables.
8. Remove the monitor from its padded box.

Figure 1-3 shows the shipping configuration for Model 32C-V/32M-V CADDStations.

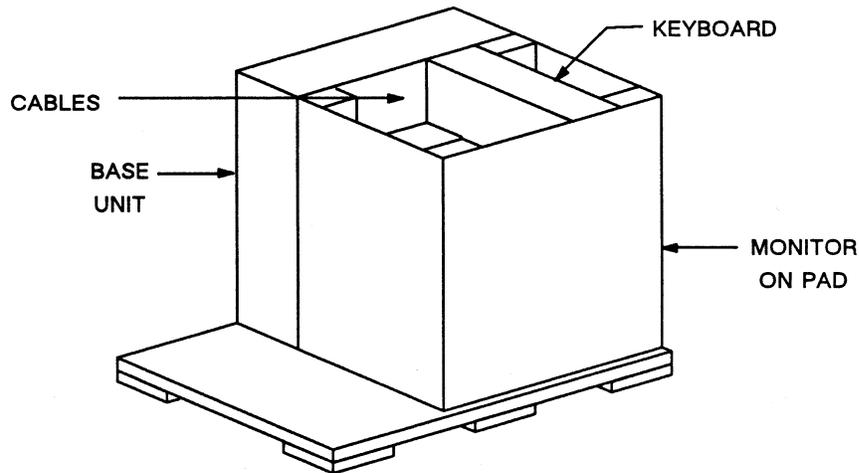


Figure 1-3. Shipping Configuration for Model 32CV/32MV CADDStations

Unpacking Model 30 CADDStations

For Model 30 CADDStations, the following components are all packaged together:

- Base unit
- Monitor
- Keyboard
- Mouse
- Cables

To unpack the CADDStation you need the following item:

- Knife, to cut carton and packing tape

Use the following procedure to unpack the equipment:

1. Place a pad or cushion on a flat surface in an open working area to protect the CADDStation from being scratched while you unpack it.
2. Use the knife to cut the tape around the shipping carton. See Figure 1-4.
3. Remove the styrofoam packing block from the shipping carton.
4. Remove the small box containing the mouse, mouse pad, and cables. This box is packed in the indentation in the styrofoam block.
5. Position the styrofoam block so that the split between its halves is running horizontally.
6. Remove the top portion of the styrofoam block.
7. Remove the keyboard from its slot in the styrofoam.
8. Carefully turn the CADDStation to an upright position and remove the remaining section of the styrofoam block.
9. Remove the plastic bag from around the CADDStation.
10. Position the CADDStation on the pad in your working area.

Unpacking Model 30 CADDStations (cont)

Figure 1-4 shows the shipping configuration for Model 30 CADDStations.

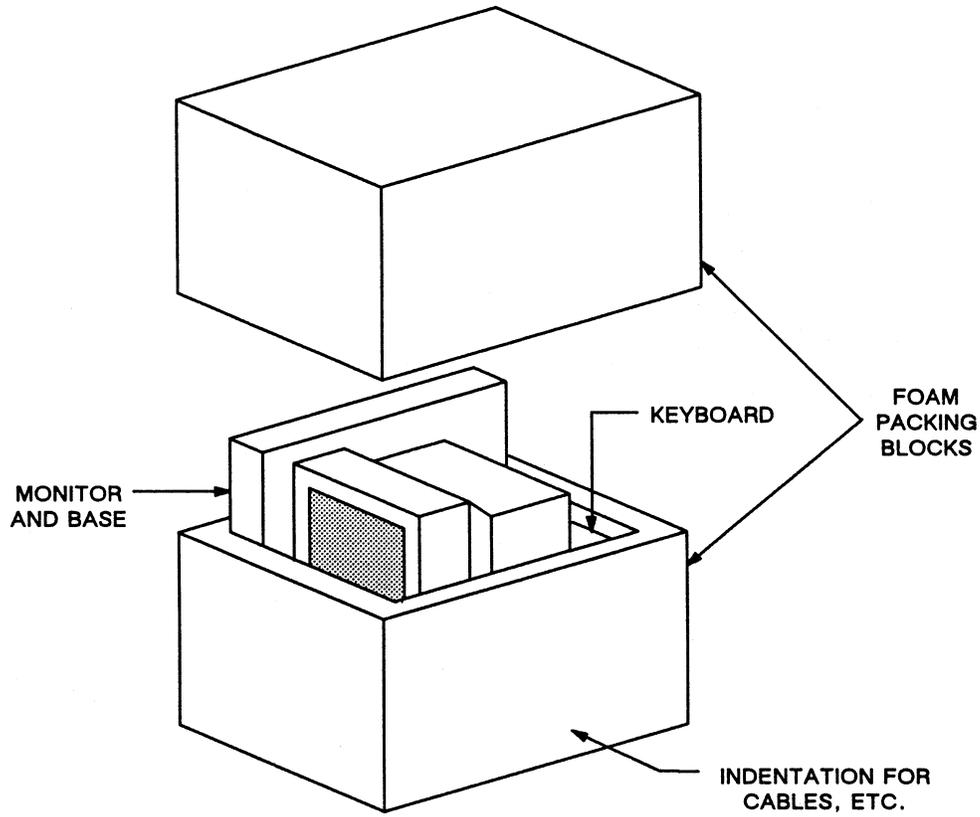


Figure 1-4. Shipping Configuration for Model 30 CADDStations

Unpacking the CADDServer Peripherals Cabinet

To unpack the CADDStation Peripherals Cabinet you need the following items:

- Metal shears, to cut steel straps
- Knife, to cut carton and packing tape
- Phillips screwdriver

Use the following procedure to unpack the equipment:

1. Using the metal shears, cut the steel straps. Open the carton. See Figure 1-5.
2. Remove and discard the foam blocks.
3. Remove the outer carton (sleeve) by lifting it over the CADDServer.
4. Remove the plastic sheet and VCI paper covering the CADDServer. See Figure 1-6.
5. Using your screwdriver, remove the screws in the sideboards and front chocks.
6. Remove the sideboards and chocks.
7. Raise the CADDServer by backing out the glides on the jack blocks, and turn the glides in a counterclockwise direction. Be sure to back the glides out evenly and not to tilt the CADDServer.
8. When the CADDServer is raised enough to free the ramps beneath it, remove the ramps.
9. Lower the CADDServer onto its wheels by turning the glides in a clockwise position.
10. Remove the jack block containing holes, and place it at the front of the pallet.
11. Place the ramps over this jack block.
12. Align the holes in the ramps, the pallet, and the jack block.
13. Secure the ramp by inserting four bolts in the appropriate places.
14. Remove the second jack block.
15. Roll the CADDServer down the ramp.
16. Remove the magnetic tape cover.

Unpacking the CADDServer Peripherals Cabinet (cont)

Figure 1-5 shows the shipping configuration for a CADDServer Peripherals Cabinet.

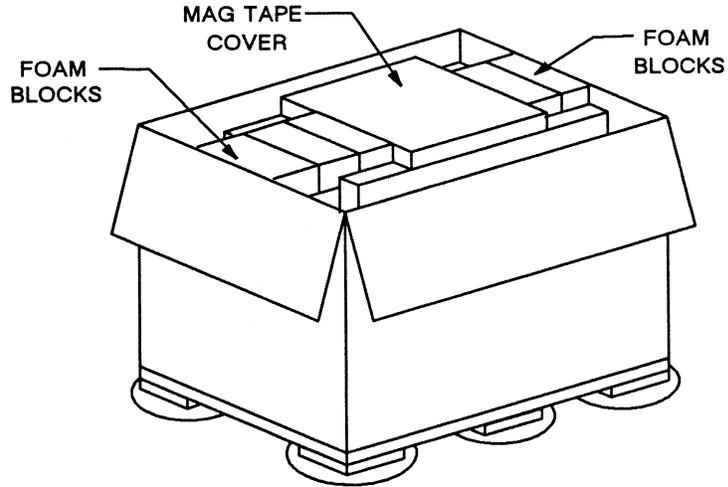


Figure 1-5. Shipping Configuration for the CADDServer Peripherals Cabinet

Figure 1-6 shows the CADDServer Peripherals Cabinet after you have removed the outer packaging material.

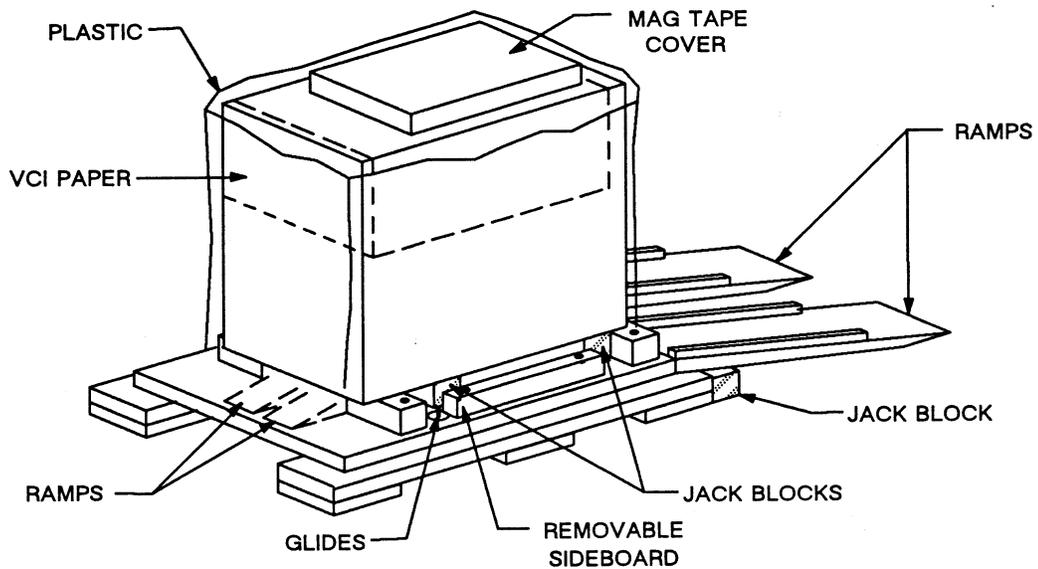


Figure 1-6. Unpacking the CADDServer Peripherals Cabinet

Section 2
Setting Up

Setting Up

2

This section tells you how to install the following CADDStation Systems hardware components:

- Monitor
- Deskside module
- Base unit
- CADDServer peripherals cabinet

This section contains information about the following topics:

- Assembling the monitor
- Selecting input voltage to the monitor
- Disassembling the deskside module and base unit
- Selecting input voltage to the deskside module
- Selecting input voltage to the base unit
- Disassembling the CADDServer Peripherals Cabinet
- Grounding the peripherals cabinet
- Selecting input voltage to the peripherals cabinet

To complete the installation procedures in this section you need the following items:

- Phillips screwdriver
- Flat-blade screwdriver

Assembling the Monitor

Color and monochrome monitors are normally assembled at the factory. Some of the Model 31 CADDStation monochrome monitors, however, require assembly. Monitors consist of two parts: the displays and the bases to which they are secured. Figure 2-1 shows the display, its base, and the T-bar in the central depression of the base. Use the following procedure to assemble the monitor:

1. Place the display base on top of the desk designated by the CADDStation operator.
2. Search the display base for a T-bar located in the central depression; the bottom of the display has a slot that corresponds to the T-bar.
3. With the display facing 90 degrees from the front of the desk and positioned over the base, align the slot on the bottom of the display with the T-bar on the base. The bottom of the display must evenly fill the central depression in the base.
4. Lock the display on its base by turning the display firmly toward the front of the desk until you hear a click. Be sure the display is secured to the base and is free to tilt up and down and turn side-to-side.

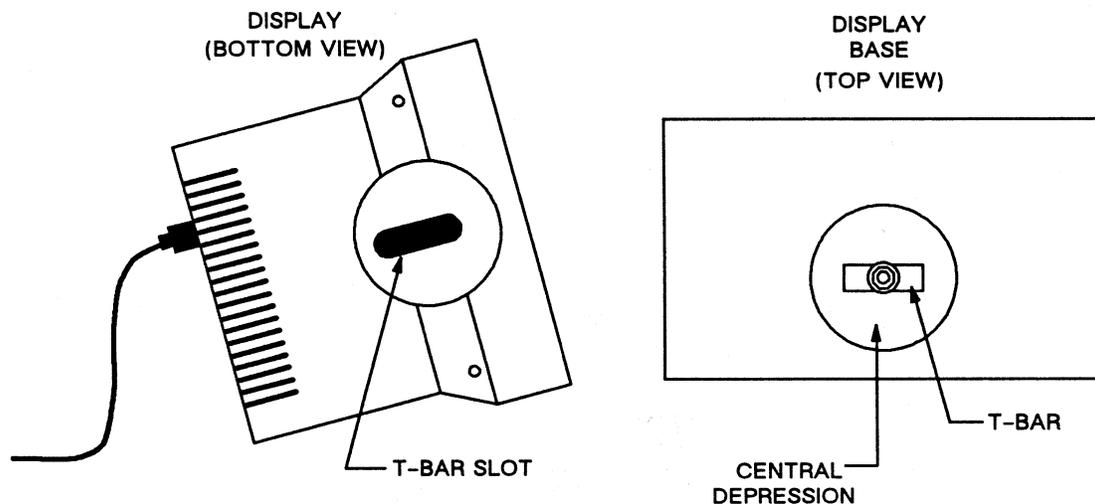


Figure 2-1. Monochrome Graphics Display Assembly

Selecting the Monitor Input Voltage

You must verify or select the proper input voltage for the monitor.

Warning

Be sure AC power is *not* connected when you perform the procedures listed below.

Selecting the Moniterm Monochrome Monitor Input Voltage

Use the following procedure to verify or select the desired input voltage for the Moniterm monitor, preset at 120 VAC:

Note

The standard fuse for the Moniterm monitor is a 1.5A Slo-Blo for all voltages.

1. Locate the fuse section of the AC input receptacle.
2. Verify the proper AC voltage visually through the clear fuse cover.
3. If the voltage you observe is not the desired one, remove and reorient the small PCB card so that the desired voltage is visible through the cover.

Selecting the Computervision Monochrome Monitor Input Voltage

Use the following procedure to verify or select the desired input voltage for the Computervision monitor, preset at 120 VAC:

1. Insert the proper 1.5A Slo-Blo Fuse (for 220 VAC operation) or 3.0A Slo-Blo Fuse (for 120 VAC operation). See Figure 2-2.
2. Adjust the voltage select card (PCB) to conform to the input AC rating.
3. Verify the proper AC voltage visually. Check the indicator pin location by looking through the fuse cover.
4. If the voltage you observe is not the desired one, remove the fuse cover and the voltage select card. Reinsert the card so that the insertion edge, which goes in first, is marked for the desired voltage. The indicator pin (selector) must be positioned at the opposite edge.
5. Reinstall the fuse cover and verify the proper voltage indication. If the fuse cover does not seat properly, the voltage selection card may be upside down.

Selecting the Computervision Monochrome Monitor Input Voltage (cont)

Figure 2-2 shows the voltage selection procedure for the Computervision monochrome monitor.

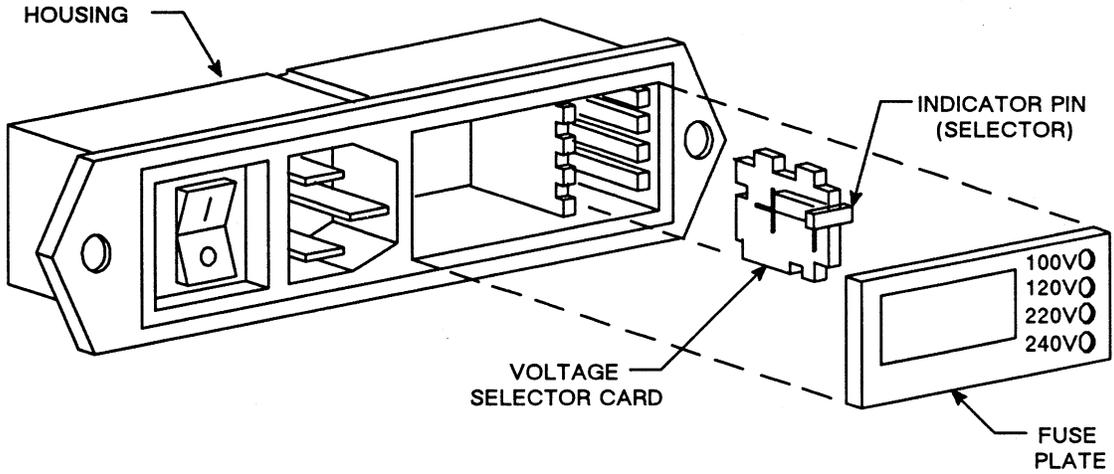


Figure 2-2. Computervision Monochrome Monitor Voltage Selection

Selecting the Model 30M Monitor Input Voltage

There are three methods for selecting input voltage for the Model 30M monitor, depending upon your CADDStation architecture. First, you may have a CADDStation that allows you to select input voltage for both the monitor and the base unit from the voltage select switch on the base unit. Insert a Phillips screwdriver and turn the switch to one of the two possible settings, 115 VAC or 230 VAC.

Second, you may also have a CADDStation with voltage select switches on both the monitor and the base unit. For the base unit insert a Phillips screwdriver, and turn the switch to one of the two possible settings, 115 VAC or 230 VAC. For the monitor flip the (possibly red) switch to 115 VAC or 230 VAC. Be sure it is set for the same input voltage as the base unit.

Third, you may have a CADDStation with both a voltage selection switch and a printed circuit board on the monitor. In this case there are two methods of selecting input voltage:

- Through the switch setting
- Through the printed circuit board

It is recommended that you select input voltage through the switch setting. To select input voltage through the switch setting, follow this procedure:

1. As you face the rear of the monitor, locate the (possibly red) switch on the right side of the monitor chassis. See Figure 2-3.
2. There are two possible switch settings, 115V or 230V. Using a flat-blade screwdriver, push the switch up so that 115V appears if you want 115 VAC operation. Push the switch down so that 230V appears if you want 230VAC operation.

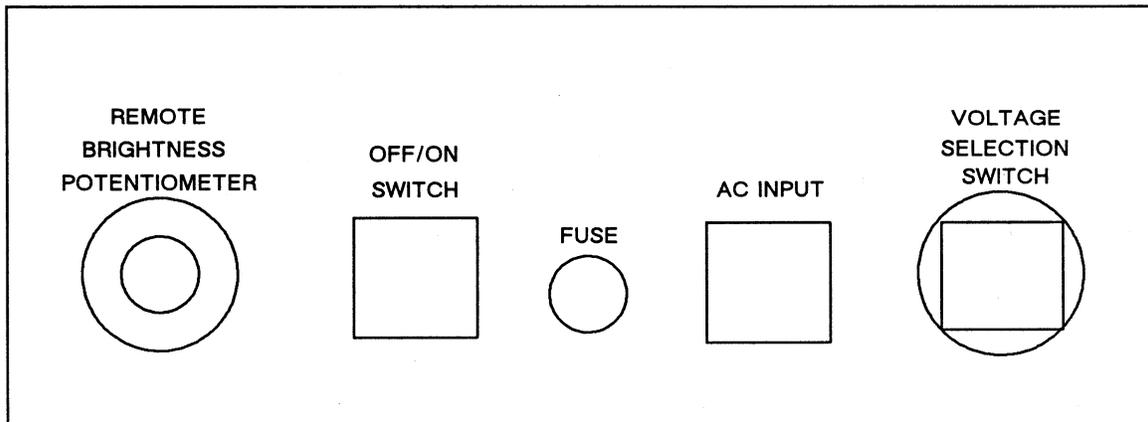


Figure 2-3. Model 30M Voltage Selection through Switch Setting

To select input voltage through the printed circuit board, you must first gain access to the board. Follow this procedure:

1. Turn OFF the power to the base unit.
2. Pull out the AC power cord from the AC input receptacle on the rear I/O panel. See Figure 2-3 above.

Selecting the Model 30M Monitor Input Voltage (cont)

3. Slide to the left the clear plastic panel covering the fuse case.
4. Insert a pointed instrument, such as a Phillips screwdriver, in the extraction hole on the board, and pull out the voltage select PCB. See Figure 2-4.

You can now select four voltages, two from each side of the PCB. Selectable voltages are as follows:

- 120 or 240 VAC
- 100 or 230 VAC (referred to as 220 on the PCB)

To select voltage input through the PCB, follow this procedure:

1. For 120 VAC operation slide the PCB into the fuse case so that the legend CHECK FUSE 120 is on the left side and right-side up. See Figure 2-4.

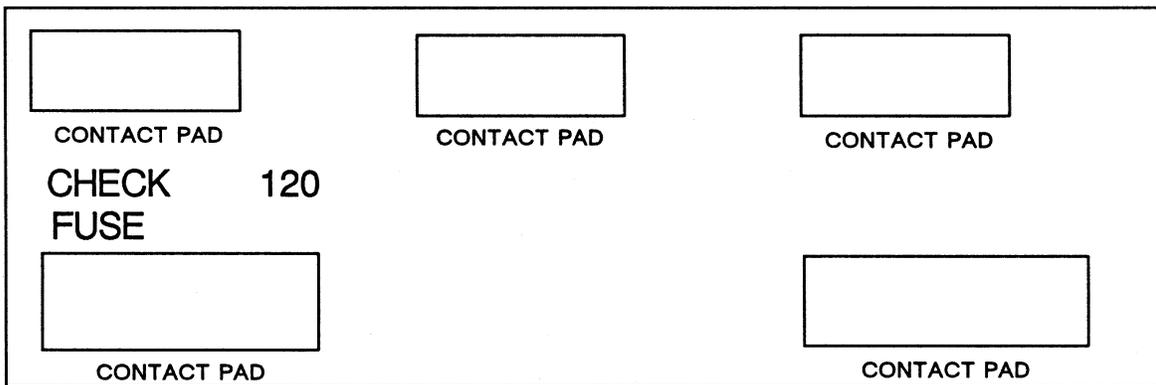


Figure 2-4. Model 30M 120 VAC Voltage Selection through PCB

2. For 240 VAC operation keep this side of the PCB up and rotate it 180 degrees so that the legend 240 is on the left side and right-side up. See Figure 2-5.
3. Slide the PCB into the fuse case in this position.

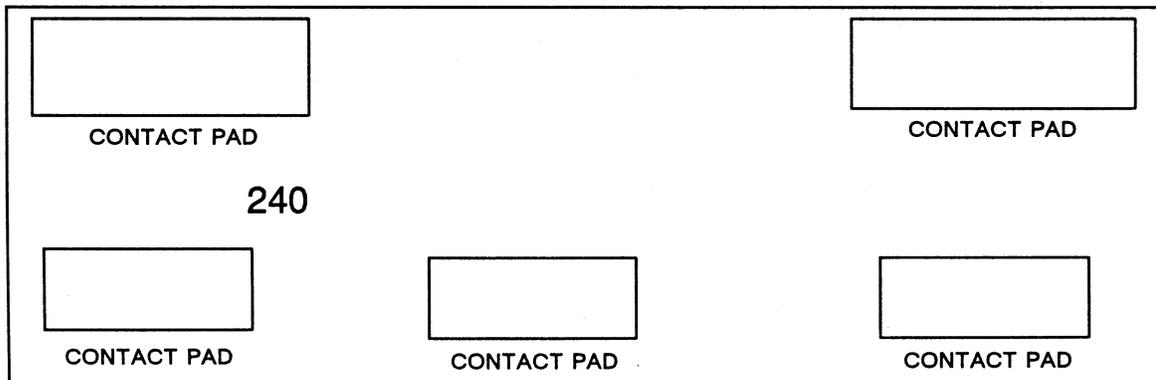


Figure 2-5. Model 30M 240 VAC Voltage Selection through PCB

Selecting the Model 30M Monitor Input Voltage (cont)

- For 100 VAC operation, flip the PCB over. Slide the PCB into the fuse case so that the legend CHECK FUSE 100 is on the left side and right-side up. See Figure 2-6.

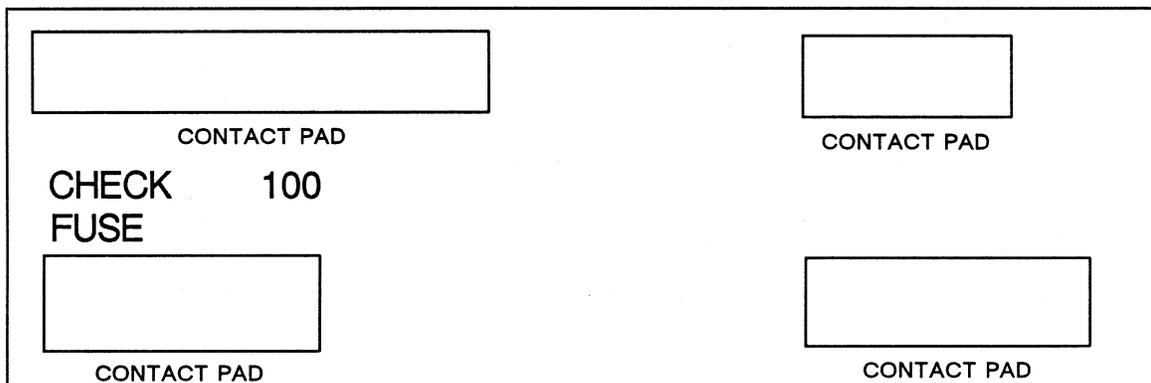


Figure 2-6. Model 30M 100 VAC Voltage Selection through PCB

- For 230 VAC operation keep this side of the PCB up and rotate it 180 degrees so that the legend 220 is on the left side and right-side up. See Figure 2-7.
- Slide the PCB into the fuse case in this position.

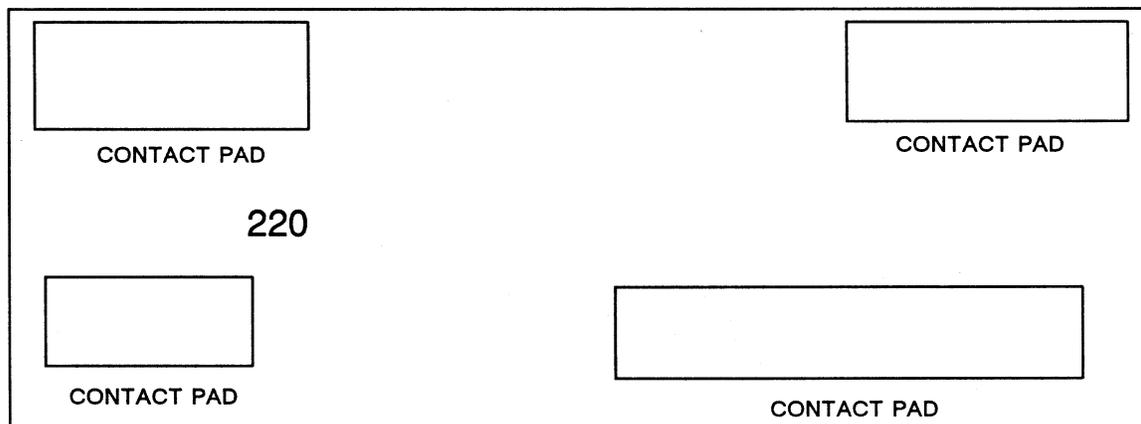


Figure 2-7. Model 30M 220 VAC Voltage Selection through PCB

Selecting the Hitachi Color Monitor Input Voltage

There are two possible procedures for selecting input voltage for the Hitachi color monitor.

Use the following procedure for 200–240 VAC operation (see Figure 2–8):

1. Turn off the AC power and disconnect the AC power cord.
2. Remove the top cover.
3. Change the switch-over PP3 connection in the power supply module to PP3–2.
4. Replace the fuse with a 3.0A fuse from the accessories kit.
5. Change the rating identification plate by moving the blanking plate and leaving the 200V–240V position exposed.
6. Reinstall the top cover and connect the AC power cord.

Use the following procedure for 120 VAC operation (see Figure 2–8):

1. Turn off the AC power and disconnect the AC power cord.
2. Remove the top cover.
3. Change the switch-over PP3 connection in the power supply module to PP3–1 (underneath the switch-over connection PP3 and to the right of PP3–2).
4. Replace the fuse with a 5.0A fuse from the accessories kit.
5. Change the rating identification plate by moving the blanking plate and leaving the 100V–120V position exposed.
6. Reinstall the top cover and connect the AC power cord.

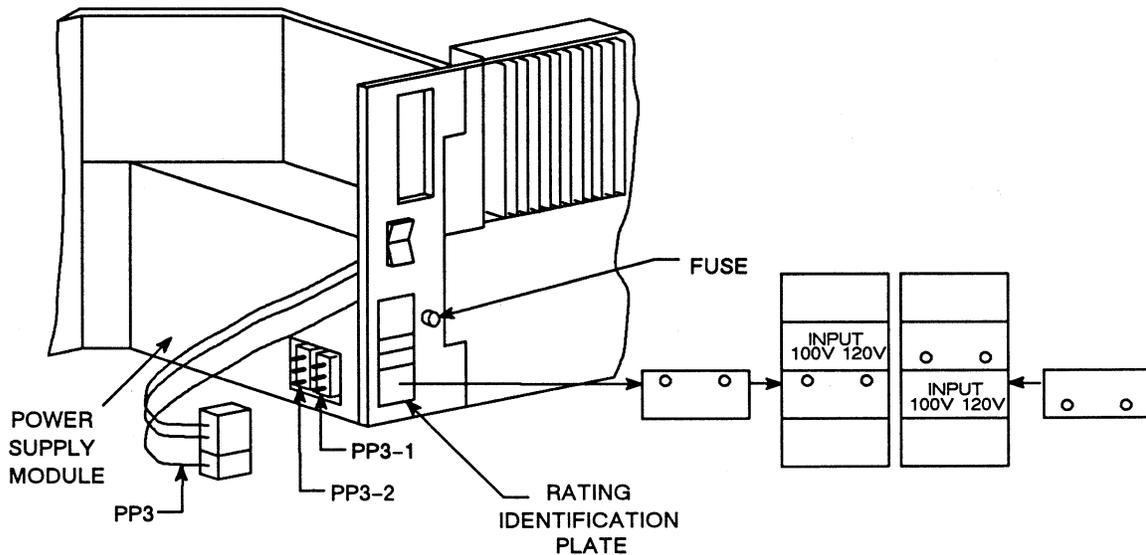


Figure 2–8. Color Monitor Voltage Selection

Removing the Model 32 CADDStation Deskside Module Covers

Use the following procedure to remove the covers from the Model 32 CADDStation Deskside Module for installation:

1. Loosen the screw that holds the front cover (see Figure 2-9).
2. Grasp the deskside module front cover, and gently pull it up and toward you.
3. Loosen the screw that holds the back cover (see Figure 2-10).
4. Grasp the back cover, and pull it up and toward you.
5. From the side of the unit, hold the skin (either left or right) and pull it off toward you. Similarly, remove the skin from the other side. The left and right skins are identical.
6. After completing the CADDStation installation, reverse these procedures to reassemble the deskside module.

Figures 2-9 and 2-10 show front and rear views of the Model 32 CADDStation Deskside Module.

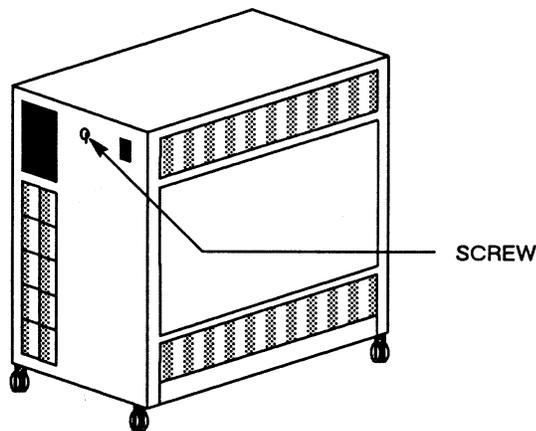


Figure 2-9. Model 32 CADDStation Deskside Module, Front View

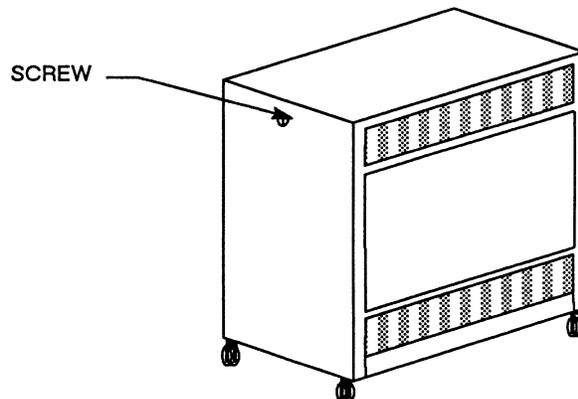


Figure 2-10. Model 32 CADDStation Deskside Module, Rear View

Removing the Model 32 CADDStation Base Unit Cover

To gain access to the Model 32 CADDStation Base Unit I/O strips, you must remove the outer cover. Follow this procedure:

1. Remove the two screws on the back of the cover. See Figure 2-11.
2. Move to the front of the base unit, and gently push back on the front of the cover. This action dislodges the cover's hooks from their slots.
3. Lift the cover off the base unit.

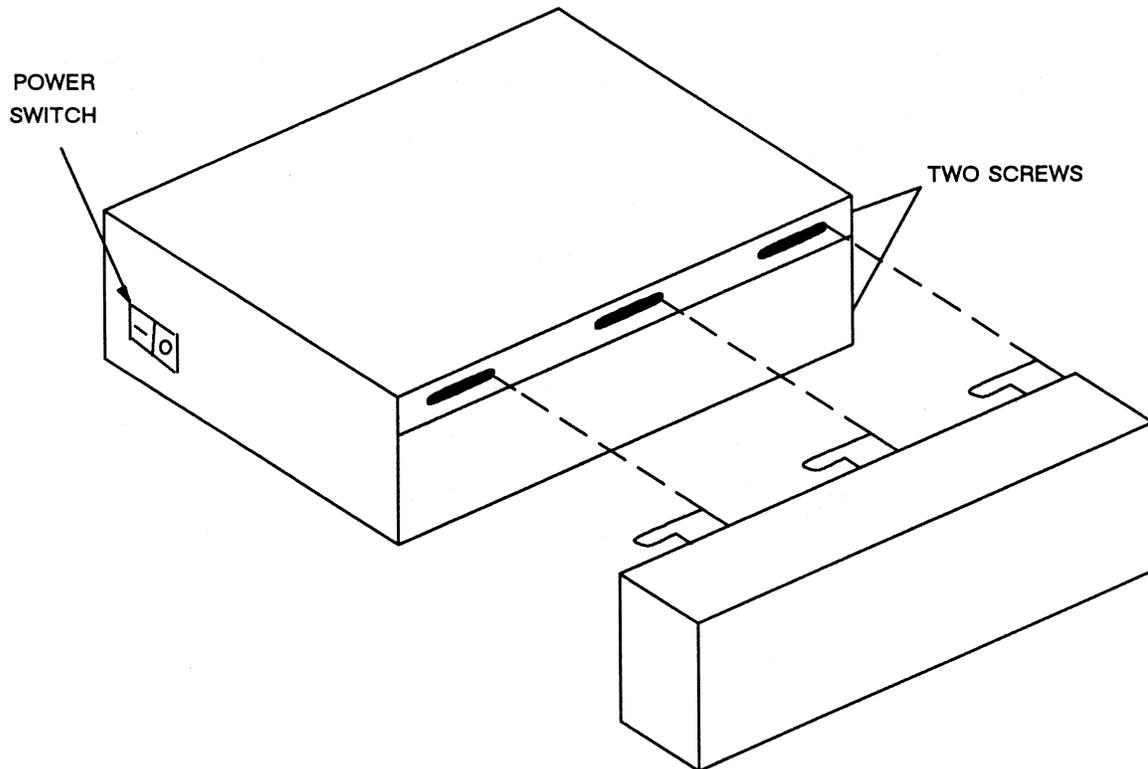


Figure 2-11. Model 32 CADDStation Base Unit, Right Side View

Removing the Model 31 CADDStation Deskside Module Covers

Use the following procedure to remove the covers from the Model 31 CADDStation Deskside Module for installation:

1. Grasp the deskside module front cover and gently pull it toward you. See Figure 2-12.
2. Go to the back of the deskside module and locate two screws holding the top skin to the frame. Remove and retain the screws. See Figure 2-13.
3. Pull the top skin back toward you, and lift it off the frame. Retain the skin.
4. From the back of the unit, locate three screws holding the left skin to the frame. Remove and retain the three screws.
5. Pull the left skin toward you and lift it off the frame.
6. Similarly, remove the right skin.
7. Lift the tape unit assembly up on its hinge. Remove the four screws from the chassis cover plate, and lift the plate and foam padding away from the processor chassis. Retain all the pieces.
8. Locate a PC board retaining bracket on each end of the chassis. Loosen the two screws holding each retaining bracket in place, and slide the brackets away from the PC boards.
9. After completing the workstation installation, simply reverse these procedures to reassemble the deskside module.

Figure 2-12 shows a front and side view of the Model 31 CADDStation Deskside Module.

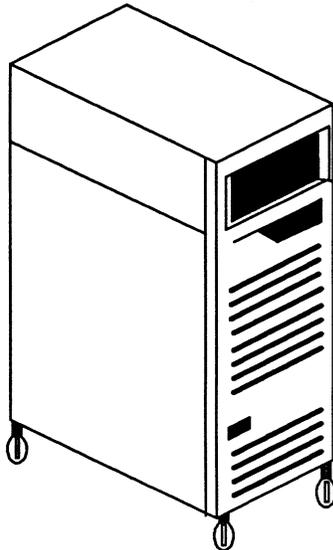


Figure 2-12. Model 31 CADDStation Deskside Module, Front View

Removing the Model 31 CADDStation Deskside Module Covers

(cont)

Figure 2-13 shows a rear view of the Model 31 CADDStation Deskside Module.

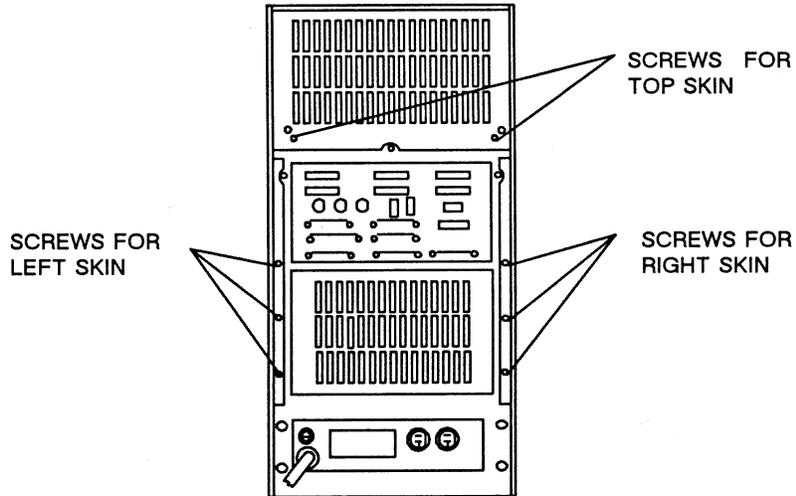


Figure 2-13. Model 31 CADDStation Deskside Module, Rear View

Removing the Model 30 CADDStation Base Unit I/O Panel

Figure 2-14 shows a rear view of the Model 30 CADDStation Base Unit I/O panel, which is immediately accessible to you. To gain access to the CPU board follow this procedure:

1. Be sure that the CADDStation is not connected to an AC power source.
2. Turn the CADDStation so that you are facing the rear of the unit.
3. Using a hex wrench (#3-32), remove the four hex-head screws attaching the PCB to the base unit. See Figure 2-14.
4. Push outward the two extraction levers on each side of the PCB until the PCB is released from the base unit.

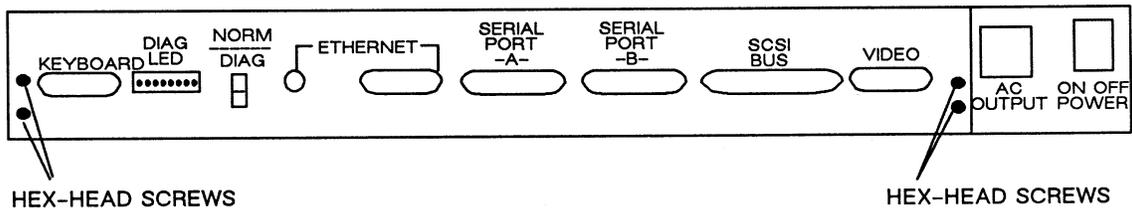


Figure 2-14. Model 30 CADDStation Base Unit, Rear View

Selecting the Deskside Module Input Voltage

Voltage selection differs for North American, European (CVE), and Far Eastern (AFE) installations.

Deskside modules use voltage selector plugs to provide proper voltage selection to the transformer and power supply. The voltage selector plug is located to the left of the AC power cord on the rear panel of a deskside module.

Since different countries use different AC voltages, there are five different voltage selector plugs that can be installed to provide proper strapping. An accessories bag is shipped with a deskside module and contains the five different voltage selector plugs. Use the following procedure to select proper input voltage:

1. Identify the standard AC voltage used in the country in which you are installing the deskside module.
2. Install the correct voltage selector plug in the power box.
3. Attach the correct rating label for the input voltage selected (for Model 31 CADDStations).

Selecting Model 32 CADDStation Base Unit Input Voltage

Base units use voltage selector switches to provide proper voltage selection to the transformer and power supply. To select voltage input on the Model 32 CADDStation Base Unit, follow this procedure:

1. With the base unit resting on a table, face its rear panel. The opening in the base unit should be to your left.
2. Remove the two screws retaining the left-side cover. Pull the cover toward you and remove it.
3. Remove the eight screws holding the fan assembly.
4. Remove the two screws holding the interlock bar on the right side of the back panel.
5. Locate the voltage selector switch beneath the cord receptacle.
6. Depending upon the input voltage you want, flip the switch to 115V or to 230V.
7. Replace all eight screws holding the fan assembly.
8. Reinstall the interlock bar by sliding it toward your left and tightening the two screws.

Selecting Model 30 CADDStation Base Unit Input Voltage

To select voltage input on the Model 30 CADDStation Base Unit, follow this procedure:

1. With the base unit resting on a table, face its rear panel. The voltage selection switch is to the left of the AC power switch. See Figure 2-15.
2. Using a flat-blade screwdriver, twist the inner core of the voltage selector so that the voltage you want is aligned with the arrowhead on the top, outer edge of the selector. For example, if you want 115 VAC operation, align the numbers 115 with the arrow, as in Figure 2-15.

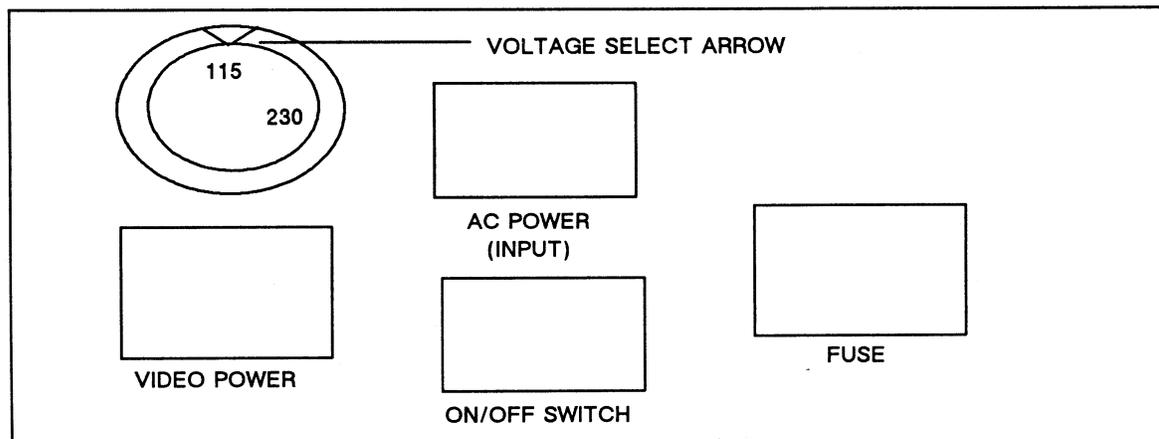


Figure 2-15. Model 30 CADDStation Base Unit Voltage Selection

Removing the CADDServer Peripherals Cabinet Front Panel

To install a CADDServer you must prepare both the CADDServer Deskside Module and the Peripherals Cabinet. See the Removing the Model 32 CADDStation Deskside Module Covers subsection for instructions on how to prepare the deskside module.

You must remove the front panel on the CADDServer Peripherals Cabinet (see Figures 2-16 and 2-17) if you need to check the disk drive type. To remove the front panel, follow this procedure:

1. Using a flat-blade screwdriver, remove the two screws from the front panel. See Figure 2-16.
2. Lift the front panel up and off the peripherals cabinet.

Figure 2-16 shows the front panel of a CADDServer Peripherals Cabinet.

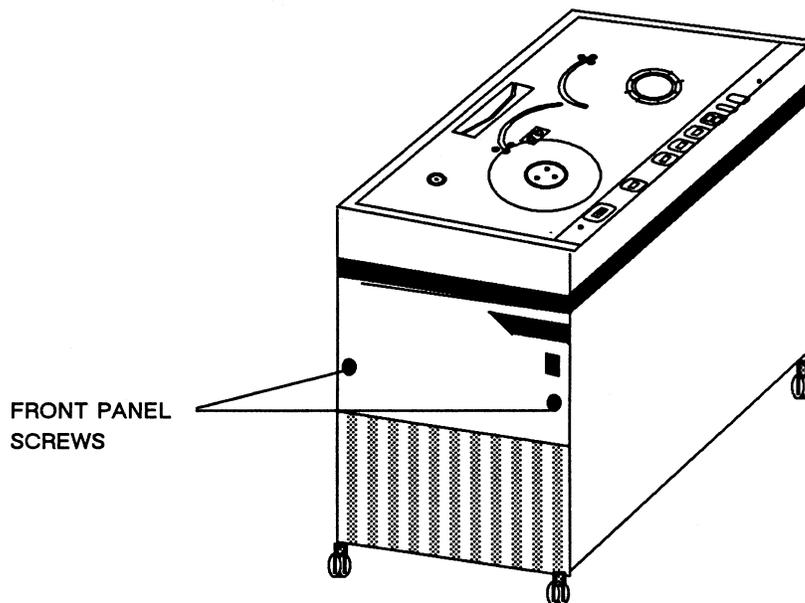


Figure 2-16. CADDServer Peripherals Cabinet, Front Panel

Checking the CADDServer Peripherals Cabinet Grounding

The internal grounding system is installed at the factory. Before making any internal connections to the system, check for ground continuity. For information on external grounding of the CADDServer, see the CADDServer External Device Connections and Grounding subsection in Section 5.

Selecting the Peripherals Cabinet Input Voltage

The CADDServer Peripherals Cabinet is rated for 110, 115, 120, 200, 220, 230, or 240 VAC. The cabinet is initially set for 120 VAC. Use the procedures listed below for selecting the desired voltage.

Warning

Be sure the power to the peripherals cabinet is OFF and AC power is disconnected when you select voltage.

Since the voltage select plugs are located on the inside of the tape drive, you must first access the tape drive. Use the following procedure to gain access to the voltage select plug:

1. Move to the rear of the peripherals cabinet. Using a Phillips screwdriver, remove from the upper rear panel the two screws securing the tape drive. See Figure 2-17.
2. Lift the tape drive, which is set on gas springs.

To change voltage from 120 VAC to 110 or 115 VAC, use the following procedure:

1. Replace the 120 VAC tape drive voltage select plug (located just above the power connector on the lower left side of the tape drive when lifted) with the appropriate 15-position 110 VAC or 115 VAC voltage select plug. The new tape drive voltage select plugs can be found in the accessories kit.
2. Change the tape drive fuse to a 2.0A Slo-Blo.
3. Attach the correct electrical rating label (shipped in the accessories kit) for the voltage selected.
4. Switch the two red voltage select switches on top of the power box to 115V.
5. Switch the disk drive voltage select switch on the NEC drives to 115V.

Selecting the Peripherals Cabinet Input Voltage (cont)

To change voltage from 120 VAC to 200, 220, 230, or 240 VAC, use the following procedure:

1. Replace the 120 VAC tape drive voltage select plug (located just above the power connector on the lower left side of the tape drive when lifted) with the appropriate 15-position 200, 220, 230, or 240 VAC voltage select plug. The new tape drive voltage select plugs can be found in the accessories kit.
2. Change the tape drive fuse to a 5.0A Slo-Blo (shipped in the accessories kit).
3. Attach the correct electrical rating label (shipped in the accessories kit) for the voltage selected.
4. Switch the two red voltage select switches on top of the power box to 230V.
5. Switch the disk drive voltage select switch on the NEC drives to 230V.

To lower the tape drive into operating position first depress the orange holder on the left gas spring.

Figure 2-17 shows the rear panel of a CADDServer Peripherals Cabinet.

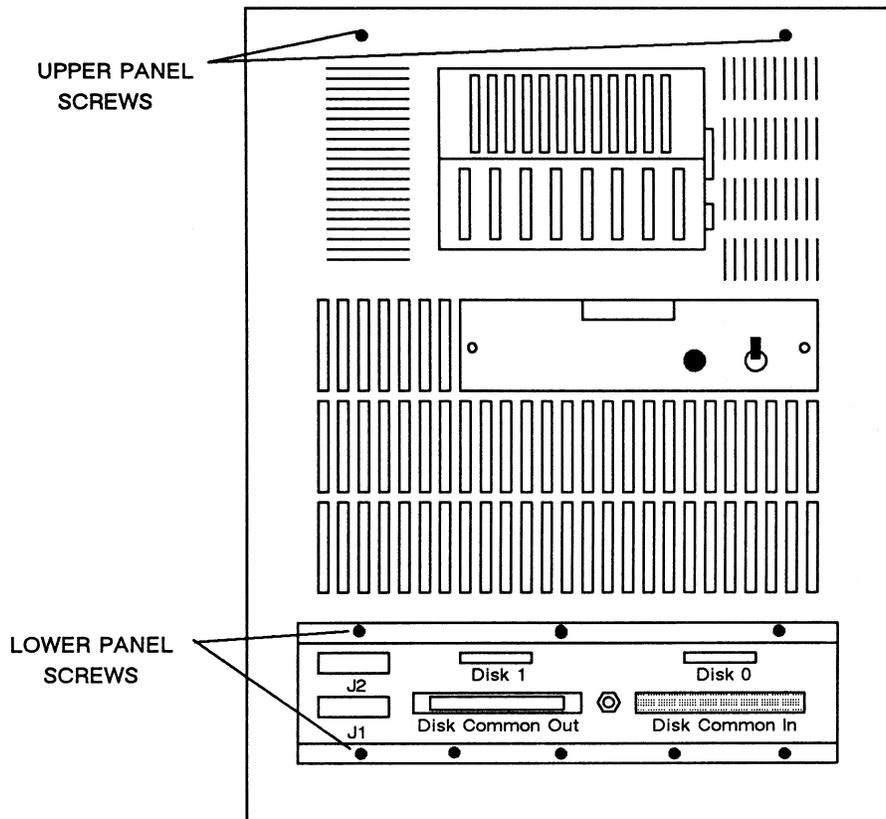


Figure 2-17. CADDServer Peripherals Cabinet, Rear Panel

Section 3
Setting Switches and Device Addresses

Setting Switches and Device Addresses

3

This section lists the switch settings and device addresses for Model 32 and 31 CADDStation printed circuit boards. This section also includes information about terminator boards. See Section 4 for system slot allocation tables.

Printed circuit boards for Model 32 and 31 CADDStations are installed in a processor chassis located in the deskside module. Printed circuit boards for a CADDServer are also installed in a processor chassis located in the CADDServer Deskside Module.

Note

The tables in this section list printed circuit boards with switch packs only. Boards that do not require switch settings are not listed.

VTM/VME Board Switch Settings

Model 32 CADDStations contain VTM (VME To Multibus) and VME (Versa Module Europa) boards. If you need to set or verify switch settings during troubleshooting, do so for both categories of boards. Switch settings for VTM boards are listed in Table 3-1, while switch settings for VME boards are listed in Table 3-2. Be sure that all switch packs are set correctly.

Table 3-1. Switch Settings for VTM Boards

VTM Switch/ Location	GPU Adapter	SCSI sc0	Sun Ethernet ie1
	cvgpu0 8 7 6 5 4 3 2 1	8 7 6 5 4 3 2 1	8 7 6 5 4 3 2 1
1A	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0
3A	0 1 1 1 1 1 1 1	0 1 1 1 1 1 1 1	0 1 1 1 1 1 1 1
1B	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0
3B	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1
4A	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1	1 1 1 1 0 0 0 0
6A	0 0 1 0 0 1 0 0	1 1 0 1 1 1 1 1	0 0 0 1 0 0 0 0
4B	1 1 1 1 0 0 0 0	1 1 0 0 0 0 0 0	0 0 0 0 0 0 0 0
6B	1 1 1 1 0 0 0 0	1 1 0 0 0 0 0 0	0 0 0 0 0 0 0 0
8C	0 0 1 1 0 1 0 1	1 0 1 1 1 1 1 1	1 0 0 0 1 0 1 0
9B	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0

	MBTS cvtab0	VPC-2200 vpc0	VPC-2200 vpc1
	8 7 6 5 4 3 2 1	8 7 6 5 4 3 2 1	8 7 6 5 4 3 2 1
1A	0 1 1 1 1 1 1 1	0 1 1 1 0 0 0 0	0 1 1 1 0 0 0 0
3A	0 1 1 1 1 1 1 1	0 0 1 1 0 0 0 0	0 1 1 1 0 0 0 0
1B	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1
3B	1 1 1 1 0 1 0 1	1 1 1 1 1 0 1 1	1 1 1 1 1 0 1 0
4A	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0
6A	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1
4B	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0
6B	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1
8C	0 0 1 1 0 1 0 0	0 0 1 1 0 1 1 1	0 0 1 1 0 1 1 0
9B	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0

1 = Closed = On; 0 = Open = Off

Table 3-1. Switch Settings for VTM Boards (cont)

VTM Switch/ Location	Systech MTI-1600	Ciprico tm0	Ciprico tm1
	mti0d 8 7 6 5 4 3 2 1	8 7 6 5 4 3 2 1	8 7 6 5 4 3 2 1
1A	0 1 1 1 1 1 0 0	0 1 1 1 1 1 1 1	0 1 1 1 1 1 1 1
3A	0 1 1 0 1 1 0 0	0 0 1 0 1 1 1 1	0 0 1 0 1 1 1 0
1B	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1
3B	1 1 1 1 1 0 0 1	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1
4A	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0
6A	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1
4B	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0
6B	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1
8C	0 1 1 1 0 1 1 1	1 0 0 1 1 1 1 1	1 0 0 1 1 1 1 0
9B	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0
	Intel 88/45 cci0	Intel 88/45 cci1	Intel 88/45 cci2
	8 7 6 5 4 3 2 1	8 7 6 5 4 3 2 1	8 7 6 5 4 3 2 1
1A	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0
3A	0 1 1 1 1 1 1 1	0 1 1 1 1 1 1 1	0 1 1 1 1 1 1 1
1B	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0
3B	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1
4A	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1
6A	0 0 1 0 0 1 1 0	0 0 1 0 0 1 1 0	0 0 1 0 0 1 1 0
4B	1 1 0 0 0 0 0 0	1 1 0 0 0 0 0 0	1 1 0 0 0 0 0 0
6B	1 1 0 0 0 0 0 0	1 0 0 0 0 0 0 0	0 1 0 0 0 0 0 0
8C	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0
9B	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0

1 = Closed = On; 0 = Open = Off

Table 3-1. Switch Settings for VTM Boards (cont)

VTM Switch/ Location	Intel 88/45 cci3* 8 7 6 5 4 3 2 1	XY 450/1 xyc0 8 7 6 5 4 3 2 1	XY 450/1 xyc1 8 7 6 5 4 3 2 1
1A	0 0 0 0 0 0 0 0	0 1 1 1 1 1 0 0	0 1 1 1 1 1 0 0
3A	0 1 1 1 1 1 1 1	0 1 0 1 1 1 0 0	0 1 0 1 1 0 0 0
1B	0 0 0 0 0 0 0 0	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1
3B	1 1 1 1 1 1 1 1	0 0 0 1 0 0 0 1	0 0 0 1 0 0 0 1
4A	1 1 1 1 1 1 1 1	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0
6A	0 0 1 0 0 1 1 0	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1
4B	1 1 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0
6B	0 0 0 0 0 0 0 0	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1
8C	0 0 0 0 0 0 0 0	1 0 1 1 0 1 1 1	1 0 1 1 0 1 1 0
9B	0 0 0 0 0 0 0 0	1 1 1 1 0 0 0 0	1 1 1 1 0 0 0 0

1 = Closed = On; 0 = Open = Off
 * 2780/3780

Note

If you are installing a system with a C-size digitizer, use the switch settings defined in Table 3-2. If you are installing an E-size digitizer, the settings may have to be reset. In this case, 1E = orthogonality switch pack; 1F = x-scale correction switch pack; and 1G = y-scale correction switch pack. Within each switch pack, 1 = least significant bit (LSB) and 8 = most significant bit (MSB).

Table 3-2. Switch Settings for VME Boards

VME Switch/ Location	Tablet Scanner* 8 7 6 5 4 3 2 1	VME Switch/ Location	SMPL 8 7 6 5 4 3 2 1
1E	1 1 1 1 1 1 1 1	6C	1 1 1 1 1 1 1 1
1F	1 1 1 1 1 1 1 1	7D	1 1 0 1 1 1 1 1
1G	1 1 1 1 1 1 1 1	13E	1 0 1 1 1 1 1 1
4B	0 0 0 0 0 0 0 0	23G	0 1 0 0
15K	0 0 1 1 0 1 0 0		

1 = Closed = On; 0 = Open = Off
 * Be sure to insert the proper shunt at location 12D for a C-size tablet. Insert the shunt at location 12B for an E-size tablet.

Table 3-2. Switch Settings for VME Boards (cont)

VME Switch/ Location	GFB1 8 7 6 5 4 3 2 1	VME Switch/ Location	GPU2 8 7 6 5 4 3 2 1
15K	0 0 0 0 0 0 0 0*	1AD	0 0 1 1 0 1 0 1
22A	0 0 0 0*		
23K	0 0 0 1 0 0 0 1		
24K	0 0 0 0 0 0 0 0		

1 = Closed = On; 0 = Open = Off

* It does not matter if these switches are set to on or off.

Memory Board Switch Settings, Model 32 CADDStations

Table 3-3 lists the optional memory board switch settings for Model 32 stand-alone CADDStations.

Table 3-3. 4MB Expansion Memory Board Switch Settings

Board	Optional Memory	Location	8765	4321
Memory #1	5-8MB	U318*	0000	0100
		U319	0000	1000
Memory #2	9-12MB	U318*	0001	0000
		U319	0010	0000
Memory #3	13-16MB	U318*	0100	0000
		U319	1000	0000

1 = Closed = On; 0 = Open = Off

* Located near VME backplane. Locations indicated on the backside of the board.

CPU Jumper Configuration

Table 3-4 lists the way factory shunts are set on the CPU board. For example, the table indicates that the board has a shunt connecting pin 3 to pin 4 at location J300; pin 1, however, is not connected to pin 2. The following table is a reference source for the factory-set shunts.

Table 3-4. CPU Jumper Configuration

Jumper Block No.	Pins	Location	Jumper In	Purpose
J2502	1-2	A-3	Yes	Enables system clock
J1200	1-2	A-3	No	For 27256 boot PROM
J1201	1-2	A-3	Yes	For 27512 boot PROM
J2501	1-2	B-6.5	Yes	Enables Ethernet clock
J2503	1-2	B-6.5	No	VCC to Ethernet connector
J2301	1-2	B-21	Yes	Enables video clock
J1001	1-2	E-32	Yes	Enables SCC clock
J3101	1-2	K-11-1	Yes	2MB CPU board only
J3102	1-2	K-11-2	Yes	4MB CPU board only
J100	1-2	K-11-3	No	Cache disable
J2505	1-2	K-11	*	Ethernet level
J400	1-2	N-11	Yes	Select 16.67 MHz CPU clock**
J400	3-4	N-11	No	Select 12.5 MHz CPU clock
J400	5-6	N-11	Yes	Select async. 12.5 MHz FFP clock
J400	5-6	N-11	No	Select async. 16.67 MHz FFP clock
J400	7-8	N-11	No	Select async. 12.5 MHz FFP clock
J400	7-8	N-11	Yes	Select async. 16.67 MHz FFP clock
J300	1-2	R-5	No	Not Used
J300	3-4	R-5	Yes	VME interrupt level 1
J300	5-6	R-5	Yes	VME interrupt level 2
J300	7-8	R-5	Yes	VME interrupt level 3
J300	9-10	R-5	Yes	VME interrupt level 4
J300	11-12	R-5	Yes	VME interrupt level 5
J300	13-14	R-5	Yes	VME interrupt level 6
J300	15-16	R-5	Yes	VME interrupt level 7
J2703	1-2	R-12	Yes	CPU is a VME reset register
J2702	1-2	R-12	No	CPU is a VME reset slave
J2701	1-2	R-12	Yes	CPU is a VME arbiter
J2700	1-2	R-12	No	CPU is a VME requester

* This Jumper is IN for type 1 Ethernet and OUT for type 2 Ethernet; default is level 2.

**Select 12.5 MHz or 16.67 MHz depending on the speed of the 68881 chip on the board.

SMPL and GFB1 Jumper Configurations

Table 3-5 lists the way factory shunts are set on the SMPL and GFB1 boards.

Table 3-5. SMPL and GFB1 Jumper Configurations

Jumper Block No.	Pins	Location	Jumper In	Purpose
SMPL				
JP1	7-8	1C	Yes	Brings Bus Grant 3 in
JP2	7-8	1C	Yes	Brings Bus Grant 3 out
JP3	5-6	2C	Yes	Sets SCSI request priority level 3
JP4	7-8	2C	Yes	Sets VME bus request level 3
JP5		13C	No	Disables interrupt vector switch 13E
JP6	1-2	13C	Yes	Enables interrupt vector switch 13E
JP7		16D	No	Disables RS-232 priority level
JP8	1-2	16D	Yes	Enables RS-232 priority level
JP9	5-6	15C	Yes	Sets SCSI respond priority level 2
JP10	7-8	15C	Yes	Sets RS-232 respond priority level 3
JP11	7-8	2C	Yes	Sets RS-232 request level 3
JP12		4L	No	Sets disk drive address(es); do <i>not</i> jumper if there is only one Adaptec controller in the system. SCSI address is then 0. If there are embedded SCSI disks, however, jumper pins A-B and E-F. This sets the Adaptec SCSI address to 5.
W1		17E		
GFB1				
JB1	2-3	12A	Yes	Selects external clock and reset for multiple-board configuration
JB1	6-7	12A	Yes	Selects external clock and reset for multiple-board configuration
JB2	2-3	12A	Yes	Selects external clock and reset for multiple-board configuration
JB2	6-7	12A	Yes	Selects external clock and reset for multiple-board configuration
JB3	3-4	10L	Yes	Selects 24-bit address space

Multibus Board Switch Settings

Model 32 and 31 CADDStations contain multibus boards. In most cases, the multibus board switch settings are identical for Model 32 and 31 CADDStations. Differences are indicated at each occurrence. Table 3-6 lists the switch settings for multibus boards.

Table 3-6. Multibus Board Switch Settings

Board	Location	8765	4321
Memory #1 (68010 only)	U506	0000	0001
Memory #2 (68010 only)	U506	0000	0010
Memory #3 (68010 only)	U506	0000	0100
Video Controller	U105	1000	0000
Tablet Scanner Controller	4B		0000
	1E	1111	1111
	1F	1111	1111
	1G	1111	1111
SCSI Controller (68020 only)	U305	0000	0000
	U315	0000	0010
	U312	0010	0000
1/4-Inch Tape Controller (68020 only)	11.5B		0100
Ciprico Tape Controller	S1	1111	1010
	S2	1111	1111
Sun or Computervision Ethernet Controller (ie0 for 68010)	U503	1000	1000
	U505	0000	0100
	U506	0110	0110
Sun or Computervision Ethernet Controller (ie1 for 68010)	U503	1000	1100
	U505	0000	0100
	U506	0110	0110
Sun or Computervision Ethernet Controller (ie1 for 68020)	U503	1000	1000
	U505	0000	0100
	U506	0110	0110
GPU Adapter Controller (selects interrupt level 3)	1A	0000	1000
	3B	0000	0000
VPC-2200 Controller (vpc0)	SW3	0111	1100*
	SW4	1111	1011
	SW5	0000	0100
VPC-2200 Controller (vpc1)	SW3	1111	1100*
	SW4	1111	1010
	SW5	0000	0100

1 = Closed = On; 0 = Open = Off

*Setting 3 on SW3 = 0 for 8-bit data width or 1 for 16-bit data width

Model 32 CADDStation Device Addresses

Table 3-7 lists the multibus addresses for Model 32 CADDStations.

Note

Memory addresses are accessed by MRDC or MWTC, but I/O addresses are accessed by IORC or IOWC.

Table 3-7. Model 32 CADDStation I/O and Memory Addresses

Base Memory Address (HEX)	I/O Memory Address/ Block Size	Board	Interrupt Vector
00DB0000	None/4K	GTM configured as cvgpu0	CA(HEX)
00200000	None/16K	Multibus SCSI controller configured as sc0	40 (HEX)
0000EE40	8/none	XY 450 configured as xy0	48 (HEX)
0000EE48	8/none	XY 450 configured as xy1	49 (HEX)
00000A00	2/none	MBTS configured as cvtabc0	CB
00000480	32/none	VPC-2200 configured as vpc0	C8 (HEX)
00000500	32/none	VPC-2200 configured as vpc1	C9 (HEX)
00091000	None/12K	Intel sync. com. controller configured in 2780/3780 mode	None
000000A0	2/none	Ciprico Tapemaster configured as tm0	60 (HEX)
000000A2	2/none	Ciprico Tapemaster configured as tm1	61 (HEX)
00E88000	None/16K	Sun Ethernet controller configured as ie1	75 (HEX)
00000820	3/none	MTI-1600 (Syntech 8 multiplexer) configured as mti0	88 (HEX)

Model 31 CADDStation Device Addresses

Table 3-8 lists the multibus addresses for a Model 31 CADDStation.

Note

Memory addresses are accessed by MRDC or MWTC, but I/O addresses are accessed by IORC or IOWC.

Table 3-8. Model 31 CADDStation I/O and Memory Addresses

Memory Byte Address (HEX)	Byte Locations (DEC)	Board	UNIX Device
00000-3FFFF	256K	DVMA access window	
40000-7FFFF	256K	Sun or Computervision Ethernet #1	ie0
80000-83FFF	16K	SCSI	sc0
84000-87FFF	16K	Reserved	
88000-8BFFF	16K	Sun or Computervision Ethernet #1	ie0
8C000-8FFFF	16K	Sun or Computervision Ethernet #2	ie1
91000-93FFF	12K	Synchronous com. cont.	
A0000-AFFFF	64K	Sun or Computervision Ethernet #2	
00A0-00A1	2	CIPRICO Tapemaster	mti0
0480-049F	32	Systech VPC-2200	vpc0
0820-0827	8	Systech MTI-1600	
0A00-0A01	2	Tablet Scanner	u pen0
2000-200F	16	SKY floating point	sky
EE40-EE47	8	SMD disk cont.	xy0c

Terminator Boards/Paddlecards, Revision A

Model 32 CADDStations have two terminator boards/paddlecards, which you plug into the deskside module backplane. Position one board just before slot 1 and the other just after slot 12. Terminator board connector plugs are located on the outside of the cardcage. Once you remove the skins from the deskside module, you can see the connector plugs from either side.

Both terminator boards are identical and can be plugged into either one of the designated slots. The terminator board positioned before slot 1 is used for slots 1 through 6. The terminator board positioned after slot 12 is used for slots 7 through 12.

Two switch packs, S1 and S2, are located on each terminator board. Switch pack S1 is used to bus across the Bus Grant 3 signal through any empty slot. Switch pack S2 is used to bus across the Iack signal through any empty slot. Both switch packs are an 8-switch dip, but only switches 1 through 6 are used. The positions of switches 7 and 8 make no difference.

If a slot is empty, set the appropriate switch on both S1 and S2 to ON. If a slot is filled, set the appropriate switch on both S1 and S2 to OFF. For example (see Figure 3-1), if you have boards in slots 1, 4, 5, 8, and 12, set switches 1, 4, and 5 on the terminator board positioned before slot 1 to OFF. Set switches 2, 3, and 6 to ON. Remember that the position of switches 7 and 8 does not matter. In the example below they are ON. Set switches 2 and 6 on the terminator board positioned after slot 12 to OFF. Set switches 1, 3, 4, and 5 to ON. Switches 7 and 8 are set to ON, though their position does not matter.

Figure 3-1 shows an example of switch settings for Revision A terminator boards.

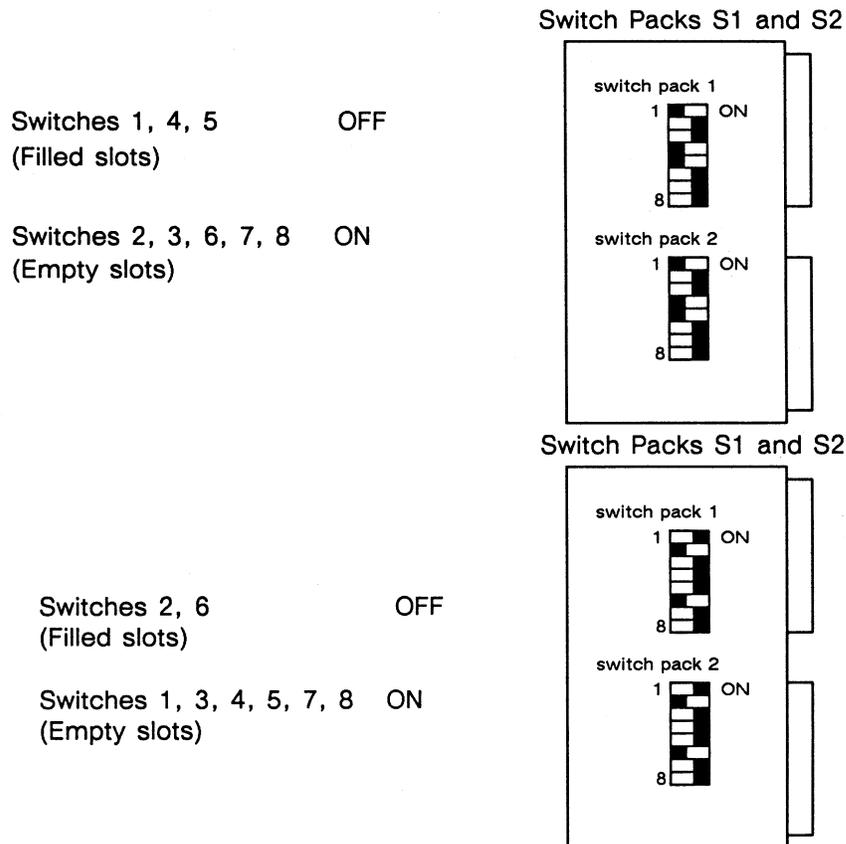


Figure 3-1. Terminator Board Switch Settings Example, Revision A

Terminator Boards/Paddlecards, Revision B

A quick physical check can help you differentiate the Revision B terminator board from the Revision A board. On Revision B terminator boards you can see wires leading from the board jumper switches to the connector.

Two switch packs, S1 and S2, are located on each terminator board. Switch pack S1 is used to bus across the Bus Grant 3 signal through any empty slot. Switch pack S2 is used to bus across the Iack signal through any empty slot. Both switch packs are an 8-switch dip, and all eight switches are used.

The terminator board switch settings described below apply to functional Revision B of the terminator board and functional revision B of the backplane. This backplane revision requires that you set two terminator cards in different ways depending upon the CADDStation configuration. For example, use procedure A below if you have the following CADDStation configurations:

- Diskless CADDStation
- CADDStation without a SMPL board
- CADDServer without a SMPL board

Use procedure B below if you have the following CADDStation configuration:

- CADDStation with a SMPL board

In the following procedures switch settings for switches 1-6 are the same as for Revision A, that is, when a slot is empty the switch is set to ON and when a slot is filled the switch is set to OFF. Switch settings for switches 7 and 8 may be different, however.

Use the following procedure, designated as procedure A, for terminator boards with artwork #CT38E0196:

1. Place SW1 switches 7 and 8 to ON.
2. Place SW2 switches 7 and 8 to OFF.

In addition, for terminator boards with artwork #CT38E0306 read the instructions silk-screened on the board for VME-mode operation.

Use the following procedure, designated as procedure B, for terminator boards with artwork #CT38E0196 :

1. Place SW1 switches 7 and 8 to OFF.
2. Place SW2 switches 7 and 8 to ON.

In addition, for terminator boards with artwork #CT38E0306, read the instructions silk-screened on the board for Computervision-mode operation.

Terminator Boards/Paddlecards, Revision B (cont)

Figure 3-2 shows sample settings for Revision B terminator boards on a CADDStation with an SMPL board.

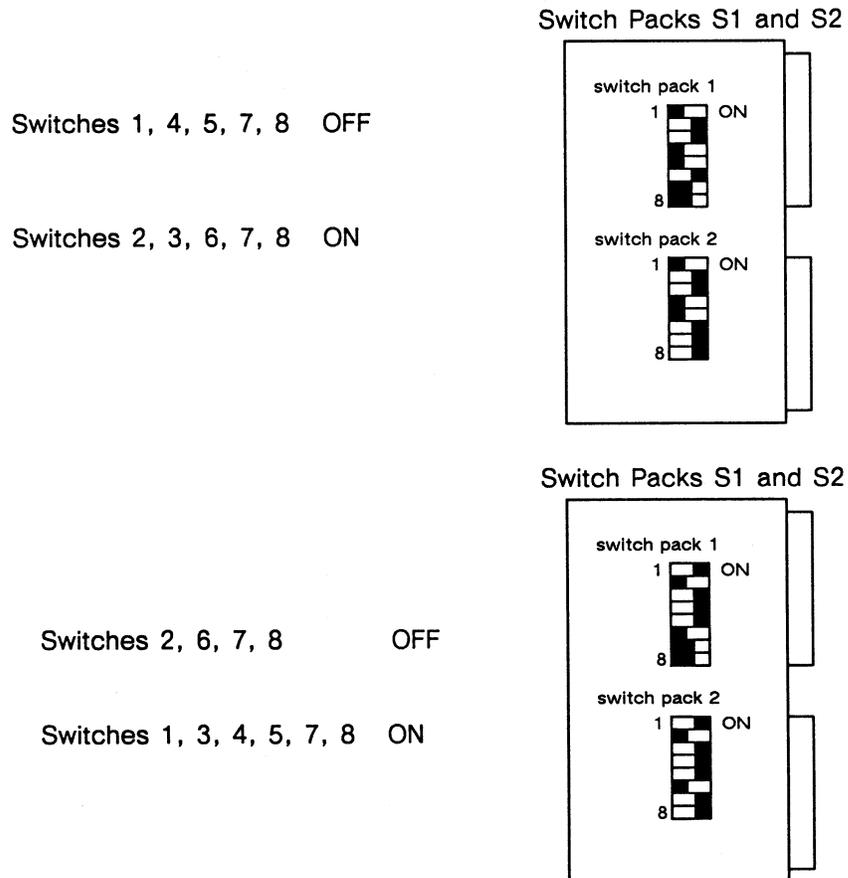


Figure 3-2. Terminator Board Switch Settings Example, Revision B

Xylogics 20/24-Bit Address Jumpering

The factory configuration of the Xylogics disk controllers is for 20-bit addressing. See Figures 3-3 and 3-4 for the factory configuration of all jumpers on these boards.

The Xylogics 450 and 451 disk controllers function in backplanes of 16-, 20-, and 24-bit addressing. Software selects the 16-bit addressing mode. To select 20- and 24-bit addressing, use Jumper JM. For both models, select 24-bit addressing by jumpering JM pins 1 and 2. For the model 450 controller, select 20-bit addressing by jumpering pins 3 and 4. For the model 451 controller, select 20-bit addressing by jumpering pins 2 and 3.

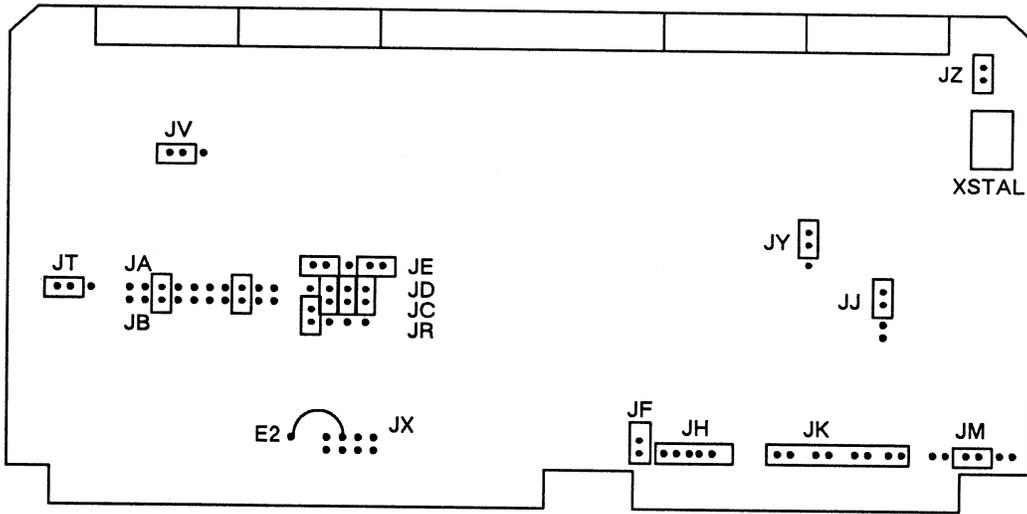


Figure 3-3. Xylogics Model 450 Disk Controller, Revision L, Jumper Configurations

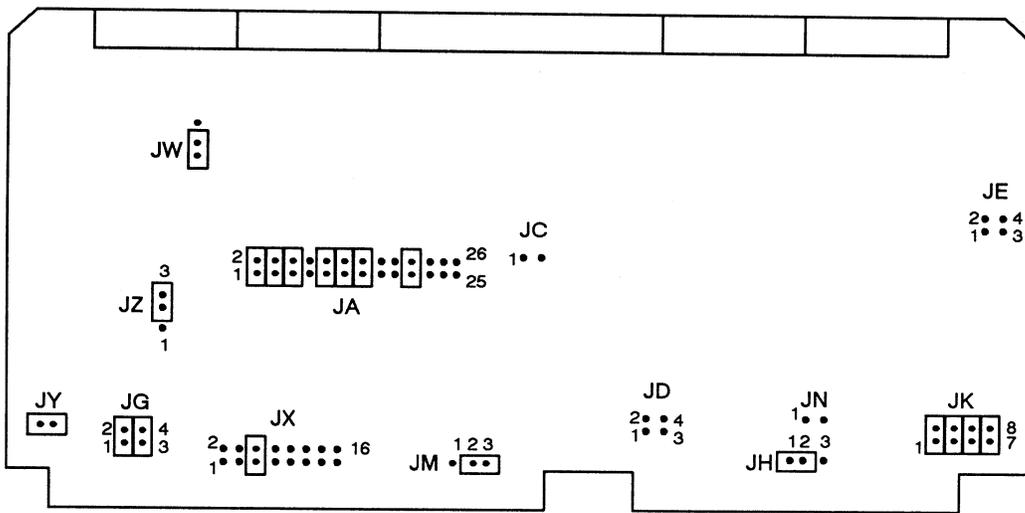


Figure 3-4. Xylogics Model 451 Disk Controller, Revision F, Jumper Configurations

Section 4
Installing Printed Circuit Boards

Installing Printed Circuit Boards

4

This section provides information about the following topics:

- Computevision identification PROM insertion
- Printed circuit board slot allocation

Installing the Computervision Host ID PROM

For the Model 30 CADDStation Base Unit, remove the Sun host ID PROM and replace it with a Computervision host ID PROM, shipped with the board in a separate package.

Use the following procedure to install the Computervision host ID PROM:

1. Access the CPU board in the Model 30 CADDStation Base Unit. See Section 2 for instructions about how to disassemble the base unit.
2. Locate the Sun identification PROM. On Model 30M CADDStations, this PROM resides at location N21 (U0204).
3. Using a PROM puller, unseat the Sun host ID PROM, and discard it.
4. Install the Computervision host ID PROM. Be sure that all pins are installed in their proper sockets and that no pins are bent.

Note

The Computervision host ID PROM must be installed to run CV-secured software.

Figure 4-1 shows a Computervision host ID PROM at location N21 (part # 96601189) on the Model 30M CADDStation CPU board.

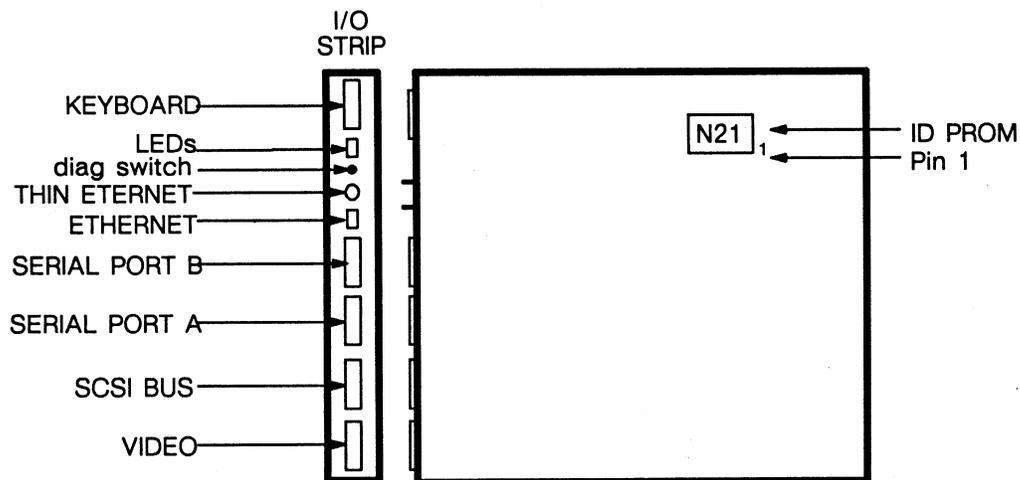


Figure 4-1. Installing the Computervision Host ID PROM on the CPU Board

For Model 32 and 31 CADDStations, it is necessary to install the Computervision host ID PROM on a replacement CPU board. Simply unseat the ID PROM from the old CPU board using a PROM puller and transfer it to the new CPU board. For Model 32 CADDStations the ID PROM (part # 96600600) resides at location B10 (U41409) on the CPU board; for Model 31 CADDStations the ID PROM (part # 930-01042-01) resides at location D8 (U4111).

Model 32 CADDStation Deskside Module Slot Allocation

Table 4-1 provides the Model 32 CADDStation Deskside Module printed circuit board slot allocation. Be sure that all printed circuit boards are installed in the correct slots.

Caution

Never insert a printed circuit board into, or remove one from, its backplane when power is ON. The board will be damaged.

Table 4-1. Model 32 CADDStation Deskside Module Slot Allocation

Slot	Board
1	4MB Memory/Option
2	68020 CPU
3	4MB Memory/Option
4	GFB1/Memory
5	VSCSI
6	MBTS/Option
7	GPU/MBTS/Option
8	GPU Adapter/Option
9	Option/GFB1
10	VPC/2200/Option
11 } 12 }	Disk-Tape Carrier/MBTS/Option

Use the following procedure to insert boards in the Model 32 CADDStation Deskside Module:

1. Populate all memory modules starting at slot 1 (from left to right). Memory modules cannot be inserted into slots 7-12.
2. Populate all standard and optional modules in primary or alternate slots as indicated above. Standard modules are
 - VMBTS
 - GFB1
 - VSCSI
 - Disk/Tape Carrier
 - VME GPU
 - VTM-GPU Adapter
3. Populate all OPTION modules starting from right to left as follows:
 - VPC-2200
 - V8845 (CCI application)
 - V8845 (2780/3780 application)
4. Populate all empty slots with plenum boards, which are required for proper cooling and for compliance with FCC regulations on I/O panel close-out.

Model 32 CADDStation Base Unit Slot Allocation

Tables 4-2 and 4-3 provide the slot allocations for the Model 32CV and 32MV CADDStation Base Unit. Be sure that all printed circuit boards are installed in the correct slots.

Caution

Never insert a printed circuit board into, or remove one from, its backplane when power is ON. The board will be damaged.

Table 4-2. Model 32CV CADDStation Base Unit Slot Allocation

Slot	Board
1	68020 CPU
2	4MB Memory/Option
3	GFB1/Memory

Table 4-3. Model 32MV CADDStation Base Unit Slot Allocation

Slot	Board
1	68020 CPU
2	4MB Memory/Option
3	Option

Model 31 CADDStation Deskside Module Slot Allocation

Tables 4-4 and 4-5 provide the slot allocations for the Model 31C and 31M CADDStation Deskside Modules. Be sure that all printed circuit boards are installed in the correct slots.

Caution

Never insert a printed circuit board into, or remove one from, its backplane when power is ON. The board will be damaged.

Table 4-4. Model 31C CADDStation Deskside Module Slot Allocation

Slot	Board
1	Multibus CPU
2	1MB Memory #1
3	1MB Memory #2
4	1MB Memory #3
5	Quadraplane Video Controller (QVC)
6	Quadraplane Memory Controller (QMC)
7	Floating Point Unit 3000/Option
8	Tablet Scanner Controller
9	Ethernet Controller

Table 4-5. Model 31M CADDStation Deskside Module Slot Allocation

Slot	Board
1	Multibus CPU
2	1MB Memory #1
3	1MB Memory #2
4	1MB Memory #3/Option
5	Tablet Scanner Controller
6	Video Controller
7	Floating Point Unit 3000/Option
8	Option
9	Ethernet Controller

Model 30 CADDStation Base Unit Slot Allocation

The Model 30 CADDStation Base Unit contains only a CPU board.

CADDServer Slot Allocation

Table 4-6 provides the CADDServer printed circuit board slot allocation. Be sure that all printed circuit boards are installed in the correct slots.

Caution

Never insert a printed circuit board into, or remove one from, its backplane when power is ON. The board will be damaged.

Table 4-6. CADDServer Slot Allocation

Slot	Board
1	Memory/Option
2	68020 CPU
3	Memory/Option
4	Memory/Option
5	VTAPEMASTER
6	VXY-450 #1
7	VXY-450 #2/Option
8	VME-GPU/Option
9	VTM-GPU Adapter/Option
10	GFB1/Option
11	VPC-2200/Option
12	8-Channel MUX/Option

Use the following procedure to insert boards in the CADDServer Deskside Module:

1. Populate all memory modules starting at slot 1 (from left to right). Memory modules cannot be inserted into slots 7-12.
2. Populate all standard and optional modules in primary or alternate slots as indicated above. The standard modules are
 - VTAPEMASTER
 - VXY-450
 - VME GPU
 - VTM-GPU Adapter
 - GFB1
 - VPC-2200
 - 8-Channel MUX
3. Populate all OPTION modules starting from right to left as follows:
 - VETHERNET
 - V8845 (CCI application)
 - V8845 (2780/3780 application)
 - VMBTS
4. Populate all empty slots with plenum boards.

Section 5
Connecting External Devices

Connecting External Devices

5

This section describes external device connections for Model 32, 31, and 30 CADDStations and for the CADDServer. External devices are connected to a system through connectors on input/output (I/O) strips or an I/O panel.

Model 32 CADDStation I/O strips are located on the rear of the deskside module or the right side of the base unit. The Model 31 CADDStation I/O panel is located on the rear of the deskside module. The Model 30 CADDStation I/O panel is located on the rear of the base unit. The CADDServer I/O strips are located on the rear of the CADDServer deskside module, and the CADDServer I/O panel is located on the rear of the peripherals cabinet.

Model 32 12-Slot CADDStation External Device Connections

Connect external devices to the I/O strips (see Figures 5-1 and 5-2) of a Model 32 CADDStation Deskside Module as described in Table 5-1.

Note

If a network transceiver is already in place, connect one end of the external coaxial LAN cable to the Ethernet connector. Connect the other end of the coaxial cable to the transceiver. When a second Ethernet Controller board has been installed, follow the same procedures in connecting its external coaxial LAN cable from the transceiver to the Ethernet connector on its I/O strip.

Caution

Be sure that power switches are in the OFF position when you connect computer equipment. Turn the power OFF and disconnect the power cord(s) before you open any system enclosure or service any system device.

Table 5-1. Model 32 12-Slot CADDStation External Device Connections

Name	Type	Function
CPU I/O Strip		
ETHERNET	15-pin D-type	Connect 15-pin transceiver cable to ETH connector.
VIDEO	9-pin D-Type	Connect video cable from a monochrome monitor to VIDEO connector.
KEYBOARD	15-pin D-Type	Connect keyboard/mouse cable to KEYBOARD connector.
SERIAL PORT A	25-pin D-type	Connect device cable to SERIAL PORT A connector. Please note that the Serial Port A is reserved for remote diagnostics.
SERIAL PORT B	25-pin D-type	Connect device cable to SERIAL PORT B connector.
Ethernet I/O Strip		
ETHERNET	15-pin D-type	Connect 15-pin second Ethernet transceiver cable to ETH connector.

Table 5-1. Model 32 12-Slot CADDStation External Device Connections (cont)

Name	Type	Function
GFB 1 I/O Strip		
COLOR VIDEO	25-pin D-type	Connect color video cable to COLOR VIDEO connector.
Sync Controller I/O Strip		
RS-232 Port	25-pin D-type	Connect 25-pin device cable to RS-232 connector.
RS-232/RS-422 Port	25-pin D-type or 37-pin D-type	Connect 25-pin device cable to RS-232 connector or connect 36-pin device cable to RS-422 connector.
RS-232/RS-422 Port	25-pin D-type or 37-pin D-type	Connect 25-pin device cable to RS-232 connector or connect 37-pin device cable to RS-422 connector.
SCSI I/O Strip		
SERIAL PORT C	25-pin D-type	Connect peripheral device cable to SERIAL PORT C connector.
SERIAL PORT D	25-pin D-type	Connect peripheral device cable to SERIAL PORT D connector.
SERIAL PORT E	25-pin D-type	Connect peripheral device cable to SERIAL PORT E connector.
SCSI	50-pin header type	Connect SCSI multibus interface board cable to SCSI connector.
SMPL I/O Strip		
SCSI Bus	50-pin header type	Connect SCSI cable to SCSI connector.
DISK	34-pin header type	Connect disk drive cable to DISK connector.
DISK 0/DISK1	25-pin D type	Connect disk 0 and/or disk 1 cable(s) to DISK 0/DISK 1 connectors.
TAPE	50-pin header type	Connect tape drive cable to TAPE connector.
RS-232 Port	25-pin D type	Connect peripheral device cable to RS-232 connector.
RS-232 Port	25-pin D type	Connect peripheral device cable to RS-232 connector.

Table 5-1. Model 32 12-Slot CADDStation External Device Connections (cont)

Name	Type	Function
VPC-2200 I/O Strip		
PLOTTER	37-pin D-type	Connect plotter cable to PLOTTER connector.
LINE PRINTER	25-pin D-type	Connect cable to LINE PRINTER connector.
SWITCH		Place switch in <i>dp</i> position for laser printer or in <i>cent</i> position for line printer.
Tablet Scanner I/O Strip		
PUCK/PEN	25-pin female D-type	Connect puck cable to PUCK connector.
C-TAB (Tablet)	25-pin female D-type	Connect 25-pin flat ribbon cable to C-TAB connector.
C/E-TAB (Tablet)	37-pin female D-type	Connect 37-pin flat ribbon cable to C/E-TAB connector.
E-TAB (Tablet)	37-pin female D-type	Connect 37-pin flat ribbon cable to E-TAB connector.
Disk and Tape Controller I/O Strip		
DISK 0 & 1	34-pin header type	Connect disk cable to DISK 0 & 1 connector.
DISK 0/DISK 1	25-pin header type	Connect disk 0 and/or disk 1 cable(s) to DISK 0/DISK 1 connectors.
TAPE	50-pin header type	Connect tape drive cable to TAPE connector.
SCSI	50-pin shielded header type	Connect SCSI multibus interface board connector to SCSI connector.
Other Connections		
MOUSE	4-pin telephone-type	Connect mouse cable to MOUSE connector on the back of the keyboard. (This applies only to the newer keyboards.) Initial models have bifurcated cable.
Deskside Module/Power Cord		Connect the deskside module power cord to an AC wall receptacle.
Display/Power Cord		Connect the display power cord to an AC wall receptacle.

Deskside Module I/O Strips, Model 32 12-Slot CADDStation

Figure 5-1 shows the deskside module I/O strips on a Model 32 CADDStation when SCSI (slot 5) and Disk and Tape Carrier (slots 11 and 12) boards are present.

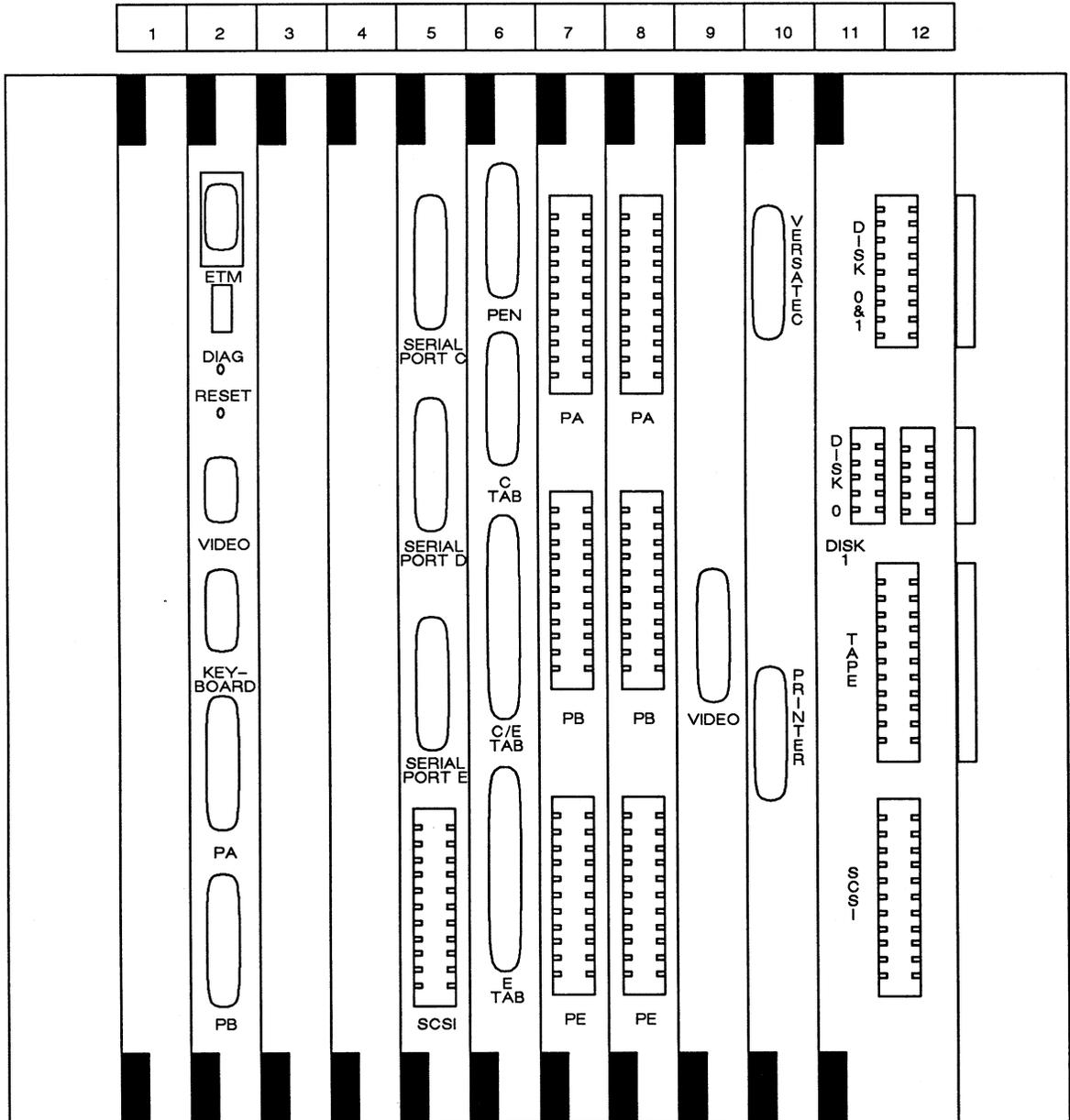


Figure 5-1. Deskside Module I/O Strips, Model 32 12-Slot CADDStation

Deskside Module I/O Strips, Model 32 12-Slot CADDStation (cont)

Figure 5-2 shows the deskside module I/O strips on a Model 32 CADDStation when a SMPL (slots 11 and 12) board is present.

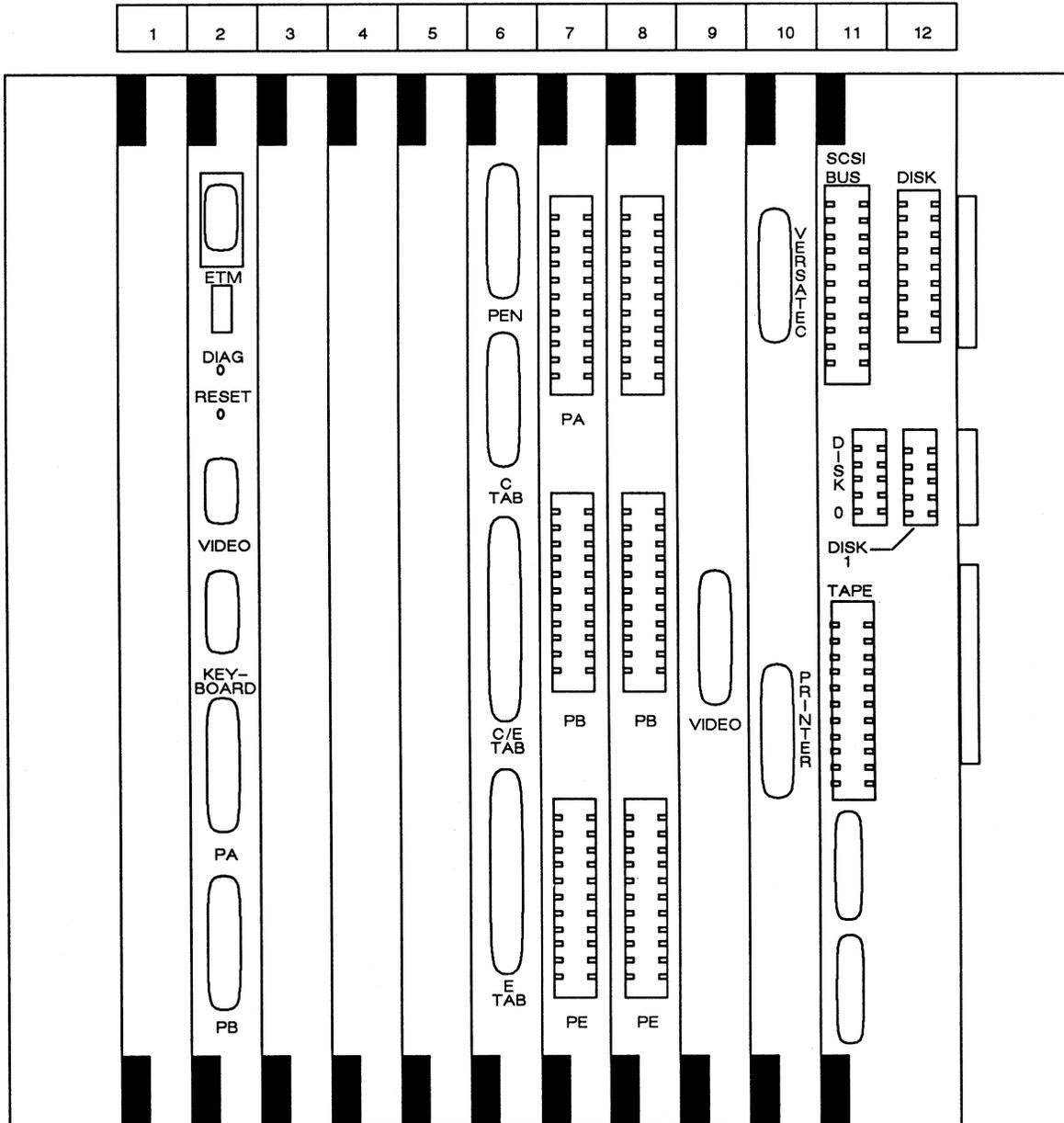


Figure 5-2. Deskside Module I/O Strips, Model 32 12-Slot CADDStation

Model 32 Three-Slot CADDStation External Device Connections

Connect external devices to the I/O strips (see Figure 5-3) of a Model 32CV or 32MV CADDStation as described in Table 5-2.

Table 5-2. Model 32 Three-Slot CADDStation External Device Connections

Name	Type	Function
CPU I/O Strip		
ETHERNET	15-pin D-type	Connect the 15-pin transceiver cable to ETM connector.
VIDEO	9-pin D-Type	Connect video cable to VIDEO connector.
KEYBOARD	15-pin D-Type	Connect keyboard cable to KEYBOARD connector.
SERIAL PORT A	25-pin D-type	Connect device cable to SERIAL PORT A connector.
SERIAL PORT B	25-pin D-type	Connect device cable to SERIAL PORT B connector.
GFB 1 I/O Strip		
COLOR VIDEO	25-pin D-type	Connect color video cable to COLOR VIDEO connector.

Base Unit I/O Strips, Model 32 Three-Slot CADDStation

Figure 5-3 shows the base unit I/O strips on a Model 32C-V/32M-V CADDStation.

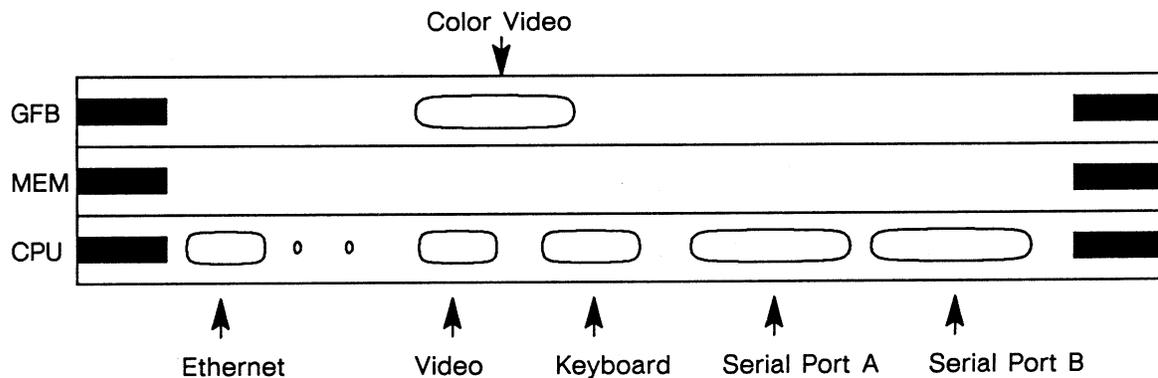


Figure 5-3. Base Unit I/O Strips, Model 32 Three-Slot CADDStation

Model 31 Nine-Slot CADDStation External Device Connections

Connect external devices to the I/O panel (see Figure 5-5) of a Model 31 CADDStation as described in Table 5-3.

Table 5-3. Model 31 Nine-Slot CADDStation External Device Connections

Name	Plug Type	Function
K/B	15-pin D-type	Connect keyboard and mouse cable to K/B connector.
VIDEO	9-pin female D-type	Connect monochrome display's video cable to VIDEO connector.
PUCK	25-pin female D-type	Connect puck cable to PUCK connector.
TABLET	20-pin female flat ribbon-type	Connect 20-pin flat ribbon tablet wire select cable to TABLET connector.
TABLET	26-pin female flat ribbon-type	Connect 26-pin flat ribbon tablet group select cable to TABLET connector.
ETHERNET	15-pin female D-type	Connect Ethernet local area network cable to ETHERNET connector.
R	BNC-type	Connect coaxial video cable to R (red) connector.
B	BNC-type	Connect coaxial video cable to B (blue) connector.
G	BNC-type	Connect coaxial video cable to G (green) connector.
Other Connections		
Deskside Module/Power Cord		Connect the deskside module power cord to an AC wall receptacle.
Display/Power Cord		Connect the display power cord to an AC receptacle.

Deskside Module I/O Panel, Model 31 Nine-Slot CADDStation

Figure 5-4 shows the deskside module I/O panel on Model 31 CADDStations.

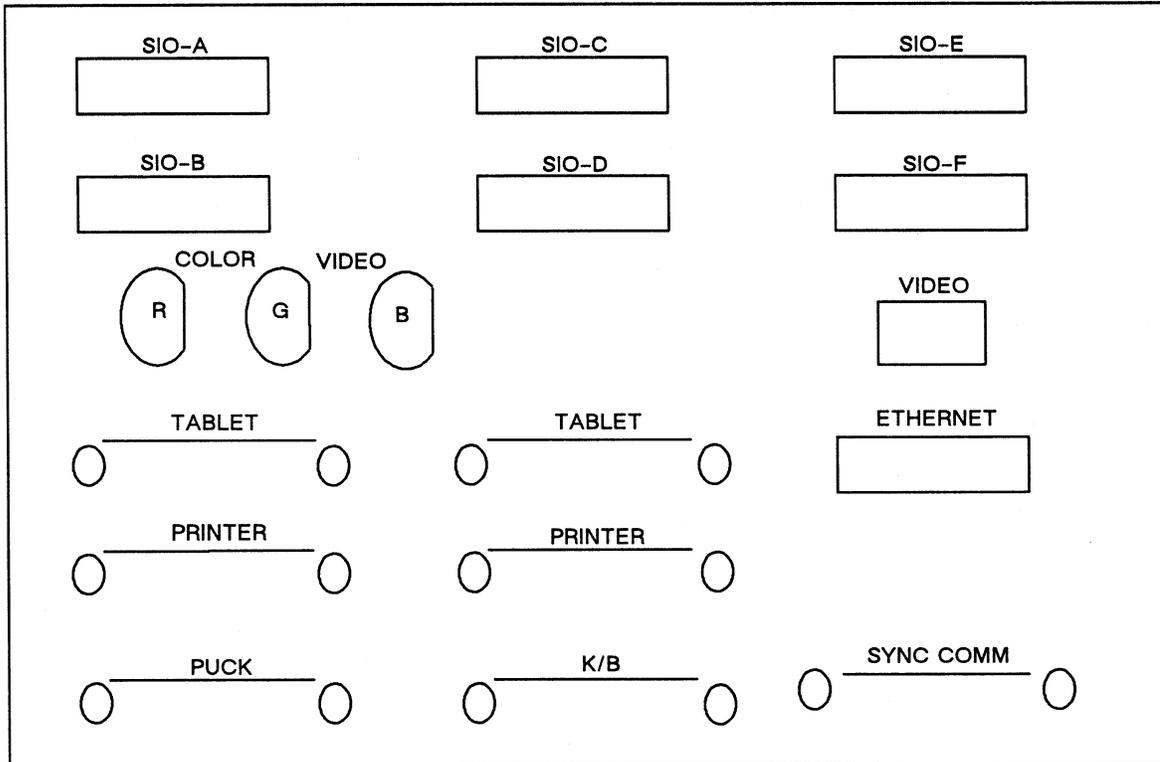


Figure 5-4. Deskside Module I/O Panel, Model 31 Nine-Slot CADDStation

Model 30 One-Slot CADDStation External Device Connections

Connect external devices to the I/O panel (see Figure 5-4) of a Model 30 CADDStation as described in Table 5-4.

Table 5-4. Model 30 One-Slot CADDStation External Device Connections

Name	Type	Function
KEYBOARD	15-pin D-Type	Connect keyboard cable to KEYBOARD connector.
ETHERNET	15-pin D-type	Connect the 15-pin transceiver cable to ETM connector.
SERIAL PORT B	25-pin D-type	Connect device cable to SERIAL PORT B connector.
SERIAL PORT A	25-pin D-type	Connect device cable to SERIAL PORT A connector.
SCSI	50-pin header-type	Connect SCSI cable to SCSI connector.

Base Unit I/O Panel, Model 30 One-Slot CADDStation

Figure 5-5 shows the base unit I/O panel on a Model 30 CADDStation.

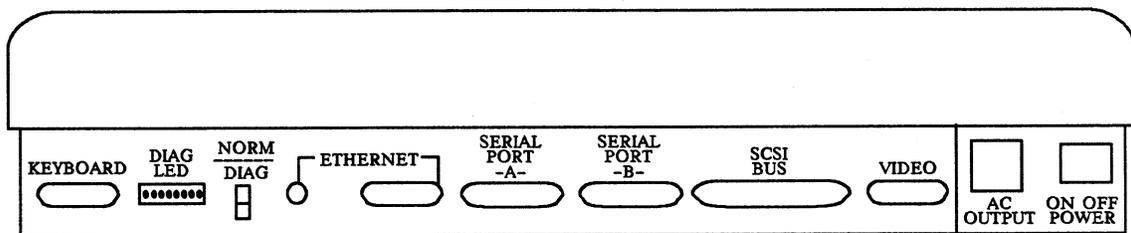


Figure 5-5. Base Unit I/O Panel, Model 30 One-Slot CADDStation

CADDServer External Device Connections and Grounding

Connect external devices to the I/O panel of a CADDServer Peripherals Cabinet and ground the CADDServer as described in Table 5-5 and shown in Figures 5-6 and 5-7. See Table 5-1 for instructions about deskside module connections. For information on how to install and ground a 300MB disk drive on the CADDServer, see Section 7.

Table 5-5. CADDServer External Device Connections

Connector	Procedure/Connection
Multiplexer	Rear of the peripherals cabinet has eight asynchronous RS-232C/20 current loop connectors for additional supported devices.
DC Power Cord	Connect the CADDServer Peripherals Cabinet MUX DC power cord to a 5-pin connector of the MUX I/O strip.
MUX (50-Pin Connector)	Connect the CADDServer Peripherals Cabinet MUX signal connector to the 50-pin connector of the MUX I/O strip.
Disk 0 (37-Pin Connector)	Connect the Disk 0 connector from the CADDServer Peripherals Cabinet to connector 0 of the Xylogics controller board (in slot 6 of its deskside module) I/O strip.
Disk 1 (37-Pin Connector)	Connect the Disk 1 connector from the CADDServer Peripherals Cabinet to connector 1 of the Xylogics controller board (in slot 6) I/O strip.
Disk Common (60-Pin Connector)	Connect the Disk Common connector from the CADDServer Peripherals Cabinet to connector C of the Xylogics controller board (in slot 6) I/O strip.
J1 (50-Pin Connector)	Connect the J1 connector from the CADDServer Peripherals Cabinet to connector J1 of the VTAPEMASTER board (in slot 5 of its deskside module) I/O strip.
J2 (50-Pin Connector)	Connect the J2 connector from the CADDServer Peripherals Cabinet to connector J2 of the VTAPEMASTER board (in slot 5 of its deskside module) I/O strip.
Terminator	For configurations with CADDServer Peripherals Cabinets only, plug the 60-pin terminator connector into the Disk Common Out connector, and connect the terminator ground wire to the ground lug. See Figure 5-6. Otherwise, plug the terminator into the last 300MB disk drive within the daisy-chain.

Table 5-5. CADDServer External Device Connections (cont)

Connector	Procedure/Connection
Ground Cable	Connect one end of the ground cable to the ground lug on the CADDServer Peripherals Cabinet and the other end to the ground lug on the CADDServer Deskside Module. See Figure 5-7.
AC Power Cord	Connect the CADDServer Peripherals Cabinet AC power cord to an AC wall receptacle.

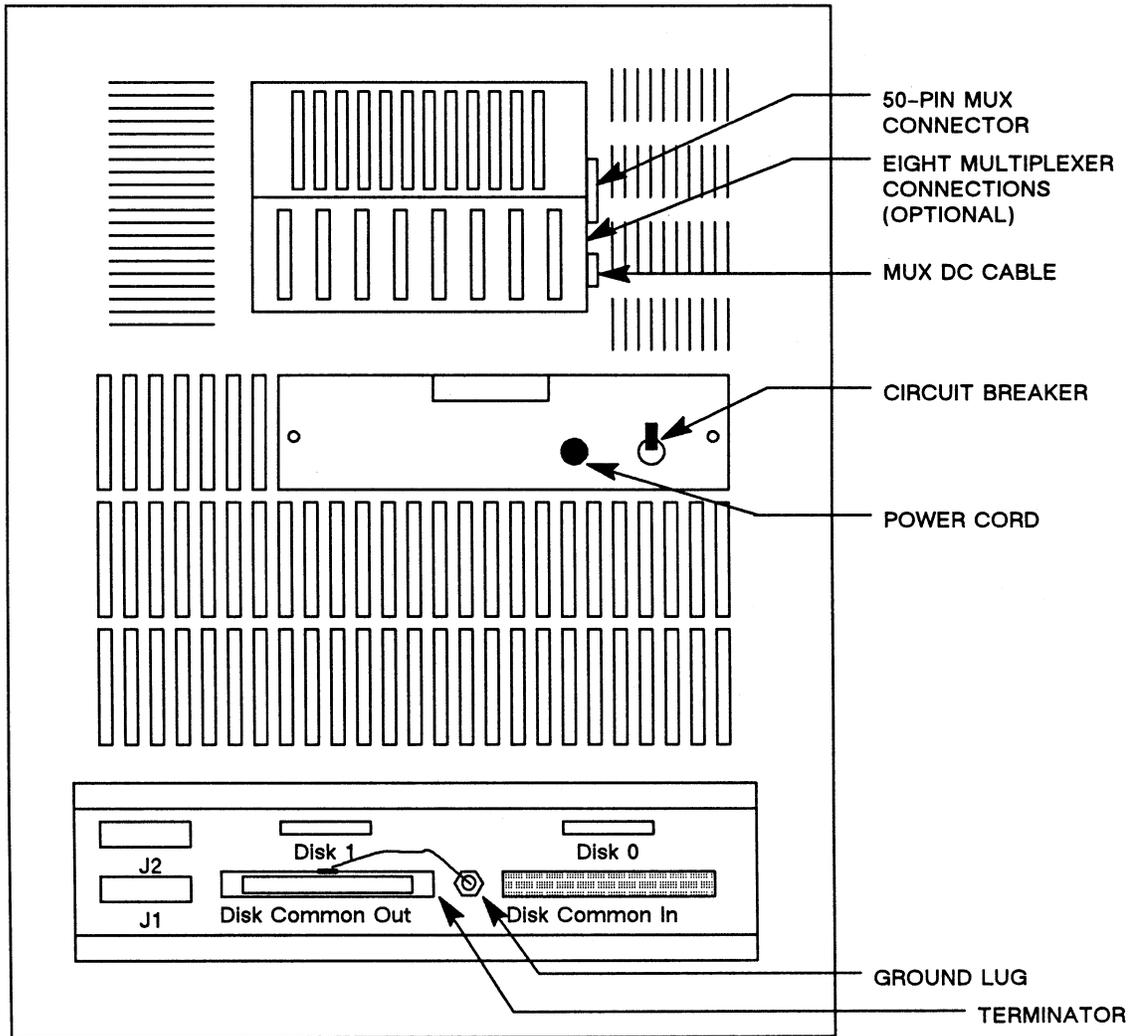


Figure 5-6. CADDServer Peripherals Cabinet I/O Panel

CADDServer External Device Connections and Grounding (cont)

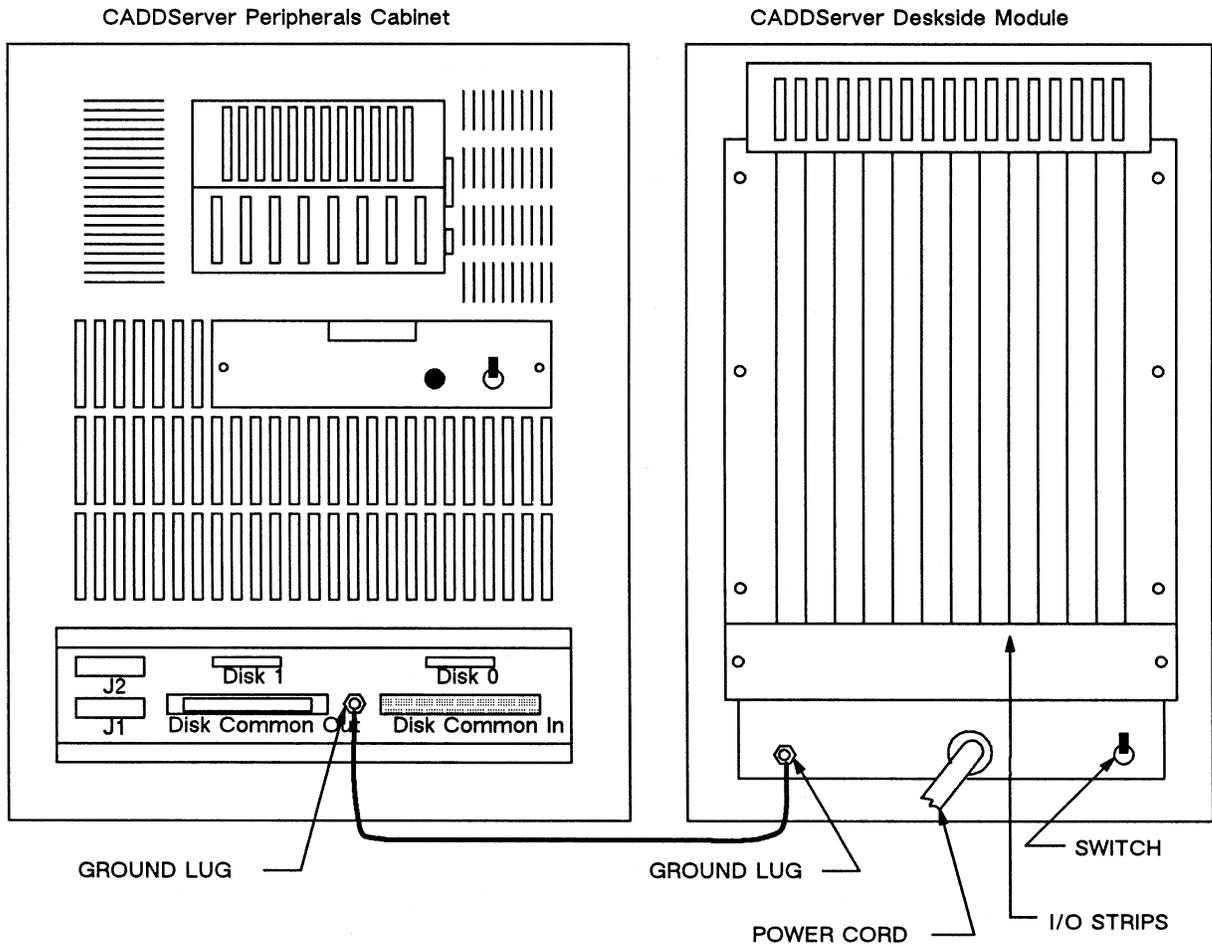


Figure 5-7. CADDServer Grounding Connection

Note

If you are using 300MB disk drives, connect a system ground from the CADDServer deskside module to each 300MB disk drive.

Connecting the Ethernet Transceiver Cable

To connect a CADDStation to an Ethernet network you must make several connections. The four following subsections tell you how to install Ethernet cables.

Follow this procedure to connect the Ethernet transceiver cable:

1. Locate the transceiver cable, a thick cable with 15-pin D connectors at both ends.
2. Plug the male end of the transceiver cable into the ETHERNET jack.
3. Push the slide lock over the studs to fasten the D connector securely in place.
4. Plug the female end of the cable into the transceiver and lock it.

Connecting the Ethernet Coaxial Cable

For instructions on how to connect the Ethernet coaxial cable, see the *Computervision LAN Site Preparation and Planning Guide*.

Figure 5-8 shows a possible Ethernet link to a CADDStation.

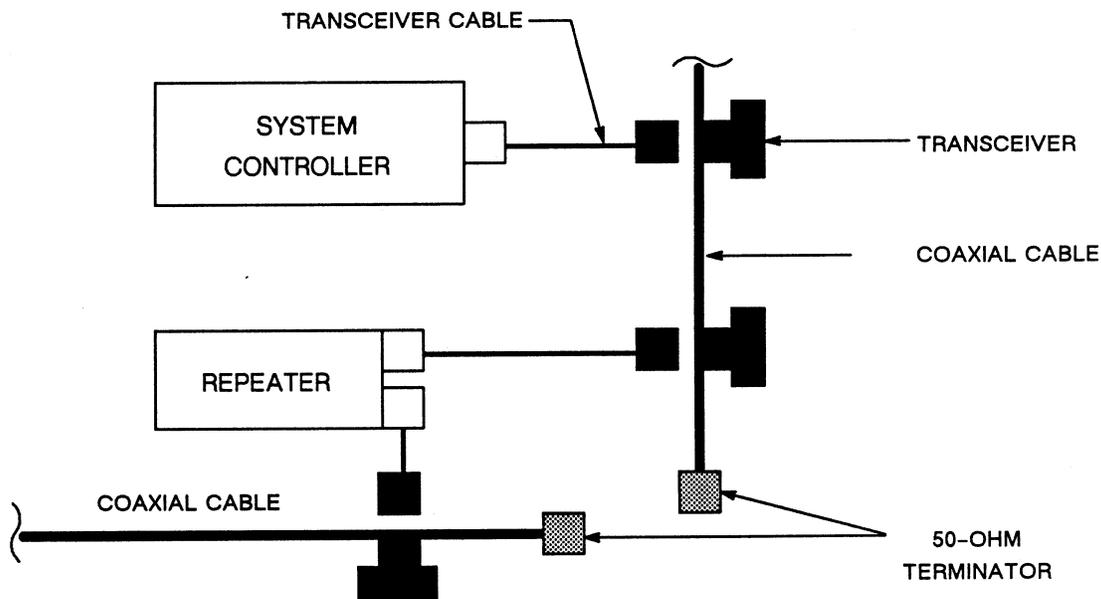


Figure 5-8. Ethernet Link

Abiding by Cable Length Limitations for Ethernet

You must observe the following cabling limitations in setting up the Ethernet network:

- Maximum contiguous length coaxial cable segments = 1,625 feet (500 meters).
- Maximum length of transceiver cable = 162.5 feet (50 meters).
- Distance between transceivers = 8-foot (2.5-meter) multiples.

Note

Transceivers must be at least 8 feet (2.5 meters) apart along the coaxial cable. In other words, you could connect transceivers 2.5 meters apart, but not 2.0 meters; you could connect transceivers 7.5 meters apart, but not 7.0 meters (see Figure 5-9).

Figure 5-9 shows a possible transceiver configuration.

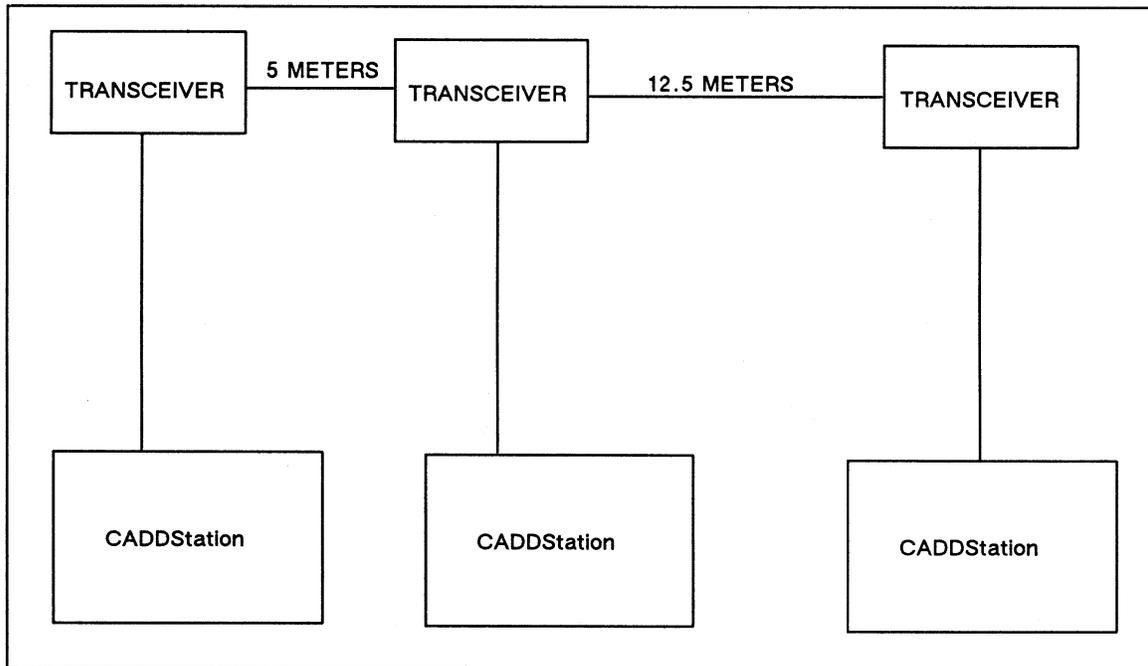


Figure 5-9. Ethernet Cabling Lengths

Connecting the Model 30 CADDStation to the Ethernet

The single PCB is factory-configured for connection to the Thin Ethernet. Therefore, you must change the switch setting on the PCB to connect the Model 30 CADDStation to a standard Ethernet. Follow this procedure to connect the Ethernet cable:

Caution

Do not connect both the Ethernet and Thin Ethernet cables to the CADDStation at the same time or Ethernet jamming will occur.

1. Be sure that the CADDStation is not connected to an AC power source.
2. Turn the CADDStation so that you are facing the rear of the unit.
3. Using a hex wrench (#3-32), remove the four hex-head type screws attaching the PCB to the base unit.
4. Push outward the two extraction levers on each side of the PCB until the PCB is released from the base unit.
5. Gently slide out the PCB until you can see the dip switch located just behind the BNC and Ethernet connectors, as shown in Figure 5-10.
6. Be sure that the eight-position dip switch is set for standard Ethernet use, as shown in Figure 5-10. All eight positions are in the OFF position. If you need to change the dip switch setting, use a pointed instrument to slide individual switches into position.
7. Locate jumper J0642 just to the right of the Ethernet dip switch (see Figure 5-10). Be sure that J0642 is properly jumpered for the Ethernet transceiver you are using. If you are using a level 1 transceiver (see below for transceiver types), the jumper must be IN. If you are using a level 2 transceiver, the jumper must be OUT. In addition, if you are installing a Model 1.0 diskless CADDStation, be sure that the jumper at location J101 on the Sun/Intel Ethernet board is out if you wish to select NT100 transceivers.

Note

If your PCB does not have a jumper J0642, it is preset for use with a level 2 transceiver. Multiplexer boxes like DEC's DELNI require a transceiver.

A level 1 transceiver is

- Interlan NT10

Examples of level 2 transceivers are as follows:

- BICC 1110
- INTERLAN NT100

Connecting the Model 30 CADDStation to the Ethernet (cont)

Figure 5-10 shows the proper dip switch setting for the standard Ethernet.

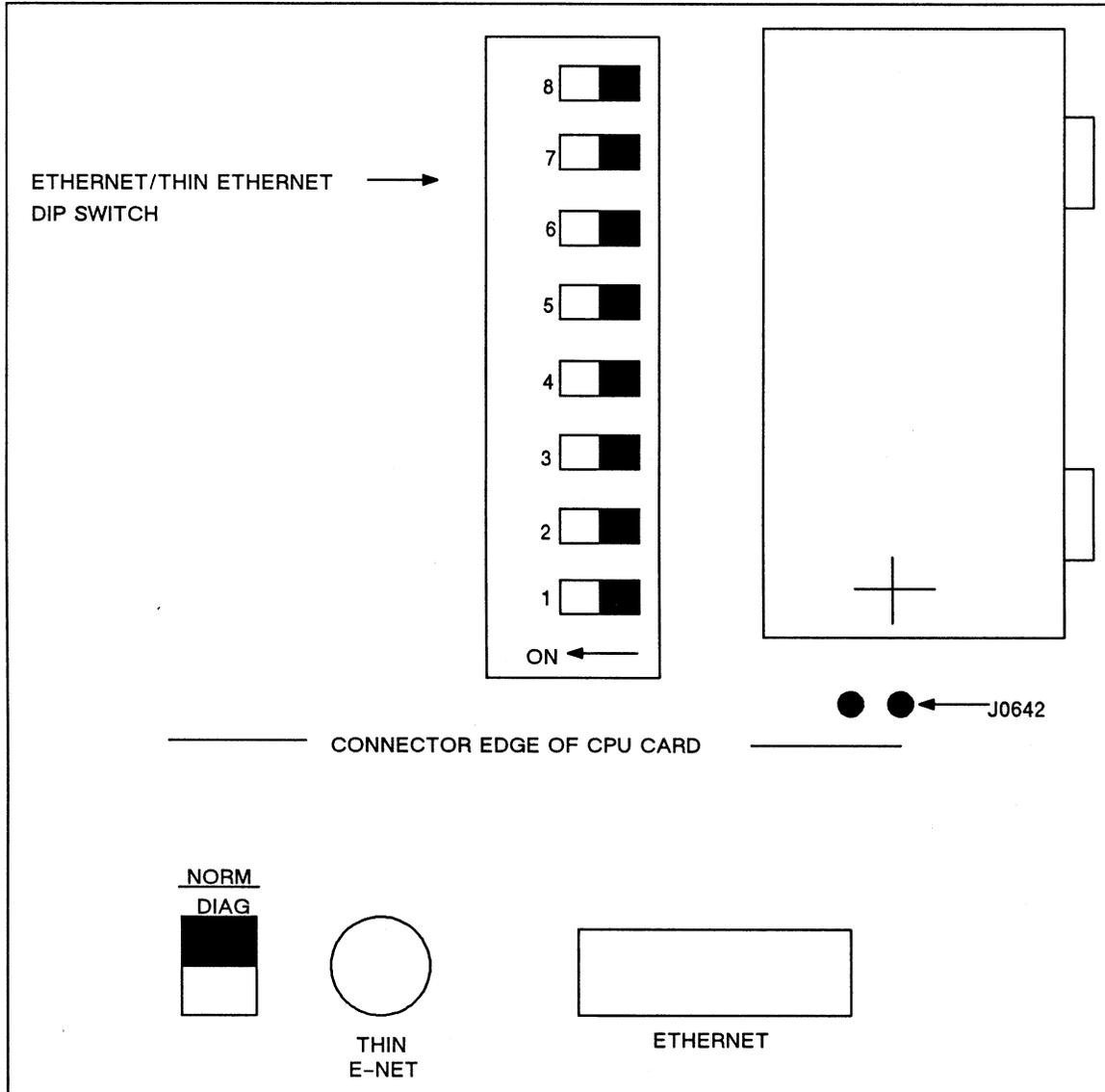


Figure 5-10. Standard Ethernet Dip Switch Setting for Model 30 CADDStation

Section 6
Adjusting and Testing the Hardware

Adjusting and Testing the Hardware

6

This section summarizes the hardware adjustment and testing procedures for a CADDStation System.

Making Monochrome Monitor Adjustments

The monochrome monitors are thoroughly tested and properly adjusted at the factory. Due to shipping and handling, however, the monitor may require minor adjustments upon arrival at its destination. Before performing any adjustments, be sure the terminal units are properly connected, and allow the monitor to warm up for 15–20 minutes.

Adjust the main brightness and contrast controls on the monitor to provide the best picture. If the monitor is blank or distorted, check the cabling and power connections. If further adjustments are necessary, consult the appropriate vendor manual for details.

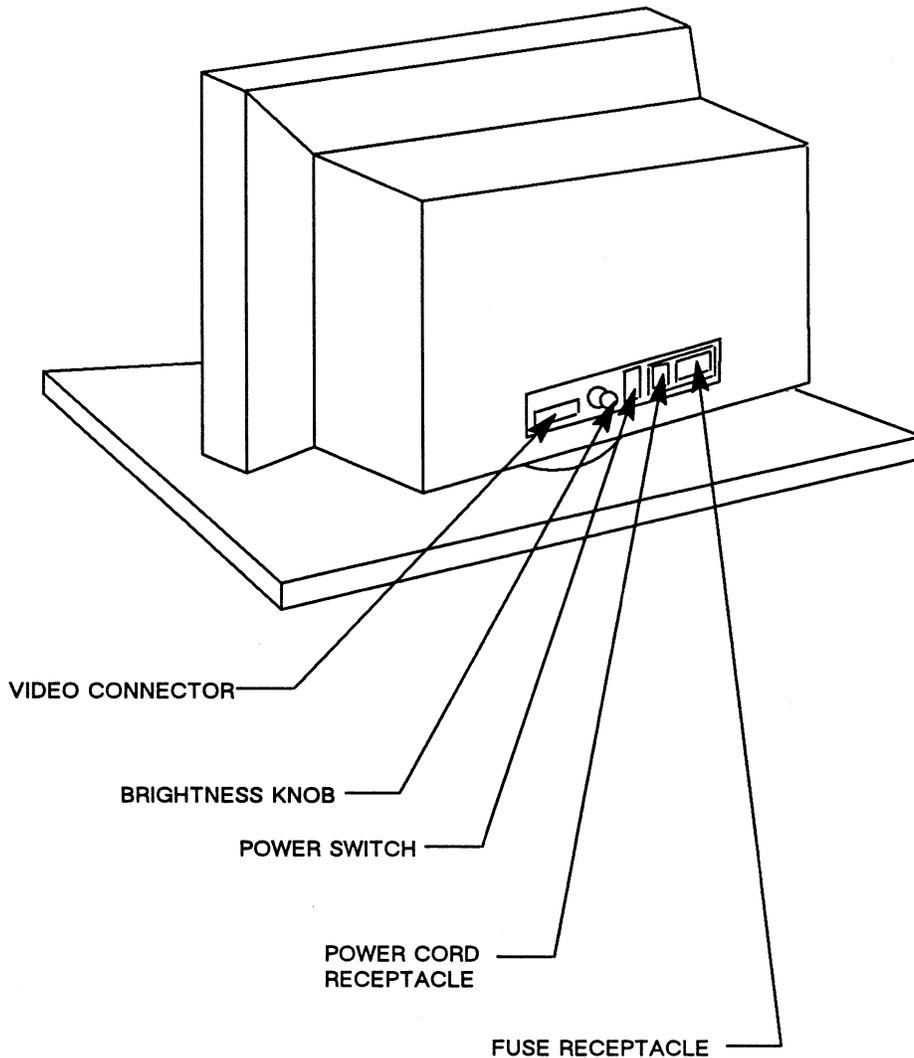


Figure 6-1. Monochrome Graphics Display, Rear View

Making Color Monitor Adjustments

The color monitor is thoroughly tested and properly adjusted at the factory. Due to shipping, handling, and the change in the earth's magnetic fields, however, the color monitor may require minor adjustments upon arrival at its destination. Before performing any adjustments, be sure the terminal units are properly connected, and allow the monitor to warm up for 15–20 minutes. You may have to perform a sequence of actions, defined as first- and second-level adjustments.

Since some adjustments are interactive and affect others, and some adjustments must precede others, be sure to perform each step in the following order:

1. Place the monitor in its intended resting location.
2. Degauss the monitor.
3. Mount the CDEX diagnostic tape, and load the appropriate video diagnostic test or use the appropriate SYSAID video diagnostic test.
4. With the monitor cables properly terminated, run any test pattern having a full-intensity signal. Check the QFB output to the monitor, which should be 1V peak-to-peak, $\pm 10\%$, 0V black reference.
5. Adjust the main brightness and contrast controls on the monitor for the best picture. If the monitor is blank or distorted, check for proper connections and power.
6. Check the QFB or GFB1 as needed.

For other, third-level adjustments, the monitor must be shipped back to a repair depot. Levels of adjustment are different for each type of monitor. A separate manual is available for technical specialists, and the monitor vendors supply more detailed manuals for the factory and repair depots.

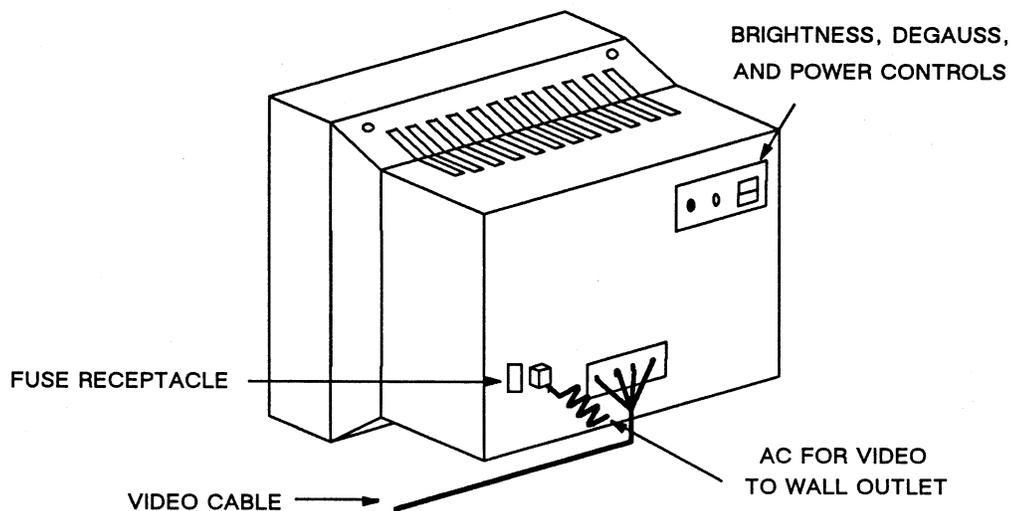


Figure 6-2. Color Graphics Display, Rear View

Degaussing

After you have made all the external cabling connections (see Section 5), you may degauss the monitor if you have a degaussing coil. Degaussing removes from the CRT any residual magnetic field that may have been picked up during shipment. Poor color purity or poor convergence indicates degaussing is needed.

Caution

Do not turn the degaussing coil on or off when the coil is close to the monitor. The high switching current surge will induce a temporary magnetic field in the monitor, making further degaussing necessary. Be sure to keep all test equipment at least 5 feet from an operating degaussing coil and all magnetic media at least 15 feet from such a coil.

To degauss the monitor use the following procedure:

1. Place the monitor on its desk.
2. With the coil switch in the OFF position and the degaussing coil at least 5 feet from—and perpendicular to—the screen, turn the switch ON.
3. Turn the coil parallel to the screen and, using a circular motion, slowly bring the coil toward the monitor.
4. While continuing the circular motion, pass the coil over the front, top, and sides of the monitor.
5. Slowly back at least 5 feet away and turn the coil perpendicular to the monitor.
6. Turn the coil switch OFF.

Making Horizontal and Vertical Hold Adjustments

With a white alignment pattern on the screen (see SYSAID menu), adjust the H-HOLD potentiometer until there is a stable horizontal picture. Adjust the V-HOLD potentiometer until there is a stable vertical picture.

Centering the Raster Horizontally and Vertically

Using SYSAID, follow the procedure described below to center the raster horizontally and vertically:

1. Access the alignment pattern (crosshatch).
2. Adjust the active video size to 11 inches vertically by 14 inches horizontally.
3. Adjust the geometry controls for symmetrical horizontal and vertical crosshatches.
 - a. Model 31 CADDStation displays small rectangles.
 - b. Model 32 and 30 CADDStations display small squares.

Making Color Purity Adjustments

To obtain optimum color purity, adjust the following two components:

- Color purity magnet (purity rings)
- Deflection yoke (Conrac has sealed yoke on CRT neck)

Use the following procedure to align the purity:

1. Degauss the monitor with the monitor degauss switch.
2. Display a crosshatch pattern (SYSAID test).
3. Observe the monitor to determine whether there is convergence at the raster's center area. If not, do a static convergence.
4. Call up the screentemp test (SYSAID test) and generate a red raster with Delta Technology CRT; with PIC CRT, you generate a green raster. The raster color should be uniform throughout the screen; if it is not, consult the appropriate vendor manual.
5. From SYSAID, individually activate the green and blue rasters. Confirm that the rasters appear uniform. If the green and blue rasters are not pure and uniform, refer to the appropriate vendor manual for an adjustment procedure.

Performing a Static Convergence Check

Use the following procedure to perform the static convergence check:

1. Turn on all three color channels.
2. If color impurities exist, ignore them for now.
3. Display a crosshatch or dot pattern. (See SYSAID menu.)
4. Set the brightness to a medium level. Too much brightness causes beam blooming.

The static convergence alignment is correct when the dots or lines in the exact center area of the screen appear white. Generally, static adjustments should be repeated since they are interactive. You may also have to repeat static convergence adjustments during purity adjustments. If the center is not white (i.e., all three colors do not converge), an alignment is necessary. Consult the appropriate vendor manual for details.

Performing a Dynamic Convergence Check

Evaluating dynamic convergence requires a constant pattern like the crosshatch. You make adjustments by producing white characters or graphics beyond the exact center. Dynamic convergence adjustments are interactive and require intervals of repeated adjustment.

If a display is poorly converged, do not converge at random; instead, proceed with a complete systematic alignment. This refines present adjustments, corrects the misalignment, and saves time. Use the following procedure to perform the dynamic convergence check:

1. Display a crosshatch pattern on the screen. (See SYSAID menu.)
2. Check the center area of the screen for convergence and, if necessary, adjust static convergence.
3. Observe all lines. When dynamic convergence is correct, all lines are white with minimal color fringing. The outside portions of the raster normally have greater convergence errors than the center. If color fringing is excessive, consult the appropriate monitor manual.

Verifying the Deskside Module Power Supply

Correct power supply output voltages are required to ensure proper system operation and to prevent damage to system components. Use the procedure listed below to verify the correct power supply output voltages for a deskside module. For Model 32 CADDStations observe the LEDs on back of the deskside module. If the LEDs are lit, no further voltage verification is required. Voltage measurement is required, however, if you are troubleshooting.

Note

Never unload a power supply completely. Leave at least one printed circuit board (a CPU board) connected to the backplane. Make voltage measurements and necessary adjustments with all the boards plugged in.

To verify the power supply output voltages use the following procedure:

1. Disconnect all boards (except the CPU board) from the 12-slot (Model 32 CADDStation) or 9-slot (Model 31 CADDStation) backplane.
2. Connect the main power cord to its dedicated wall receptacle.
3. Set the power switch to ON.
4. Check the input voltages on the 12-slot or 9-slot backplane terminals where the power supply leads are connected. These terminals are labeled with their voltages: +5, +12, -5, -12 (also check +24 volt terminal for the Model 31 CADDStation). There are also two ground (GND) terminals. All these voltages have approximately $\pm 3\%$ tolerances.
5. Set the power switch to OFF.
6. Reconnect the printed circuit boards to the backplane in the 12-slot or 9-slot chassis.

Verifying the Deskside Module Power Supply (cont)

Figure 6-3 shows the backplane power supply checkpoints for the Model 31 9-slot CADDStation.

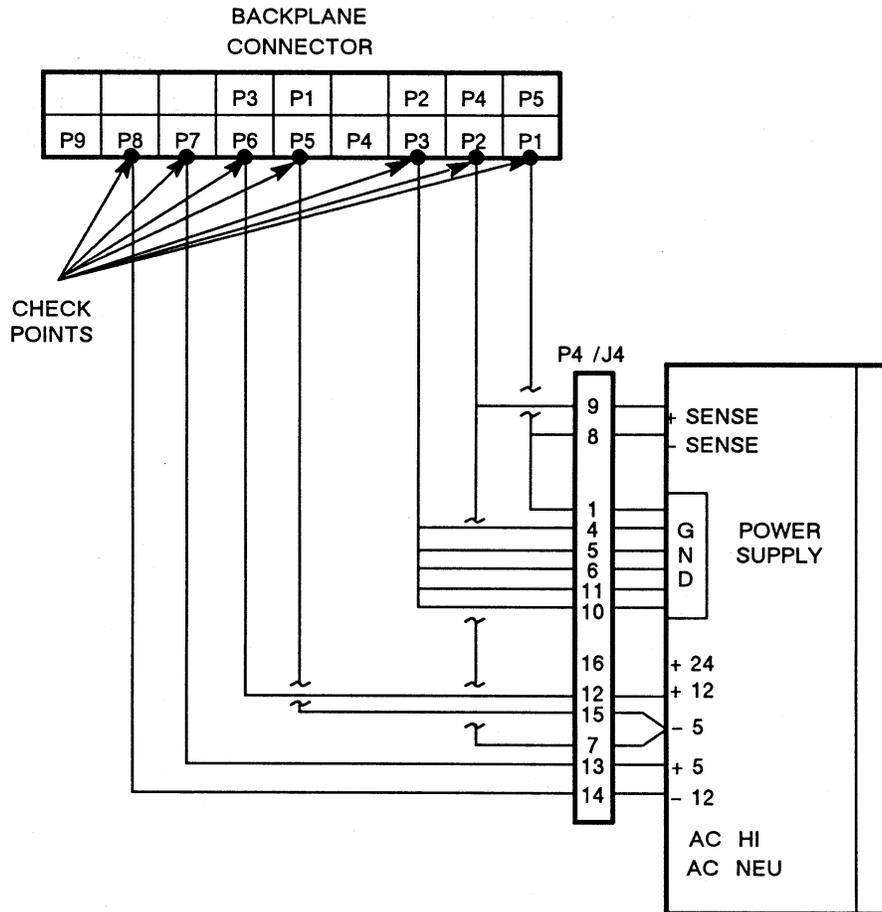


Figure 6-3. Nine-Slot DC Power Distribution and Backplane Checkpoints

Verifying the Deskside Module Power Supply (cont)

Figure 6-4 shows the backplane power supply checkpoints for the Model 32 12-slot stand-alone CADDStation.

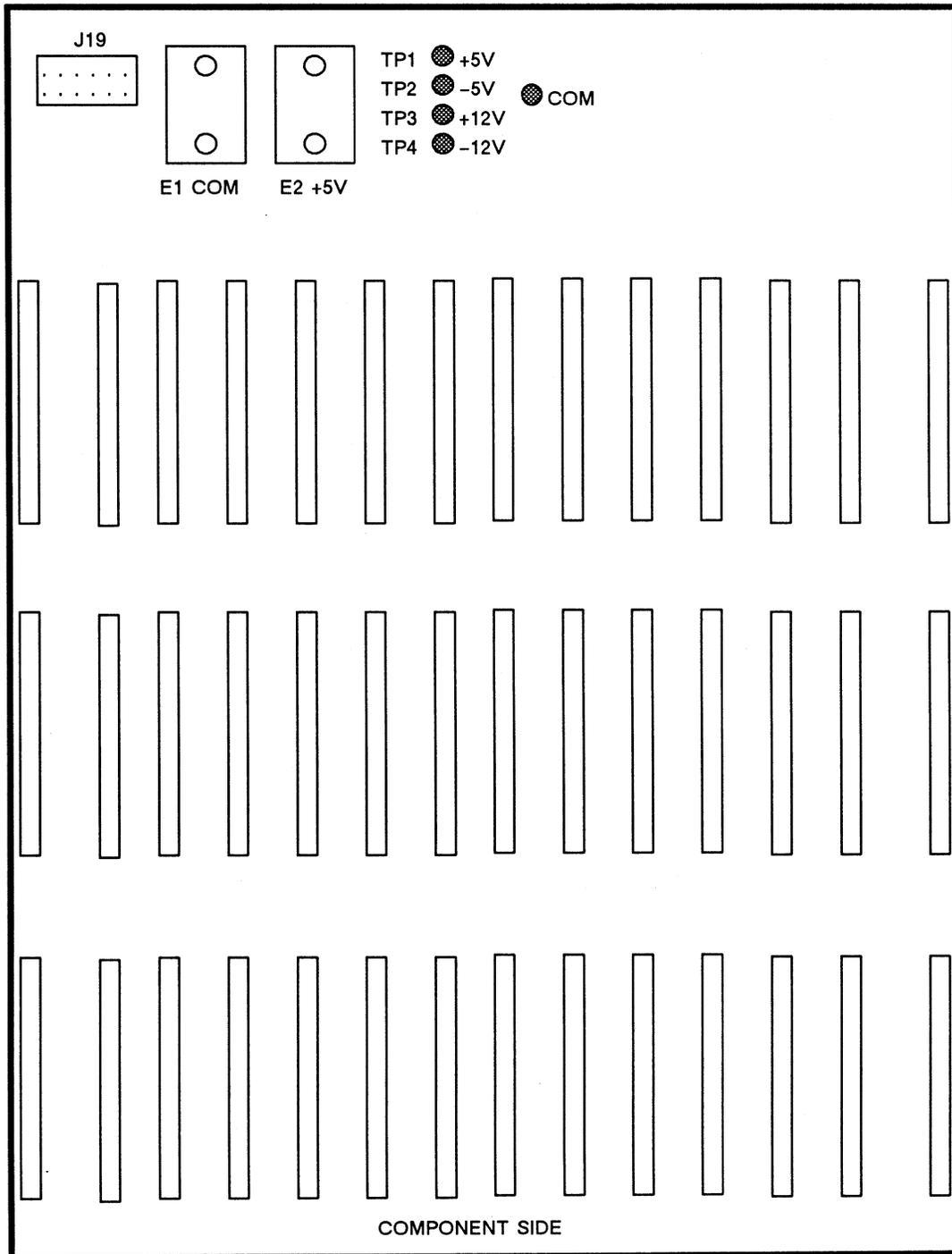


Figure 6-4. 12-Slot Backplane Power Supply Checkpoints

Testing the Hardware

Before performing steps 1 and 2, read the information contained in these steps so you can later be free to read the CPU-board LEDs.

1. Power up the system.

When you first power on the system, the PROM monitor runs a self-test procedure. All the LEDs on the CPU light. Each LED then lights in sequence. When this test is completed, the lights grow dimmer while several memory tests are run. Each of the memory tests takes a few seconds per megabyte tested. Finally, three LEDs on the end light momentarily, then all the LEDs go off except for a middle LED that blinks once per second.

When you install a puck, the LEDs on the puck flash on power-up. When the Tablet Scanner board's power-up test (5 to 10 sec) ends, these LEDs do not light if the puck is not on the tablet and if the diagnostic found no tablet scan failures.

If the CADDStation follows this sequence, the self-test has not found a critical problem. If at some point in the sequence the lights freeze or the sequence restarts, however, there is a critical problem.

2. If the self-test has found a noncritical error, copy the information displayed on the screen.

If the self-test finds noncritical errors, the following message appears:

```
Self-Test found a problem in...
Damage found...
```

If no errors from the self-test occur, the following message appears:

```
Self-Test completed successfully.
Workstation, Model...
ROM Rev...xMB memory installed
Auto-boot in progress...
```

Client workstations boot over the Ethernet. The boot operation acts as the diagnostic test for the Ethernet controller board. If the system boots properly, assume the Ethernet controller board is working. If the system does not boot properly, however, examine or replace the Ethernet controller board. You should also examine the LAN coaxial cables that were installed by the customer. See the *Computervision Networks and Communications Guide* for more information.

Note

On Model 32 and 30 CADDStations, Ethernet chips are on the CPU board. If the Ethernet fails, you may have to replace the CPU board.

Testing the Hardware (cont)

3. Simultaneously press the L1 and A keys. A prompt, >, appears on the screen. Type K1, and then type X to enter the Extended Test Menu.
 - a. Select the SCSI disk boot path test. Select the L option (loop forever). After five passes, type q for quit.
 - b. Select the SCSI tape boot path test. Load a tape in the tape drive. Select the loop forever option. After five passes, type q for quit.
 - c. Select the Memory test. Select the write/read test for all memory, one pass.
 - d. Select the Ethernet test, and select the local loopback test option, one pass.
4. Run the CADDStation CDEX tests.

If you are installing a CADDServer, load the CADDServer CDEX 1/2-inch tape onto the magnetic tape unit. If you are installing a stand-alone CADDStation, however, load the CDEX 1/4-inch tape cassette into the tape drive. Then type the following:

b st() (cr)	(If you are loading CDEX from 1/4-inch tape)
b mt() (cr)	(If you are loading CDEX from 1/2-inch tape)
b XX()/stand/cdexboot (cr)	(For Model 32 CADDStations)
b XX()/stand/cdex (cr)	(For Model 31 CADDStations)

Where: XX = xy for Xylogics disk
= sd for SCSI disk
= ie for Ethernet controller

- a. Load GTMDIAG and run it for five passes.
 - b. Load MEMDIAG and run it for one pass. This test should take 4 minutes per megabyte of memory tested.
 - c. Load TABDIAG and run it for one pass.
 - d. Load GFB1DIAG and run it for one pass.
 - e. Load BWVDIAG and run it for one pass.
 - f. Load SYSGDIAG and run it for one pass.
5. Build UNIX.

See *Installing System Software* (in the *System Manager Guide*), which describes how to format the disk and configure the UNIX operating system.
 6. Run the SYSAID tests and exercisers.

See *Using the SYSAID Diagnostic Program*.
 7. Load the applications software. To install CADDs software see *Installing System Software*. To install other applications software see the appropriate application documentation.

Testing the Hardware (cont)

8. Complete the hardware installation audit, included with the hardware shipment.
9. Complete the software installation verification, included with the software shipment.
10. Obtain the customer's signature on the FSR to verify that installation has been completed.

Section 7
Installing Optional Disk Drives

Installing Optional Disk Drives

7

This section provides installation procedures for the following options:

- 85MB disk drive
- 170MB disk drive
- 170MB disk drive expansion box
- 300MB disk drive

Adding an 85MB Disk Drive

To add an 85MB disk drive to a Model 32 stand-alone CADDStation with an 85MB disk drive already installed, follow the procedure below.

Note

Be sure that the disk drive you are installing is set up as drive 1 (and has no terminator) and that the disk drive already-installed is set up as drive 0 (with a terminator).

1. Locate the jumper select card on the lower-left, rear side of the disk drive already installed (CDC). To make this drive 0 (see Figures 7-1 and 7-3), jumper position 1.
2. Locate the jumper select card on the lower-left, rear side of the disk drive you are installing (CDC). To make this drive 1, jumper position 2 (see Figures 7-2 and 7-3).
3. Fasten the mounting plate (shipped with the disk drive) onto the base of the disk drive, which contains the printed circuit board. See Figure 7-4. Tighten all four screws that have corresponding holes in the disk drive frame.
4. Positioning the disk drive so that the mounting plate is on the right-hand side, insert the disk drive into its proper slot. Be sure to insert the protruding steel lip on the bottom of the disk drive mounting plate into the slide rail on the deskside module mounting bracket. Push the disk drive into the bracket. See Figure 7-5.
5. Secure the disk drive by tightening the fifth mounting plate screw.
6. Plug the 4-pin female power connector into the male connector on the disk drive.
7. Plug the 34-pin card-edge connector into the appropriate slot on the edge of the PCB. Be sure that pin 1-to-pin 1 orientation is correct.
8. Plug the 20-pin card-edge connector into the appropriate slot on the edge of the PCB. Be sure that pin 1-to-pin 1 orientation is correct.

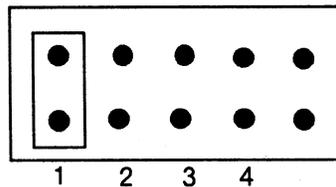


Figure 7-1. Selecting an Installed 85MB Disk Drive as Drive 0

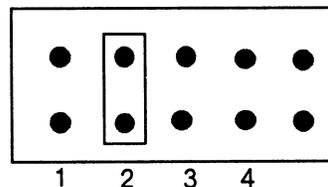


Figure 7-2. Selecting a Second 85MB Disk Drive as Drive 1

Adding an 85MB Disk Drive (cont)

Figure 7-3 shows the jumpering locations for a (CDC) 85MB disk drive.

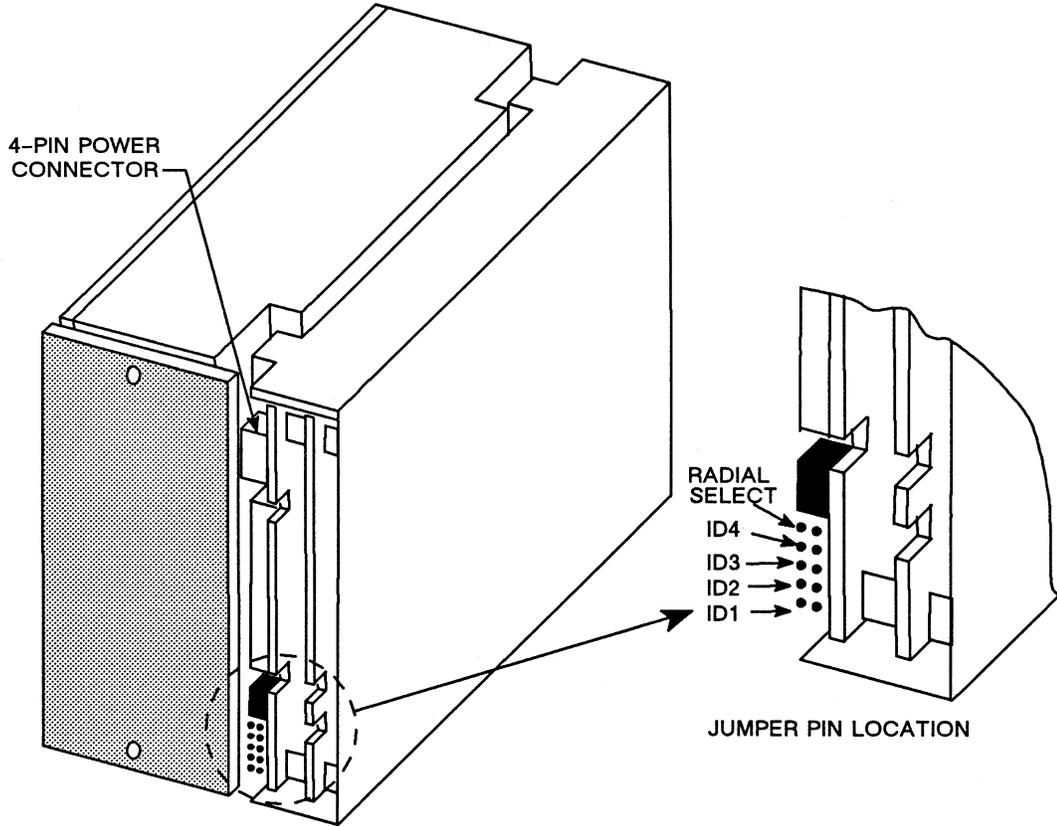


Figure 7-3. 85MB Disk Drive Jumpering Locations

Adding an 85MB Disk Drive (cont)

Figure 7-4 shows an 85MB disk drive with its mounting plate.

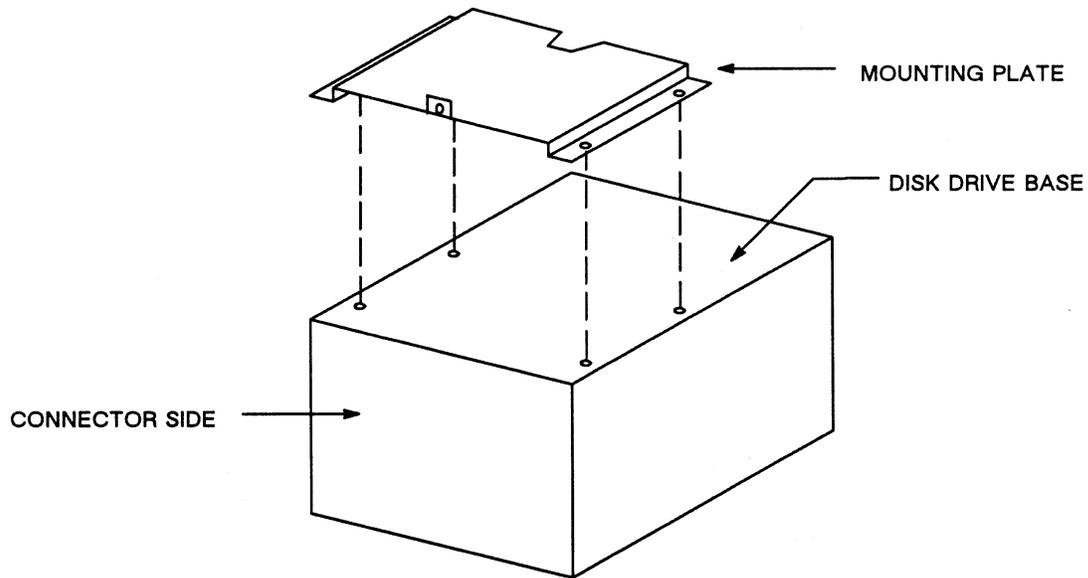


Figure 7-4. 85MB Disk Drive

Figure 7-5 shows the proper orientation of the 85MB disk drive for mounting to the deskside module bracket.

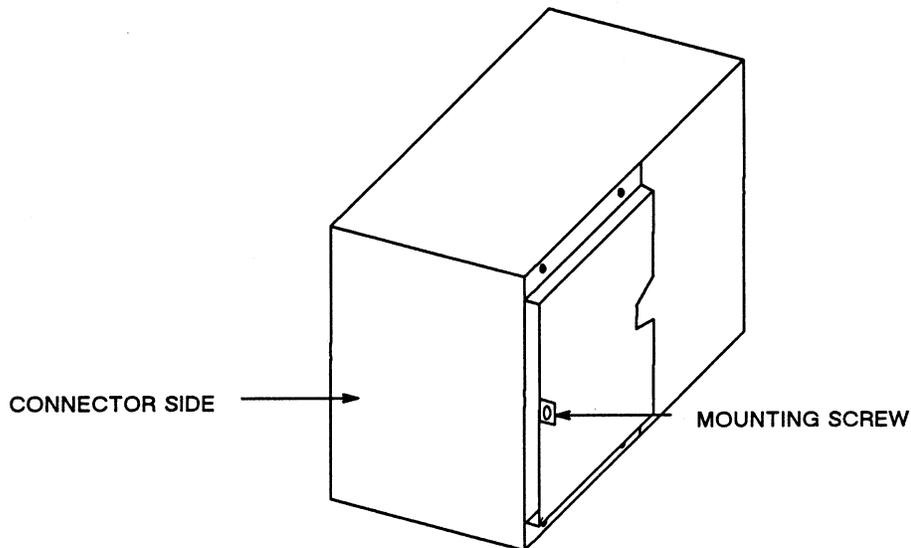


Figure 7-5. Mounting an 85MB Disk Drive

Adding a 170MB Disk Drive

To add a 170MB disk drive (CDC) to a Model 32 stand-alone CADDStation with a 170MB disk drive already installed, follow the procedure below.

Note

Be sure that the disk drive you are installing is set up as drive 1 and that the disk drive already-installed is set up as drive 0.

1. Locate the jumper select card on the lower-left, rear side of the disk drive already installed (CDC). Be sure that positions 0, 1, and 2 (see Figures 7-6 and 7-8) are not jumpered.
2. Locate the jumper select card on the lower-left, rear side of the disk drive you are installing (CDC). To make this drive 1, jumper position 0 (see Figures 7-7 and 7-8). To add other disk drives, use the jumpering configurations in Table 7-1.
3. Fasten the mounting plate (shipped with the disk drive) onto the side of the disk drive that contains the printed circuit board. See Figure 7-12. Tighten all four screws that have corresponding holes in the disk drive frame.
4. Positioning the disk drive so that the mounting plate is on the right-hand side, insert the disk drive into its proper slot. Be sure to insert the protruding steel lip on the bottom of the disk drive mounting plate into the slide rail on the deskside module mounting bracket. Push the disk drive into the bracket. See Figure 7-13.
5. Secure the disk drive by tightening the fifth mounting plate screw.
6. Plug the 4-pin female power connector into the male connector on the disk drive.
7. Plug the 50-pin female connector into the 50-pin male connector on the edge of the PCB. Be sure that pin 1-to-pin 1 orientation is correct.

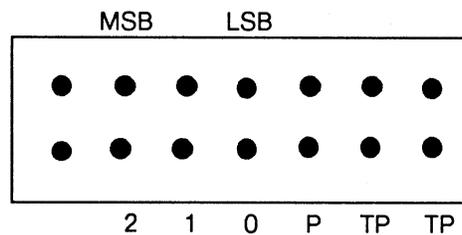


Figure 7-6. Selecting an Installed 170MB Disk Drive as Drive 0, First Configuration

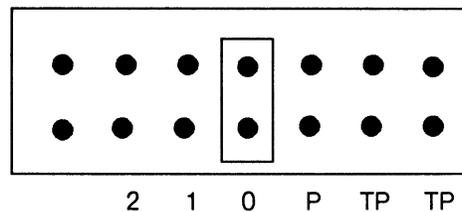


Figure 7-7. Selecting a Second 170MB Disk Drive as Drive 1, First Configuration

Adding a 170MB Disk Drive (cont)

Figure 7-8 shows the jumpering locations for a (CDC) 170MB disk drive.

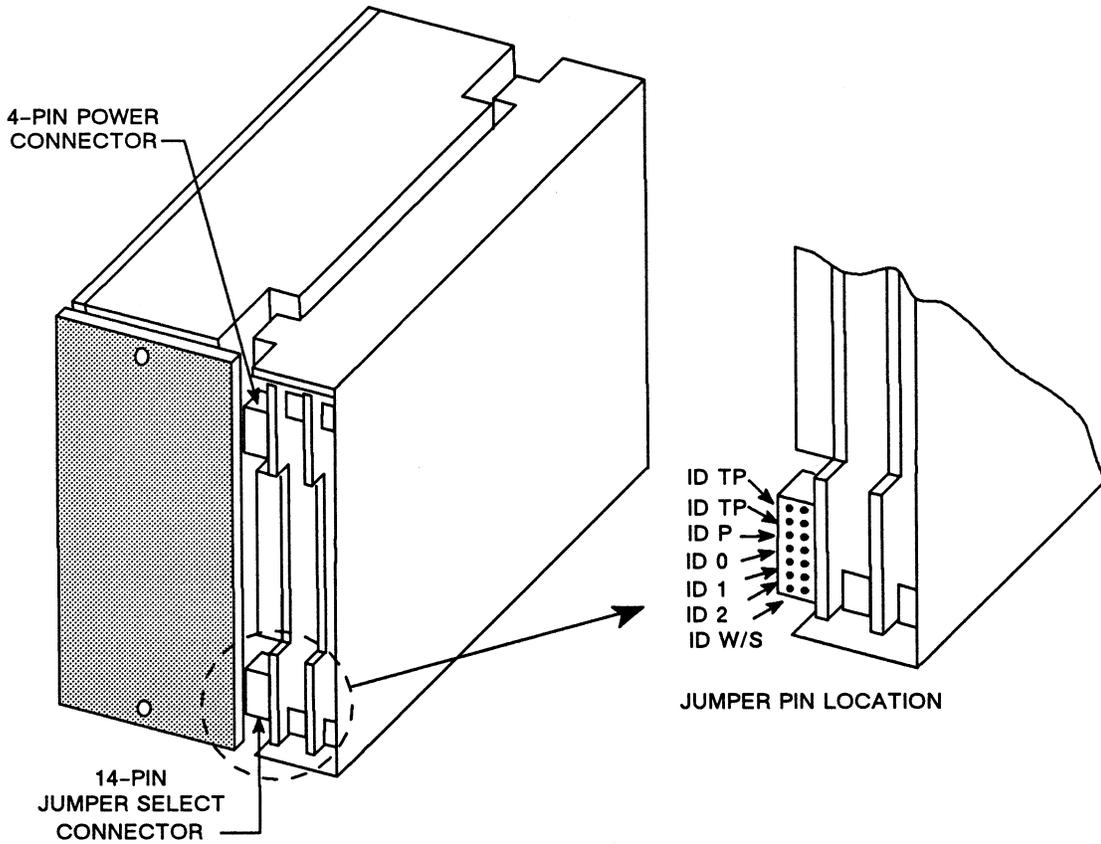


Figure 7-8. 170MB Disk Drive Jumpering Locations, First Configuration

Adding a 170MB Disk Drive (cont)

Table 7-1 provides the jumpering configurations for additional 170MB (CDC) disk drives. On the disk drive jumper select card, you always jumper positions 0 (least significant bit), 1, and/or 2 (most significant bit).

Table 7-1. 170MB Disk Drives (CDC), Jumper Configurations

Drive ID #	ID2 Status	ID1 Status	ID0 Status
0	Out	Out	Out
1	Out	Out	In
2	Out	In	Out
3	Out	In	In
4	In	Out	Out
5	In	Out	In
6	In	In	Out
7	In	In	In

Note

Do not jumper position P on the (CDC) jumper select card or you will enable parity detection.

Adding a 170MB Disk Drive (cont)

To add a 170MB disk drive (Micropolis) to a Model 32 stand-alone CADDStation with a 170MB disk drive already installed, follow the procedure below.

1. Locate the jumper select connector on the lower-left, rear side (below the power connector) of the disk drive already installed (Micropolis). To make this drive 0 be sure that all three jumper ID pins—ID0, ID1, and ID2—are out. See Figures 7-9 and 7-11.
2. Locate the jumper select connector on the lower-left, rear side (below the power connector) of the disk drive you are installing (Micropolis). To make this drive 1 be sure that pin ID0 is in and that pins ID1 and ID2 are out. See Figures 7-10 and 7-11. To add other disk drives, use the jumpering configurations in Table 7-2.
3. Fasten the mounting plate (shipped with the disk drive) onto the side of the disk drive that contains the printed circuit board. See Figure 7-12. Tighten all four screws that have corresponding holes in the disk drive frame.
4. Positioning the disk drive so that the mounting plate is on the right-hand side, insert the disk drive into its proper slot. Be sure to insert the protruding steel lip on the bottom of the disk drive mounting plate into the slide rail on the deskside module mounting bracket. Push the disk drive into the bracket. See Figure 7-13.
5. Secure the disk drive by tightening the fifth mounting plate screw.
6. Plug the 4-pin female power connector into the male connector on the disk drive.
7. Plug the 50-pin female connector into the 50-pin male connector on the edge of the PCB. Be sure that pin 1-to-pin 1 orientation is correct.

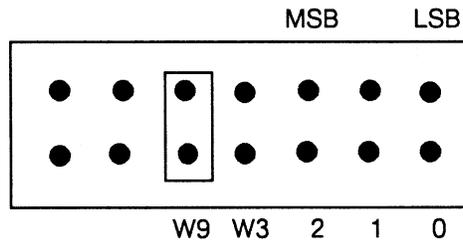


Figure 7-9. Selecting an Installed 170MB Disk Drive as Drive 0, Second Configuration

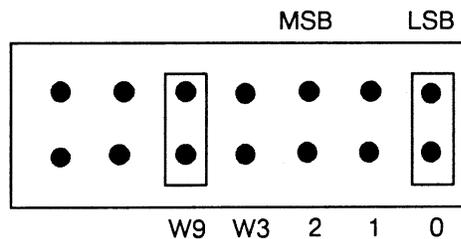


Figure 7-10. Selecting a Second 170MB Disk Drive as Drive 1, Second Configuration

Adding a 170MB Disk Drive (cont)

Figure 7-11 shows the jumpering locations for a (Micropolis) 170MB disk drive.

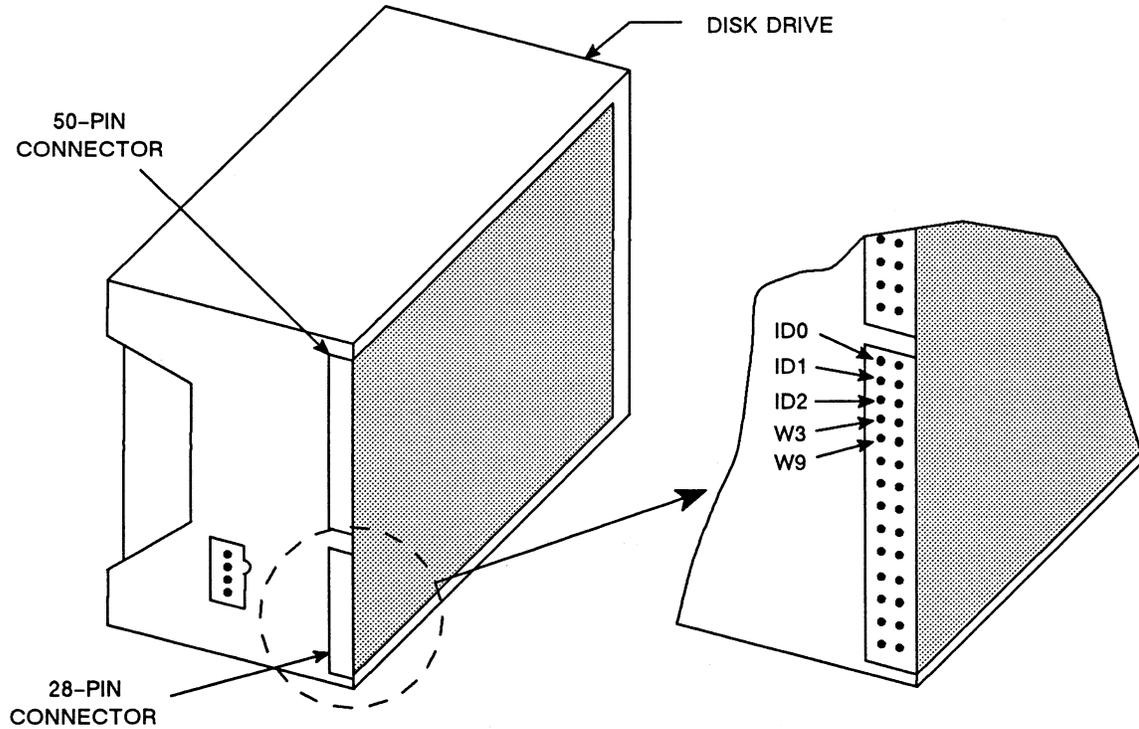


Figure 7-11. 170MB Disk Drive Jumpering Locations, Second Configuration

Adding a 170MB Disk Drive (cont)

Table 7-2 provides the jumpering configurations for additional 170MB (Micropolis) disk drives. On the disk drive jumper select card, you always jumper positions 0 (least significant bit), 1, and/or 2 (most significant bit).

Table 7-2. 170MB Disk Drives (Micropolis), Jumper Configurations

Drive ID #	ID2 Status	ID1 Status	ID0 Status
0	Out	Out	Out
1	Out	Out	In
2	Out	In	Out
3	Out	In	In
4	In	Out	Out
5	In	Out	In
6	In	In	Out
7	In	In	In

Note

Be sure to jumper position W9 on the (Micropolis) jumper select card to disable parity detection. (This is different from the procedure for disabling parity detection on the CDC disk drive.)

Adding a 170MB Disk Drive (cont)

Figure 7-12 shows a 170MB disk drive with its mounting plate.

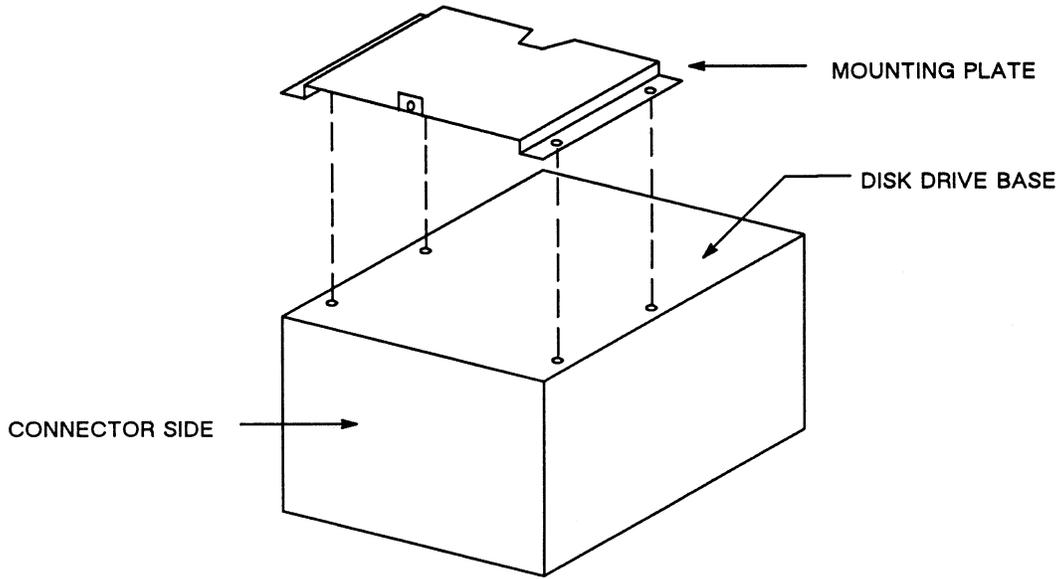


Figure 7-12. 170MB Disk Drive

Figure 7-13 shows the proper orientation of a 170MB disk drive for mounting to the deskside module bracket.

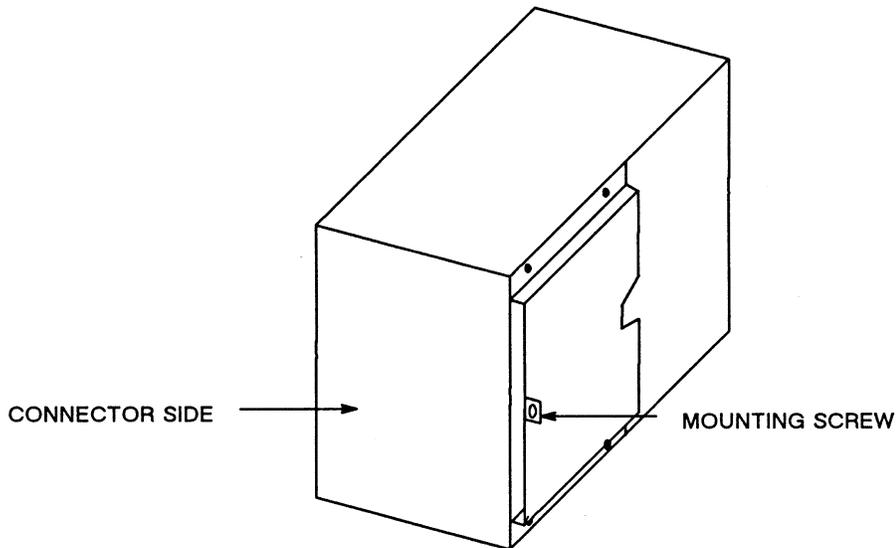


Figure 7-13. Mounting a 170MB Disk Drive

Installing a 170MB Disk Drive in an Expansion Box

The 170MB expansion box is normally shipped with one 170MB disk drive. The expansion box, however, may be upgraded to one of the following configurations:

- Two 170MB disk drives
- Tape drive and 170MB disk drive

Follow this procedure to add a second 170MB disk drive to the expansion box:

1. Mount the second disk drive in the steel frame provided above the disk drive already installed.
2. Using the second and fourth holes provided on each side of the steel frame, mount the four screws that secure the disk drive.
3. Plug the 50-pin female connector into the 50-pin male connector on the bottom disk drive.
4. Plug the 50-pin female connector into the 50-pin male connector on the top disk drive. Be sure the cable is turned so that the disk drive designation on the connector head is readable to you as you make the connection, and be sure to verify pin 1-to-pin 1 connections before connecting any cables.
5. Plug the three 4-pin connectors—P3, P4, and P5—into their appropriate slots. These connectors are keyed to prevent improper insertion.

Installing a 1/4-inch Tape Drive in an Expansion Box

Follow this procedure to add a tape drive to the expansion box:

1. Mount the tape drive in the steel frame provided above the disk drive already installed.
2. Using the first and third holes provided on each side of the steel frame, mount the four screws that secure the tape drive.
3. On the inside of the expansion box cover remove the four screws holding the upper left front panel in place and remove this upper panel. This provides the opening necessary for inserting a tape into the tape drive.
4. Plug the 50-pin female connector into the 50-pin male connector on the bottom disk drive.
5. Plug the 50-pin female connector into the 50-pin male connector on the tape drive. Be sure the cable is turned so that the tape drive designation on the connector head is readable to you as you make the connection.
6. Plug the three 4-pin connectors—P3, P4, and P5—into their appropriate slots. These connectors are keyed to prevent improper insertion.

Adding a 170MB Disk Drive Expansion Box

You can add one or two 170MB disk drive expansion boxes to your Model 32 CADDStation. There are two different procedures for installing an expansion box, depending on your printed circuit board configuration.

Note

Before connecting any cables, be sure to verify pin 1-to-pin 1 connections.

Figure 7-14 shows the rear I/O panel on a 170MB disk drive expansion box.

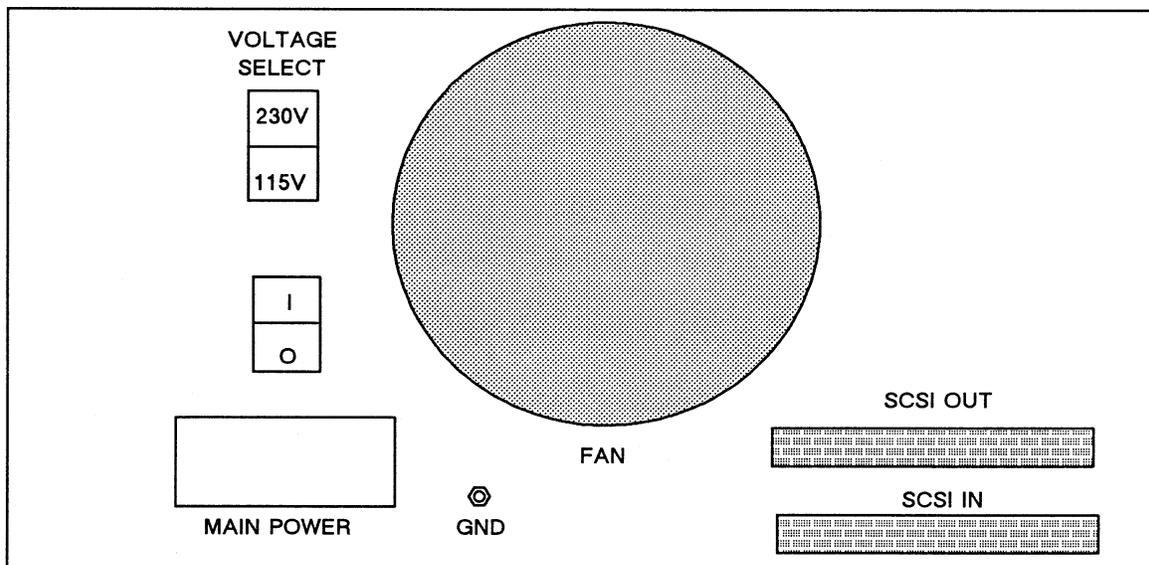


Figure 7-14. 170MB Disk Drive Expansion Box, Rear View

Adding an Expansion Box to a Diskful CADDStation with an SMPL Board

Follow this procedure to install an expansion box on a diskful CADDStation with an SMPL board (occupying slots 11 and 12):

1. Using a short, flat-ribbon cable with two male 50-pin connectors, plug one connector into the SCSI Bus female connector on the SMPL board. Plug the other connector into the top outside female SCSI connector on the CADDStation deskmate module. See Figure 7-15.
2. Using a long round shielded cable with two male 50-pin connectors, plug one connector into the SCSI IN female connector on the expansion box. Plug the other connector into the bottom outside female SCSI connector on the CADDStation deskmate module.
3. Plug the terminator into the SCSI OUT female connector on the expansion box.

Adding an Expansion Box to a Diskful CADDStation with an SMPL Board (cont)

Figure 7-15 shows the connections for a diskful CADDStation with an SMPL board and an expansion box.

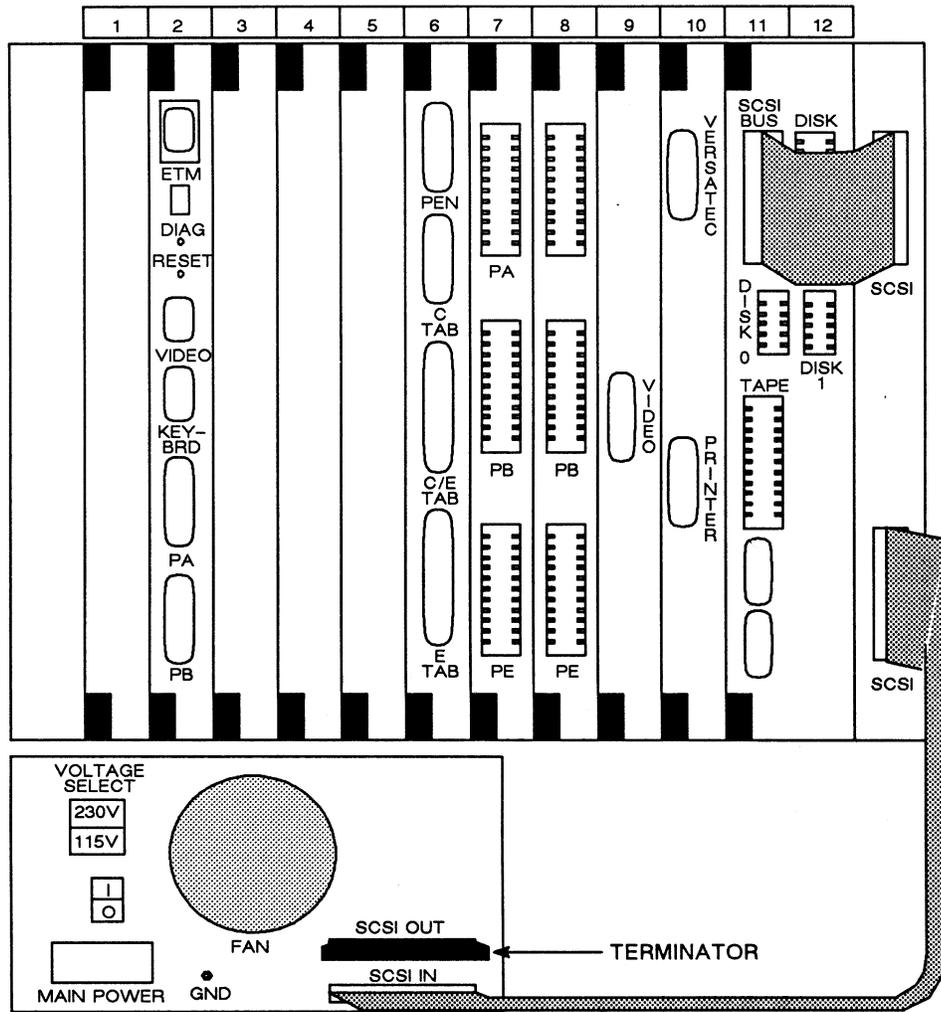


Figure 7-15. Expansion Box Connections for a Diskful CADDStation with an SMPL Board

Adding an Expansion Box to a Diskless CADDStation with an SMPL Board

Follow this procedure to install an expansion box on a diskless CADDStation with an SMPL board (occupying slots 11 and 12) and:

1. Using a long round shielded cable with two male 50-pin connectors, plug one connector into the SCSI Bus female connector on the SMPL board. Plug the other connector into the SCSI IN female connector on the expansion box.
2. Plug the terminator into the SCSI OUT female connector on the expansion box.

Adding an Expansion Box to a Diskful CADDStation with a SCSI Board

Follow this procedure to install an expansion box on a diskful CADDStation (85MB disk drives in deskmate module) with a SCSI board (occupying slot 5):

1. Using a long round shielded cable with two male 50-pin connectors, plug one connector into the SCSI female connector on the SCSI board (slot 5). Plug the other connector into the SCSI IN female connector on the expansion box. See Figure 7-16.
2. Using a long round shielded cable with two male 50-pin connectors, plug one connector into the SCSI OUT female connector on the expansion box. Plug the other connector into the female SCSI connector on the Disk and Tape Carrier board (slots 11 and 12).

Figure 7-16 shows the connections for a diskful CADDStation with a SCSI board and an expansion box.

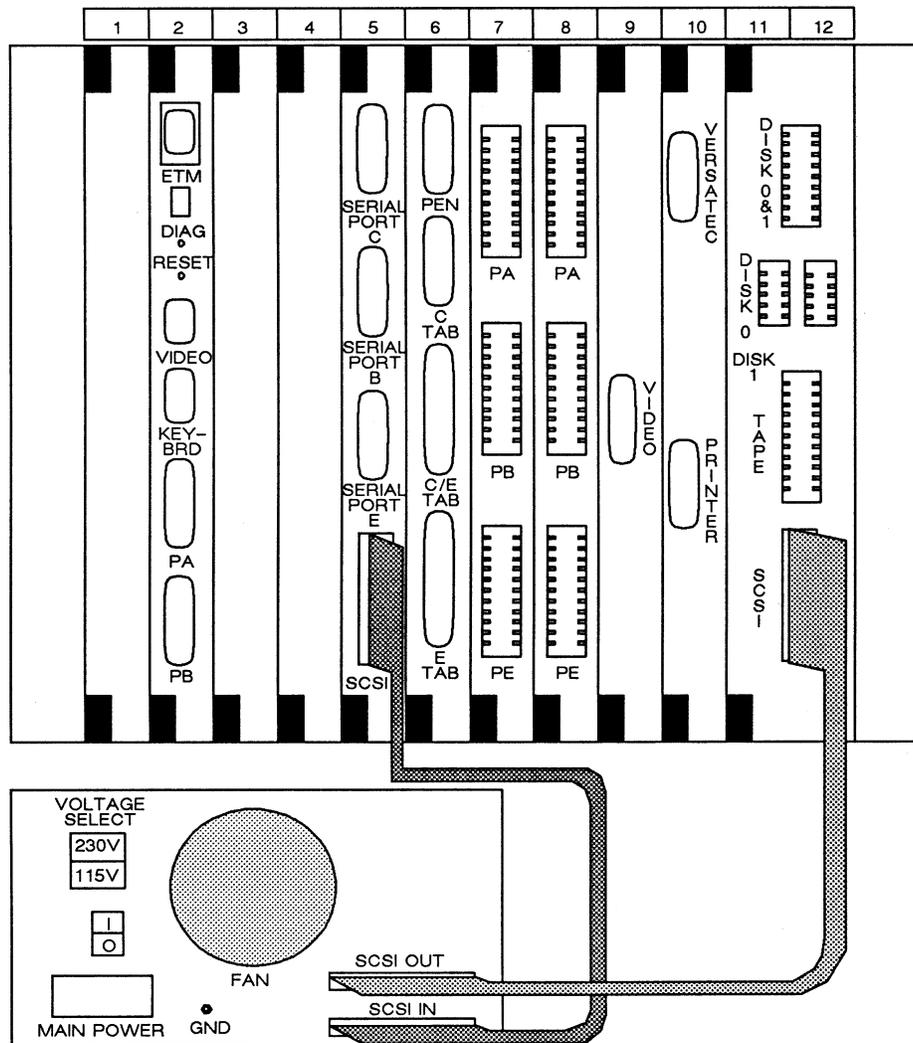


Figure 7-16. Expansion Box Connections for a Diskful CADDStation with a SCSI Board

Adding an Expansion Box to a Diskless CADDStation with a SCSI Board

Follow this procedure to install an expansion box on a diskless CADDStation with a SCSI board (occupying slot 5):

1. Using a long, round, shielded cable with two male 50-pin connectors, plug one connector into the SCSI female connector on the SCSI board. Plug the other connector into the SCSI IN female connector on the expansion box.
2. Plug the terminator into the SCSI OUT female connector on the expansion box.

Adding a Second Expansion Box

Follow this procedure to add a second 170MB expansion box to your CADDStation:

1. Whatever your board configuration may be, follow all the steps necessary to install a first expansion box, with one exception: do not install the terminator in the SCSI OUT female connector on the first expansion box.
2. Using a short round shielded cable with two male 50-pin connectors, plug one connector into the SCSI OUT female connector on the first expansion box. Plug the other connector into the SCSI IN female connector on the second expansion box.
3. Plug a terminator into the SCSI OUT female connector on the second expansion box.

Adding a 300MB Disk Drive

One or two sealed, 515MB disk drives are already installed in the CADDServer peripherals cabinet. As many as three 300MB removable disk drives may be installed next to the peripherals cabinet.¹ To add a 300MB removable disk drive, you need the items contained in Table 7-3.

Table 7-3. 300MB Disk Drive Add-on Kit

Item	Part Number	Quantity	Description
1	AC14E434-01	1	SMD Drive, 300MB, 60 Hz
or	AC14E434-02	1	SMD Drive, 300MB, 50 Hz
2	AL36E1548	1	CDS 3000 formatted 300MB disk pack
3	AC14R1138	1	Topaz transformer (not included, used in Japan only)
4	2321CY	1	Twist lock male plug, yellow, Hubbell (used in overseas installations of 50 Hz drives)
5	BA38E1103	1	SMD 60-pin disk drive command (A) cable (for first add-on 300MB disk drive)
6	BA38E1104	1	SMD 60-pin disk drive command (A) cable (for second or third add-on 300MB disk drive)
7	BA38E1105	1	SMD 37-pin data (B) cable
8	CA21E066-03	1	Ground cable

¹The number of 300MB removable disk drives you may install is governed by your system configuration. If you have one sealed 515MB disk drive, you may install as many as three 300MB removable disk drives. If you have two sealed 515MB disk drives, then you may install one or two additional 300MB disk drives. The maximum allowable number of 515MB disk drives is four; the maximum allowable number of 300MB disk drives is three.

Adding a 300MB Disk Drive (cont)

Install the 300MB removable disk according to the procedures listed below. The first disk drive, already installed in the CADDServer cabinet, is drive 0; the second drive (Item 1), to be installed, is drive 1.

1. Compare the installation parts itemized in Table 7-1 with the parts you have.
2. Be sure to exit properly from the software program. See *Using the UNIX Operating System* for proper log-out procedure.
3. Power off the CADDServer peripherals cabinet and the CADDServer deskside module.
4. Unlock the rear door of the 300MB disk drive cabinet with a hex wrench. Swing the door open. Press the button located inside the top rear of the disk drive cabinet; this releases the drive's top cover. Lift the top cover and raise the release latches for the right side panel. Remove the side panel.
5. With the side panel off, remove the metal strain relief bracket. Remove the two hex screws with washers. Retain the bracket and hardware.
6. If this panel is installed, remove the connector panel cover. Then twist the turn-lock fastener behind the connector panel to release the panel from the side of drive 1. The inside of this panel contains the cable connectors.
7. Remove the disk terminator from the peripherals cabinet I/O panel connector, Disk Common Out. For drive 1 connect the shielded connector of the 60-pin command cable (Item 5) to the CADDServer peripherals cabinet I/O panel at Disk Common Out (see Figure 7-17). Be sure there is a proper pin 1-to-pin 1 connection. Connect the unshielded end of the command cable to the appropriate connector on the 300MB disk drive. Install the terminator inside the 300MB disk drive.
8. For drive 1 connect the shielded 37-pin connector of the data cable (Item 7) to the Disk 1 connector on the CADDServer deskside module I/O strip 6. Connect the unshielded 26-pin end of the data cable to the appropriate connector on the 300MB disk drive.
9. Install the metal strain relief bracket over the data (Item 7) and command (Item 5) cables for drive 1, ensuring that there is contact between each cable's metal foil and that the metal foil on the top cable touches the metal strain relief bracket.
10. Be sure that a terminator is installed in the proper connector on drive 1 and that the terminator ground cable is attached to its fast-on connector.
11. Route one end of the ground cable (Item 8) to the rear of the CADDServer deskside module, and secure it to the screw on the ground panel. Attach the loose end of the ground cable to the tab on drive 1.
12. Install Logical Address Plug 1 in the READY indicator located on the front control panel of disk drive 1.
13. Review the previous steps for completeness.
14. Reinstall the connector panel on the side of drive 1.
15. Replace the side panel, top cover, and rear panel on drive 1.

Adding a 300MB Disk Drive (cont)

16. Connect the three-prong, twist-lock power cable on drive 1 to the receptacle on the line filter (Item 3). Connect the line filter's twist-lock power cable to a wall outlet.
17. Power on the CADDServer deskside module and then the CADDServer peripherals cabinet.
18. Power on drive 0 and drive 1.
19. Load the software using the procedure defined in *Installing System Software*.

Figure 7-17 shows the connector panel and cables for the 300MB removable disk drive.

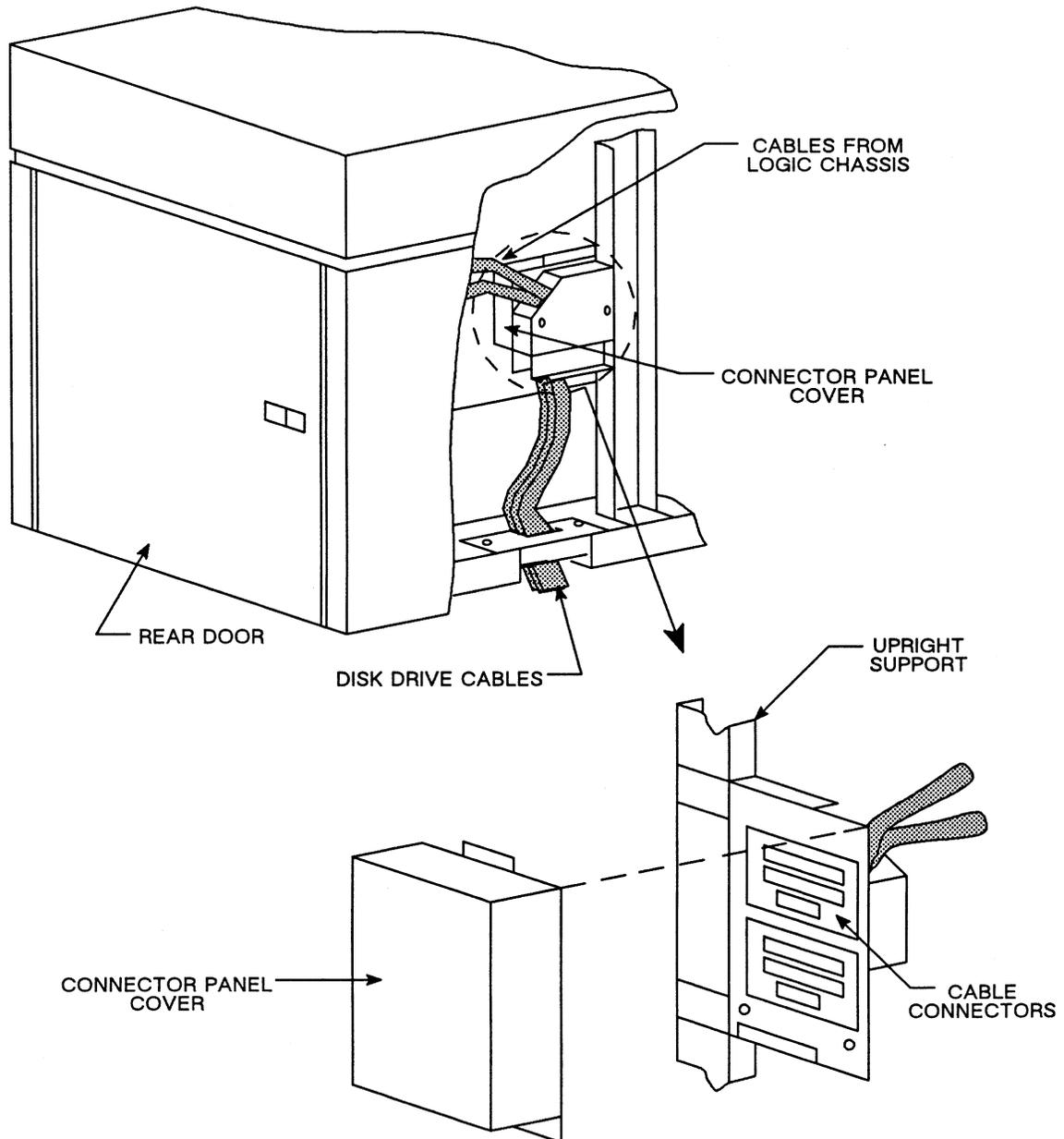


Figure 7-17. 300MB Disk Drive Connector Panel and Cables

Adding a 515MB Disk Drive

One sealed 515MB disk drive (known as drive 0) is already installed in the CADDServer peripherals cabinet. As many as four 515MB disk drives may be installed (two per cabinet). To add a 515MB disk drive (known as drive 1), you need the items contained in Table 7-4.

Table 7-4. 515MB Disk Drive Add-on Kit

Item	Part Number	Quantity	Description
1	930-01625	1	515MB disk drive
2	966-01027 and 966-01027-02	2	Brackets, MUU and MOU
3	995-01294	2	Slide rails
4	966-01043	1	Anti-tip assembly
5	966-01071	1	60-pin cable assembly
6	966-01077	1	37-pin cable assembly
7	966-01077	1	Power cord
8	966-01088 and 966-01088-02	2	Slide keepers
9	966-01124-01		Ground strap

Use the following procedure to add a 515MB disk drive to a CADDServer that already has a 515MB drive:

1. Compare the installation parts itemized in Table 7-4 with the parts you have.
2. Be sure to exit properly from the software. See *Using the UNIX Operating System* for the proper log-out procedure.
3. Power off the CADDServer peripherals cabinet and then the CADDServer deskside module.
4. Access the inside of the peripherals cabinet by using the procedure outlined in Section 2.
5. Using four screws (832-6) per slide rail (Item 3), secure the rails to the peripherals cabinet.
6. Using a minimum of four flat-head screws (832-1/2), secure the mounting brackets (Item 2) to the sides of the disk drive (Item 1).
7. Using four Phillips-head screws (1032-6), secure the anti-tip assembly (Item 4) to the bottom of the disk drive (with mounting brackets).
8. Mount the disk drive on the slide rails now installed in the peripherals cabinet.
9. Using two slide keepers (Item 8), secure the disk drive to the slide rails.
10. Plug one end of the power cord (Item 7) into the appropriate slot on the rear of the disk drive and the other end into the power distribution box.

Adding a 515MB Disk Drive (cont)

11. Plug the 60-pin male connector (located on the cable that leads internally from the Disk Common In connector on the I/O panel to disk drive 0 and then to disk drive 1) into female connector J4 (CDC) or P4 (NEC) on disk drive 1. See Figure 7-18.
12. Be sure the 60-pin connector that is to be attached internally to the Disk Common Out connector is secured.
13. Internally secure the ground wire from disk drive 1 to the ground lug on the peripherals cabinet I/O panel.
14. Plug one end of the 37-pin male connector into female connector J2 (CDC) or P2 (NEC) on disk drive 1 and the other end into female connector DISK 1 internally on the peripherals cabinet I/O panel. At the same time, verify that the connectors on the cable leading from J2 or P2 on disk drive 0 to DISK 0 internally on the peripherals cabinet I/O panel are secured.
15. Be sure that the 37-pin connectors on the cables leading from the Xylogics controller board (located in the CADDServer deskside module) to DISK 0 and DISK 1 on the exterior of the peripherals cabinet I/O panel are secured. See Figure 7-19.
16. Be sure that the 60-pin connectors on the cable leading from the Xylogics controller board to Disk Common In on the exterior of the peripherals cabinet I/O panel are secured, and check to see that the Disk Common Out connector on the same I/O panel is properly terminated and has a ground wire attached to the ground lug.
17. Verify the peripherals cabinet-to-deskside module grounding. See Section 5.
18. Change the disk drive select button on the front of disk drive 1 to 1. See Figure 7-20.
19. Replace the peripherals cabinet panel(s). Power on the CADDServer deskside module and then the CADDServer peripherals cabinet.
20. Power on drive 0 and drive 1.
21. Load the software using the procedure defined in *Installing System Software*.

Figure 7-18 shows internal cabling connections when you install a second 515MB disk drive (CDC).

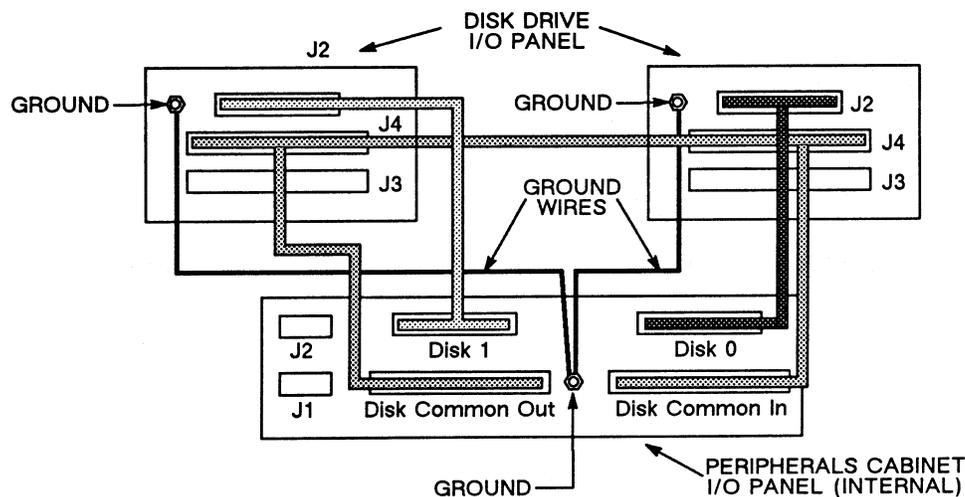


Figure 7-18. 515MB Disk Drive Internal Cabling, First Configuration

Adding a 515MB Disk Drive (cont)

Figure 7-19 shows external cabling connections from the peripherals cabinet I/O panel to the Xylogics controller board when you install a second 515MB disk drive (CDC).

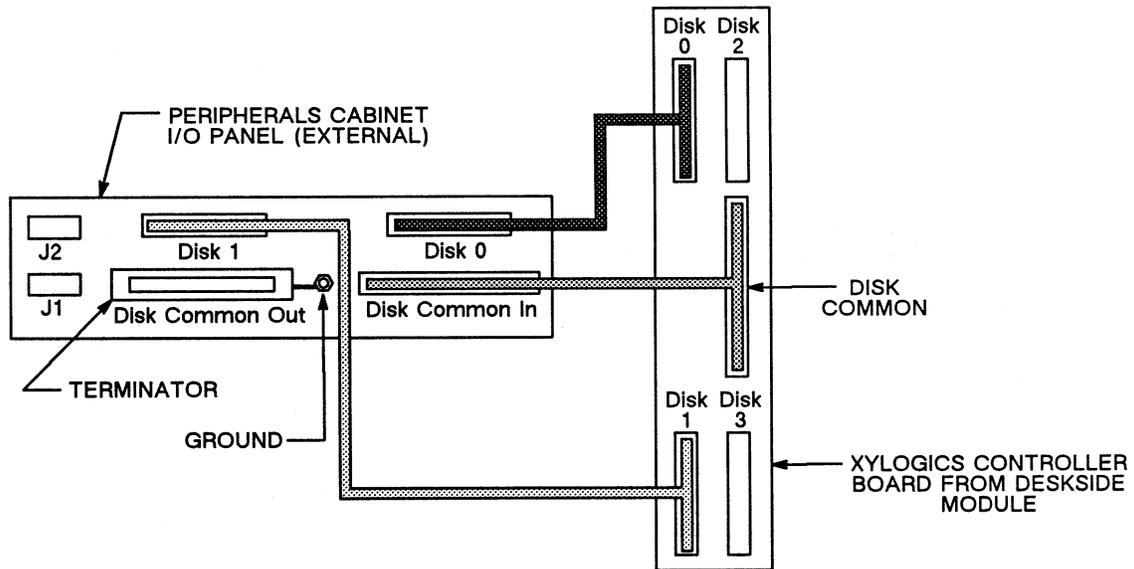


Figure 7-19. 515MB Disk Drive External Cabling, First Configuration

Figure 7-20 shows the location of the disk drive select button on a 515MB disk drive (CDC).

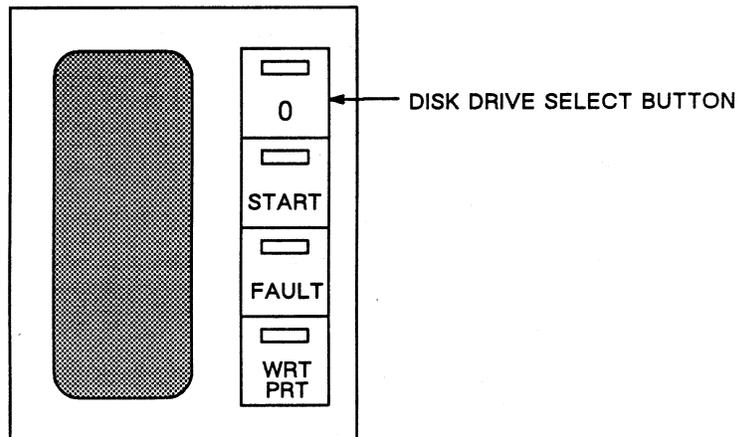


Figure 7-20. 515MB Disk Drive Select Button, First Configuration

Adding a 515MB Disk Drive (cont)

Figure 7-21 shows internal cabling connections when you install a second 515MB disk drive (NEC).

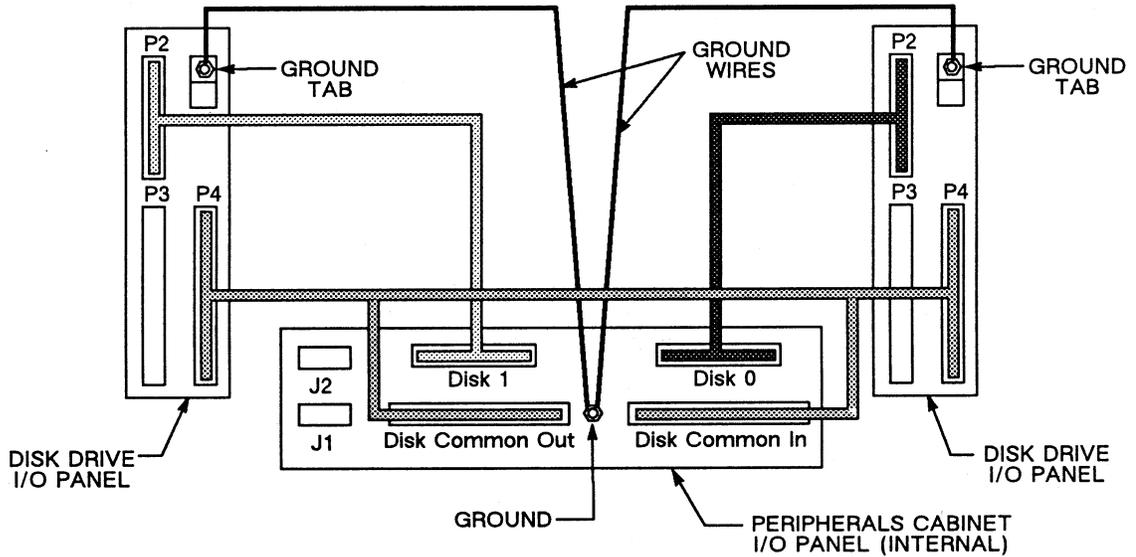


Figure 7-21. 515MB Disk Drive Internal Cabling, Second Configuration

Figure 7-22 shows external cabling connections from the peripherals cabinet I/O panel to the Xylogics controller board when you install a second 515MB disk drive (NEC).

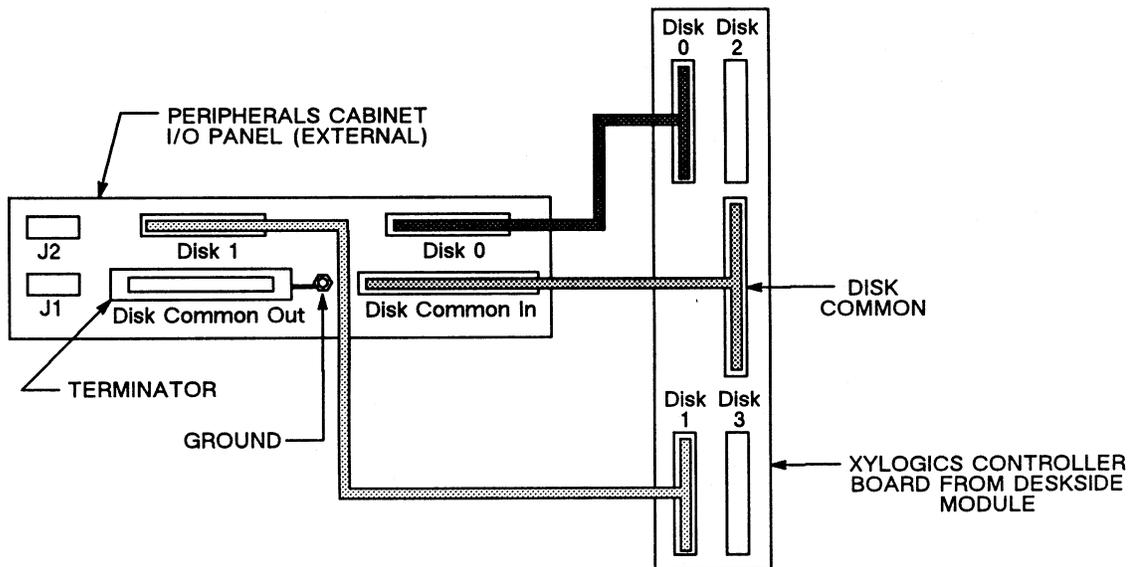


Figure 7-22. 515MB Disk Drive External Cabling, Second Configuration

Adding a 515MB Disk Drive (cont)

Figure 7-23 shows the location of the disk drive select button for a 515MB disk drive (NEC).

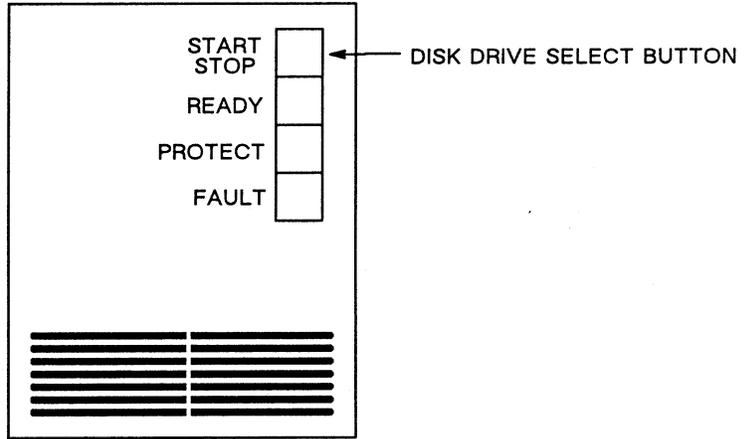


Figure 7-23. 515MB Disk Drive Select Button, Second Configuration

Section 8
Electrical Diagrams

Electrical Diagrams

8

This section contains the following electrical diagrams:

- Model 32 CADDStation Deskside Module AC power distribution (Figure 8-1)
- Model 32 CADDStation Deskside Module DC power distribution (Figure 8-2)
- CADDServer Peripherals Cabinet power distribution (Figure 8-3)

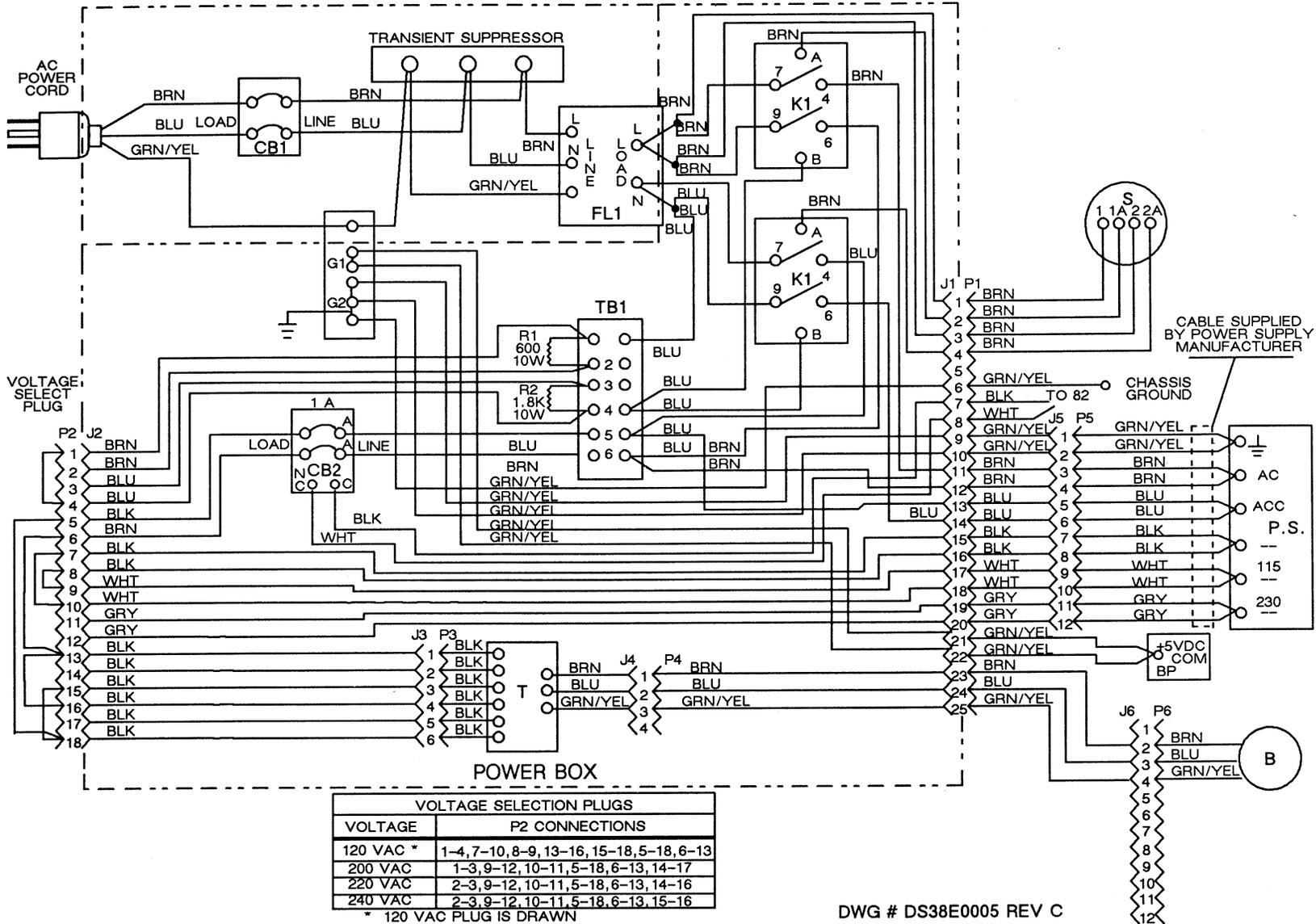
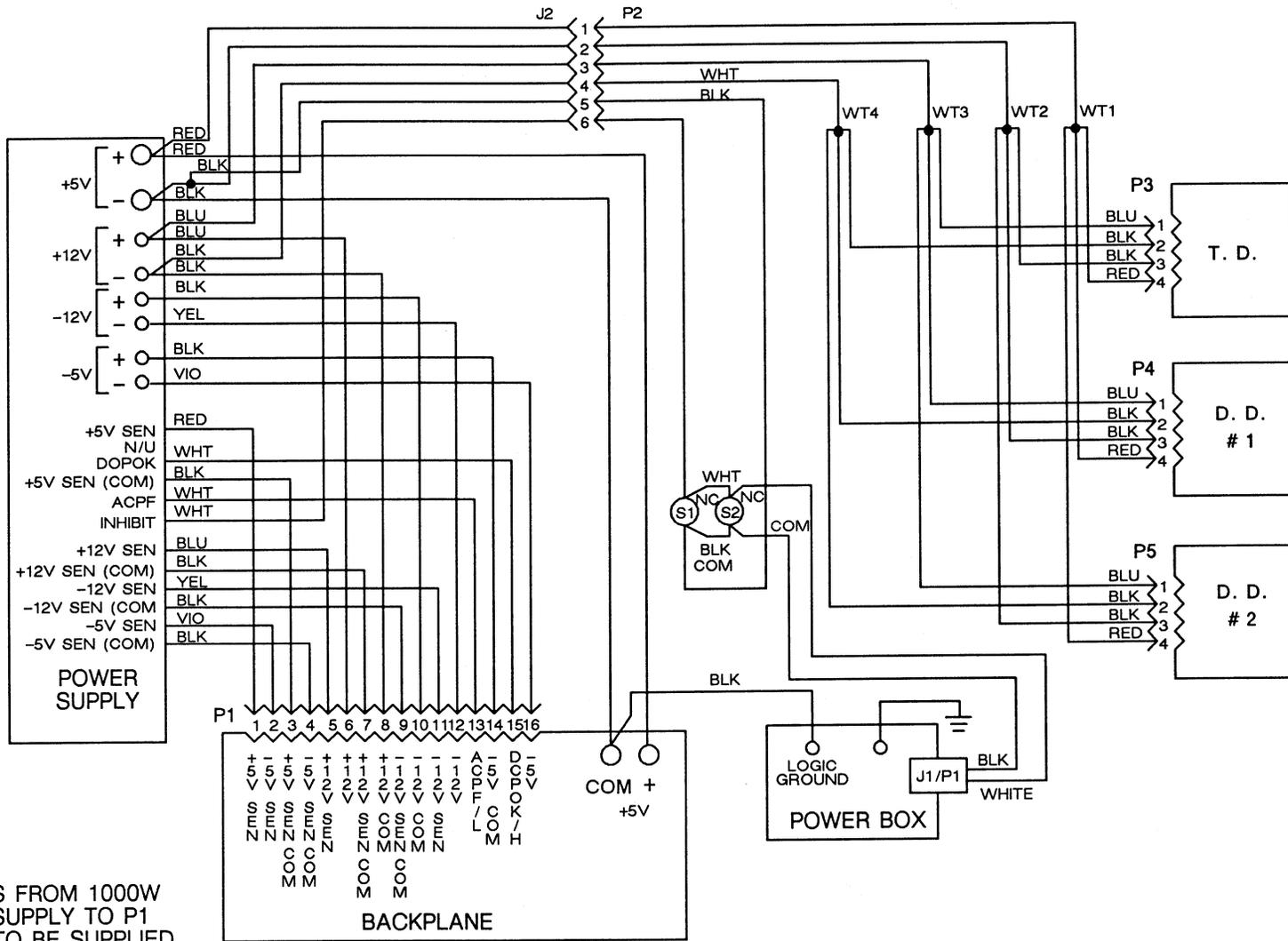


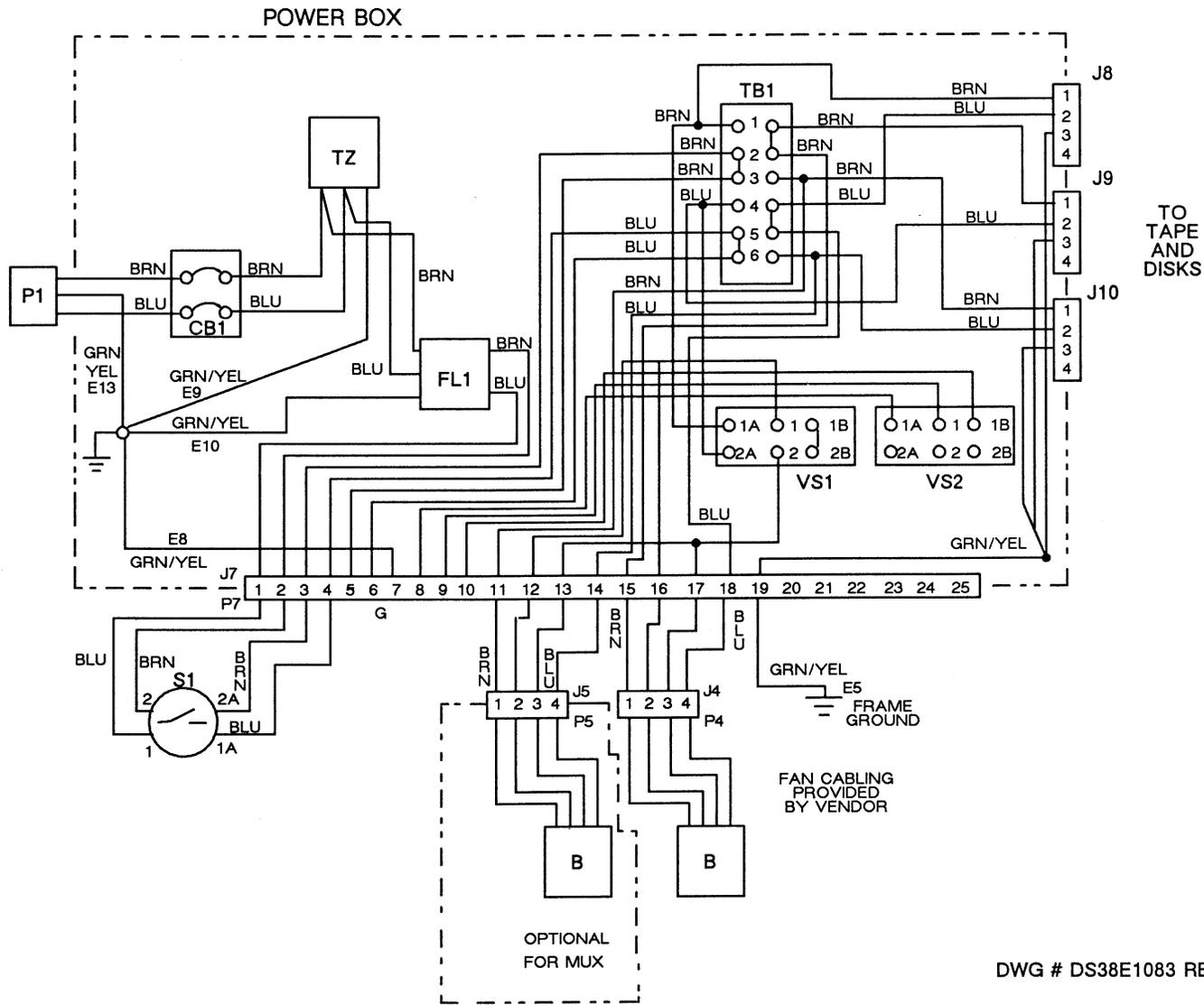
Figure 8-1. Model 32 CADDStation Deskside Module AC Power Distribution

NOTE:
 HARNESS FROM 1000W
 POWER SUPPLY TO P1
 AND J2 TO BE SUPPLIED
 BY POWER SUPPLY VENDOR



DWG # DS38E0006 REV B

Figure 8-2. Model 32 CADDStation Deskside Module DC Power Distribution



DWG # DS38E1083 REV A

Figure 8-3. CADDServer Peripherals Cabinet, Power Distribution

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