8-Inch Quick Release Chassis
User Guide

PB6005-9100-004

SYSTEM INDUSTRIES

WARNING

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

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le present appareil numerique n'emt pas de bruits radioelectriques depassant les limtes applicables aux appareils numeriques de Class A, prescrites dans le reglement sur le brouillage radioelectrique edicte par le Ministere des Communicatios du Canada.

PROPRIETARY STATEMENT

REVISION RECORD

REVISION NUMBER	DATE	DESCRIPTION	EO NUMBER
A	08/14/87	Initial Release	4610
B	10/29/87	Complete Revision	4754
C	02/05/88	Complete Revision	4905
004	09/12/89	Theta Cabinet Information and Editorial Revision. Incorporate New Revision-Renumbering System.	5839

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1
INTRODUCTION

1.1 Manual Preface

The *8-inch Quick Release Chassis User Guide* explains the Quick Release Chassis installation and operation. The manual consists of the following sections.

Table 1-1. Section Descriptions

SECTION	DESCRIPTION
Section 1: Introduction	Contains the manual preface, audience, related publications, conventions, glossary, and materials needed.
Section 2: The Quick Release Chassis	Provides a system overview and discusses the available configurations, features, and options.
Section 3: Preinstallation	Gives useful information for planning and preparing the installation site.
Section 4: Installation	Provides procedures for installing the Quick Release Chassis in the cabinet, and installing and cabling the 8-inch disk drives in the chassis.
Section 5: Operation	Provides procedures for removing and inserting disk drives in the Quick Release Chassis.

1.2 Manual Audience

The *8-inch Quick Release Chassis User Guide* is intended for System Industries field engineers and self-maintenance customers. Familiarity with the VMS, UNIX, RST, or RSTS operating systems, along with an understanding of the fundamentals of DEC networks, computers, and disk drive operations is required.

1.3   Related Publications

Additional information on the Quick Release Chassis and its related components are found in the System Industries manuals listed in Table 1-2.

Table 1-2. Related Publications

PUBLICATION NUMBER	TITLE
PB5500-9250	QDA4S Controller User's Guide
PB9700-9040	FCC DEC Presite Guide
PB3266-9001	SI85 Disk Drive User Guide
PB6500-9001	Theta Cabinet Series User Guide
PB9951-9041	SI FCC-Compliant 60-inch Cabinet User Guide
PB9950-9041	SI FCC-Compliant 42-inch Cabinet User Guide
PB8700-9001	Storage Director User Guide
PB9900-9501	9900 Series Disk Controller User's Guide
PB2500-9010	Clustor Subsystem User Guide
PB9901-9041	9733 Disk Drive User's Guide

1.4   Manual Conventions

Refer to the following documentation conventions as a guide to using this manual.

- Typed computer entry is shown in **boldface.** Type all boldface characters exactly as they appear. For example:

   Type: **SHOW DEV**

- Screen messages are displayed in a different typestyle, as follows:

   Printer attached to terminal? (Y/N) [N]:

- Key names are shown in **boldface** type within angle brackets. For example:

   <RETURN>
   <TAB>
   <CTRL> C

- Interactive sequences that include computer input and output are shown as follows:

  Printer attached to terminal? (Y/N) [N]: **Y**
  Initializing...

- Variable typed entries, or text you must replace, are shown in *italics*. In the following example

  Type: **COPY M***xxu*****:*.****xxxxxx*****::*/LOG <RETURN>**

  xx and *xxxxxx* are italicized and replaced with the actual device type and name.

- Three types of notes are used in this manual: a standard NOTE, a CAUTION note, and a WARNING note.

NOTE

The standard NOTE highlights important or additional information.

CAUTION

The CAUTION note is used for situations that are potentially dangerous or destructive to data.

WARNING

A WARNING note is used if system failure or bodily injury could be involved.

1.5 Glossary

Following are System Industries and industry-standard terms and acronyms used in this manual.

FRU	Field Replaceable Unit, the repair assembly level.
PCA	Printed Circuit Assembly.
PCB	Printed Circuit Board.
RCT	Replacement Control Table.
SDI	Standard Drive Interface, referring to transfer of data and commands to and from a DSA controller.

SI   System Industries.

SMD   Storage Module Drive.

1.6 Materials Needed

The installation procedures described in this manual require a standard toolbox.

2
QUICK RELEASE CHASSIS

The 8-inch Quick Release Disk Drive Chassis allows fast, easy removal from a storage system without disturbing I/O or power cabling. It is designed for sites where it is necessary to remove hard disks from computer areas for security, where interchanging data and system disks is desirable, or where disk drives are moved between sites. The drives are dual mounted in an 8.75-inch (22.2 cm) high chassis.

The Quick Release Chassis mounts in System Industries cabinets. The Quick Release Chassis measurements are 8.72 x 17.72 x 27.5 inches (22.2 x 45 x 69.9 cm). The control panel of the unit measures 5.25 x 3.5 inches (13.4 x 8.9 cm). The chassis is shown in Figure 2-1.
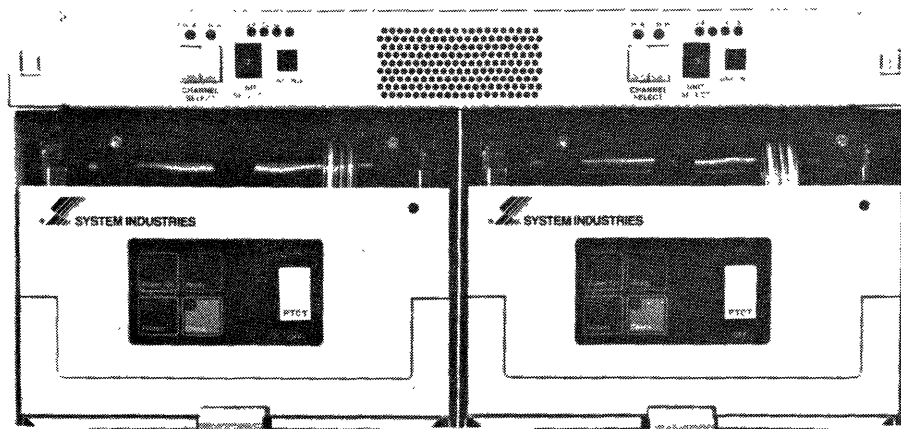

Figure 2-1. 8-inch Quick Release Chassis, Front View

2.1 Quick Release Features

The 8-inch Quick Release Chassis has the following features:

- A 350-watt switching power supply mounted horizontally on an adapter plate
- Two five-inch DC exhaust fans
- Two mounting trays for the 8-inch disk drives

- One power module with EMI filter
- Eight SMD I/O ports
- Drive control panel with status lights, switches, and indicators
- Connector panel for the disk drives

2.2 Drive Configuration

The drive is configured by installing or removing jumpers on the drive's printed circuit board. This is normally done at the factory before shipment. The functions and corresponding settings are found in the disk drive or subsystem user guide.

2.3 Quick Release Configurations

The following configurations are available with the 8-inch Quick Release system:

1. **9900 Controller.** In this configuration, three options exist:
   - *Single-channel drive with one controller*: one radial drive and two daisy-chained drives connected to one controller
   - *Single-channel drive with two controllers*: up to three radial drives and up to three daisy-chained drives for two controllers
   - *Dual-channel with two controllers*: one radial drive and up to two daisy-chained drives for two controllers

2. **Storage Director.** In this configuration, each drive connects to the DSI interface that allows dual-channel capability.

3. **CLUSTOR Series.** With Clustor 1 and 2, the chassis is supported with either single- or dual-channel radial drives. With Clustor 3 and 5, the chassis is supported with any combination of single- or dual-channel radial and single- or dual-channel daisy-chained drives.

2.4 Quick Release Chassis Components

This section describes the major Quick Release Chassis components: the I/O ports, the front panel, the control panel, and the quick release interface.

SMD I/O Ports

Two groups of four I/O ports are located on the back of the Quick Release Chassis. One group serves the left drive (as viewed from the front of the chassis), the other the right drive. Table 2-1 lists the ports and their functions. Each group consists of two 26-pin ports and two 60-pin ports arranged as shown in Figure 2-2. Both types of ports are used in dual-channel configurations.

Table 2-1. I/O Port Functions

CONNECTOR	FUNCTION
J1-J4	These four sockets are connected by 14-conductor ribbon cables to the dual-channel board.
J5 *	This is connected to the channel A/B select switches on the dual-channel board.
J6	Power connector.
J7, J8	60-pin A-cable connectors.

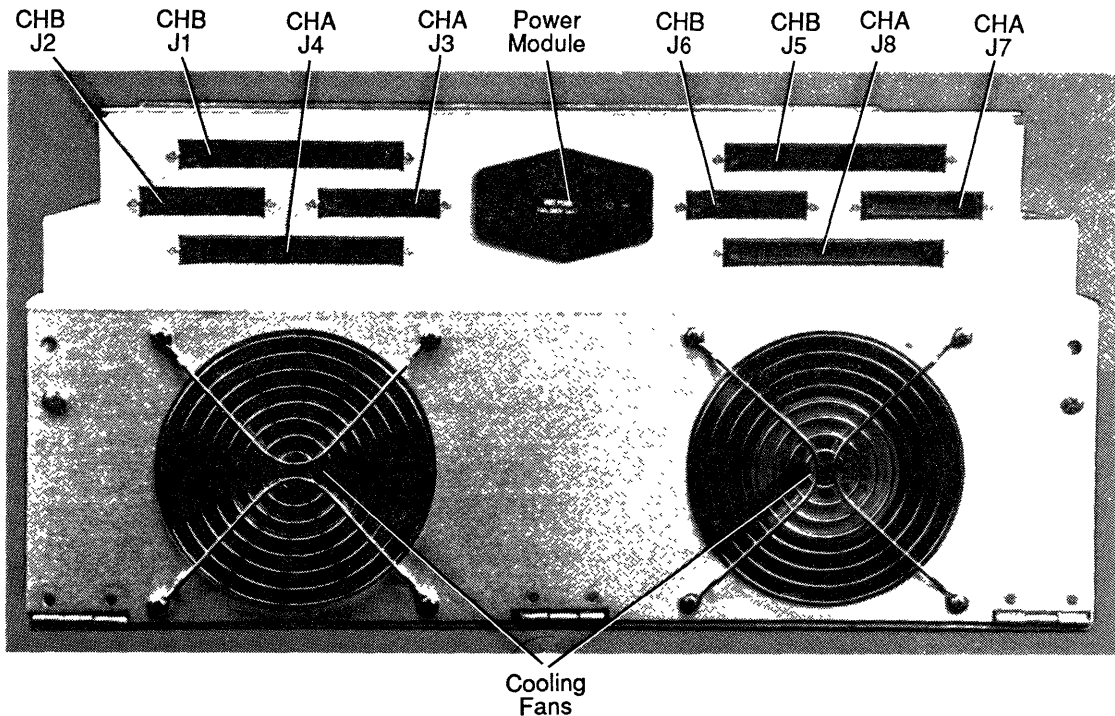* This is an addition to the drive's logic card.

Figure 2-2. I/O Port Arrangement

Chassis Front Panels

When installed in a System Industries cabinet, the Quick Release Chassis has a hinged front panel attached to the frame of the cabinet. There are two types of front panels, depending on the style of cabinet used: a formed metal, 19-inch wide panel, and a molded plastic, 21-inch wide panel. The metal panel is held closed by a plastic latch. To release it, pull outward on the handle between the top two view windows, then lower the panel. The plastic panel contains two handles, one at the top center and one at the top right of the panel. To open the panel, pull both release handles forward and down.

Control Panel

Behind the front panel at the top of the chassis are two printed circuit assemblies, one for each drive. Mounted on each one are the remote channel select switches, the push-button unit address switch, two LEDs indicating the selected channel, and a digital readout of the current unit address. In the center of each drive bezel are the drive controls. Each drive has three status lights, one push-button reset, one push-button write-protect switch, and a ready LED. Figure 2-3 shows the control panel components.
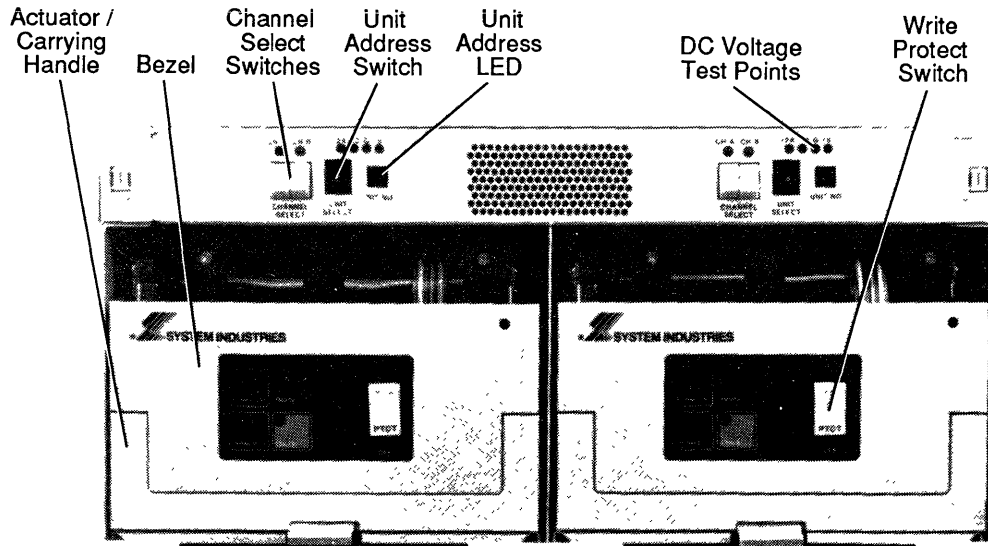
Figure 2-3. Unit Select and Drive Controls

Quick Release Interface

The Quick Release Chassis contains two mounting trays, each consisting of a frame and two slide rails that engage the rails on the removable tray containing the disk drive. At the back of each mounting tray is the power and I/O interface assembly for the disk drive. The interface consists of a printed circuit assembly with a floating socket assembly, five SMD connectors, four 14-pin dual-channel connectors, a power connector, and two relays. One of the relays is a power relay; the other is a timing device for the drive release latch. The floating socket assembly is the main drive interface and is mounted in a bracket with two alignment pins and two floating bushings.

The power and I/O interface assembly is shown in Figure 2-4. Figure 2-5 shows the floating socket assembly.
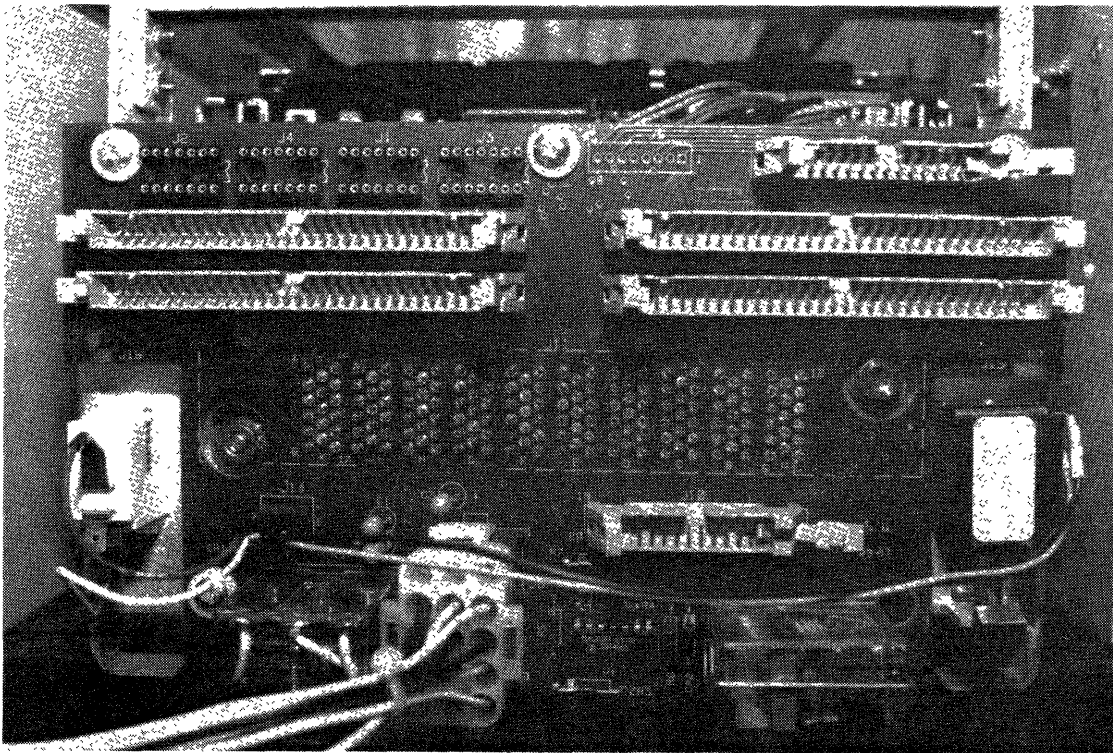
Figure 2-4. Power and I/O Assembly

Floating Socket
Assembly
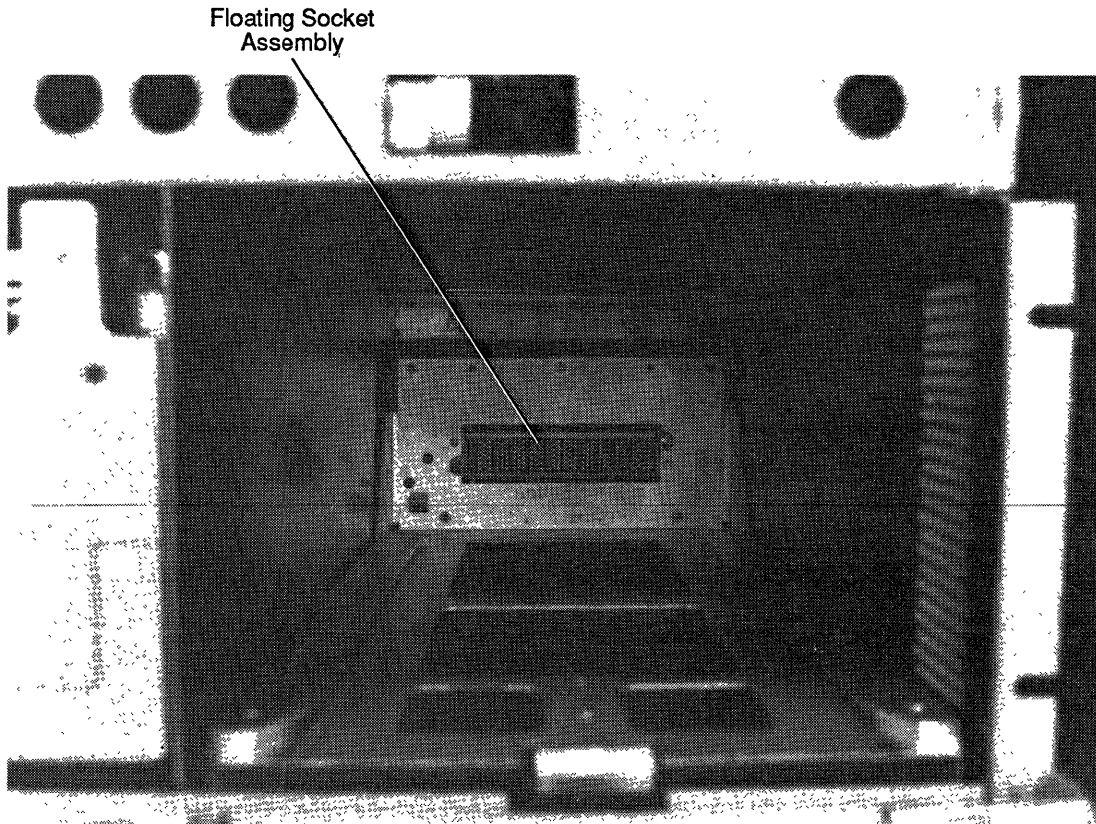
Figure 2-5. Floating Socket Assembly

2.5 Dual-Channel Option

The Quick Release Chassis supports a dual-channel assembly consisting of a printed circuit assembly, six interface cables, and mounting hardware. The dual-channel printed circuit assembly unit is mounted on four 0.5-inch (12.7 mm) plastic standoffs on the Quick Release Chassis inside cover. The board has been modified at the factory to permit remote channel selection by replacing the two channel-select switches on the dual-channel printed circuit assembly with a right angle connector. An 8-conductor interface cable runs from the connector to the remote channel-select printed circuit assembly on the chassis' front panel.

2.6 System Cabling

There are four cabling configurations for the Quick Release Chassis:

- single-channel radial
- dual-channel radial
- single-channel daisy-chain
- dual-channel daisy-chain

In the radial configuration, each drive is connected to the controller by separate control and data cables. In daisy-chain configurations, each drive is connected to the controller by a separate data cable and a control cable shared with the other drives. Daisy chaining is only allowed in applications using the 9900 or CLUSTOR controllers.

3
PREINSTALLATION CONSIDERATIONS

Prior to unpacking the equipment or beginning the installation procedure, review the specifications and verify the site considerations and power requirements discussed in this section. Cautions and considerations during unpacking are also discussed.

3.1 Environmental and Physical Specifications

The following considerations must be met to maximize equipment life and reliability.

Space	Space allocation includes actual physical space required by the unit and additional requirements for service clearance, as well as installation access.
	Minimum service clearance is 3 feet in front of and behind the cabinet. Connecting cables need ample slack to allow repositioning of components during service.
Temperature	Ideal computer room temperature is 68 to 70 degrees F (20 degrees C), with a range of 65 to 75 degrees F considered acceptable. When adding a disk storage subsystem to an existing installation, determine the additional load on air conditioning.
Humidity	Humidity should be maintained in the range of 35 to 60 percent relative. Controlling humidity avoids the problems of static electricity or condensation.
Fire and Safety	Fire extinguishing systems should be in place. Confirm with the system manager that adequate fire precautions have been met.
Electrostatic Discharge	Static electricity is potentially dangerous to certain equipment. Static can be minimized with the use of special antistatic rugs or mats, chairs, and wrist-straps; maintaining humidity at 40 to 60 percent; and careful bonding of equipment frames.

3.2 Power Requirements

DC Power

The SI83/85 and 9733 8-inch disk drives require DC power to operate. The power is supplied by a switching-type power supply within the Quick Release Chassis that converts standard AC power to DC power.

System Industries recommends power from a dedicated secondary of a distribution transformer. When this is not possible, use an isolation transformer to reduce the effects of conducted power line transients. If possible, attach the host computer and peripherals to the same line.

Consider total current requirements for the installation site. Check your main power panel to ensure proper and adequate power is available for the entire site. The disk drive power requirements are found in the appropriate disk drive user's guide.

AC Neutral

Be careful not to confuse AC neutral with protective or frame ground. Frame ground prevents the buildup of dangerous voltages on equipment and protects personnel. It assures that any short circuit between a power phase and the cabinet draws enough current to trip the circuit's protective device immediately, rather than raising the potential of the equipment to a dangerous level. Additionally, this prevents spurious noise from entering the line. Never connect AC neutral to the frame of any equipment or the protective ground (except at the building's main electrical service entrance).

Neutral and safety ground are often connected together by the NEMA receptacles or at the circuit breaker neutral bus bar. Try to isolate neutral from safety ground in the circuit breaker box and ensure that conduit pipes are also isolated from other possible ground connections. Ideally, the equipment frame ground is isolated from neutral and other ground sources all the way back to the building main grounding rod.

AC Earth Ground

Be sure to maintain an adequate earth ground. If there is any question, perform an impedance test to ensure ground potential is less than 10 ohms. Refer to a grounding reference for measurement and grounding methods.

Typically, an earth ground suitable for computer equipment and peripherals consists of a 0.625-inch diameter copper rod driven into the earth to a depth of at least 12 feet. Since soil is quite variable in conductivity, chemicals such as salt or magnesium sulfate are added to the soil surrounding the rod to a depth of 2 feet. Periodic watering and chemical replenishment ensure an ongoing proper ground.

3.3 Unpacking

To avoid any question of liability, observe the following precautions.

- Do not open any container that appears damaged, except in the presence of the shipping agent or representative. Do not sign for any container that appears damaged.

- After opening a container, inspect the equipment for damage. Check contents against the bill of materials. If anything is missing, contact System Industries immediately.

- Keep all shipping containers in case the equipment needs to be shipped.

3.4 Site Preparation

Use the checklist on the following page to confirm the site specifications and requirements discussed earlier in this section. The checklist pulls out for convenience.

SITE PREPARATION CHECKLIST

SITE NAME	
PREPARER'S NAME	
DATE	

CHECK (✓) EACH ITEM WHEN COMPLETED.

GENERAL REQUIREMENTS

☐ Notified facilities.

☐ Notified system manager.

☐ Provided access to equipment.

☐ Provided access to telephone.

SITE PREPARATION

☐ No obstacles to impede equipment delivery.

☐ Sufficient space for equipment and working area.

☐ Environmental requirements.

☐ Fire and safety precautions.

☐ Voltage and frequency requirements.

☐ Power routing and cable lengths.

☐ Static control.

Notes: _____

_____

_____

4
INSTALLATION

This section provides the following information and procedures:

- Installing the Quick Release Chassis in a System Industries cabinet
- Installing the disk drives in the quick release trays
- Installing the dual-channel option
- Cabling the system

When installing a new Quick Release Chassis, complete the procedures in the order given in this section. Read each procedure carefully before beginning.

4.1 Installing the Chassis in the Cabinet

The Quick Release Chassis is mounted into a System Industries cabinet with a pair of slide rails and two pairs of mounting brackets for the rails. (See Figure 4-1.) These components and their mounting hardware are shipped with the chassis. The chassis has a hinged front panel that is secured to the front of the cabinet. There are two types of front panels, depending on the System Industries cabinet in which the chassis will be installed: a formed metal, 19-inch wide panel, and a molded plastic, 21-inch wide panel.

Before You Start

Before starting any installation procedure that requires extending the Quick Release Chassis from the cabinet, stabilize the cabinet using either the stabilizer feet (60- or 42-inch cabinet) or the stabilizer bar (Theta cabinet). Refer to the cabinet manual for instructions.
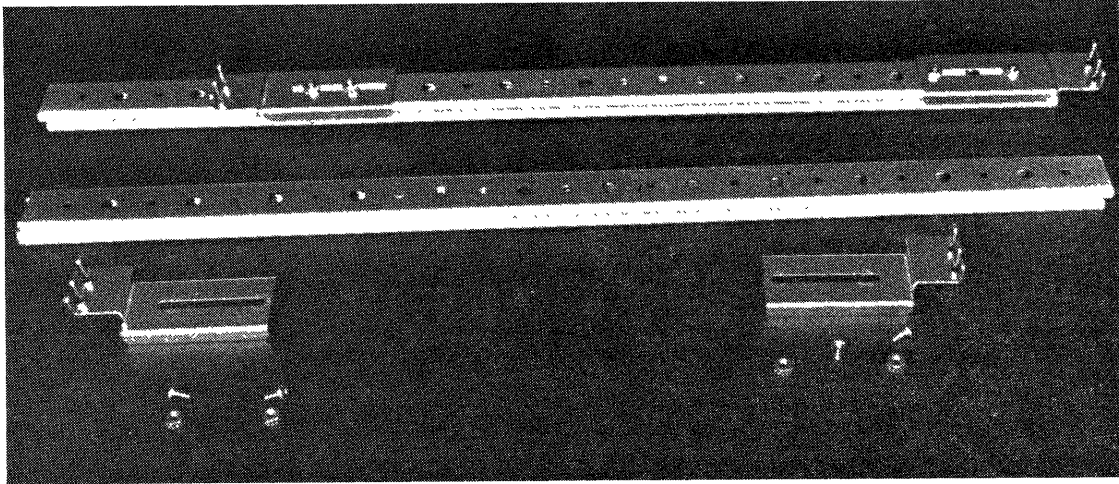
Figure 4-1. Quick Release Cabinet Mounting Hardware

The following procedure explains how to install the slide rails and mount the Quick Release Chassis in the cabinet.

1. First have the system manager do a system shutdown and then power down all devices in the cabinet.

2. If the slide rails were attached to the Quick Release Chassis for shipment, they must be removed. The rails are held in place by four screws seated in pem nuts. Extend the rails and mark the location of the mounting screws before removing the rails. The second and third screws at the front of the chassis are four inches (10.2 cm) apart. When the rails have been removed, go to Step 4.

3. If the rails were not attached to the chassis, mount the support brackets with the phillips screws and kep nuts (nuts with externally retained star washers), as shown in Figure 4-1. Do not tighten them yet, because slight adjustments may be necessary when installing them in the cabinet. Go to Step 4.

4. Note that the vertical rails are U-shaped. Mount the nut bars on the rear of the front-most doglegs of the two vertical rails at the front of the cabinet. Be sure the screw leads are on the outside. Remember, the third (bottom) hole is not used.

5. Do the same on the rear-most doglegs at the back of the cabinet.

6. Install the slide rails, adjusting the mounting brackets as necessary. Tighten the kep nuts securely.

7. Pull the slide rails out as far as possible.

8. Put the chassis into the cabinet and line up the first three screw holes on the sides of the chassis with the first three previously marked holes in the slide rails. Be sure the rear of the chassis is supported. Seat the Phillips screws in the first three holes.

9. Adjust the slide rails to locate the rear screw holes and seat the screws. Be sure all the screws are securely tightened.

4.2 Installing the Drives in the Quick Release Trays

Disk drives are normally installed at the factory prior to shipment. This procedure is provided in the event drives need to be added or replaced.

Place the drives and trays on a flat surface to complete this procedure. You will need Phillips screwdrivers and a pair of needle-nose pliers.

1. Remove the cover of the drive's printed circuit board.

2. The drive tray's handle support frame is secured by six screws, four at the back of the tray (two on each side) and two in the front, one on the left and one on the right (Figure 4-2).
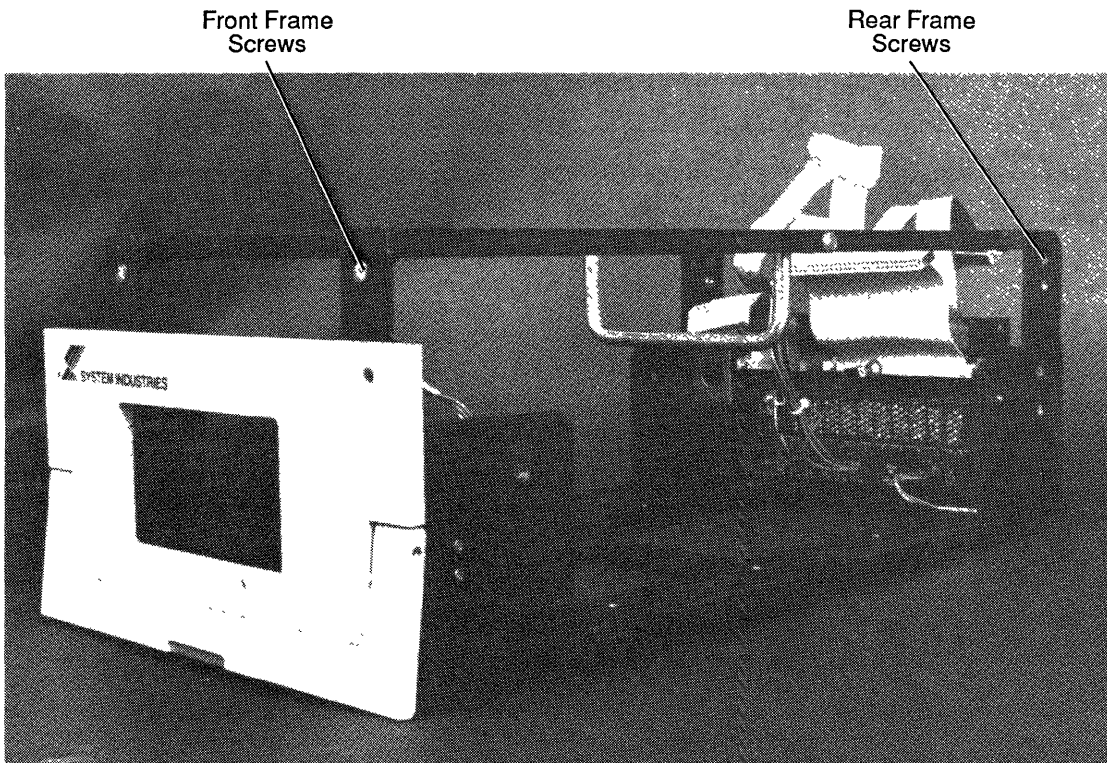
Front Frame
Screws

Rear Frame
Screws

Figure 4-2. Locations of Drive Tray Frame Screws

3. At the back of the tray assembly, remove the top screw of each pair.

4. Loosen the bottom screw of each pair.

5. Remove the two front screws and raise the handle until it is almost straight up.

6. Fold the I/O, power, and ground cables over the back of the tray.

7. Remove the two angle brackets at the rear of the tray (Figure 4-3). These will be reinstalled after the drive is in place.
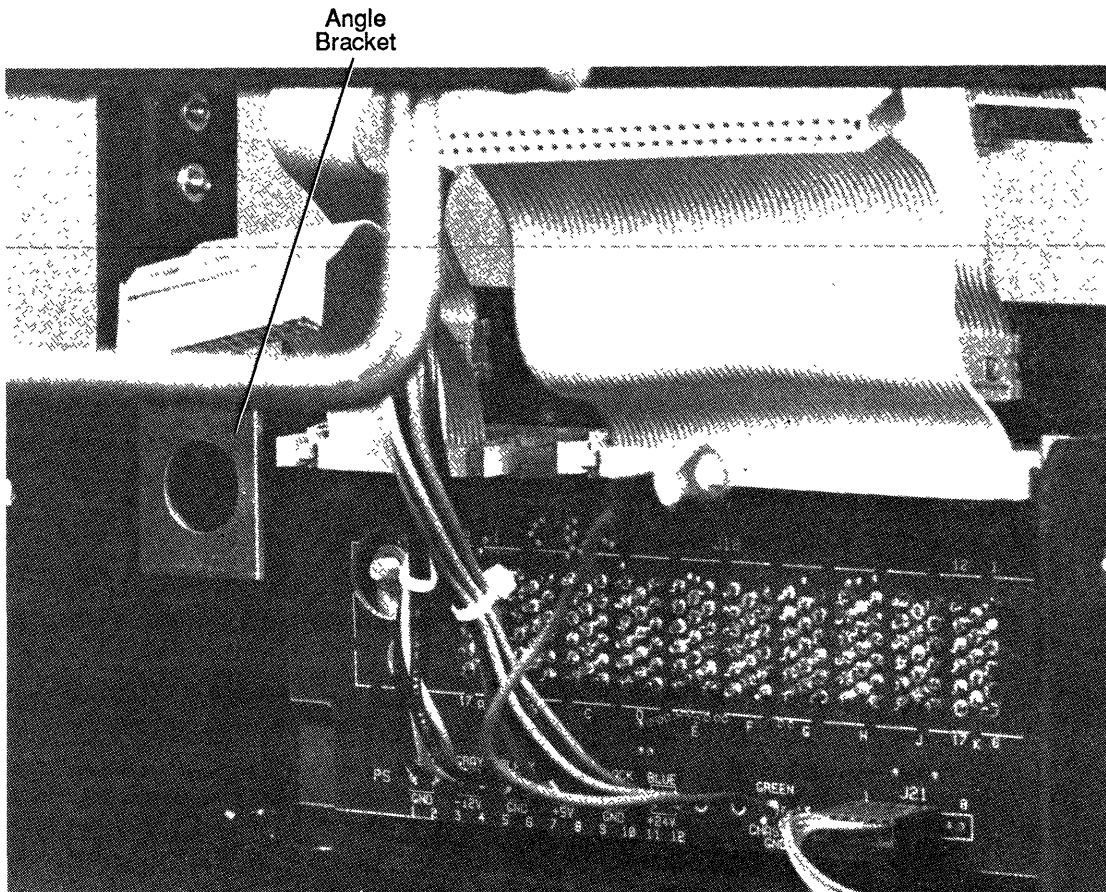

Figure 4-3. Angle Bracket Location

8. Position the disk drive as shown in Figure 4-4.
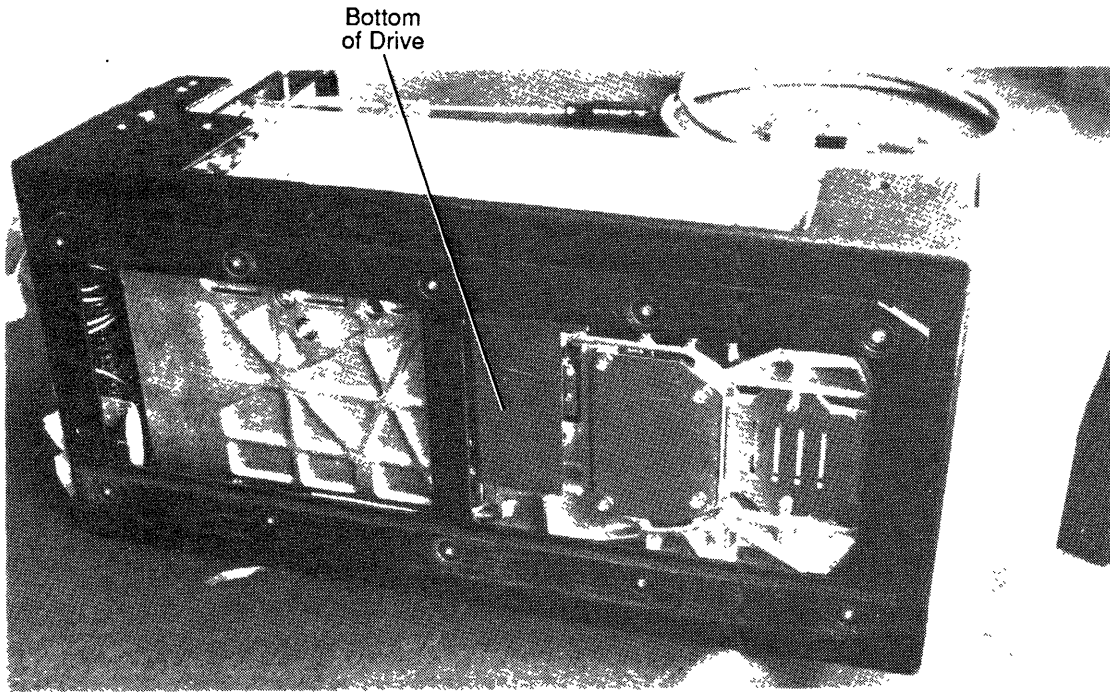
Bottom
of Drive

Figure 4-4. Positioning the Drive

9. Insert the drive into the tray, being careful not to crimp the drive's front panel interface ribbon cable.

10. Secure the drive's side shock mounts.

11. Place the tray on its other side and repeat Step 10.

12. Put the drive/tray assembly on its base and connect the I/O and power cables as shown in Figure 4-5.
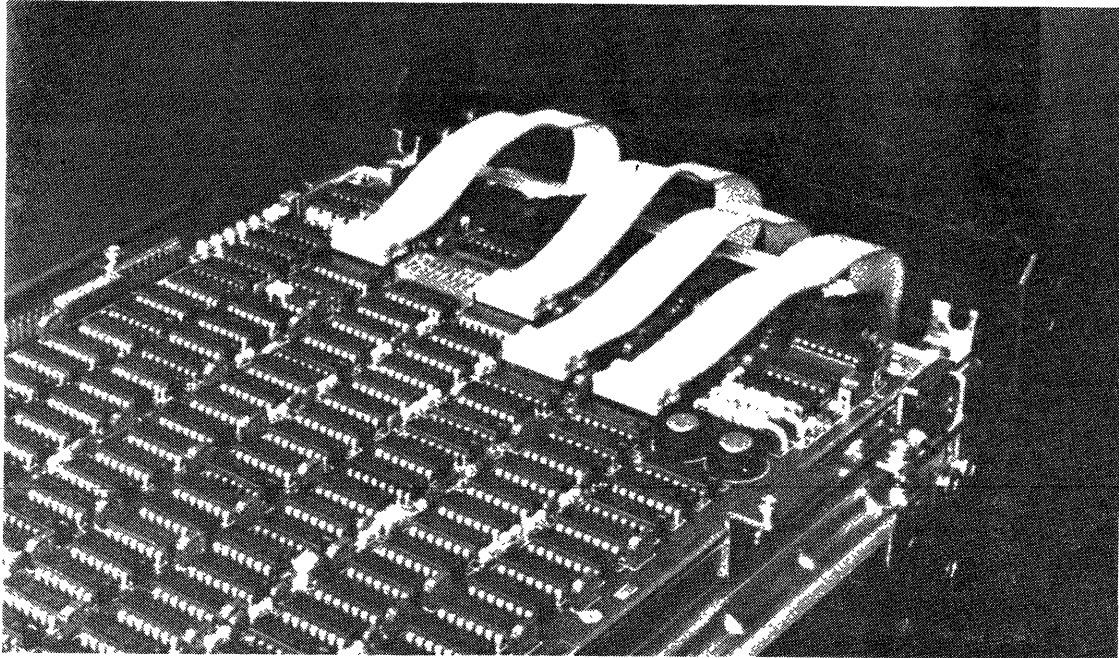
Figure 4-5. I/O and Power Cable Connections

13. Using the needle-nose pliers, reinstall the two angle brackets removed in Step 3 at the rear of the tray.

14. Make sure the part of the bracket with the two pem nuts faces the rear of the drive. Start on the right side (as viewed from the front of the drive). Using the pliers, position the bracket so that the large hole lines up with the rear shock mount of the drive.

15. From the rear of the tray you can reach the bracket with your index finger. Hold the bracket against the side of the tray and line the pem nuts up with the screw holes on the side of the drive tray. Loosely thread a 6-32 flathead phillips screw to one of the pem nuts.

16. Start the second screw. Now tighten both of them.

17. The procedure for mounting the left bracket is basically the same, but you cannot access the bracket from the rear of the tray.

18. Remount the drive's logic board cover.

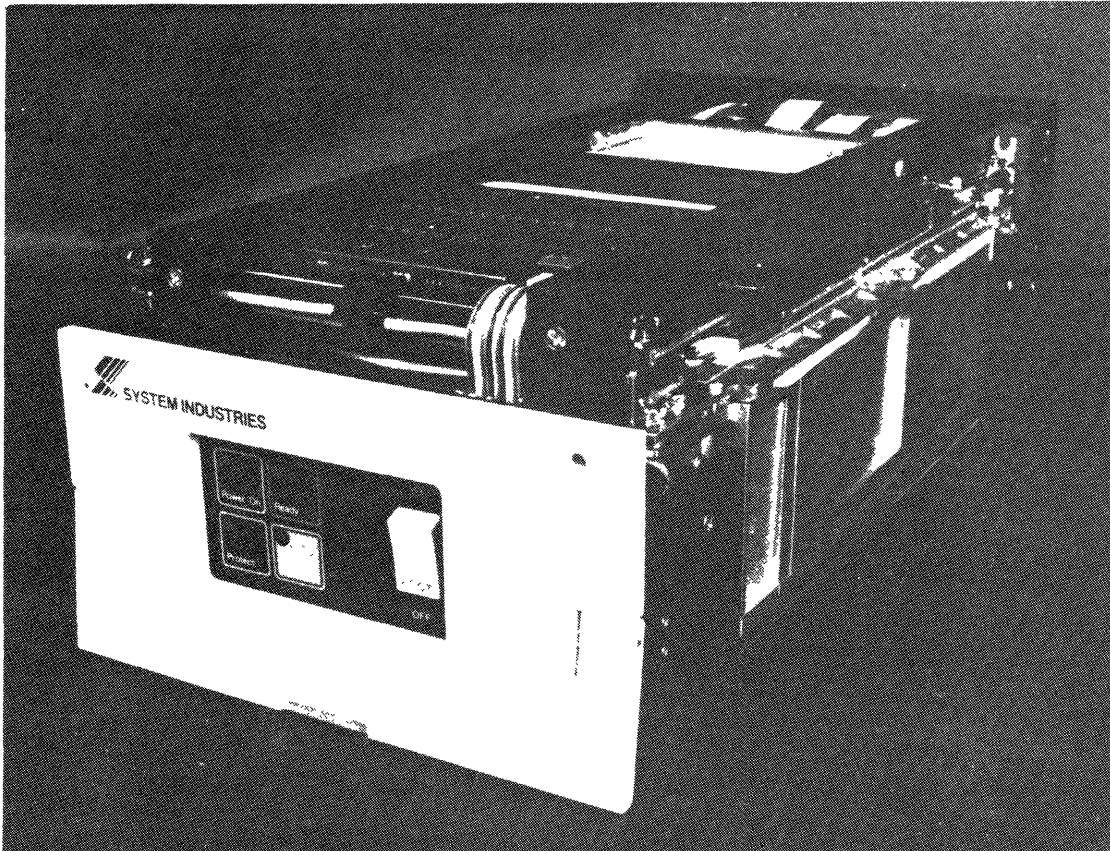19. Remount the support frame. Figure 4-6 shows the mounted drive.

Figure 4-6. Assembled Quick Release Disk Drive

4.3 Dual-Channel Option Installation

The dual-channel assembly consists of the printed circuit assembly, six interface cables, and mounting hardware. The assembly unit is mounted on four 0.5-inch (12.7 mm) plastic standoffs on the Quick Release Chassis inside cover. The installation procedure is as follows:

1. Mount the printed circuit assembly on the standoffs and route the channel control/data interface cable to the printed circuit assembly on the front panel.

2. The remaining switch next to the channel control/data connector is the release timer switch (RLTM). It has no ON/OFF labels. Set the switch to the ON position by moving it toward the 60-pin SMD connector immediately adjacent to it. In this position RESERVED and PRIORITY SELECT are released approximately 500 milliseconds after the drive has been deselected.

3. There are four 14-conductor cables with male connectors at both ends. If the cables were connected to the printed circuit assembly at sockets S1, S2, S3, and S4 at the factory, leave the polystyrene protectors at the free ends of the cables in place and run the cables under the dual-channel board. The procedure for connecting these cables is given in "Daisy-Chain Cabling, Dual-Channel Configuration," below.

4.4 System Cabling

This section contains cabling procedures for the following four configurations:

- single-channel radial

- single-channel daisy-chain

- dual-channel daisy-chain

In the radial configurations, each drive is connected to the controller by separate control and data cables. In daisy-chain configurations, each drive is connected to the controller by a separate data cable and a control cable shared with the other drives.

NOTE

The terminators called out in these procedures must be of a type that is compatible with four-wall connectors.

Before beginning any cabling procedure, do the following:

- Be sure all power to the chassis has been turned off. Disconnect the power cord.

- Remove the two chassis covers.

- Open the rear door. It is held in place by two quarter-turn fasteners.

- Disconnect the break-away connector on the power supply. It is mounted on four studs on the base of the chassis and held in place by four nuts. Remove it from the chassis to expose the SMD interfaces on the rear of the mounting tray (Figure 4-7).
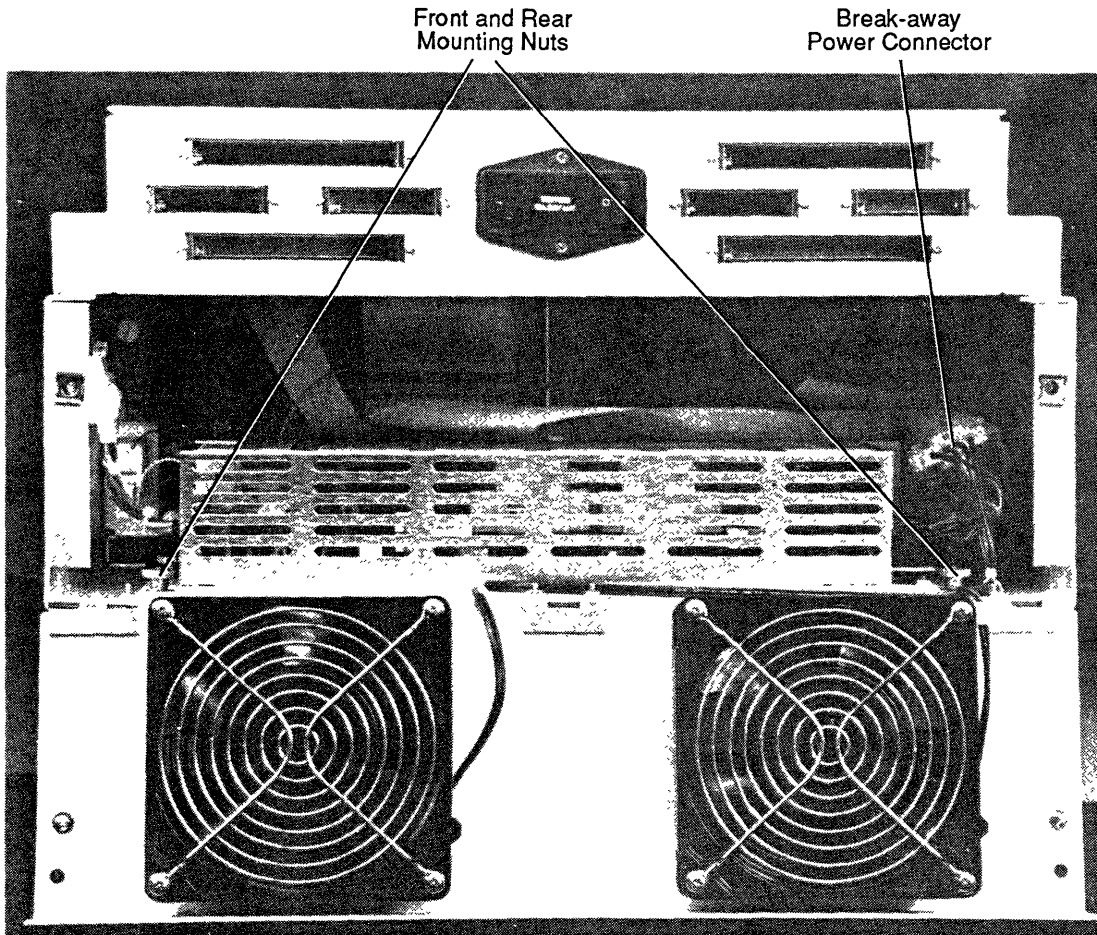
Front and Rear
Mounting Nuts

Break-away
Power Connector

Figure 4-7. Break-Away Connectors

Radial Cabling, Single-Channel Configuration

The materials needed for cabling two drives are eight cable assemblies, two terminators, and mounting hardware. The cable assemblies are listed below.

- Internal control cables
- Internal data cables
- External control cables
- External data cables

The internal cables have female connectors at one end and flanged male connectors at the other. The flanged connectors are notched to accommodate the keyed, four-wall shielded external cable connectors (Figures 4-8 and 4-9). There are special internal cable assemblies for use with the 9900 Controller and the CLUSTOR Controller (Figure 4-10). These cables run from the controller's disk interface board(s) to the I/O ports on the back of the Quick Release Chassis.
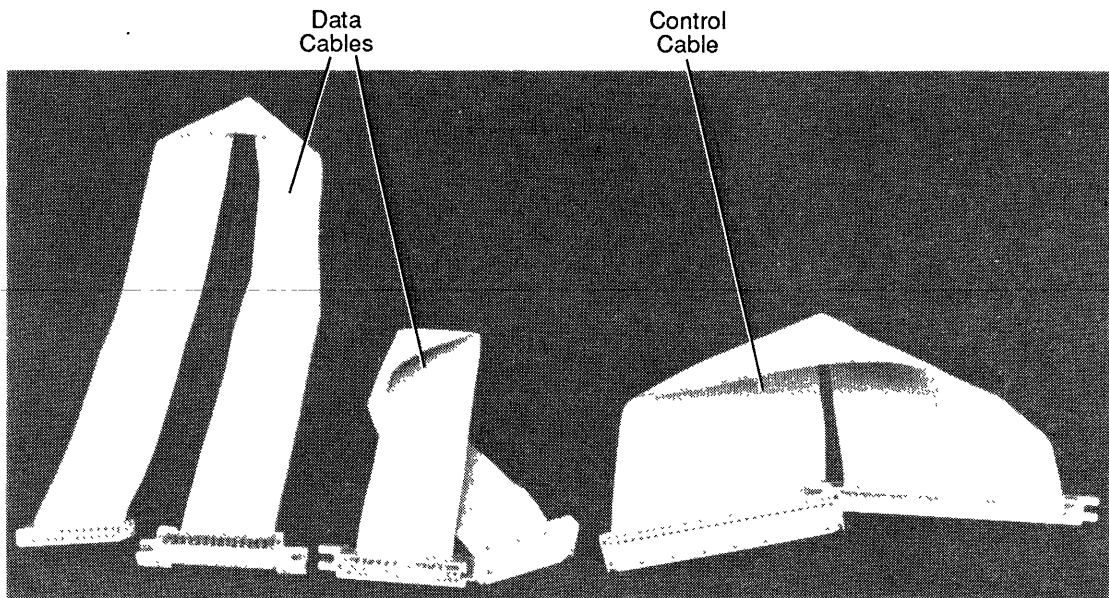

Figure 4-8. Internal Control/Data Cable Assemblies

Data   Control
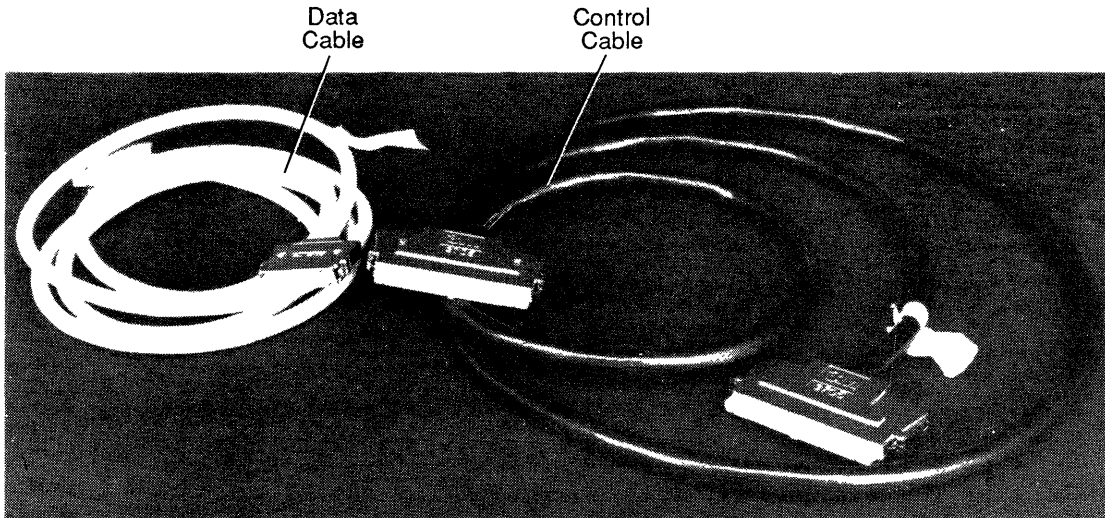Cable   Cable

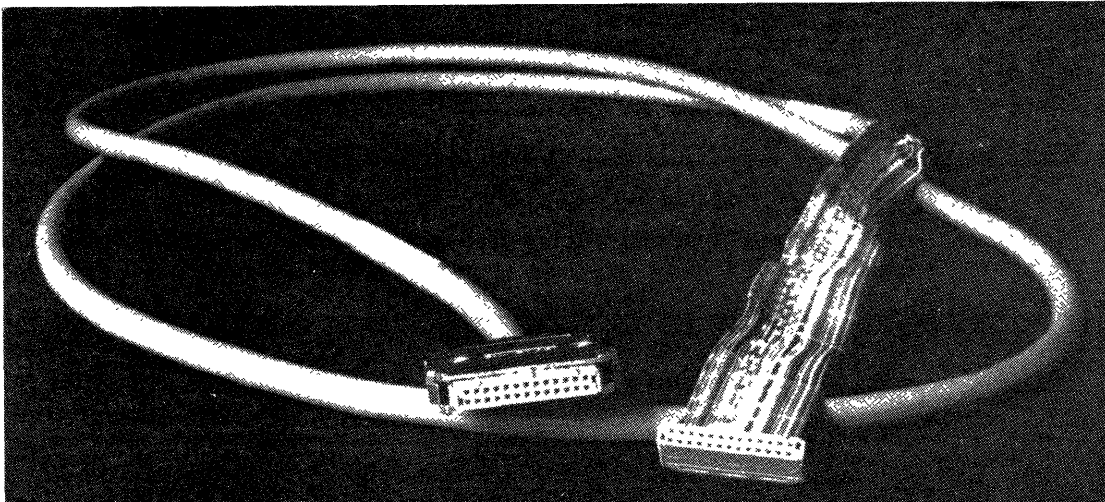Figure 4-9. External Cable Assembly

Figure 4-10. Internal SMD Cable Assembly for 9900 and CLUSTOR

The I/O ports on the rear door are shown in Figure 4-11 and labeled as described in Table 4-1.

Table 4-1. Left and Right Drive I/O Ports (Rear)

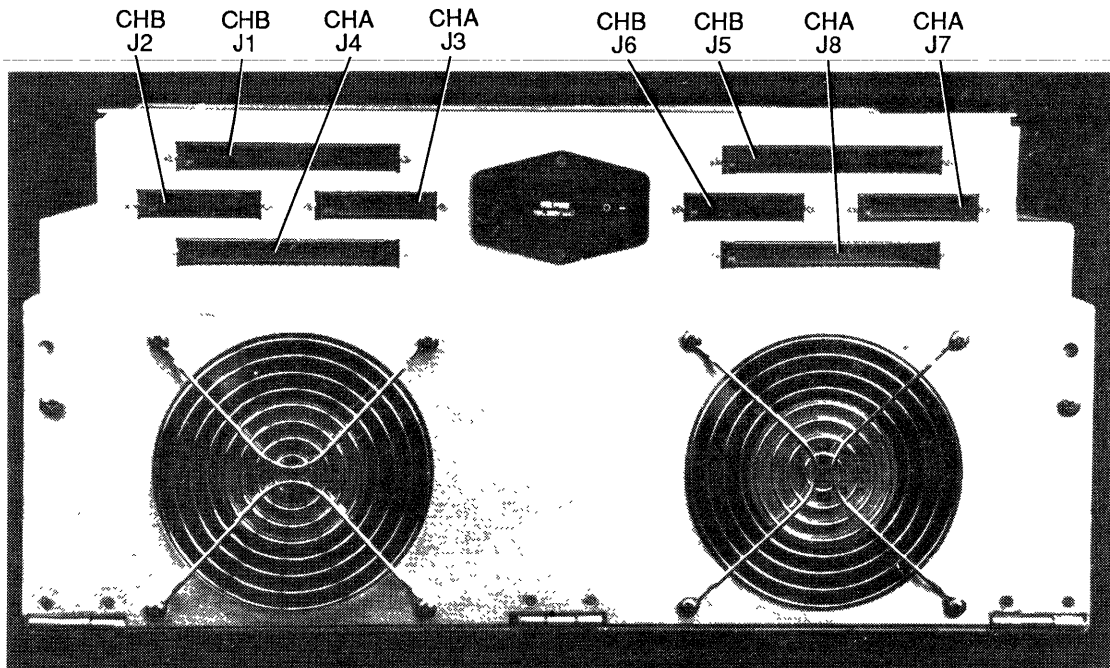| LEFT DRIVE	RIGHT DRIVE
CHB J1 (60-pin)	CHB J2 (60-pin)
CHB J2 (26-pin)	CHB J6 (26-pin)
CHA J3 (26-pin)	CHA J7 (26-pin)
CHA J4 (60-pin)	CHA J8 (60-pin)

Figure 4-11. Left and Right Drive I/O Ports

The cabling procedure is as follows:

1. Starting on the left, attach the flanged connectors of an internal cable pair to CHA J4 and CHA J3 (control and data cables, respectively). Label them J4 and J3.

2. Connect the cables to J8 and J9 on the left chassis interface board (Figure 4-12).

3. Install a terminator in J7 (Figure 4-12) and ground it.

4. On the right side, attach another pair of internal cables to CHA J8 and CHA J7 (control cable and data cable, respectively).

5. Connect the cables to J8 and J9 on the right chassis interface board.

6. Install a terminator in J7 on the same interface board and ground it.

7. Connect a pair of external cables to CHA J3, CHA J4 (label them) and route them to the transition panel at the bottom of the cabinet.

8. Repeat Step 7 for CHA J7 and CHA J8.
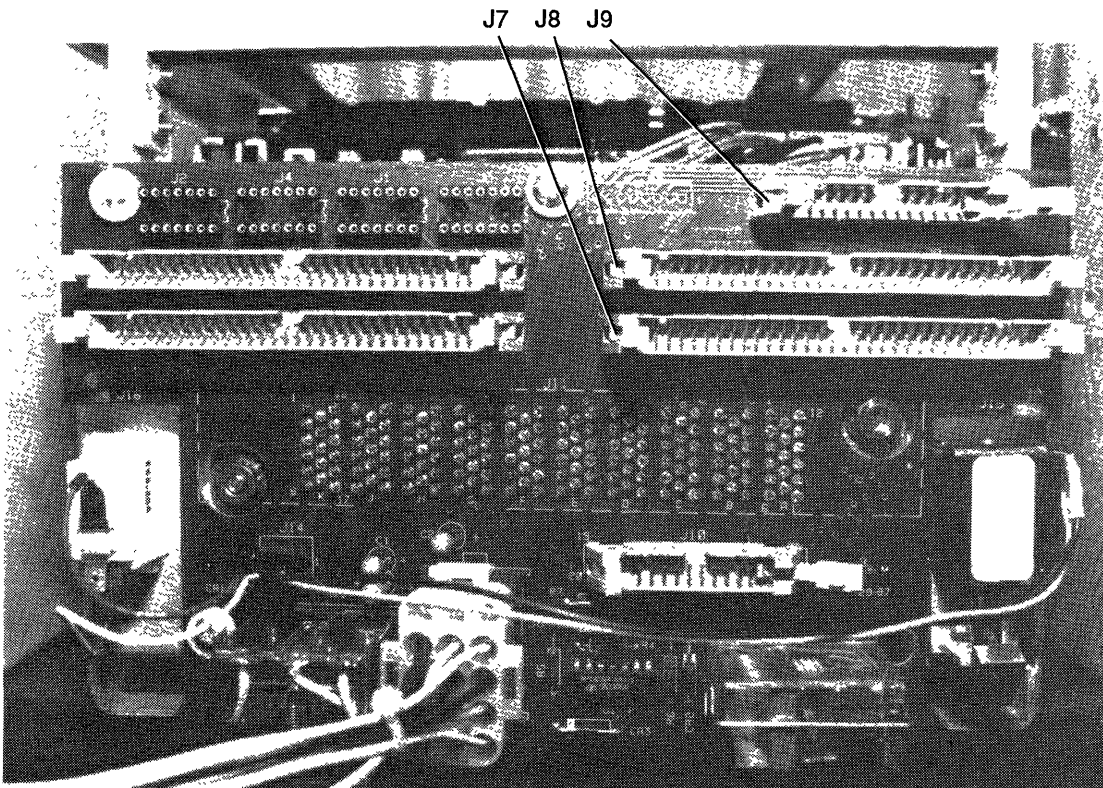
9. Replace the power supply and reconnect it.

Figure 4-12. J7, J8, and J9 Connector Locations on the Interface Board

Daisy-Chain Cabling, Single-Channel Configuration

The installation materials are listed below.

- Internal control cable with a flanged, male connector at one end and a standard female connector at the other end (Figure 4-8)
- Internal control cable with female connectors at both ends (Figure 4-13)
- Two internal data cable assemblies with a flanged, male connector at one end and a standard female connector at the other end (Figure 4-8)
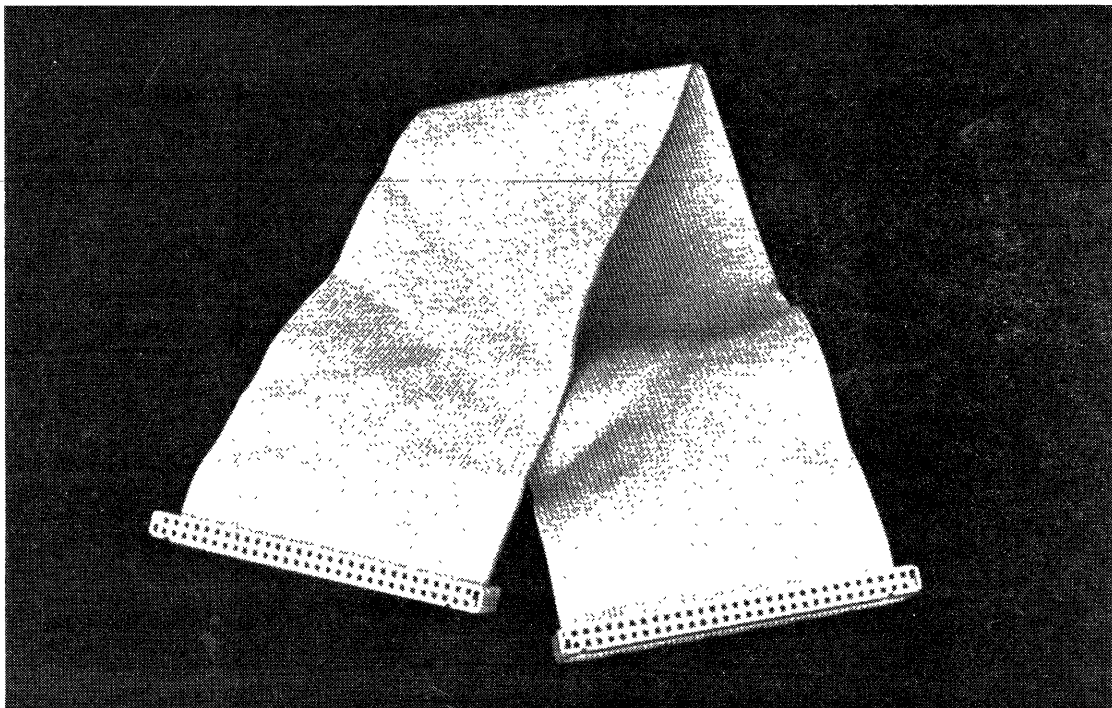- Terminator (four-wall compatible)

Figure 4-13. Daisy-Chain Control Cable Assembly, Single Channel

The cabling procedure is as follows:

1. Starting on the left side of the chassis, attach the flanged connectors of a pair of internal control/data cables to CHA J4 and CHA J3, respectively. Label them J4 and J3.

2. Connect them to J8 and J9 on the chassis interface board.

3. Connect the other internal control cable, the one with female connectors on both ends, to J7 on the left interface panel and route it to J8 on the right interface panel.

4. Install a terminator in J7 on the right interface panel.

5. Connect an external data cable to CHA J3 and an external control cable to CHA J4 (label them) and route them to the transition panel at the bottom of the cabinet.

6. Repeat Step 5 for CHA J7.

7. Replace the power supply and reconnect it.

Daisy-Chain Cabling, Dual-Channel Configuration

The installation materials are listed below.

- Internal control cable with flanged, male connectors at both ends and two female separation connectors spaced evenly along the cable (Figure 4-14).

- Two data cables with female connectors at both ends.

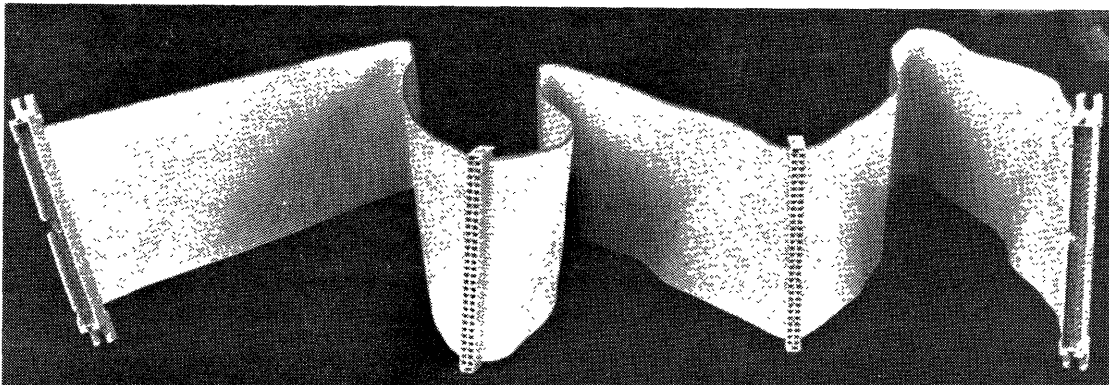- Two control cables and two data cables with flanged, male connectors and female connectors.

Figure 4-14. Dual-channel, Daisy-chain Control Cable

The cabling procedure is as follows:

1. Starting with the left drive, label the connectors on the free ends of the 14-conductor cables on the dual-channel board in this order, from left to right: S2, S4, S1, and S3.

2. Connect the data cable with female connectors at both ends to CN24 on the dual-channel board.

3. Pass all the cables under the dual-channel board and route them to the interface panel (Figure 4-15).

4. Put a half twist in each 14-conductor cable to assure proper pin alignment. Remove the polystyrene plastic blocks and seat the connectors in the J1-J4 sockets on the left interface

panel, from left to right, in the following order: S2 to J2, S4 to J4, S1 to J1, S3 to J3. Repeat this for the right drive.

5. Connect the data cable from CN24 on the dual-channel board to J9 on the chassis interface board of the left drive. Repeat this for the right drive.

6. Using the mounting hardware supplied, attach the flanged ends of the multiconnector control cable to CHB J1 and CHB J5. Be sure the windows in the connectors are facing up.
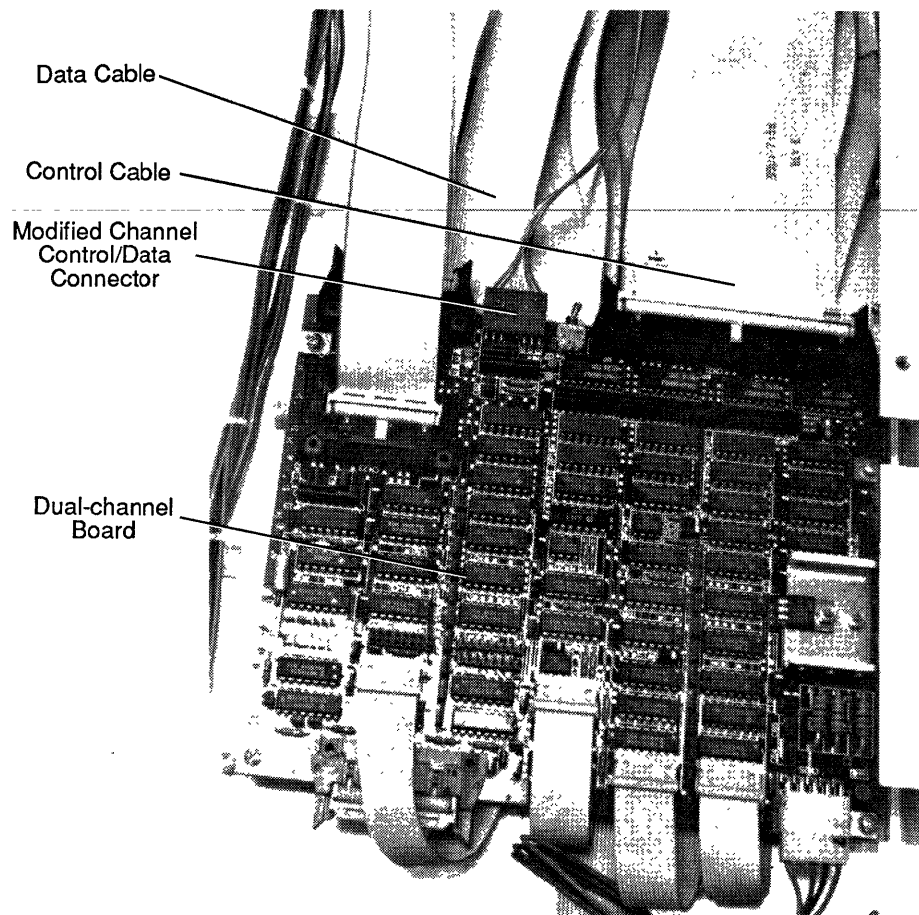

Figure 4-15. Dual-Channel Board Interface Cable Arrangement

7. Mount the flanged ends of the long data cables to CHB J2 and CHB J6.

8. Connect the female separation connectors of the control cable to CN21 on the dual-channel boards.

9. Attach the flanged ends of two pairs of control and data cables to CHA J4 and to CHA J3.

10. Connect the CHB J2 cable to CN22 on the dual-channel board and the CHA J3 cable to CN23 on the dual-channel board.

11. Connect CHB J6 to CN22 and CHA J7 from to CN23 on the second dual-channel board.

12. Route a control cable from J7 on the left drive interface board to J8 on the right drive interface board. Install a terminator in J7 and ground it on the right drive.

13. Connect two pairs of external cables to I/O ports CHB J1-CHA J4 on the left side of the chassis and route them to the transition panel at the bottom of the cabinet.

14. Connect another pair of external cables to I/O ports CHB J5 and CHB J6 on the right side of the chassis and route them to the transition panel.

15. Replace the power supply and reconnect it.

5
OPERATION

This section gives the procedures for removing and replacing disk drives in the Quick Release Chassis.

5.1 Removing a Drive

At the back of the mounting tray is a locking mechanism that interfaces with a timing circuit to prevent removal of the drive while it is spun up. After the green LED light goes on and before pulling the drive assembly outward, gently push in on the tray assembly to release the lock latch. Pulling out on the drive assembly prior to latch disengagement can result in the latch sticking closed.

CAUTION

Remove or insert a drive very carefully if the other drive in the
chassis is operating. A forceful insertion or removal could cause
a head crash in the other drive, especially during a seek operation.

The drive removal procedure is as follows:

1. Open the front panel of the chassis.

2. Carefully push the release bar at the base of the drive's bezel to release the removable tray's handle (Figure 5-1).
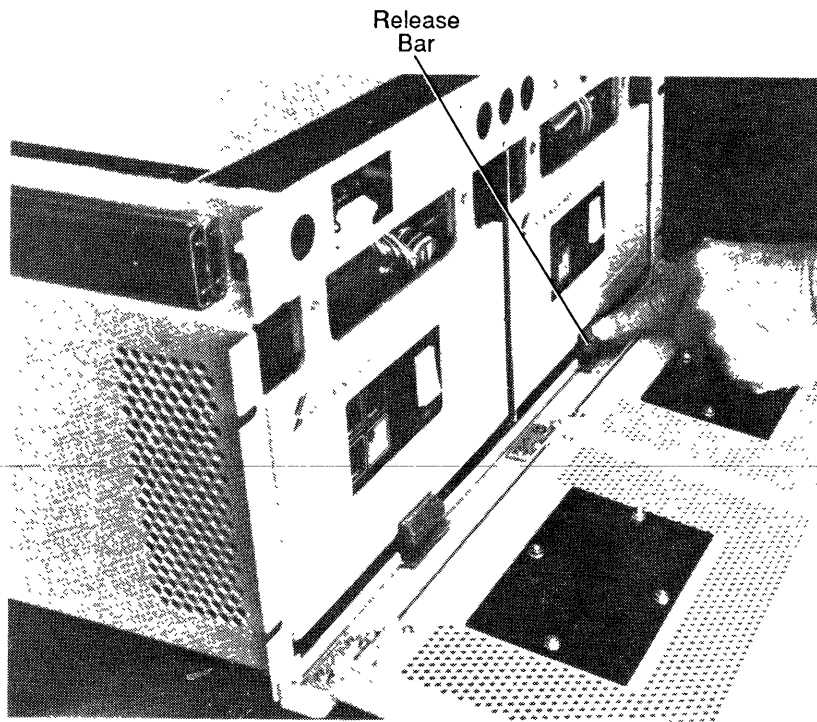
Figure 5-1. Releasing the Drive's Front Handle

3. Lift the handle slowly until it is perpendicular to the face of the bezel. During this movement of the handle the LED changes color from red to amber (Figure 5-2).

4. When the LED turns green, the locking mechanism releases and the drive can be removed. The amber to green cycle takes 40 seconds.

WARNING

Once the locking mechanism has been released, there are no restraining mechanisms. The drive and removable tray weigh about 40 lbs (18 kg).
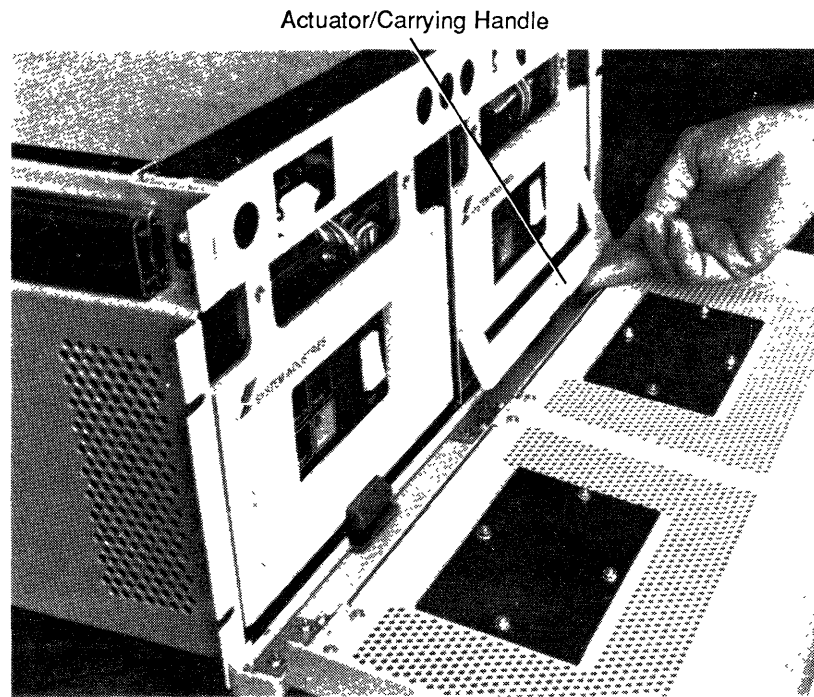
Actuator/Carrying Handle

Figure 5-2. Activating the Release Mechanism

5. Pull the drive slowly forward until the handle in the middle of the mounting tray frame has just cleared the front of the chassis.

6. Grasp the handle on the top of the drive and the handle on the bezel (Figure 5-3).

7. Pull the drive out carefully. The recommended way to carry the drive after it has been removed is by the handle on the bezel.
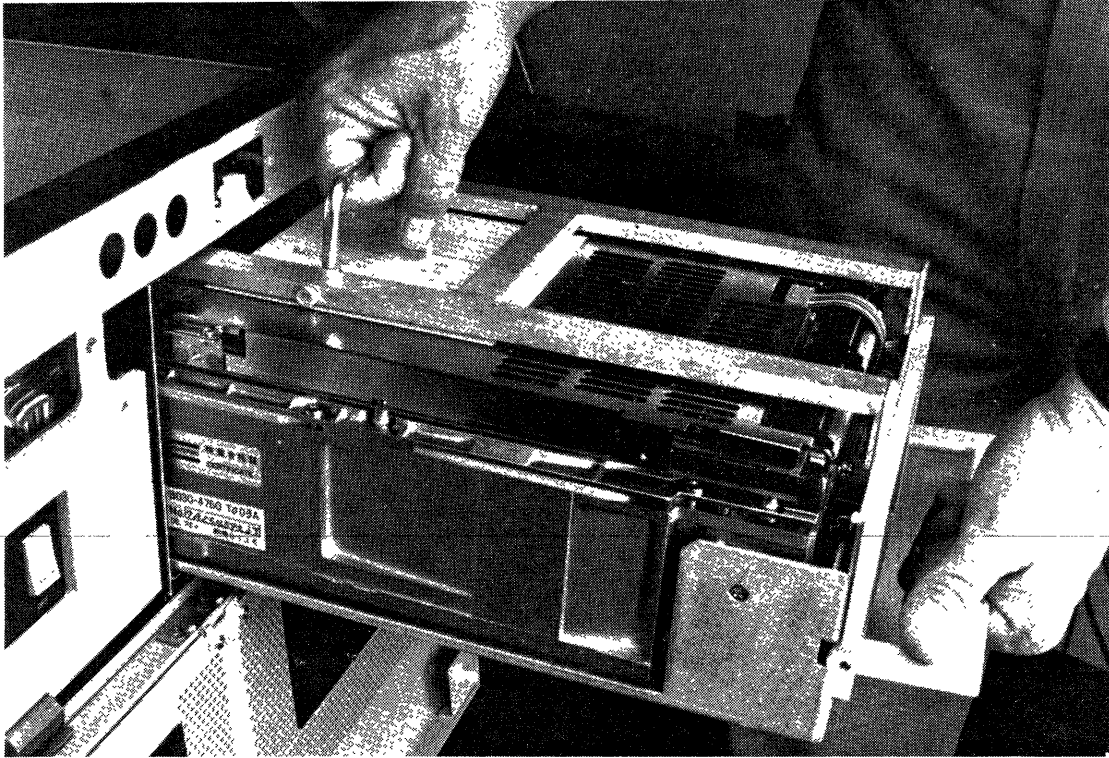
Figure 5-3. Removing the Drive

5.2 Inserting a Drive

Use the following procedure to insert a disk drive in the chassis:

1. To insert the drive, carefully open the front panel.

2. Engage the removable tray with the mounting tray in the chassis.

3. Push the drive in slowly, until you encounter resistance.

4. Place your hands on the bezel and push gently until the drive engages the chassis interface panel assembly (Figure 5-4).

5. Lower the front handle and push it until the release bar engages it.
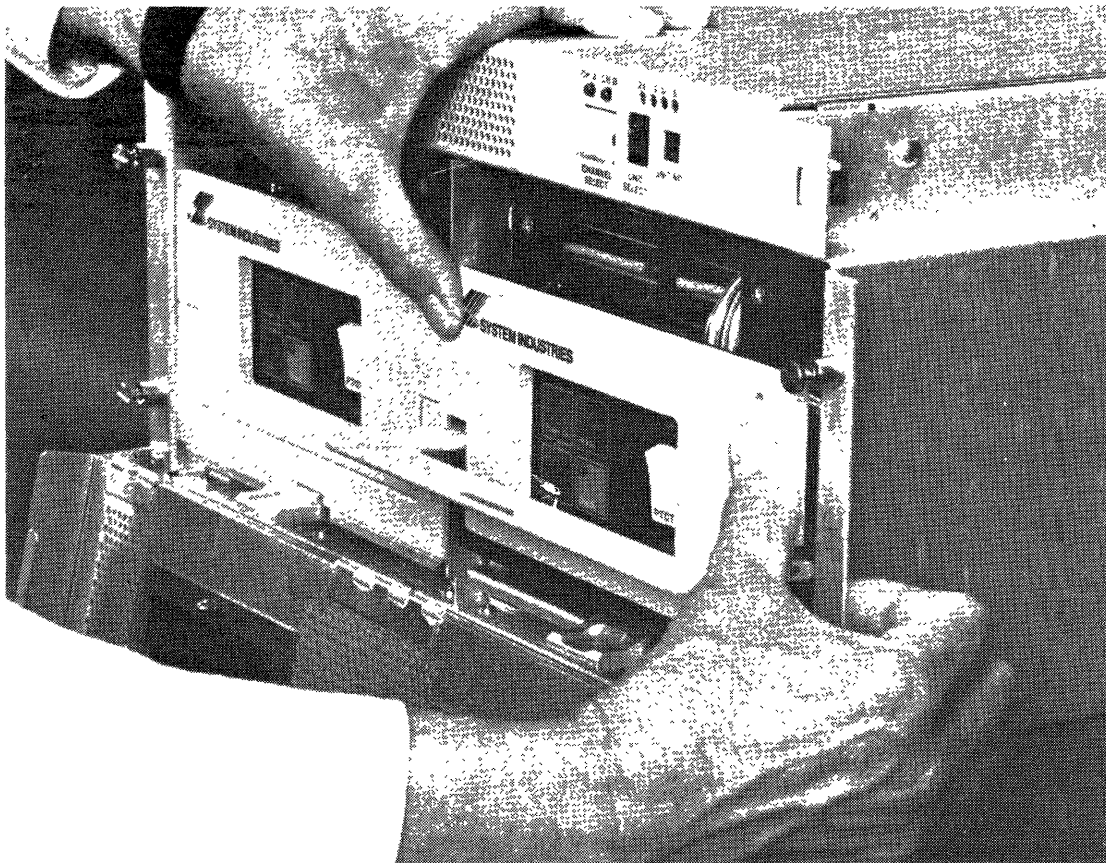
6. The drive will now start to spin up. When spin up is complete, the READY LED will go on.

Figure 5-4. Seating the Drive