



*Personal Computer AT/370
Hardware Reference
Library*

Guide to Operations

First Edition (October 1984)

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Federal Communications Commission (FCC) Radio Frequency Interference Statement

When connected to an FCC Class A host as a peripheral, using coaxial cable, the following warning applies:

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

When the coaxial attachment to the host is not connected, this equipment complies with the FCC Class B limits and the following warning applies:

WARNING: This equipment has been certified to comply with the limits for a Class B computing device, pursuant to Subpart J of Part 15 of FCC Rules. Only peripherals (computer input/output devices, terminals, printers, etc.) certified to comply with the Class B limits may be attached to this computer. Operation with non-certified peripherals is likely to result in interference to radio and TV reception.

INSTRUCTIONS TO USER: This equipment generates and uses radio frequency energy, and if not installed and used properly, that is, in strict accordance with the operating instructions, reference manuals, and the service manual, may cause interference to radio and television reception. It has been tested and found to comply with the limits for a Class B computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a residential installation.

If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the computer with respect to the receiver.
- Move the computer away from the receiver.
- Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.
- Make sure that card mounting screws, attachment connector screws, and ground wires are tightly secured.
- Make sure that card slot covers are in place when no card is installed.
- If peripherals not offered by IBM are used with this equipment, it is suggested to use shielded, grounded cables, with in-line filters if necessary.

If necessary, consult your dealer's service representative for additional suggestions.

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. It is the responsibility of the user to correct such interference.

CAUTION

This product is equipped with a line cord and plug designed for the user's safety. It is to be used with a properly grounded power receptacle to avoid possible electrical shock.

Preface

START INSTALLATION OR PROBLEM DETERMINATION IN THIS MANUAL.

This book is for those who have:

- An IBM Personal Computer AT/370 system, or
- An IBM Personal Computer AT and are installing the AT/370 Option.

It is used with the *IBM Installation and Setup—Personal Computer AT* and the *IBM Guide to Operations—Personal Computer AT* and is divided into four sections; tabs and an index are also provided.

Section 1. Introduction: This section gives a short description of the IBM Personal Computer AT/370. It also shows an example of a typical system.

Section 2. AT/370 Option: This section contains installation and tool requirements, and step-by-step instructions for the installation of the two-card AT/370 option adapter.

Section 3. AT/370 System Setup: This section gives directions for completing installation of the IBM Personal Computer AT/370 system.

Section 4. Problem Determination Procedures: This section has step-by-step procedures to help find and solve problems. Several manuals are used during problem determination. This section is the starting point if problems occur when you operate your IBM Personal Computer AT/370.

Associated Publications

For information about IBM publications not shipped with your system, contact your IBM representative or an authorized IBM Personal Computer AT/370 dealer.

- *IBM BASIC–Personal Computer*¹
- *IBM DOS (Disk Operating System)–Personal Computer*
- *IBM Installation and Setup–Personal Computer AT*¹
- *IBM Guide to Operations–Personal Computer AT*¹
- *IBM Hardware Maintenance and Service–Personal Computer AT/370*
- *IBM Hardware Maintenance and Service–Personal Computer AT*
- *IBM VM/PC User's Guide*
- *IBM Technical Reference–Personal Computer AT/370*
- *IBM Technical Reference–Personal Computer AT*

¹ Shipped with the system unit.

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SECTION 1. INTRODUCTION

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Preparing for Installation

Read this *entire* page before starting installation.

The IBM Personal Computer AT/370 is an extended version of the Personal Computer AT, with 512 kilobytes (512K bytes) of memory on the system board. The system unit has an AT/370 adapter, which consists of two cards plugged into adjacent expansion slots in the system board:

- The 512-kilobyte memory card (PC/370-M2)
- The processor card (PC/370-P2).

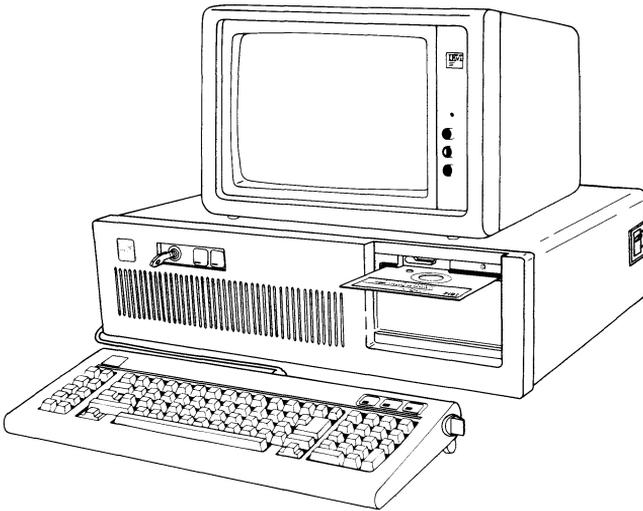
Because the IBM Personal Computer AT/370 is an extended version of the IBM Personal Computer AT, the IBM Personal Computer AT manuals are also used for installation and problem determination. To complete installation of your IBM Personal Computer AT/370 (including DOS and IBM VM/PC), you need:

- This manual, (*IBM Guide to Operations—Personal Computer AT/370*) and associated diskette,
- *IBM Installation and Setup—Personal Computer AT*,
- *IBM Guide to Operations—Personal Computer AT* and associated diskette,
- *IBM DOS (Disk Operating System)—Personal Computer* and associated diskettes,
- *IBM VM/PC User's Guide* and associated diskettes.

If you have an IBM Personal Computer AT and are installing the AT/370 Option, proceed with “IBM Personal Computer AT/370 Option” on page 2-3.

If you are installing a complete IBM Personal Computer AT/370 System, (with AT/370 adapter cards already in the system unit) go to “Installation and Setup of the AT/370 System” on page 3-3.

Configuration Example



- An IBM Personal Computer AT/370 system with 512K bytes (K equals 1,024) of memory on the system board, including:
 - A 20-megabyte fixed disk drive
 - A high-capacity diskette drive
 - AT/370 adapter (PC/370-P2 and PC/370-M2 cards)
 - A remote display terminal device emulation adapter card (optional)
 - A monochrome display and printer adapter or color display adapter (optional)
- A keyboard
- A Serial/Parallel adapter
- An IBM monochrome or color display (optional)
- A printer (optional).

How Your System Can Be Used

Operation of the IBM Personal Computer AT/370 is generally the same as for the IBM Personal Computer AT.

For detailed information on operation as an IBM Personal Computer AT, see:

- *IBM Guide to Operations—Personal Computer AT*
- *IBM Installation and Setup—Personal Computer AT*
- *IBM BASIC—Personal Computer*
- *IBM DOS (Disk Operating System)—Personal Computer*
- *IBM Technical Reference—Personal Computer AT.*

For differences that are under program control, see the information (such as the *IBM VM/PC User's Guide*) supplied with the program you are using.

The IBM Personal Computer AT/370 is supported by the IBM VM/PC (Virtual Machine/Personal Computer) operating system, which runs as an application on Personal Computer DOS. You must have IBM DOS 3.00 (or equivalent) installed before you can install and use IBM VM/PC on your Personal Computer AT/370.

SECTION 2. AT/370 OPTION

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IBM Personal Computer AT/370 Option

Introduction to the AT/370 Option

The IBM Personal Computer AT/370 Option provides an extended version of the Personal Computer AT.

The option package contains the following:

- PC/370-P2 adapter and PC/370-M2 adapter, with PC/370-P-M cable (adapters and cable assembled as a unit) in an anti-static bag.

Warning: Do not open the anti-static bag at this time.

- IBM Personal Computer AT/370 logo.
- This manual, (*IBM Guide to Operations—Personal Computer AT/370*) and associated diskette.

If any items are missing or damaged, notify your place of purchase.

Your IBM Personal Computer AT comes with support brackets installed for all expansion slots. (If support brackets are included with the AT/370 option, these brackets are not needed.)

AT/370 Adapter Installation Requirements

Before you install the AT/370 adapter, you must have an IBM Personal Computer AT with 512K bytes of memory on its system board.

The memory card part of the AT/370 adapter also has 512K bytes of memory, 128K bytes of which are directly addressable by the Personal Computer AT when the AT/370 option is not in use. Because the AT/370 adapter takes the place of the 128KB memory expansion adapter, base memory size includes the 512K bytes of memory on the system board and the 128K bytes of memory in the AT/370 adapter.

*Base Memory size **MUST** be set to 640K bytes during setup:*

- Go to the “SETUP INFORMATION” foldout in the back of the *IBM Installation and Setup—Personal Computer AT* manual
- Circle “640K bytes” under “Total base memory size”
- **THEN RETURN TO THIS MANUAL** to complete installation of the AT/370 option.

Tool Requirements

- Medium-size, flat-blade screwdriver

Optional:

- Medium screwstarter
- 3/16-inch nutdriver
- 1/4-inch nutdriver.

Installing the AT/370 Option

Unpacking the AT/370 Option

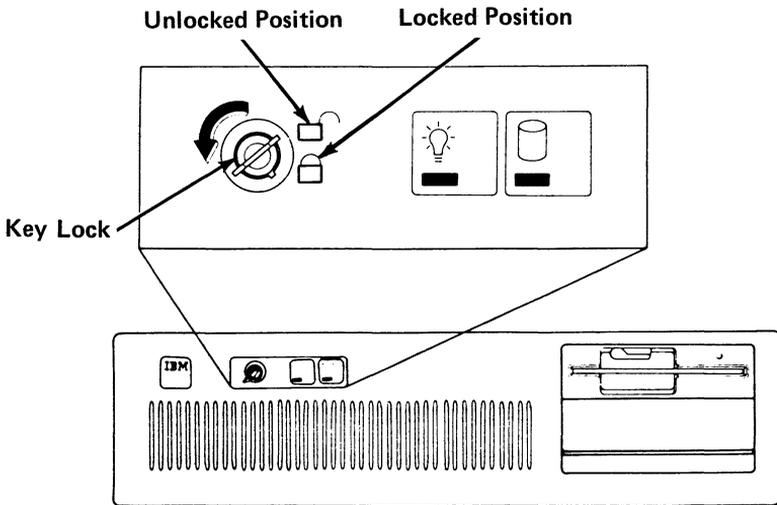
- 1** The anti-static bag contains the PC/370-P2 adapter and the PC/370-M2 adapter, with the PC/370-P-M cable (assembled as one unit). Remove the padding around the anti-static bag containing the adapters and cable.

Warning: Do not open the anti-static bag at this time.

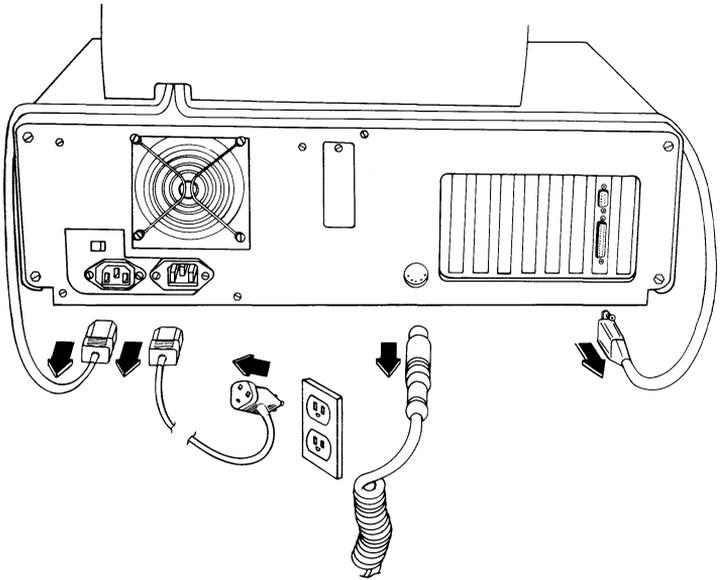
- 2** Place the logo in a safe location in your work area.

Removing the Cover

- 1** Set the system unit Power switch to **Off**.
- 2** Set all external Power switches to **Off** (printer, display, etc.).
- 3** Be sure that the key lock is unlocked (turn the key counterclockwise and remove the key).



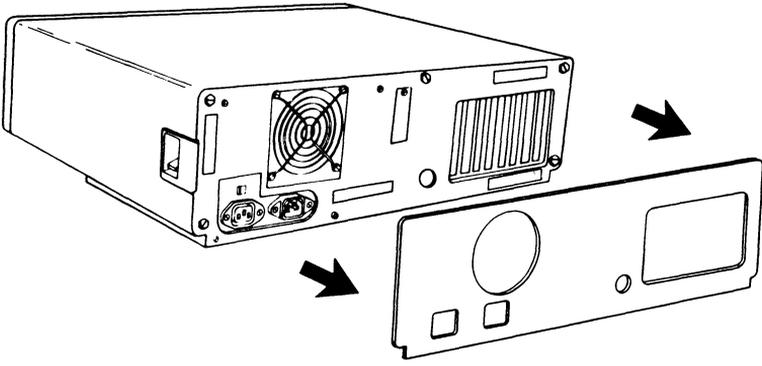
- 4** Unplug your system unit's power cord from the wall outlet.
- 5** Note the location of each cable on the back of your system unit.
- 6** Disconnect all cables from the back of your system unit.



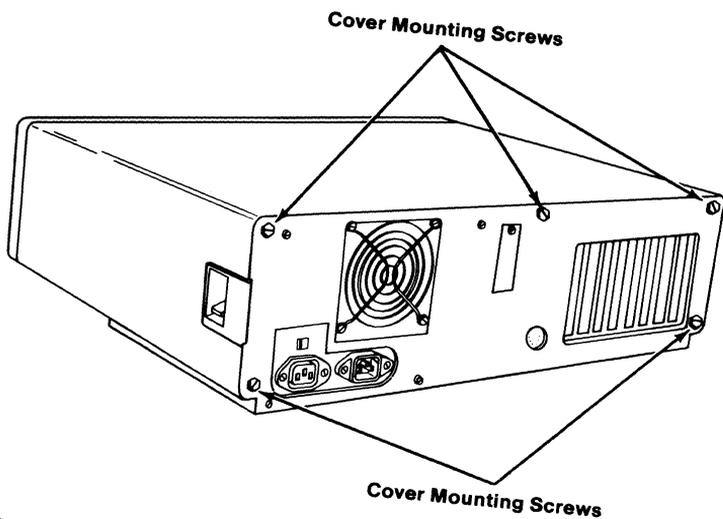
7

Remove the back panel from the rear of your system unit. (If your system unit has not previously been installed, the back panel is packaged with system cables.)

Note: The back panel is attached to the system unit with fastener strips.

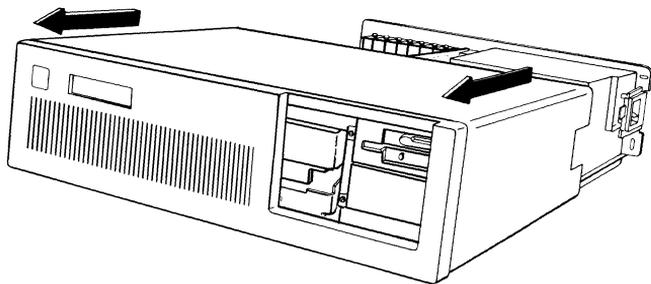


- 8** Remove the five cover mounting screws.



AT/370 OPTION

- 9** Remove the cover.



- 10** Proceed with "Installing the AT/370 Adapter Cards and Cable" on page 2-10.

Installing the AT/370 Adapter Cards and Cable

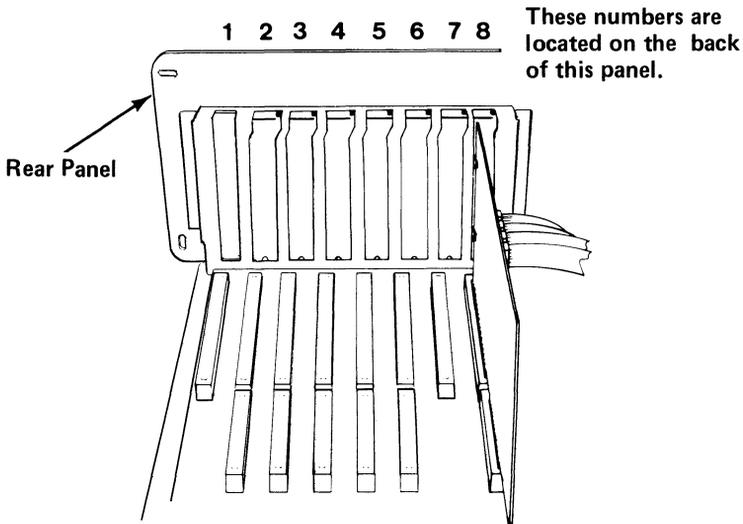
The AT/370 option adapter cards *must* be plugged into two adjacent expansion slots (from expansion slots 2 through 6). Expansion slots 5 and 6 are recommended.

Note: If a 128KB memory expansion option is installed, it must be removed (see “AT/370 Adapter Installation Requirements” on page 2-4).

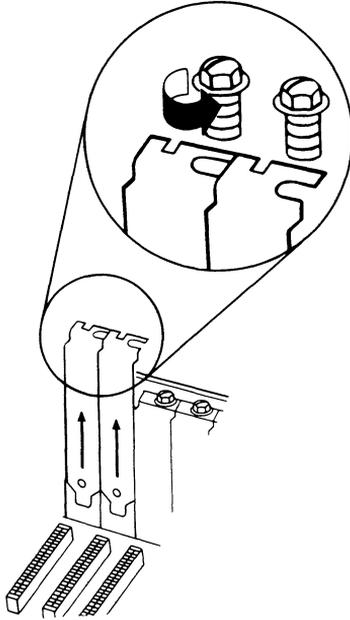
- 1 Locate the two adjacent expansion slots where you are going to install the AT/370 option adapter.

Note: If two adjacent expansion slots (from expansion slots 2 through 6) are not available, one or more adapters must be removed to make room for the AT/370 adapter.

Use a flat-blade screwdriver or 3/16-inch nutdriver to remove the screws that hold the expansion slot covers (or adapters) in place. Save these screws.

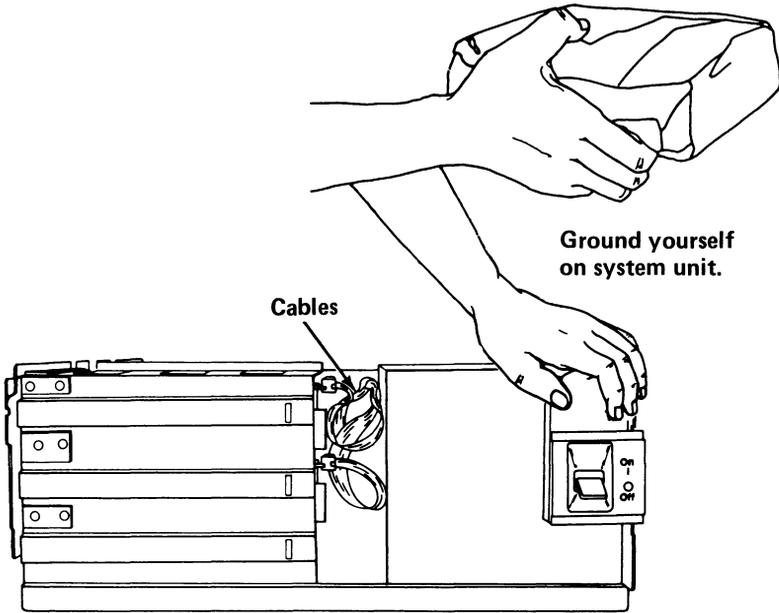


- 2** Remove the expansion slot covers (or adapters) and set them aside.



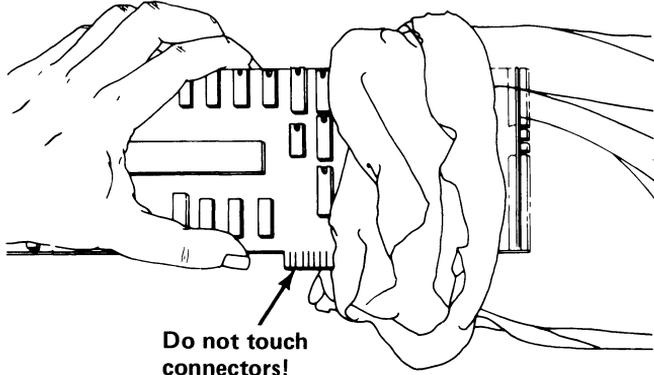
- 3** The AT/370 adapter cards can be damaged by static discharge. To prevent this damage, the adapter is wrapped in an anti-static bag.

Hold the adapter (still wrapped in its anti-static bag) in one hand and touch an unpainted metal part of your system unit with the other hand.



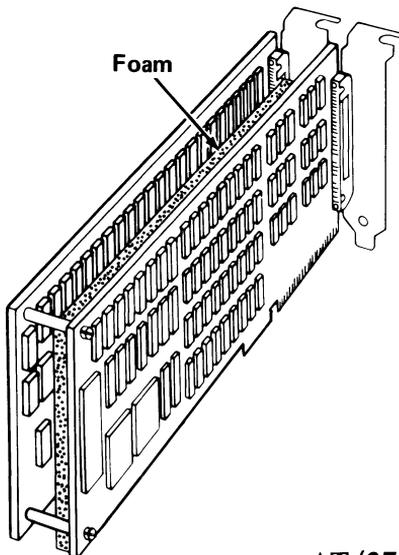
Side View

- 4** Carefully remove the PC/370-M2 adapter, PC/370-P2 adapter, and PC/370-P-M cable from the anti-static bag. Be sure to handle circuit boards only by the edges; do not touch the edge connectors, component pins, or solder joints.

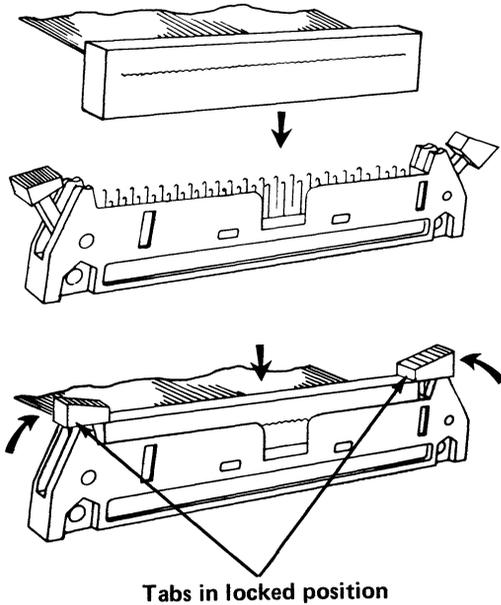


- 5** The adapter cards may be packaged with a piece of foam between them to keep components from touching each other during shipment.

- Hold the adapters parallel
- Remove the foam from between the adapters.

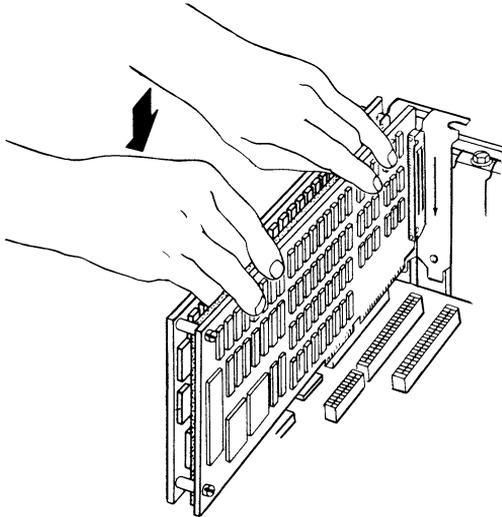


- 6 Make sure that the connectors on the PC/370-P-M cable are securely fastened to the PC/370-M2 adapter and the PC/370-P2 adapter.
- 7 If the PC/370-P-M cable comes loose, connect the PC/370-P-M cable to the adapters, one end at a time. Push the cable connector into the cable socket until the tabs on the socket lock on the cable connector (you hear a click).

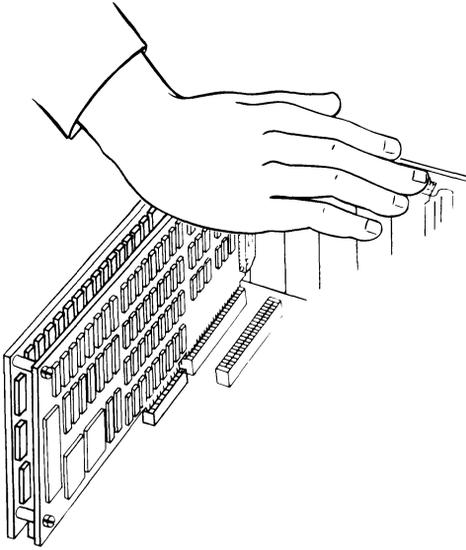


- 8** Hold the adapters by the top; use one finger of each hand as a spacer between the adapters. Keep the adapters parallel, align them with the front card guides, and lower them until they start into adjacent expansion slots on the system board.

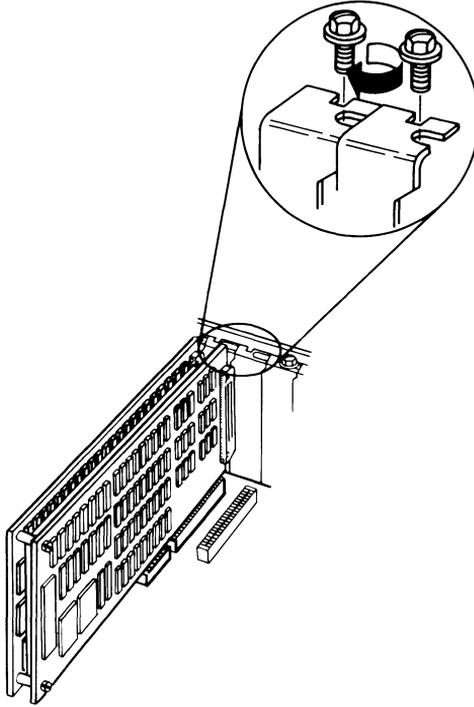
Warning: To prevent damage to the adapters or cable, both adapters are connected by the PC/370-P-M cable and must be installed in adjacent slots at the same time.



- 9** Use the palm of your hand to press the PC/370-M2 adapter and the PC/370-P2 adapter into the expansion slots of the system board. Firm pressure is required.



- 10** Align the slots in the adapter retaining brackets with the holes in the rear panel of the system unit. Start the screws by turning them clockwise, then tighten them with a flat-blade screwdriver or 3/16-inch nutdriver.



AT/370 OPTION

- 11** Reinstall any option adapters that you removed from the system unit¹.

Warning: Do not reinstall any 128KB memory expansion adapters that were in your system unit. (The AT/370 adapter takes the place of the 128KB memory expansion option.) You can reinstall all other memory expansion adapters.

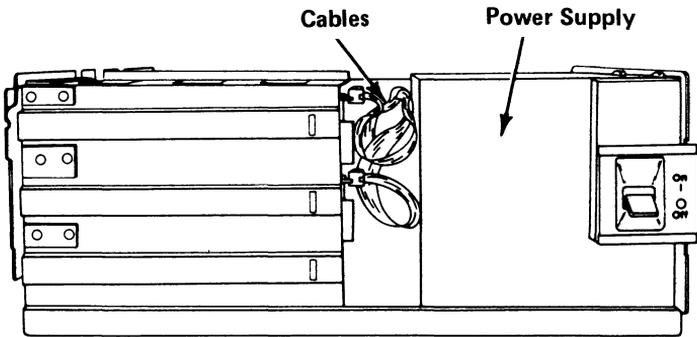
- 12** Install any additional internal options¹.
- 13** Cover any open slots in the rear panel using expansion slot covers and screws saved from the previous steps.

Proceed with “Cover Installation” on page 2-19.

¹ If all expansion slots in the system unit are full, no more adapters can be used.

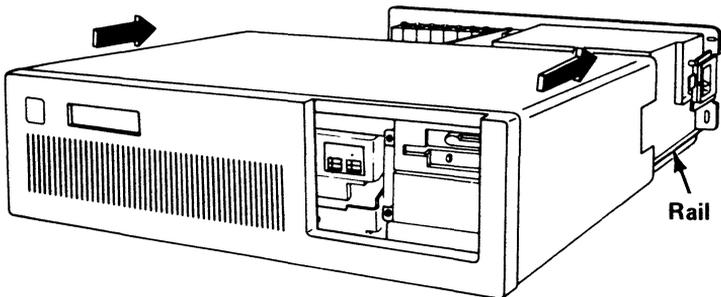
Cover Installation

- 1 Push the cables down and out of the way. They should be no higher than the power supply.

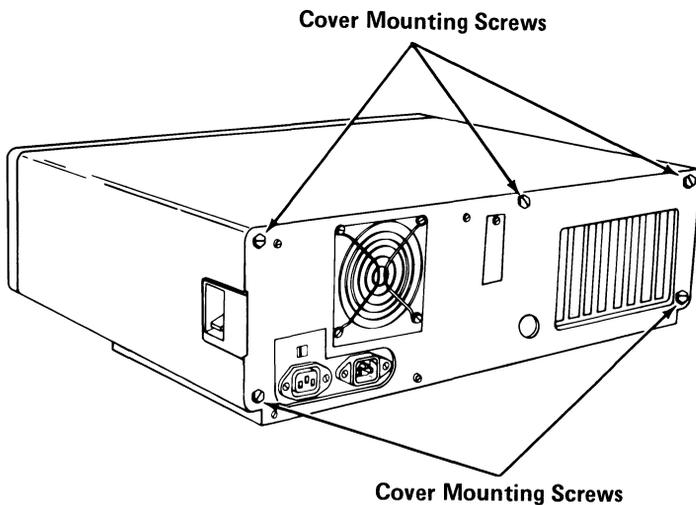


Side View

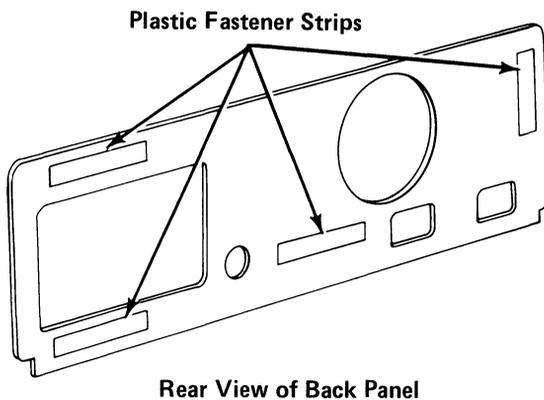
- 2 Install the system unit's cover.
 - Make sure that the cover is under the rail on the frame.
 - Lift the cover up against the rail and slide it onto your system unit.



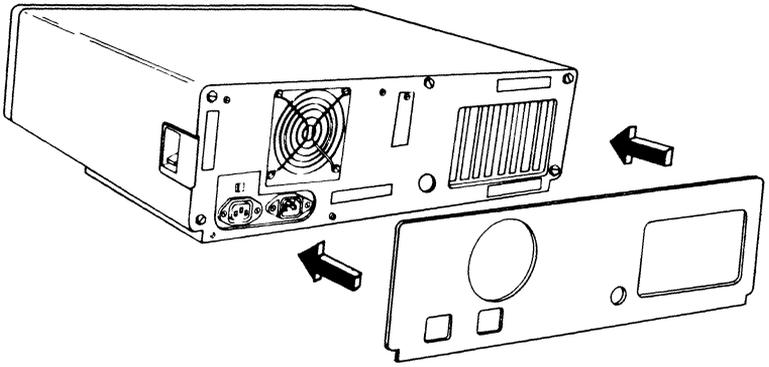
- 3** Install the five cover mounting screws.



- 4** Remove the paper backing (if it has not already been removed) from the plastic fasteners on the back panel.



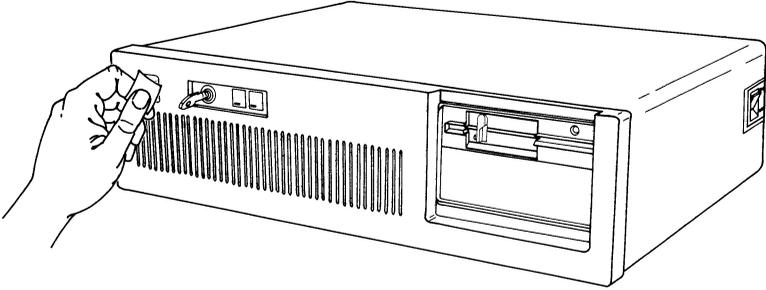
- 5** Position the back panel on your system unit and press it into place.



AT/370 OPTION

Applying the IBM Personal Computer AT/370 Logo

- 1** Open the envelope containing the AT/370 logo, and place the new logo over the existing IBM logo on the front panel as shown.



- 2** Proceed with “Installation and Setup of the AT/370 System” on page 3-3 in this manual.

SECTION 3. AT/370 SYSTEM SETUP

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Copy System/370 Personality Code to the Fixed Disk	3-15
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Installation and Setup of the AT/370 System

Installing the System

The AT/370 processor card (PC/370-P2) and the AT/370 memory card (PC/370-M2) are in adjacent expansion slots (from 2 through 6) on the system board. The system board has 512 kilobytes (512K bytes) of memory.

The PC/370-M2 card also has 512K bytes of memory, 128K bytes of which are directly addressable by the Personal Computer AT when the AT/370 option is not in use. Because the AT/370 adapter takes the place of the 128KB memory expansion adapter, base memory size (640K bytes) includes the 512K bytes of memory on the system board and the 128K bytes of memory in the AT/370 adapter.

The *IBM Installation and Setup—IBM Personal Computer AT* manual and Option Installation instructions (for options such as memory expansion, printer, and display) are used to install the system unit (and options, if any).

Read this *entire* page before beginning setup.

Note: Base Memory size **MUST** be set to **640K bytes** during setup.

1 Go to the *IBM Installation and Setup—Personal Computer AT* manual.

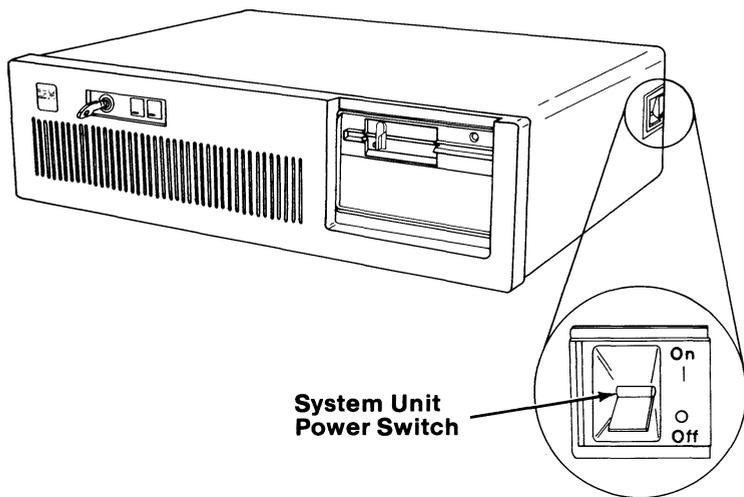
1. Go to the “SETUP INFORMATION” foldout in the back of the manual. Circle “640K bytes” under “Total base memory size.”
2. Go to “SECTION 1. START”. Install internal and external options.(as required)
3. Follow the instructions in “SECTION 6. SYSTEM CHECK LIST.”
4. Follow the instructions in “SECTION 7. POWER-ON SELF TEST.” After running the Setup Program,

RETURN TO THIS MANUAL.

2 Proceed with “Installing System/370 Personality” on page 3-5.

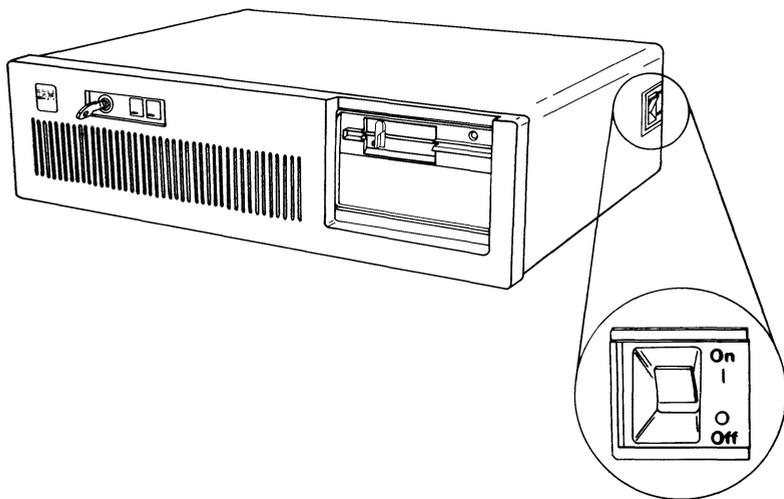
Installing System/370 Personality

- 1 Make sure there is no diskette in drive A. Also, be sure the system unit Power switch is set to **Off** before you proceed.



SYSTEM SETUP

- 2 Power on all externally attached devices.
- 3 Set the system unit Power switch to **On**.



- 4** The Power-On Self Test (POST) runs (about 30 seconds) each time system unit power is switched on.

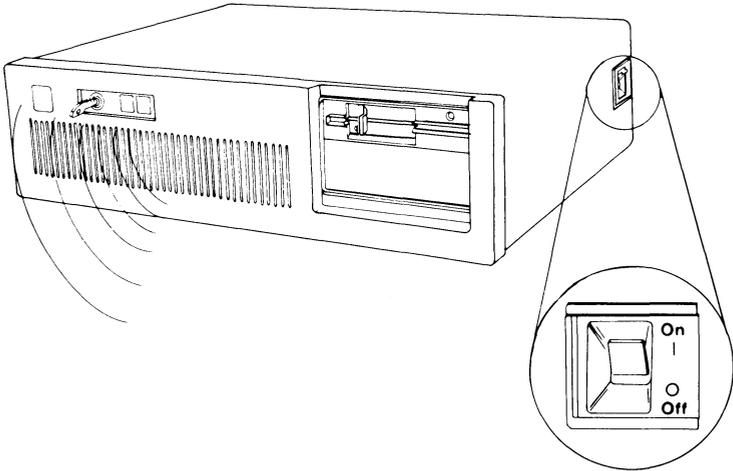
An indication of the memory test appears in the upper-left corner of the screen and the number continues to increase until the message

XXXXX K bytes OK

appears *momentarily*.

Note: XXXXX must be at least 640.

One short beep is heard when the test is complete.



If POST fails, follow the instructions in “SECTION 7. POWER-ON SELF TEST” in the *IBM Installation and Setup—Personal Computer AT* manual.

5 Did the DOS prompt (C>) appear on your screen?

YES – DOS 3.00 (or equivalent) is already on your fixed disk, go to “Copy System/370 Personality Code to the Fixed Disk” on page 3-15.

NO – Before you can install the System/370 Personality, DOS 3.00 (or equivalent) must be on the fixed disk.

Proceed with “Putting DOS on the Fixed Disk” on page 3-8.

Putting DOS on the Fixed Disk

The information presented here allows you to put DOS on your fixed disk without reading through the detailed information presented in the *IBM DOS (Disk Operating System)* manual.

The following steps instruct you to partition, format *and* transfer, and copy DOS files onto your C fixed disk.

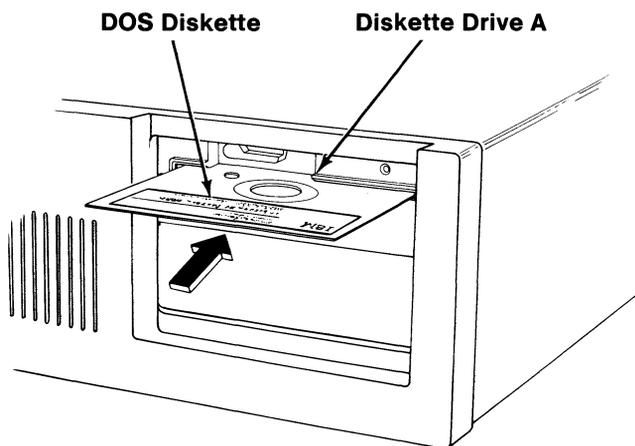
If you have difficulty or need more information, refer to the *IBM DOS (Disk Operating System)* manual:

- For basics on DOS operation, go to Section 1, “Chapter 2. Getting DOS Started.”
- For information about putting DOS on your fixed disk, go to Section 1, “Chapter 4. Preparing Your Fixed Disk.”

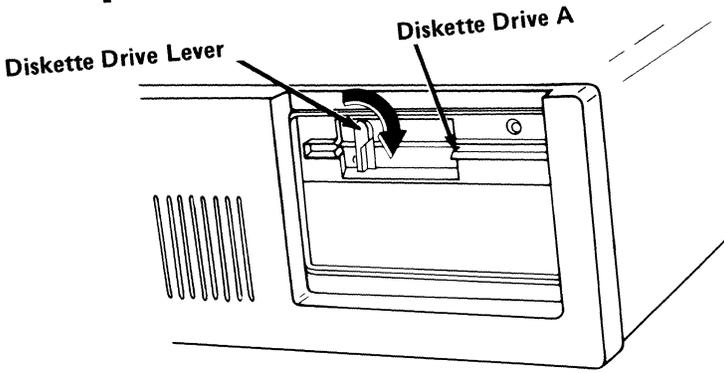
Proceed with “Partitioning Your Fixed Disk” on page 3-9.

Partitioning Your Fixed Disk

- 1** Set the system unit Power switch to **Off**.
- 2** Get the DOS diskette from the back of *IBM DOS (Disk Operating System)*.
- 3** Insert the DOS diskette into drive A. Push the diskette in until you hear it click into place.

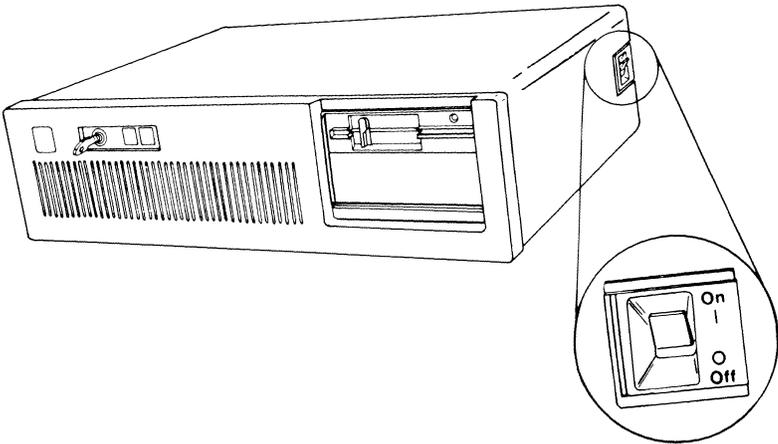


- 4** Rotate the diskette drive lever clockwise.



- 5** Power on all attached devices.

- 6** Set the system unit Power switch to On.



7 The Power-On Self Test (POST) runs (about 30 seconds) each time system unit power is switched on.

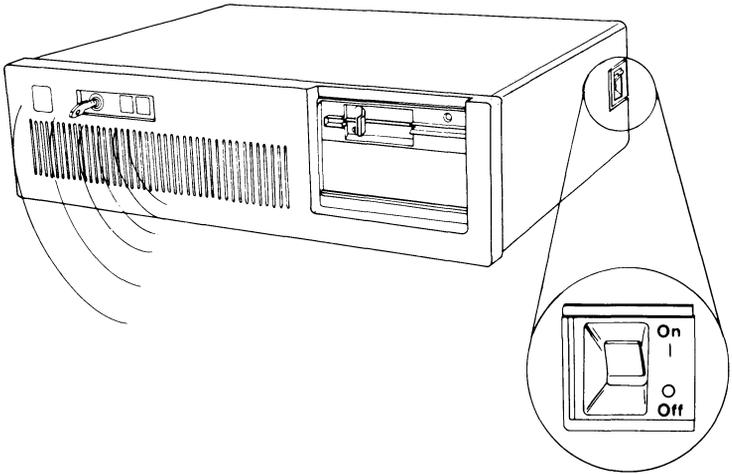
An indication of the memory test appears in the upper-left corner of the screen and the number continues to increase until the message

XXXXX K bytes OK

appears *momentarily*.

Note: XXXXX must be at least 640.

One short beep is heard when the test is complete.



If POST fails, follow the instructions in “SECTION 7. POWER-ON SELF TEST” in the *IBM Installation and Setup—Personal Computer AT* manual.

8 When the DOS prompt (A>) appears on the screen, type:

FDISK

then press the **Enter** (↵) key.

You can now partition your fixed disk for DOS. A selection screen displays.

9 Select

Create DOS Partition

then press the **Enter** (↵) key.

10 A second screen displays with the question:

“Do you wish to use the entire fixed disk for DOS (Y/N).....?”

Press **Y**, then press the **Enter** (↵) key.

11 With the DOS diskette in drive A, press any key to continue.

When the DOS prompt (A>) appears on the screen, your *entire* fixed disk is partitioned for DOS.

Proceed with “Formatting and Transferring” on page 3-13.

Formatting and Transferring

1 With the DOS prompt (A>) on the screen, type:

FORMAT C:/S

then press the **Enter** (↵) key.

2 Press any key to begin formatting your C fixed disk.

Note: Formatting takes several minutes.

When formatting is complete, proceed with “Copying” on page 3-14.

Copying

1 With the DOS prompt (A>) on the screen, type:

```
COPY *.* C: /V
```

then press the **Enter** (↵) key.

When copying is complete, the DOS prompt (A>) again displays on the screen.

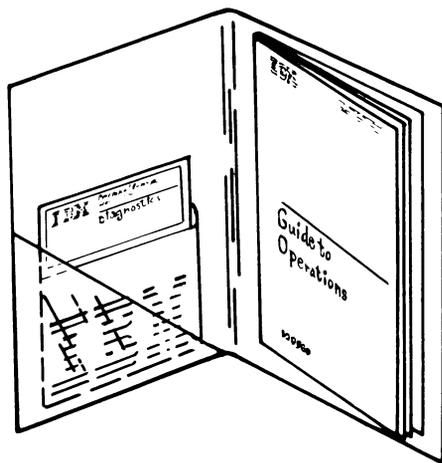
2 Remove the DOS diskette and return it to the back of the *IBM DOS (Disk Operating System)* manual.

DOS is now on your C fixed disk.

Proceed with “Copy System/370 Personality Code to the Fixed Disk” on page 3-15.

Copy System/370 Personality Code to the Fixed Disk

- 1 Get the *Diagnostic/370 Personality Diskette* from the front of this manual.



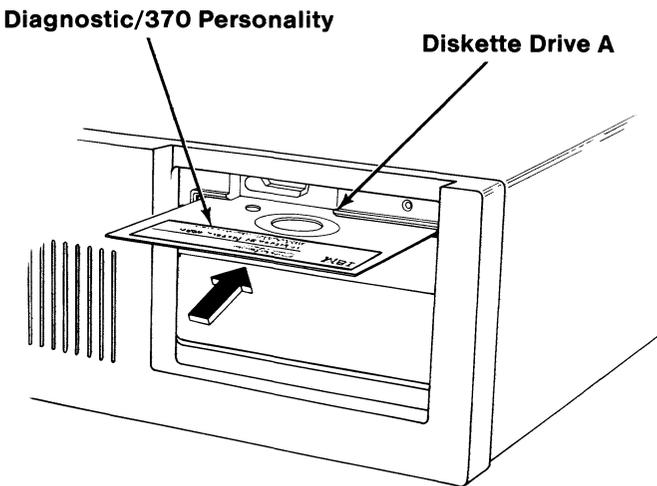
SYSTEM SETUP

2 Type

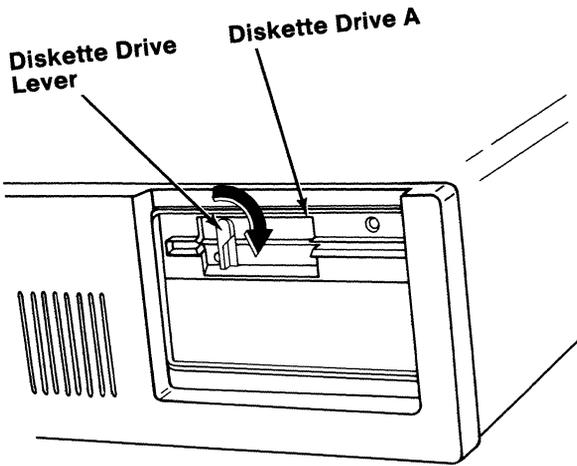
C:

then press the **Enter** (↵) key.

3 When the DOS prompt (C>) displays, insert the *Diagnostic/370 Personality Diskette* in drive A. Push the diskette in until you hear it click into place.



- 4** Rotate the diskette drive lever clockwise.



SYSTEM SETUP

5 Type

COPY A:IMLPU.* C: / V

then press the **Enter** (←↵) key.

When the copy operation is complete, the following message displays:

1 FILE(S) COPIED

6 Remove the *Diagnostic/370 Personality Diskette* and return it to the front of this manual.

Installation of your IBM Personal Computer AT/370 is now complete.

Proceed with “Installing the Operating System” on page 3-19.

Installing the Operating System

The IBM Personal Computer AT/370 is supported by the IBM Program Product *IBM VM/PC* (Virtual Machine/Personal Computer). You must have IBM DOS 3.00 (or equivalent) installed before you can install and use IBM VM/PC on your Personal Computer AT/370.

Go to the *IBM VM/PC User's Guide* and follow the instructions for installing IBM VM/PC.

Moving Your IBM Personal Computer AT/370

Warning: Moving your Personal Computer AT/370 without proper preparation can result in damage to the fixed disk drive(s) and/or permanent loss of data.

Before moving your IBM Personal Computer AT/370:

Go to “Section 3. Moving your IBM Personal Computer AT” in the *IBM Guide to Operations—Personal Computer AT*. By following those instructions, you place the disk head in a safe position for moving your system.

SECTION 4. PROBLEM DETERMINATION PROCEDURES

Contents

Problem Determination Procedures	4-3
Introduction	4-3
Symptom Index	4-5
Diagnostic Testing	4-6

4-2 Problem Determination Procedures

Problem Determination Procedures

Introduction

The problem determination procedures help you solve system problems.

Problem determination for your IBM Personal Computer AT/370 should always start in this manual. By following the step-by-step instructions and answering **YES** or **NO** to the questions, you will be able to determine what you must do to get your system running again.

For information about messages under operating system control, the IBM Personal Computer AT/370 problem determination procedures refer you to the appropriate operating system user's manual (such as the *IBM VM/PC User's Guide*).

When the problem appears to be in the system unit, but not in the AT/370 adapter cards, you are directed to:

- Diagnostics or problem determination procedures for other options you may have installed
- “Section 2. Testing Your IBM Personal Computer AT” in the *IBM Guide to Operations—Personal Computer AT*.

The steps for IBM Personal Computer AT/370 problem determination are:

- 1** Start in this manual (*IBM Guide to Operations—Personal Computer AT/370*).
- 2** Use the chart in “Symptom Index” on page 4-5 to find the information that most accurately describes the symptom or problem.
 - Follow the instructions in the **ACTION** column of the symptom index.
 - Use the **Undetermined failure** symptom if you cannot find a failure description that fits your problem.
- 3** If diagnostic testing results in
NO ERROR FOUND
but the system fails to work properly, go to:
 - Diagnostics or problem determination procedures for other options you may have installed
 - “Section 2. Testing Your IBM Personal Computer AT” in the *IBM Guide to Operations—Personal Computer AT*.

Symptom Index

Use this chart to find the most accurate description of your problem. Do the steps described in the corresponding **ACTION** column.

SYMPTOM	ACTION
<ul style="list-style-type: none"> • Undetermined failure. • POST fails with 164 - MEMORY SIZE ERROR. 	<p>Go to “Diagnostic Testing” on page 4-6 in this manual.</p>
<p>Program message displays.</p>	<p>Record the message. Go to appropriate program user’s manual.</p>
<ul style="list-style-type: none"> • POST fails with: <ul style="list-style-type: none"> – Memory size message less than 640 KB OK displays. – Audio response other than 1 short beep. – Error message remains on the screen. – Memory size error (other than 164 - MEMORY SIZE ERROR). – Blank screen. • Parity check message displays. 	<p>Record the message. Go to “SECTION 2. TESTING YOUR IBM PERSONAL COMPUTER AT” in the <i>IBM Guide to Operations—Personal Computer AT</i>.</p>

PROBLEM DETERMINATION

Diagnostic Testing

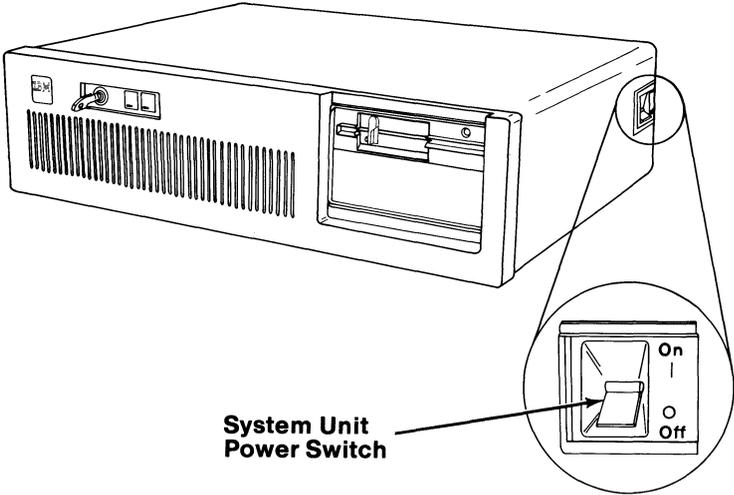
Error messages may be displayed during diagnostic testing. Record the error message(s) and error code(s) (XXXX). This information is needed to help service your system.

The diagnostics on the *Diagnostics/370 Personality* disk test only the IBM Personal Computer AT/370 adapter cards. If further testing is required, you are directed to:

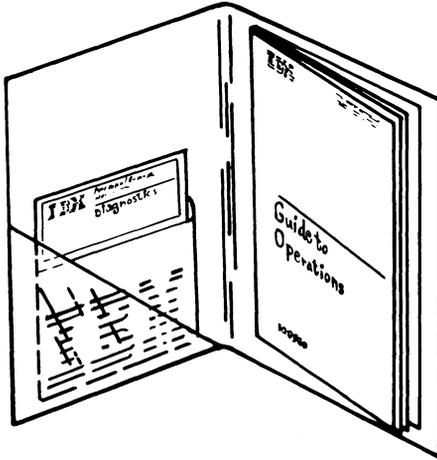
- Diagnostics or problem determination procedures for other options you may have installed
- “Section 2. Testing Your IBM Personal Computer AT” in the *IBM Guide to Operations—Personal Computer AT*.

To test the IBM Personal Computer AT/370 adapter cards:

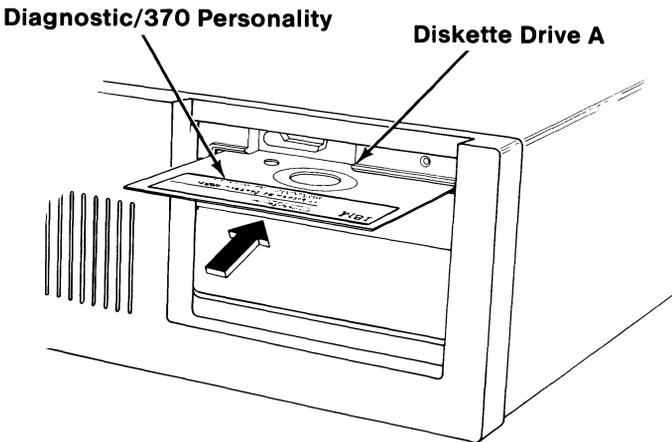
- 1** Set system unit Power switch to **Off**.



- 2 Set all external Power switches to **Off** (printer, display, etc.).
- 3 Get the *Diagnostic/370 Personality Diskette* from the front of this manual.

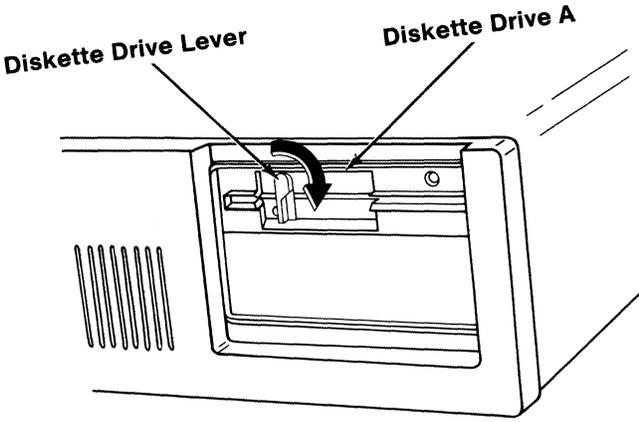


- 4 Insert the *Diagnostic/370 Personality Diskette* in drive A. Push the diskette in until you hear it click into place.



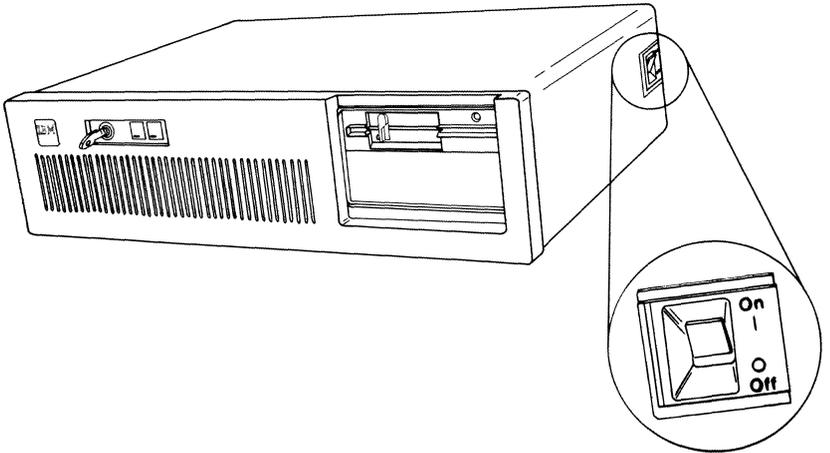
PROBLEM DETERMINATION

- 5** Rotate the diskette drive lever clockwise.



- 6** Power on all externally attached devices.

- 7** Set system unit Power switch to On.



8 The Power-On Self Test (POST) runs (about 30 seconds) each time your system unit power is switched on.

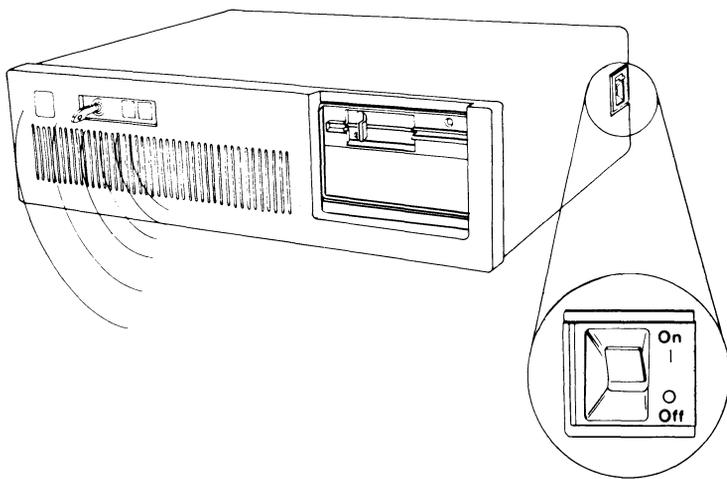
9 An indication of the memory test appears in the upper-left corner of the screen and the number continues to increase until the message

XXXXX KB OK

appears *momentarily*.

Note: XXXXX must be at least 640.

One short beep is heard when the test is complete.



10 Did the following appear on your screen?

XXXXX KB OK

164 - MEMORY SIZE ERROR - (RUN SETUP)

(RESUME = F1 KEY)

YES – Press **F1** and proceed with step 11 on page 4-11.

NO – Proceed with step 11 on page 4-11.

11 Did the following appear on your screen?

Diagnostics for
IBM Personal Computer AT/370
Version X.YY (C) Copyright IBM Corp. 1984

Press the <Enter> key to continue.

YES – Press the **Enter** (↵) key to continue.

Proceed with step 12 on page 4-12.

NO – Verify that the *Diagnostic/370 Personality Diskette* was correctly inserted in drive A. Correct any mistakes and return to step 2 on page 4-7.

Note: If the *Diagnostic/370 Personality Diskette* was correctly inserted in drive A, Go to “Further Diagnostic Testing Required” on page 4-24 in this manual.

12 Did the following appear on your screen?

WARNING:

The AT/370 cards were not sensed by the diagnostic tests.

Have your system unit serviced.

YES – Proceed with step 13 on page 4-13.

NO – Go to step 14 on page 4-14.

13 The AT/370 adapter cards were not sensed as installed in your system unit. Verify that the AT/370 cards are correctly installed. (You can verify proper installation of these cards using the information in “SECTION 2. AT/370 OPTION ADAPTER” of this manual. See “Removing the Cover” on page 2-6.)

- If the AT/370 adapter cards were *NOT* correctly installed in your system unit and you have now correctly installed the cards, return to step 6 on page 4-8.
- If the AT/370 adapter cards were *NOT* correctly installed in your system unit and you cannot correct the problem, have your system unit serviced.
- If the AT/370 adapter cards *ARE* correctly installed in your system unit and the preceding message still displays, have your system unit serviced.

14 Did the following appear on your screen?

ERROR:

The information in the CMOS memory
is not valid.

Have your system unit serviced.

YES – Have your system unit serviced.

NO – Proceed with step 15 on page 4-15.

15 Did the following appear on your screen?

The currently configured total base memory size is not valid for use with the AT/370 cards.

Do you want to change this configuration? (Y/N)

YES – Press **Y**, then press the **Enter** (↵) key.

The total base memory size configuration is reset to 640K bytes by the diagnostic code and POST restarts. (Base Memory size **MUST** be set to **640 K bytes** when the AT/370 adapter is installed.)

Return to step 9 on page 4-9.

Note: If you have already attempted to change the total base memory size and the preceding error message displays a second time, go to “Further Diagnostic Testing Required” on page 4-24.

NO – Go to step 16 on page 4-16.

16 Did the following appear on your screen?

Diagnostic Options:

Enter the number of desired option:

- 0 - Run test one time
- 1 - Run test multiple times
- 9 - Exit from diagnostics

YES – Proceed with step 17 on page 4-17.

NO – Have your system unit serviced.

17 To select a diagnostic option, do one of the following:

- To run diagnostic tests once:

Press **0**, then press the **Enter** (↵) key.

Proceed with step 18 on page 4-18.

- To run diagnostic tests multiple times (which helps detect intermittent problems) :

Press **1**, then press the **Enter** (↵) key.

Enter the number of times you want the diagnostic tests to run, then press the **Enter** (↵) key.

Proceed with step 18 on page 4-18.

- To exit from the diagnostics:

Proceed with step 22 on page 4-22.

18 When the test is completed, proceed with step 19 on page 4-19.

Note: If you run the test multiple times or make the wrong selection, you can stop the test. To stop the diagnostic tests at any time, press and hold **Ctrl**, then press **Break**.

The Diagnostic Options screen appears.
Return to step 16 on page 4-16.

19 Did the following appear on your screen?

ERROR: Have system unit serviced; ERR CODE= XXXX

(XXXX is any number.)

Note: More than one error message may appear.

YES – Record the message(s) and error code(s).

Have your system unit serviced.

NO – Proceed with step 20 on page 4-20.

20 Did the following appear on your screen?

Option X: Run Tests Y Time(s).

TEST COMPLETE:

Press <Enter> to return to
Diagnostic Options screen.

NO ERROR FOUND

Press <Ctrl>-<Break> at any time to stop the
tests and return to the Diagnostic Options screen.

YES – Proceed with step 21 on page 4-21.

NO – Have your system unit serviced.

21 Press the **Enter** (↵) key to return to the Diagnostic Options screen.

- To continue testing, return to step 16 on page 4-16.
- To exit from the diagnostics, proceed with step 22 on page 4-22.

Note: If NO ERROR FOUND appears, but the system fails to work properly, go to “Further Diagnostic Testing Required” on page 4-24.

- 22** When diagnostic testing is complete, press **9**, then press the **Enter** (↵) key to exit from the diagnostics.

The following screen appears.

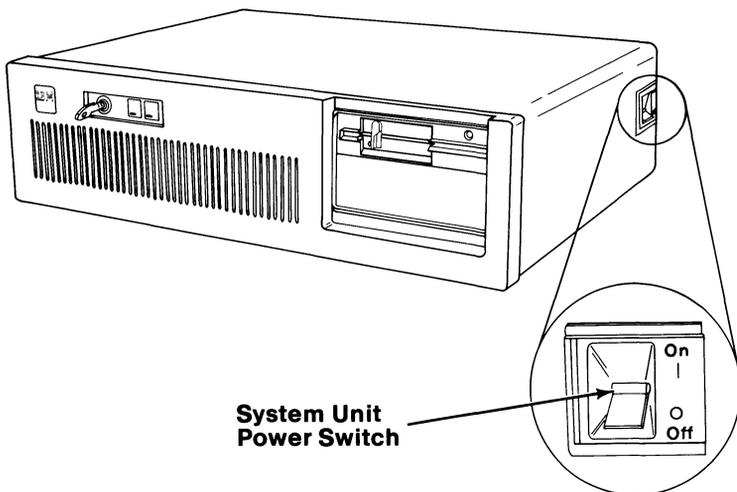
Diagnostic Session Complete

- Remove the diagnostic diskette.
- Set system unit power off.

- 23** Remove the *Diagnostic/370 Personality Diskette* and return it to the front of this manual.

Proceed with step 24 on page 4-23.

- 24** Set system unit Power switch to **Off**.



- 25** Set all external Power switches to **Off** (printer, display, etc.).

- 26** Diagnostic testing of the AT/370 adapter is complete. If no error is found but the system fails to work properly, go to “Further Diagnostic Testing Required” on page 4-24.

Further Diagnostic Testing Required

- 1** Remove the *Diagnostic/370 Personality Diskette* and return it to the front of this manual.
- 2** Set your system unit Power switch to **Off**.
- 3** Set all external Power switches to **Off** (printer, display, etc.).
- 4** Go to:
 - Diagnostics or problem determination procedures for other options you may have installed
 - “Section 2. Testing Your IBM Personal Computer AT” in the *IBM Guide to Operations—Personal Computer AT*.

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Reader's Comment Form

Guide to Operations

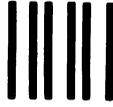
6361317

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Comments:

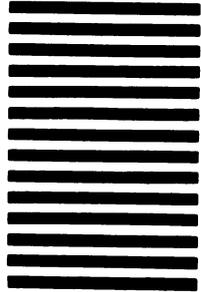


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