IBM

IBM RT PC New Model Series Upgrade Kit Instructions

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Second Edition (August 1987)

About This Book

Purpose

This book describes the procedures used to install the New Model Series Upgrade Kit on the IBM RT Personal Computer[1]. These procedures include both software and hardware instructions.

Who Should Read This Book

This book is designed for the user who has used AIX[1] and has AIX Version 2.1.2 installed on the system and is upgrading an IBM RT[1] PC Model 10, 15, 20, 25, or 25A.

Warning: Do not use these upgrade instructions if you are a user of IBM Academic Information Systems for the IBM RT PC. Loss of data will result if these instructions are used.

How to Use This Book

This book uses a checklist to guide the user through the Upgrade Kit installation procedures.

This manual contains the following introduction and steps:

"Introduction - Installation Checklist" contains two checklists. The first checklist describes the contents of the upgrade kit and verifies that all the needed pieces of the upgrade kit are available. The second checklist is the "Installation Checklist". This list should be removed from the book and used as a guide to complete the steps described on it. As each step is completed, check the finished step.

Step 1, "Completing the Prerequisite Checks" is the first step in the upgrade procedure. This step determines if the system hardware and software are at the correct levels and available before continuing with the installation.

Step 2, "Recording Minidisk Information" explains how to display and record minidisk sizes and locations. This information is used to aid in restoring data at a later step.

Step 3, "Backing Up the VRM Minidisk" describes the steps and commands used to back up the VRM minidisk.

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[1]   RT Personal Computer, RT, and AIX are trademarks of International Business Machines Corporation.

Step 4, "Backing Up the Coprocessor Minidisk" is an optional step for some users. If you do not have a coprocessor installed, this step is skipped. Procedures for saving coprocessor minidisks on tape or diskette are described.

Step 5, "Backing Up AIX and User Minidisks" provides the procedures and commands used to back up and save the AIX and user minidisks.

Step 6, "Running the Disk Conversion Utility - Phase 1" explains how the Disk Conversion Utility is used to copy the alternate sector data from each R70 fixed disk to a formatted data diskette.

Step 7, "Installing the New Hardware" is divided into two sections. **Step 7A** describes the procedures used to install the hardware in the IBM 6150 system unit. **Step 7B** describes the instructions for the IBM 6151 system unit.

Step 8, "Running the Disk Conversion Utility - Phase 2" explains how to use the Disk Conversion Utility diskette and the data diskette to rewrite the defect data to the correct fixed-disk drive.

Step 9, "Running Diagnostics" describes how to load the IBM RT PC[2] Diagnostic Diskettes and verify the new hardware installation is defect free.

Step 10, "Installing the VRM Backup Copy" describes the steps needed to reinstall VRM.

Step 11, "Recreating AIX System Minidisks" explains how to recreate the AIX system minidisks using the data recorded in **Step 2** and the procedure for creating AIX file systems on the reformatted fixed disks.

Step 12, "Restoring AIX System Minidisks" describes the procedure for restoring the AIX data saved on tape or diskette in **Step 5**.

Step 13, "Updating the Configuration Files" explains how to reaccess user minidisks from the standalone shell.

Step 14, "Recreating User Minidisks" explains how to reaccess and create all user minidisks, except the coprocessor minidisks, on the reformatted fixed disks.

Step 15, "Restoring User Minidisks" describes the procedures for restoring user minidisk data.

Step 16, "Recreating and Restoring Coprocessor Minidisks" describes the procedures for restoring coprocessor minidisks if the coprocessor is installed in the system unit.

Appendix A, "Diskette Information" explains how to determine the number of backup diskettes needed for minidisk backups.

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[2]   RT PC is a trademark of International Business Machines Corporation

Appendix B, "Minidisks Worksheets" contains a worksheet for each fixed disk and instructions for recording the minidisk information on the worksheets.

How Each Step Is Organized

To aid the user in the installation of the upgrade kit, each step begins with a cover page showing which Installation Checklist steps you have completed and the step you are starting.

The following cover page example shows that **Steps 1** and **2** have been completed and that you are beginning **Step 3**.

```
┌──── This is a Cover Page Example ──────────────────────────┐
│                                                            │
│  Step 3. Backing Up the VRM Minidisk                       │
│                                                            │
│  √Step 1      Complete Prerequisite Checks                 │
│                                                            │
│  √Step 2      Record Minidisk Configurations and Sizes     │
│                                                            │
│  _ Step 3     Backup VRM Minidisk                          │
│                                                            │
└────────────────────────────────────────────────────────────┘
```

To help keep track of the step number and procedure you are doing, the step number is displayed in the top outer corner of the page.

Within each step, label boxes are used to identify the instructions and procedures you need to do.

```
┌──── This is a Label Box Example ───────────────────────────┐
│                                                            │
│  •  This is a label box.                                   │
│                                                            │
│     1.  Label boxes contain the steps needed to do a certain procedure. │
│                                                            │
│     2.  If a major step is referenced in a label box, it is shown in bold. │
│         (Example: Use the information recorded in Step 2.)  │
│                                                            │
│     3.  If you are supposed to repeat the steps contained in a label box │
│         a number of times the step numbers are shown in normal type. │
│         (Example: Repeat steps 1 and 2 until you have completed │
│         reading these instructions.)                       │
│                                                            │
└────────────────────────────────────────────────────────────┘
```

What You Need

You can unpack, back up all data, install the hardware, restore the data, and test the installation using the steps in this book, a flat-bladed screwdriver, and a sufficient supply of diskettes or tapes for backup media.

You will also need sufficient floor space in which to work and sturdy desks or tables on which to set up the devices.

Contents

Installation Checklists

Before you begin the Upgrade Kit installation, you must determine if all of the upgrade kit contents are available.

The checklists contained in this chapter provide a list of the upgrade contents and a complete list of all the Upgrade Kit steps.

Complete the checklists according to the instructions provided before and after each checklist.

Upgrade Kit Contents Checklist

Using this chart, check off each item in the upgrade kit.

Item	Upgrade Kit Contents
__ 1.	IBM RT PC Advanced Processor Card (APC)
__ 2.	IBM RT PC 4MB Fast Memory Expansion Option
__ 3.	IBM RT PC Extended ESDI (EESDI) Magnetic Media Adapter
__ 4.	Type E70 Fixed-Disk Drive Labels
__ 5.	IBM RT PC Extended ESDI Cable Bundle (Not Used by the IBM 6151)
__ 6.	IBM RT ESDI to Extended ESDI Disk Conversion Utility Diskette

If any of the above items are missing, contact your sales representative.

If all contents are present, go to the next page.

Using The Installation Checklist

The checklist on the following page lists each step in the order it is performed. To help you in the installation of the Upgrade Kit, remove the Upgrade Checklist from the book and check off each step as completed. Do not go to the next step until you have *completed* the step you are currently doing.

Note: Read each step carefully and complete all actions described in each step.

Installation Checklist

To install the Upgrade Kit on your system, do each step in the order listed. Remove the checklist from the book and refer to the checklist as needed. When you have completed a step, check the appropriate step and proceed to the next step. Do the steps *exactly* in the order listed.

STEP	PROCEDURE DESCRIPTION	PAGE
_ 1	Complete Prerequisite Checks	Go to Page 1-2.
_ 2	Record Minidisks Configuration and Sizes	Go to Page 2-2.
_ 3	Back Up VRM Minidisk	Go to Page 3-2.
_ 4	Back Up Coprocessor Minidisk (if installed)	Go to Page 4-2
_ 5	Back Up AIX and User Minidisks	Go to Page 5-2.
_ 6	Run Disk Conversion Utility - Phase 1	Go to Page 6-2.
_ 7	Install New Hardware	Go to Page 7-2.
_ 8	Run Disk Conversion Utility - Phase 2	Go to Page 8-2.
_ 9	Run Diagnostics	Go to Page 9-2.
_ 10	Install VRM Backup Copy	Go to Page 10-2.
_ 11	Recreate AIX System Minidisks	Go to Page 11-2.
_ 12	Restore Data to AIX System Minidisks	Go to Page 12-2.
_ 13	Update the Configuration Files	Go to Page 13-4.
_ 14	Recreate User Minidisks	Go to Page 14-2.
_ 15	Restore User Minidisks	Go to Page 15-2.
_ 16	Recreate and Restore Coprocessor Minidisks	Go to Page 16-2.

Step 1. Complete Prerequisite Checks

_ Step 1   Complete Prerequisite Checks

Completing the Prerequisite Checks

The tables in this step help determine if the system software is at the correct level and if all of the required backup materials are available.

Read this step carefully before proceeding with the Upgrade Kit instructions. See the **Action** columns for instructions.

Prerequisite Item	Action
AIX Version 2.1.1 or above installed	Call your sales representative if you have not received AIX Version 2.1.1 or above.
IBM RT PC Diagnostic Diskettes Version 2.1.1 or above available (shipped with Version 2.1.1 or above *Problem Determination Guide*)	Call your sales representative.
Three 1.2Mb diskettes and labels. (One for the alternate sector map data and two for the VRM backup)	Diskettes/labels supplied by customer.
Diskettes and/or tapes for backups (see note)	Media supplied by customer.
New passwords will be needed for certain applications after Upgrade Kit is installed.	See "Passwords Changes Due to New Machine ID" on page 1-5.

Notes:

1. *The VRM minidisk backup must be on diskettes. Do not continue with the installation steps if you have not backed up the VRM minidisk.*

    The number of diskettes or tapes needed for a backup depends on the amount of data to be backed up. For example, one streaming tape is required for each minidisk that is to be backed up and two diskettes are required for the VRM minidisk backup.

2. *Use only Version 2.1.1 or above AIX and problem determination diskettes. The APC will not operate correctly with another version.*

Go to the next page for more information.

Changes and Updates to Make after Installation

After the Upgrade Kit has been installed, the following changes can be made if needed:

- Update the local and remote node IDs in Distributed Services

- Change the passwords of application programs

- Change adapter DMA channel settings

- Set the DMA channel through AIX

Distributed Services Node ID Updates

If you have Distributed Services installed, you will have to update the node ID values after the Upgrade Kit is installed. When the new Advanced Processor Card is installed, the machine ID of your system unit changes.

To update the IDs, you must reinitialize the local node ID values in the system default profiles and the change the remote node ID table entries of any connected systems.

Using the following instructions, update the node IDs.

```
┌──── Update the Node IDs ──────────────────────────────────┐
│                                                           │
│  ●  To initialize and update the local node ID values:    │
│                                                           │
│     1.  Type the command, ndtable and press Enter         │
│                                                           │
│     2.  Record the new node ID displayed on the first     │
│         screen. You will use the new ID to update the     │
│         remote node ID table entries.                     │
│                                                           │
│     3.  After you have recorded the new ID, select CLOSE. │
│                                                           │
│         The local node table has now been updated to      │
│         reflect the new machine ID.                       │
│                                                           │
│  ●  Update the remote node ID table entries to reflect    │
│     the new ID you recorded in 2.                          │
│                                                           │
└───────────────────────────────────────────────────────────┘
```

Passwords Changes Due to New Machine ID

The machine ID of your system will change when the Advanced Processor Card is installed.

The following table lists applications that will require new passwords, applications that will need to be reinstalled, and applications that will need to be updated. If the application you use is not listed and uses a password based on the machine ID, contact the application vendor.

Application Programs	Action
APPLiX IA[3]	Call your vendor for a new password.
Professional CADAM[2]	Call your vendor for a new password.
CAEDS[1]	Call your vendor for a new password.
CATIA[4]	Call your vendor for a new password.
CIEDS[5]	Call your vendor for a new password.
Interleaf[6]	Call your vendor for a new password.
Common Lisp	Reinstall the application.
Other applications using password based on machine ID	Call your vendor for a new password.

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[1] CAEDS is a registered trademark of International Business Machines Corporation.

[2] Professional CADAM is a registered trademark of CADAM INC.

[3] APPLiX IA is a trademark of Applix, Incorporated.

[4] CATIA is a registered trademark of Dassault Systemes.

[5] CIEDS is a trademark of International Business Machines Corporation.

[6] Interleaf is a trademark of Interleaf, Inc.

DMA Channel Settings

The following chart shows the adapters you can have installed in your system unit and the DMA channel settings for each adapter. If there is a channel conflict you may resolve it by doing one of the following:

- Change the DMA jumper setting, if possible.

- Run the shell script, **SETDMA**, to change the DMA channel for the EESDI from channel 1 to channel 0. (See "Setting the DMA Channel Through AIX" on page 1-8.)

- Remove the conflicting adapter from the system unit.

For more information on jumper settings, see *User Setup Guide and Options Installation*.

Device/Adapter	DMA Channel							
	0	1	2	3	5	6	7	8
Extended ESDI Magnetic Media[1]	FO	FO	DX	FO				
Personal Computer AT Fixed-Disk and Diskette Drive			DX					
SCSI[1]	O	O		O	O	O	O[6]	
Megapel Display Adapter					O	O	OD[5]	
Extended Mono. Graphics							X[6]	
Multiprotocol		OD		O				
Token-Ring				O	OD	O	O[6]	
PC Network[3]				X				
5080 Attachment[2]					O	OD	O[6]	
S/370 Host Interface[2]					OD	O	O[6]	
Personal Computer AT Coprocessor Option								X
6150 Serial Port A[4]	O		O					
6151 Serial Port B		O		O				

X - Required   FX - Required for Fixed Disk
O - Optional   FO - Optional for Fixed Disk
DX - Required for Diskette   OD - Optional (Default Setting)

Notes:

1   Optional DMA channels can be set through software

2   The 5080 Attachment Adapter and the S/370 Host Interface Adapter are designed to operate together at the defined default values. If these adapters are reconfigured for other optional DMA channels, the user must provide driver/application software.

3   DMA Channel 3 is only required when the PC Network Adapter is used with the Personal Computer AT[7] Coprocessor Option.

4   The AIX Operating System restricts Serial Port A (2) to the use of DMA Channel 0; DMA Channel 2 is used by the diskette adapter. DMA Channel 2 may be available when other operating systems are used.

5   DMA Channels 5 and 6 not supported by software.

6   Do not install any adapter using DMA Channel 7 in slot 8 of the 6150 or slot 5 of the 6151. Both slots are wired to support the PC AT Coprocessor Option and will not operate correctly with DMA Channel 7. Also, do not use the 512Kb PC AT[7] Memory Expansion Card or the RT PC Baseband Adapter in slots 5 of the 6151 and 8 of the 6150.

7   Personal Computer AT and AT are trademarks of International Business Machines Corporation.

Setting the DMA Channel Through AIX

After you have completed installing the Upgrade Kit, if you need to use DMA Channel 1 for another adapter instead of the Extended ESDI Magnetic Media Adapter, you can execute the shell script program, **SETDMA**, to select DMA Channel 0.

Use the following instructions to change the DMA channel.

```
┌──── Change the DMA Channel ────────────────────────────┐
```

- To run the shell script program **SETDMA**:

  1. Log on to the system.

  2. Type the command `setdma eesdi 0` and press **Enter**.

  3. Press **Ctrl-Alt-Pause** to activate the DMA channel change.

  Note: When you change the EESDI adapter to DMA Channel 0, you will lose the DMA capability for Serial Port A.

- To reactivate Serial Port A and DMA Channel 1:

  1. Type the command `setdma eesdi 1` and press **Enter**.

Go to **Step 2**.

Step 2. Record Minidisk Configurations and Sizes

√Step 1   Complete Prerequisite Checks

_ Step 2   Record Minidisk Configurations and Sizes

Recording Minidisk Information

Step 2 provides instructions for:

- Using the **minidisks** command

- Recording minidisk names and types on the Minidisk Worksheets.

In order for you to create the same minidisk configuration after the upgrade, you must record the current minidisk sizes and names.

To help you keep track of all the minidisk information, we have created three Minidisk Worksheets. The worksheets are stored in Appendix B of this manual. There is one worksheet for each fixed disk installed in the system. If you only have one fixed disk installed in your system unit, you will only use the worksheet for **hdisk0**.

Using the minidisks Command

Using the following instructions, record the current minidisk information.

┌──── **How to Use the minidisks command** ──────────────┐

- After the $ or # prompt in AIX:

    1. Type `minidisks` and press **Enter**.

       The MINIDISK CUSTOMIZING COMMANDS screen displays.

    2. Type `show` and press **Enter**.

       A list of existing fixed disks displays.

    3. Type `all` and press **Enter**.

       Information for the first fixed disk displays.

    4. Press **F4** to print the minidisk information.

       Note: If you do not have a printer attached to your system, record the information on paper.

    5. Repeat step 4 until all minidisk information has been displayed and printed.

    6. Record the necessary minidisk information of the check lists in Appendix B.

    7. Press **Enter** to return to the MINIDISK CUSTOMIZING COMMAND screen.

    8. Press **F3** to exit the **minidisks** command.

    9. Record each minidisk name and type on the appropriate worksheet in Appendix B. A sample worksheet can also be found in Appendix B.

└──┘

Note: The only minidisk displayed without a minidisk name (**hd#**) should be the VRM Page Space (**PgSpace**) minidisk. If any of the minidisks do not have names, exit the **minidisks** command and run the **mdrc** command to create a configuration record for the unnamed minidisks. Run the **minidisks** command again, after the configuration record is created.

For further information about minidisks, see *Installing and Customizing the AIX Operating System* and *Managing the AIX Operating System.*

Go to **Step 3**.

Step 3. Back Up VRM Minidisk

√Step 1   Complete Prerequisite Checks

√Step 2   Record Minidisk Configurations and Sizes

_ Step 3   Back Up VRM Minidisk

Backing Up the VRM Minidisk

Step 3 describes:

- Formatting backup diskettes

- Backing up the VRM minidisk (**hd6**).

Warning: Failure to backup all minidisks may result in the loss of customer data. Do not remove, move, or install fixed disks until the backup is complete. Also, you must back up the VRM minidisk to diskette. You *cannot* use streaming tapes for the VRM minidisk backup.

To help you keep a record of each minidisk backup, on the appropriate Minidisk Worksheet in Appendix B, check the **Backed Up** column for the VRM minidisk (**hd6**) when the backup is complete.

To format the two VRM backup diskettes and copy the VRM minidisk, do the following:

Format the Diskettes and Minidisk Backup

- After the $ or # prompt in AIX:

    1. Type `format` and press **Enter**.

       You are prompted to insert a diskette to be formatted.

    2. Insert the first diskette and press **Enter**.

    3. Repeat steps 1 and 2 for the second diskette.

- Back up the VRM minidisk after the two diskettes are formatted.

    1. Type `cvid /dev/fd0` and press **Enter**.

    2. Insert the diskettes when prompted.

    3. Label and save the diskettes.

    4. Check the **Backed Up** column on the appropriate Minidisk Checklist in Appendix B.

       You will use the VRM minidisk backup diskettes in **Step 10**.

Note: You do not need to back up the VRM Page Space (**PgSpace**) minidisk.

If you have a coprocessor minidisk installed, go to **Step 4**.

If you *do not* have a coprocessor minidisk, go to **Step 5**.

Step 4. Back Up Coprocessor Minidisk

√Step 1   Complete Prerequisite Checks

√Step 2   Record Minidisk Configurations and Sizes

√Step 3   Back Up VRM Minidisk

__ Step 4   Back Up Coprocessor Minidisk

Backing Up the Minidisk

Note: If you do not have a coprocessor minidisk, go to **Step 5**.

Step 4 provides instructions for making backup copies of the coprocessor minidisks on streaming tapes or diskettes.

Warning: Failure to backup all minidisks may result in the loss of customer data. Do not remove, move, or install fixed disks until the backup is complete.

For instructions on how to back up the coprocessor minidisk:

- Go to "Coprocessor Minidisk Tape Backup" on page 4-3 to create a backup copy on tape.

- Go to "Coprocessor Minidisk Diskette Backup" on page 4-5 to create a backup copy on diskette.

Coprocessor Minidisk Tape Backup

Note: One streaming tape is required for each coprocessor minidisk backup.

To create the coprocessor minidisk tape backup, you must do the following:

● Load the Installation/Maintenance diskette

● Start the maintenance system

● Load the streaming tape

● Backup the coprocessor minidisks.

Load the Installation/Maintenance diskette using the following instructions.

Start the Maintenance System

● If the system is not powered on:

1. Insert the AIX Operating System Installation/Maintenance Diskette into diskette drive 0 (or A).

2. Turn on the power to all components as usual.

● If the system is powered on:

1. Be certain that all other users log off the system.

2. Type `shutdown` and press **Enter**.

3. When **shutdown** completes, insert the AIX Operating System Installation/Maintenance diskette into diskette drive 0 (or A).

4. Press **Ctrl-Alt-Pause**.

● Once initialized, the maintenance system displays the SYSTEM MANAGEMENT menu.

● Type `2` to select `Use Maintenance Commands` and press **Enter**.

Step 4

After the USE MAINTENANCE COMMANDS menu displays, you can begin the coprocessor minidisk backup. Back up the minidisk using these instructions:

Minidisk Backup to Tape

Note: You will need one streaming tape for each coprocessor minidisk.

- From the USE MAINTENANCE COMMANDS menu:

  1. Type 9 and press **Enter** to select `Backup commands.`

  2. Type 2 and press **Enter** to select `Backup a minidisk image to tape.`

  3. Type the number of the fixed disk that contains the minidisk to be backed up and press **Enter**.

     Note: The fixed-disk number prompt does not appear if there is only one fixed disk installed in the system.

     All minidisks located on the selected fixed disk display.

  4. Type the ID number of the coprocessor minidisk to be backed up and press **Enter**.

  5. Press **Enter**.

  6. Following the prompts, insert the backup tape.

  7. When the backup is complete, press **Enter** to return to the USE MAINTENANCE COMMANDS menu.

  8. Label the tape with the minidisk name, file system, and minidisk IODN.

  9. Check the **Backed Up** column of the appropriate Minidisk Checklist in Appendix B.

  10. Repeat steps 1 through 8 until all coprocessor minidisks are backed up on tape.

- Press **F3** to return to the SYSTEM MANAGEMENT menu.

- Type 4 and press **Enter** to select `End System Management.`

- Type 1 and press **Enter** to select `Normal startup.`

Go to **Step 5**.

Coprocessor Minidisk Diskette Backup

To create a coprocessor minidisk diskette backup, do the following:

● Start the coprocessor

● Format the diskettes

● Back up the coprocessor minidisks

● Stop the coprocessor.

Starting the Coprocessor

To start the coprocessor, do the following:

┌───── **Start the Coprocessor** ──────────────────────────────┐

● After the $ or # prompt in AIX:

1. Type `pcstart -p` and press **Enter**.

   As each prompt displays:

2. Press **Enter** to accept the default value, or change any of the values you usually change when running the coprocessor.

   Make sure the prompt `Allocate (fd0)?` is `y`.

   Note: You should note which minidisk name ($_{hd\#}$) corresponds to each coprocessor minidisk (C or D). Record this information on the appropriate Minidisk Worksheet.

└──┘

Go to the next page.

Step 4

Formatting the Backup Diskettes

After you have started the coprocessor, format the diskettes needed for the backup.

Note: See "Formula 3 - Coprocessor Minidisks" on page A-3 for instructions on calculating the number of diskettes needed for the coprocessor minidisk backup.

Format the Diskettes

- At the DOS `C>` prompt in AIX:

  1. Type `format a:` and press **Enter**.

  2. Insert a diskette into drive 0 (or A) and press **Enter** when prompted.

     When formatting is complete, a message displays and prompts you to format another diskette or stop.

  3. Continue formatting diskettes until all diskettes needed for the coprocessor minidisk backups are formatted.

Go to the next page.

Backing up the Coprocessor Minidisks

To start the coprocessor minidisk backup, do the following:

Back Up the Minidisk

- At the DOS c> prompt in AIX:

    1. Type backup c:*.* a: /s and press **Enter**.

    2. Insert diskettes as prompted.

    3. Label and save the diskettes.

    4. Check the **Backed Up** column on the appropriate Minidisk Checklist in Appendix B.

    All files in all subdirectories on the **C:** minidisk will be backed up.

    Note: If you have a second coprocessor minidisk, back up the **D:** minidisk.

- To backup the **D:** minidisk:

    1. Type backup d:*.* a: /s and press **Enter**.

    2. Insert diskettes as prompted.

    3. Label and save the diskettes.

    4. Check the **Backed Up** column on the appropriate Minidisk Checklist in Appendix B.

    All files in all subdirectories on the **D:** minidisk will be backed up.

Repeat the above steps if you have more than two coprocessor minidisks.

Stopping the Coprocessor

After completing the coprocessor minidisks backup, stop the coprocessor.

Stop the Coprocessor

- To stop the coprocessor:

    - Press the **Ctrl-Alt-Action** keys.

Go to **Step 5**.

Step 5. Back Up AIX and User Minidisks

√Step 1   Complete Prerequisite Checks

√Step 2   Record Minidisk Configurations and Sizes

√Step 3   Back Up VRM Minidisk

√Step 4   Back Up Coprocessor Minidisk

_ Step 5   Back Up AIX and User Minidisks

Backing Up AIX and User Minidisks

Step 5 describes:

- Using the **df** command

- Formatting backup diskettes

- Accessing and using the USE MAINTENANCE COMMANDS menu

- Backing up the AIX and user minidisks to tape or diskette.

Warning: Failure to back up the minidisks may result in loss of customer data. Do not remove, move, or install fixed disks until all backups are complete.

You can back up the AIX system (SYS) minidisks and AIX user (USR) minidisks on tape or diskettes. Non-AIX user (NON) minidisks can be backed up to tape using the Install/Maintenance Diskette. For diskette backups of non-AIX user minidisk, use your normal backup procedures.

Notes:

1. *At least one tape is required for each minidisk backup. Large minidisks may require more than one tape. If you are using tapes, go to "Starting the Maintenance System" on page 5-5.*

2. *See "Using the df Command" on page 5-3 for instructions on calculating the number of diskettes required for each AIX system and AIX user minidisk backup. The backup diskettes must be formatted before starting the backup.*

3. *You cannot back up non-AIX user minidisks to diskette using the Installation/Maintenance diskette. See "Backing Up Non-AIX User Minidisks to Diskette" on page 5-8 for more information.*

Using the df Command

Note: If you are using tapes for minidisk backups, go to step 2 of "Starting the Maintenance System" on page 5-5.

Using the following instructions, record the percentage of usage for each AIX minidisk. This percentage is used to help determine the number of diskettes needed to back up each minidisk.

```
┌─────── How to Use the df Command ───────────────────────────┐
│                                                              │
│  ●  Press Ctrl-Alt-Pause.                                    │
│                                                              │
│  ●  At the $ or # prompt in AIX:                             │
│                                                              │
│     1.  Type df to display the AIX minidisks on the screen,  │
│         or type df                                           │
│         | print to pipe the information to the printer.      │
│                                                              │
│     2.  For each AIX minidisk (USR or SYS), record the       │
│         percentage of the first used column on the           │
│         appropriate Minidisk Worksheet (% MD Used).  (See    │
│         the figure below for the usage column location)      │
│                                                              │
│     3.  Go to "Formula 2 - AIX and User Minidisks With       │
│         Partial Usage" on page A-2 and determine the number  │
│         of diskettes needed for each AIX minidisk backup.    │
│                                                              │
│     4.  Return to this page after you have completed the     │
│         diskette calculations.                               │
│                                                              │
└──────────────────────────────────────────────────────────────┘
```

EXAMPLE:

```
#df
Device        Mounted on        total     free   used    ifree   used
/dev/hd0      /                 23184     3804    83%      5529     8%
/dev/hd1      /u                48372    43124    10%     12137     2%
/dev/hd2      /usr              84544    48808    42%     14099     6%
/dev/hd3      /tmp               3872     3856     0%       507     0%
/dev/hd8      /usr/lpp/X        12240     6348    48%      1416     9%
/dev/hd11     /usr/jan          10764      880    91%       906    34%
```

Go to the next page and format the backup diskettes.

Step 5

Formatting Backup Diskettes

If you are using diskettes and have not formatted the diskettes, use the following instructions to format the needed diskettes.

Format the Backup Diskettes

- After the $ or # prompt in AIX:

  1. Type `format` and press **Enter**.

     You are prompted to insert the diskette to be formatted.

  2. Insert a blank data diskette and press **Enter**.

  3. Remove the formatted diskette from the diskette drive when formatting completes.

  4. Repeat steps 1 through 3 until you have enough backup diskettes formatted.

Go to the next page.

Starting the Maintenance System

Before you can begin the minidisk backup, start the AIX maintenance system from the AIX Operating System Installation/Maintenance Diskette.

Using the following instructions, load the diskette:

```
┌───── Start the Maintenance System ─────────────────────────────┐
│                                                                │
│  Note:  Non-AIX user minidisks cannot be backed up to diskette using │
│  the Installation/Maintenance diskette.  See "Backing Up Non-AIX │
│  User Minidisks to Diskette" on page 5-8.                       │
│                                                                │
│  ●  To load the Install/Maintenance diskette:                  │
│                                                                │
│     1.  If you have just completed formatting diskettes, type shutdown │
│         and press Enter.                                        │
│                                                                │
│     2.  Insert the AIX Operating System Installation/Maintenance │
│         Diskette into diskette drive 0 (or A).                 │
│                                                                │
│     3.  Press Ctrl-Alt-Pause.                                  │
│                                                                │
│         Once initialized, the maintenance system displays the SYSTEM │
│         MANAGEMENT menu.                                        │
│                                                                │
│     4.  Type 2 to select Use Maintenance Commands and press    │
│         Enter.                                                  │
│                                                                │
└────────────────────────────────────────────────────────────────┘
```

Go to the next page.

Step 5

Backing Up the Minidisks

When the USE MAINTENANCE COMMANDS menu displays, you are ready to begin the minidisk backups.

How to Start the Backup

Note: Use the Minidisk Worksheets you filled out in **Step 2** to determine the minidisk names, locations, and types.

- From the USE MAINTENANCE COMMANDS menu:

  1. Type 9 and press **Enter** to select Backup commands.

     a. If the minidisk is an AIX system (SYS) or AIX user (USR) minidisk, press **Enter** to select the default, Backup a file system.

     b. If the minidisk is a non-AIX user (NON) minidisk, type 2 and press **Enter** to select Backup a minidisk image to tape. Go to step 3 below.

  2. Select the backup device:

     a. If you are backing up to diskette, press **Enter**.

     b. If you are backing up to tape, type 3 and press **Enter**.

  3. Type the number of the fixed disk that contains the minidisk to be backed up and press **Enter**.

     Note: If you have only one fixed disk installed in your system unit, the fixed-disk number prompt does not appear.

     The minidisks located on the selected fixed disk display.

  4. Type the ID number of the minidisk to be backed up and press **Enter**.

     Note: Do not back up the dump minidisk, hd4.

  5. Press **Enter** to continue with the backup.

Go to the next page.

┌──── **Insert the Backup Media** ──────────────────────┐

● Following the prompts:

    1.   Insert the backup diskettes or tapes.

    2.   Press **Enter** when the backup is complete. The USE
        MAINTENANCE COMMANDS menu displays.

    3.   Carefully label the diskettes or tapes with minidisk name, file
        system, and minidisk IODN.

```
Minidisk Name: hd0
Minidisk Type: AIX
Volume: 1 of 2
IODN: 16384
```

    4.   Check the **Backed Up** column on the appropriate Minidisk
        Checklist in Appendix B.

    5.   Repeat the steps on the preceding page and this page until the
        minidisks are backed up.

└──┘

Go to **Step 6**.

Backing Up Non-AIX User Minidisks to Diskette

If you have non-AIX user minidisks (not coprocessor minidisks) and you do not have a streaming tape drive, use your usual procedures for backing up these minidisks.

The **dd** command can also be used to back up these minidisks. For more information on the **dd** command, see *AIX Operating System Commands Reference*.

Go to **Step 6**.

Step 6. Run Disk Conversion Utility - Phase 1

√Step 1   Complete Prerequisite Checks

√Step 2   Record Minidisk Configurations and Sizes

√Step 3   Back Up VRM Minidisk

√Step 4   Back Up Coprocessor Minidisk

√Step 5   Back Up AIX and User Minidisks

__ Step 6   Run Disk Conversion Utility - Phase 1

Step 6

Running Phase 1

Step 6 describes:

- Formatting the Alternate Sector Data Diskette

- Loading the Disk Conversion Utility diskette

- Running the disk conversion program, **diskcvt1**

- Labeling and saving the data diskette.

```
┌─── IMPORTANT ──────────────────────────────────────┐
│                                                    │
│  If you have completed the minidisk backups and your service │
│  representative has requested you to call, contact your service │
│  representative now. Do not continue with the Upgrade Kit │
│  instructions at this time.                        │
│                                                    │
│  If you do not need to contact the service representative, continue with │
│  this step.                                        │
│                                                    │
└────────────────────────────────────────────────────┘
```

If the system unit has R70-type fixed disks installed, you can use the Disk
Conversion Utility diskette to change the disk format to E70-type fixed
disks. The E70 fixed disks operate with the new IBM RT PC Extended
ESDI Magnetic Media Adapter and Extended ESDI Magnetic Media Cable,
which will be installed in a later step.

The conversion utility will *only* reformat R70 fixed disks. Any other drive
types installed in the system will not be formatted.

Phase 1 of the Disk Conversion Utility copies the alternate sectors of each
R70 fixed disk to a diskette. This diskette is used to rewrite the alternate
sectors to the reformatted fixed disks in Phase 2.

Warning: Do not run Phase 2 of the Disk Conversion Utility
until Phase 1 has successfully completed. Failure to run
Phase 1 may result in the incorrect operation of the fixed
disks and loss of customer data. Do not move or add any fixed
disks until after Phase 2 has been completed.

Formatting the Data Diskette

Format the Alternate Sector Data Diskette using the following instructions:

```
┌──── Format the Diskette ──────────────────────────────┐
│                                                        │
│  •  After the $ or # prompt in AIX:                    │
│                                                        │
│     1.  Type format and press Enter.                   │
│                                                        │
│         You are prompted to insert the diskette to be  │
│         formatted.                                     │
│                                                        │
│     2.  Insert a blank data diskette and press Enter.  │
│                                                        │
│     3.  Remove the formatted diskette from the diskette│
│         drive when formatting completes.               │
│                                                        │
│     4.  Type shutdown and press Enter.                 │
│                                                        │
└────────────────────────────────────────────────────────┘
```

Loading and Running Phase 1

After the data diskette is formatted and system shutdown has completed, load **diskcvt1**, Phase 1 of the Disk Conversion Utility.
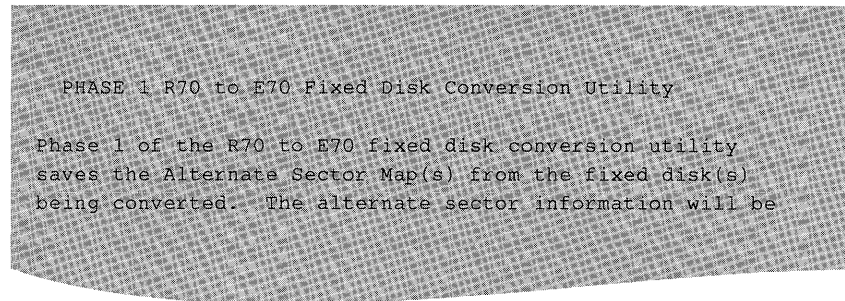
```
┌──── Load diskcvt1 ────────────────────────────────────┐
│                                                        │
│  •  After system shutdown has completed:               │
│                                                        │
│     1.  Insert the Disk Conversion Utility diskette    │
│         into diskette drive 0 (or A).                  │
│                                                        │
│     2.  Press Ctrl-Alt-Pause.                          │
│                                                        │
│     3.  At the > prompt, type diskcvt1 and press Enter.│
│                                                        │
└────────────────────────────────────────────────────────┘
```

Go to the next page.

After the utility diskette is loaded, the following screen displays:

```
PHASE 1 R70 to E70 Fixed Disk Conversion Utility

Phase 1 of the R70 to E70 fixed disk conversion utility
saves the Alternate Sector Map(s) from the fixed disk(s)
being converted.  The alternate sector information will be
```

Copying the Alternate Sector Maps

- After the above screen displays:

1. Type y and press **Enter**.

The following information displays:

```
    PHASE 1 R70 to E70 Fixed Disk Conversion Utility

The Alternate Sector Maps will be saved from
the following Fixed Disk(s).

Fixed Disk 0 in Location C.
Fixed Disk 1 in Location D.
Fixed Disk 2 in Location E.

Do you wish to continue? (y/n)
```

Note: The number of fixed disks you see displayed when running the above step will vary depending on the number of R70 fixed disks installed in your system unit. The above example is for a system with three R70 fixed disks installed.

2. Type y and press **Enter**.

The following information displays:

```
    PHASE 1 R70 to E70 Fixed Disk Conversion Utility

Please insert a blank formatted high capacity
diskette in drive 0 (or A).
Press Enter to continue.
```

Note: The diskette drive in-use light may remain on.

3. Insert the formatted diskette in drive 0 (or A) and press **Enter**.

After you press **Enter**, the utility copies alternate sector information to the formatted diskette. The following screen displays:

```
   PHASE 1 R70 to E70 Fixed-Disk Conversion Utility


Alternate Sector Information saved for Fixed Disk 0 in Location C.
Alternate Sector Information saved for Fixed Disk 1 in Location D.
Alternate Sector Information saved for Fixed Disk 2 in Location E.


CAUTION - Do not change the physical location of your fixed
disks before running Phase 2 of the disk conversion utility.
Phase 2 expects to find the same configuration of fixed
disks that existed when Phase 1 was executed.


Phase 1 of the R70 to E70 fixed disk conversion
successfully completed.
```

Labeling and Saving the Data Diskette

End Phase 1

- After Phase 1 has completed:

  1. Label the diskette with your machine serial number and the fixed disk(s) which were processed.

  2. Put the diskette in a safe place.

     You will use the diskette in **Step 8** to restore the alternate sector data.

Go to **Step 7**.

Step 6

Disk Conversion Utility Messages

There are several messages that can appear when the Disk Conversion Utility is run. The conditions causing the messages are:

- If you entered n to either of the y/n prompts during Phase 1, this message displays:

  ```
  Phase 1 Disk Conversion terminated.
  ```

  Action: You may restart the conversion utility and type y at the necessary prompts or end the upgrade procedure.

- If you type diskcvt1 ?, this usage message displays:

  ```
  Usage: diskcvt1

  Used only for conversion of R70 to E70 Fixed Disk(s)
  for use with the RT PC Extended ESDI Magnetic Media Adapter.

  This utility saves the Alternate Sectors of R70 Fixed
  Disks(s) on diskette for later use by diskcvt2.
  ```

  Action: This is only an information message.

Step 7. Install New Hardware

√Step 1   Complete Prerequisite Checks

√Step 2   Record Minidisk Configurations and Sizes

√Step 3   Back Up VRM Minidisk

√Step 4   Back Up Coprocessor Minidisk

√Step 5   Back Up AIX and User Minidisks

√Step 6   Run Disk Conversion Utility - Phase 1

_ Step 7   Install New Hardware

Installing the New Hardware

Step 7 contains the procedures used to install the new hardware in the IBM 6150 and IBM 6151 system units. These procedures describe:

- Loading the diagnostics and utilities from the diagnostic diskettes

- Using the SHOW INSTALLED OPTIONS utility to record the adapters, options, and drive types installed in your system unit

- Removing and replacing the covers from your system unit

- Removing and replacing adapters, options, and cables.

Warning: If you have not completed Check List **Steps 1** through **6**, DO NOT continue with the upgrade procedures. Data may be lost if these procedures are not followed.

To help you in the installation of the new system hardware, **Step 7** is divided into two steps:

- **Step 7A**, "IBM 6150 Hardware Installation" on page 7-3

- **Step 7B**, "IBM 6151 Hardware Installation" on page 7-33

The upper outside corner of each page identifies the step number and the system unit type for the two steps. To begin the hardware installation, go to the appropriate step for your system unit.

IBM 6150 Hardware Installation

This section is intended for IBM 6150 system unit customers *only*. If you have a 6151 system unit, see "IBM 6151 Hardware Installation" on page 7-33 for complete hardware installation instructions.

Note: You need a medium-sized, flat-bladed screwdriver to remove the fan assembly and the adapters.

Loading the Diagnostics Diskette

Using the following steps, load the hardware diagnostic diskette.

Load the Diskette

- To load the Diagnostic Diskette:

  1. Remove the diagnostic diskettes from the back of *Problem Determination Guide* supplied with Version 2.1.1 or above.

     Note: If you do not have Version 2.1.1 or above Diagnostic Diskettes, contact your sales representative before continuing with the Upgrade Kit.

  2. Remove the write-protect tab, if one is present, from the diskettes.

  3. Insert diagnostic diskette **DIAG-1** into diskette drive 0 (or A) and close the drive.

  4. Turn the system unit on or press **Ctrl-Alt-Pause**.

     Note: Do not operate or move any device, unless instructed to do so.

     The IBM Logo screen may display for a short time while the diagnostics are loading and checking the system configuration.

  5. Wait until the DIAGNOSTIC OPERATING INSTRUCTIONS screen appears.

     Note: The system may not appear active during this time.

  6. Read the DIAGNOSTIC OPERATING INSTRUCTION screen and press **Enter**.

     The FUNCTION SELECTION menu displays.

  7. Press **Enter** to select `Diagnostic Routines`.

  8. Insert diagnostic diskette **DIAG-2** when prompted and press **Enter**.

Go to the next page.

If you have never used the diagnostic diskettes the DIAGNOSTIC TEST LIST menu displays next.

If you have used the diagnostic diskettes on your system unit and have *not* changed any adapters, options, or devices, the next menu displayed is the DIAGNOSTIC SELECTION menu.

If you have used the diagnostic diskettes on your system unit and have changed any adapters, options, or devices, the next menu displayed is the TEST OPTION menu.

Select the Diagnostic Routines

- If the DIAGNOSTIC TEST LIST menu or the TEST OPTION menu is displayed:

  1. Read and follow the instructions as they appear on the screen to update the list of components on the DIAGNOSTIC TEST LIST or to indicate if an option has been removed on the TEST OPTION menu.

     The DIAGNOSTIC SELECTION menu displays after the DIAGNOSTIC TEST LIST and TEST OPTION menus have been completed.

  2. Type 1 and press **Enter** to select System Checkout from the DIAGNOSTIC SELECTION menu.

     The TEST METHOD SELECTION menu displays.

  3. Press **Enter** to select Run Test One Time.

  4. Follow the instructions as they appear on the display to test the system hardware.

     When the test completes, the TESTING COMPLETE screen appears if no problems were found.

  5. Press **Enter** to return to the DIAGNOSTIC SELECTION menu.

  6. Type 99 and press **Enter** to return to the FUNCTION SELECTION menu. Do not remove the diskette.

     Note: If there is a hardware problem with the machine, contact your service representative.

Go to the next page.

Running Utilities

Using the following instructions, select and use the Show Installed Options Utility.

Run the Show Installed Options Utility

- From the FUNCTION SELECTION menu:

  1. Type 2 and press **Enter** to select Utilities .

     The UTILITY SELECTION menu displays.

  2. Type 1 and press **Enter** to select Show Installed Options Utility.

     The Show Installed Options Utility displays the configuration list.

  3. Record the displayed information on the INSTALLED OPTIONS LIST sample on the next page. You will use this information in **Step 9**

     Note: Use the **Page Up** and the **Page Down** keys to see all of the items on the list.

Completing the Installed Options List

Record the information displayed by the Show Installed Options Utility on the following form.

You will use this information to configure the system after the new hardware is installed.

```
INSTALLED OPTIONS LIST

The following options are installed on your machine.

ADAPTER/DEVICE                                          SLOT
```

Exiting the Utility

After you have recorded your system configuration, use the following instructions to exit the utilities program.

```
┌──── Leave the Utility ──────────────────────────────────┐
│                                                          │
│  ●  To exit the Show Installed Options Utility:          │
│                                                          │
│     1.  Press Escape.                                    │
│                                                          │
│         Pressing Escape returns you to the DIAGNOSTICS   │
│         OPERATING INSTRUCTIONS screen.                   │
│                                                          │
│     2.  Remove the diskette from the diskette drive.     │
│                                                          │
│     3.  Replace the diagnostic diskettes in the back of Problem │
│         Determination Guide.                             │
│                                                          │
└──────────────────────────────────────────────────────────┘
```

Go to the next page.

Removing the System Unit Covers

Using the following instructions, remove the covers from the system unit.

Note: Do not operate the system unit with the covers removed. Operating with the covers on ensures adequate cooling of the components.

You do not need any tools to remove the covers from the system unit.

CAUTION
This device is heavy. Three or more people should lift the system unit, which weighs up to 38 kg (84 lb).

Note: You might find this task easier if you put the unit on a sturdy table.

Before You Remove the Covers

- Do the following before you remove any covers:

  1. Turn the system and any connected devices off.

  2. Unplug all power cables from the electrical outlets.
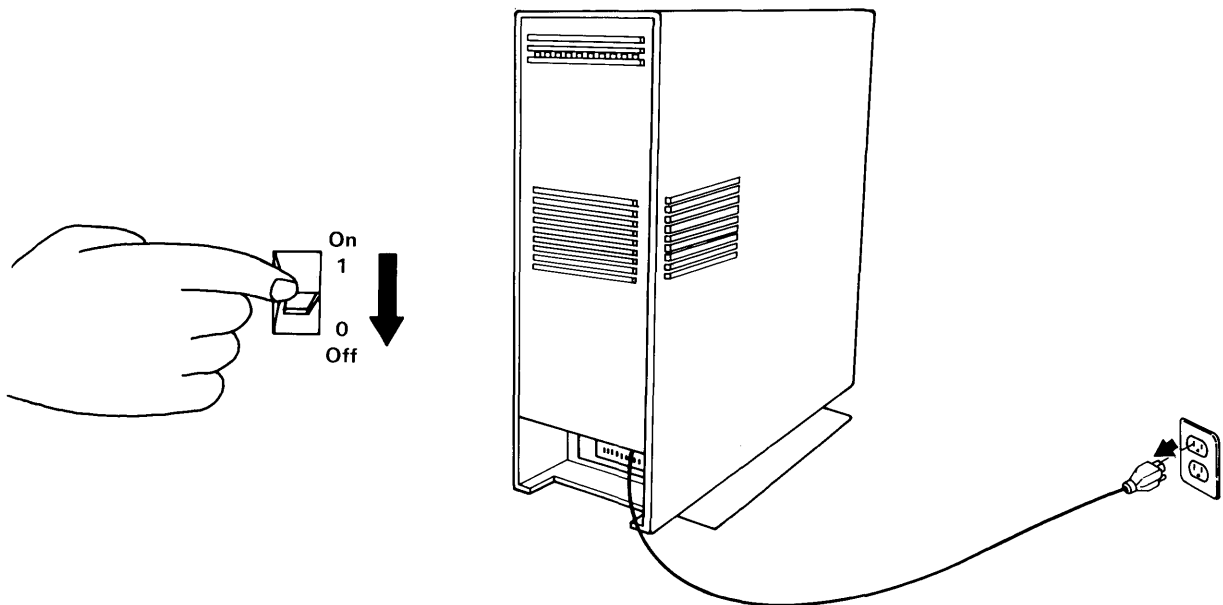
Go to the next page.

Removing the Rear Cover

After all power has been removed from the system unit and any connected devices, remove the rear cover.

```
┌─────── Remove the Rear Cover ───────────────────────────┐
│                                                         │
│   ●   To remove the rear cover:                         │
│                                                         │
│       1.   Firmly grasp the bottom and snap the cover   │
│            free.                                        │
│                                                         │
│       2.   Rotate the cover outward until the hooks     │
│            are clear of the top of the unit.            │
│                                                         │
│       3.   If connected, unplug the display power cable │
│            and the system unit power cable.  Remove and │
│            label all cables from the rear of the system.│
│                                                         │
└─────────────────────────────────────────────────────────┘
```

Go to the next page.
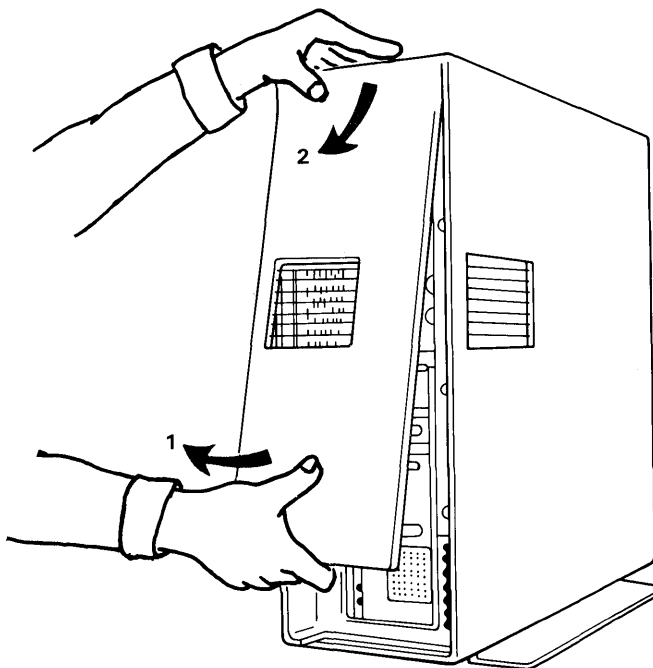
Removing the Front Cover

Using the following instructions, remove the front cover.

```
┌──────── Remove the Front Cover ────────────────────┐
│                                                     │
│  ●  To remove the front cover:                      │
│                                                     │
│     1.  Unlock the keylock and remove the key.      │
│                                                     │
│     2.  Push up on the front cover tab until it is free from the hole in │
│         the bottom of the unit.                     │
│                                                     │
│     3.  Rotate the cover out and away from the bottom of the unit.       │
│                                                     │
│     4.  Lower the cover until the hooks are clear of the top of the      │
│         unit.                                        │
│                                                     │
└─────────────────────────────────────────────────────┘
```

Go to the next page.

Left Cover Tabs
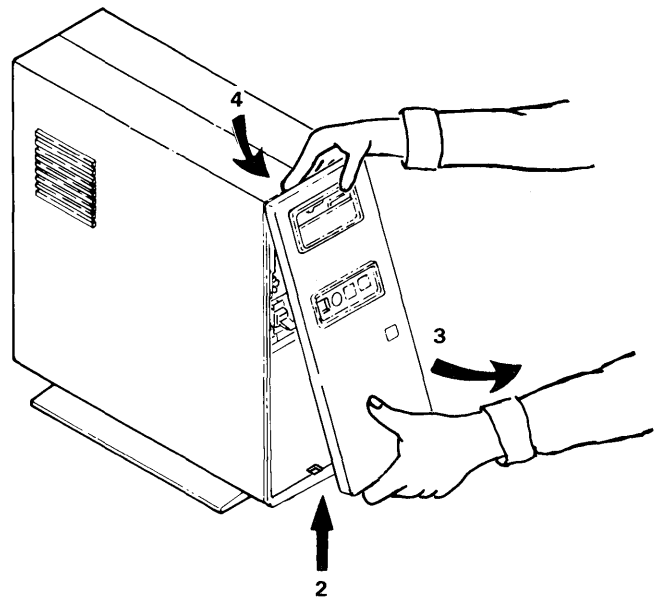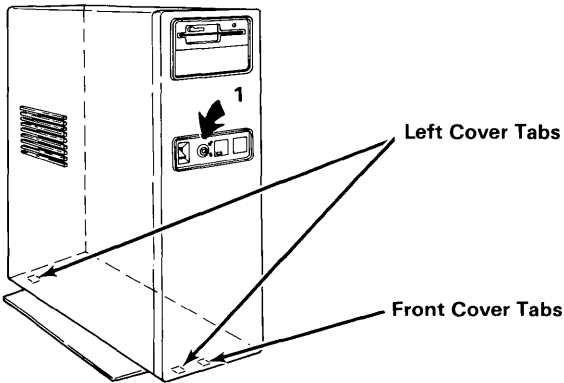
Front Cover Tabs

Removing the Left Side Cover

After the rear and front covers have been removed, remove the left side cover.

Remove the Left Side Cover

• To remove the left side cover:

1. Find the tab under one outside edge of the left side cover.

2. Push up on the tab until it is free of the hole in the cover.

3. Do the same to the tab on the other end.

4. Rotate the cover out and away from the bottom of the unit.

5. Lift the side cover up until the hooks are free of the loops in the top of the unit.

You have completed the cover removals necessary for installing the new hardware.

Go to the next page.

Removing and Replacing Adapters and Options

After the covers are removed, you can install the new adapters in the system unit. Be sure power is still disconnected before you continue with these procedures.

Handling Static-Sensitive Adapters

Warning: Adapters can be damaged by static electricity discharge. The adapters are wrapped in antistatic bags to prevent this damage.

```
┌──── Handling Adapters ──────────────────────────────┐
│                                                       │
│  •  Take the following precautions when handling      │
│     devices sensitive to static electricity           │
│     discharge:                                        │
│                                                       │
│     1.  Hold the device (still in the antistatic      │
│         bag) in one hand and, with the other hand,    │
│         touch the metal on the system unit frame.     │
│                                                       │
│         Note: When handling devices or adapters,      │
│         hold them by the corners or brackets only.    │
│         Do not touch the components, modules, or      │
│         connections.                                  │
│                                                       │
│     2.  Immediately remove the device from the        │
│         antistatic bag.                               │
│                                                       │
└───────────────────────────────────────────────────────┘
```

Go to the next page.

Installing the Advanced Processor Card and 4MB Fast Memory

Instructions are given from the following arrangement; the system unit is on a table. The front of the unit toward your right hand. You are facing the left side of the unit with all three covers removed. (See the picture on the next page.)

Using the instructions on the following page, remove the cards installed in slots A, C, and D. If the card installed in slot B is a Floating-Point Accelerator, you may want to remove this card also. (See the notes for more information.)

Notes:

1. *If the card in slot B is an Advanced Floating-Point Accelerator do not remove the card.*

2. *Do not remove the Floating-Point Accelerator if any of these applications are installed: UNIRAS[1], Professional CADAM[2], Personal graPHIGS[3], or CAEDS[4]. If you are unsure whether other applications require the Floating-Point Accelerator, you can: (1) recompile the applications if source code is available or (2) remove the Floating-Point Accelerator and run the application in question, after the Upgrade Kit is installed. If the application fails to run, reinstall the Floating-Point Accelerator.*

---

[1] UNIRAS is a trademark of UNIRAS Incorporated.

[2] Professional CADAM is a registered trademark of CADAM INC.

[3] Personal graPHIGS is a trademark of International Business Machines Corporation.

[4] CAEDS is a registered trademark of International Business Machines Corporation.

┌─── **Removing and Installing Cards** ───────────────────────┐

- To remove a card installed in Slot A, B, C, or D:

  1. Hold the card by the edges.

  2. Carefully remove the card from the appropriate slot.

- To install the APC:

  1. Unpack the adapter using the instructions under "Handling Static-Sensitive Adapters" on page 7-13.

  2. Hold the card by the edges.

  3. Point the tab toward slot A on the system board and press the card into place.

     Ensure that the right edge is in the plastic guides and the card is completely in position.

- To install the 4MB Fast Memory Expansion Option:

  1. Unpack the adapter using the instructions under "Handling Static-Sensitive Adapters" on page 7-13.

  2. Hold the card by the edges.

  3. Point the tab toward slot C on the system board and press the card into place.

     Ensure that the right edge is in the plastic guides and the card is completely in position.

└──┘

Go to the next page.
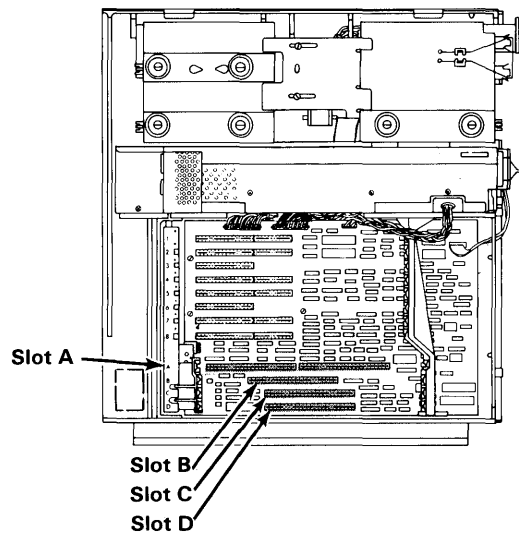
Locating the Fixed-Disk Adapter Slots

Note: If you system does not have any R70 fixed disks installed, go to "Replacing the System Unit Covers" on page 7-29.

If your system unit has R70 fixed disks installed in positions C and D you will replace the IBM RT PC ESDI (ESDI) Magnetic Media Adapter installed in slot 1 with the new IBM RT PC Extended ESDI (EESDI) Magnetic Media Adapter. Do not replace the adapter at this time.

If a third R70 fixed disk is installed in position E, a second ESDI adapter can be found in slot 2. The second adapter will be removed from the system unit. Do not remove the adapter at this time.

If a R40 fixed disk is installed in position E, the IBM Personal Computer AT Fixed-Disk and Diskette Drive Adapter installed in slot 2 remains in the system unit.

The following chart shows the correct fixed disk and adapter positions. The artwork on the following page shows the locations of the fixed disks in the system unit.

Note: If your system configuration is in the following chart, continue with the installation instructions. Do not replace or remove any adapters at this time. If your system configuration is *not* in the chart, contact your service representative to complete the installation.

If the system has disk(s) installed in: C D E	Remove the adapter in:	Install the new adapter in:
R70	Slot 1	Slot 1
R70 R40	Slot 1	Slot 1
R70 R70	Slot 1	Slot 1
R70 R70	Slots 1 and 2	Slot 1
R70 R70 R40	Slot 1	Slot 1
R70 R70 R70	Slots 1 and 2	Slot 1

Notes:

1. *Only the adapters indicated in the chart above will be removed. Some system configurations will require two different fixed-disk adapters installed.*

2. *If you are not sure of a fixed disk position, see the figure on the following page.*

Go to "Removing Fixed-Disk Adapters" on page 7-18.

STEP 7A - 6150

Drive Type Label

R70

Position C

Position E

Position D
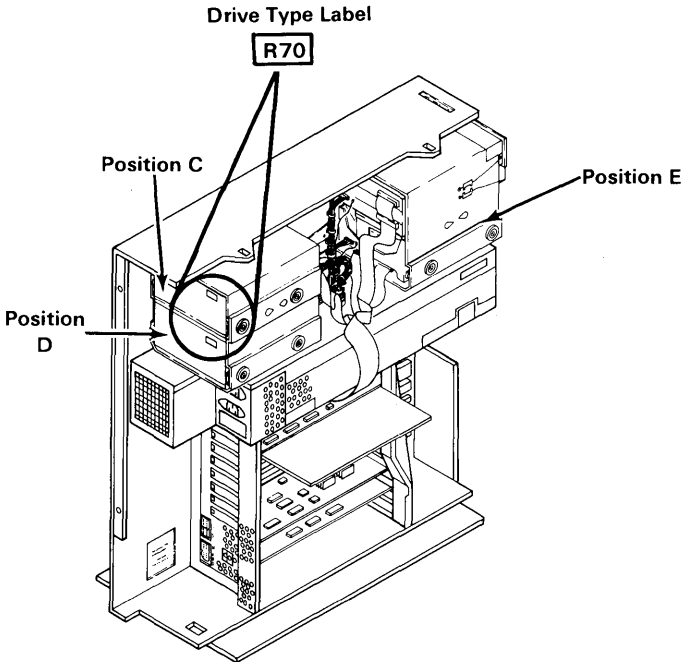
Removing Fixed-Disk Adapters

Using the following instructions and the figures on the next page, remove the fixed-disk adapter from slot 1 or 2.

Note: If you have a second fixed-disk adapter installed in slot 2, you must remove it first in order to remove the adapter in slot 1. After you have replaced the adapter in slot 1, reinstall the adapter in slot 2, if needed.

Remove the Fixed-Disk Adapters

- To remove the adapter from slot 2, if installed:

    1. Remove the screw holding the adapter. Save the screw to install the adapter later if needed.

    2. Holding the edges of the adapter, slide the adapter out of the slot.

    3. Disconnect the 34-pin connector C-E and the 20-pin connector C-E1.

- To remove the adapter from slot 1:

    1. Remove the screw holding the adapter. Save the screw to install the adapter later.

    2. Holding the edges of the adapter, slide the adapter out of the slot.

    3. Disconnect the 34-pin connectors C-AB and C-CD and the 20-pin connectors C-C1 and, if connected C-D1.

    Note: Do not install the new adapter at this time.

C-D1
C-C1
C-CD
C-AB

To Drive Adapter
In Slot 1

C-D1
C-C1
C-CD
C-AB

C-E1
(20 Pins)

C-E
(34 Pins)

C-E1
C-E

Second Disk and Diskette
Drive Adapter (Slot 2)
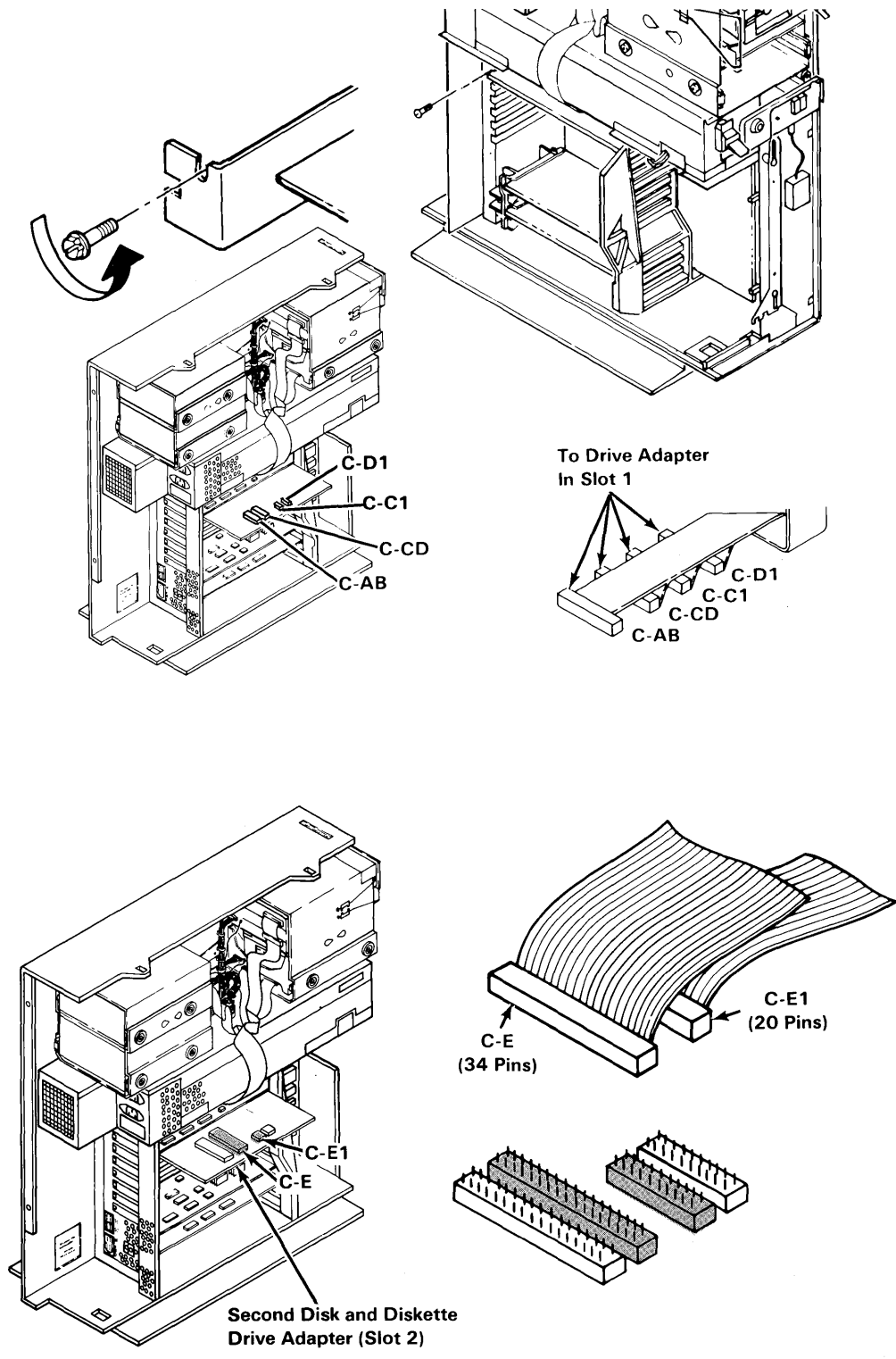
Removing and Installing Cables

Before you can remove the old fixed-disk cables you must remove the cooling fan assembly. Continue to the next page and remove the fan.

Using the following instructions, remove the fan assembly.

┌─── **Remove the Fan** ──────────────────────────────┐

● To remove the cooling fan assembly:

1. Loosen the two mounting screws and slide the fan bracket to the right.

2. Remove the cooling fan assembly.

3. Disconnect the cooling fan power connector at drive position C.

Go to the next page.

Drive Position C   **Mounting Screws**
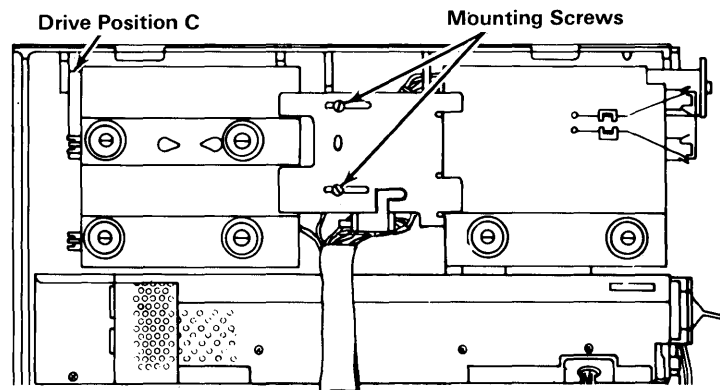
The system unit fixed disk configuration determines which cable bundles are removed and/or installed. Use the following chart to determine the correct cabling for your system unit, then follow the instructions on the next page to remove the cable bundle.

If the system has disk(s) installed in: C	D	E	Cabling Instructions
R70			Remove the cable bundle attached to position A and C and if connected, position B.
R70		R40	Remove the cable bundle attached to positions A and C and if connected, position B. Do not remove the cable attached to position E.
R70	R70		Remove the cable bundle attached to positions A, C, and D and if connected, position B.
R70		R70	Remove the cable bundle attached to positions A and C and if connected, position B. Remove the single cable attached to position E.
R70	R70	R40	Remove the cable bundle attached to positions A, C, and D, and if connected, position B. Do not remove the cable attached to position E.
R70	R70	R70	Remove the cable bundle attached to positions A, C, D, and if connected, position B. Remove the single cable at position E.

Go to the next page.

OLD CABLES

To Fixed-Disk Drive
In Position E

To Drive Adapter
In Slot 2

C-E1

C-E

In Fixed-Disk Drives
In Positions C and D

To Diskette Drives
In Positions A and B

To Drive Adapter
In Slot 1

C-D1

C-C1

C-CD

C-AB
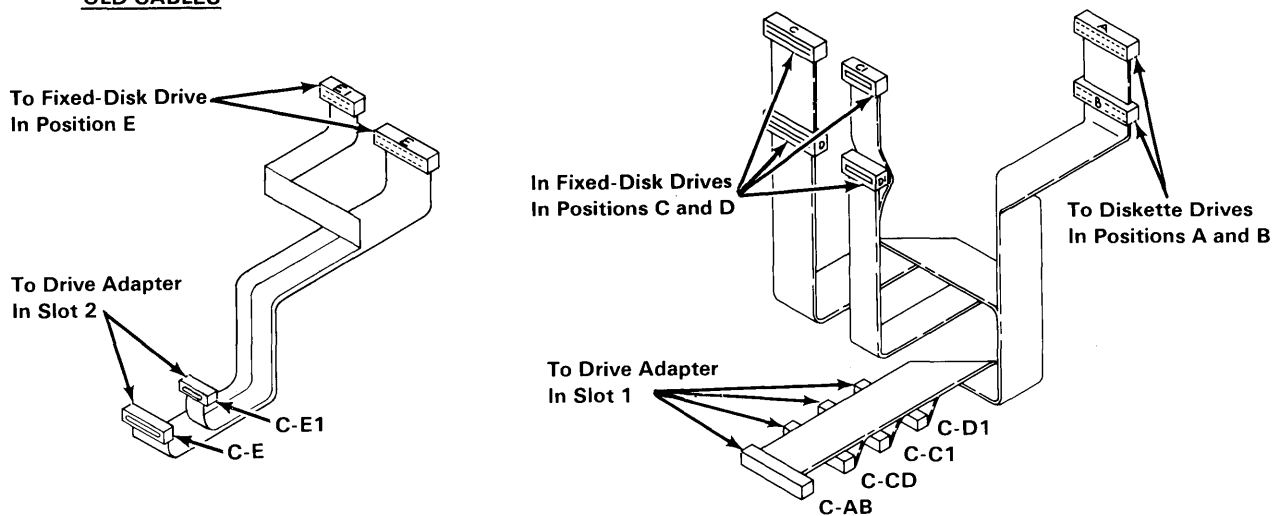
Remove the necessary cables as determined from the chart on page 7-21.

Remove the Cables

- To remove the cable bundle(s):

  1. Disconnect the appropriate 34-pin connectors (A,B, C, D, or E) and 20-pin connectors (C1, D1, or E1) from the rear of the fixed disks.

  2. Remove the necessary cables from the system unit.

Go to the next page.

Rear View

20 Pin   34 Pin
Connector Connector
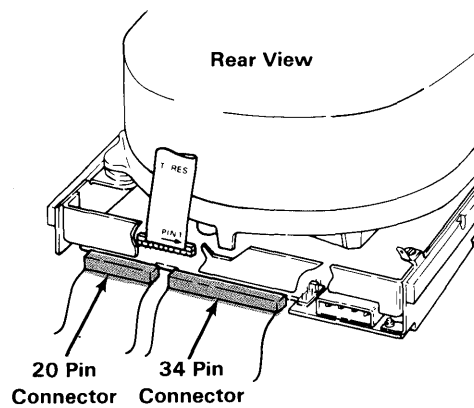
Installing the EESDI Cable

To install the new IBM RT PC Extended ESDI (EESDI) Magnetic Media Cable, use the following instructions:

Install the EESDI Cable

- To install the new cable:

  1. Carefully route the new cable as shown in the picture below.

     Note: If the cable connector does not have a device to connect to, leave the cable loose in the system.

  2. Connect the 34-pin connectors as follows:

     - A to Diskette Drive in Position A
     - B to Diskette Drive in Position B (if installed)
     - C to Fixed Disk in Position C
     - D to Fixed Disk in Position D (if installed)
     - E to Fixed Disk in Position E (if the fixed disk is a R70).

  3. Connect the 20-pin connectors as follows:

     - C1 to Fixed Disk in Position C
     - D1 to Fixed Disk in Position D (if installed)
     - E1 to Fixed Disk in Position E (if the fixed disk is a R70).

Go to the next page.

Step 7. Install New Hardware   7-23
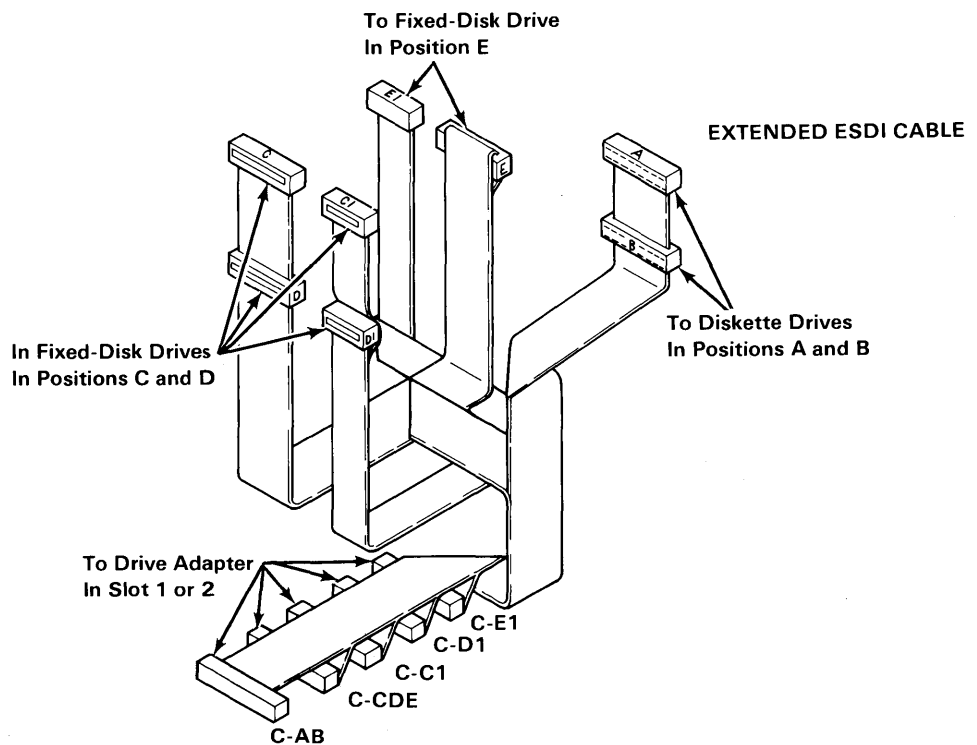
Installing the New E70 Labels

Before you install the new adapter, install the new drive-type labels (E70) over the R70 labels on your fixed disks. Three E70 labels were shipped in the Upgrade Kit.

Apply the E70 Labels

- To apply the new labels:

  1. Locate the front side of the fixed disk.

  2. Wipe off any dirt or dust on the existing R70 label.

  3. Carefully peel the backing off the new E70 label.

  4. Stick the new E70 label on top of the R70 label.

  5. Repeat the above steps until all R70 drives have new labels.

     Note: Do not change the label on any R40 fixed disks installed in your system.

Go to the next page.

Drive Type Label

Front View
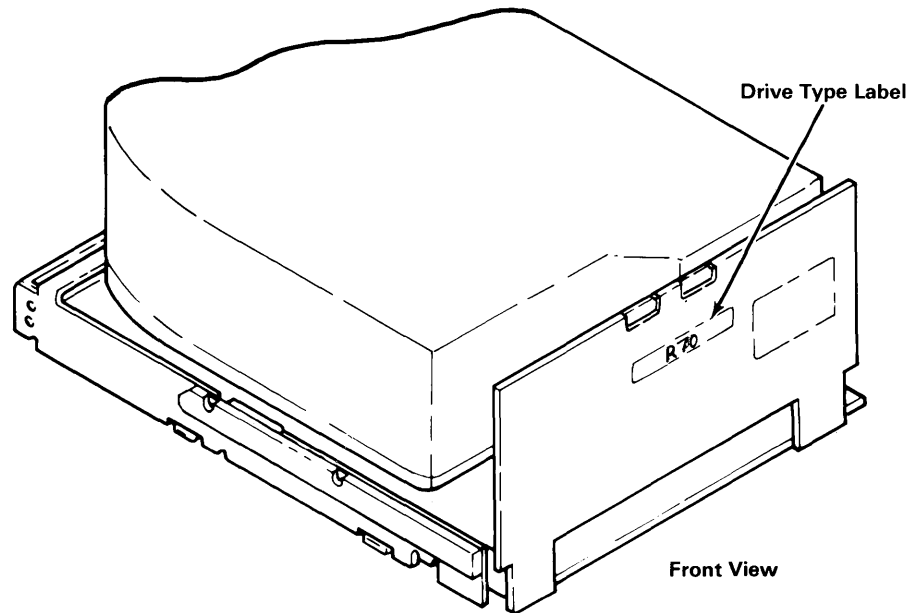
Removing the Terminator Resistor

If your system unit has an R70 or E70 fixed disk installed in position E, the terminator resistor must be removed before using the disk. Use the following instructions to remove the terminator.

If your system unit has any other type of fixed disk installed in position E, go to "Installing the New Adapter" on page 7-26.

Remove the Terminator

- To remove the terminator resistor:

    1. Locate the terminator resistor on the fixed disk in position E.

        Note: Do not remove the terminator if the fixed disk installed in position E is a R40 fixed disk.

    2. Carefully remove the terminator resistor.

Go to the next page.

Rear View

Terminator
Resistor
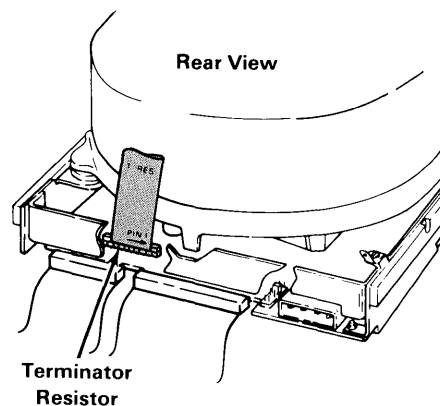
Installing the New Adapter

The following instructions describe how to install the Extended ESDI Magnetic Media Adapter in slot 1 and connect the cables to the adapter.

Install the EESDI Adapter

- To install the adapter in slot 1:

  1. Hold the adapter by the bracket and edges.

  2. Set the adapter jumper for slot 1. (See figure below)

  3. Connect the 20-pin connectors C-C1, C-D1, and if needed, C-E1 to the 20-pin connectors on the adapter as shown on the next page.

  4. Connect the 34-pin connectors C-AB and C-CDE to the 34-pin connectors on the adapter as shown on the next page.

  5. Slide the adapter into slot 1 slot and replace the screw you removed earlier.

- If needed, replace the fixed-disk adapter in slot 2 and connect the 20-pin connector C-E1 and the 34-pin connector C-E.

Adapter (Slot 1)

C-E1
C-D1
C-C1
C-CDE
C-AB

C-E1
(20 Pins)
C-D1
C-C1
C-CDE
(34 Pins)
C-AB
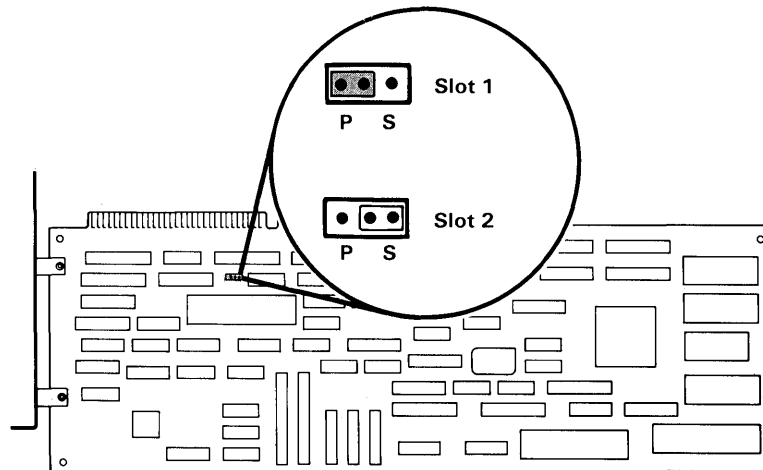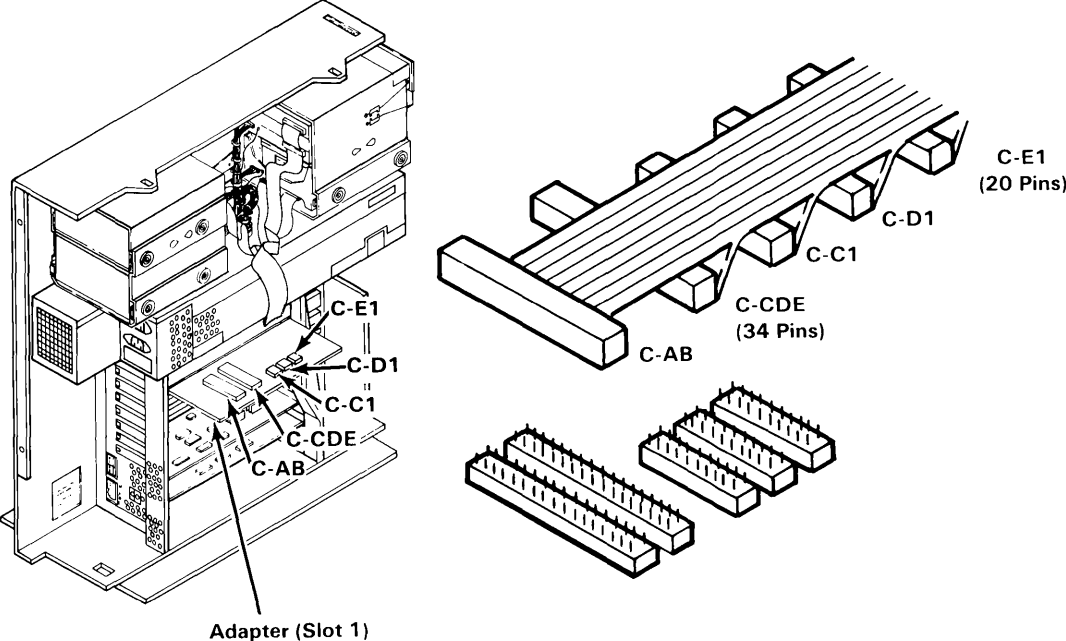
Replacing the Fan

Replace the Fan

- To replace the cooling fan:

    1. Connect the fan power connector at drive position C.

       Note: Be sure the cooling fan assembly is mounted as shown.

    2. Insert the right end of the cooling fan assembly onto the front cage, then slide the fan bracket to the left behind the rear cage until the alignment holes between the two screws align.

    3. Tighten the two mounting screws.

You have completed the hardware installation, go to "Replacing the System Unit Covers" on page 7-29 and replace the covers.

Drive Position C   Alignment Hole   Mounting Screws
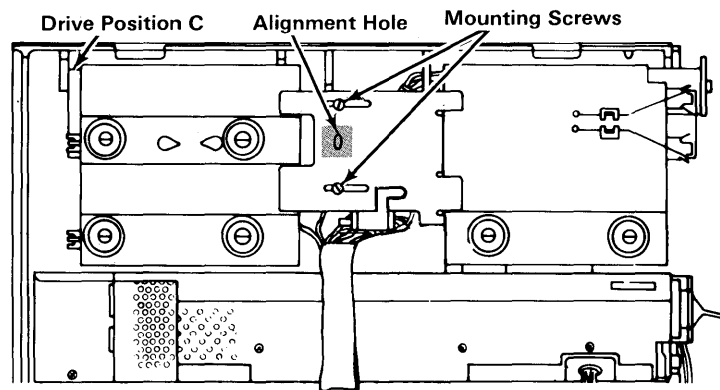
Replacing the System Unit Covers

Using the following instructions, replace the left side, front, and rear covers.

Replace the Left Side Cover

● To replace the left side cover:

1. Insert the top hooks in the loops in the top of the frame.

2. Rotate the bottom of the cover inward and snap the cover in place.
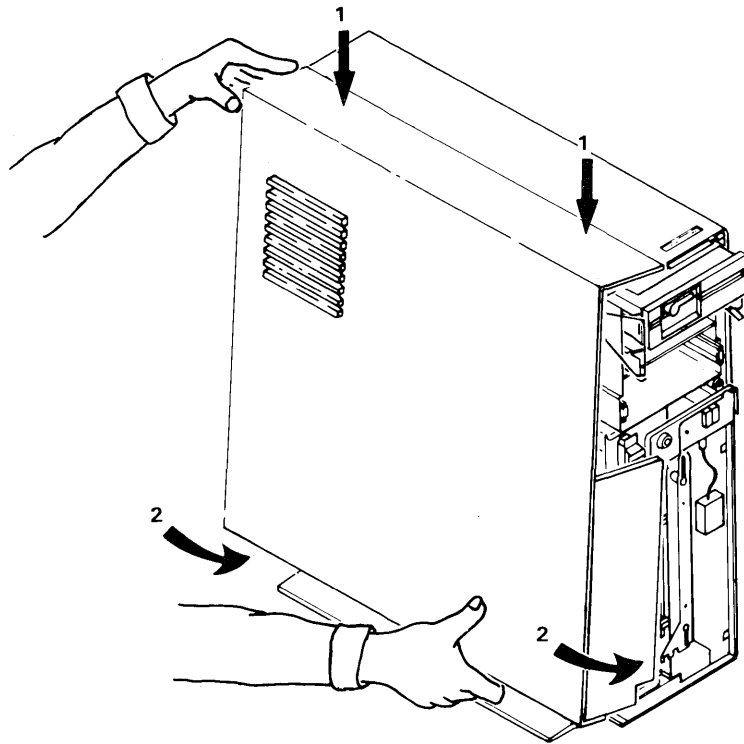
Go to the next page.

Replace the Front Cover

- To replace the front cover:

    1. Insert the hooks under the top cover edge.

    2. Rotate the cover in and snap the cover in place.

Go to the next page.
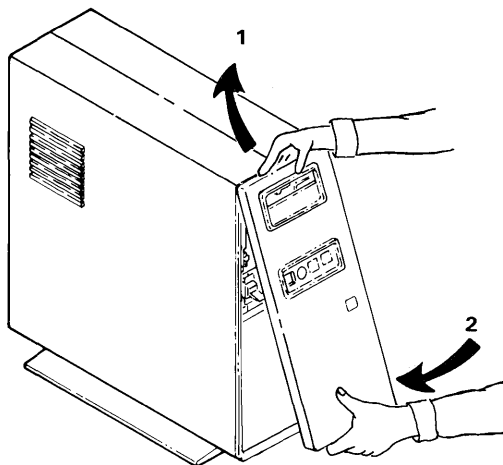
> **Replace the Rear Cover**
>
> • To replace the rear cover:
>
>   1. Connect all of the cables you disconnected earlier.
>
>   2. Arrange the cables so that you can fit the rear cover in place.

Go to **Step 8.**
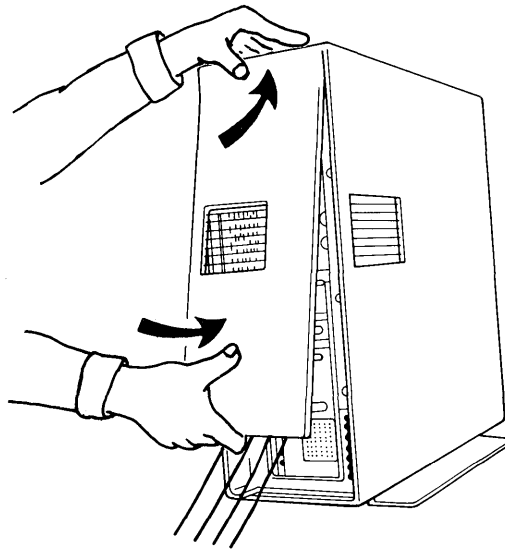
IBM 6151 Hardware Installation

This section is intended for IBM 6151 system unit customers *only*. If you have a 6150 system unit see "IBM 6150 Hardware Installation" on page 7-3 for complete hardware installation instructions.

Note: You need a medium-sized, flat-bladed screwdriver to remove the system unit cover.

Loading the Diagnostics Diskette

Using the following steps, load the hardware diagnostic diskette.

Load the Diskette

- To load the Diagnostic Diskette:

  1. Remove the diagnostic diskettes from the back of *Problem Determination Guide* supplied with Version 2.1.1 or above.

     Note: If you do not have Version 2.1.1 or above Diagnostic Diskettes, contact your sales representative before continuing with the Upgrade Kit.

  2. Remove the write-protect tab, if one is present, from the diskettes.

  3. Insert diagnostic diskette **DIAG-1** into diskette drive 0 (or A) and close the drive.

  4. Turn the system unit on or press **Ctrl-Alt-Pause**.

     Note: Do not operate or move any device, unless instructed to do so.

     The IBM Logo screen may display for a short time while the diagnostics are loading and checking the system configuration.

  5. Wait until the DIAGNOSTIC OPERATING INSTRUCTIONS screen appears.

     Note: The system may not appear active during this time.

  6. Read the DIAGNOSTIC OPERATING INSTRUCTION screen and press **Enter**.

     The FUNCTION SELECTION menu displays.

  7. Press **Enter** to select Diagnostic Routines.

  8. Insert diagnostic diskette **DIAG-2** when prompted and press **Enter**.

Go to the next page.

If you have never used the diagnostic diskettes the DIAGNOSTIC TEST LIST menu displays next.

If you have used the diagnostic diskettes on your system unit and have *not* changed any adapters, options, or devices, the next menu displayed is the DIAGNOSTIC SELECTION menu.

If you have used the diagnostic diskettes on your system unit and have changed any adapters, options, or devices, the next menu displayed is the TEST OPTION menu.

Select the Diagnostic Routines

- If the DIAGNOSTIC TEST LIST menu or the TEST OPTION menu is displayed:

    1. Read and follow the instructions as they appear on the screen to update the list of components on the DIAGNOSTIC TEST LIST or to indicate if an option has been removed on the TEST OPTION menu.

        The DIAGNOSTIC SELECTION menu displays after the DIAGNOSTIC TEST LIST and TEST OPTION menus have been completed.

    2. Type 1 and press **Enter** to select System Checkout from the DIAGNOSTIC SELECTION menu.

        The TEST METHOD SELECTION menu displays.

    3. Press **Enter** to select Run Test One Time.

    4. Follow the instructions as they appear on the display to test the system hardware.

        When the test completes, the TESTING COMPLETE screen appears if no problems were found.

    5. Press **Enter** to return to the DIAGNOSTIC SELECTION menu.

    6. Type 99 and press **Enter** to return to the FUNCTION SELECTION menu. Do not remove the diskette.

        Note: If there is a hardware problem with the machine, contact your service representative.

Go to the next page.

Running Utilities

Using the following instructions, select and use the Show Installed Options Utility.

```
┌──── Run the Show Installed Options Utility ──────────────────┐
```

- From the FUNCTION SELECTION menu:

    1. Type 2 and press **Enter** to select Utilities .

        The UTILITY SELECTION menu displays.

    2. Type 1 and press **Enter** to select Show Installed Options Utility.

        The Show Installed Options Utility displays the configuration list.

    3. Record the displayed information on the INSTALLED OPTIONS LIST sample on the next page. You will use this information in **Step 9**.

        Note: Use the **Page Up** and the **Page Down** keys to see all of the items on the list.

Completing the Installed Options List

Record the information displayed by the Show Installed Options Utility on the following form.

You will use this information to configure the system after the new hardware is installed.

```
INSTALLED OPTIONS LIST

The following options are installed on your machine.

ADAPTER/DEVICE                                        SLOT
```

Exiting the Utility

After you have recorded your system configuration, use the following
instructions to exit the utilities program.

```
┌──── Leave the Utility ──────────────────────────────────────┐
│                                                              │
│  ●  To exit the Show Installed Options Utility:              │
│                                                              │
│     1.  Press Escape.                                        │
│                                                              │
│         Pressing Escape returns you to the DIAGNOSTICS       │
│         OPERATING INSTRUCTIONS screen.                       │
│                                                              │
│     2.  Remove the diskette from the diskette drive.         │
│                                                              │
│     3.  Replace the diagnostic diskettes in the back of Problem │
│         Determination Guide.                                 │
│                                                              │
└──────────────────────────────────────────────────────────────┘
```

Go to the next page.

Removing the System Unit Covers

Using the following instructions, remove the covers from the system unit.

Note: Do not operate the system unit with the covers removed. Operating with the covers on ensures adequate cooling of the components.

You need a medium-sized, flat-bladed screwdriver to remove the system unit cover.

CAUTION
This device is heavy. Two or more people should lift the system unit, which weighs up to 23 kg (51 lb).

```
┌──── Before You Remove the Covers ─────────────────┐
│                                                    │
│  ●  Do the following before you remove any covers: │
│                                                    │
│     1.  Turn the system and any connected devices off. │
│                                                    │
│     2.  Unplug all power cables from electrical outlets. │
│                                                    │
└────────────────────────────────────────────────────┘
```
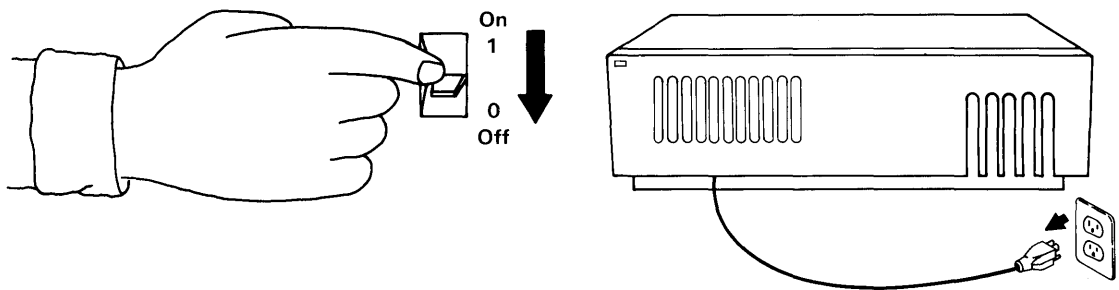
Go to the next page.

Removing the Rear Cover

After all power has been removed from the system unit and any connected devices, remove the rear cover.

Remove the Rear Cover

- To remove the rear cover:

  1. Push down on the rear cover, directly over the two loops.

  2. Remove the loops from the top hooks.

  3. Lift the cover off the bottom hooks.

  4. If connected, unplug the display power cable and the system unit power cable.

  5. Disconnect and label all cables from the rear of the system.

Go to the next page.
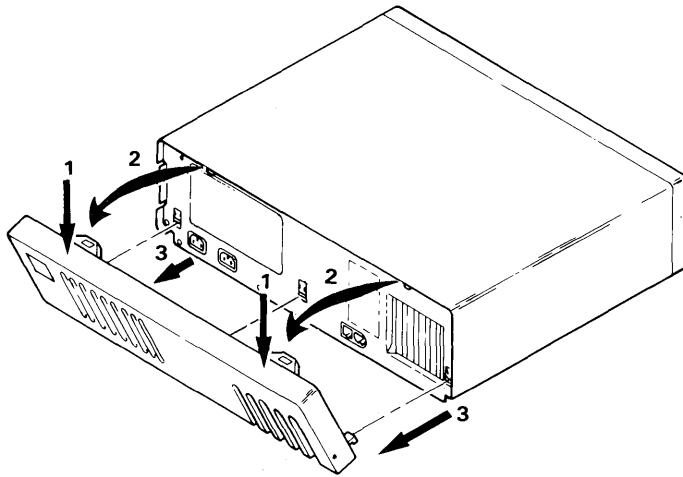
Removing the Top Cover

After the rear cover has been removed and all cables labeled, remove the top cover.

Remove the Top Cover

● To remove the top cover:

1. Unlock the keylock and remove the key.

2. Remove the four screws holding the top cover in place.

3. Face the front of the system and pull forward on the cover, sliding it off the system unit.

   Note: Gently lift the center of the cover when sliding it off. This prevents the cover from snagging the flat cable.

You have completed the cover removals.

Go to the next page.

Removing Adapters and Options

After the covers are removed, you can install the new adapters in the system unit. Be sure power is still disconnected before you continue with these procedures.

Handling Static-Sensitive Adapters

Warning: Adapters can be damaged by static electricity discharge. The adapters are wrapped in antistatic bags to prevent this damage.

Handling Adapters

- Take the following precautions when handling devices sensitive to static electricity discharge.

1. Hold the device (still in the antistatic bag) in one hand and, with the other hand, touch the metal on the system unit frame.

   Note: When handling devices or adapters, hold them by the corners or brackets only. Do not touch the components, modules, or connections.

2. Immediately remove the device from the antistatic bag.

Go to the next page.

Removing the Adapters

Before installing the Advanced Processor Card and the 4MB Fast Memory Expansion Option, you must remove the fixed-disk and diskette adapter installed in slot 6. After this adapter is removed, you can remove the processor card installed in slot A.

Using the following instructions, remove the fixed-disk adapter and the processor card.

```
┌──── Remove Adapters From Slots 6 and A ──────────────────────────┐
│                                                                  │
│  • To remove the fixed-disk adapter installed in slot 6:         │
│                                                                  │
│     1. Open the retaining brackets.                              │
│                                                                  │
│     2. Hold the adapter by the bracket and edges. Carefully      │
│        slide the adapter out of the slot.                        │
│                                                                  │
│     3. Disconnect the 34-pin connectors C-A and C-C and the      │
│        20-pin connector C-C1 from the adapter.                   │
│                                                                  │
│     4. Carefully move the cable so that it no longer covers      │
│        slot A.                                                   │
│                                                                  │
│  • To remove the card installed in slot A:                       │
│                                                                  │
│     1. Hold the card by the edges.                               │
│                                                                  │
│     2. Carefully remove the card from slot A.                    │
│                                                                  │
└──────────────────────────────────────────────────────────────────┘
```

Go to the next page and remove the memory options from slots C and D and, if needed, the Floating-Point Accelerator from slot B.
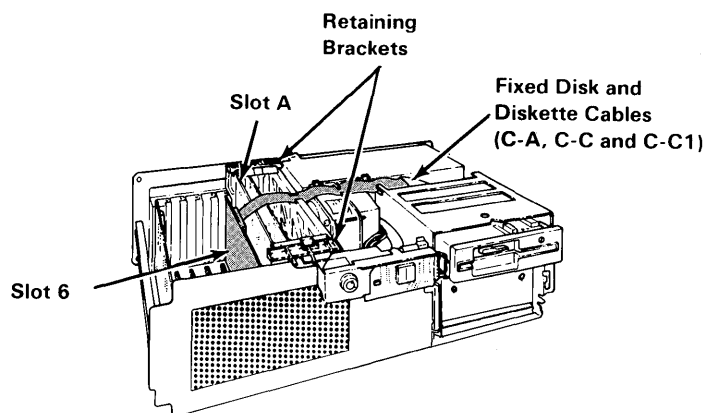
If the card installed in slot B is a Floating-Point Accelerator, you may want to remove this card also. (See the notes below for more information.)

Notes:

1. *If the card in slot B is an Advanced Floating-Point Accelerator do not remove the card.*

2. *Do not remove the Floating-Point Accelerator if any of these applications are installed: UNIRAS[1], Professional CADAM[2], Personal graPHIGS[3], or CAEDS[4]. If you are unsure whether other applications require the Floating-Point Accelerator, you can: (1) recompile the applications if source code is available or (2) remove the Floating-Point Accelerator and run the application in question, after the Upgrade Kit is installed. If the application fails to run, reinstall the Floating-Point Accelerator.*

Using the following instructions remove the cards.

Removing Cards

- To remove the cards installed in slots B, C or D:

  1. Hold the card by the edges.

  2. Carefully remove the card from the appropriate slot.

Go to the next page and install the new APC and memory option.
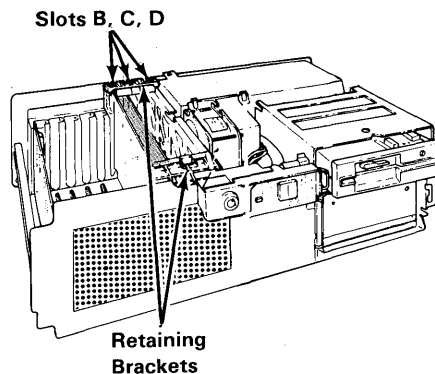
Slots B, C, D

Retaining Brackets

Install the New APC and Memory Option

- To install the Advanced Processor Card:

  1. Unpack the adapter using the instructions under "Handling Static-Sensitive Adapters" on page 7-42.

  2. Hold the card by the edges.

  3. Point the tab toward slot A on the system board and press the card into place.

     Ensure that the right edge is in the plastic guides and the card is completely in position.

- To install the 4MB Fast Memory Expansion Option:

  1. Unpack the adapter using the instructions under "Handling Static-Sensitive Adapters" on page 7-42.

  2. Hold the card by the edges.

  3. Point the tab toward slot C on the system board and press the card into place.

     Ensure that the right edge is in the plastic guides and the card is completely in position.

If you have a R70 fixed disk, go to "Installing the Extended ESDI Magnetic Media Adapter" on page 7-47.

If you have a R40 fixed disk, go to the next page.
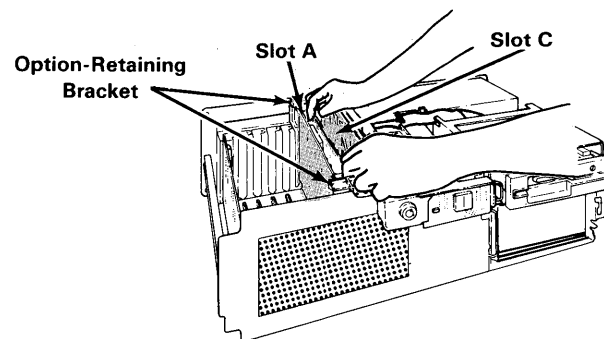
┌─── **Install the Fixed-Disk Adapter** ────────────────┐

● To reinstall the adapter removed from slot 6:

    1. Connect the 34-pin connectors C-A and C-C and the 20-pin connector C-C1 to the adapter.

    2. Hold the adapter by the bracket and edges.

    3. Point the tab toward slot 6 and press the adapter into place.

       Ensure that the right edge is in the plastic guides and the adapter is completely in position.

    4. Close the retaining brackets.

└───┘

34-Pin Connector C-A and C-C
20-Pin Connector C-C1

Slot 6
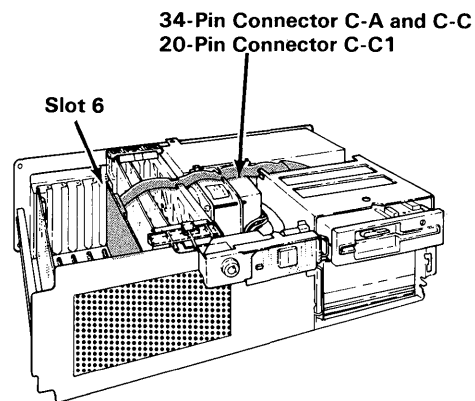
Installing the Extended ESDI Magnetic Media Adapter

The procedures on the following pages describe how replace the fixed-disk type label, set the adapter jumper, and install the new adapter.

Change R70 Label

- To change the fixed-disk label:

  1. Locate the front side of the fixed disk at the front of the system unit.

  2. Wipe off any dirt or dust on the existing R70 label.

  3. Carefully peel the backing off of the new E70 label.

     Note: Three new E70 labels are provided in the Upgrade Kit.

  4. Stick the new label on top of the R70 label.

Go to the next page.

R70

Drive Type Label
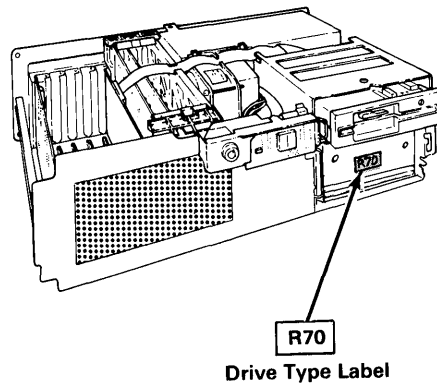
STEP 7B - 6151

> **Set the Adapter Jumper**
>
> ● To set the jumper:
>
>   1. Hold the adapter by the bracket and edges.
>
>   2. Set the adapter jumper to the slot 1 setting.

Go to the next page.

Slot 1
P   S

Slot 2
P   S
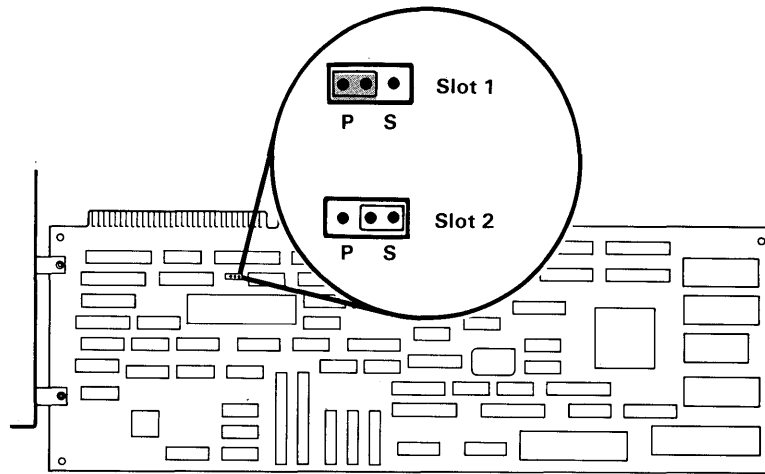
┌─── **Install the Extended ESDI Magnetic Media Adapter** ───┐

● To install the adapter:

1. Connect the 34-pin connectors C-A and C-C and the 20-pin connector C-C1 to the adapter as shown below.

2. Hold the adapter by the bracket and edges.

3. Point the tab toward slot 6 and press the adapter into place.

   Ensure that the right edge is in the plastic guides and the adapter is completely in position.

4. Close the retaining brackets.

Go to the next page and replace the covers.

34-Pin Connector C-A and C-C
20-Pin Connector C-C1

Slot 6

C-C1 (20 Pins)
C-C (34 Pins)
C-A (34 Pins)
C-C1
C-C
C-A
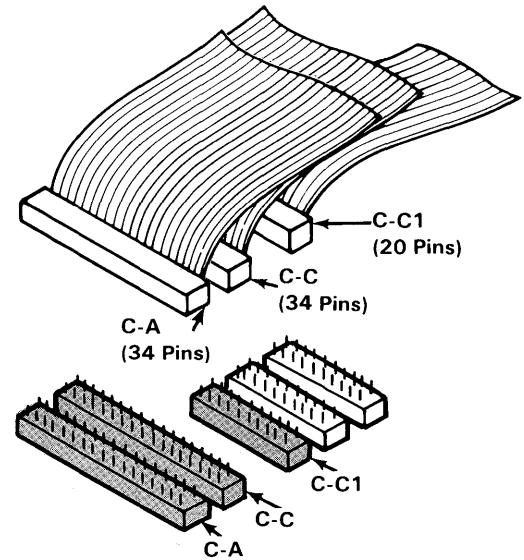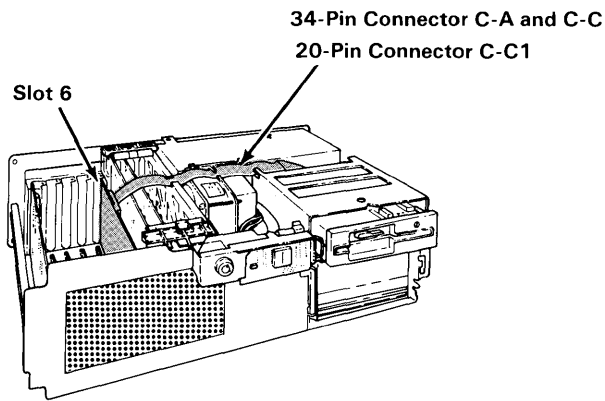
Replacing the Covers

After you have installed the new hardware, replace the system unit covers.

┌─── **Replace the Top Cover** ──────────────────────────────────┐

● To replace the top cover:

1. Face the front of the system unit and slide the cover over the unit.

   Note: Ensure that all cables are safely pushed out of the way.

2. Fit the rear cover plate in place and tighten the screws.

└──┘

Go to the next page.
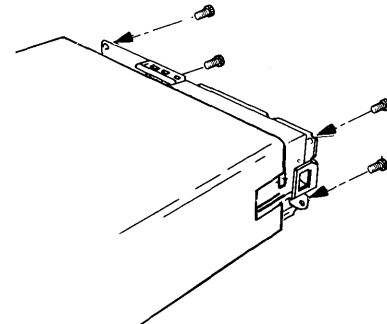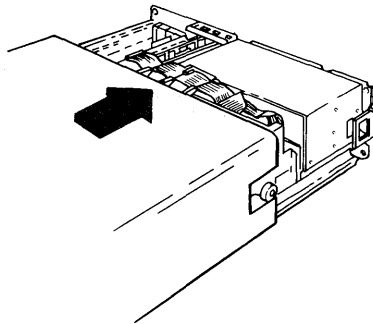
┌─── **Replace the Rear Cover** ──────────────────────────┐

● To replace the rear cover:

    1.   Connect any cables you disconnected earlier.

    2.   Slide the cables into the slots in the cover.

    3.   Insert the bottom hooks into the holes.

    4.   Push down on the cover.

    5.   Insert the top clips into the keeps.

    6.   Insert the key into the keylock.

└──┘

You have completed the installation of the new hardware. Go to **Step 8**.
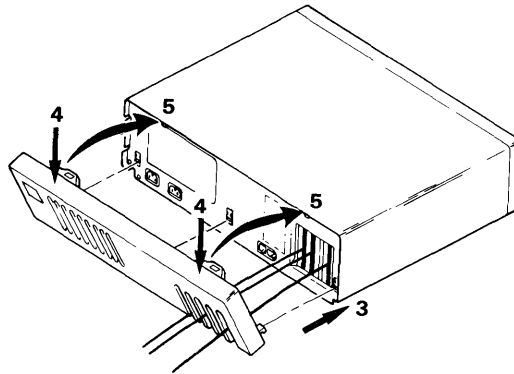
Step 8. Run Disk Conversion Utility - Phase 2

√Step 1   Complete Prerequisite Checks

√Step 2   Record Minidisk Configurations and Sizes

√Step 3   Back Up VRM Minidisk

√Step 4   Back Up Coprocessor Minidisk

√Step 5   Back Up AIX and User Minidisks

√Step 6   Run Disk Conversion Utility - Phase 1

√Step 7   Install New Hardware

__ Step 8   Run Disk Conversion Utility - Phase 2

Running Phase 2

After the new hardware has been installed, you must run Phase 2 of the Disk Conversion Utility. Phase 2 reformats the R70 fixed disks to the new E70 fixed disk format. Phase 2 rewrites the alternate sectors to the reformatted fixed disks using the data diskette created in Phase 1.

Warning: All data on the R70 fixed disks to be formatted will be destroyed. If you have not made backup copies of your minidisks, call your service representative.

Phase 2 of the conversion utility contains instructions for:

- Loading the Disk Conversion Utility diskette

- Formating the R70 fixed disks

- Copying the alternate sectors to the reformatted fixed disks.

Loading and Running Phase 2

Using the following instructions, load the disk conversion program,
diskcvt2.

```
┌──── Load diskcvt2 ──────────────────────────────────────────┐
│                                                              │
│  ●  To load diskcvt2:                                        │
│                                                              │
│     1.  Insert the Disk Conversion Utility diskette into     │
│         diskette drive 0 (or A).                             │
│                                                              │
│     2.  Turn the system power on.                            │
│                                                              │
│     3.  At the > prompt, type diskcvt2 .                     │
│                                                              │
└──────────────────────────────────────────────────────────────┘
```

The following screen displays:

```
PHASE 2 R70 to E70 Fixed Disk Conversion Utility

Phase 2 of the R70 to E70 fixed disk conversion utility
reformats the R70 fixed disks to E70 format and restores
the Alternate Sectors saved during Phase 1.
```

```
┌──── Load the Data Diskette ─────────────────────────────────┐
│                                                              │
│  ●  After the utility introduction screen displays:          │
│                                                              │
│     1.  Type y and press Enter.                              │
│                                                              │
│     The following information displays:                      │
│                                                              │
│           PHASE 2 R70 to E70 Fixed Disk Conversion Utility   │
│                                                              │
│           Please insert the data diskette created during     │
│           Phase 1 in drive 0 (or A).                         │
│                                                              │
│           Press Enter to continue.                           │
│                                                              │
│     2.  Insert the data diskette and press Enter.            │
│                                                              │
│         Note:  The diskette drive in-use light may remain on.│
│                                                              │
└──────────────────────────────────────────────────────────────┘
```

Go to the next page.

Note: The fixed disk number and disk location shown in the following screen may differ depending on your system configuration.

```
     PHASE 2 R70 to E70 Fixed Disk Conversion Utility

Fixed disk 0 in location C will be reformatted.

Do you wish to reformat this fixed disk? (y/n)
```

Reformat the Fixed Disks

- To format the drive specified in the screen:

  1. Type y and press **Enter**.

     The following information displays:

     ```
     Reformatting fixed disk 0 in location C.
     This will take several minutes.
     ```

     When formatting completes, the following message displays:

     ```
     Fixed Disk 0 reformatted.
     ```

  2. On the appropriate Minidisk Worksheet in Appendix B, circle the yes on the worksheet item, **Reformatted: (yes/no)**.

  3. Repeat steps 1 and 2 for each R70 fixed disk installed.

     When all R70 disks have been formatted, the following information displays:

     ```
     Phase 2 of the R70 to E70 fixed disk
     conversion utility has completed.
     ```

  4. Remove the Phase 1 data diskette from the diskette drive. This diskette is no longer needed and can be reformatted for use at a later time.

Go to **Step 9**.

Disk Conversion Utility Messages

There are several messages that can appear when Phase 2 of the Disk Conversion Utility is run. The conditions causing the messages are:

- If you entered n to the first y/n prompt during Phase 2, this message displays:

  ```
  Phase 2 Disk Conversion terminated
  ```

- If you type diskcvt2 ?, this usage message displays:

```
Usage:  diskcvt2

Used only for conversion of R70 to E70 Fixed Disk(s)
for use with the RT PC Extended ESDI Magnetic Media Adapter.

This utility will reformat R70 Fixed Disk(s) to E70 Fixed Disk
format, restore Alternate Sectors from the diskette produced by
diskcvt1 and update the configuration record.
```

- If **diskcvt2** does not detect an Extended ESDI (EESDI) adapter where one was expected, this message displays:

  ```
  RT PC Extended Magnetic Media Adapter not found
  Phase 2 Disk Conversion terminated
  ```

  ACTION: Ensure that the EESDI adapter has been installed correctly in **Step 7**.

- If **diskcvt2** does not detect the existence of any fixed disks, this message displays:

  ```
  No R70 Fixed Disk(s) found
  Phase 2 Disk Conversion terminated
  ```

  ACTION: Ensure that there are R70 fixed disks installed in your system unit and that they are properly connected.

- If **diskcvt2** determines that the fixed disk configuration has changed since Phase 1 (for example, there is no fixed disk in a slot where one was expected), this message displays:

  ```
  Fixed Disk Configuration has changed
  Phase 2 Disk Conversion terminated
  ```

  ACTION: Ensure that the fixed disks have not been moved since Phase 1. If fixed disks have been moved return them to their original location and run Phase 2 again. If you have not moved the fixed disks, check all fixed disk cable connections.

Step 9. Run Diagnostics

√Step 1   Complete Prerequisite Checks

√Step 2   Record Minidisk Configurations and Sizes

√Step 3   Back Up VRM Minidisk

√Step 4   Back Up Coprocessor Minidisk

√Step 5   Back Up AIX and User Minidisks

√Step 6   Run Disk Conversion Utility - Phase 1

√Step 7   Install New Hardware

√Step 8   Run Disk Conversion Utility - Phase 2

_ Step 9   Run Diagnostics

Running Diagnostics

Step 9 describes:

- Loading the RT PC Diagnostic Diskettes

- Selecting Diagnostic Routines

- Changing the TEST OPTION menu

- Changing the DIAGNOSTIC CHECKLIST menu

- Running the System Checkout procedure.

Loading the Diagnostic Diskettes

Using the following steps, load the diagnostic diskette:

```
┌──── Load the Diskettes ──────────────────────────────────────┐

 1.  Remove the Version 2.1.1 or above Diagnostic Diskettes from the
     back of Problem Determination Guide.

 2.  Remove the write-protect tab, if one is present, from the diskettes.

 3.  Insert DIAG-1 into diskette drive 0 (or A).

 4.  Press Ctrl-Alt-Pause.

     Note:  Do not operate or move any device, unless instructed to do
     so, while diagnostics are running.

     The IBM Logo screen may display for a short time while the
     diagnostics are loading and checking the system configuration.

 5.  Wait until the DIAGNOSTIC OPERATING INSTRUCTIONS
     screen displays.

     Note:  The system may not appear active during this time.

└──────────────────────────────────────────────────────────────┘
```

The DIAGNOSTIC OPERATING INSTRUCTIONS screen describes the function keys used when running diagnostics. The function keys and their uses are:

Keys	Usage
Enter	Continues the procedure or performs an action.
End	Stops a test or an action.
F10	Returns to the previous menu.
Escape	Resets the procedures and returns to the Diagnostic Operating Instructions.
Page Down	Lets you see information below that shown on the screen.
Page Up	Lets you see information above that shown on the screen.
Backspace	Lets you correct errors.

Go to the next page.

Selecting the Diagnostic Routines

Using the following instructions, select `Diagnostic Routines` from the FUNCTION SELECTION menu.

Select the Diagnostics Routine

- After you have read the DIAGNOSTIC OPERATING INSTRUCTIONS screen:

  1. Press **Enter**.

     The FUNCTION SELECTION menu displays.

  2. Press **Enter** to select ID `1` for `Diagnostic Routines`.

  3. Insert diagnostic diskette **DIAG-2** when prompted and press **Enter**.

     Either the TEST OPTION menu or the DIAGNOSTICS TEST LIST menu displays.

```
FUNCTION SELECTION

ID    ITEM
1     Diagnostic Routines
      This selection allows you to test your machine's hardware and
      determine if you have a hardware problem.  Any problem will b
      by a SRN (Service Request Number).  The SRN will allow your s
      representative to quickly determine what parts are required t
      your machine.
2     Utilities
```

Go to the next page.

Removing Options from Diagnostics

The TEST OPTION menu displays when an option that was previously recognized by the system is not found during Power-on Self Test (POST). The option not found is listed in the menu.

If you have replaced the fixed-disk adapter with the new Extended ESDI Magnetic Media Adapter, you will see a menu similar to this:

```
TEST OPTION

The following option was detected previously by the diagnostics, but
now undetected.

IBM RT PC ESDI Magnetic Media Adapter

Has the option been removed from the system or moved to another slot?

ID   ITEM
 1   The option has not been removed from the system or moved to ano

 2   The option has been removed from the system or moved to another


To choose an item, type its ID and press Enter: _
```

Other options or devices you may see are:

- R70 Fixed-Disk Drive in position C, D, or E

- IBM Personal Computer AT Fixed-Disk and Diskette Drive Adapter in slot 1 or 2

- IBM RT PC Floating-Point Accelerator Option in slot B

- IBM RT PC 1MB Memory Expansion Option in slot C or D

- IBM RT PC 2MB Memory Expansion Option in slot C or D

- IBM RT PC 4MB Memory Expansion Option in slot C or D

> **Remove Options**
>
> - When the device displayed is a diskette drive:
>
>   1. Type 2 and press **Enter** to select `The option has been`
>   `removed from the system or moved to another slot.`
>
>   2. Repeat the above step if a second diskette drive is installed.
>
> - If the option, adapter, or device displayed has been removed:
>
>   1. Type 2 and press **Enter** to select `The option has been`
>   `removed from the system or moved to another slot.`
>
>   2. Repeat the above step if the menu displays again and the
>   option has been removed.
>
> - If the option or adapter displayed has not been removed:
>
>   1. Type 1 and press **Enter** to select `The option has` <u>`not`</u> `been`
>   `removed from the system or moved to another slot.`
>
>   2. Repeat the above step if the menu displays again and the
>   option has not been removed.

Go to the next page.

Updating the Diagnostic Test List

If the option or adapter is new, the DIAGNOSTIC TEST LIST menu displays. This menu must be updated to include the new adapter before diagnostics can run.

If you have reformatted the fixed disks and installed the APC adapter you will have the following new adapters:

- IBM RT PC Extended ESDI Magnetic Media Adapter

- IBM RT PC Advanced Processor Card

- IBM RT PC 4MB Fast Memory Expansion Option.

The following menu is a sample of the DIAGNOSTIC TEST LIST menu. The adapters and options shown below may differ from your system configuration.

```
DIAGNOSTIC TEST LIST                                              DIAG-1

The following options will be tested by the Diagnostic Routines.
-          - Floating-Point Unit
-  Slot A - RT PC Advanced Processor Card
-  Slot 1 - IBM RT PC Extended ESDI Magnetic Media Adapter
-  Slot 2 - IBM Monochrome Display and Printer Adapter
-  Slot 4 - IBM RT PC Streaming Tape Drive Adapter
-  Slot 5 - IBM RT PC 4-Port Asynchronous RS232C Adapter
-  Slot 7 - IBM RT PC Multiprotocol Adapter
-  Slot 8 - IBM Personal Computer AT Coprocessor Option
-  XXX bytes of I/O Channel Memory starting at address 0
-  Diskette Drive in location A - High Capacity Diskette Drive
-  Fixed-Disk Drive in location C - E70 Fixed-Disk Drive


To see additional items in the list, use Page Up and Page Down.

ID   ITEM
 1   The list is correct.
 2   The list is incorrect.


To choose an item, type its ID and press Enter: _
```

┌─── **Correct the Test List** ─────────────────────────────┐

● Using the information you recorded in **Step 7**:

1. Check the list displayed against the information you recorded.

   Note: The list displayed should show the new adapters installed in your system in place of the ones you originally recorded. (See the previous page for the complete names of the new adapters.)

   Use **Page Up** and **Page Down** to see the complete list.

   The following cards will not appear on the new list:

   - RT PC Processor and Memory Management previously installed in slot A

   - RT PC Floating-Point Accelerator previously installed in slot B (if removed)

   - 1MB, 2MB, or 4MB memory card previously installed in slot C

   - 1MB, 2MB, or 4MB memory card previously installed in slot D

   - RT PC ESDI Magnetic Media Adapter previously installed in slot 1 or 2.

   Note: The DIAGNOSTIC TEST LIST menu may show two items installed in Slot A: a Floating-Point Unit and the Advanced Processor Card. The displaying of both is correct.

2. If the list is correct:

   a. Type 1 and press **Enter** to select The list is correct.

3. If the list is incorrect:

   a. Type 2 and press **Enter** to select The list is incorrect.

   b. Follow the instructions as they appear on the screen, until all items on the test list are correct.

└──┘

Go to the next page.

Running System Checkout

Once the system configuration has been checked and corrected, the DIAGNOSTIC SELECTION menu displays:

```
DIAGNOSTIC SELECTION

The System Checkout Option will test all functions that do not require
you to do anything.  The other options allow you to do a detailed test
of a device.  An * in front of the ID shows that the test has been run.

Choose the test you would like to run.

ID   ITEM
 1    System Checkout
 2    Display Checkout
 3    Diskette Drive(s) Checkout
 4    Fixed-disk Drive(s) and Media Checkout
```

Run Diagnostics

- To run hardware diagnostics:

  1. Type 1 and press **Enter** to select System Checkout.

  The TEST METHOD SELECTION menu displays.

  2. Press **Enter** to select Run Test One Time.

  3. Follow the instructions as they appear on the display to test the system hardware.

  When the test completes, the TESTING COMPLETE screen appears if no problems were found.

  4. Press **Enter** to return to the DIAGNOSTIC SELECTION menu.

  5. Remove the diskette and return the diskette to the back of *Problem Determination Guide.*

  If the THERE IS A HARDWARE PROBLEM IN YOUR MACHINE screen displays:

  6. Turn the system power off and check that all new adapters and cables are installed properly.

  7. Run the diagnostics program again.

     If the diagnostics fail again, see *Problem Determination Guide* for complete problem determination procedures.

Go to **Step 10.**

Step 10. Install VRM Backup Copy

√Step 1   Complete Prerequisite Checks

√Step 2   Record Minidisk Configurations and Sizes

√Step 3   Back Up VRM Minidisk

√Step 4   Back Up Coprocessor Minidisk

√Step 5   Back Up AIX and User Minidisks

√Step 6   Run Disk Conversion Utility - Phase 1

√Step 7   Install New Hardware

√Step 8   Run Disk Conversion Utility - Phase 2

√Step 9   Run Diagnostics

_ Step 10   Install VRM Backup Copy

Installing the VRM Backup Copy

Step 10 describes the following procedures:

- Loading the VRM backup diskettes

- Installing the VRM backup.

Loading the VRM Backup Diskettes

To load the VRM backup diskettes, follow these steps:

> **Load the VRM Backup Diskettes**
>
> - To load the VRM backup diskettes:
>
>   1. Insert the Volume 1 of the VRM backup diskette into drive 0 (or A).
>
>   2. Press **Ctrl-Alt-Pause**.
>
>   The INSTALL AND CUSTOMIZE THE VIRTUAL RESOURCE MANAGER menu displays.
>
> - To choose an item from the menu:
>
>   1. Type 3 and press **Enter** to select `Change Current Choices and Install the Virtual Resource Manager.`
>
>   2. Using the **minidisks** command information created in **Step 2**, change any items that do not match the **minidisks** printout.
>
>   3. If you have not set the date and time, prompts will ask you to do so at this point.
>
>   A message tells you that the VRM is being installed.
>
>   4. Insert Volume 2 of the VRM backup when prompted.
>
>   When installation is complete, a message tells you that the VRM has been installed.
>
>   5. Remove the VRM backup diskette from the diskette drive and store the backup diskettes in a safe place.
>
>   6. Check the **Restored** column on the appropriate Minidisk Checklist in Appendix B.
>
> - You have completed the VRM Backup install.

Go to **Step 11**.

Step 11. Recreate AIX System Minidisks

√Step 1   Complete Prerequisite Checks

√Step 2   Record Minidisk Configurations and Sizes

√Step 3   Back Up VRM Minidisk

√Step 4   Back Up Coprocessor Minidisk

√Step 5   Back Up AIX and User Minidisks

√Step 6   Run Disk Conversion Utility - Phase 1

√Step 7   Install New Hardware

√Step 8   Run Disk Conversion Utility - Phase 2

√Step 9   Run Diagnostics

√Step 10   Install VRM Backup Copy

_ Step 11   Recreate AIX System Minidisks

Recreating AIX System Minidisks

Step 11 provides instructions for:

- Starting the maintenance system

- Recreating AIX system minidisks

- Making new file systems for AIX minidisks.

The minidisk information you recorded in **Step 2** and the Minidisk Worksheets in Appendix B will be used to help in recreating the minidisks.

Note: The steps outlined in the following procedures assume you will create your minidisks in the order you want the minidisks to reside on a given fixed disk.

Starting the Maintenance System

Before you create the minidisks, you must start the AIX maintenance system from the AIX Operating System Installation/Maintenance Diskette.

Using the following instructions, load the diskette.

How to Start the Maintenance System

- To load the diskette:

  1. Insert the AIX Operating System Installation/Maintenance Diskette into diskette drive 0 (or A).

  2. Press **Ctrl-Alt-Pause.**

     Once initialized, the maintenance system displays the SYSTEM MANAGEMENT menu.

  3. Type 2 to select Use Maintenance Commands and press **Enter.**

Note: If you did not reformat a fixed disk, you do not have to recreate the minidisks for that disk. To see which fixed disks were formatted check the Minidisk Worksheets question, Fixed Disk Reformatted?. If you circled No for Fixed Disk Reformatted?, you do not have to recreate the minidisks for that fixed disk. The fixed disks were reformatted in **Step 8**.

Go to the next page.

Creating an AIX System Minidisk

Using the following instructions, create the AIX minidisks for the necessary fixed disks.

The AIX system minidisks and their IODNs are:

Minidisk Name	Directory	IODN
hd0	/ (root)	16384
hd1	/u	16386
hd2	/usr	16387
hd3	/tmp	16388
hd4	(Dump Minidisk)	16385

Create AIX System Minidisks

- From the USE MAINTENANCE COMMANDS menu:

  1. Type 3 to select `Create a fixed disk minidisk` and press **Enter**.

     The CREATE A FIXED DISK MINIDISK menu displays.

  2. Type 2 to select `Specify IODN` and press **Enter**.

  3. Using the minidisk information recorded in **Step 2** and the appropriate Minidisk Worksheets from Appendix B, create all SYS type minidisks that were on reformatted fixed disks (You should use the IODN previously associated with the minidisk). p.See the list above for a complete listing of the AIX system minidisks.

  4. Type the `IODN` for the AIX minidisk being created and press **Enter**.

  5. Press **Enter** to select `AIX` as the minidisk type.

Go to the next page.

Selecting the Minidisk Location

After the minidisk type has been entered, you must select the fixed disk which will contain the minidisk if you have more than one fixed disk installed.

Use the appropriate Minidisk Worksheet to complete this step.

```
┌──── Minidisk Location ──────────────────────────────────────┐
│                                                             │
│  ●  If you have more than one fixed disk installed:         │
│                                                             │
│     1.  Type the number associated with the fixed disk that │
│         will contain the minidisk to be created and press   │
│         Enter. (See the Minidisk Worksheets for fixed disk  │
│         information.)                                        │
│                                                             │
│  ●  Press Enter to select No Preference.                    │
│                                                             │
│     Note: If you are creating minidisks in the order they   │
│     are to reside on the fixed disk, you do not have to     │
│     specify a location. The minidisks will be created on    │
│     the fixed disk next to each other.                      │
│                                                             │
│  ●  Type the number of blocks needed for the minidisk and   │
│     press Enter. Use the same number of blocks recorded on  │
│     the Step 2 minidisks printout.                          │
│                                                             │
│  ●  Press Enter to create the minidisk.                     │
│                                                             │
│  ●  Check the Recreated column of the appropriate Minidisk  │
│     Worksheet in Appendix B.                                │
│                                                             │
│  ●  Press Enter to return to the USE MAINTENANCE COMMANDS   │
│     menu.                                                    │
│                                                             │
│  ●  Repeat the steps on the previous page and the steps     │
│     above until all AIX system minidisks have been          │
│     recreated.                                              │
│                                                             │
└─────────────────────────────────────────────────────────────┘
```

Note: Do not exit the USE MAINTENANCE COMMANDS menu. You will use the menu on the next page.

Making Minidisk File Systems

After creating the new minidisks and before restoring data to the minidisks, a file system must be made for each of the AIX minidisks that were recreated.

Using the following procedure, create the new file systems.

How to Make a File System

- From the USE MAINTENANCE COMMANDS menu:

  1. Type 6 to select Make a file system and press **Enter**.

     The MAKE A FILE SYSTEM menu displays.

  2. Press **Enter** to select Fixed Disk Minidisk.

  3. Type the number of the fixed disk which contains the minidisk that needs the file system created. Use the appropriate Minidisk Worksheet to determine the correct fixed disk.

     Note: The fixed-disk number prompt does not display if there is only one fixed disk installed.

     The AIX minidisks on the selected fixed disk display.

  4. Type the ID number of the minidisk which needs the file system created.

     Note: Do not make a file system for AIX minidisk **hd4**.

  5. To select the maximum number of files from the AIX minidisk:

     a. Press **Enter** to accept the default, or

     b. Type the number of files (INODES) for the minidisk and press **Enter**.

  6. Press **Enter** to make the file system.

  7. Check the **Made File System** column of the appropriate Minidisk Worksheet in Appendix B.

  8. Repeat all of the above steps, until a file system has been made for each AIX minidisk.

Note: Do not exit the USE MAINTENANCE COMMANDS menu. You will use the menu in **Step 12**.

Step 12. Restore Data to AIX System Minidisks

√Step 1   Complete Prerequisite Check List

√Step 2   Record Minidisk Configurations and Sizes

√Step 3   Back Up VRM Minidisk

√Step 4   Back Up Coprocessor Minidisk

√Step 5   Back Up AIX and User Minidisks

√Step 6   Run Disk Conversion Utility - Phase 1

√Step 7   Install New Hardware

√Step 8   Run Disk Conversion Utility - Phase 2

√Step 9   Run Diagnostics

√Step 10   Install VRM Backup Copy

√Step 11   Recreate AIX System Minidisks

__ Step 12   Restore Data to AIX System Minidisks

Restoring AIX System Minidisks

Step 12 provides the procedure for restoring the system minidisks data that was saved on backup tapes or diskettes in **Step 5**. User minidisk backups will be restored in **Step 15**. Coprocessor minidisk backups will be restored in **Step 16**.

If the USE MAINTENANCE COMMANDS menu is not displayed, see "Starting the Maintenance System" on page 11-3 for instructions on loading the maintenance system.

┌─── **Restore Minidisks** ────────────────────────────────┐

● From the USE MAINTENANCE COMMANDS menu:

   1. Type 8 and press **Enter** to select Restore commands.

      The RESTORE COMMANDS menu displays.

   2. Press **Enter** to select Restore a file system.

   3. Select the restore device:

      a. If you are restoring from diskette press **Enter** to select Diskette Drive 0.

      b. If you are restoring from tape, type 3 and press **Enter** to select Tape.

   4. To select a fixed disk, type the number of the fixed disk that contains the minidisk to be restored and press **Enter**.

      Note: The fixed disk order is not important. Use the Minidisk Worksheets in Appendix B to determine which fixed disks the system (SYS) minidisks are on.

   5. Type the ID and press **Enter** number of the minidisk to be restored.

      Note: You do not have to restore the dump minidisk, **hd4**.

   6. Insert the backup diskettes or tapes as prompted.

   7. Press **Enter** to continue with the restore.

   8. Follow the prompts for inserting the restore diskettes or tapes.

   9. When the restore operation is complete, press **Enter**.

   10. Check the **Restored** column of the appropriate Minidisk Worksheet for the system (SYS) minidisk you restored.

   11. Repeat all of the above steps until all AIX system (SYS) minidisks are restored.

└──┘

Note: Do not exit the USE MAINTENANCE COMMANDS menu, you will use the menu in the next step.

Step 13. Update the Configuration Files

√Step 1   Complete Prerequisite Checks

√Step 2   Record Minidisk Configurations and Sizes

√Step 3   Back Up VRM Minidisk

√Step 4   Back Up Coprocessor Minidisk

√Step 5   Back Up AIX and User Minidisks

√Step 6   Run Disk Conversion Utility - Phase 1

√Step 7   Install New Hardware

√Step 8   Run Disk Conversion Utility - Phase 2

√Step 9   Run Diagnostics

√Step 10   Install VRM Backup Copy

√Step 11   Recreate AIX System Minidisks

√Step 12   Restore Data to AIX System Minidisks

_ Step 13   Update the Configuration Files

Updating the Configuration Files

After you have restored the AIX system minidisks, you must update the configuration files. This update includes:

- Setting the / (root) minidisk load status

- Reaccessing the user minidisks.

Setting the / (root) Minidisk Load Status

When a system has been backed up and restored, you must specify which minidisk is to be loaded when the operating system is loaded

Note: If the USE MAINTENANCE COMMANDS menu is not displayed, see "Starting the Maintenance System" on page 11-3 for instructions on loading the maintenance system.

Setting the Load Status

- From the USE MAINTENANCE COMMANDS menu:

  1. Type 2 to select `Change load status of a fixed disk minidisk` and press **Enter**.

  2. To select a fixed disk, type the number of the fixed disk that contains the / (root) minidisk and press **Enter**.

     The minidisks on the selected fixed disk display.

  3. Type the ID number of the / (**hd0**) minidisk and press **Enter**.

  4. Press **F3** to exit the USE MAINTENANCE COMMANDS menu.

  5. Type 3 and press **Enter** to select `Standalone Shell`.

Go to the next page.

Reaccessing the User Minidisks

After the AIX system minidisks have been recreated and restored, you can reaccess any existing user minidisks from the standalone shell.

Using the following instructions, reaccess the user minidisks and update the configuration files.

Access the User Minidisks

- At the # prompt:

  1. Type the following commands exactly as shown:

     Note: Press **Enter** after each command line.

     ```
     mount   /dev/hd0   /t
     chroot  /t   /bin/sh
     mount   /dev/hd2   /usr
     mdrc
     umount  /usr
     ```

  2. Press **Ctrl-D**.

  3. Type the following command and press **Enter**.

     ```
     umount  /t
     ```

  4. Press **Ctrl-D**.

  5. Type 4 and press **Enter** to select End System Management.

  6. Press **Enter** to select Normal Startup.

Go to **Step 14**.

Step 14. Recreate User Minidisks

√Step 1   Complete Prerequisite Checks

√Step 2   Record Minidisk Configurations and Sizes

√Step 3   Back Up VRM Minidisk

√Step 4   Back Up Coprocessor Minidisk

√Step 5   Backup AIX and User Minidisks

√Step 6   Run Disk Conversion Utility - Phase 1

√Step 7   Install New Hardware

√Step 8   Run Phase 2 of Disk Conversion Utility

√Step 9   Run Diagnostics

√Step 10   Install VRM Backup Copy

√Step 11   Recreate AIX System Minidisks

√Step 12   Restore Data to AIX System Minidisks

√Step 13   Update the Configuration Files

__ Step 14   Recreate User Minidisks

Recreating User Minidisks

After you have recreated and restored your AIX system minidisks, you can recreate your user minidisks. Use the Minidisk Worksheets from Appendix B and the information you recorded from the **minidisks** command in **Step 2** to help you recreate the minidisks.

Note: If you did not reformat a fixed disk, you do not have to recreate the minidisks for that disk. To see which fixed disks were formatted check the Minidisk Worksheets question, Fixed Disk Reformatted?. If you circled No for Fixed Disk Reformatted?, you do not have to recreate the minidisks for that fixed disk. The fixed disks were reformatted in **Step 8**.

Do not recreate coprocessor minidisks at this time. Coprocessor minidisks are created and restored in **Step 16**.

If you do not have any user minidisks to recreate and restore:

- Go to **Step 16** and recreate and restore the coprocessor minidisks.

- If you do not have a coprocessor installed, you have completed the Upgrade Kit instructions.

Step 14 is divided into two sections:

- "Creating AIX User Minidisks" on page 14-3

- "Creating Non-AIX User Minidisks" on page 14-4.

Creating AIX User Minidisks

Using the following instructions, recreate your AIX user (USR) minidisks using the **minidisks** command.

┌─── **Create AIX User Minidisks** ──────────────────────────┐

• At the # or $ prompt in AIX:

1. Type `minidisks` and press **Enter**.

2. Type `add` or `a` and press **Enter**.

3. Type `yes` and press **Enter** at the prompt `Will there be an AIX file system on this minidisk?`.

   Note: Use the information you recorded in **Step 2** and the Minidisk Worksheets to complete the following steps.

4. Type the full path name of the directory on which to mount the new minidisk and press **Enter**.

5. Type `yes` or `no` to indicate whether you want the minidisk mounted each time you start the system, and press **Enter** .

6. Indicate whether you want the minidisk to be read-only or read-write by typing `rw` or `ro` and press **Enter**.

7. Type the number of blocks needed for the minidisk.

8. Type the number of the fixed disk on which to create the new minidisk and press **Enter**.

   Note: You will not see the fixed-disk number prompt if there is only one fixed disk installed.

9. Type `no` and press **Enter** when the prompt `Do you want to choose a location` displays.

10. Press **Enter** to add the new minidisk.

    After you press **Enter**, a message displays indicating that the minidisk has been created.

    Note: The minidisk name displayed may be different from the name you recorded in **Step 2**. Record the new minidisk name in the **New MD Name** column of the appropriate Minidisk Worksheet.

11. Check the **Recreated** column of the appropriate Minidisk Worksheet after the minidisk is created.

12. Repeat steps 2 through 11 to create each AIX user minidisk.

└──┘

Creating Non-AIX User Minidisks

Using the following instructions, recreate your non-AIX user (NON) minidisks using the **minidisks** command.

┌─── **Create Non-AIX User Minidisks** ─────────────────────────────

- At the # or $ prompt in AIX:

  1. Type `minidisks` and press **Enter**.

  2. Type `add` or `a` and press **Enter**.

  3. Type `no` and press **Enter** at the prompt `Will there be an AIX file system on this minidisk?`

  4. Type `no` and press **Enter** at the prompt `Will this minidisk be used by the Coprocessor?`

     Notes:

     a. *You will not see the coprocessor prompt if a coprocessor is not installed in your system.*

     b. *Use the information you recorded in* **Step 2** *and the Minidisk Worksheets to complete the following steps.*

  5. Type the block size and press **Enter**.

  6. Type the number of blocks and press **Enter**.

  7. Type the number of the fixed disk on which to create the new minidisk and press **Enter**.

     Note: You will not see the fixed disk number prompt if there is only one fixed disk installed.

  8. Type `no` and press **Enter** at the prompt `Do you want to choose a location`

  9. Press **Enter** to add the new minidisk.

  10. Check the **Recreated** column of the appropriate Minidisk Worksheet.

      After you press **Enter**, a message displays indicating that the minidisk has been created.

      Note: The minidisk name displayed may be different from the name you recorded in **Step 2**. Record the new minidisk name in the **New MD Name** column of the appropriate Minidisk Worksheet.

  11. Repeat steps 2 through 10 to create each minidisk.

      Do not create the coprocessor minidisks at this time.

└──

Step 14

Accessing User Minidisks

To reaccess all user minidisks, use the following procedure:

```
┌──── Access the Minidisks ─────────────────────────────────┐
│                                                            │
│  ●   From the # or $ prompt in AIX:                        │
│                                                            │
│      −   Type mdrc and press Enter.                        │
│                                                            │
└────────────────────────────────────────────────────────────┘
```

Go to **Step 15**.

Step 15. Restore User Minidisks

✓ Step 1   Complete Prerequisite Checks

✓ Step 2   Record Minidisk Configurations and Sizes

✓ Step 3   Back Up VRM Minidisk

✓ Step 4   Back Up Coprocessor Minidisk

✓ Step 5   Back Up AIX and User Minidisks

✓ Step 6   Run Disk Conversion Utility - Phase 1

✓ Step 7   Install New Hardware

✓ Step 8   Run Disk Conversion Utility - Phase 2

✓ Step 9   Run Diagnostics

✓ Step 10   Install VRM Backup Copy

✓ Step 11   Recreate AIX System Minidisks

✓ Step 12   Restore Data to AIX System Minidisks

✓ Step 13   Update the Configuration Files

✓ Step 14   Recreate User Minidisks

__ Step 15   Restore User Minidisks

Restoring User Minidisks

After you reaccess and recreate the user minidisks, you can restore the user minidisks. **Step 15** describes the procedures for:

- Restoring AIX user (USR) minidisks from tape or diskette

- Restoring non-AIX user (NON) minidisks from tape or diskette.

Restoring AIX User Minidisks from Diskette

To restore the AIX user (USR) minidisk data saved in **Step 5**, use the following procedure:

```
┌─── Restoring from Diskette ──────────────────────────────────┐
```

- After the $ or # prompt in AIX:

  Note: Replace *hd#* with the minidisk name being restored. Use the Minidisk Worksheets to find the correct minidisk name. If the name has changed from the original name, use the new minidisk name (See the **New MD Name** column of the Minidisk Worksheet).

  1. Type `restore -rf/dev/fd0   /dev/`*hd#*.

  2. Check the **Restored** column of the appropriate Minidisk Worksheet.

- After you have restored all of the AIX user minidisks, type `mount all` and press **Enter** to mount the restored minidisks.

Restoring AIX User Minidisks from Tape

To restore the AIX user (USR) minidisk data saved in **Step 5**, use the following procedure:

```
┌─── Restoring from Tape ──────────────────────────────────────┐
```

- After the $ or # prompt in AIX:

  Note: Replace *hd#* with the minidisk name being restored. Use the Minidisk Worksheets to find the correct minidisk name. If the name has changed from the original name, use the new minidisk name (See the **New MD Name** column of the Minidisk Worksheet).

  1. Type `restore -rf/dev/rmt0   /dev/`*hd#*.

  2. Check the **Restored** column of the appropriate Minidisk Worksheet.

- After you have restored all of the AIX user minidisks, type `mount all` and press **Enter** to mount the restored minidisks.

Step 15

Restoring Non-AIX User Minidisks from Diskette

Use your normal procedures to restore the non-AIX user minidisks to the fixed disks. Non-AIX user minidisks can also be restored using the **dd** command. See *AIX Operating System Commands Reference* for more information about the **dd** command.

Restoring Non-AIX User Minidisks from Tape

To restore the minidisk data saved in **Step 5**, use the following procedure:

Restoring from Tape

- After the $ or # prompt in AIX:

  Note: Replace $hd\#$ with the minidisk name being restored. Use the Minidisk Worksheets to find the correct minidisk name. If the name has changed from the original name, use the new minidisk name (See the **New MD Name** column of the Minidisk Worksheet).

  1. Type `restore -mf/dev/rmt0 /dev/`$hd\#$.

  2. Check the **Restored** column of the appropriate Minidisk Worksheet.

Go to **Step 16**.

Step 16. Recreate and Restore Coprocessor Minidisks

√Step 1   Complete Prerequisite Checks

√Step 2   Record Minidisk Configurations and Sizes

√Step 3   Back Up VRM Minidisk

√Step 4   Back Up Coprocessor Minidisk

√Step 5   Back Up AIX and User Minidisks

√Step 6   Run Disk Conversion Utility - Phase 1

√Step 7   Install New Hardware

√Step 8   Run Disk Conversion Utility - Phase 2

√Step 9   Run Diagnostics

√Step 10   Install VRM Backup Copy

√Step 11   Recreate AIX System Minidisks

√Step 12   Restore Data to AIX System Minidisks

√Step 13   Update the Configuration Files

√Step 14   Recreate User Minidisks

√Step 15   Restore User Minidisks

_ Step 16   Recreate and Restore Coprocessor Minidisks

Recreating and Restoring Coprocessor Minidisk

Once you have restored the AIX and user minidisks, you can recreate and restore the coprocessor minidisk backups.

Note: If you do not have a coprocessor installed, you have completed the Upgrade Kit instructions.

Step 16 describes the procedures for:

- Recreating the coprocessor minidisks

- Reaccessing the coprocessor minidisks

- Restoring the coprocessor minidisks from tape

- Restoring the coprocessor minidisks from diskette.

Note: If you did not reformat a fixed disk, you do not have to recreate or restore the minidisks for that disk. To see which fixed disks were formatted check the Minidisk Worksheets question, Fixed Disk Reformatted?. If you circled No for Fixed Disk Reformatted?, you do not have to recreate or restore the minidisks for that fixed disk. The fixed disks were reformatted in **Step 8**.

Creating Coprocessor Minidisks

Using the following instructions, recreate the coprocessor minidisks using the **minidisks** command.

Create Coprocessor Minidisks

● To create a coprocessor (COP) minidisks:

1. Type `minidisks` and press **Enter**.

2. Type `add` or `a` and press **Enter**.

3. Type `no` and press **Enter** at the prompt `Will there be an AIX file system on this minidisk?`.

4. Type `yes` and press **Enter** at the prompt `Will this minidisk be used by the Coprocessor?`.

   Note: Use the information recorded in **Step 2** and the Minidisk Worksheets to complete the following steps.

5. Type the number of blocks needed for the minidisk.

6. Type the number of the fixed disk on which to create the new minidisk and press **Enter**.

7. Type `no` and press **Enter** at the prompt `Do you want to choose a location`.

8. Press **Enter** to add the new minidisk.

9. Check the **Recreated** column of the appropriate Minidisk Worksheet.

   After you press **Enter**, a message displays indicating that the minidisk has been created.

   Note: The minidisk name displayed may be different from the name you recorded in **Step 2**. Record the new minidisk name in the **New MD Name** column of the appropriate Minidisk Worksheet.

10. Repeat steps 2 through 9 to create the second coprocessor minidisk, if needed.

● Press **F3** to exit the MINIDISKS CUSTOMIZING COMMANDS menu.

Go to the next page.

Step 16

Accessing Coprocessor Minidisks

To access the coprocessor minidisks, use the following procedure:

Access the Minidisks

- From the # or $ prompt in AIX, type `mdrc` and press **Enter**.

  If you are reloading from tape:

  1. Type `shutdown` and press **Enter**.

  2. Go to "Restoring Coprocessor Minidisk from Tape" on page 16-5.

  If you are reloading from diskette:

  1. Go to "Restoring Coprocessor Minidisks from Diskette" on page 16-7

Go to the next page.

Restoring Coprocessor Minidisk from Tape

Before you begin the minidisk restore, you must start the AIX maintenance system from the AIX Operating System Installation/Maintenance Diskette. Using the following instructions, load the diskette.

```
┌──────  Start the Maintenance System  ──────────────────────┐
│                                                             │
│  ●  To start the maintenance program:                       │
│                                                             │
│     1.  Insert the AIX Operating System Installation/Maintenance │
│         Diskette into diskette drive 0 (or A).              │
│                                                             │
│     2.  Press Ctrl-Alt-Pause.                               │
│                                                             │
│         Once initialized, the maintenance system displays the SYSTEM │
│         MANAGEMENT menu.                                     │
│                                                             │
│     3.  Type 2 and press Enter to select Use Maintenance    │
│         Commands.                                           │
│                                                             │
└─────────────────────────────────────────────────────────────┘
```

Go to the next page.

Step 16

After the USE MAINTENANCE COMMANDS menu displays, restore the coprocessor minidisks using the following procedures:

Restore Minidisk from Tape

- To restore the minidisk:

    1. From the USE MAINTENANCE COMMANDS menu, type 8 and press **Enter** to select `Restore Commands`.

       The RESTORE COMMANDS menu displays.

    2. Type 2 and press **Enter** to select `Restore a minidisk image from tape`.

       Note: Use the information recorded in **Step 2** and the Minidisk Worksheets to complete the following steps.

    3. To select a fixed disk, type the number of the fixed disk that contains the minidisk to be restored and press **Enter**.

       All minidisks on the selected fixed disk will display.

    4. Type the ID number of the minidisk to be restored and press **Enter**.

    5. Press **Enter** to continue the restore.

    6. Follow the prompts and insert the backup tapes as needed.

    7. Press **Enter** when the restore is complete.

    8. Check the **Restored** column of the appropriate Minidisk Worksheet after you have restored the minidisk.

    9. Repeat steps 1 to 8 until all coprocessor minidisks have been restored.

- Press **F3** to return to the SYSTEM MANAGEMENT menu.

- Type 4 and press **Enter** to select `End Maintenance`.

- Press **Enter** to select `Normal Startup`.

You have completed the Upgrade Kit installation.

Restoring Coprocessor Minidisks from Diskette

To restore the coprocessor minidisk backup diskettes you must first start the coprocessor. Use the following instructions to start the coprocessor and restore the minidisks.

┌──── **Starting the Coprocessor** ──────────────────────────┐

• After the $ or # prompt in AIX:

1. Insert your DOS diskette (diskette in the back of your DOS manual) in drive 0 (or A).

2. Type `pcstart -p` and press **Enter**.

As each prompt displays:

3. Press **Enter** to accept the default value or change any of the values you usually change when running the coprocessor.

4. When the prompt `Allocate minidisk to drive C?` displays, make sure that the default is y and press **Enter**.

5. At the next prompt `Which minidisk?`, verify that the default is the correct coprocessor minidisk name and change if necessary (See appropriate Minidisk Worksheet).

6. Press **Enter**.

   If you have a second coprocessor minidisk the previous two steps are repeated.

7. Press **Enter** after each prompt until the prompt `Allocate (fd0)?` displays.

8. Type y and press **Enter**.

9. Press **Enter** after each prompt until the prompt `Update the customization profile?` displays. Verify that the default is y and press **Enter**.

The coprocessor will start running and load DOS from the diskette.

└──┘

Go to the next page.

After the coprocessor has started and DOS is loaded, you will use the **FDISK** command to create a DOS partition on drive C or D.

Note: Only create and format the DOS partitions associated with recreated coprocessor minidisks.

Create a DOS Partition

- To create a DOS partition on drive C:

    1. At the DOS prompt, type `fdisk` and press **Enter**.

       The FDISK Options menu displays.

    2. Press **Enter** to choose the default `Create a DOS Partition`.

       When you press **Enter**, the system displays a CREATE A DOS PARTITION menu. This menu displays the current minidisk and asks if you want to use the entire minidisk for a DOS partition. The default value for this menu is `y` (yes).

    3. Press **Enter** to accept the default value `y` or type `n` and press **Enter** if you only wish to use part of the minidisk as a DOS partition. Specify the size of the partition you want if you select `n`.

    4. Press **Enter**.

- To create a DOS partition on drive D:

    1. At the DOS prompt, type `fdisk` and press **Enter**.

       The FDISK Options menu displays.

    2. Type `5` and press **Enter** to choose `Select Next Fixed Disk Drive`.

    3. When the correct fixed disk is displayed, repeat the steps you used to create the DOS partition for drive C.

- Press **Enter**.

Go to the next page and format your DOS partition(s), if needed, using the **format** command.

┌─── **Format the Partition** ──────────────────────────────────┐

- To format the partitions:

  1. The following example formats the **C** minidisk:

     ```
     A>format c:
     ```

  2. Type y and press **Enter** at the prompt `Proceed with Format?`.

  3. If you have a second minidisk with a DOS partition, format the second partition. The following example formats the **D** minidisk:

     ```
     A>format d:
     ```

  4. Type y and press **Enter** at the prompt `Proceed with Format?`.

└──┘

┌─── **Restore Minidisks from Diskette** ───────────────────────┐

- At the DOS A> prompt:

  1. Type `restore a: c:*.* /s` and press **Enter**.

  2. Insert the backup diskettes as prompted.

     All files in all subdirectories on the **C:** minidisk will be restored.

  3. Check the **Restored** column of the appropriate Minidisk Worksheet.

- If you have a second coprocessor minidisk:

  1. Insert the DOS diskette in drive 0 (or A).

  2. Type `restore a: d:*.* /s` and press **Enter**.

  3. Insert the backup diskettes as prompted.

     All files in all subdirectories on the **D:** minidisk will be restored.

  4. Check the **Restored** column of the appropriate Minidisk Worksheet.

└──┘

Go to the next page.

Stopping the Coprocessor

After you have completed the coprocessor minidisks restore, stop the
coprocessor.

```
┌─────── How to Stop the Coprocessor ──────────────────────────────┐
│                                                                   │
│  •  To stop the coprocessor:                                      │
│                                                                   │
│     ─  Press the Ctrl-Alt-Action keys.                            │
│                                                                   │
└───────────────────────────────────────────────────────────────────┘
```

You have completed the Upgrade Kit installation.

Appendix A. Backup Diskette Formulas

The purpose of this appendix is to provide you with helpful information for determining the number of diskettes needed for backups.

Three different formulas are provided:

- Formula 1 - AIX and User Minidisks with 100% Usage

- Formula 2 - AIX and User Minidisks with Partial Usage

- Formula 3 - Coprocessor Minidisks.

Formula 1 - AIX and User Minidisks with 100% Usage

Use the minidisk information you recorded in **Step 2** and the following formula to determine the approximate number of diskettes you will need to back up the AIX and user minidisks to diskette.

For each minidisk calculate:

```
(Block size X Number of Blocks) ÷ 1,200,000 = no. diskettes
```

EXAMPLE:

```
(512 X 30,000) ÷ 1,200,000 = 12.8 diskettes
```

```
TOTAL DISKETTES NEEDED: 13 diskettes
```

Note: Always round up to the next whole number.

Formula 2 - AIX and User Minidisks With Partial Usage

Use the **df** command to display the actual minidisk usage (%). If you cannot print this information record the usage (%) on the printout created in **Step 2**.

Note: The minidisk will still require one diskette for backup if the usage percentage (%) is 0%.

The number of diskettes needed will be considerably less if you are not using the entire minidisk.

The following formula determines the number of diskettes needed for minidisk backups using the block size and number plus the percentage of usage:

```
(Block Size X (No. of Blocks X % used)) ÷ 1,200,000 = no. diskettes
```

EXAMPLE:

```
(512 X (30,000 X .10)) ÷ 1,200,000 = 1.2 diskettes
```

```
TOTAL DISKETTES NEEDED: 2 diskettes
```

In this example, you would only need 2 diskettes for the minidisk backup because you were using only 10% of the minidisk space.

Formula 3 - Coprocessor Minidisks

After you have started the coprocessor, you can use the **CHKDSK** command to display the coprocessor minidisk usage.

The following formula determines the number of diskettes needed for coprocessor minidisk backups:

```
(512 X (User Files + Hidden Files)) ÷ 1,200,000 = no. diskettes
```

EXAMPLE:

```
C:>chkdsk

Volume JANSDISK      created Jan 1, 1987   13:30p


10129408 bytes total disk space
   40960 bytes in 3 hidden files
  311296 bytes in 36 user files
 9777152 bytes available on disk
```

```
(512 X (40,960 + 311,296)) ÷ 1,200,000 = 1.2 diskettes
```

```
TOTAL DISKETTES NEEDED: 2 diskettes
```

Appendix B. Minidisk Worksheets

The purpose of this appendix is to provide you with worksheets and instructions for recording minidisk information in **Step 2**.

Each worksheet allows you to record the minidisk names, minidisk types, and shows if you have backed up, created, made a filesystem or restored a particular minidisk for each fixed disk installed in your system unit.

Minidisk Worksheet Examples

The examples on the following pages show you how to complete and use the minidisk worksheets. The information used to complete the worksheets is obtained from the **minidisks** and **df** command information displayed in **Step 2**. Samples of the **minidisks** and **df** command information are also shown.

MINIDISK WORK SHEET

hdisk0: (location C)   Reformatted: __ (yes/no)

MD Name	MD Type*	% MD Used	Backed Up	Recreated	Made File System	New MD Name	Restored
hd6	VRM	—	YES	—	—	—	YES
hd0	SYS	83%	YES	YES	YES	—	YES
hd3	SYS	0%	YES	YES	YES	—	YES
hd4	SYS	—	—	YES	—	—	—
hd7	NON	—	YES	YES	—	—	YES
hd8	USR	48%	YES	YES	—	—	YES
hd10	COP	—	YES	YES	—	hd9	YES
hd11	USR	91%	YES	YES	—	hd10	YES

* Use the minidisk information obtained from the **minidisks** command and the following table to determine the minidisk types. Enter the three letter type abbreviation in the MD Type column of the worksheet.

Type   Minidisk Descriptions

VRM   The VRM minidisk is **hd6**

SYS   The following minidisks are AIX system minidisks: **hd0, hd1, hd2, hd3,** and **hd4.**

USR   Any minidisk with a MD Name of **hd7** or higher and a MD Type of **AIX** is an AIX user minidisk.

COP   Any minidisk with a MD Name of **hd7** or higher and a MD Type of **coproc** is a coprocessor minidisk.

NON   Any minidisk with a MD Name of **hd7** or higher and nothing displayed in the MD Type column is a non-AIX user minidisk.

Note: If **Other** is displayed in the MD Type column, the minidisk can be either a coprocessor minidisk or a non-AIX user minidisk that was created from the Install/Maintenance diskette.

The following sample is a printout created by using the **minidisks** command. This printout shows the minidisks found on fixed disk **hdisk0**. This information is used to fill in the following columns of the minidisk worksheet: **MD Name** and **MD Type**.

```
Fixed Disk hdisk0 has the following minidisks:

MD    MD     MD       Block  Number  MD      Mount          Auto  Auto   R/W
Name  IODN   Type     Size   Blocks  Locatn  Directory      IPL   Mount  Status

hd6   32760  VRM      512    3396    B       /vrm           N     Y      R/O
hd0   16384  AIX      512    24000   B       /              Y     Y      R/W
hd3   16388  AIX      512    4000    B,M     /tmp           N     Y      R/W
hd4   16385           512    4000    M                      N
hd7   20001           512    8000    E                      N
hd8   20002  AIX      512    12500   M       /usr/lpp/X     N     Y      R/W
hd10  20003  coproc   512    20000   B                      N
hd11  20005  AIX      512    11000   E       /usr/jan       N     Y      R/W
```

The following sample is a printout of the **df** command information. This information is used to complete the percentage of minidisk used, **% MD Used**, column of the minidisk worksheet and is used to help determine the number of diskettes needed for backups. See "Formula 2 - AIX and User Minidisks With Partial Usage" on page A-2 for more information on calculating backup diskettes.

Note: **df** displays only the AIX minidisks found on your system.

```
#df
Device        Mounted on       total    free    used    ifree   used
/dev/hd0      /                23184    3804    83%     5529    8%
/dev/hd1      /u               48372    43124   10%     12137   2%
/dev/hd2      /usr             84544    48808   42%     14099   6%
/dev/hd3      /tmp             3872     3856    0%      507     0%
/dev/hd8      /usr/lpp/X       12240    6348    48%     1416    9%
/dev/hd11     /usr/jan         10764    880     91%     906     34%
```

Continue to the next page, to use the actual worksheets.

Minidisk Worksheet for hdisk0

MINIDISK WORK SHEET

hdisk0: (location C)   Reformatted: __ (yes/no)

MD Name	MD Type*	% MD Used	Backed Up	Recreated	Made File System	New MD Name	Restored

* Use the minidisk information obtained from the **minidisks** command and the following table to determine the minidisk types. Enter the three letter type abbreviation in the MD Type column of the worksheet.

Type   Minidisk Descriptions

VRM   The VRM minidisk is **hd6**

SYS   The following minidisks are AIX system minidisks: **hd0, hd1, hd2, hd3,** and **hd4**.

USR   Any minidisk with a MD Name of **hd7** or higher and a MD Type of **AIX** is an AIX user minidisk.

COP   Any minidisk with a MD Name of **hd7** or higher and a MD Type of **coproc** is a coprocessor minidisk.

NON   Any minidisk with a MD Name of **hd7** or higher and nothing displayed in the MD Type column is a non-AIX user minidisk.

Note: If **Other** is displayed in the MD Type column, the minidisk can be either a coprocessor minidisk or a non-AIX user minidisk that was created from the Install/Maintenance diskette.

Minidisk Worksheet for hdisk1

MINIDISK WORK SHEET

hdisk1: (location D)   Reformatted: __ (yes/no)

MD Name	MD Type*	% MD Used	Backed Up	Recreated	Made File System	New MD Name	Restored

* Use the minidisk information obtained from the **minidisks** command and the following table to determine the minidisk types. Enter the three letter type abbreviation in the MD Type column of the worksheet.

Type   Minidisk Descriptions

VRM   The VRM minidisk is **hd6**

SYS   The following minidisks are AIX system minidisks: **hd0, hd1, hd2, hd3,** and **hd4**.

USR   Any minidisk with a MD Name of **hd7** or higher and a MD Type of **AIX** is an AIX user minidisk.

COP   Any minidisk with a MD Name of **hd7** or higher and a MD Type of **coproc** is a coprocessor minidisk.

NON   Any minidisk with a MD Name of **hd7** or higher and nothing displayed in the MD Type column is a non-AIX user minidisk.

Note: If **Other** is displayed in the MD Type column, the minidisk can be either a coprocessor minidisk or a non-AIX user minidisk that was created from the Install/Maintenance diskette.

Minidisk Worksheet for hdisk2

MINIDISK WORK SHEET

hdisk2: (location E)   Reformatted: __ (yes/no)

MD Name	MD Type*	% MD Used	Backed Up	Recreated	Made File System	New MD Name	Restored

* Use the minidisk information obtained from the **minidisks** command and the following table to determine the minidisk types. Enter the three letter type abbreviation in the MD Type column of the worksheet.

Type   Minidisk Descriptions

VRM   The VRM minidisk is **hd6**

SYS   The following minidisks are AIX system minidisks: **hd0, hd1, hd2, hd3,** and **hd4**.

USR   Any minidisk with a MD Name of **hd7** or higher and a MD Type of **AIX** is an AIX user minidisk.

COP   Any minidisk with a MD Name of **hd7** or higher and a MD Type of **coproc** is a coprocessor minidisk.

NON   Any minidisk with a MD Name of **hd7** or higher and nothing displayed in the MD Type column is a non-AIX user minidisk.

Note: If **Other** is displayed in the MD Type column, the minidisk can be either a coprocessor minidisk or a non-AIX user minidisk that was created from the Install/Maintenance diskette.

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