Convex Computer Corporation
3000 Waterview Parkway
P.O. Box 833851
Richardson, TX 75083-3851
United States of America
(214)497-4000

CONVEX Fiber Distributed Data Interface Service Guide

Order No. DHW-275

First Edition
December 1991

CONVEX Press
Richardson, Texas
United States of America

CONVEX
Fiber Distributed
Data Interface
Service Guide

Order No. DHW-275

Printed in the United States of America

Revision Information for

CONVEX Fiber Distributed Data Interface Service Guide

Edition	Document No.	Description
First	081-012630-001	First release. December 1991.

FCC Notice

Note

This equipment generates, uses, and can radiate radio frequency energy. And, if not installed and used in strict accordance with the instruction manual, it may cause harmful interference to radio communications.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

When this equipment is operated in a residential area, it is likely to cause interference. In this case, the interference must be corrected at the operator's expense.

Do not connect external equipment to the utility outlets in CONVEX equipment cabinets. Unauthorized connection voids all agencies' emissions certification.

Contents

How to use this guide xi

1 Description and specifications 1-1
1.1 Overview 1-1
1.2 Hardware features 1-2
1.3 Specifications for V/FDDI 4211 1-2

2 Configuration and installation 2-1
2.1 Unpacking and inspection 2-1
2.1.1 Electrostatic discharge (ESD) damage 2-1
2.1.2 Inspection for damage 2-2
2.1.3 Unpacking 2-2
2.1.4 Damage claims 2-2
2.2 Configuration 2-3
2.2.1 Base address jumper selection 2-3
2.2.2 Request/grant level jumper settings 2-6
2.2.3 VMEbus interrupt request jumper setting 2-7
2.3 Installation 2-7
2.3.1 Extending the VMEbus chassis 2-7
2.3.2 Installing the FDDI controller 2-10
2.4 FDDI cable connections 2-12
2.4.1 Controller board 2-12
2.4.2 Fixed shroud duplex (FSD) bracket 2-15
2.5 Postinstallation 2-17

3 Integration and test 3-1
3.1 Overview 3-1
3.2 Software integration 3-1
3.3 Testing the FDDI 3-2

4 Maintenance procedures and IPB 4-1
4.1 Removal 4-1
4.2 Replacement 4-3
4.3 Illustrated parts list 4-3

Figures

Figure 1-1 CONVEX VMEbus FDDI controller environment 1-1
Figure 2-1 Jumper configuration for base address 0x6000 2-4
Figure 2-1 Jumper configuration for base address 0x6200 2-5
Figure 2-3 Standard CONVEX FDDI jumper settings 2-6
Figure 2-4 VMEbus chassis power switch 2-8
Figure 2-4 Expansion cabinet stabilizer bars 2-9
Figure 2-6 Single (6U) VMEbus circuit board adapter 2-11
Figure 3-1 Example /ioconfig file 3-2
Figure 4-1 FDDI board removal 4-2

Tables

Table 1-1 FDDI board specifications 1-2
Table 2-1 Static charge levels and relative humidity 2-2
Table 2-2 Controller address pin positions 2-3
Table 4-1 FDDI parts list 4-3
Table 4-2 Clamp assembly parts list 4-3
Table 4-3 Connector bracket parts list 4-4

How to use this guide

Purpose and audience

The *CONVEX Fiber Distributed Data Interface (FDDI) Service Guide* provides a general overview of the CONVEX Fiber Distributed Data Interface (FDDI) subsystem and related hardware and describes how to:

- Install a CONVEX FDDI and related hardware
- Integrate a CONVEX FDDI and related hardware into the CONVEX Operating System (ConvexOS)
- Test a CONVEX FDDI and related hardware
- Remove and replace a CONVEX FDDI and related hardware

This document is intended for:

- CONVEX Customer Support Engineers and CONVEX manufacturing personnel
- Customers who install and maintain their own CONVEX supercomputer systems

Organization

This document consists of the following sections.

- **Chapter 1, "Description and specifications"**—Describes the CONVEX FDDI and related hardware. Defines and lists electromechanical and environmental specifications.
- **Chapter 2, "Unpacking and installation"**—Provides guidelines on how to unpack and install a CONVEX FDDI and related hardware.
- **Chapter 3, "Integration and test"**—Explains how to integrate a CONVEX FDDI and related hardware into ConvexOS. Explains how to test a CONVEX FDDI and related hardware.
- **Chapter 4, "Maintenance procedures and IPB"**—Provides removal and replacement instructions for a CONVEX FDDI and related hardware.

Notational conventions

Notational conventions are systems of characters, symbols, terms, or abbreviated expressions used to express technical facts or quantities as established by this guide. The following notational conventions are used in this document:

- *Italic* is used for emphasis and also designates release tape titles and titles of publications.
- `Constant-width` font is used to indicate commands and file contents.

All CONVEX illustrations have an illustration file number at the bottom right-hand corner that is for CONVEX use only.

The following are examples of warnings, cautions, and notes and their typical content as used in CONVEX documents:

Warning

Warnings highlight procedures or information necessary to avoid injury to personnel. A warning immediately precedes the critical information and includes a description of the hazard.

Caution

Cautions highlight procedures or information necessary to avoid damage to equipment, damage to software, loss of data, or invalid test results. A caution immediately precedes the critical information and includes a description of the possible damage.

Note

Notes highlight information that is supplemental in nature. The note immediately precedes or follows the highlighted information.

Associated documents

Using this hardware successfullly may require more information than is contained in this manual.

CONVEX Computer Corporation provides the following documents to help you with FDDI:

- *CONVEX Internet Services System Manager's Guide*, Order No. DSW-142
- *ConvexOS System Management Doc Set*, Order No. DSW-015, consisting of *Managing ConvexOS: Operations Guide* and *Managing ConvexOS: Operations Guide*
- *CONVEX Fiber Distributed Data Interface (`dev_vfddi`) Diagnostics Manual*, Order No. DHW-276

Ordering documents

To order the most current edition of this or any other CONVEX document, send requests to

CONVEX Computer Corporation
Customer Service
PO Box 833851
Richardson, Texas 75083-3851 USA

Include the order number with the request. The order number is on the title page of the manual and begins with the letters "DSW" or "DHW."

Technical assistance

Hardware, software, and documentation support can be obtained through the CONVEX Technical Assistance Center (TAC):

- From all locations in the continental United States, call 1(800)952-0379.
- From locations in Canada, call 1(800)345-2384.
- From all other locations, contact the nearest CONVEX office.

Using the `contact` utility

The TAC recommends using the `contact` utility to report a hardware, software, or documentation problem. The `contact` utility is an interactive program that helps the TAC track reports and route them to the CONVEX personnel most qualified to fix a problem. After you invoke `contact`, it prompts you for information about the problem. When you finish your report, `contact` mails it to the TAC electronically.

The TAC notifies you within 48 hours that your report has been received. Using `contact` requires:

- UNIX-to-UNIX Communication Protocol (UUCP) connection to the TAC
- Full path name of the program or utility in question
- Version number of the program or utility in question

Refer to the contact(1) man page for complete details.

Acknowledgments

I would like to thank the following people for their contributions to this manual:

Technical contributors: Brian Bianchi, John Rachels, Larry Price

Review team: Al Haddix, Carol Brayton, Kris Meier, Alan Stolleis, Lihwen Wu, Don May, Larry Price

Editorial services: Clare Bernier, Sheri Roloff, and Peggy Gilloon

This document would not have been possible without their help.

Cari Tuttle
I/O Documentation

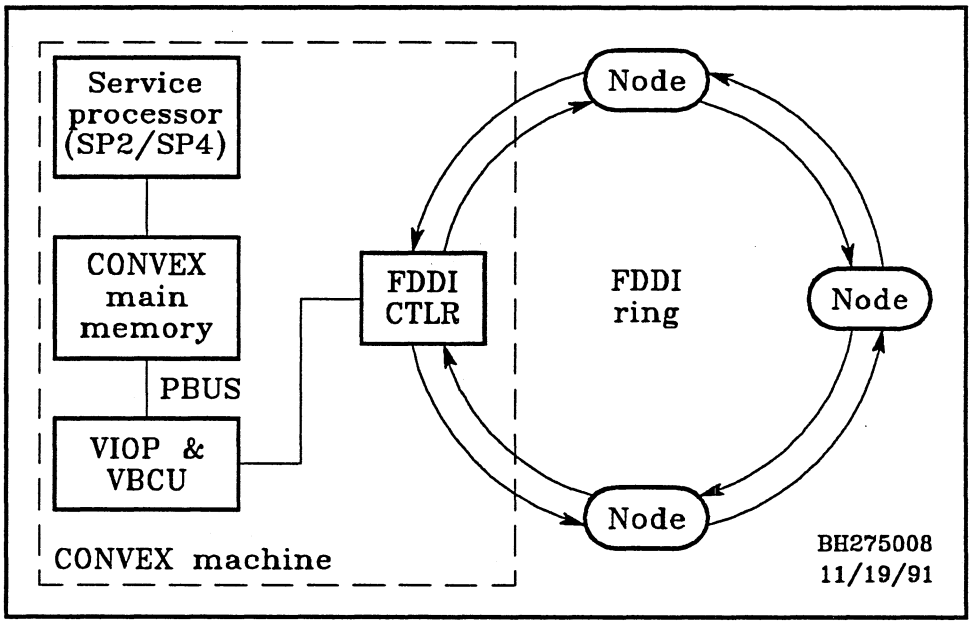
Description and specifications 1

1.1 Overview

This chapter lists the main hardware features of the FDDI controller and provides electromechanical and environmental specifications for the FDDI controller.

The FDDI controller is a RISC-based adapter that provides an FDDI connection for computers using the VMEbus. It connects workstations and computer systems to an FDDI network using fiber optics, and it performs much of the processing of the communications protocol and certain FDDI network management functions. Figure 1-1 illustrates the CONVEX VMEbus FDDI controller environment.

Figure 1-1
CONVEX VMEbus FDDI controller environment



Note

For a detailed description of the FDDI controller, refer to the *V/FDDI 4211 Peregrine High-Performance FDDI Node Processor for VMEbus User's Guide*.

1.2 Hardware features

The main hardware components of the VMEbus V/FDDI 4211 Peregrine are:

- AMD SUPERNET chip set
- Am29000 RISC processor
- 1-megabyte communications buffer
- BUSpacket interface
- Station management functions in on-board firmware

The controller also provides the following:

- Ability to integrate into both 6U and 9U VMEbus card cages
- A single MAC (Media Access Control)
- A dual-attach connection to the FDDI network. In case of a fault in either or both rings, data is routed from the primary onto the secondary ring at two or more locations, bypassing the problem areas.
- An optional optical bypass switch (OBS) allowing the FDDI ring to bypass the CONVEX computer in the event of a system shutdown

1.3 Specifications for V/FDDI 4211

Table 1-1 lists the electromechanical and environmental specifications for the FDDI controller.

Table 1-1
FDDI board specifications

Parameter	Value/comment
Width	6.3 in (160 mm)
Height	9.2 in (233 mm)
Depth	0.77 in (approx) (19.6 mm)
Weight	1.01 lbs (approx) (0.45 kg)
Voltage requirements	7.4 A @ +5 Vdc 1.0 A @ +12 Vdc
Temperature range Operating[1] Nonoperating	 +41° F to +113° F (+5° C to +45° C) +32° F to +257° F (0° C to +125° C)
Temperature change[2]	≤ 3.6° F/min (2.0° C/min)
Humidity range Operating Nonoperating	 20% to 80% noncondensing 0% to 90% noncondensing
Wet bulb	79° F (26° C)
Altitude (operating)	-300 ft to +15,000 ft (-100 m to +4,575 m)

[1]At altitudes above 3,280 ft (1,000 m), lower air densities affect air conditioning. If the unit is located above this altitude, lower the recommended temperature range by 1°F/1,000 ft (2°C/1,000 m).
[2]This is the maximum rate of change for the CONVEX VMEbus V/FDDI 4211. However, the maximum rate of change for the system containing the controller may be less.

Configuration and installation 2

This chapter explains how to unpack, inspect, and install the VMEbus FDDI controller into the VMEbus chassis. The onboard jumper positions, address selections, and cabling scheme are discussed in detail to ensure proper installation.

2.1 Unpacking and inspection

This section gives general guidelines for unpacking and inspecting the FDDI hardware.

2.1.1 Electrostatic discharge (ESD) damage

The FDDI hardware can be damaged by electrostatic discharges (ESD) during maintenance procedures such as installation. A grounded wrist strap (or other grounding method) must be used when handling all printed circuit boards (PCBs) to prevent ESD damage.

Static charges take place when various objects are separated or rubbed together, often creating a high voltage level. Three main factors determine a voltage level charge:

- Types of materials
- Relative humidity
- Rate of change or separation

Table 2-1 contains approximate electrostatic charge levels based on various personnel activities and humidity levels.

Table 2-1
Static charge levels and relative humidity

Activity[1]	Humidity[2] and Charge Levels[3] (Volts)			
	26%	32%	40%	50%
Person walking across linoleum floor	6,150 V	5,750 V	4,625 V	3,700 V
Person walking across carpet	18,450 V	17,250 V	13,875 V	11,100 V
Person getting up from a plastic chair	24,600 V	23,000 V	18,500 V	14,800 V

[1]Source: B. A. Unger, *Electrostatic Discharge Failures of Semiconductor Devices* (Bell Laboratories, 1981).
[2]A high rate of air flow produces higher static charges than a low air flow rate, for the same relative humidity level.
[3]Some data in this table has been extrapolated.

2.1.2 Inspection for damage

All shipping containers have been specially designed to protect their contents under normal shipping conditions. Carefully inspect each carton for signs of shipping damages as it is unpacked. If damage is found after visual inspection, document the damage with photographs and contact the transport carrier immediately.

2.1.3 Unpacking

The customer's bill of material lists all equipment shipped from CONVEX. It should be used as a checklist to ensure that all equipment has arrived.

The procedure for unpacking the shipping container is as follows:

1. Unpack each item of equipment from its shipping container.
2. Inspect each item of equipment for any sign of shipping damage as it is unpacked.
3. If equipment damage is found, document and proceed to the next section.

Note

Save all packing material until after operational checkout of the equipment. This enables equipment to be returned safely to CONVEX, if required.

2.1.4 Damage claims

If the FDDI equipment is damaged, a damage claim must be completed. Damage claims should be completed by the customer and given to the shipping representative. Claim forms are normally obtained from the shipping representative.

2.2 Configuration

Before installing the FDDI controller, it *must* be configured to the address and bus request/grant settings for use in the system. Base addresses for the controller are determined by setting a series of jumpers on the board. Jumpers also establish bus request/grant levels and interrupt levels for operation of the controller within a system.

2.2.1 Base address jumper selection

Jumper settings on the FDDI controller determine the base address of the board as it is configured for the system being installed. These jumpers must be configured before installation. Jumper field **JA11** establishes the appropriate address configuration. Table 2-2 lists pin settings for the two recommended addresses of 6000 and 6200.

Table 2-2
Controller address pin positions

Address setting	Pin 7	Pin 6	Pin 5	Pin 4	Pin 3	Pin 2	Pin 1
6000	IN	OUT	OUT	IN	IN	IN	IN
6200	IN	OUT	OUT	IN	IN	IN	OUT

Figure 2-1 and Figure 2-2 illustrate the jumper configurations and location of jumpers for the recommended CONVEX base addresses.

Figure 2-1
Jumper configuration for base address 0x6000

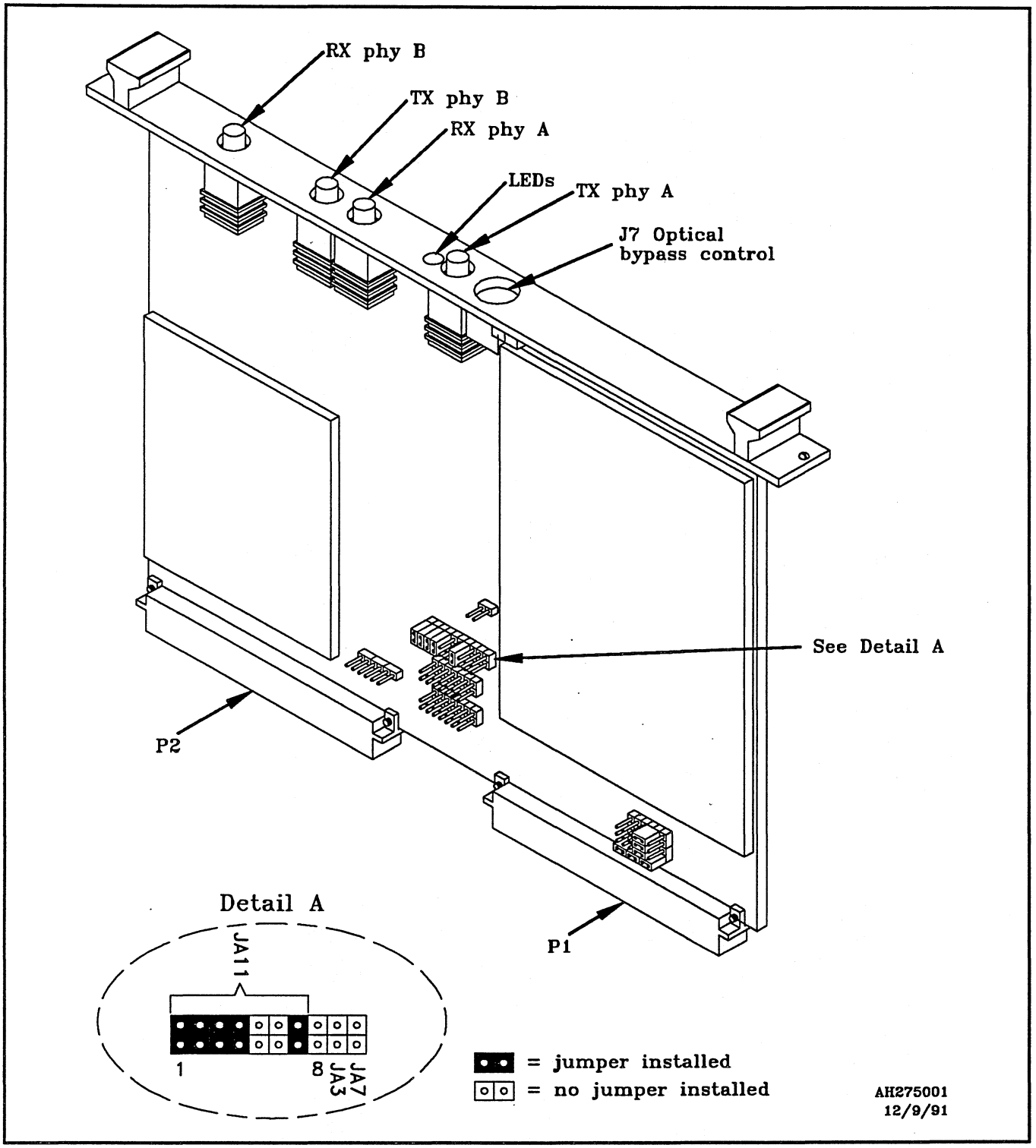
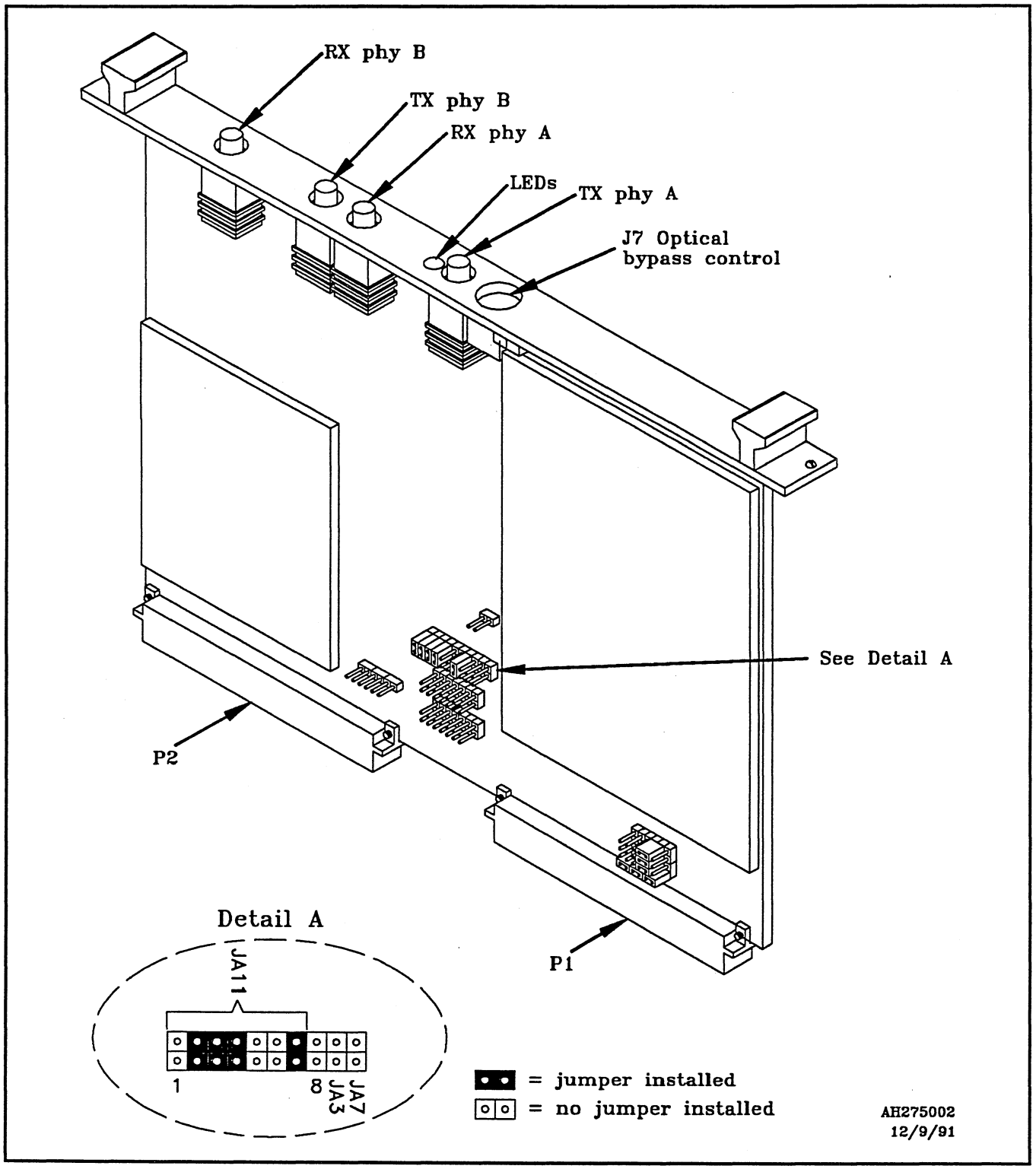


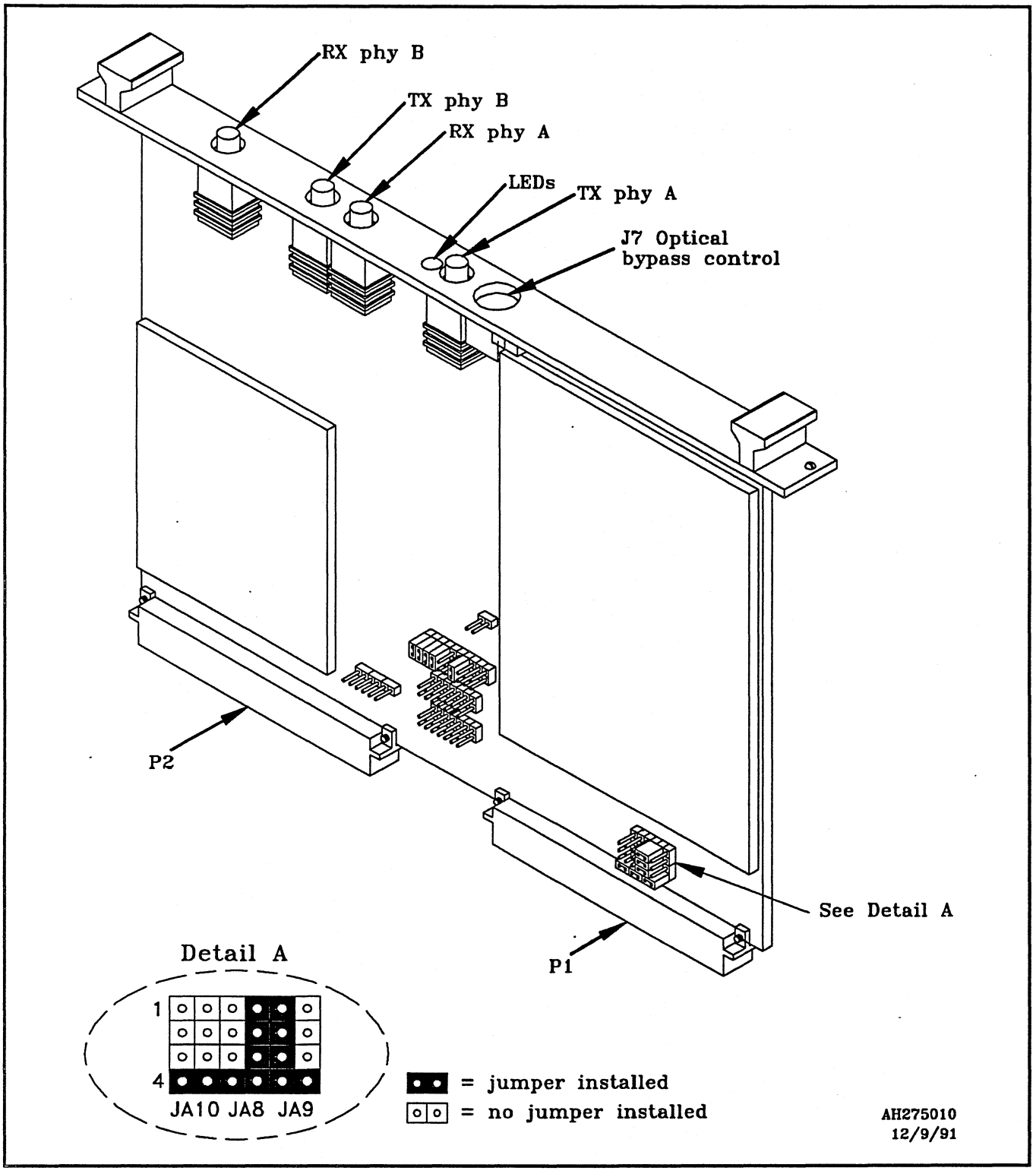
Figure 2-2
Jumper configuration for base address 0x6200



2.2.2 Request/grant level jumper settings

CONVEX VMEbus controllers use the bus request/grant level 3 (highest) jumper configuration. Jumper fields **J8, J9,** and **J10** are used to select VMEbus request/grant level 3 on the FDDI controller as shown in Figure 2-3.

Figure 2-3
Standard CONVEX FDDI jumper settings



2.2.3 VMEbus interrupt request jumper setting

In the CONVEX system, the FDDI controller interrupt setting is included in the /ioconfig file entry. See Chapter 3 for more information on the /ioconfig file.

2.3 Installation

The following sections detail the steps to install the FDDI controller.

2.3.1 Extending the VMEbus chassis

Because FDDI controllers are located in the VMEbus chassis, the VMEbus chassis must be extended before replacing the controller. The following procedure describes the steps necessary to safely extend the VMEbus chassis from the expansion cabinet.

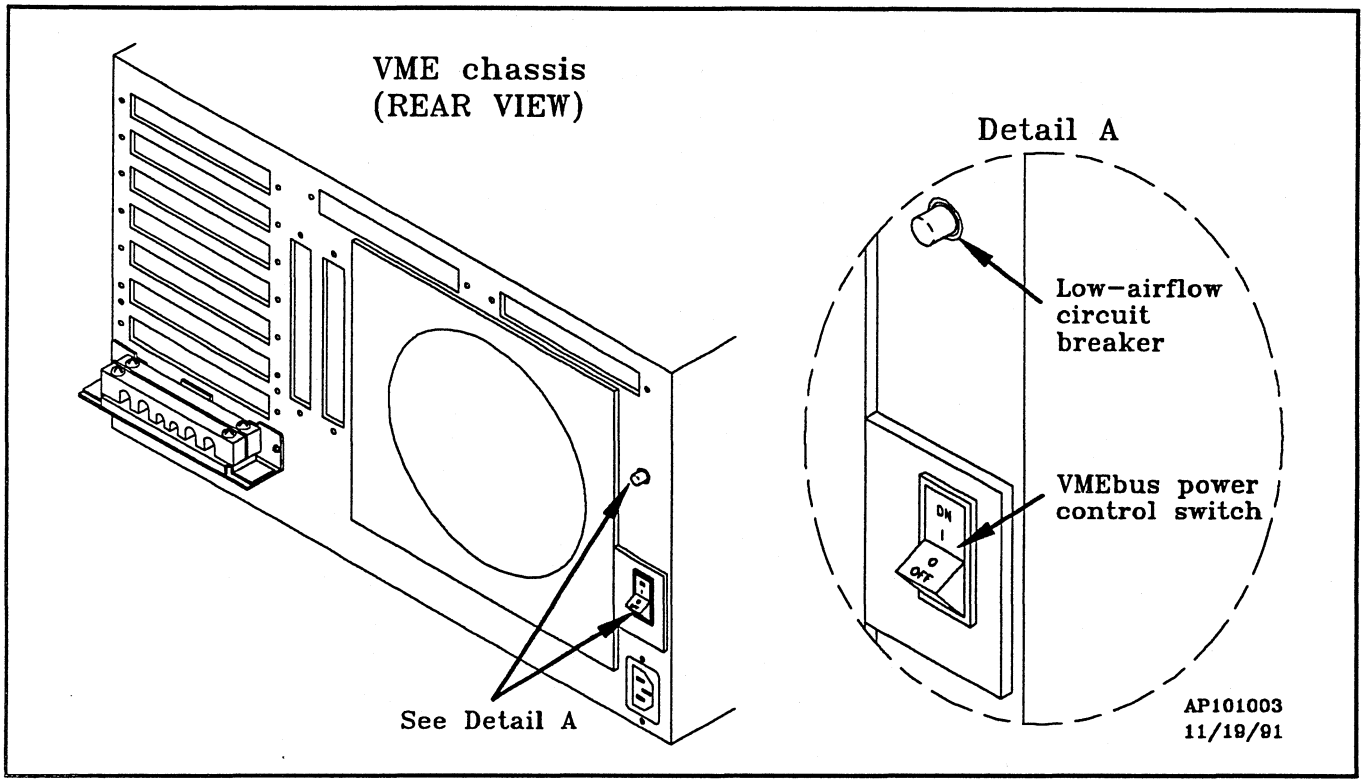
Cautions

Remove power to the VMEbus chassis before installing or removing equipment. Failure to do so will damage electronic equipment components.

Ensure the cables to the controller board are not tangled before extending the VMEbus chassis. Failure to do so may result in damage to the cables.

1. Set the VMEbus chassis power control switch to the OFF position. Figure 2-4 shows the VMEbus power control switch.

Figure 2-4
VMEbus chassis power switch

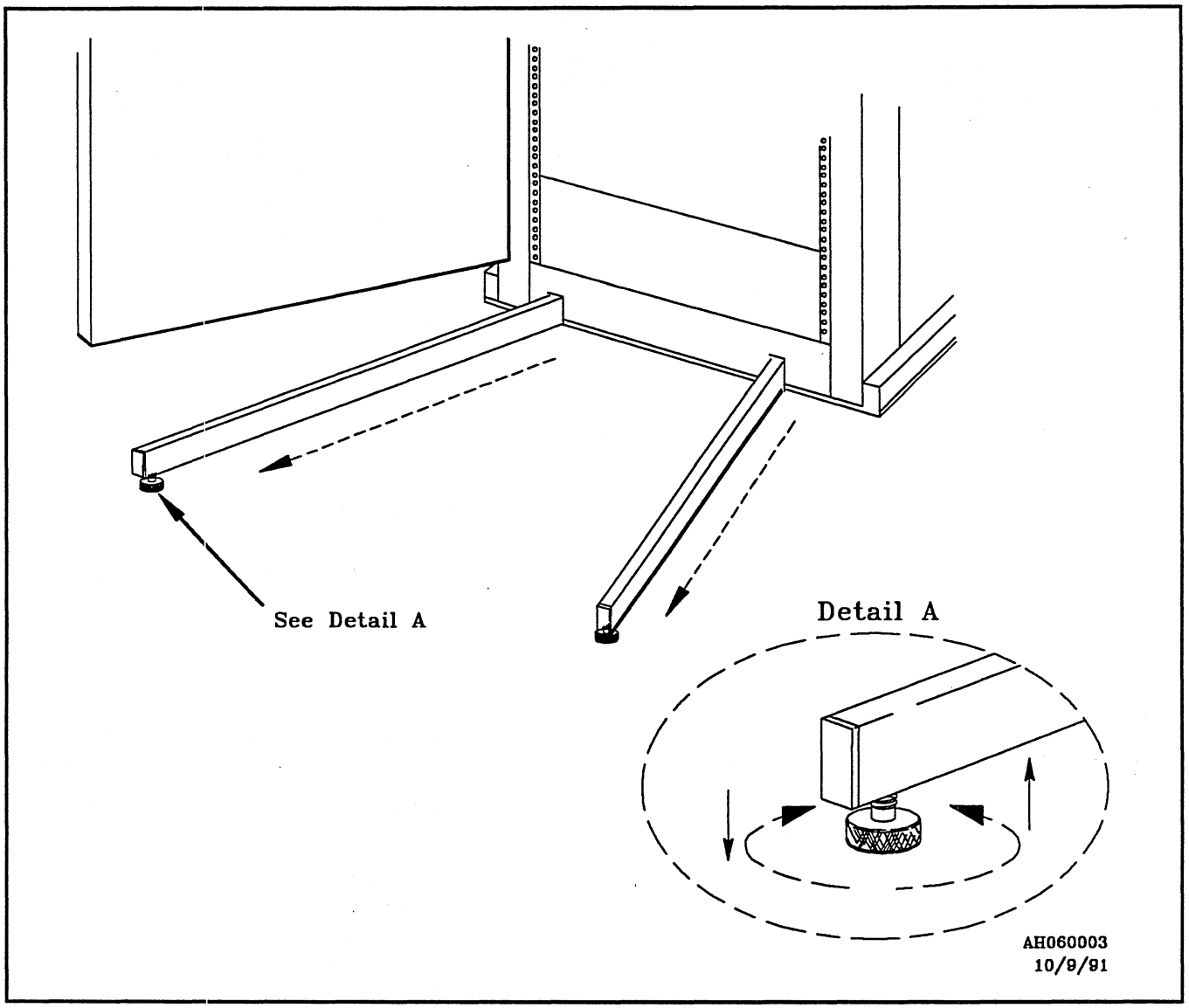


2. Extend the expansion cabinet stabilizer bars and adjust the feet until they are in firm contact with the floor. Figure 2-5 shows the expansion cabinet stabilizer bars and adjustable feet.

Warning

Expansion cabinet stabilizer bars must be extended before extending a VMEbus chassis forward on its slide guides for service. Failure to do so will make the expansion cabinet unstable, increase the possibility of it falling forward, can cause injury to personnel, and will cause damage to equipment.

Figure 2-5
Expansion cabinet stabilizer bars



3. Unlock the two chassis lock screws on the front of the VMEbus chassis.
4. Pull the VMEbus chassis out on the slide guides until the guide locks click in place.
5. Unscrew the top panel captive-mount screws until loose from the chassis frame. Lift the top panel from the VMEbus chassis to expose the VMEbus controller card cage.

2.3.2 Installing the FDDI controller

This section describes the procedures for installing the FDDI controller board.

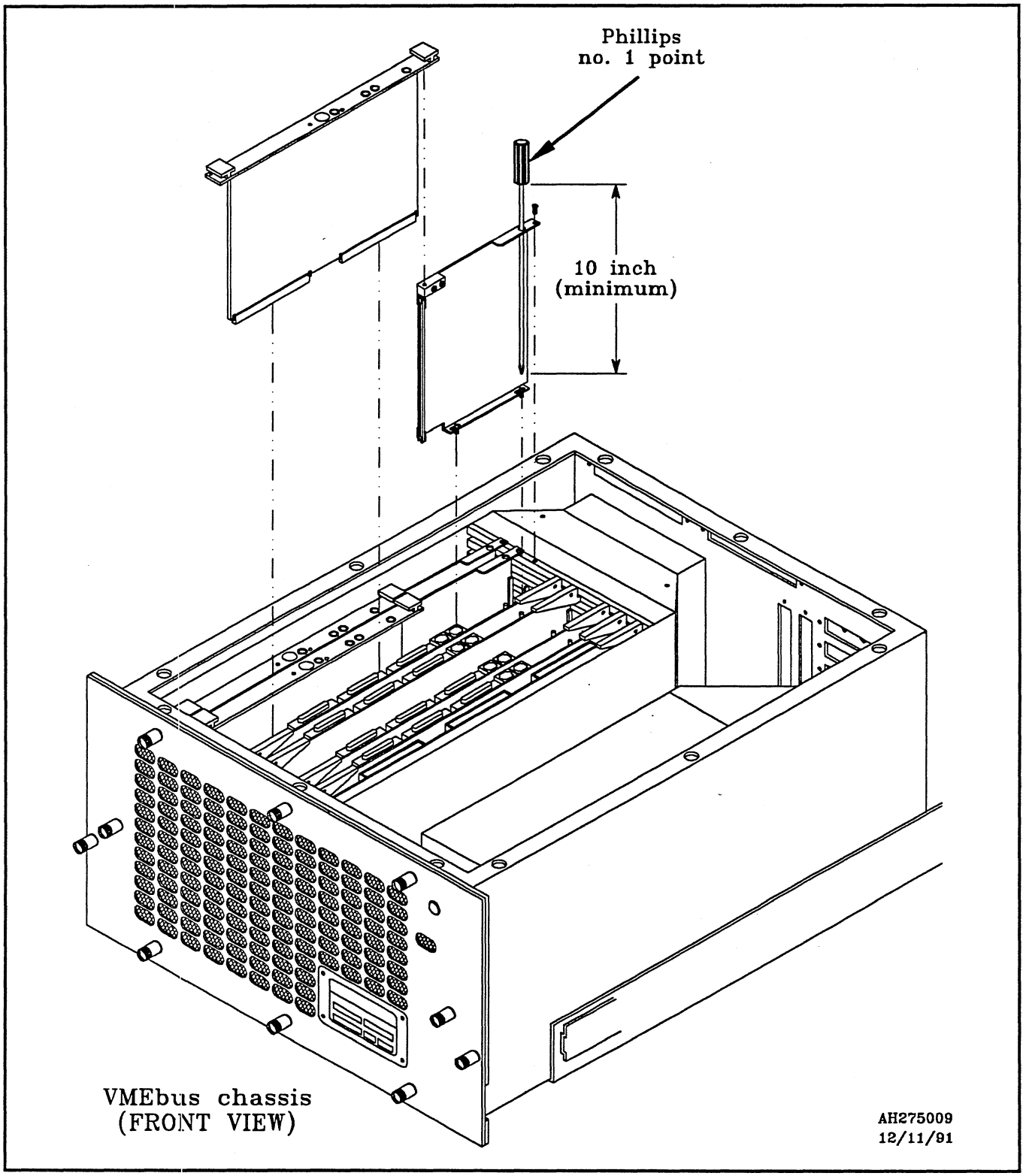
Notes

A 10-inch or longer Phillips screw driver with a No. 1 point is required to install the 2 bottom screws in the single (6U) VMEbus circuit board adapter.

The single top screw is 2.5 mm.

1. Attach the single (6U) VMEbus circuit board adapter in the back of the slot where the controller is to be installed, as shown in Figure 2-6.
2. Install the FDDI controller into the same slot in the VMEbus chassis as the VMEbus (6U) adapter. Gently push down evenly on both ends of the board to prevent damage to the board pins.
3. Secure the board into position by tightening the two captive-mount screws on the top front and back of the board.

Figure 2-6
Single (6U) VMEbus circuit board adapter



2.4 FDDI cable connections

The following sections contain procedures for cabling the FDDI. The sequence of steps presented is recommended for ease in handling the components in the installation process.

Caution

When connecting a cable to a connector, always ensure the cable is installed firmly on the connector. Failure to connect the cable properly will render the controller inoperable.

2.4.1 Controller board

The following procedure describes the steps necessary to attach the cables to the controller board and route them through the VMEbus chassis cable opening. Refer to Figure 2-7 and Figure 2-8 for details when performing this procedure.

1. Mount the strain relief cable clamp on the rear of the VMEbus chassis on either of the two rightmost cable openings (as shown in Figure 2-7).

Note

The clamp must be mounted on one of the two rightmost openings; otherwise the cables will not reach the appropriate position on the controller board.

2. Route the cable through the opening.
3. Attach the cables to the controller as shown in Figure 2-8. The cables are labeled and are cut to the proper length for attachment. Specifically:
   - The cable labeled PRX attaches to the **PHY A** RX connector.
   - The cable labeled STX attaches to the **PHY A** TX connector.
   - The cable labeled SRX attaches to the **PHY B** RX connector.
   - The cable labeled PTX attaches to the **PHY B** TX connector.

PRX indicates the primary receive channel, PTX indicates the primary transmit channel, SRX indicates the secondary receive channel, and STX indicates the secondary transmit channel.

Figure 2-7
Strain relief cable clamp mounting

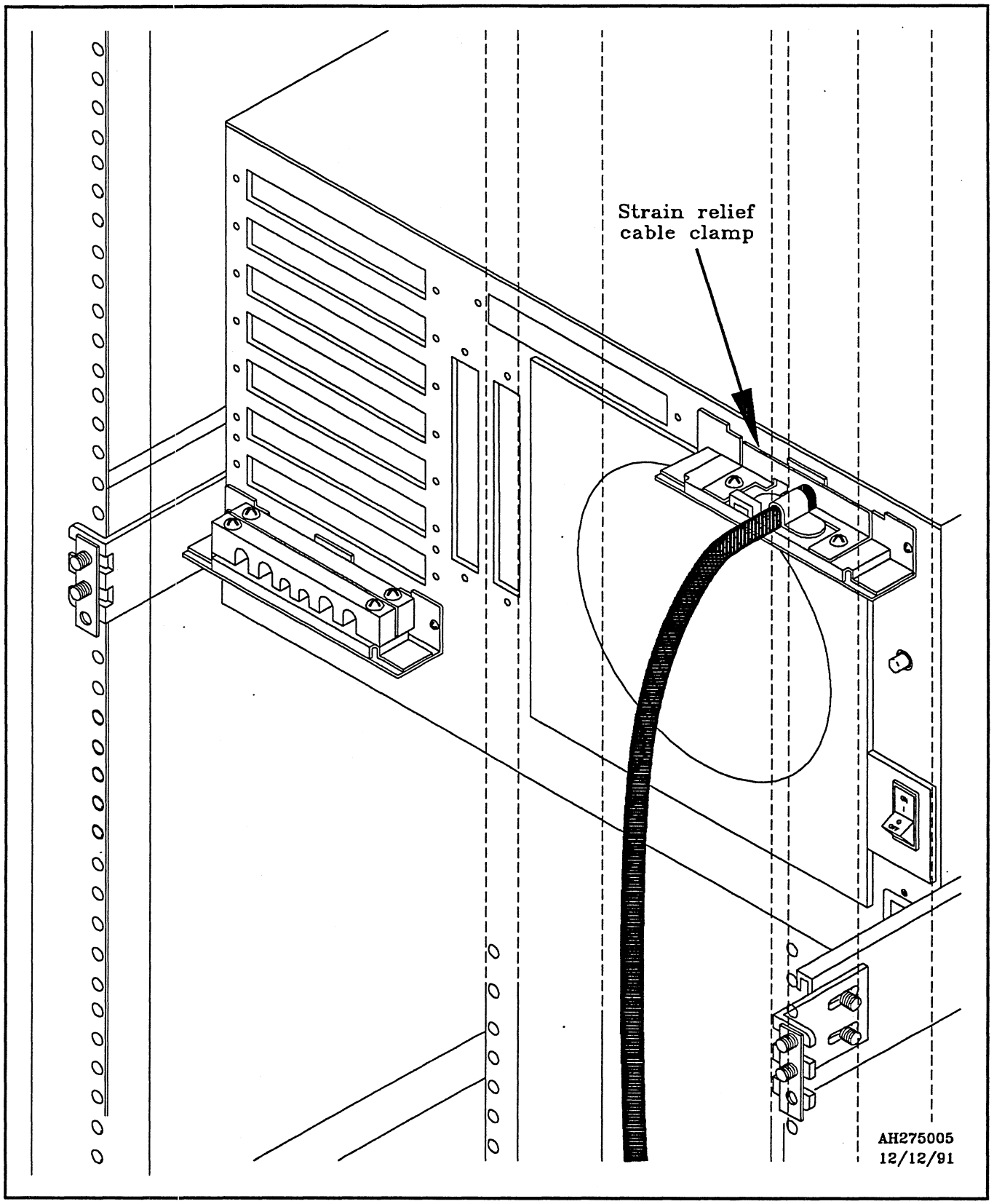
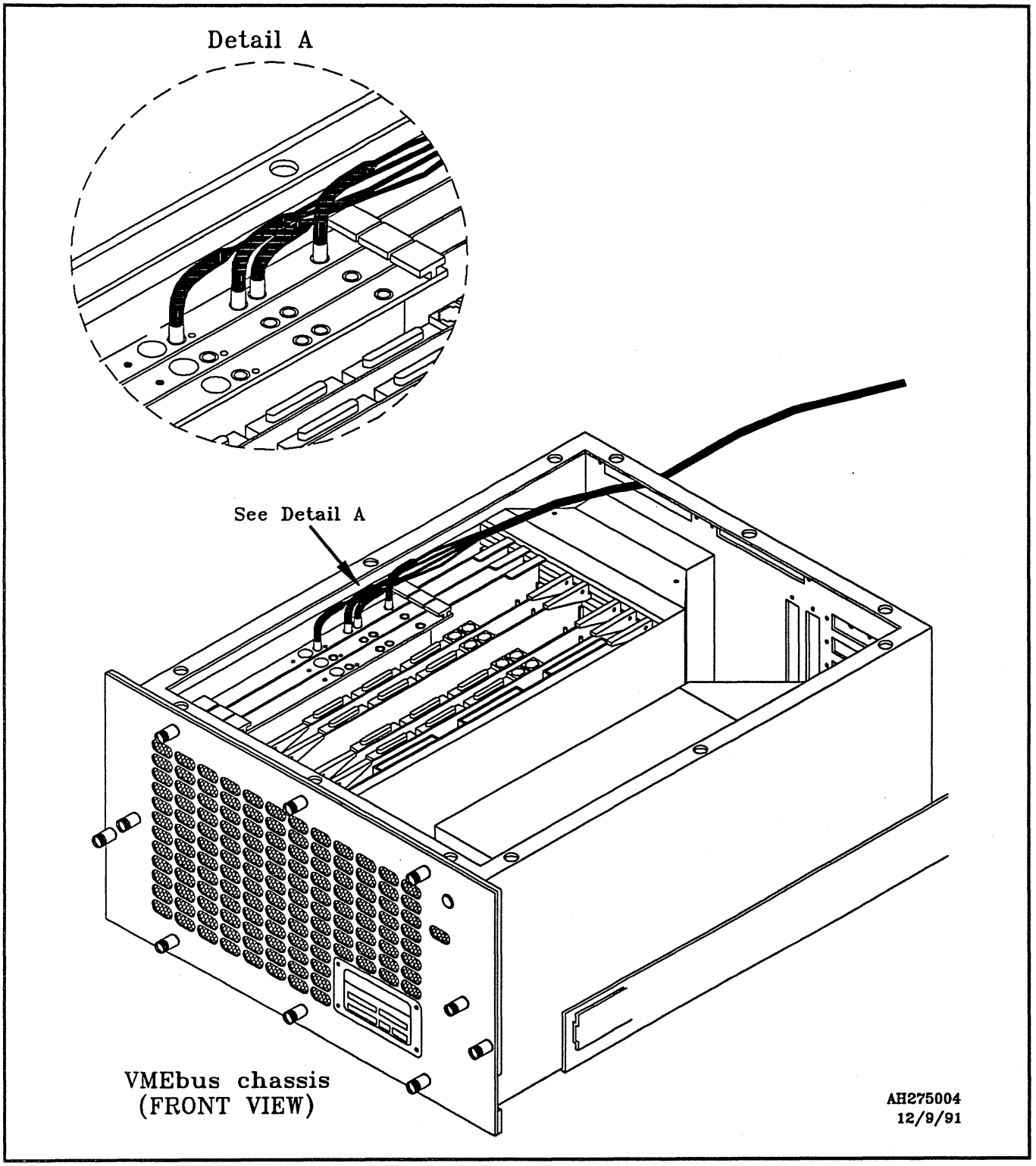


Figure 2-8
Controller cable connections



2.4.2 Fixed shroud duplex (FSD) bracket

The following procedure describes the steps necessary to mount the FSD bracket containing the Media Interface Connectors (MIC) and to attach the cables to them. Refer to Figure 2-9 for details when performing this procedure.

1. Mount the FSD bracket on the inside of the intermediate RETMA rail of the expansion cabinet with the screws provided. The bracket may be mounted on either the left or the right RETMA rail.

Note

The MIC connectors are color-keyed to avoid confusion and mis-cabling. Make sure the cables are plugged into the correct connector. To determine the key, remove the protective cover from the end of the MIC connector; the key will be approximately 1/4" from the end of the connector. Failure to do so may cause signals to get crossed, therefore breaking the connection.

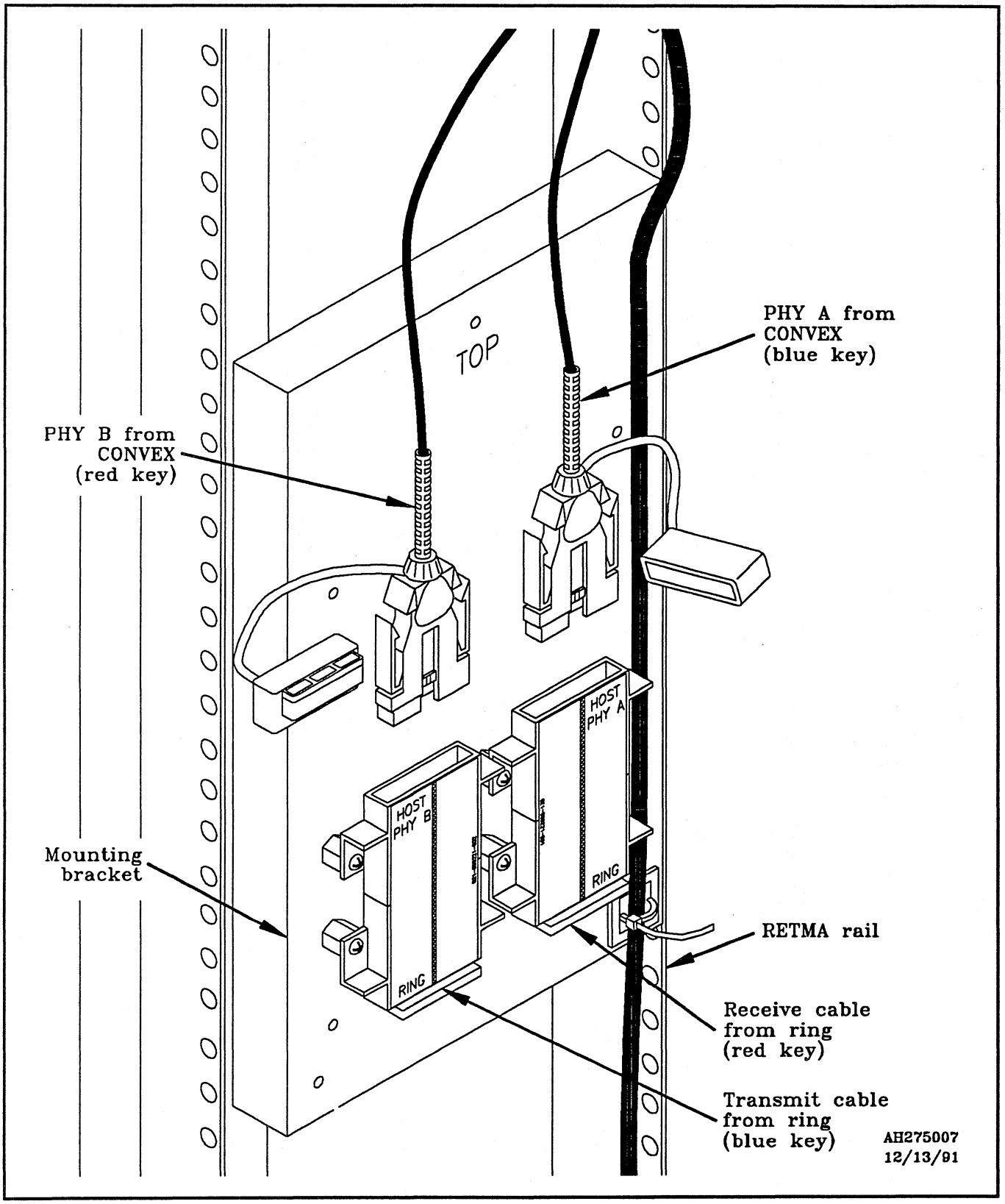
2. Connect the appropriate cable from the controller to the top part of the FSD connector: **PHY A** cable (blue key) connects to the position labeled **HOST PHY A**, and **PHY B** cable (red key) connects to the position labelled **HOST PHY B**.
3. Tie down the cables to the mounting bracket.
4. Connect the receive cable (red key) from the ring to the bottom part of the FSD connector labeled **PHY A RING**. Connect the transmit cable (blue key) from the ring to the bottom part of the FSD connector labeled **PHY B RING**.

To key an unkeyed connector:

1. Remove the connector's protective cover. The keys are stored in this cover.
2. Remove the desired key (red or blue).
3. Insert the key into the aperture. Turn the key so that the T-shaped end fits into the rectangular groove on the connector. The other end of the key will be flush with the smooth side of the connector.

To rekey a connector, turn the smooth side of the connector face up, place the tip of a small, flat-headed screwdriver on the key, and press firmly.

Figure 2-9
MIC connector bracket



2.5 Postinstallation

Perform the following steps after the completion of the cabling.

1. Install the VMEbus chassis top panel and secure with the 12 locking screws.
2. Return the VMEbus chassis to its retracted position and secure with the 2 locking screws.
3. Retract the expansion cabinet stabilizer bars.
4. Set the VMEbus chassis power control switch to the ON position.

Integration and test 3

3.1 Overview

This chapter contains guidelines for integrating an FDDI controller into the CONVEX Operating System (ConvexOS) and information about the FDDI diagnostic program.

Note

FDDI is not supported on CONVEX C1 Series machines.

3.2 Software integration

The software for the CONVEX FDDI is released separately from ConvexOS and utilities. For additional software integration information, refer to the *Installation Procedures, CONVEX FDDI V1.0.* This document includes a complete description of software integration procedures for CONVEX FDDI software.

System-level hardware is identified to ConvexOS in a configuration file (/ioconfig) located on the service processor unit (SPU) disk. This file contains a description of all channel control units (CCUs), interfaces, controller boards, and peripheral devices for your system. The boot process reads this file to determine what devices are present.

Each type of VMEbus device is identified to the operating system by a mnemonic device code. The device code for the FDDI controller is LAN-208.

Note

Each board installed in a VMEbus chassis must have a unique interrupt number.

Figure 3-1 shows a typical /ioconfig file, with the FDDI entry in boldface.

Figure 3-1
Example /ioconfig file

```
viop 4
   vme 0
   ctlr LAN-007 csr 0xFE00 int 5
     unit 0 type ex
     ctlr DKC-204 csr 0x400 int 2
        unit 0 type DKD-206
        unit 1 type DKD-208
     ctlr DKC-204 csr 0x600 int 3
        unit 0 type DKD-206
    vme 1
     ctlr DKC-203 csr 0x800 int 1
        unit 0 type DKD-214
        unit 1 type DKD-214
     ctlr DKC-203 csr 0xa00 int 2
        unit 0 type DKD-214
        unit 1 type DKD-214
     ctlr LAN-208 csr 0x6000 int 6
        unit 0 type fd
```

Whenever an FDDI controller is added or removed, the information in the hardware section of the /ioconfig file must be changed, otherwise system operation problems will occur. Refer to *Managing ConvexOS: Configuration Guide* when making a change to this file.

3.3 Testing the FDDI

The `dev_vfddi` diagnostic program tests the FDDI and verifies its operation by accomplishing the following:

- Verifies that the VIOP can access the controller's on-board RAM by using the VMEbus.
- Executes the controller's built-in diagnostics.
- Verifies that the controller can access the VIOP's local memory and the CONVEX machine's main memory by using the VMEbus.
- Verifies that the controller can communicate on an FDDI ring.

The `dev_vfddi` diagnostic program is an offline program that must be executed on the SPU while the CPU is halted. The procedures for executing this test are beyond the scope of this manual. However, this information is contained in the *CONVEX Fiber Distributed Data Interface (`dev_vfddi`) Diagnostics Manual*. This manual should be consulted before running this program.

Maintenance procedures and IPB 4

This chapter contains removal and replacement procedures and an illustrated parts breakdown (IPB) for all field replaceable units (FRUs) for the CONVEX FDDI system.

4.1 Removal

This section describes the procedures for removing an FDDI controller board.

Caution

Ensure the VMEbus chassis power switch is in the OFF position. Failure to observe this warning may result in severe damage to the board or system.

Ensure the cables to the controller board are not tangled before extending the VMEbus chassis. Failure to do so may result in damage to the cables.

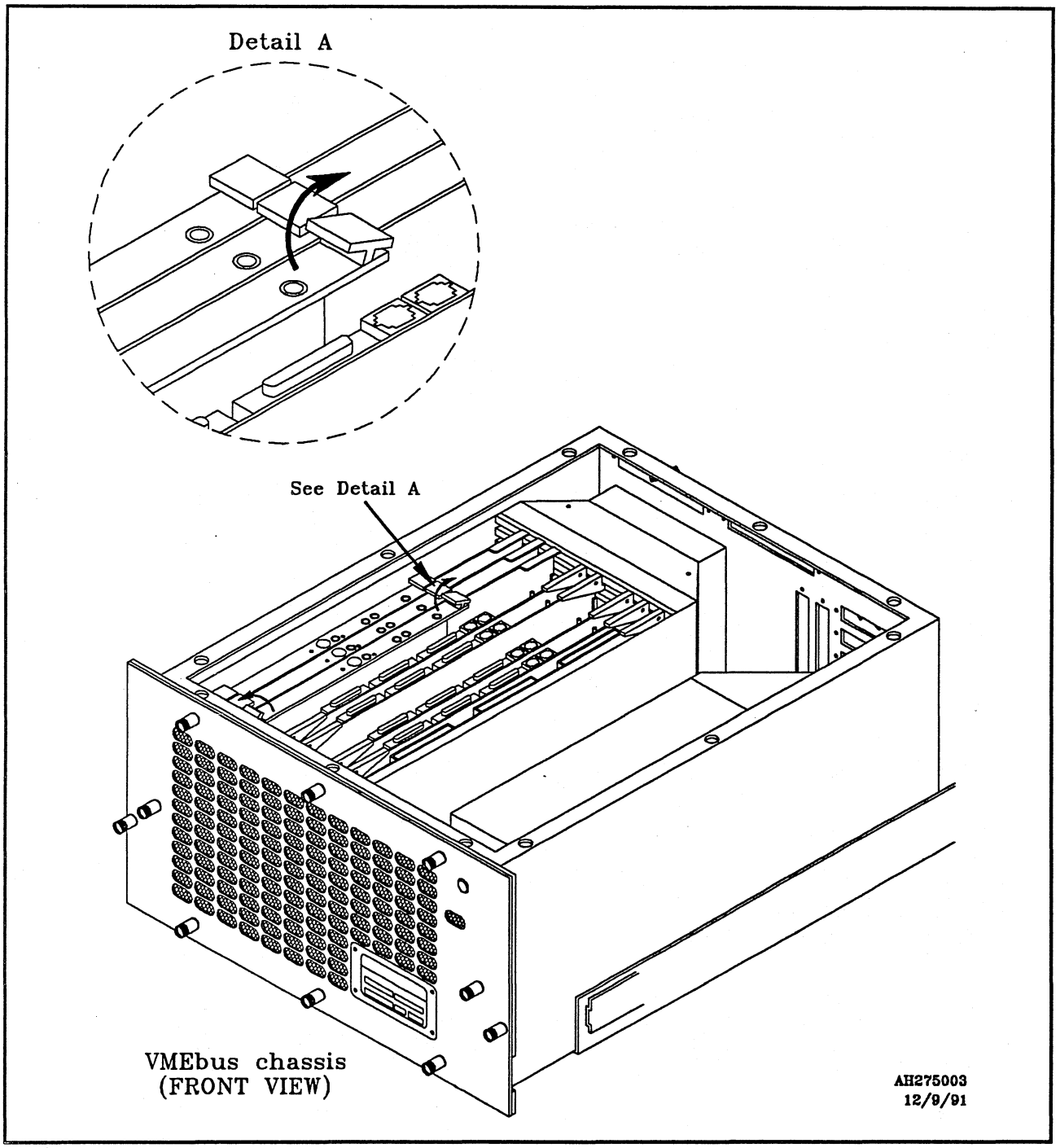
1. Ensure the VMEbus chassis power switch is OFF. See Figure 2-4, "VMEbus chassis power switch."
2. Unlock the two chassis lock screws on the front of the VMEbus chassis.
3. Pull the VMEbus chassis out on the slide guides until the guide locks click in place.
4. Unscrew the top panel captive-mount screws until loose from the chassis frame. Lift the top panel from the VMEbus chassis to expose the VMEbus controller card cage.
5. Disconnect the FDDI cables from the controller board.

Caution

When the FDDI controller is not installed in the VMEbus chassis, keep it in a conductive static shielding bag. Static bags provide protection from direct static discharge and from static fields surrounding charged objects. These bags are conductive and should not be placed where they may cause an electrical short circuit.

6. Lift the board from the chassis (see Figure 4-1) by pushing the handle on the top front of the board forward while at the same time pushing the top back handle toward the back of the chassis. This will gently lift the board from the connector on the VMEbus.
7. Pull the board the rest of the way out by lifting straight up from the chassis.

Figure 4-1
FDDI board removal



4.2 Replacement

This section describes the procedures for replacing an FDDI controller board.

Caution

The board pins are very delicate; use caution in handling the board to avoid bending them.

1. Install the FDDI controller into the same slot in the VMEbus chassis as the VMEbus (6U) adapter. Gently push down evenly on both ends of the board to prevent damage to the board pins.
2. Secure the board into position by tightening the two captive-mount screws on the top front and back of the board.
3. Attach the cables to the controller.
4. Install the VMEbus chassis top panel and secure with the 12 locking screws.
5. Return the VMEbus chassis to its retracted position and secure with the 2 locking screws.
6. Replace the FDDI cables. See Section 2.4.1, "Controller board," for details on how to cable the board.

4.3 Illustrated parts list

Table 4-1 lists the CONVEX part numbers for the major components of an FDDI controller. It includes a figure number where the component is illustrated.

Table 4-1
FDDI parts list

Description	Part number	Figure number
FDDI assembly[1]	550-000042-200	NA
FDDI controller board	220-000021-200	2-3
Clamp assembly	500-000508-200	2-7, 2-9
Connector bracket assembly	500-000507-200	2-9
Fiber optics cable	606-000001-001	2-8

[1]This assembly includes a complete set of FDDI hardware, plus documentation.

Table 4-2 lists the CONVEX part numbers and descriptions of the clamp assembly of the FDDI controller.

Table 4-2
Clamp assembly parts list

Description	Part number
Bulkhead cable bracket	320-001641-500
Clamp	312-000470-002

Table 4-3 lists the CONVEX part numbers and descriptions of the connector bracket of the FDDI controller.

Table 4-3
Connector bracket parts list

Description	Part number
FDDI bracket	320-002473-500
Dual duplex receptacle	304-000092-001
Loopback connector assembly	312-000500-001

Index

!

/ioconfig file
  described 3-1
  example 3-2
  FDDI device code 3-1

A

associated documents
  listed xii

B

base address
  jumper configuration, address 0x6000, illustrated 2-4
  jumper configuration, address 0x6200, illustrated 2-5
  jumper selection 2-3
  pin positions, table 2-3
board assembly
  part numbers 4-3
bracket, connector shroud
  part number 4-4

C

cable bracket, bulkhead
  part number 4-3
cable clamp, strain relief
  mounting, illustrated 2-13
  part number 4-3
  part numbers, components 4-3
cabling
  controller board, illustrated 2-14
  part number 4-3
cautions
  when to use xii
configuration
  overview 2-3
configuration file
  See /ioconfig file
connector shrouds
  bracket, part number 4-4
  part number 4-3 - 4-4
  part numbers, components 4-4
contact utility xiii
controller board
  part number 4-3
CONVEX Computer Corporation
  mailing address xiii
CONVEX operating system 3-1
ConvexOS
  See CONVEX operating system
customer support
  telephone numbers for xiii

D

damage claims 2-2
data
  loss of, warning for xi-xii

E

electromechanical specifications 1-2
electrostatic discharge
  defined 2-1
emphasis
  italics, for xii
environment
  discussed 1-1
  illustrated 1-1
  overview 1-1
environmental specifications 1-2
equipment
  damage to, warning for xii
ESD
  See electrostatic discharge

H

hardware features 1-2

I

illustrated parts breakdown
  part numbers, major components 4-3
injuries
  warnings used to indicate xii
installation
  controller board 2-12
  controller cabling, illustrated 2-14
  extending VMEbus chassis 2-7
  MIC connectors 2-15
  strain relief cable clamp, illustrated 2-13
interrupt request jumper settings 2-7
italics
  for emphasis xii

J

jumper settings
  base address 2-3
  base address, 0x6000, illustrated 2-4
  base address, 0x6200, illustrated 2-5
  interrupt request 2-7
  request/grant level 2-6
  request/grant level, illustrated 2-6

L

loopback cable assembly
  part number 4-4

M

mailing address
  for CONVEX xiii
MIC connectors
  color-keying, described 2-15
  how to key unkeyed connector 2-15
  installation 2-15

P

part number
  board assembly 4-3
  bracket, connector shroud 4-4
  cable bracket, bulkhead 4-3
  cable clamp, strain relief 4-3
  cable clamp, strain relief, assembly 4-3
  connector shroud bracket 4-4
  connector shrouds 4-4
  connector shrouds assembly 4-3 – 4-4
  controller board 4-3
  loopback cable assembly 4-4
personnel injuries
  warnings used to indicate xii
postinstallation procedures 2-17

R

removal procedures
  controller board, illustrated 4-2
  listed 4-1
replacement procedures 4-3
request/grant level
  jumper settings, illustrated 2-6

S

software
  damage to, warning for xii
specifications 1-2
stabilizer bars
  illustrated 2-9
static charge levels, table 2-2

T

Technical Assistance Center (TAC)
  submitting trouble reports xiii
  telephone numbers for xiii
telephone numbers
  technical assistance xiii
test
  invalid results, warning for xii
trouble reports
  how to submit xiii

U

unpacking and inspection
  damage claims 2-2
  inspection for damage 2-2
  overview 2-1
  unpacking 2-2

V

VMEbus chassis
  power switch, illustrated 2-8

W

warnings
  when to use xii