



*Personal Computer
Hardware Reference
Library*

Installation and Setup

6183217

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(Continued on inside back cover)



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First Edition (March 1984)

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Warning: The equipment described herein 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 the computer. Operation with non-certified peripherals is likely to result in interference to radio and TV reception. If peripherals not offered by IBM are used with the equipment, it is suggested to use shielded grounded cables with in-line filters if necessary.

INSTRUCTIONS TO USER

This equipment generates and uses radio frequency energy and if not installed and used properly, i.e., in strict accordance with the operating instructions, reference manuals, and the service manual, may cause interference to radio or 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 equipment with respect to the receiver.
- Move the equipment away from the receiver.
- Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.
- Ensure that card mounting screws, attachment connector screws, and ground wires are tightly secured.
- Ensure 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 that you use shielded, grounded cables with in-line filters, if necessary.

If necessary consult your dealer 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

The product described herein is equipped with a grounded plug for the user's safety. It is to be used in conjunction with a properly grounded receptacle to avoid electrical shock.

Preface

This *Installation and Setup* manual provides you with the necessary information to setup your IBM Personal Computer AT and install your options. This manual is divided into eight sections. External tabs are provided for ease in locating each section.

"Section 1, Start"

This section provides a brief description of how to use this manual.

"Section 2, Cover Removal"

This section shows you how to remove the system unit's cover.

"Section 3, Internal Option Installation"

This section has instructions for installing options that go inside your system unit.

"Section 4, Cover Installation"

This section provides a list of things that should be done before you install your system unit's cover. It then shows you how to install your system unit's cover.

"Section 5, External Option Installation"

This section has instructions for installing and connecting cables to options that go outside your system unit.

"Section 6, System Check List"

This section provides a list of things that should be done before you turn the system's power on.

"Section 7, Power-On Self Test"

This section guides you in performing the Power-On Self Test and using the Setup program.

"Section 8, Additional Options"

This section has been provided to contain the installation instructions for any of the options you may have purchased for your IBM Personal Computer AT.

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SECTION 1. START



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Things you should know	1-3
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Notes:



Things you should know.

This manual is used with *CHART 2, Installing Your Internal Options* to complete the initial installation of your system unit.

- If your dealer has setup your system, go to *CHART 1, Cabling Your System*.
- If you are setting up your system, and you have not completed the steps on *CHART 2, Installing Your Internal Options*, do so now.
- If you have completed the steps on *CHART 2, Installing Your Internal Options*, continue on the next page.

Installing Internal Options

- 1 Use the instructions in "Section 2, Cover Removal", if your system unit's cover has not been removed.
- 2 Use the instructions in "Section 3, Internal Option Installation" to install the following options:

IMPORTANT: Discard the instructions that came in the carton with the options listed below:

- IBM Personal Computer AT 256KB Memory Module Kit
- IBM Personal Computer AT Math Coprocessor
- IBM Color/Graphics Monitor Adapter
- IBM Monochrome Display and Printer Adapter
- IBM Personal Computer AT 128KB Memory Expansion Option
- IBM Personal Computer AT 512KB Memory Expansion Option
- IBM Personal Computer AT High Capacity Diskette Drive
- IBM Personal Computer AT Double Sided Diskette Drive

- IBM Personal Computer AT Fixed Disk Drive
- IBM Personal Computer AT Serial/Parallel Adapter
- IBM Synchronous Data Link Control (SDLC) Communications Adapter
- IBM Binary Synchronous Communications Adapter
- IBM Personal Computer AT Prototype Adapter
- IBM Game Control Adapter
- IBM Personal Computer AT Floor Standing Option

IMPORTANT: To install an option not listed above, use the instructions that came with that option.

- 3** Use the instructions in "Section 4, Cover Installation" to install your cover.

Installing External Options

- 1 Use the instructions in "Section 5, External Option Installation" to install the following options.

IMPORTANT: Discard the instructions that came in the carton with the options listed below:

- IBM Color Display
- IBM Monochrome Display
- IBM Personal Computer Display Stand
- IBM Personal Computer Graphics Printer
- IBM Personal Computer Graphics Printer Stand
- IBM Personal Computer Color Printer
- IBM Personal Computer Color Printer Paper Rack
- IBM Communications Cable
- IBM Personal Computer AT Serial Adapter Cable

IMPORTANT: To install an option not listed above, use the instructions that came with that option.

- 2 Use "Section 6, System Check List" to check your system before you connect the power cable.

SECTION 2. COVER REMOVAL

Contents

Cover Removal **2-3**

Notes:



Cover Removal

If the system unit cover has already been removed go to the appropriate option installation instructions in this manual. Installation instructions for internal options are located in Section 3. Installation instructions for external options are located in Section 5.

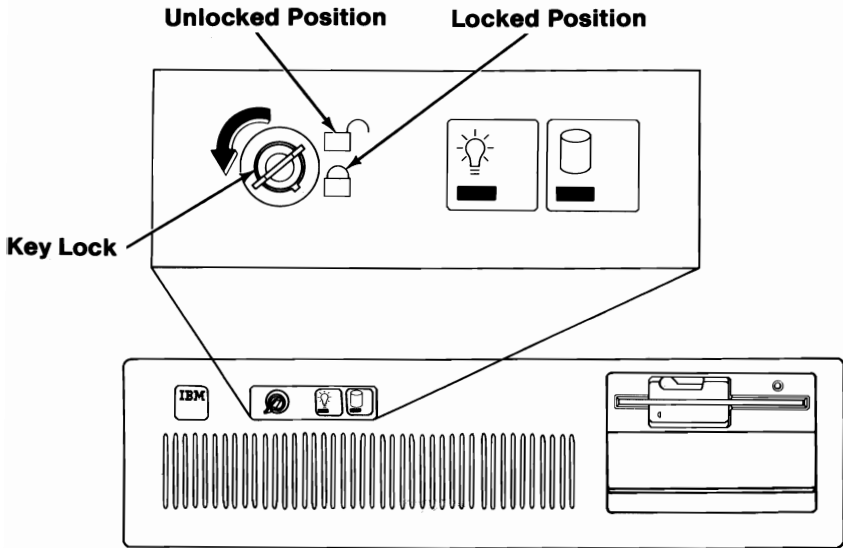
Required Tools

- Medium-size, flat-blade screwdriver

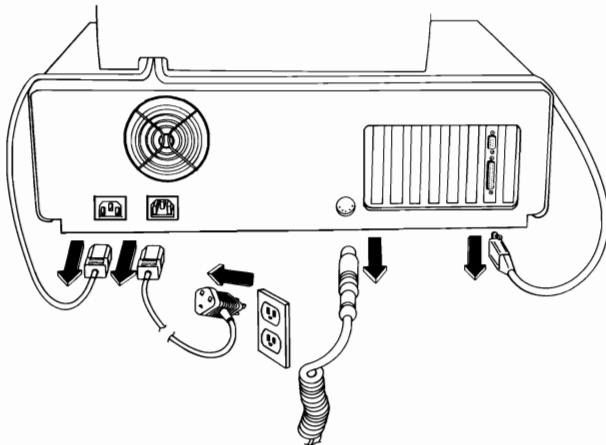
Optional Tools

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

- 1 Turn your system unit's power off.
- 2 Turn all externally attached devices' power off (printer, display, etc.).
- 3 Be sure that the Key Lock is unlocked (turn the key counterclockwise and remove the key).

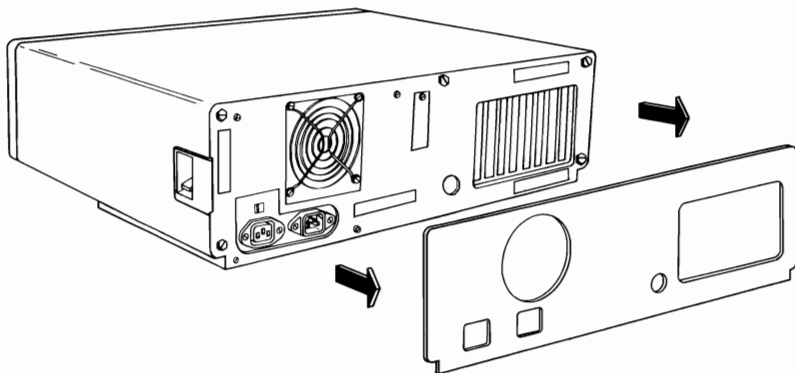


- 4 Unplug your system unit's power cord from the wall outlet.
- 5 Disconnect all cables from the back of your system unit, and note their location.

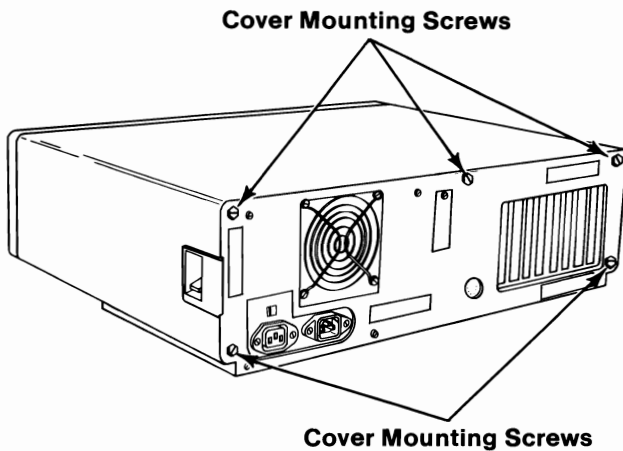


- 6 Remove the back panel from the rear of your system unit.

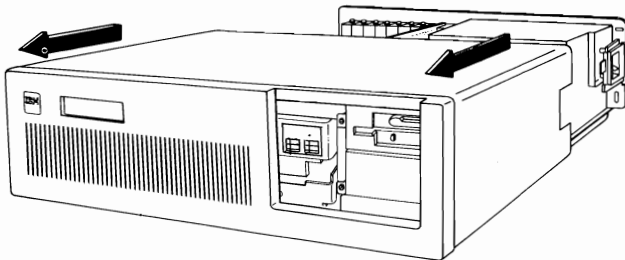
Note: The back panel is attached to the system unit with plastic fastener strips.



- 7** Remove the five cover mounting screws.



- 8** Remove the cover.



- 9** Continue with "Section 3, Internal Option Installation".

SECTION 3. INTERNAL OPTION INSTALLATION

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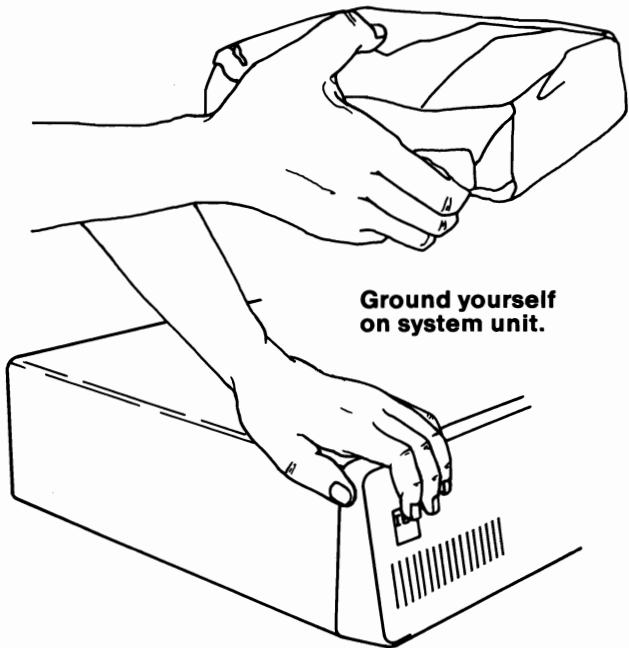
Internal Option Installation Instructions

This section contains the installation instructions for options that go **INSIDE** your IBM Personal Computer AT.

Handling Static-Sensitive Devices

Some of your options can be damaged by static discharge. To prevent this damage, the options are wrapped in anti-static bags. Certain precautions must be taken before removing an option from its bag.

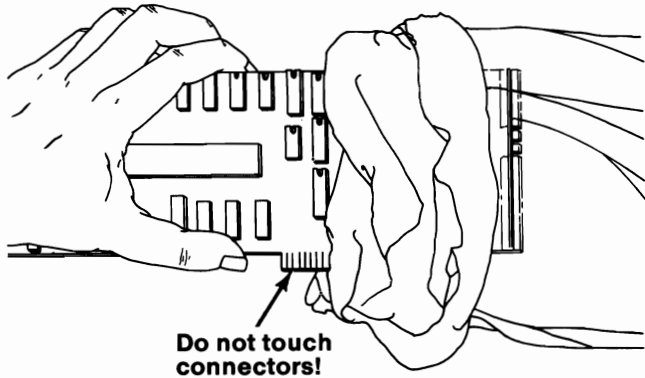
- 1 Hold the option (still wrapped in its anti-static bag) in one hand and touch a metal part of your system unit with the other hand.



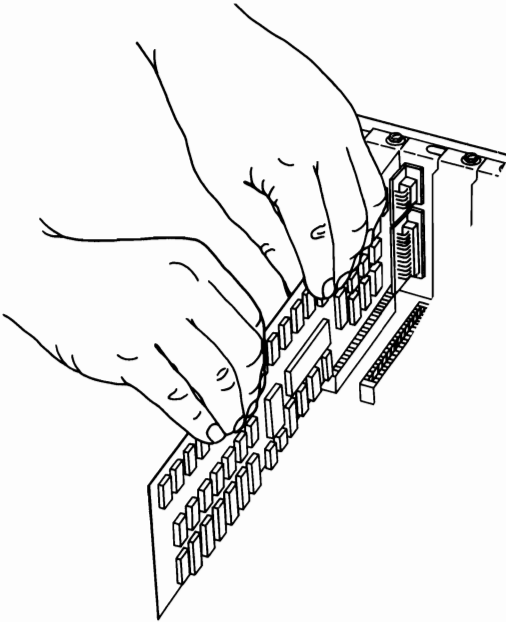
2

Carefully remove the option from its anti-static bag.

- Hold option adapters by the edges only. Avoid touching the components or connections.
- Hold diskette drives and fixed disk drives by their metal frames.
- Hold modules by the ends. Avoid touching the pins.



- 3 When inserting an option adapter into the system board, hold the adapter by its top edge or upper corners.



Starting Your Installation

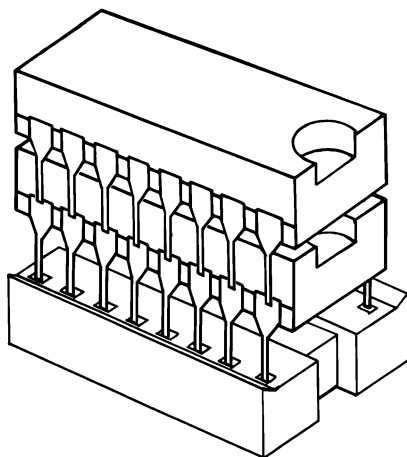
The order that options appear in this section is the suggested order for installation. Refer to the table of contents for this section to find the starting page number for your option installation instructions.

If your system unit's cover has not been removed start with "Section 2, Cover Removal".

Note: Factory-installed adapters must remain in their assigned expansion slots, unless noted otherwise.

Notes:

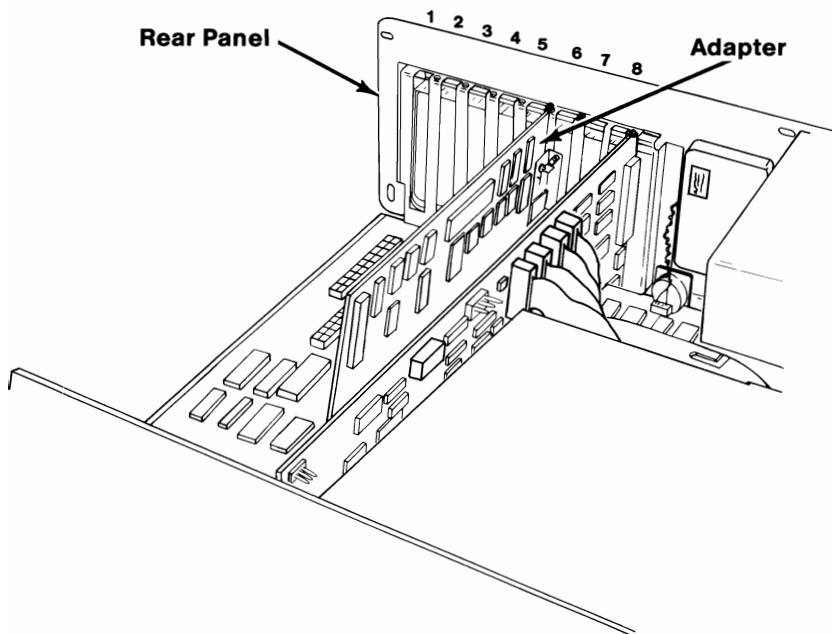
IBM Personal Computer AT 256KB Memory Module Kit



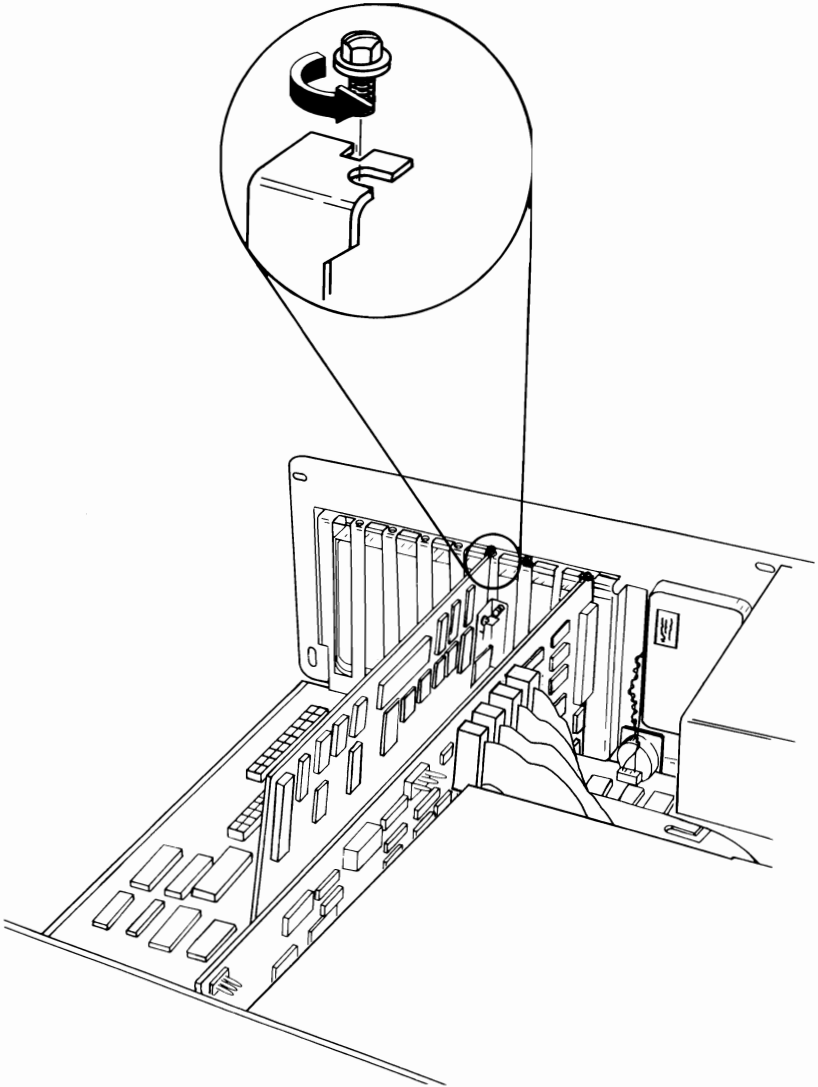
If your system has not been installed, go to *CHART 2, Installing Your Internal Options* before installing this option.

Installation Instructions

- 1 Look at the inside left rear of your system unit. Your system may have some or all of the eight system unit expansion slots used for adapters. Adapters installed in slots 1 through 6 will have to be removed to install this kit.

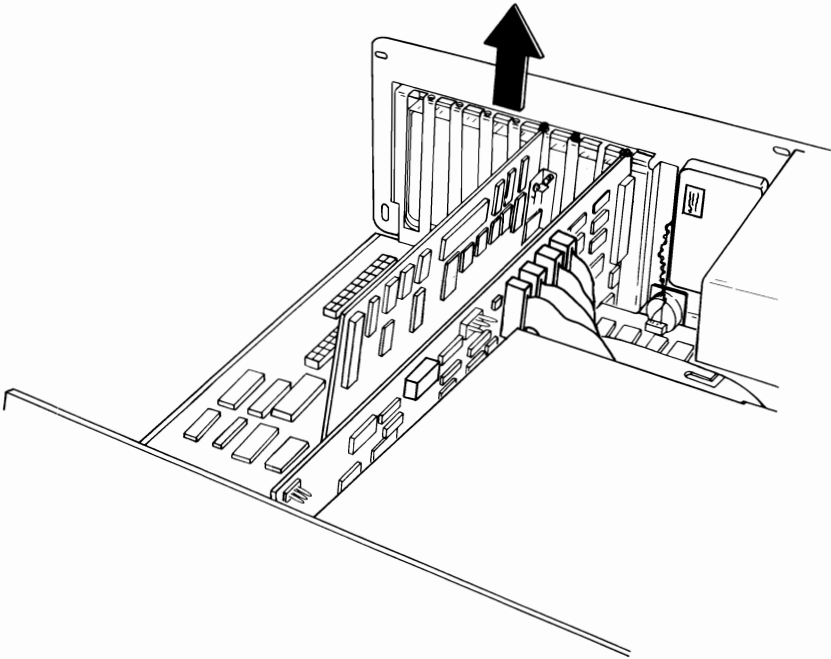


- 2** Remove the screws that hold the adapters in place. Save the screws for the installation of the adapters.

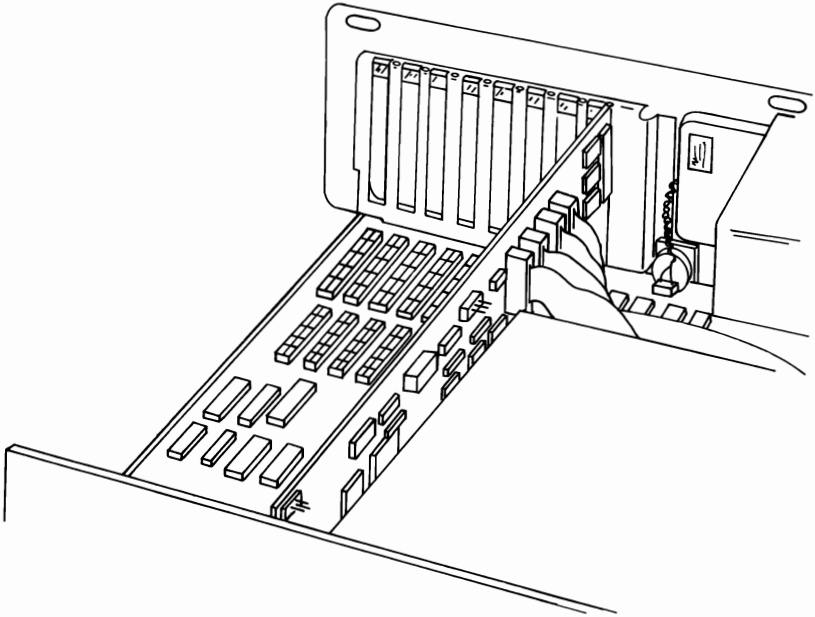


- 3** Grasp the adapter by the top and lift. Make a note of the slot from which you remove each adapter.

Warning: Put your adapters in a safe place. They can be damaged if not handled carefully.

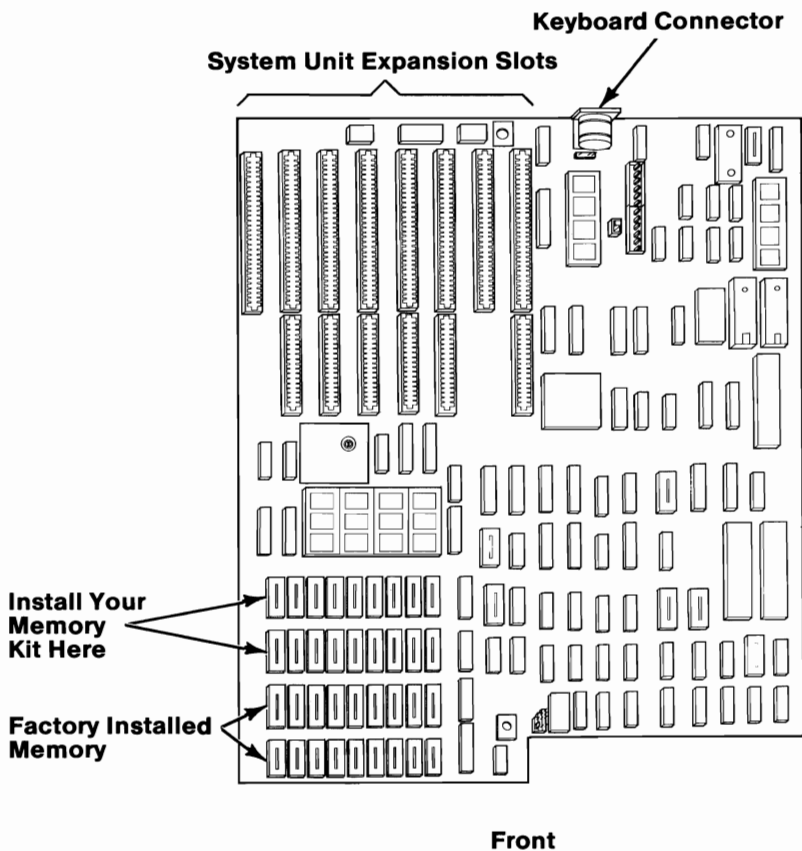


- 4** Repeat Steps 2 and 3 until the adapters in expansion slots 1 through 6 are removed.



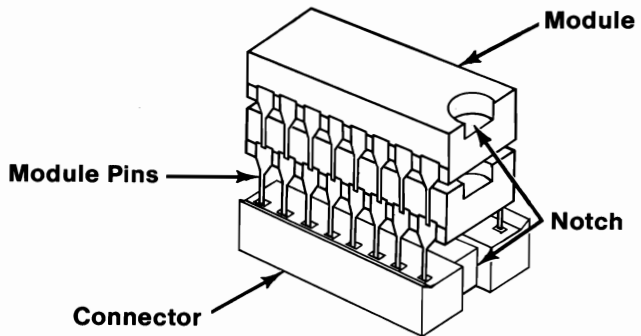
5 Familiarize yourself with the figure below.

Top View of System Board



- 6** Align the pins and the connector and press each of the 18 modules firmly in place. Each module has a notch that must align with the notch of the connector on the system board.

Warning: The pins on the module will bend easily. They must be carefully aligned with the connector before the module is pressed in place. Improperly inserted modules can cause damage to the module or the system board.

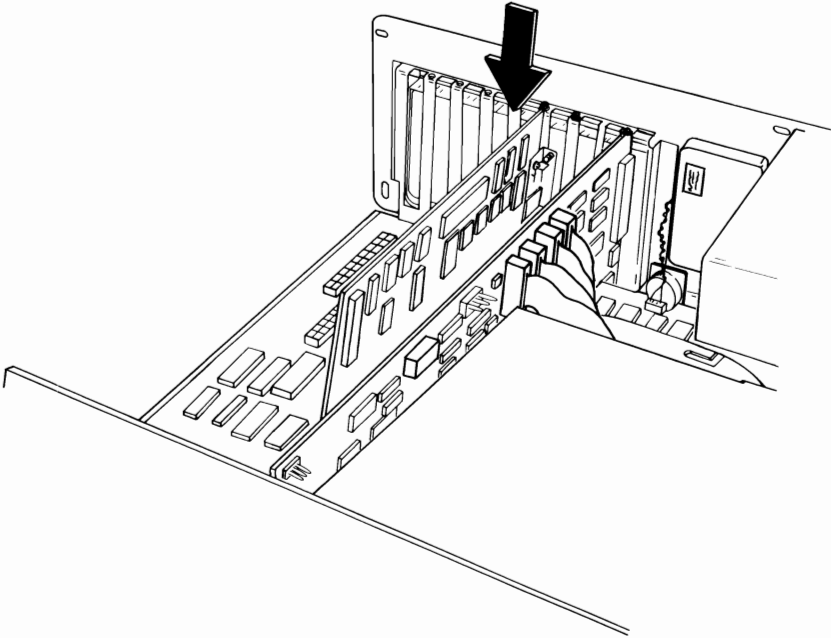


- 7** Check each module to verify that it is installed in the right direction and that no pins are bent.

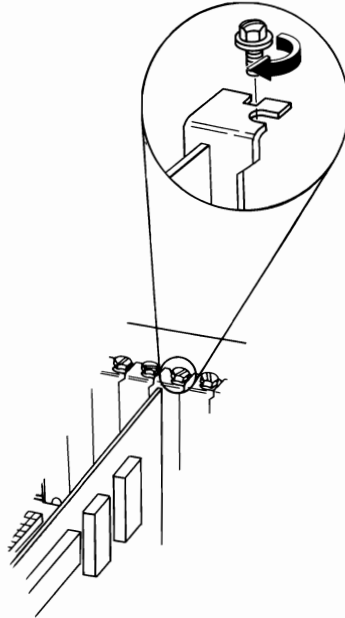
Note: If you find a problem with any module, you can remove it by inserting a small flat-blade screwdriver under the module and gently lifting it up.

8 Install the adapters you removed in Steps 2 and 3.

- Check the notes you made in Step 3 and install the adapters in their proper slots.
- Hold each adapter by the top and press it firmly into its expansion slot.



- 9** Install the adapter mounting screws.



IMPORTANT: You will have to run the "Setup" program on your Diagnostics diskette after all your options are installed.

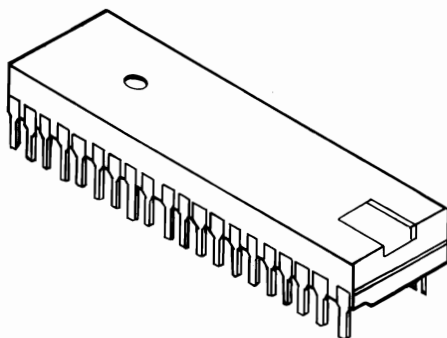
- 10** Locate the "Setup Information" fold-out at the back of this manual and circle the Base Memory size.
- With all four rows of memory modules installed, the Base Memory size = 512K bytes
- 11** If you have any other internal options that need to be installed, install them now. If not, go to "Section 4, Cover Installation".

Notes:



IBM Personal Computer AT Math Coprocessor

MATH COPROCESSOR

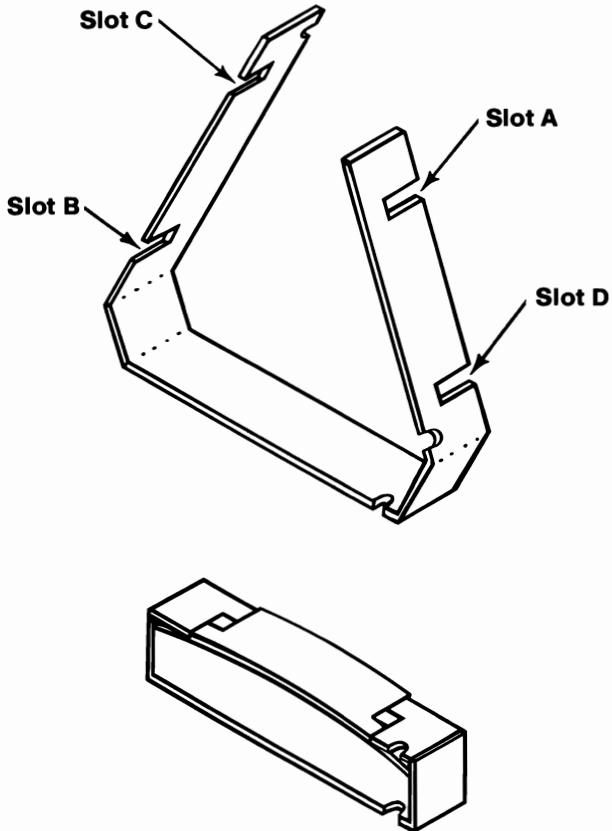


If your system has not been installed, go to *CHART 2, Installing Your Internal Options* before installing this option.

Installation Instructions

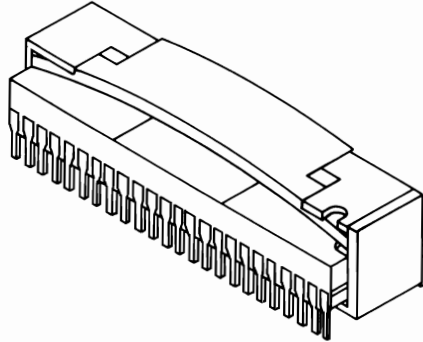
1 Assemble the safety protector as shown below.

- Inserting slot A into slot B
- Inserting slot C into slot D



2

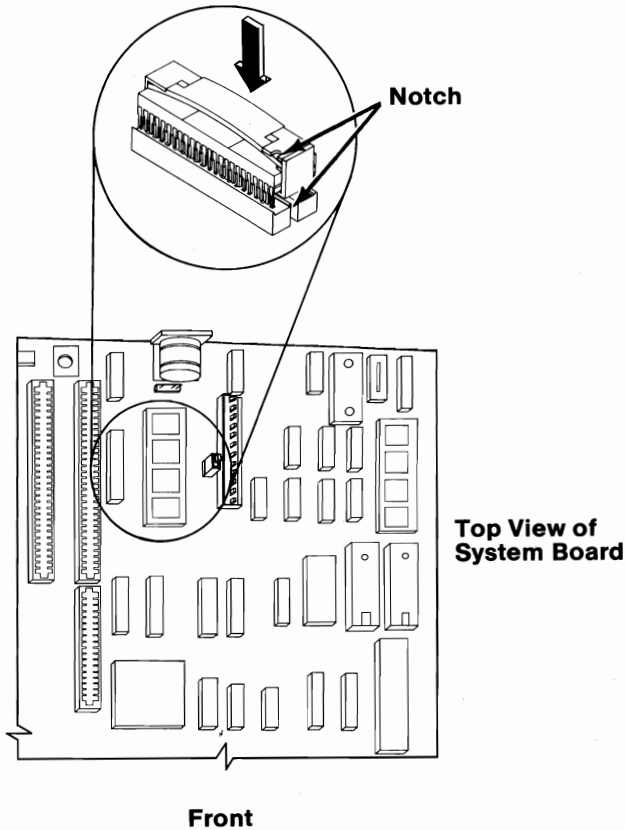
Insert the coprocessor into the safety protector as shown. Make sure that the notch in the safety protector is on the same end as the notch in the coprocessor. The overlapped portions of the safety protector should be on the top of the coprocessor.



Warning:

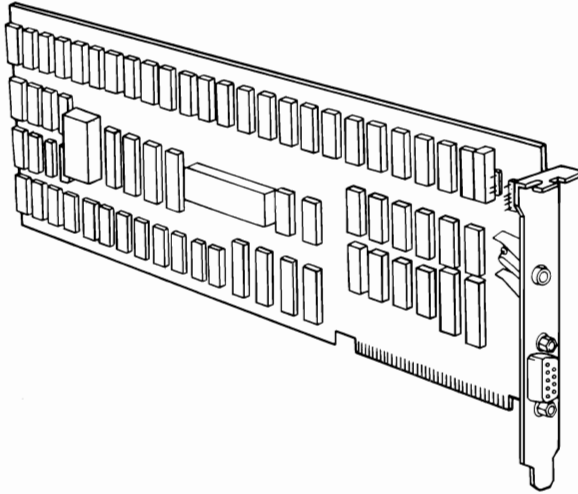
- The coprocessor is static sensitive. Reduce static by touching the system frame with one hand while installing the coprocessor in your system unit.
- Incorrect placement of the coprocessor can result in damage to the system board or the coprocessor.
- The pins on the coprocessor are bent easily.

- 3** Align the pins of the coprocessor with the connector and press the coprocessor firmly into place. Make sure the notch on the coprocessor lines up with the notch on its connector



- 4** If you have any other internal options that need to be installed, install them now. If not, go to "Section 4, Cover Installation".

IBM Color/Graphics Monitor Adapter



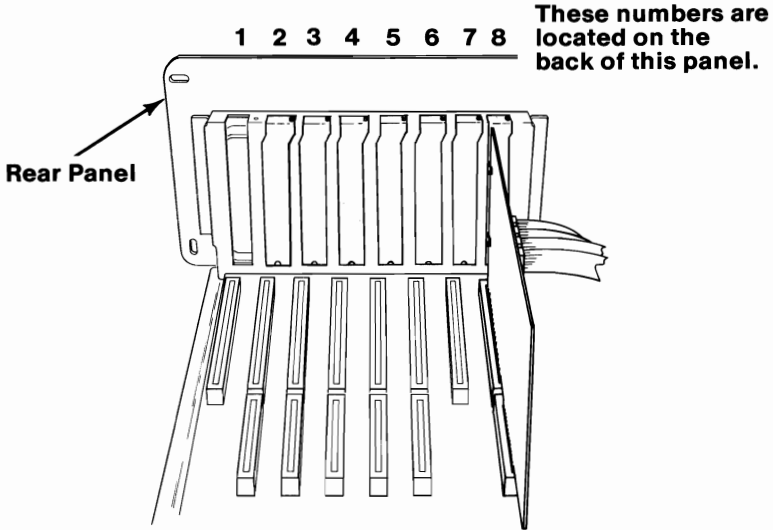
If your system has not been installed, go to *CHART 2, Installing Your Internal Options* before installing this option.

COLOR/GRAPHICS MONITOR ADAPTER

Installation Instructions

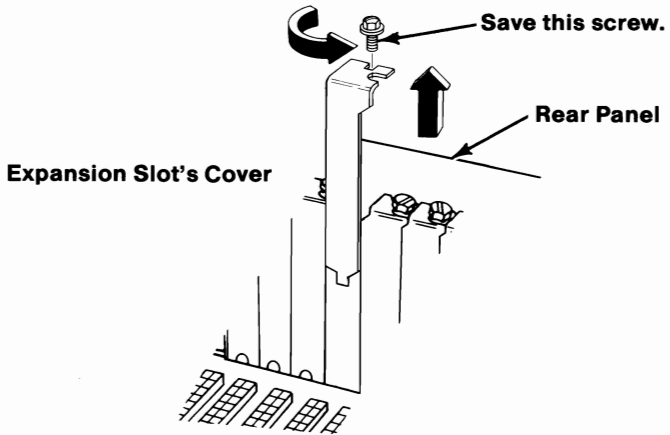
- 1** The IBM Color/Graphics Monitor Adapter must be installed in expansion slot 1 or 7.

Note: The Color/Graphics Monitor Adapter should be installed in expansion slot 1. If expansion slot 1 is already being used, install this adapter in expansion slot 7.



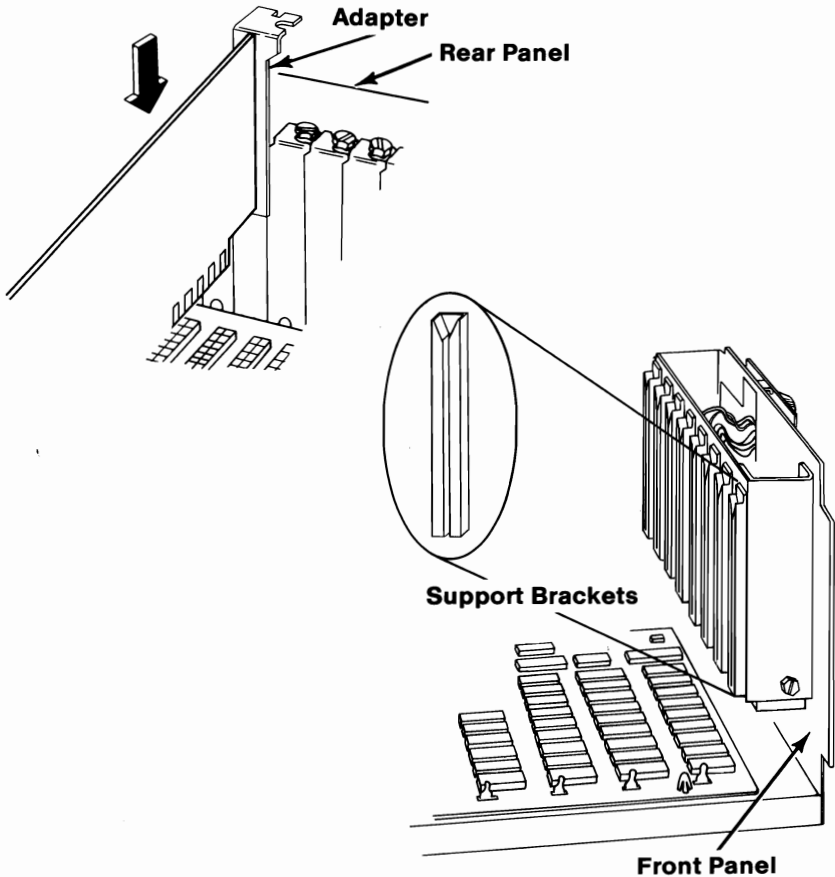
- 2** Remove the screw that holds the expansion slot's cover in place. Save the screw for the installation of the adapter.

Note: Expansion slot 1 does not come with an expansion slot cover.

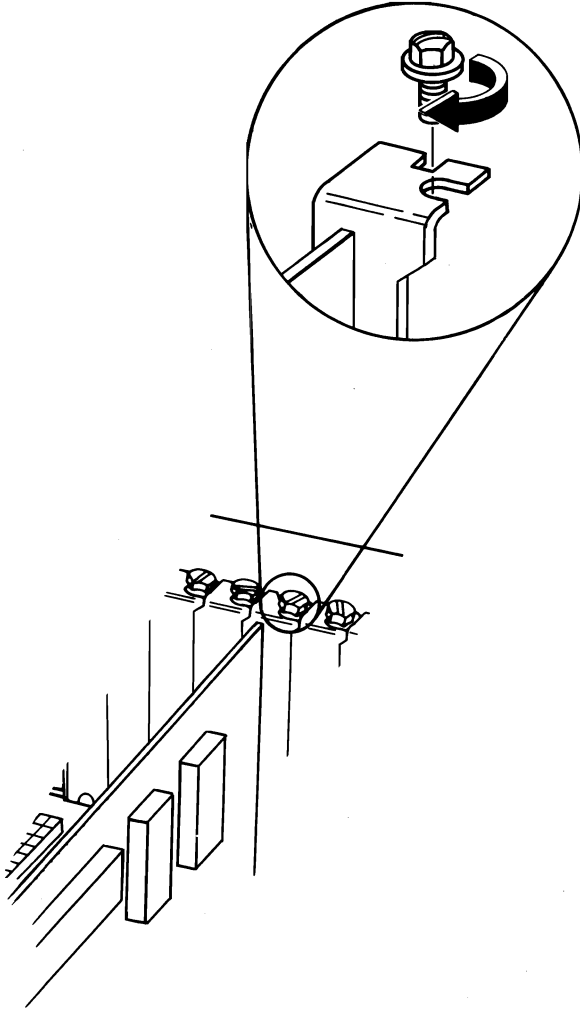


- 3** Hold the adapter by the top and firmly press it into the expansion slot making certain the adapter is in the support bracket. Look at the IBM Personal Computer AT Fixed Disk and Diskette Drive Adapter, installed in expansion slot 8 as a reference.

Note: Your IBM Personal Computer AT comes with support brackets installed for all expansion slots. The support bracket that came with your option is not needed.



- 4** Install the screw you removed in step 2.



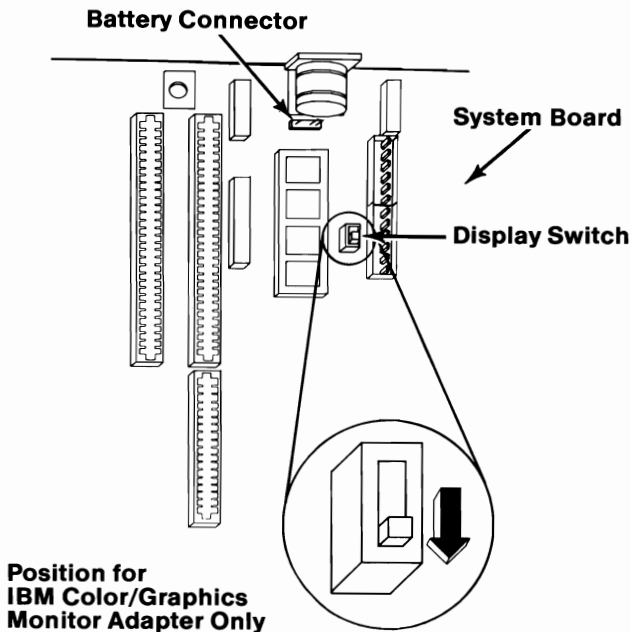
5 Set the display adapter switch.

Is the IBM Color/Graphics Monitor adapter your **ONLY** display adapter (no other display adapter installed in your system)?

Yes Push the switch toward the front of your system unit.

No Set the display switch for the primary display (the display that you want to come on when you turn your system unit's power on).

- For color as the primary display push the switch toward the front of your system unit
- For monochrome as the primary display push the switch toward the back of your system unit



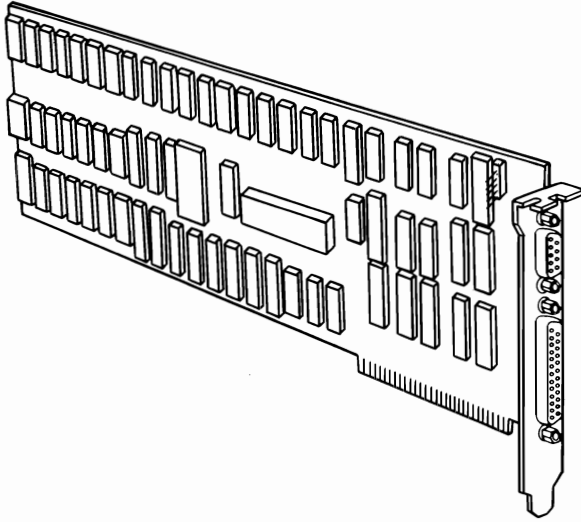
IMPORTANT: You will have to run the "Setup" program on your Diagnostics diskette after all your options are installed.

- 6** If you have any other internal options that need to be installed, install them now. If not, go to "Section 4, Cover Installation".

Notes:



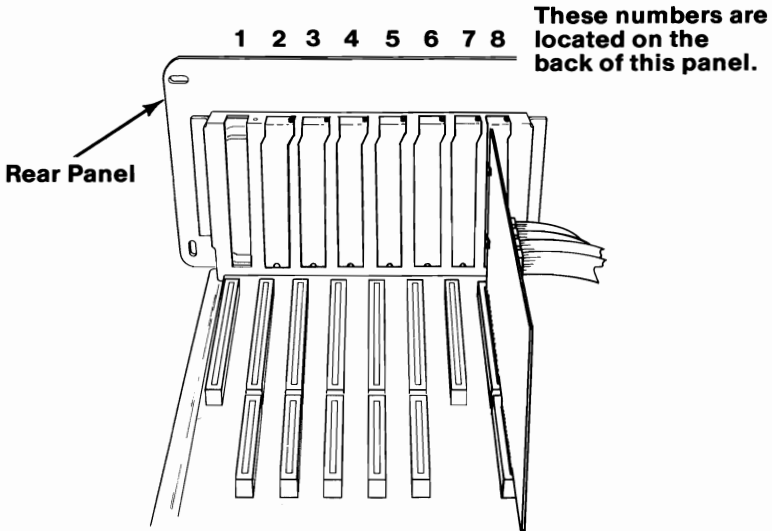
IBM Monochrome Display and Printer Adapter



If your system has not been installed, go to *CHART 2, Installing Your Internal Options* before installing this option.

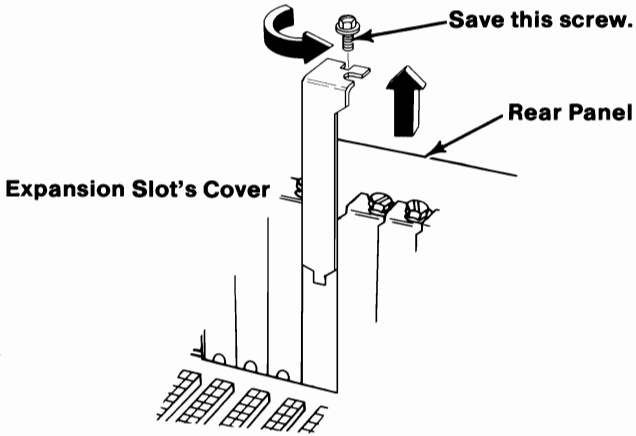
Installation Instructions

- 1** The Monochrome Display and Printer Adapter should be installed in expansion slot 1. If expansion slot 1 is being used, this adapter can then be installed in any available expansion slot.



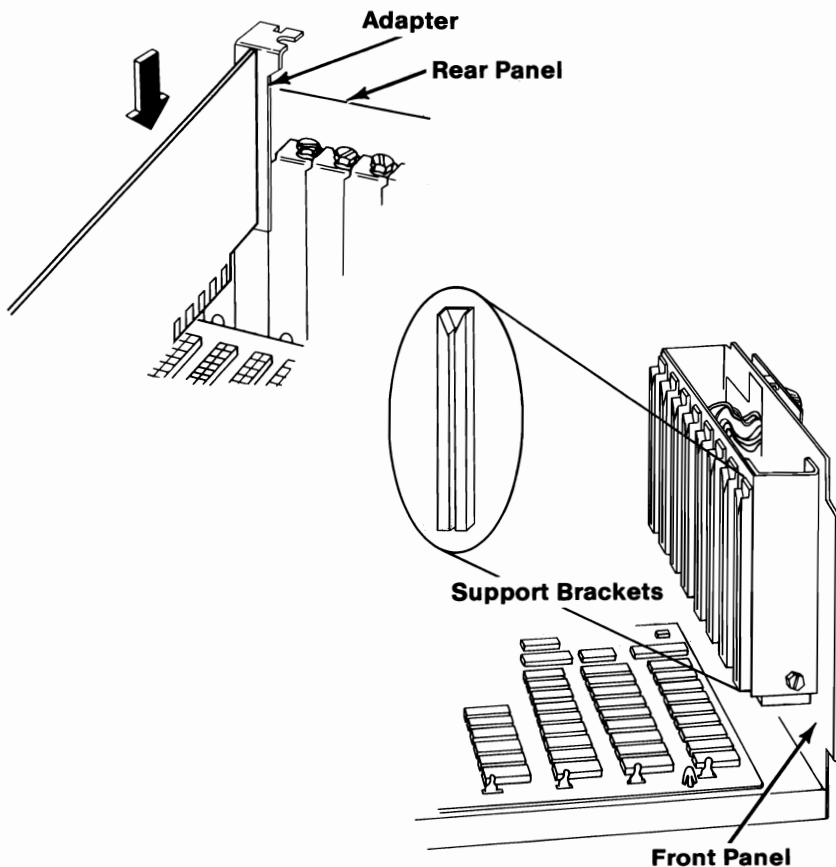
- 2** Remove the screw that holds the expansion slot's cover in place. Save the screw for the installation of the adapter.

Note: Expansion slot 1 does not come with an expansion slot cover.

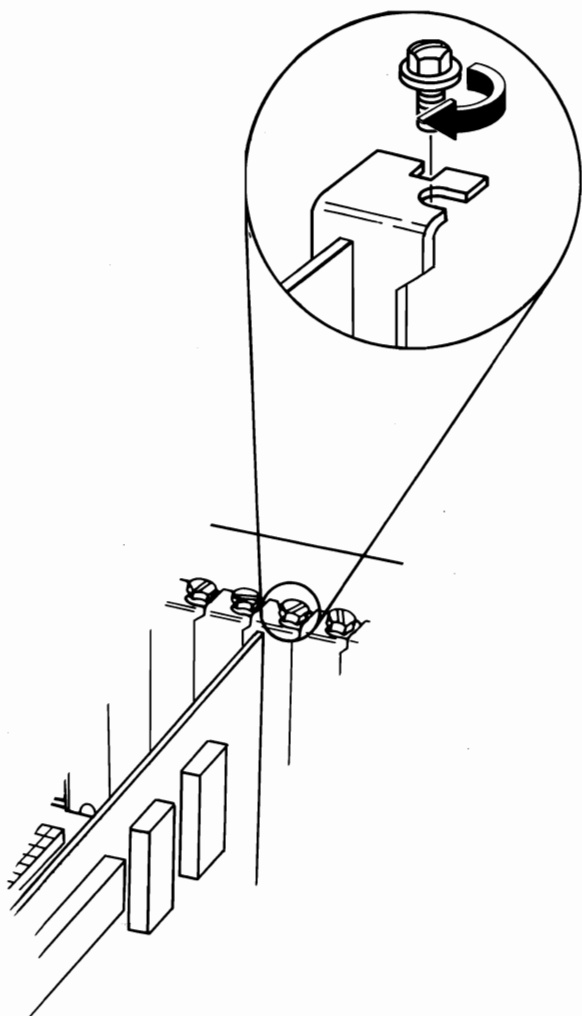


- 3** Hold the adapter by the top and firmly press it into the expansion slot making certain the adapter is in the support bracket. Look at the IBM Personal Computer AT Fixed Disk and Diskette Drive Adapter, installed in expansion slot 8 as a reference.

Note: Your IBM Personal Computer AT comes with support brackets installed for all expansion slots. The support bracket that came with your option is not needed.



- 4** Install the screw you removed in step 2.



5

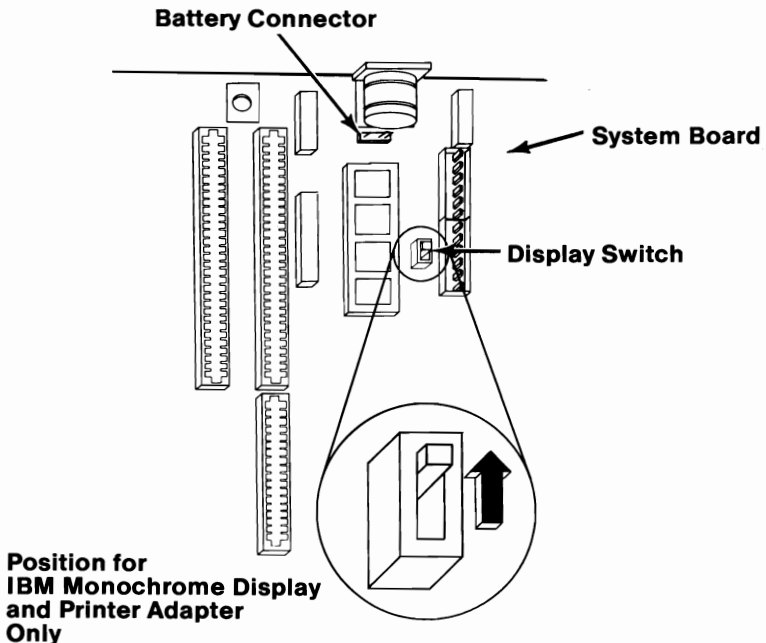
Set the display adapter switch.

Is the IBM Monochrome Display and Printer adapter your **ONLY** display adapter (no other display adapter installed in your system)?

Yes Push the switch toward the back of your system unit.

No Set the display switch for the primary display (the display that you want to come on when you turn your system unit's power on).

- For color as the primary display push the switch toward the front of your system unit
- For monochrome as the primary display push the switch toward the back of your system unit



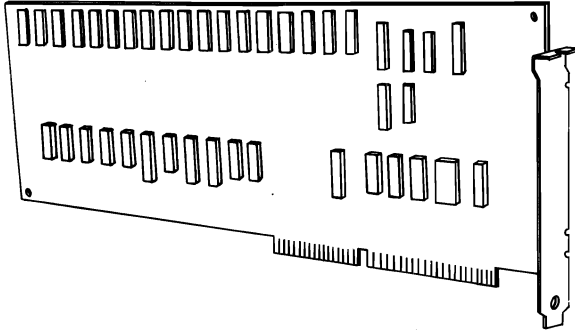
IMPORTANT: You will have to run the "Setup" program on your Diagnostics diskette after all your options are installed.

- 6** If you have any other internal options that need to be installed, install them now. If not, go to "Section 4, Cover Installation".

Notes:



IBM Personal Computer AT 128KB Memory Expansion Option

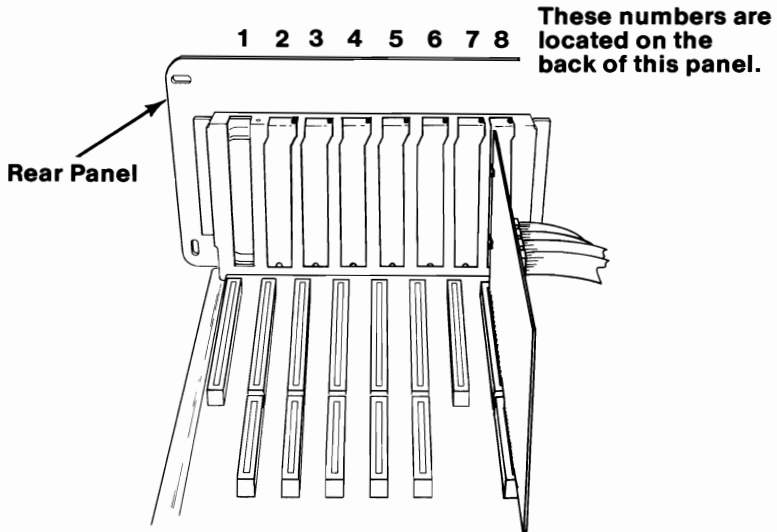


**If your system has not been installed, go to *CHART 2*,
Installing Your Internal Options before installing this
option.**

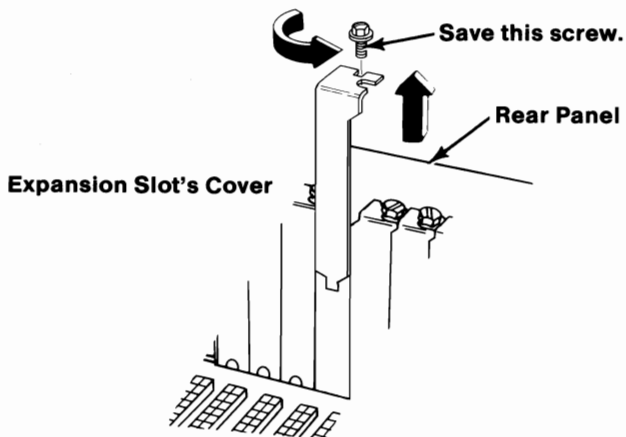
Installation Instructions

Note: Your system board must be at its maximum memory capacity of 512K bytes before you install this option. Only one IBM Personal Computer AT 128KB Memory Expansion Option can be installed in your machine.

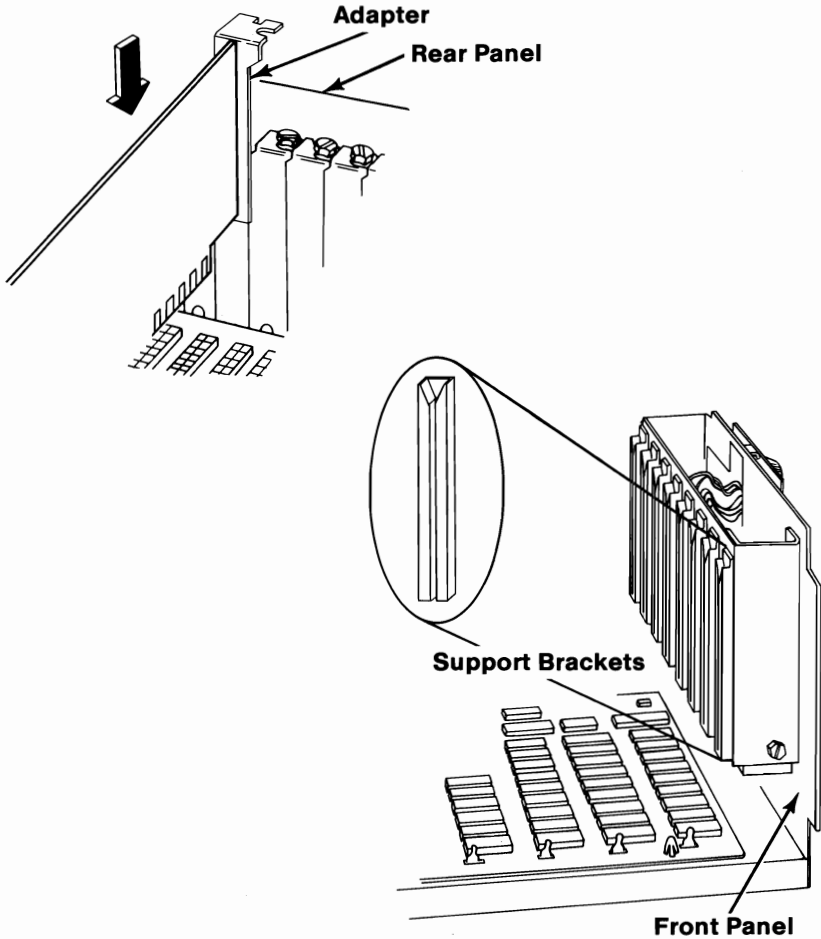
- 1 The IBM Personal Computer AT 128KB Memory Expansion Option may be installed in expansion slots 2 through 6.



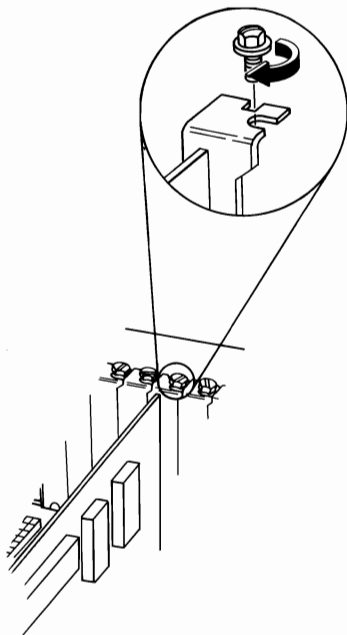
- 2** Remove the screw that holds the expansion slot's cover in place. Save the screw for the installation of the adapter.



- 3** Hold the adapter by the top and firmly press it into the expansion slot making certain the adapter is in the support bracket. Use the adapter installed in expansion slot 8 as a reference.



- 4** Install the screw you removed in step 2.



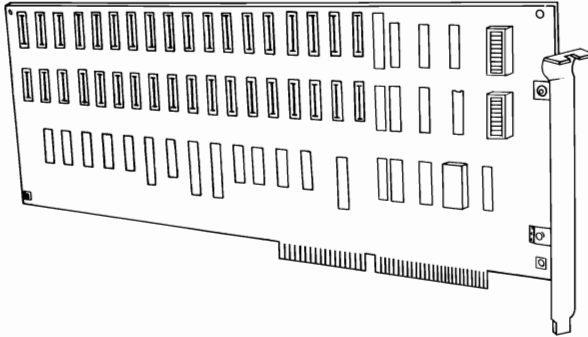
IMPORTANT: You will have to run the "Setup" program on your Diagnostics diskette after all your options are installed.

- 5** Locate the "Setup Information" fold-out at the back of this manual and circle the Base Memory size.
- With the 128KB Memory Expansion Option installed, Base Memory size = 640K bytes
- 6** If you have any other internal options that need to be installed, install them now. If not, go to "Section 4, Cover Installation".

Notes:



IBM Personal Computer AT 512KB Memory Expansion Option

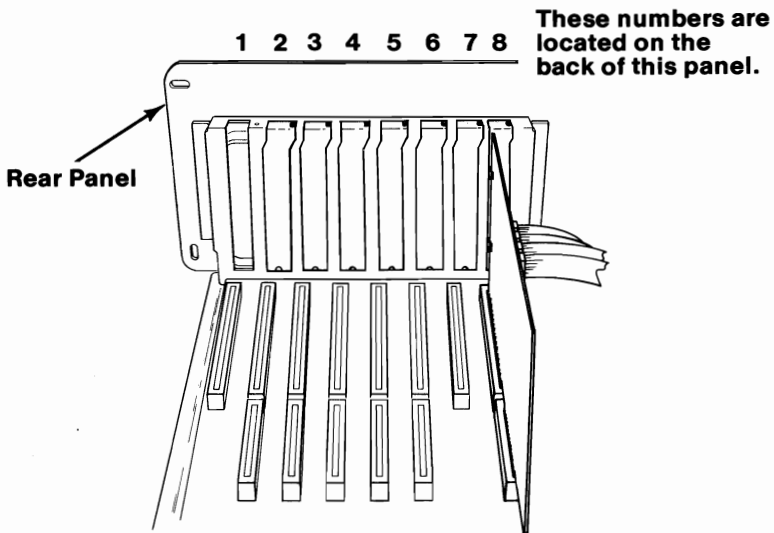


If your system has not been installed, go to *CHART 2, Installing Your Internal Options* before installing this option.

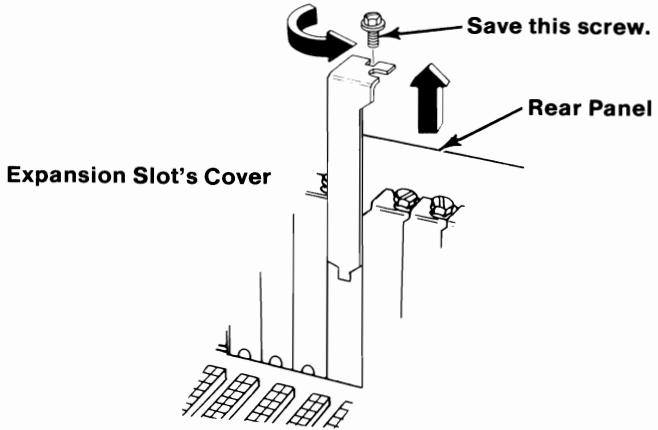
Installation Instructions

Note: Your system board must be at its maximum memory capacity of 512K bytes before you install this option.

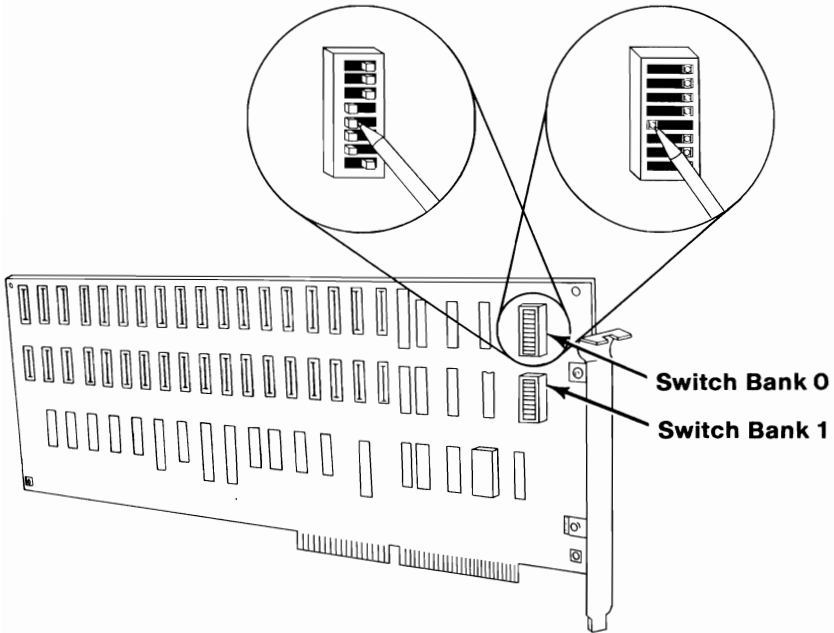
- 1** The IBM Personal Computer AT 512KB Memory Expansion Option may be installed in expansion slots 2 through 6.



- 2** Remove the screw that holds the expansion slot's cover in place. Save the screw for the installation of the adapter.

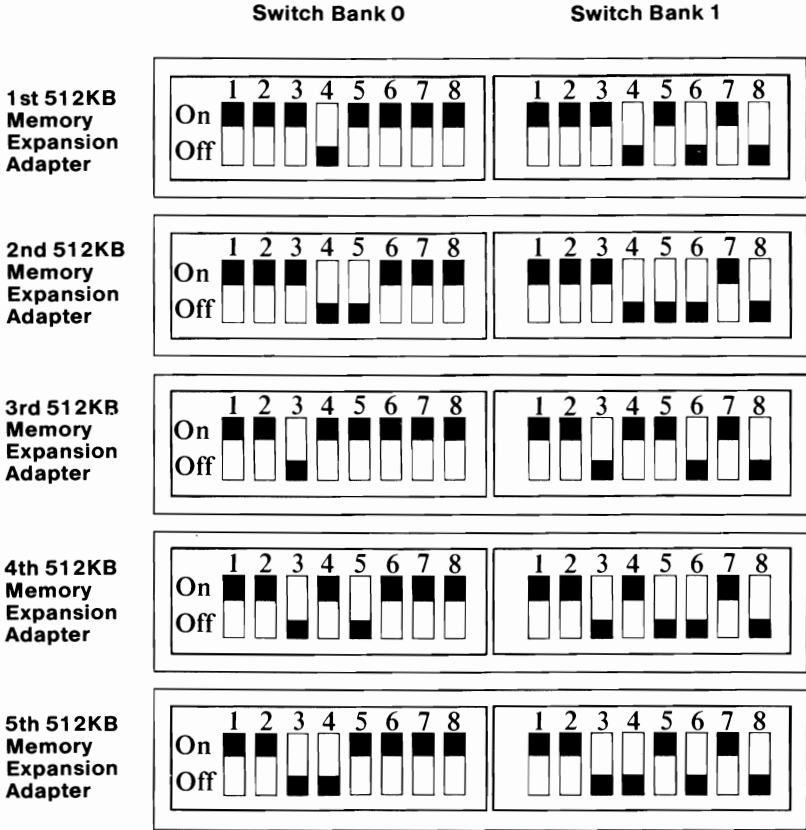


- 3** Use a ball point pen to set the memory switches. The chart on the next page shows you how to set the memory switches.



4

The memory switches are set to reflect the number of 512KB Memory Expansion adapters installed. Use the information on this chart and set the memory switches on your adapters.

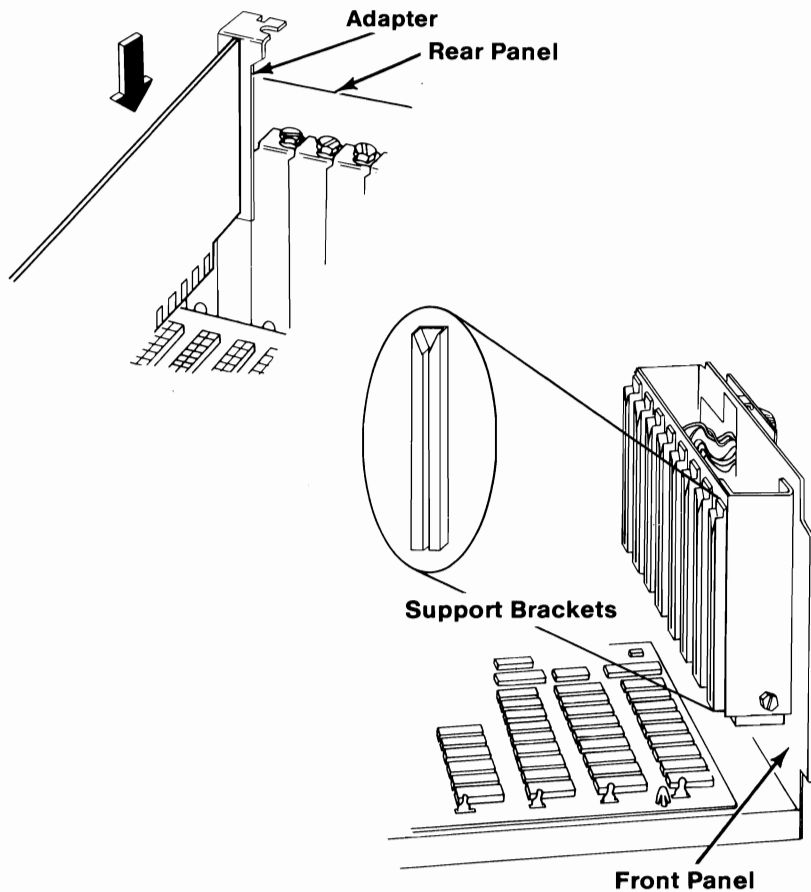


IMPORTANT: You will have to run the "Setup" program on your Diagnostics diskette after all your options are installed.

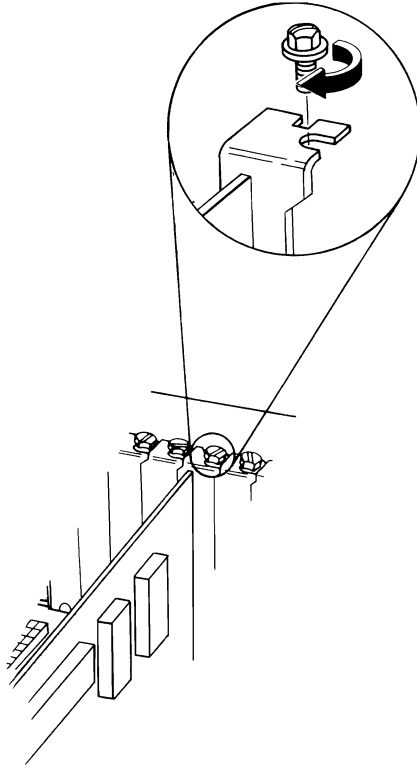
5 Locate the "Setup Information" fold-out at the back of this manual and circle the Total Expansion Memory size.

- One 512KB Memory Expansion option installed = 512K bytes
- Two 512KB Memory Expansion options installed = 1024K bytes
- Three 512KB Memory Expansion options installed = 1536K bytes
- Four 512KB Memory Expansion options installed = 2048K bytes
- Five 512KB Memory Expansion options installed = 2560K bytes

- 6** Hold the adapter by the top and firmly press it into the expansion slot making certain the adapter is in the support bracket. Use the adapter installed in expansion slot 8 as a reference.



- 7** Install the screw you removed in step 2.

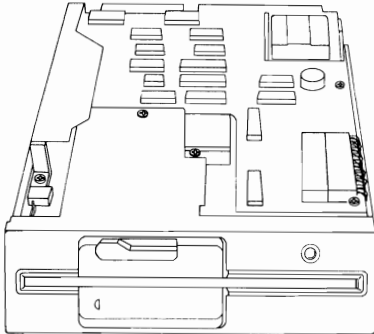


- 8** If you have any other internal options that need to be installed, install them now. If not, go to "Section 4, Cover Installation".

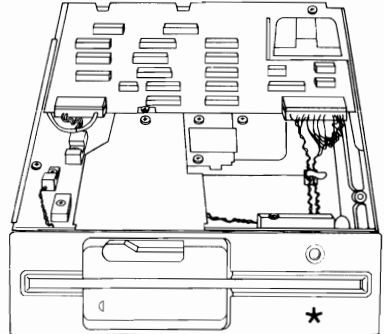
Diskette Drives

Use these instructions to install either the:

- IBM Personal Computer AT High Capacity Diskette Drive
- IBM Personal Computer AT Double Sided Diskette Drive



High Capacity Diskette Drive

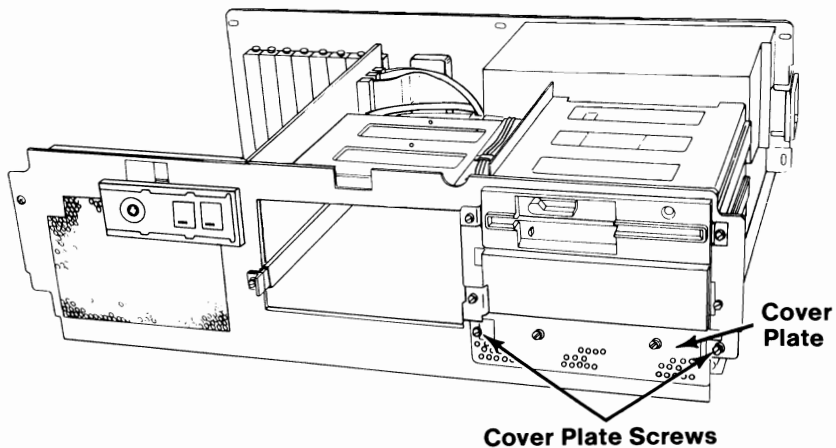


Double Sided Diskette Drive

If your system has not been installed, go to *CHART 2, Installing Your Internal Options* before installing this option.

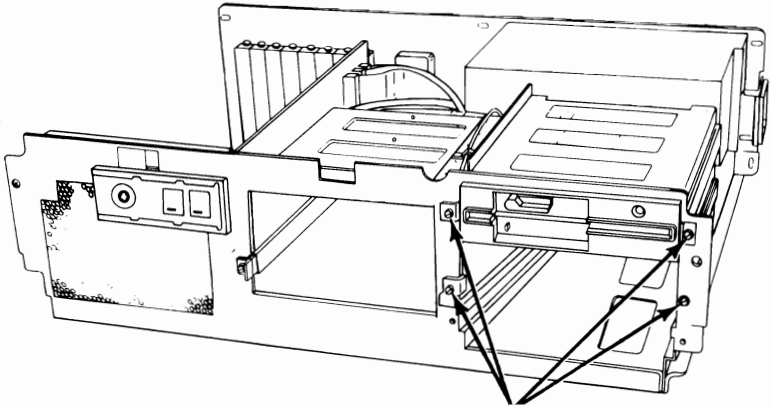
Installation Instructions

- 1 Remove the two screws holding the cover plate and remove the cover plate.



Front View

- 2** Remove the four mounting screws and three mounting clips.

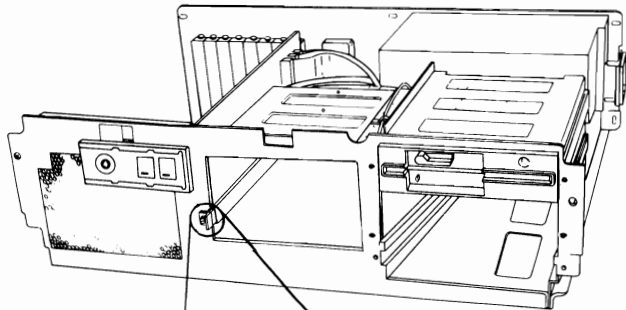


Front View

**4 Mounting Screws
and 3 Clips**

- 3** Remove the mounting screw and two mounting clips from the position shown below. Replace one of the clips and the mounting screw.

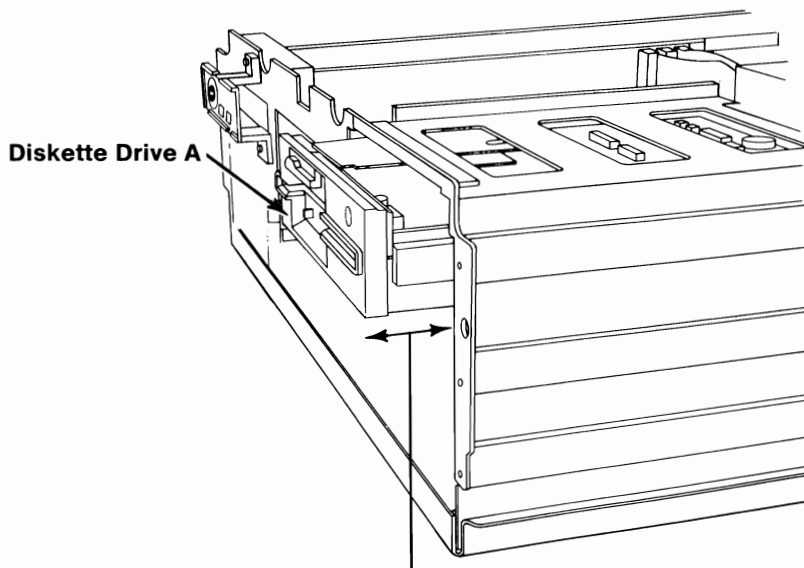
Note: The remaining clip will be used later to install drive B.



Front View

Two Mounting Clips

- 4** Slide diskette drive A out approximately 50-75 mm (2-3 in.), but do not disconnect the cables.

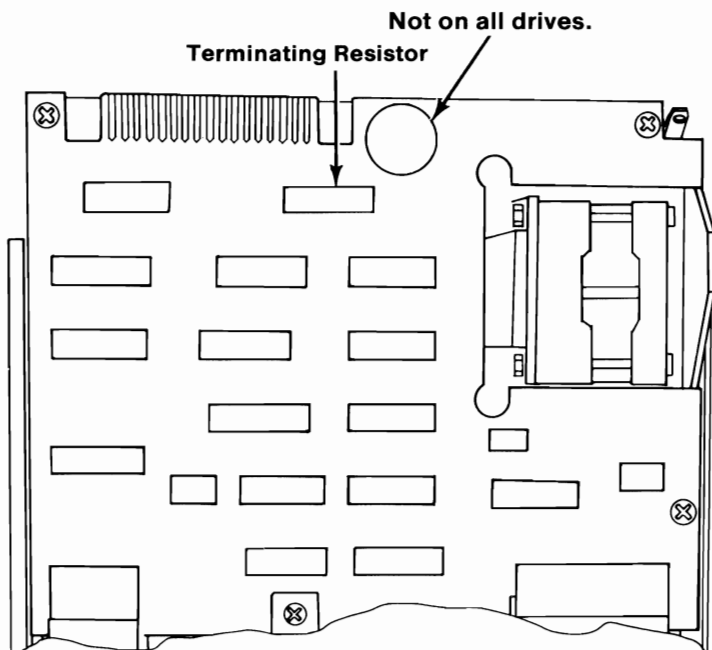


50-75 mm (2-3 in.)

Side View

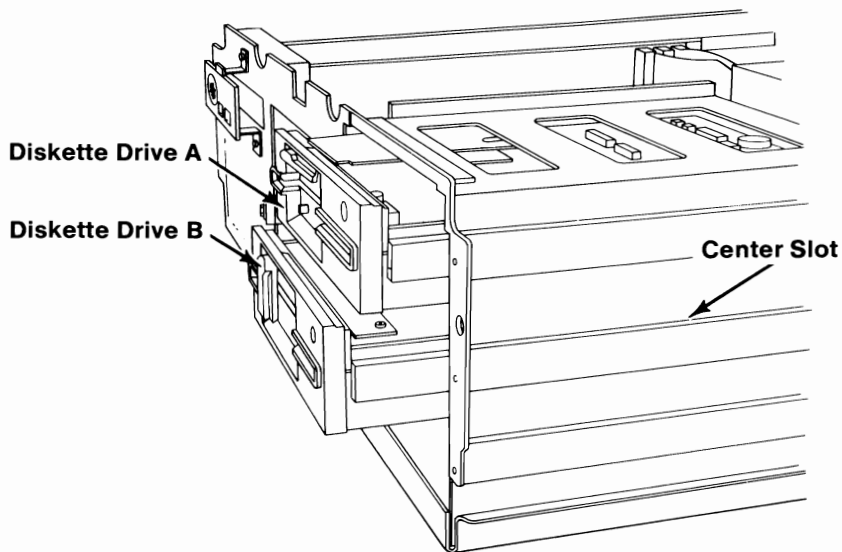
- 5** Locate and remove the terminating resistor from the drive you are installing. It is no longer needed.

Note: To remove the terminating resistor, insert a small flat-blade screwdriver under the resistor and lift up.



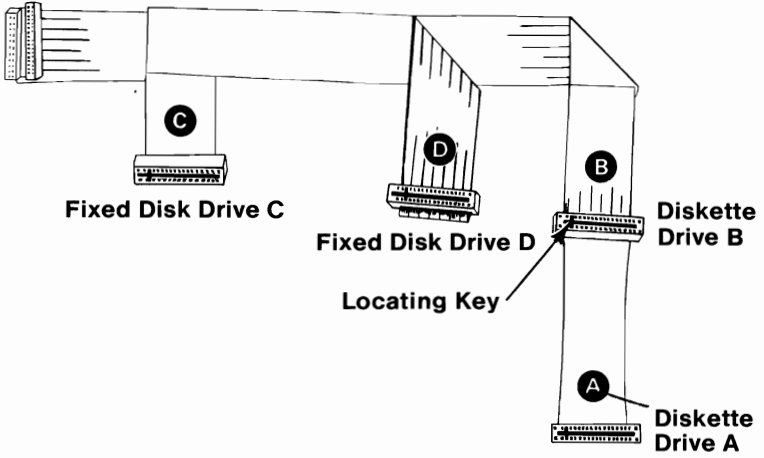
Top View of Diskette Drive B

- 6** Slide drive B into the center slot of your system unit until it is even with drive A.



Side View

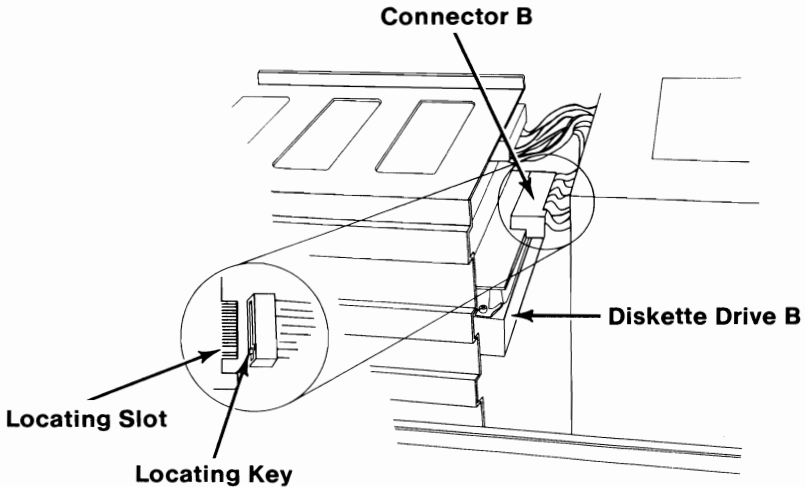
- 7 Find the connector labeled B, located behind the diskette drives.



8

Align the locating key on connector B with the locating slot on diskette drive B, and press the connector firmly into place. Look at the connector on drive A for reference.

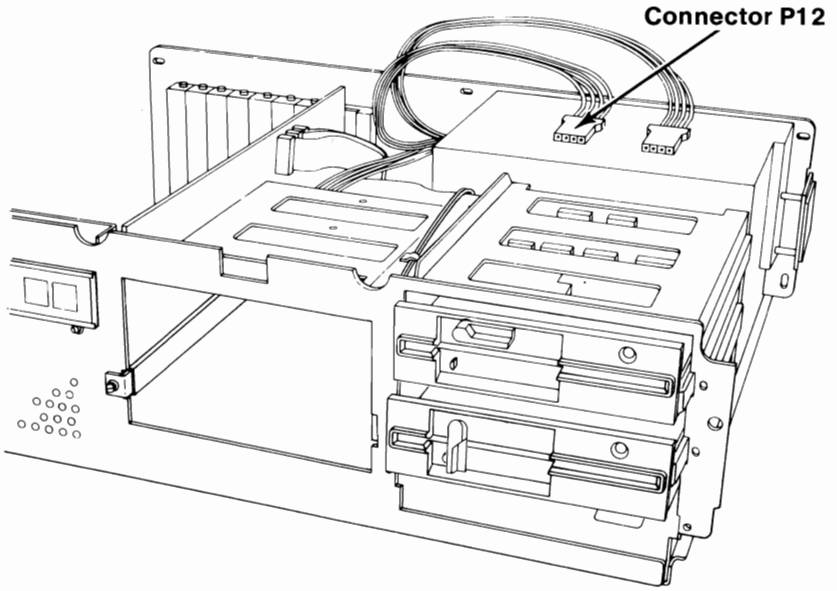
Note: Depending on the number of drives you have installed in your system, you may have extra cable connectors.



Side View

9

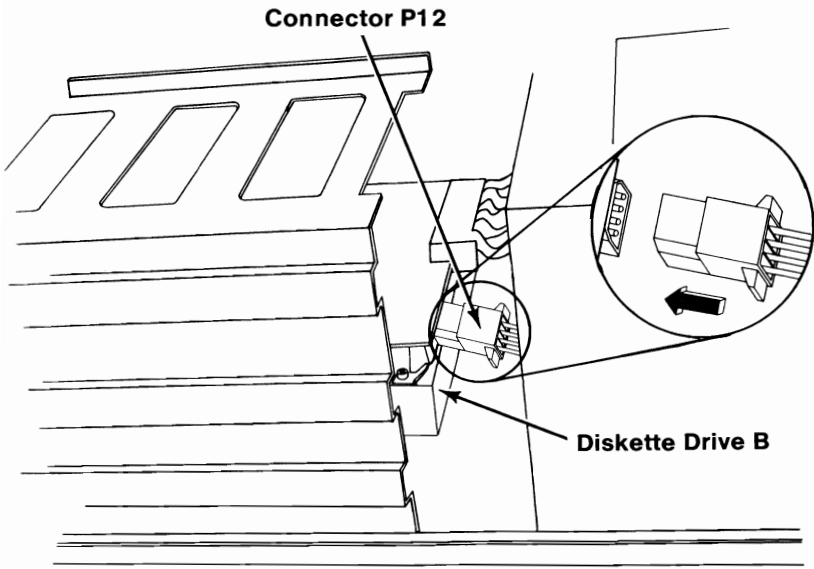
Find the connector labeled P12.



DISKETTE DRIVE

Front View

- 10** Connect the P12 connector to diskette drive B.
Look at the connectors on drive A for reference.

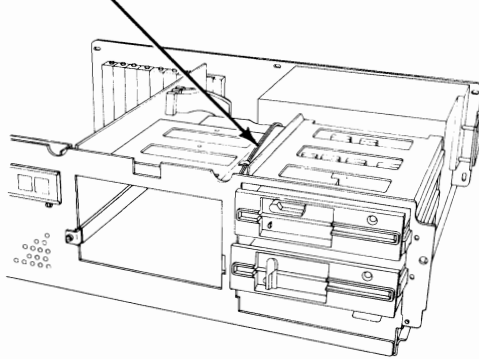


Side View

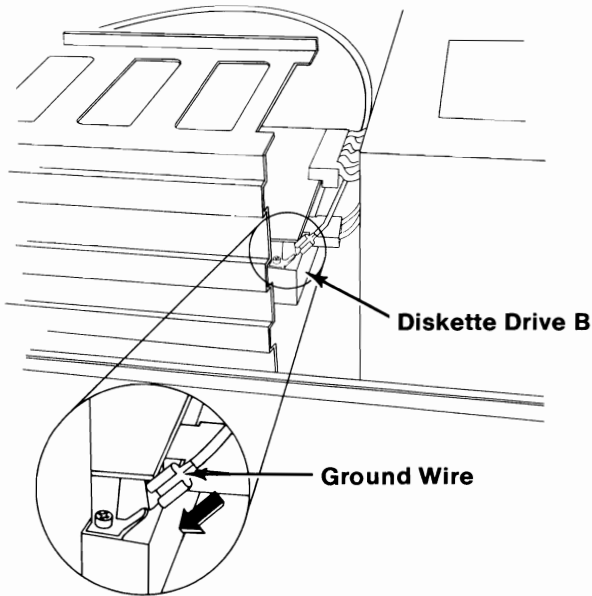
- 11** Connect a ground wire to diskette drive B. Look at the ground wire on drive A for reference.

Note: You may have only one free ground wire.

Ground wire located here.

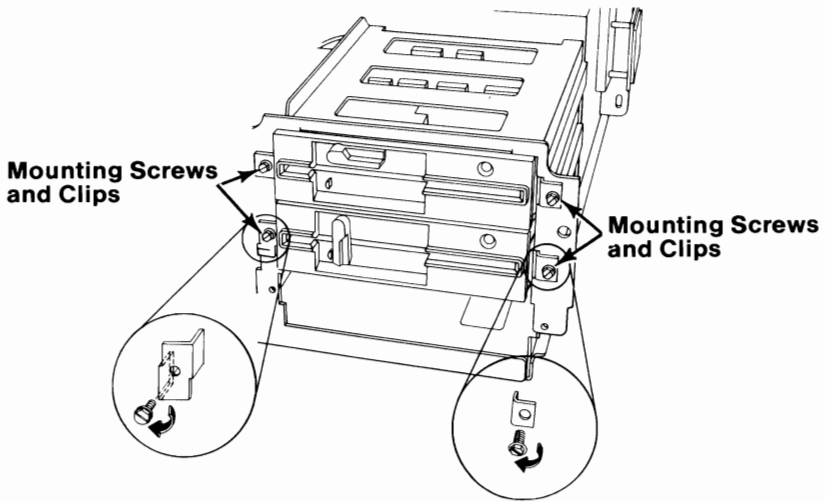


Front View



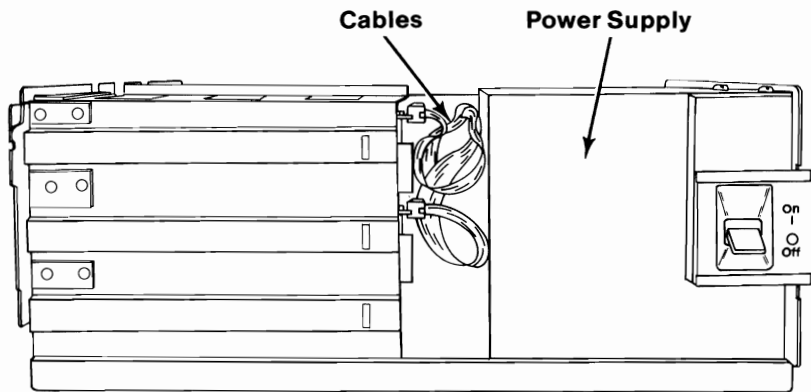
Side View

- 12** Slide diskette drives A and B into your system unit, and install the four clips and mounting screws.



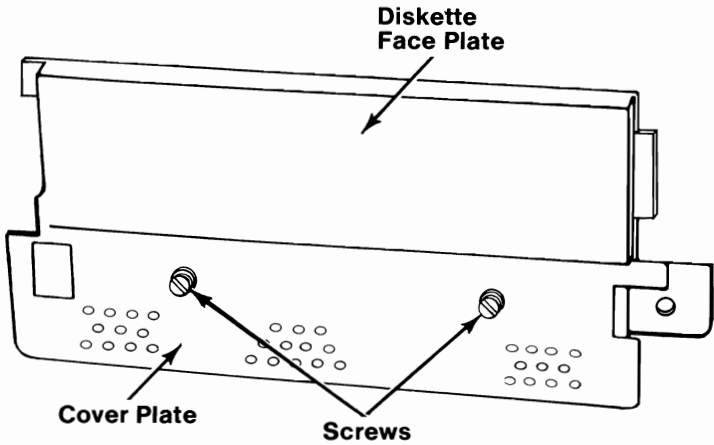
Front View

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

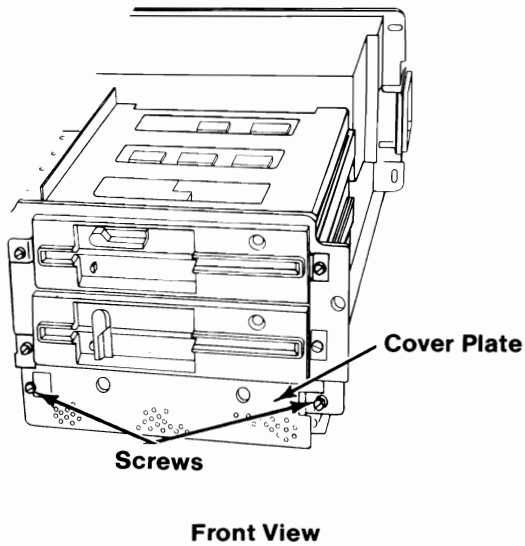


Side View

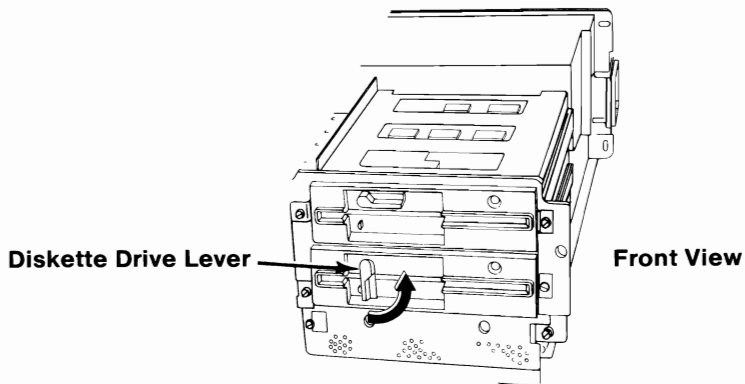
- 14** Locate the cover plate that was removed in Step 1. Remove the two screws and faceplate. They are no longer needed.



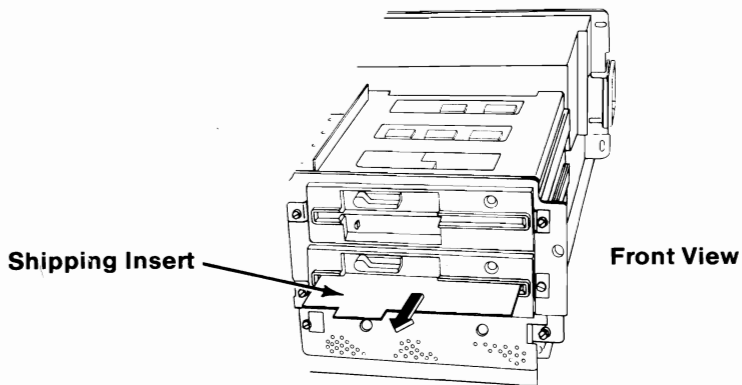
- 15** Install the cover plate and two screws.



- 16** Rotate the diskette drive lever open (counterclockwise).



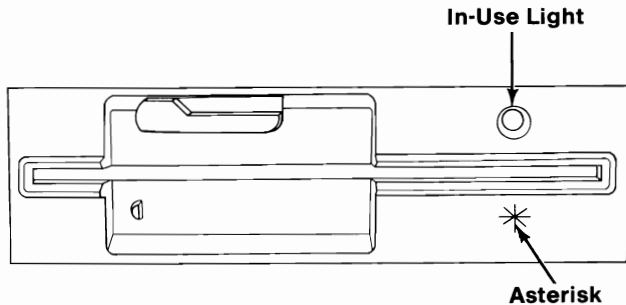
- 17** Remove the shipping insert.



IMPORTANT: You will have to run the "Setup" program on your Diagnostics diskette after all your options are installed.

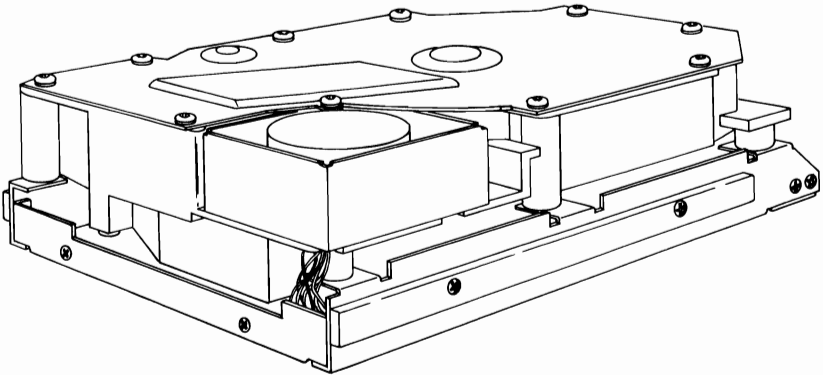
18 Locate the "Setup Information" fold-out at the back of this manual and circle the drive type for diskette drive B.

- The High Capacity Diskette drive has no special markings.
- The Double Sided Diskette drive is identified by a large asterisk below the in-use light.



19 If you have any other internal options that need to be installed, install them now. If not, go to "Section 4, Cover Installation".

IBM Personal Computer AT Fixed Disk Drive



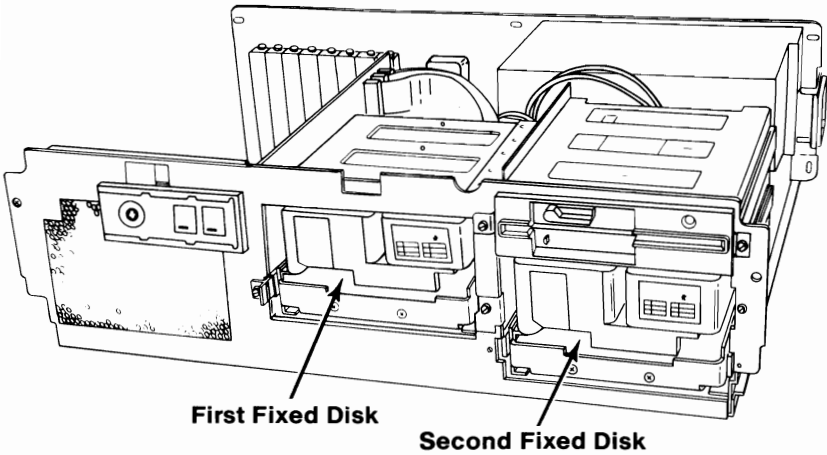
If your system has not been installed, go to *CHART 2, Installing Your Internal Options* before installing this option.

Installation Instructions

Warning: Handle the fixed disk drive carefully. Dropping, shaking, or rough handling could damage the fixed disk drive, and void the warranty.

These instructions are used to install either your first or second fixed disk drive.

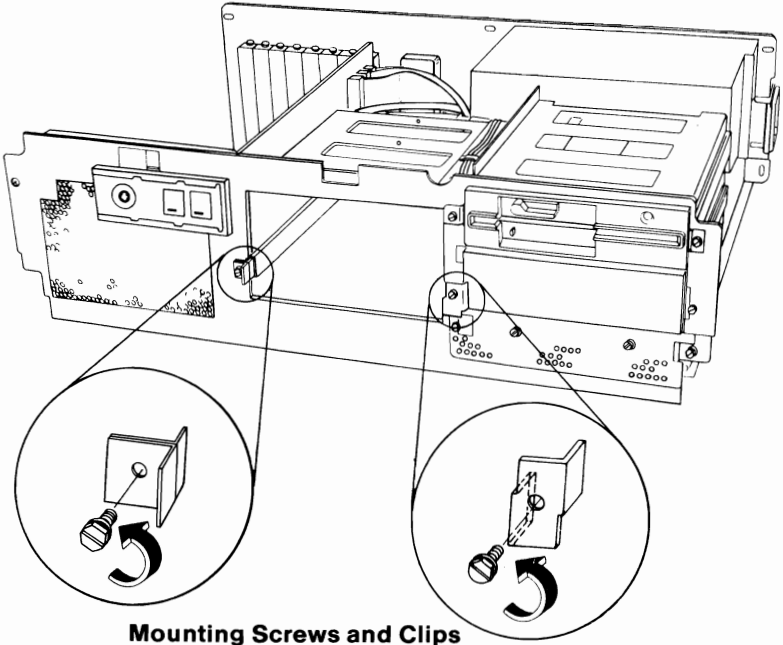
- If this is your first fixed disk drive, go to the next page to begin.
- If this is your second fixed disk drive, go to "Installing a Second Fixed Disk Drive" later in this option.



Front View

Installing the First Fixed Disk Drive

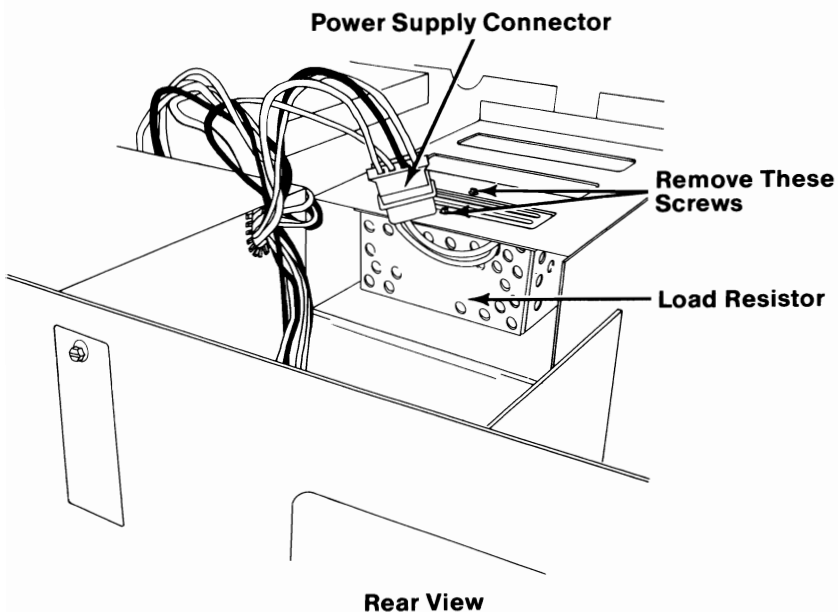
- 1 Remove the two screws and clips.



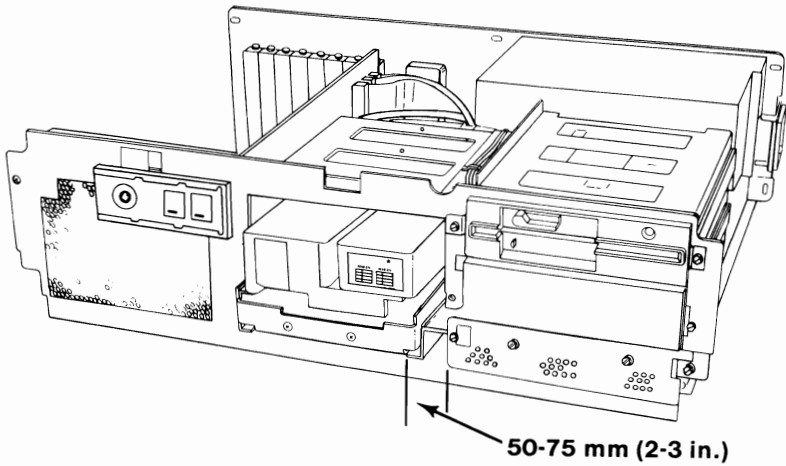
Mounting Screws and Clips

Front View

- 2** Disconnect the power-supply connector from the load resistor. Remove the two screws and load resistor. They are no longer needed.



- 3** Slide the fixed disk drive into the slot until its front panel is approximately 50-75 mm (2-3 in.) from your system unit's frame.

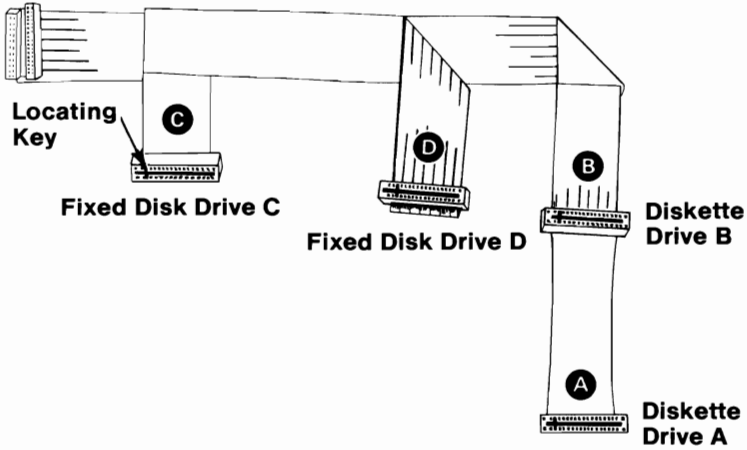


Front View

FIXED DISK DRIVE

- 4** Examine the connectors on the fixed disk drive signal cable. They connect to the fixed disk drive's printed circuit board in only one way.

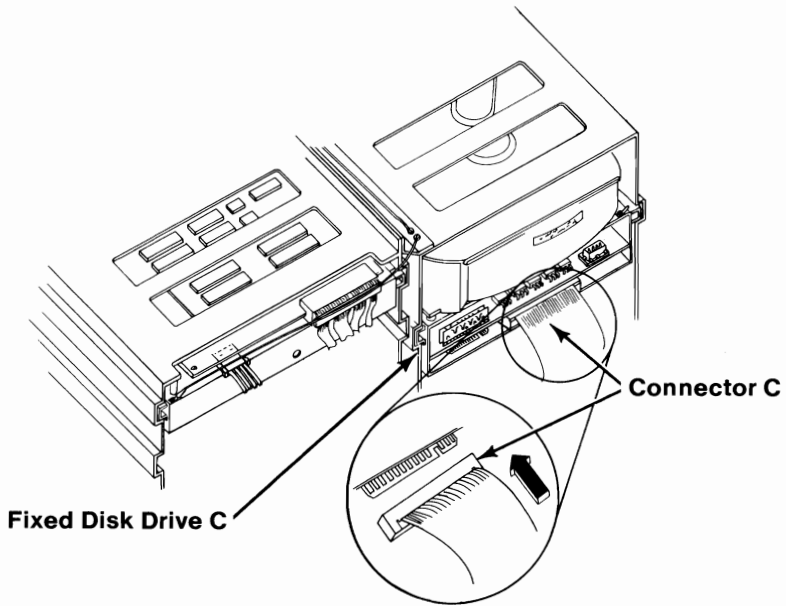
The signal cable comes installed in your system unit.



5

Align the locating key on connector C with the locating slot on fixed disk drive C, and press the connector firmly into place.

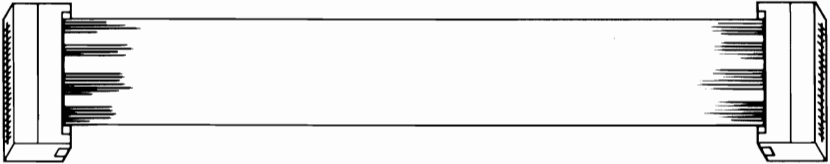
Note: Depending on the number of drives you have installed in your system, you may have extra cable connectors.



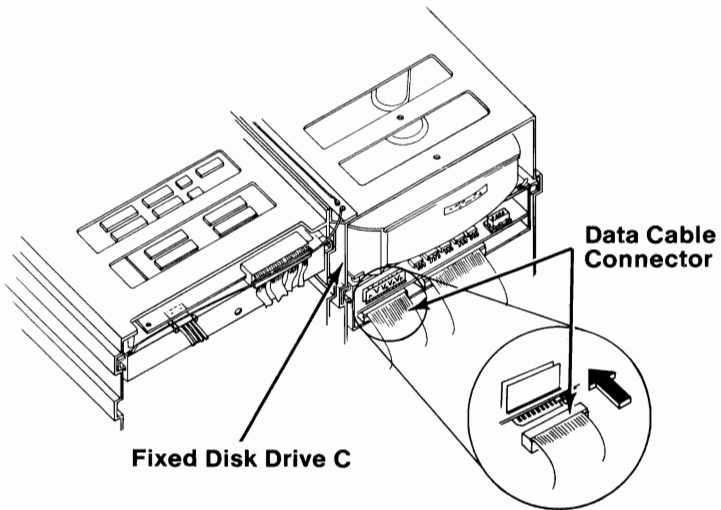
Back View

- 6** Examine the connectors on the fixed disk drive data cable. It connects to the fixed disk drive's printed circuit board in only one way.

The data cable comes in the carton with your fixed disk drive.



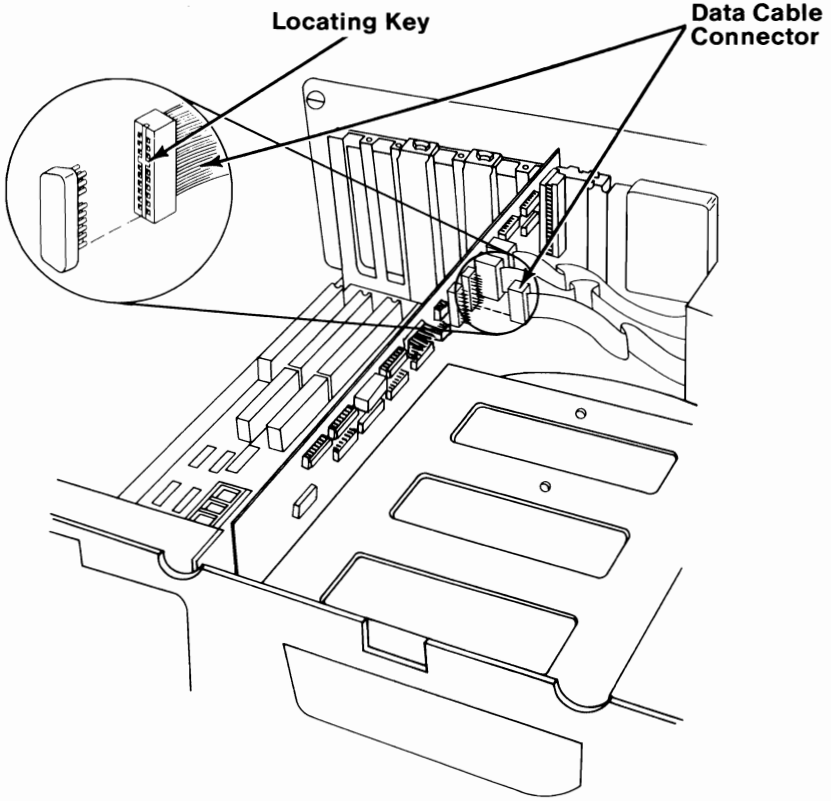
- 7** Connect the data cable to the fixed disk drive.



Back View

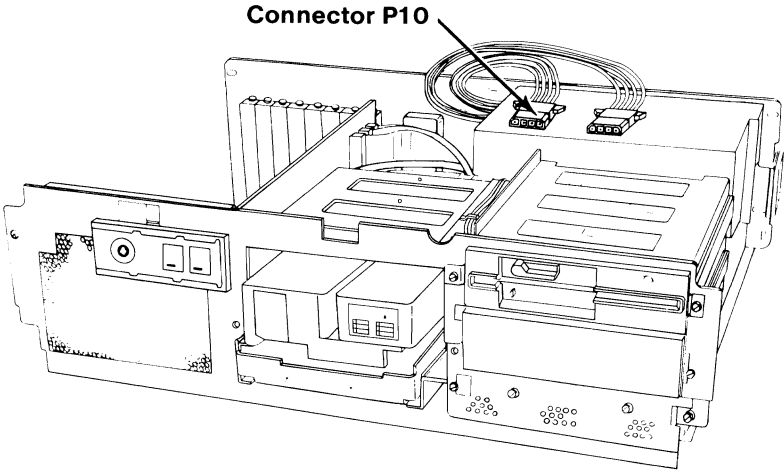
8

Connect the data cable to the Fixed Disk and Diskette drive adapter as shown. Notice that pin #4 is blank and aligns with the plugged hole #4 in the data cable connector.



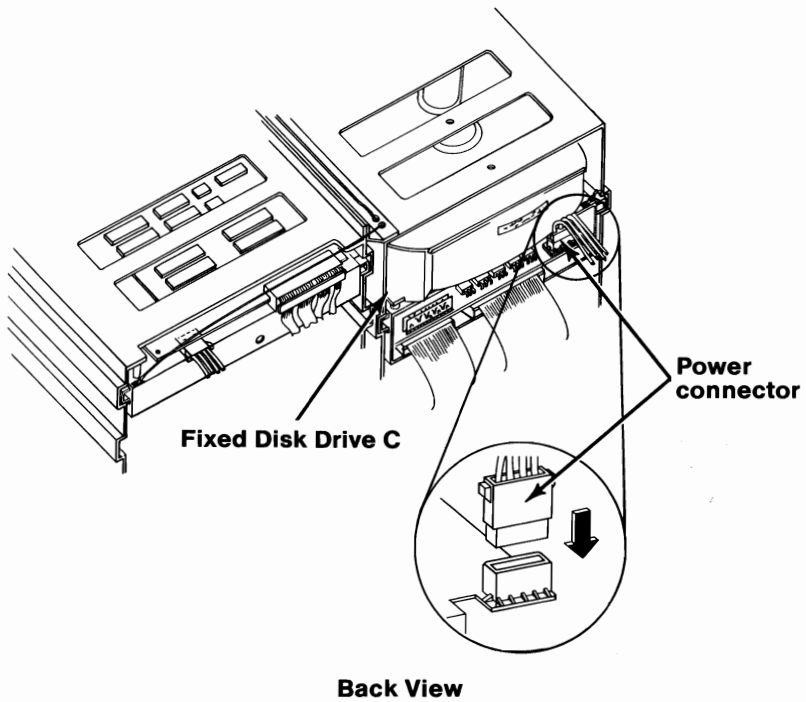
FIXED DISK DRIVE

9 Find the connector labeled P10.



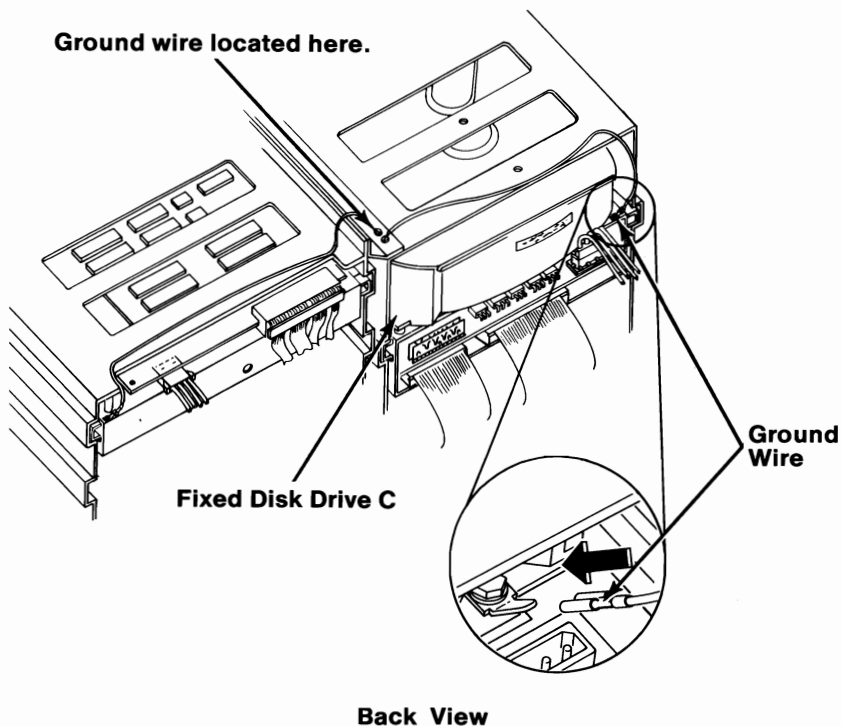
Front View

- 10** Slide the fixed disk drive into your system unit.
Connect the P10 connector to the fixed disk drive.

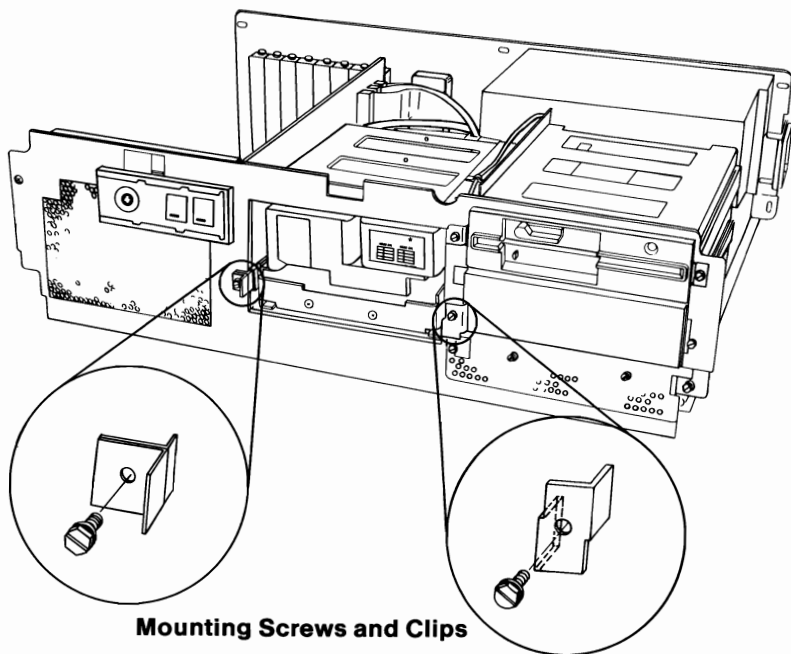


11 Connect the ground wire to the fixed disk drive.

Note: You may have only one free ground wire.



12 Install the mounting clips and screws.



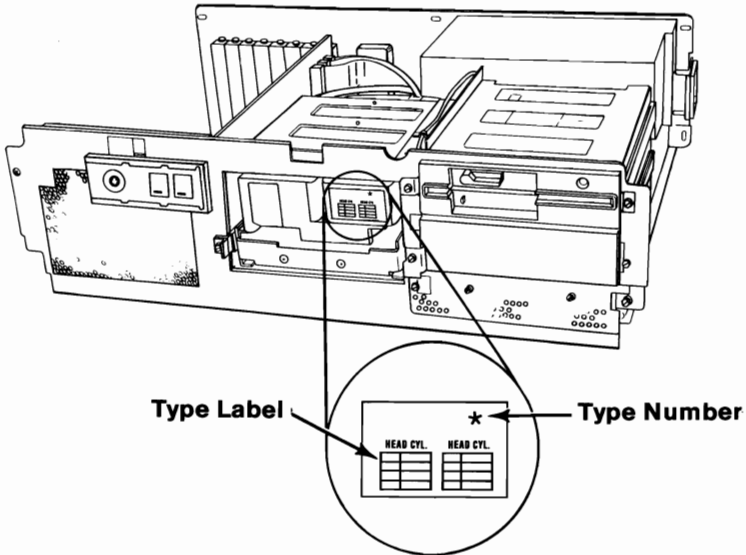
Mounting Screws and Clips

Back View

FIXED DISK DRIVE

IMPORTANT: You will have to run the "Setup" program on your Diagnostics diskette after all your options are installed.

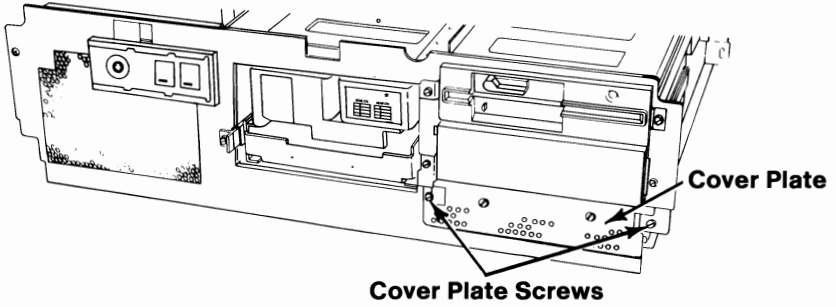
- 13** Locate the "Setup Information" fold-out at the back of this manual and record the fixed disk drive type number by using the following example.



- 14** If you have any other internal options that need to be installed, install them now. If not, go to "Section 4, Cover Installation".

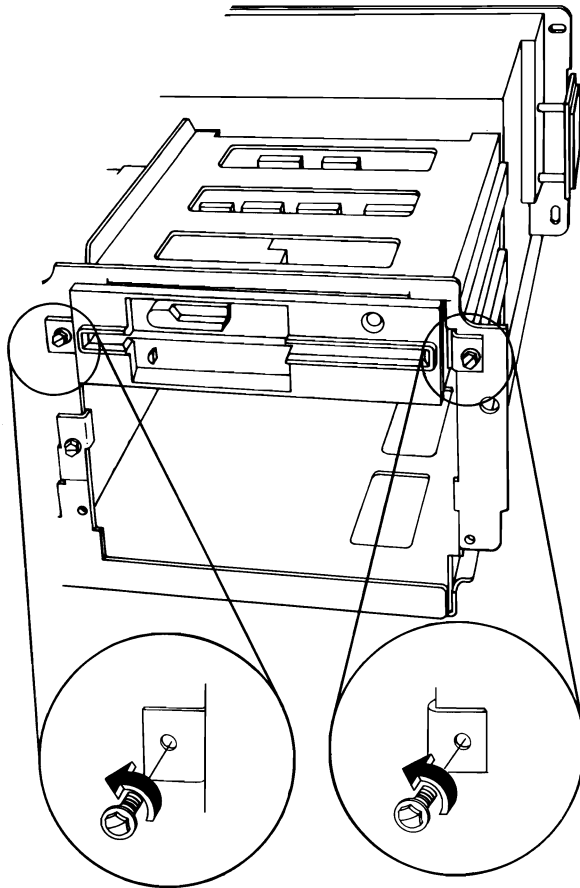
Installing a Second Fixed Disk Drive

- 1** Remove the two screws holding the cover plate, and remove the cover plate.



Front View

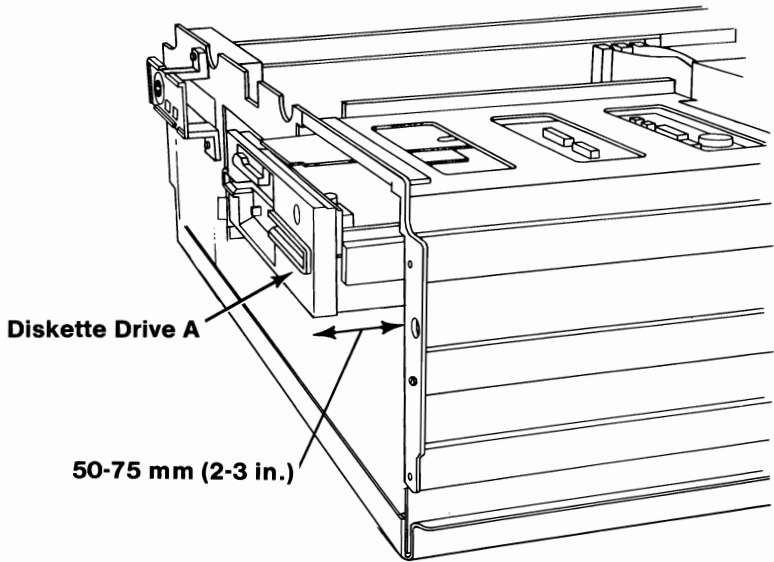
- 2** Remove the two mounting screws and clips from diskette drive A.



Mounting Screws and Clips

Front View

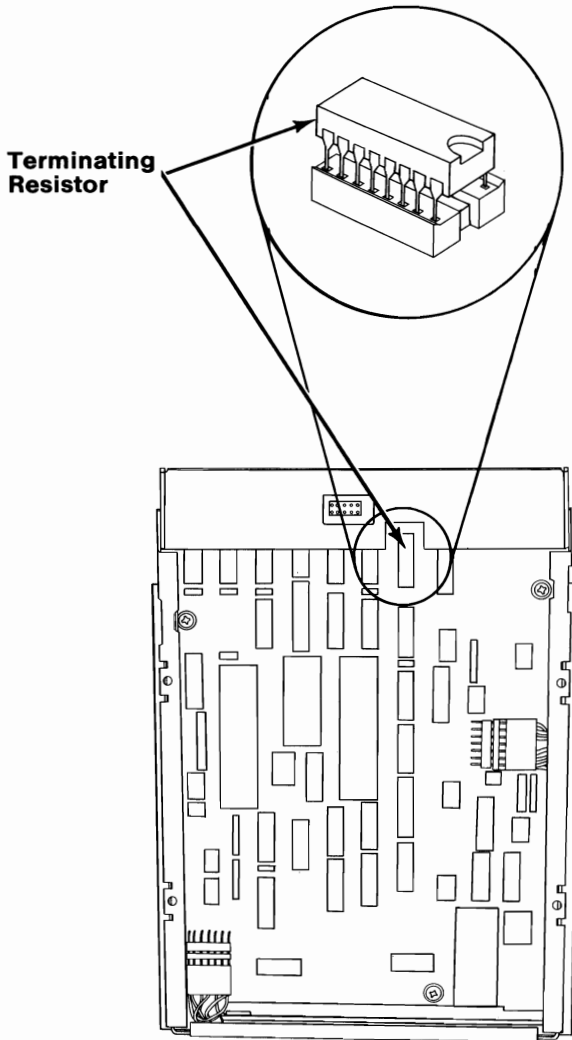
- 3** Slide diskette drive A out approximately 50-75 mm (2-3 in.), but do not disconnect the cables.



Side View

- 4** Turn the fixed disk drive upside down. Remove the terminating resistor from the fixed disk drive. It is no longer needed.

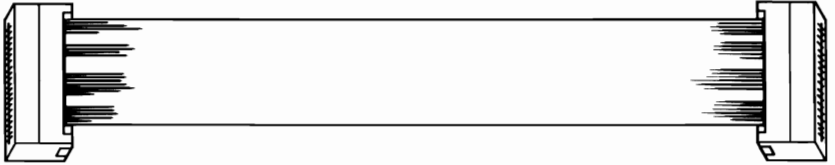
Note: To remove the terminating resistor, insert a small flat-blade screwdriver under the resistor and lift up.



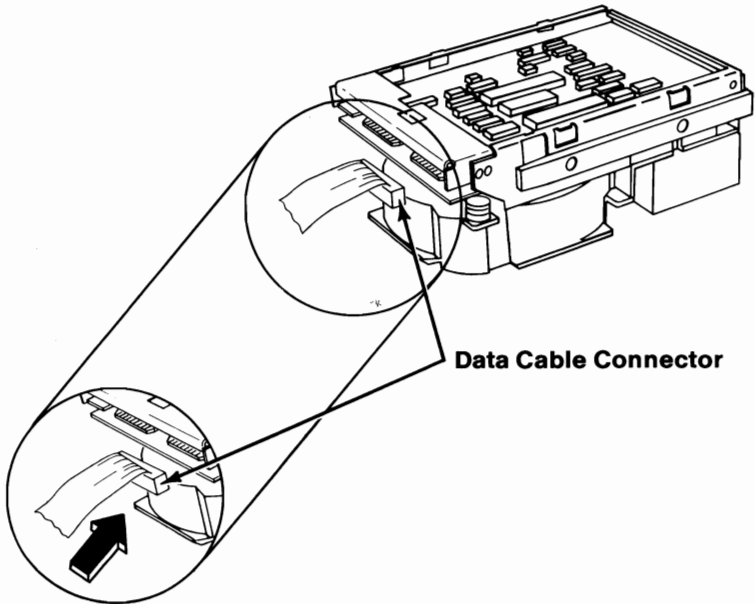
Front of Fixed Disk Drive

- 5** Examine the connectors on the fixed disk drive data cable. It connects to the fixed disk drive's printed circuit board in only one way.

The data cable comes in the carton with your fixed disk drive.



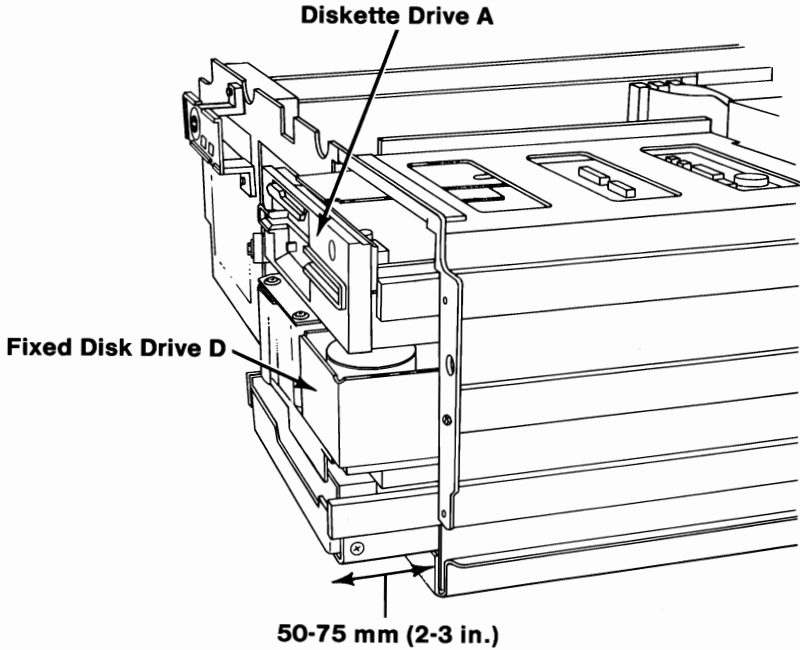
- 6** Connect the data cable to the fixed disk drive.



FIXED DISK DRIVE

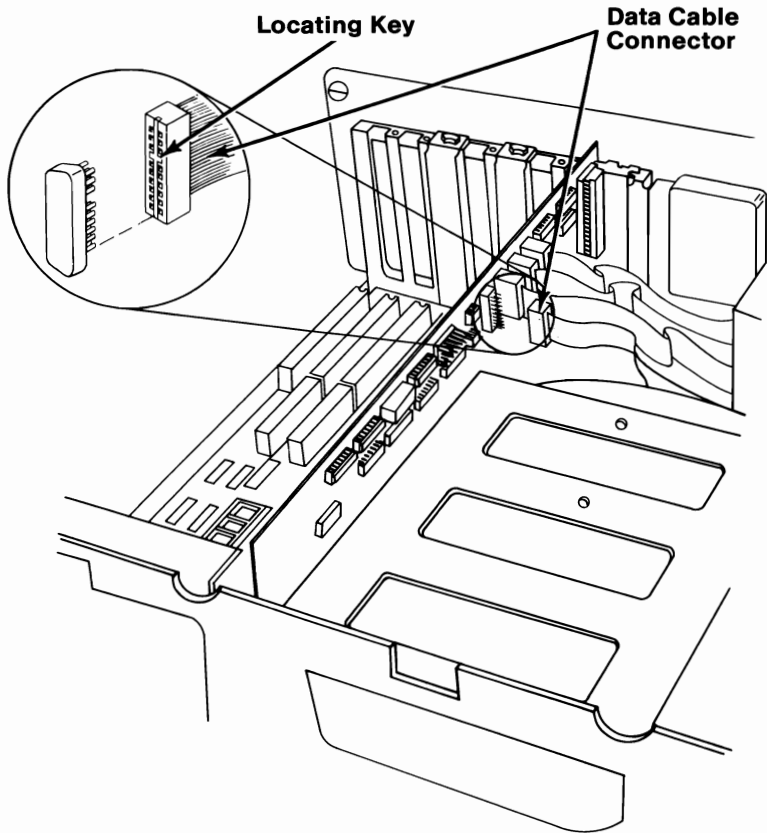
7

Set the fixed disk drive upright. Guide the data cable as you slide the drive into the bottom slot of your system unit until its front panel is even with drive A.



Side View

- 8** Connect the data cable to the Fixed Disk and Diskette Drive adapter as shown. Notice that pin #4 is blank and aligns with the plugged hole #4 in the data cable connector.



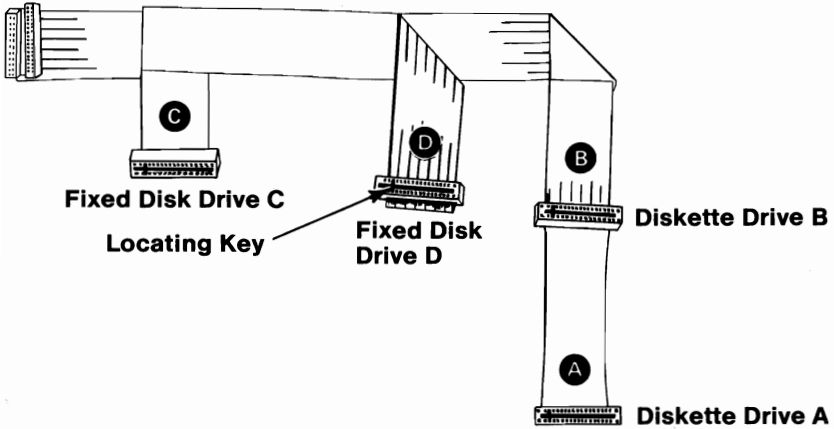
Front View

FIXED DISK DRIVE

9

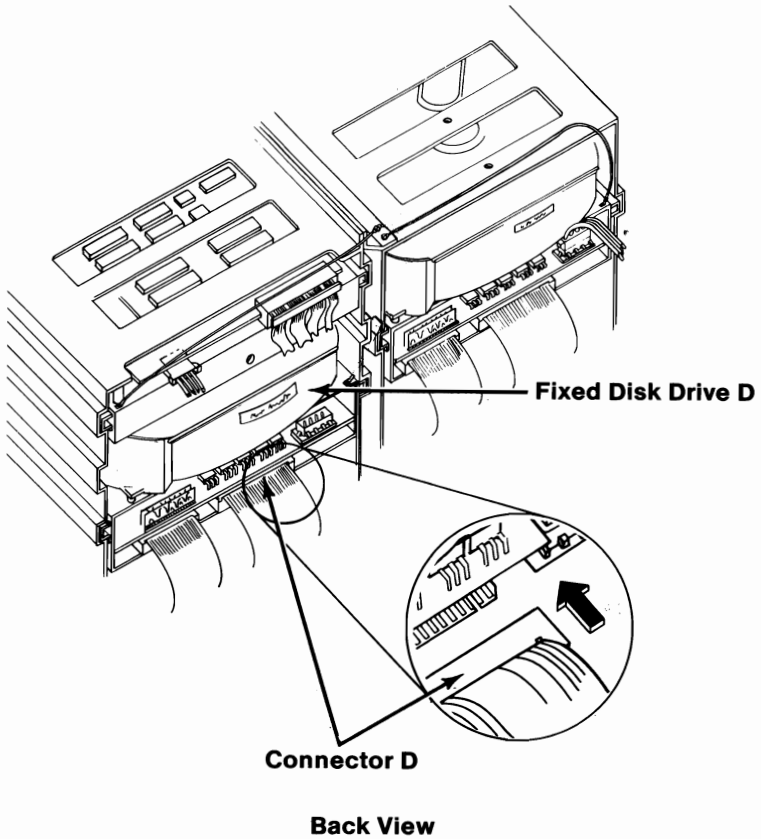
Examine the connectors on the fixed disk drive signal cable. They connect to the fixed disk drive's printed circuit board in only one way.

The signal cable comes installed in your system unit.

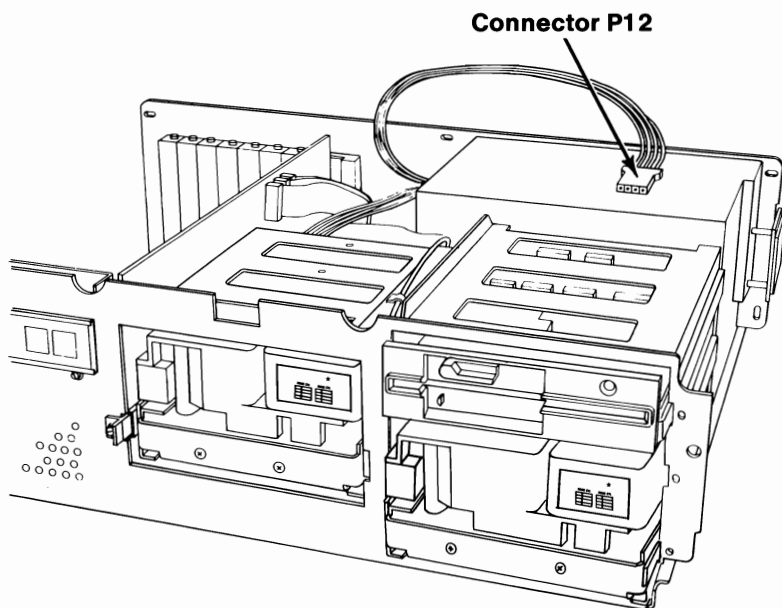


- 10** Align the locating key on connector D with the locating slot on fixed disk drive D, and press the connector firmly into place.

Note: Depending on the number of drives you have installed in your system, you may have extra cable connectors.

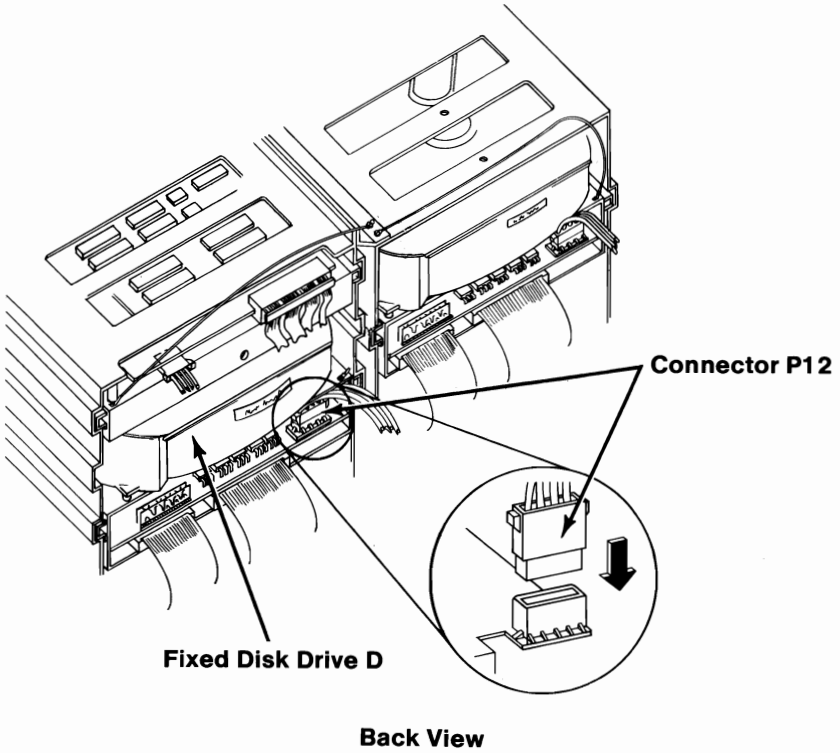


11 Find the connector labeled P12.

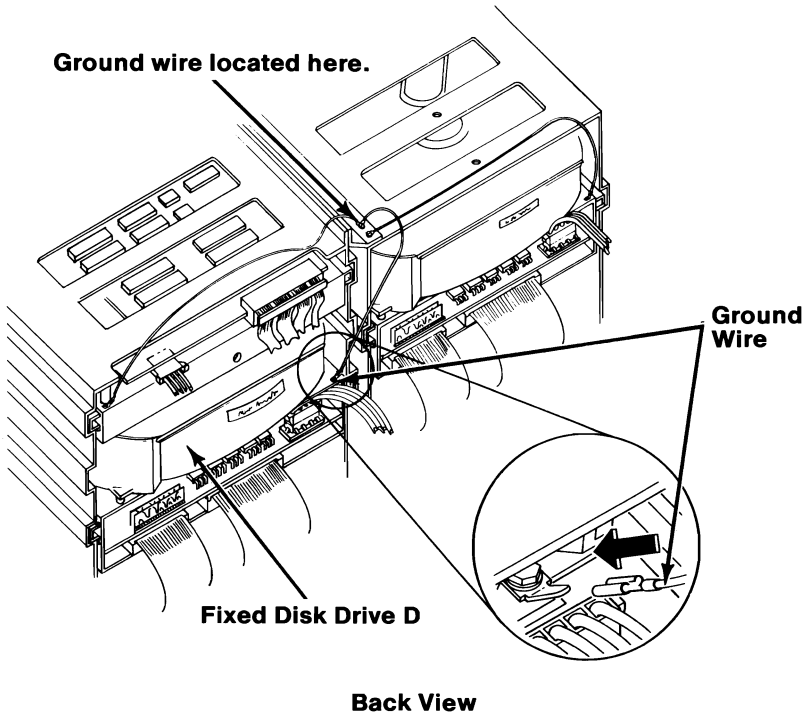


Front View

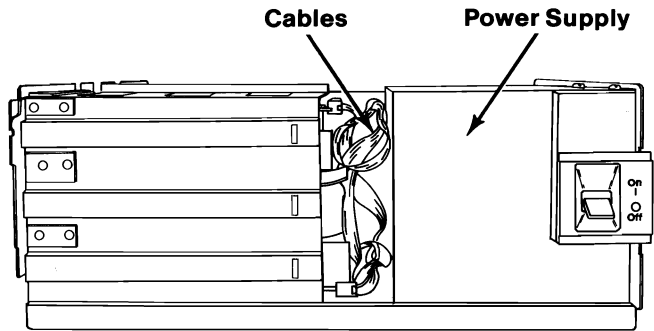
- 12** Slide the fixed disk drive into your system. Connect the P12 connector to the fixed disk drive. Look at the connectors on fixed disk drive C for reference.



- 13** Connect the ground wire to the fixed disk drive D. Look at the ground wire on fixed disk drive C for reference.



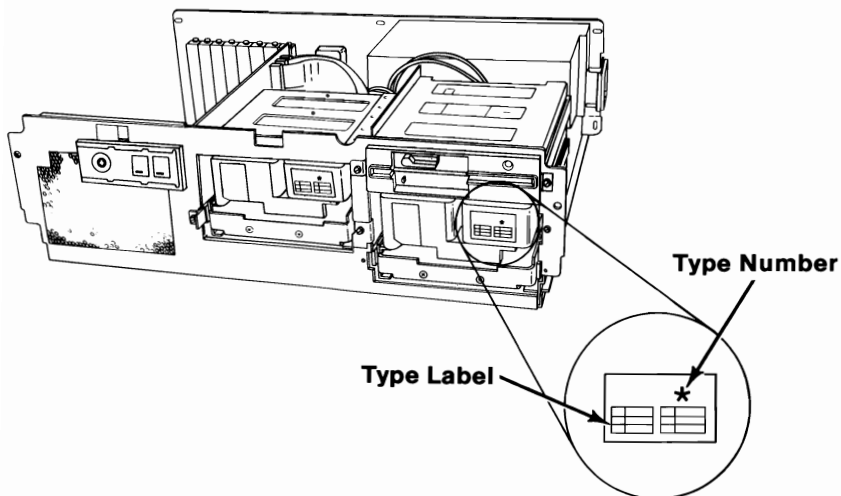
- 14** Push the cables down and out of the way. They should be no higher than the power supply.



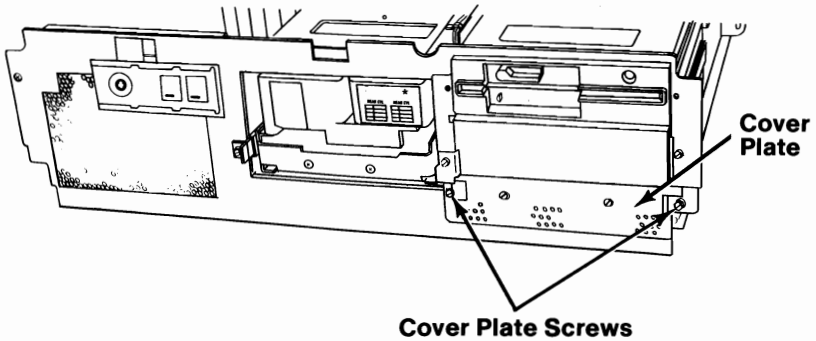
Side View

IMPORTANT: You will have to run the "Setup" program on your Diagnostics diskette after all your options are installed.

- 15** Locate the "Setup Information" fold-out at the back of this manual and record the fixed disk drive type number by using the following example.

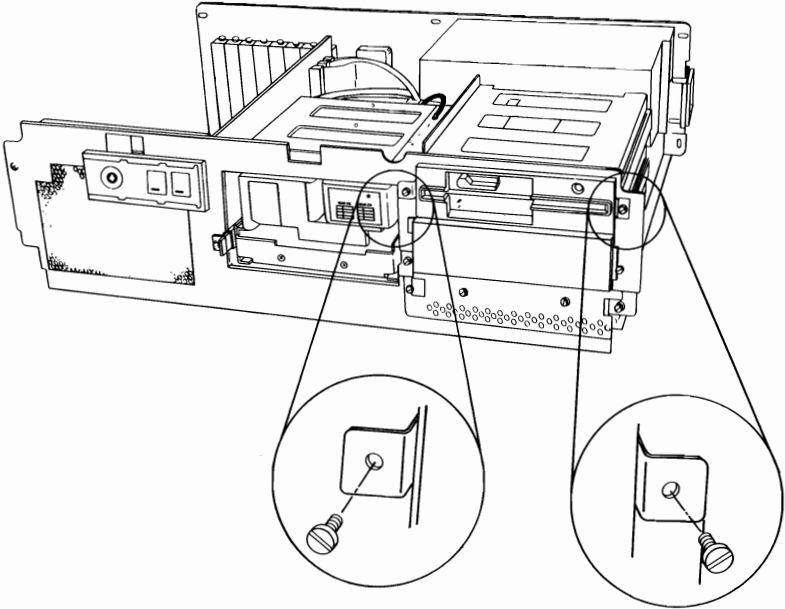


- 16** Be sure that the fixed disk drive is completely into your system unit, and install the cover plate and two screws.



Front View

- 17** Slide diskette drive A into your system unit, and install the two clips and mounting screws.

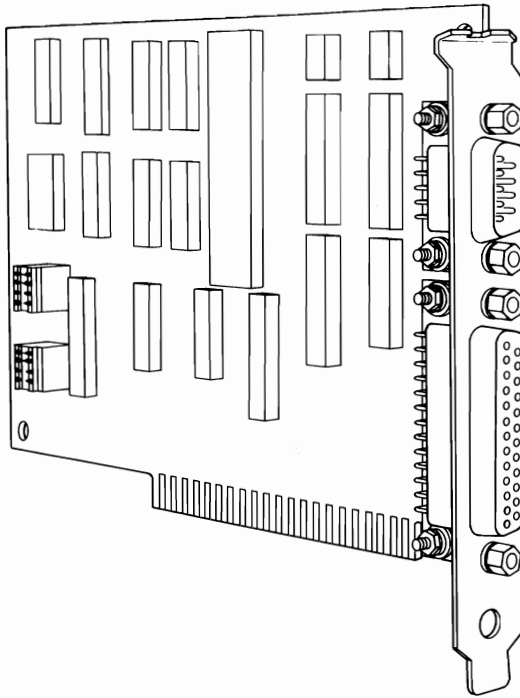


Mounting Screws and Clips

Front View

- 18** If you have any other internal options that need to be installed, install them now. If not, go to "Section 4, Cover Installation".

IBM Personal Computer AT Serial/Parallel Adapter



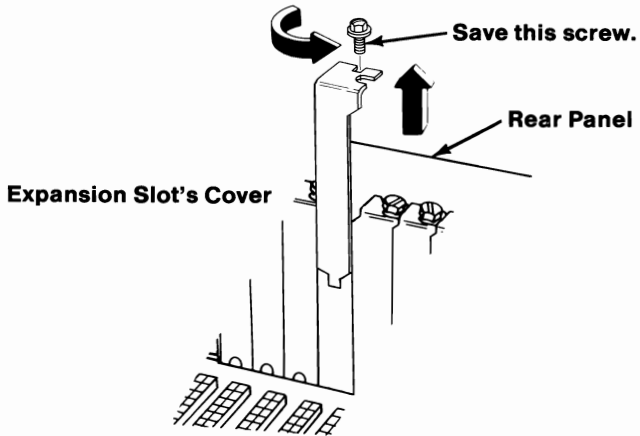
SERIAL/PARALLEL ADAPTER

If your system has not been installed, go to *CHART 2, Installing Your Internal Options* before installing this option.

Installation Instructions

- 1 Remove the screw that holds the expansion slot's cover in place. Save the screw for the installation of the adapter.

Note: The IBM Serial/Parallel Adapter can be installed in any available expansion slot.

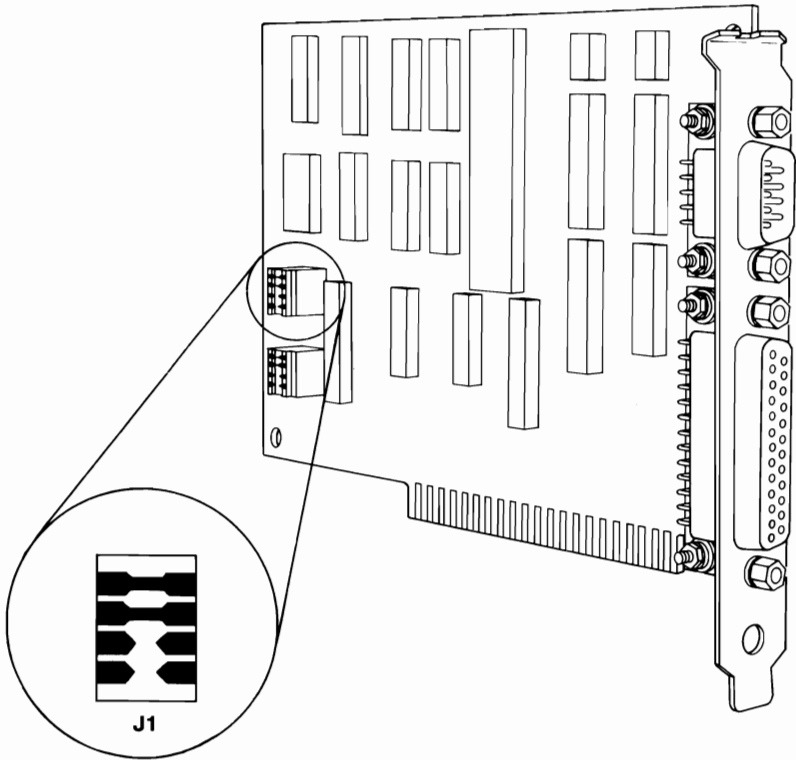


2

The serial portion of the Serial/Parallel adapter.

- Your Serial/Parallel adapter comes set to be used as serial adapter #1. If you are using it as serial adapter #1 no action is required, go to the next page.
- If you are using this adapter as serial adapter #2, remove the module J1 and install it as shown below.

Note: To remove the module, insert a small, flat-blade screwdriver under the module and lift up.

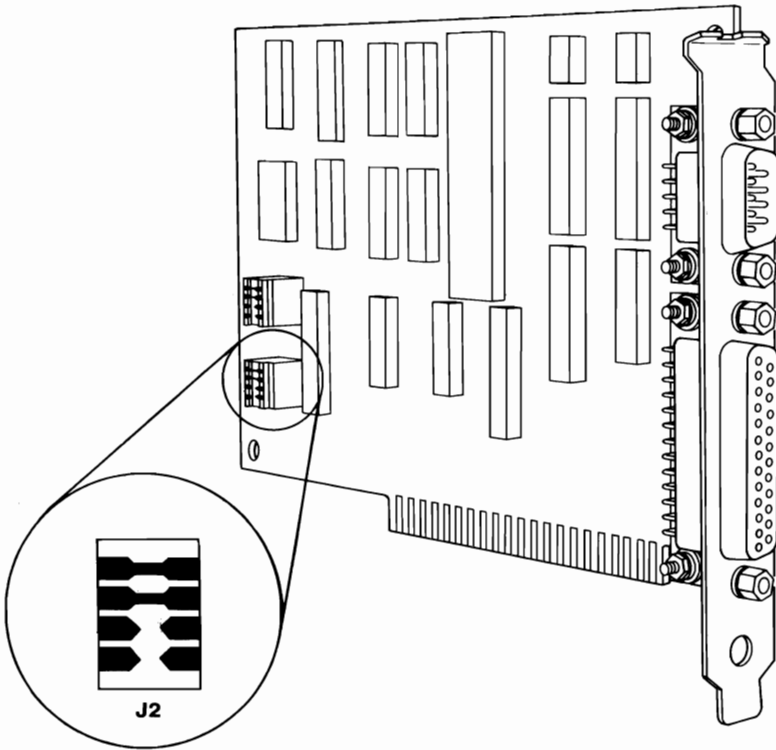


3

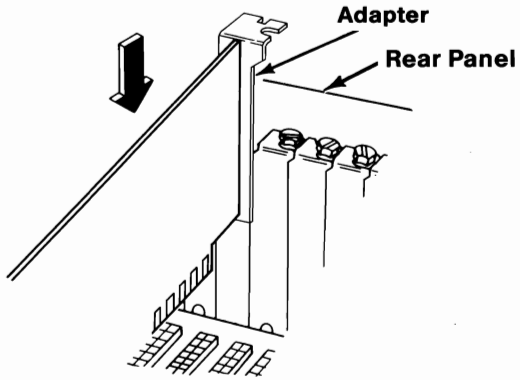
The parallel portion of the Serial/Parallel adapter.

- Your Serial/Parallel adapter comes set to be used as parallel adapter #1. If you are using it as parallel adapter #1 no action is required, go to the next page.
- If you are using this adapter as parallel adapter #2, remove the module J2 and install it as shown below.

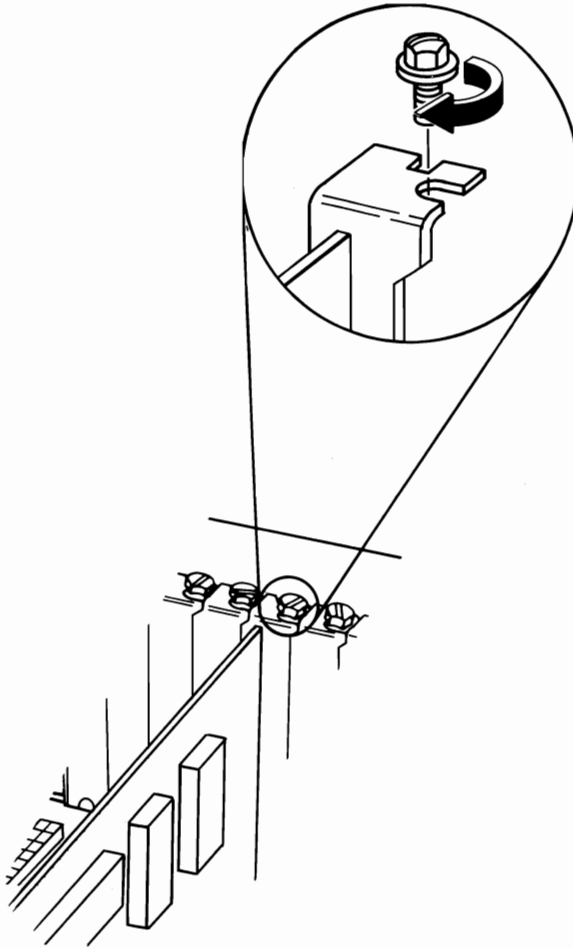
Note: To remove the module, insert a small, flat-blade screwdriver under the module and lift up.



- 4** Hold the adapter by the top and firmly press it into the expansion slot.



- 5** Install the screw you removed in step 1.



How your system assigns parallel printer ports.

The parallel portion of the Serial/Parallel adapter can be used as parallel adapter LPT1 (printer#1), LPT2 (printer #2), or LPT3 (printer #3).

Note: When an IBM Monochrome Display and Printer Adapter and a Serial/Parallel Adapter are used in your system unit, the IBM Monochrome Display and Printer Adapter is always used by your system unit as parallel adapter #1 (LPT1).

The following combinations show how each parallel adapter is identified by your system unit.

- One Serial/Parallel Adapter

Adapters Installed	LPT1	LPT2	LPT3
One Serial/Parallel Adapter	X		

- Two Serial/Parallel adapters.

Adapters Installed	LPT1	LPT2	LPT3
1st Serial/Parallel Adapter	X		
2nd Serial/Parallel Adapter		X	

- Monochrome Display and Printer adapter with one Serial/Parallel adapter.

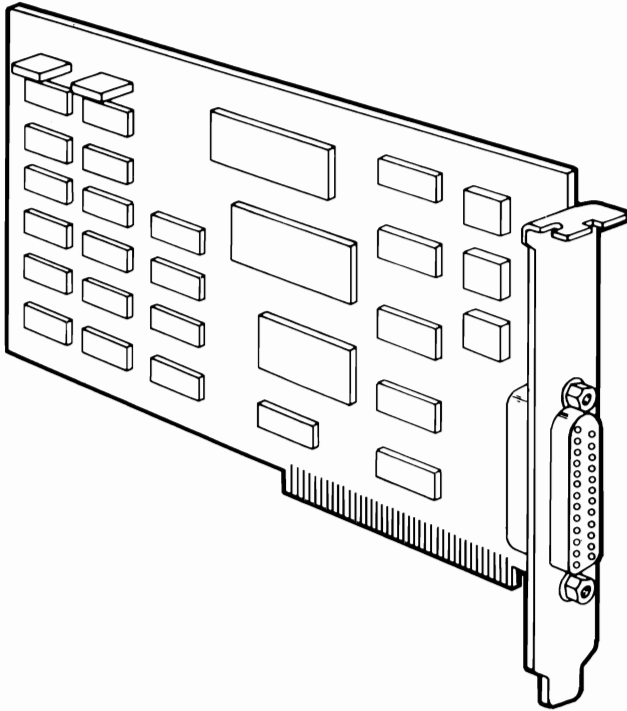
Adapters Installed	LPT1	LPT2	LPT3
IBM Monochrome Display and Printer Adapter	X		
1st Serial/Parallel Adapter		X	

- Monochrome Display and Printer adapter with two Serial/Parallel adapters.

Adapters Installed	LPT1	LPT2	LPT3
IBM Monochrome Display and Printer Adapter	X		
1st Serial/Parallel Adapter		X	
2nd Serial/Parallel Adapter			X

- 6** If you have any other internal options that need to be installed, install them now. If not, go to "Section 4, Cover Installation".

IBM Synchronous Data Link Control (SDLC) Communications Adapter



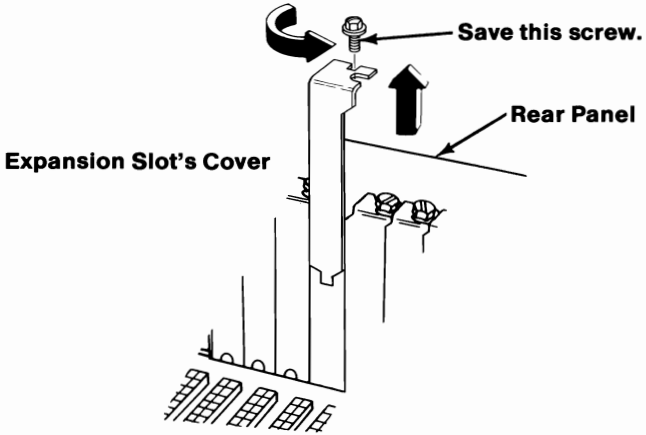
If your system has not been installed, go to *CHART 2, Installing Your Internal Options* before installing this option.

SDLC

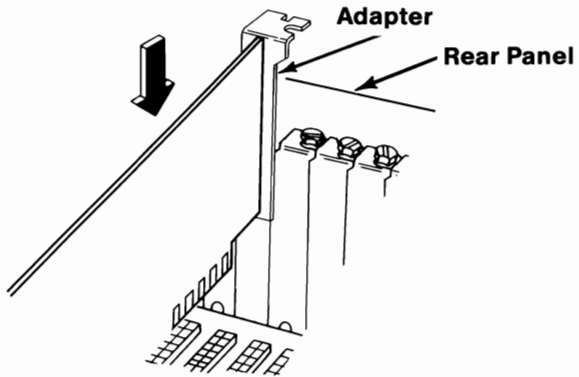
Installation Instructions

- 1 Remove the screw that holds the expansion slot's cover in place. Save the screw for the installation of the adapter.

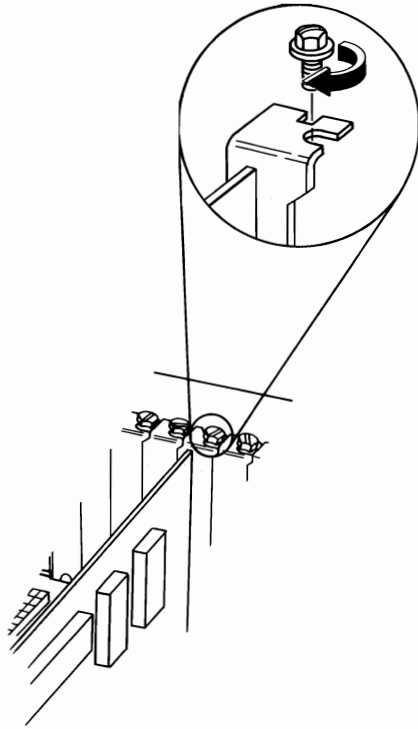
Note: The Synchronous Data Link Control (SDLC) Communications Adapter can be installed in any available expansion slot.



- 2** Hold the adapter by the top and firmly press it into the expansion slot.

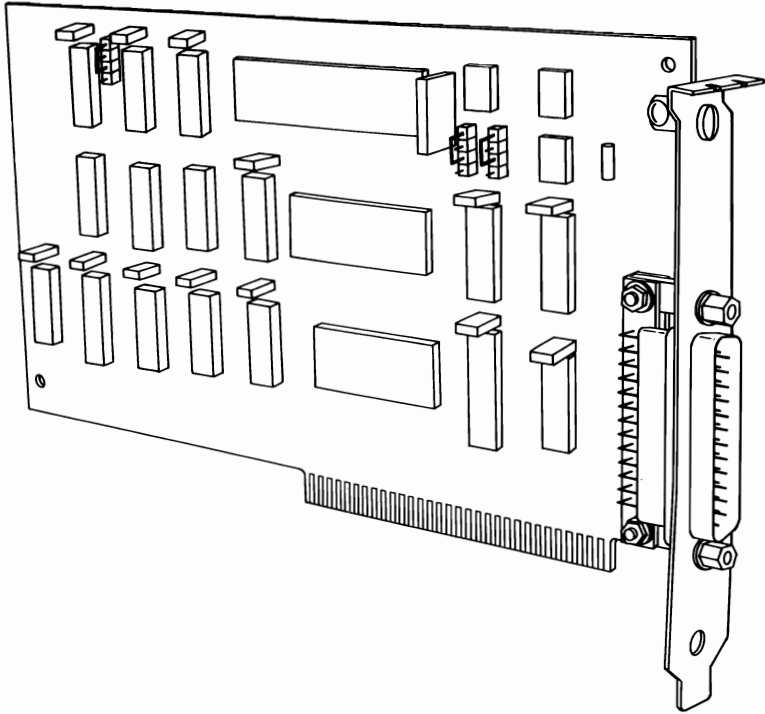


- 3** Install the screw you removed in step 1.



- 4** If you have any other internal options that need to be installed, install them now. If not, go to "Section 4, Cover Installation".

IBM Binary Synchronous Communications (BSC) Adapter



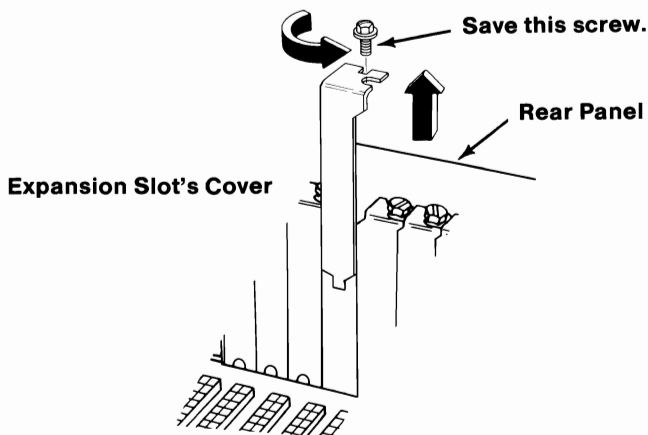
If your system has not been installed, go to *CHART 2, Installing Your Internal Options* before installing this option.

BSC

Installation Instructions

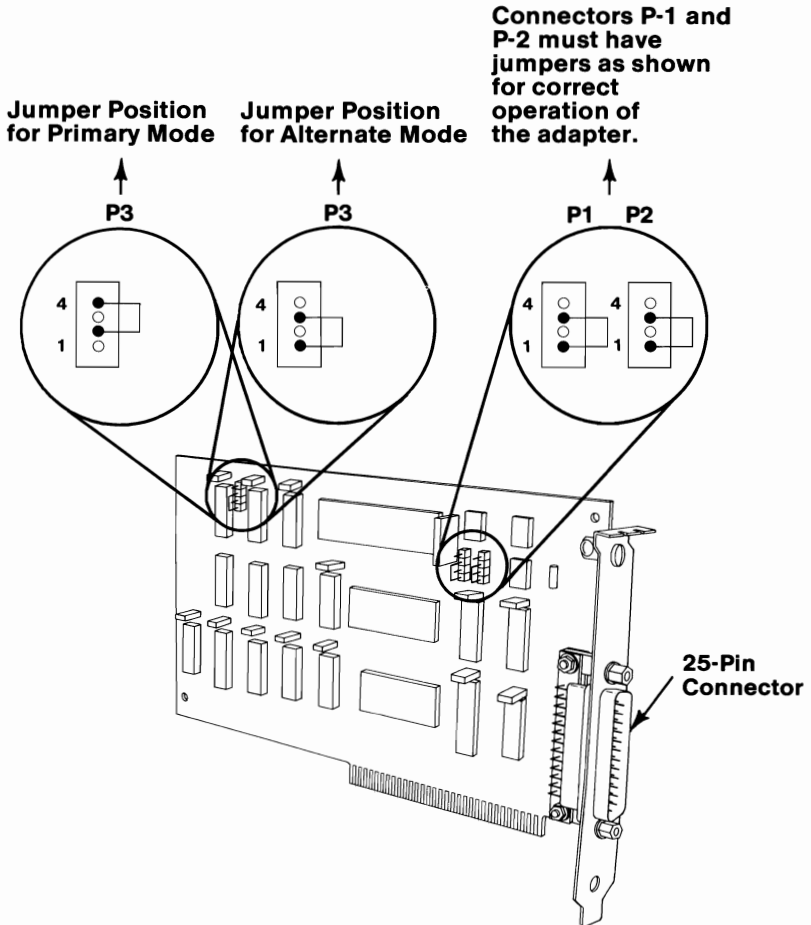
- 1 Remove the screw that holds the expansion slot's cover in place. Save the screw for the installation of the adapter.

Note: The Binary Synchronous Communications Adapter can be installed in any available expansion slot.

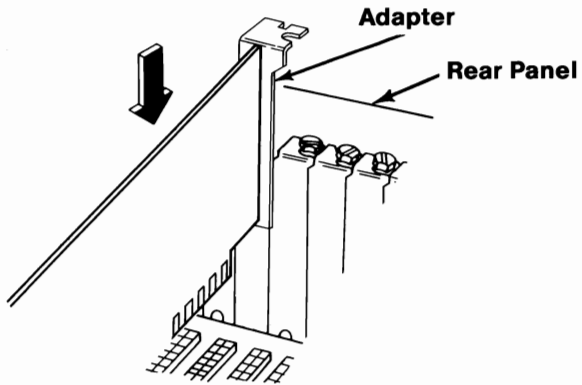


2 The Binary Synchronous Communications (BSC) adapter is shown below. The primary and alternate modes are determined by the position of the jumper clip on connector P3.

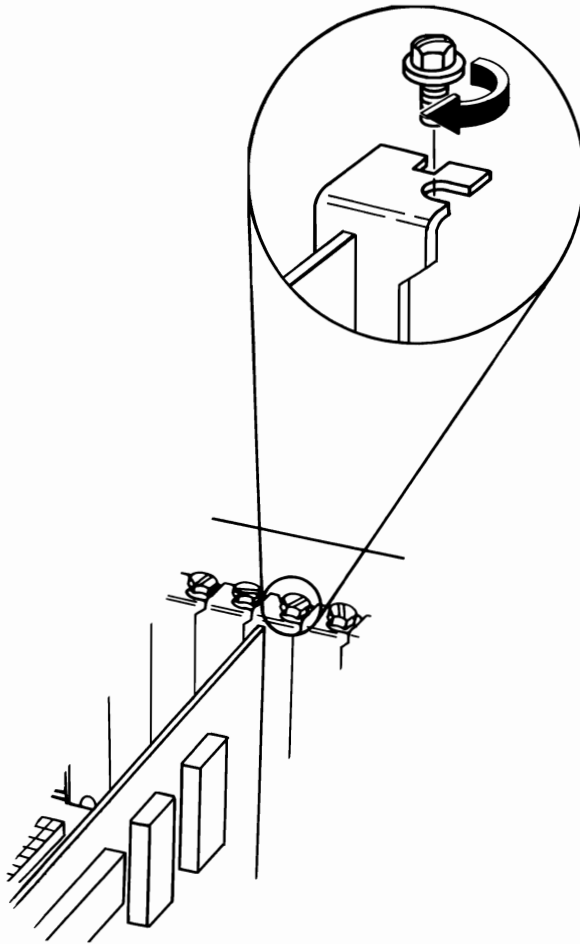
- Installing the jumper clip on pins 2 and 4 selects the primary mode.
- Installing the jumper clip on pins 1 and 3 selects the alternate mode.
- Install the jumper clip according to your needs.



- 3** Hold the adapter by the top and firmly press it into the expansion slot.

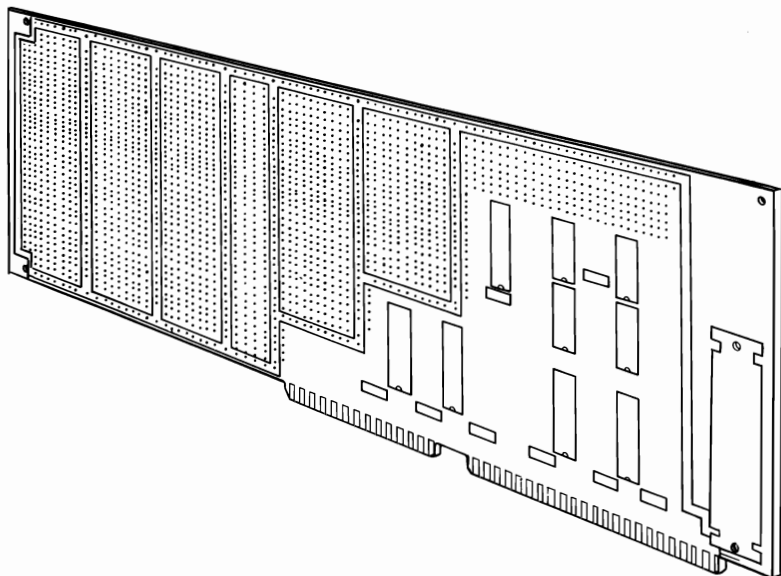


- 4** Install the screw you removed in step 1.



- 5** If you have any other internal options that need to be installed, install them now. If not, go to "Section 4, Cover Installation".

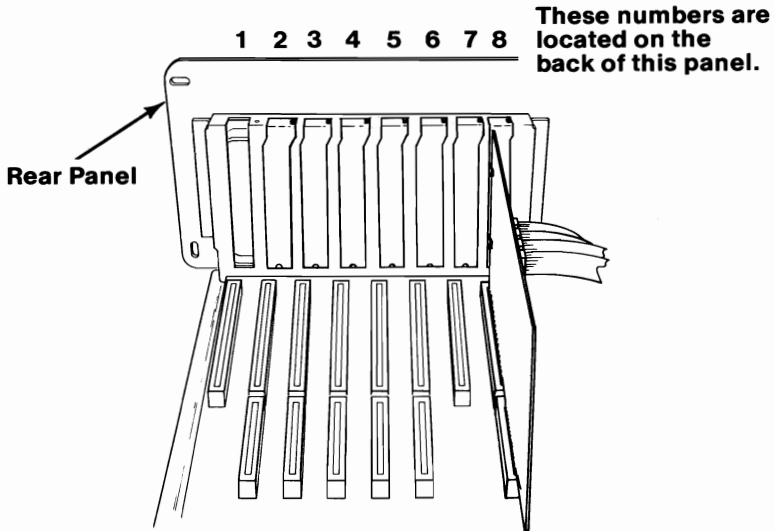
IBM Personal Computer AT Prototype Adapter



If your system has not been installed, go to *CHART 2, Installing Your Internal Options* before installing this option.

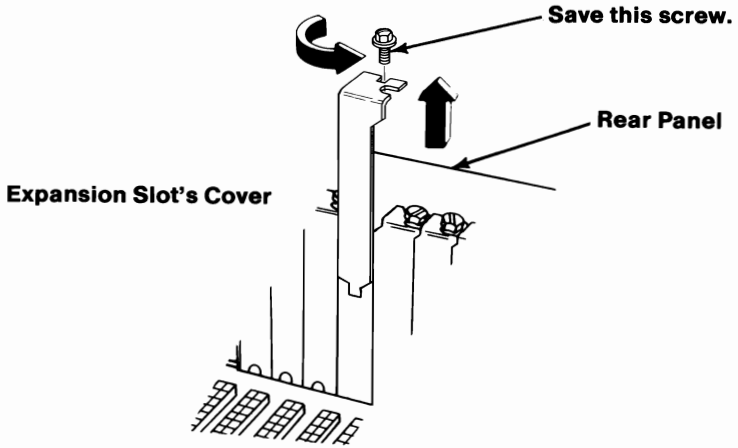
Installation Instructions

- 1** The IBM Personal Computer AT Prototype Adapter can be installed in expansion slots 2 through 6.

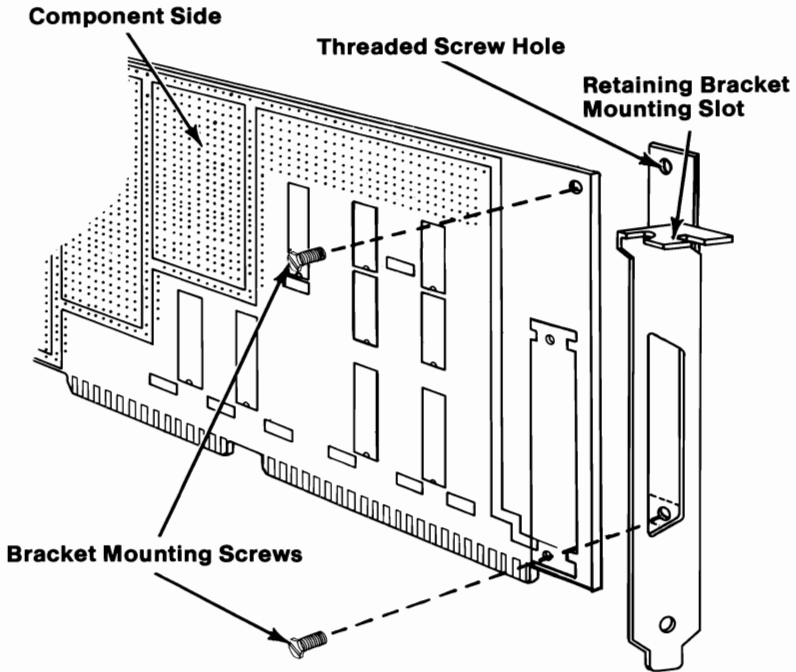


2

Remove the screw that holds the expansion slot's cover in place. Save the screw for the installation of the adapter.

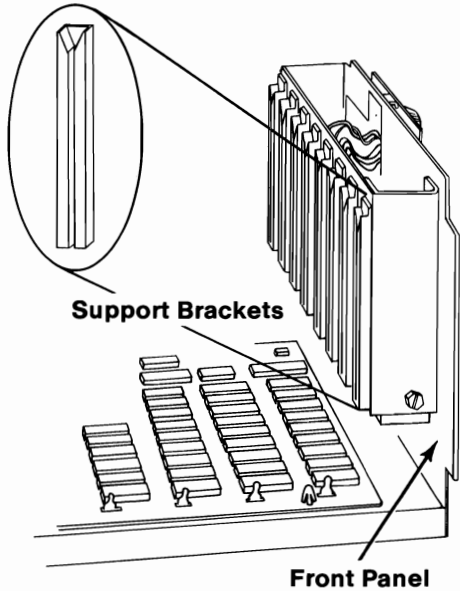
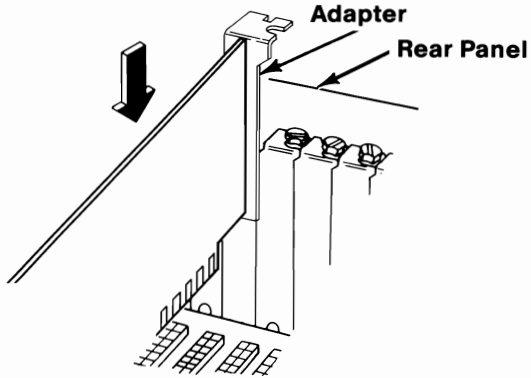


- 3** Attach the retaining bracket to the back (non-component side) of the Prototype Adapter. The retaining bracket and mounting screws are included with your adapter.

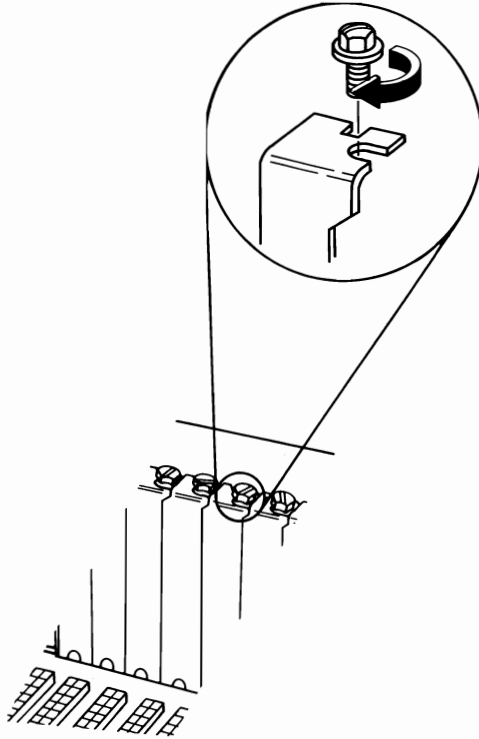


4

Hold the adapter by the top and firmly press it into the expansion slot making certain the adapter is in the support bracket. Use the adapter installed in expansion slot 8 as a reference.



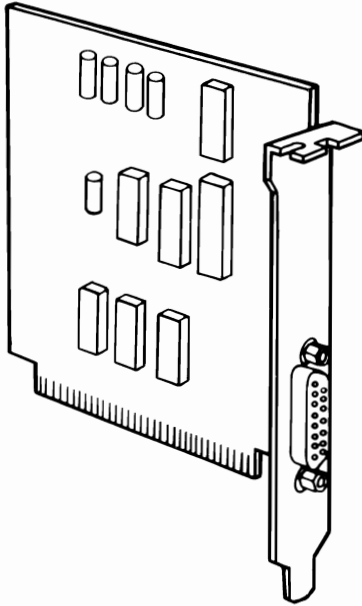
- 5** Install the screw you removed in step 2.



- 6** If you have any other internal options that need to be installed, install them now. If not, go to "Section 4, Cover Installation".

Note: As sold by the manufacturer, this Prototype card does not require certification under the FCC's rules for Class B devices. The user is responsible for any interference to radio or TV reception which may be caused by a user-modified prototype card.

IBM Game Control Adapter

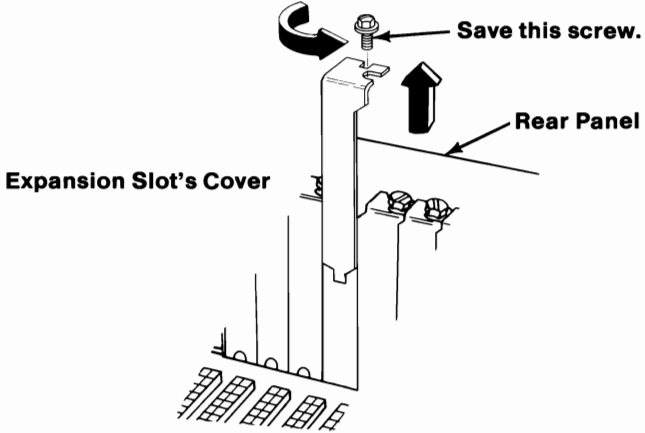


If your system has not been installed, go to *CHART 2, Installing Your Internal Options* before installing this option.

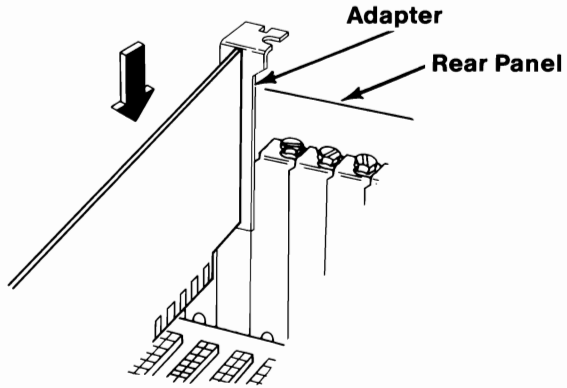
Installation Instructions

- 1 Remove the screw that holds the expansion slot's cover in place. Save the screw for the installation of the adapter.

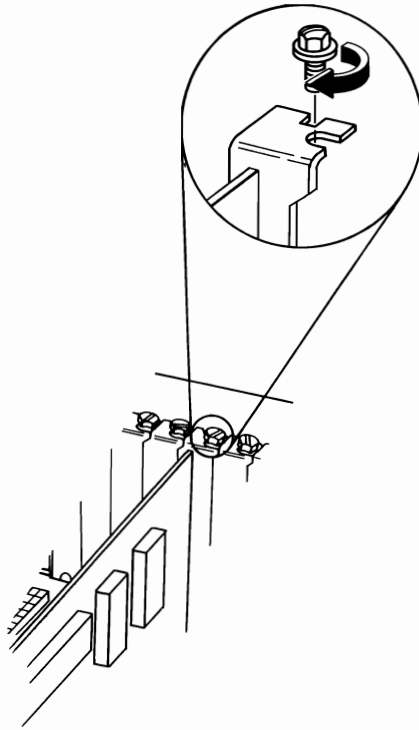
Note: The Game Control Adapter can be installed in any available expansion slot.



- 2** Hold the adapter by the top and firmly press it into the expansion slot.

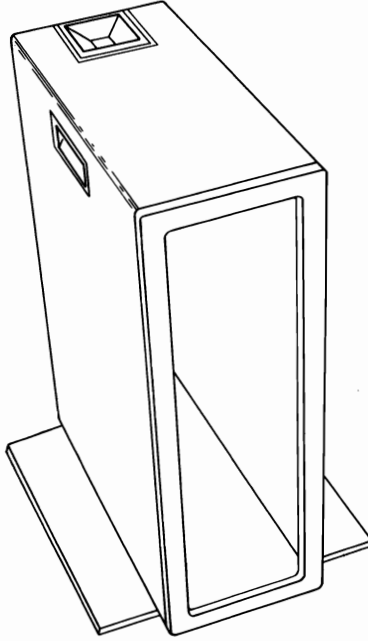


- 3** Install the screw you removed in step 1.



- 4** If you have any other Internal options that need to be installed, install them now. If not, go to "Section 4, Cover Installation".

IBM Personal Computer AT Floor Standing Option



FLOOR STAND

If your system has not been installed, go to *CHART 2, Installing Your Internal Options* before installing this option.

Preparation of your System Unit

Due to the length of the signal cable on your IBM Monochrome Display, the IBM Monochrome Display and Printer Adapter should be installed in slot 7 when used with the IBM Personal Computer AT Floor Standing Option.

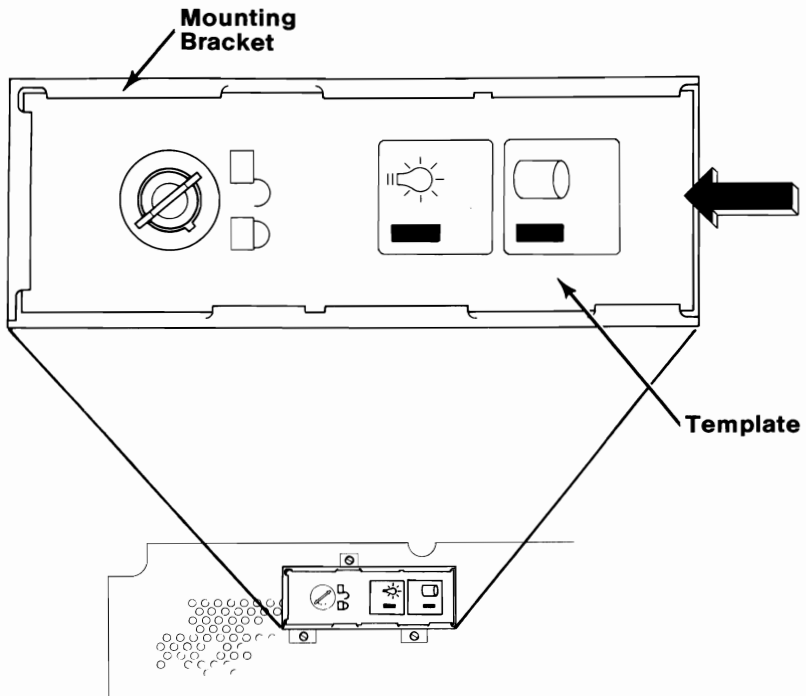
- Installation instructions for the Monochrome Display and Printer Adapter are located in this section.

Warning: To prevent a permanent loss of data on the fixed disk drive, we recommend that all files be backed up and that the head be parked before continuing with this procedure. To back up the data stored on your fixed disk drive, see the *IBM Disk Operating System* manual for a description of the BACKUP command. To park the head, load your diagnostic diskette and select option 3, "Prepare System for Moving".

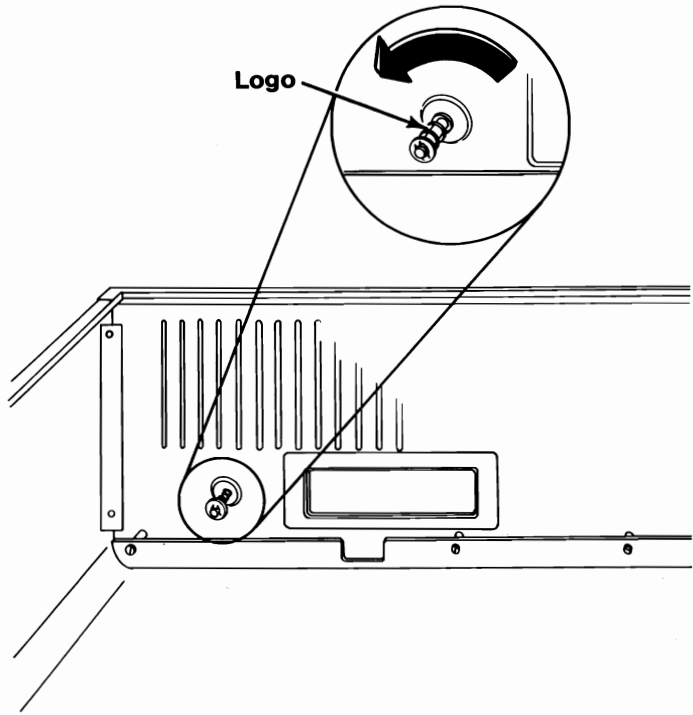
Installation Instructions

Note: Before installing this option your system unit's cover must be removed and all cables disconnected. To remove the system unit's cover see "Section 2, Cover Removal".

- 1 Slide the new template into place, over the installed template.



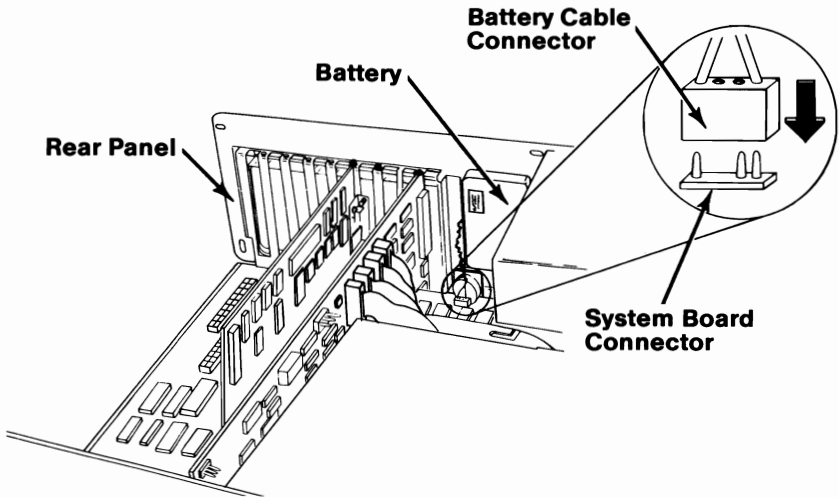
- 2** Look inside the system unit's cover and locate the back side of the IBM Personal Computer AT logo. Push on the back of the logo, and turn it 90 degrees counterclockwise.



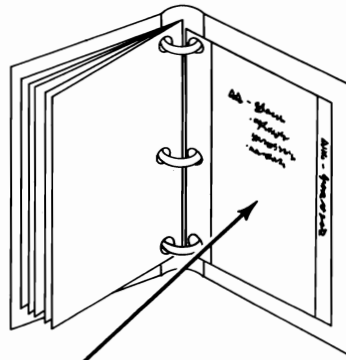
3 Record your system unit's serial number in "Appendix B" of your *Guide to Operations* manual.

4 Before you install the system unit's cover, make sure you have:

- Connected the system unit battery. (See *CHART 1, Installing Your Internal Options.*)

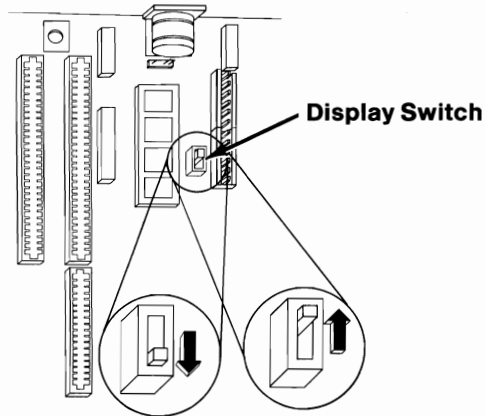


- Recorded the "Setup Information". (See the "Setup Information" foldout)

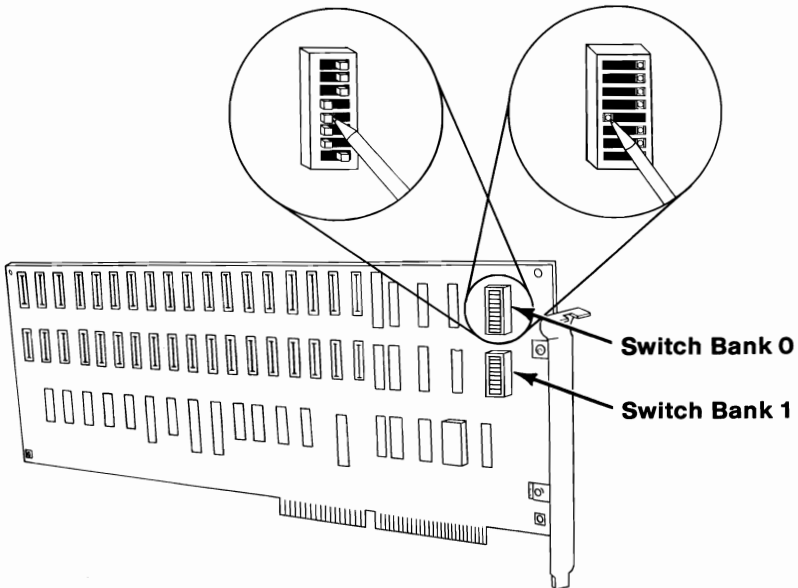


Setup Information

- Set the display adapter switch. (See either the "IBM Monochrome Display and Printer Adapter" or the "IBM Color/Graphics Adapter" installation instructions.)

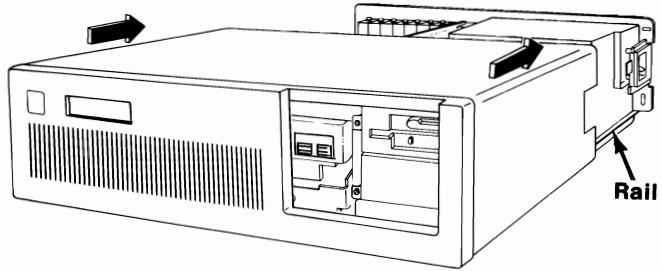


- If you have installed expansion memory options, set the expansion memory option switches. (See the "IBM Personal Computer AT 512KB Memory Expansion Option" installation instructions.)



5 Install the system unit's cover.

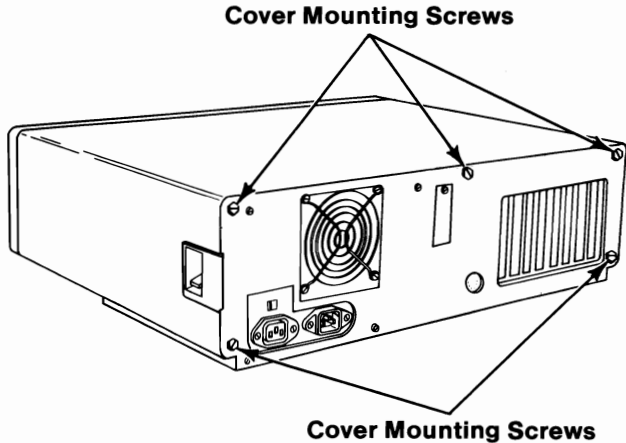
- Make sure that the cover is under the rail on the frame.
- Lift the cover up against the rail and slide it onto your system unit.



FLOOR STAND

6 Install the five cover mounting screws.

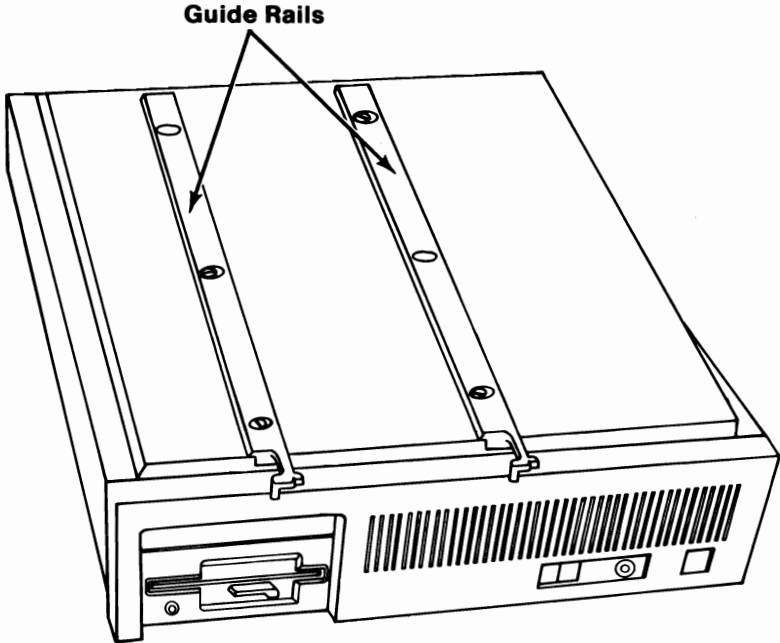
Note: The system unit back panel is not used when you install your system unit in the Floor Standing Option.



CAUTION

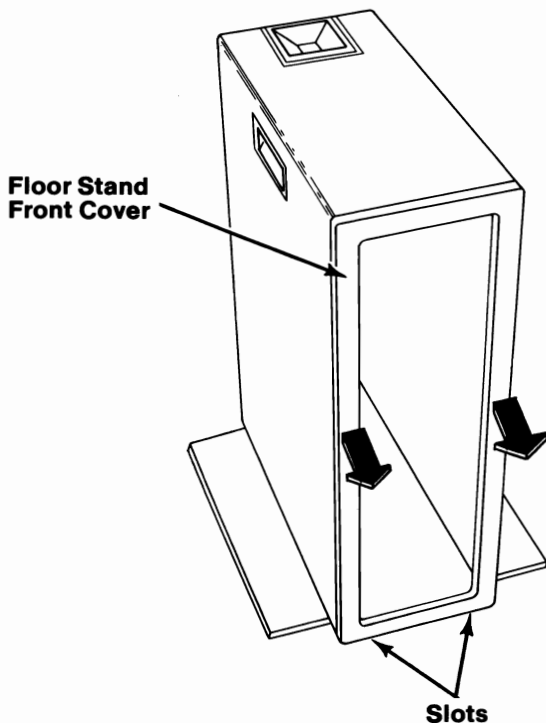
You may need two people to move the system unit. It weighs approximately fifty pounds.

- 7** Place your system unit upside down on the work surface, and install the two guide rails on the bottom of the system unit as shown.



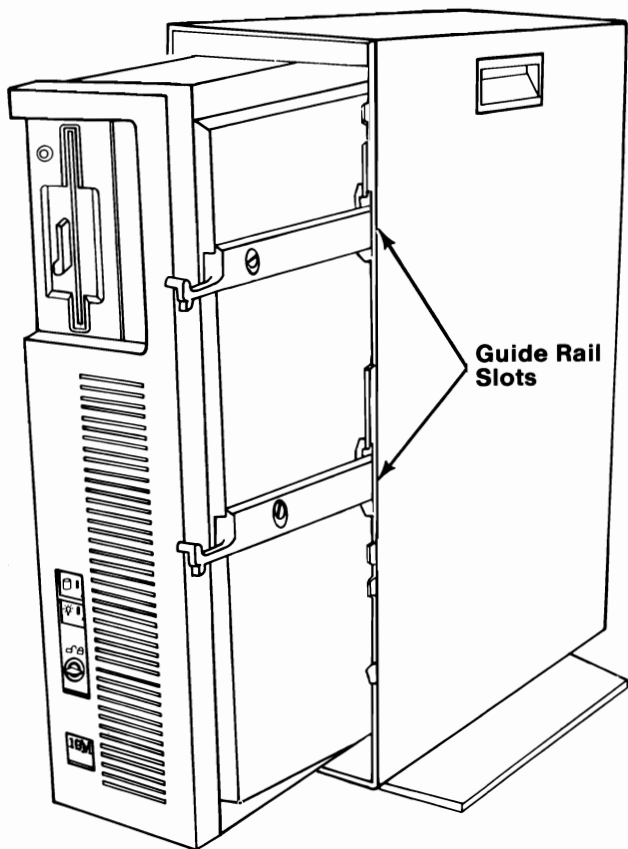
8

Insert a coin or a screwdriver into the slots on the bottom of the floor stand front cover, gently twist to release the cover. Pull the cover bottom out then lift up to remove it from the floor stand.

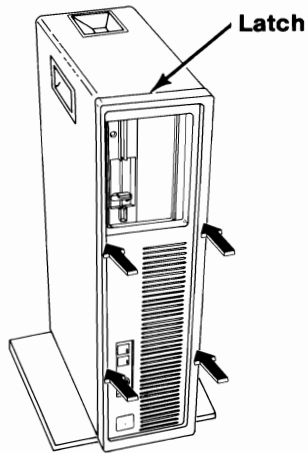


9

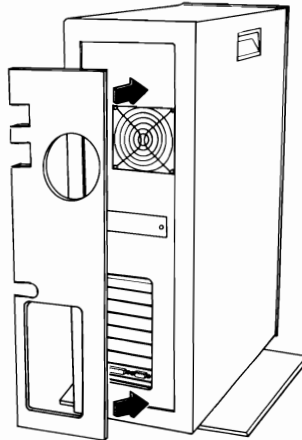
Align the guide rails and slots, and slide your system unit until it latches into the enclosure.



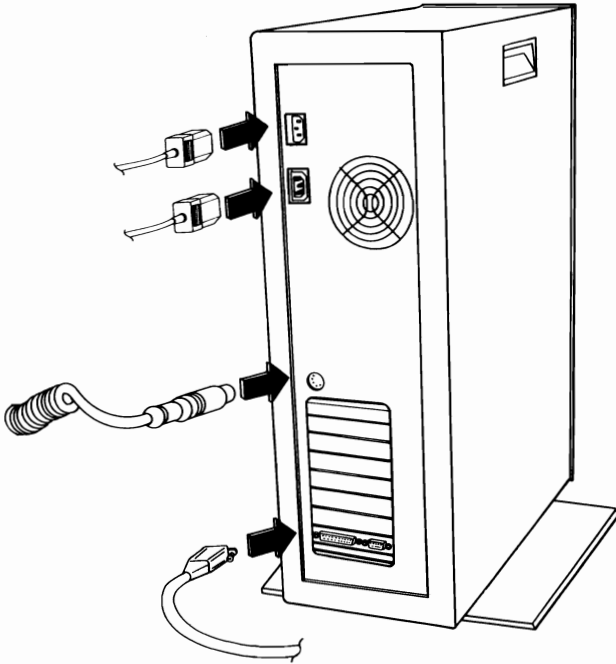
- 10** Set the top of the floor stand front cover on the latch of the floor stand then press the front cover into place.



- 11** Press the Floor Standing Option's back panel into place.



- 12** Place the Floor Standing Option on the floor, and connect the cables to your system unit.



- 13** If you have any external options that need to be installed, install them now. If not, go to "Section 6, System Check List".

SECTION 4. COVER INSTALLATION

Contents

Cover Installation Check List 4-3

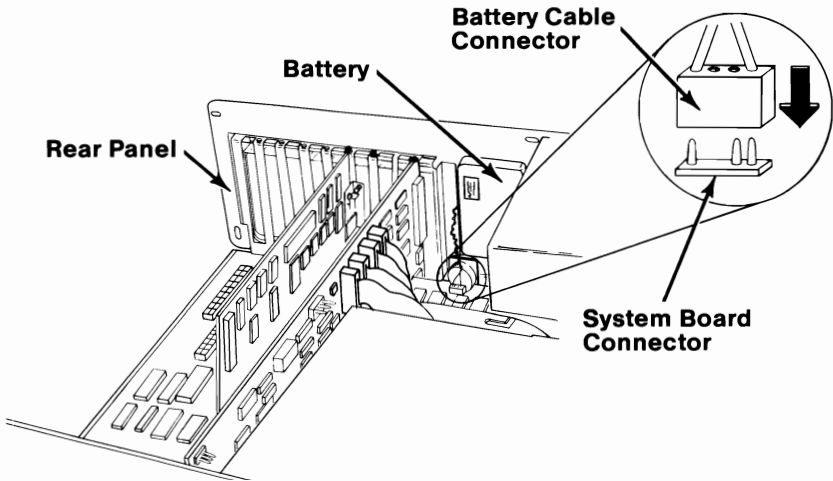
Notes:

Cover Installation Check List

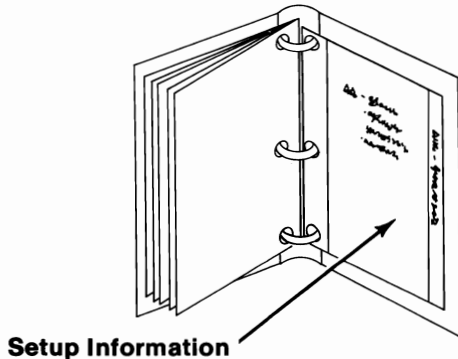
- 1 Record your system unit's serial number in "Appendix B" of your *Guide to Operations* manual.

IMPORTANT: Before you install the system unit cover, make sure that you have:

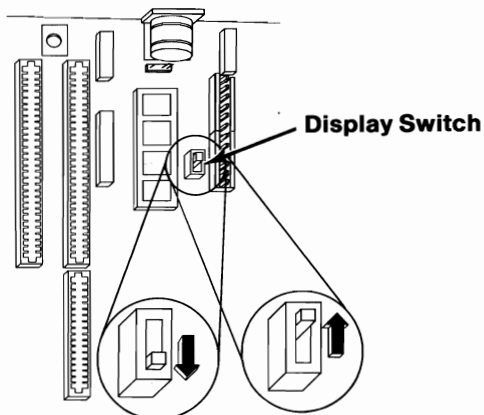
- Connected the system unit battery. (See *CHART 2, Installing Your Internal Options.*)



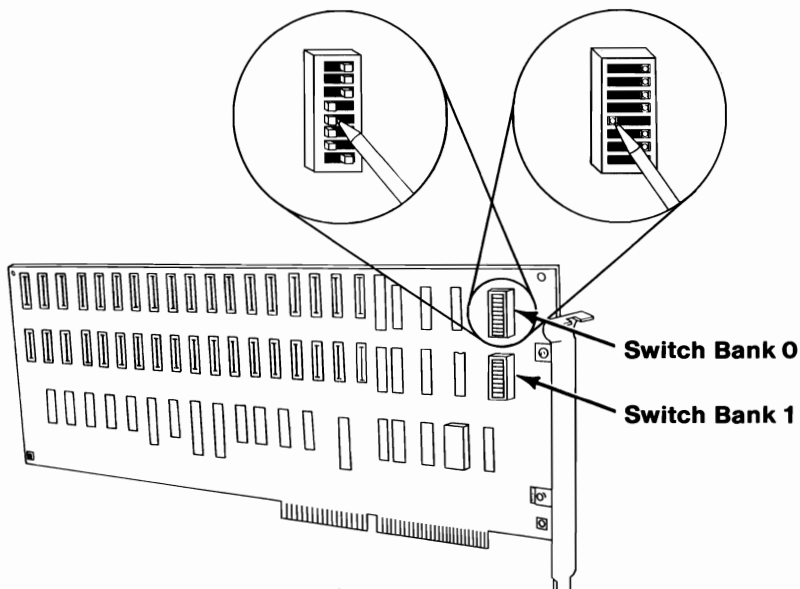
- Recorded the "Setup Information". (See the "Setup Information" foldout)



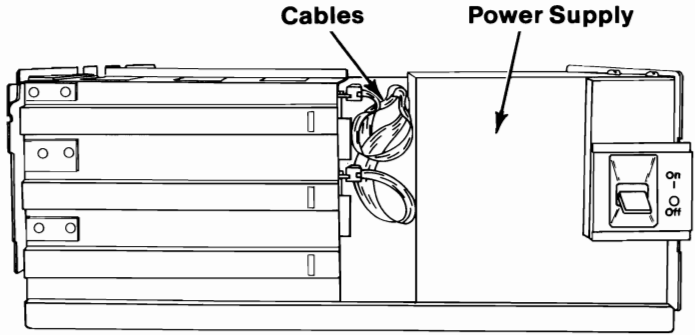
- Set the display adapter switch. (See either the "IBM Monochrome Display and Printer Adapter" or the "IBM Color/Graphics Adapter" installation instructions.)



- If you have installed expansion memory options, set the expansion memory option switches. (See the "IBM Personal Computer AT 512KB Memory Expansion Option" installation instructions.)

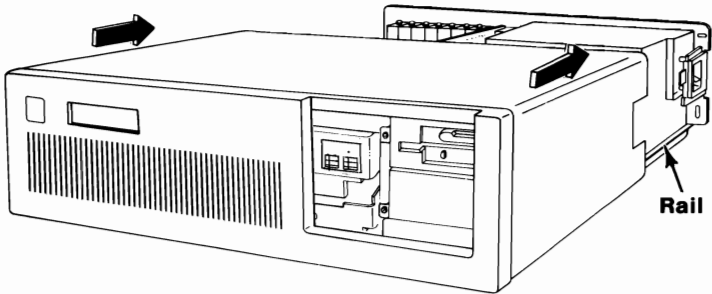


- 2** Push the cables down and out of the way. They should be no higher than the power supply.

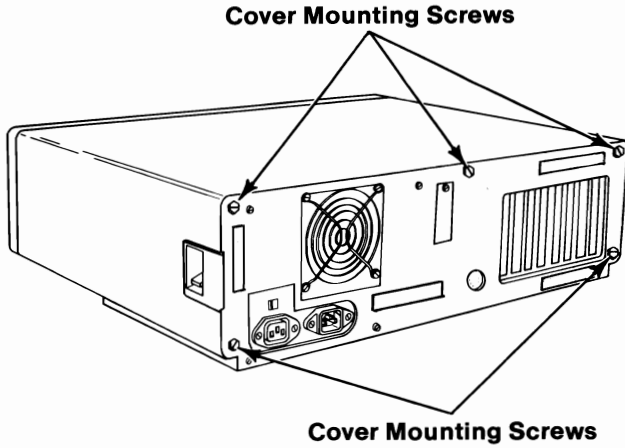


Side View

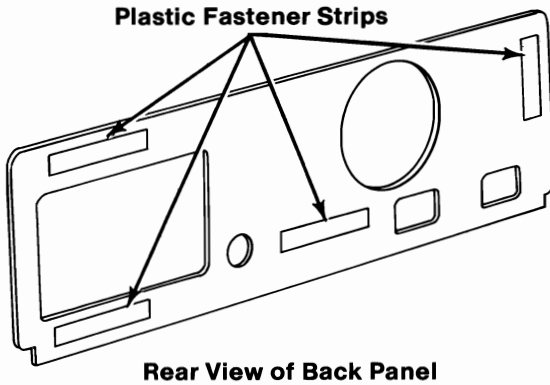
- 3** Install the system unit's cover.
- Make sure that the cover is under the rail on the frame.
 - Lift the cover up against the rail and slide it onto your system unit.



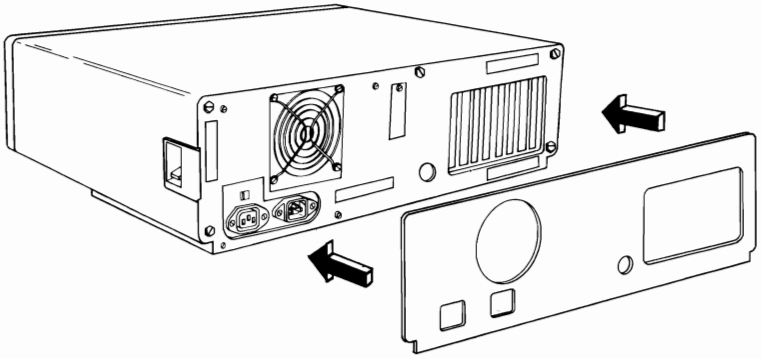
- 4** Install the five cover mounting screws.



- 5** Remove the paper backing from the plastic fasteners on the back panel.



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



- 7** If you have any options to install that attach to the outside of your system unit, go to "Section 5, External Option Installation". If not, go to "Section 6, System Check List".

Notes:



SECTION 5. EXTERNAL OPTION INSTALLATION

Contents

External Option Installation Instructions	5-3
IBM Monochrome Display	5-5
IBM Color Display	5-9
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IBM Personal Computer Graphics Printer	5-19
IBM Personal Computer Graphics Printer Stand .	5-39
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Continuous Paper and Forms Operation .	5-58
Forms Thickness Control Lever	5-70
Single-Sheet Operation	5-75
Forms Thickness Control Lever	5-87
IBM Personal Computer Color Printer Paper Rack	5-91
IBM Communications Cable	5-93
IBM Personal Computer AT Serial Adapter Cable	5-97

Notes:



External Option Installation Instructions

This section contains the installation instructions for options that attach to the OUTSIDE of your IBM Personal Computer AT. The order that options appear in this section is the suggested order for installation. Refer to the table of contents for this section to find the starting page number for your option installation instructions.

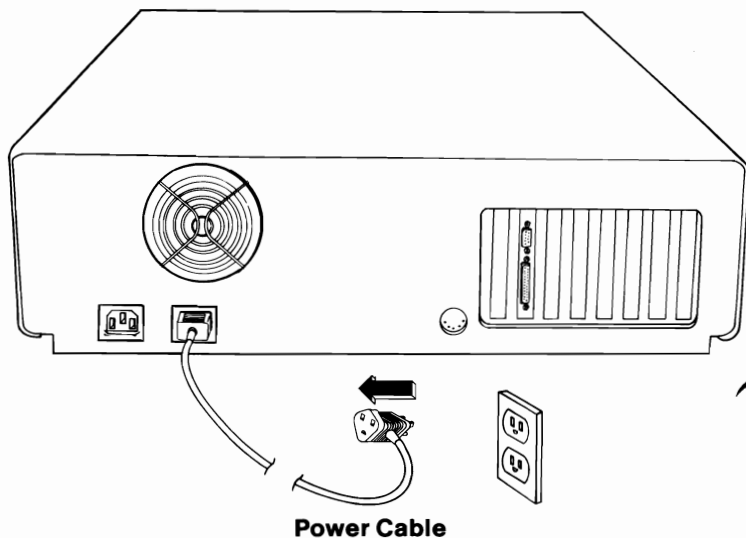
Required Tools

- Medium-size, flat-blade screwdriver
- Medium-size, Phillips screwdriver (printers only)

Optional Tools

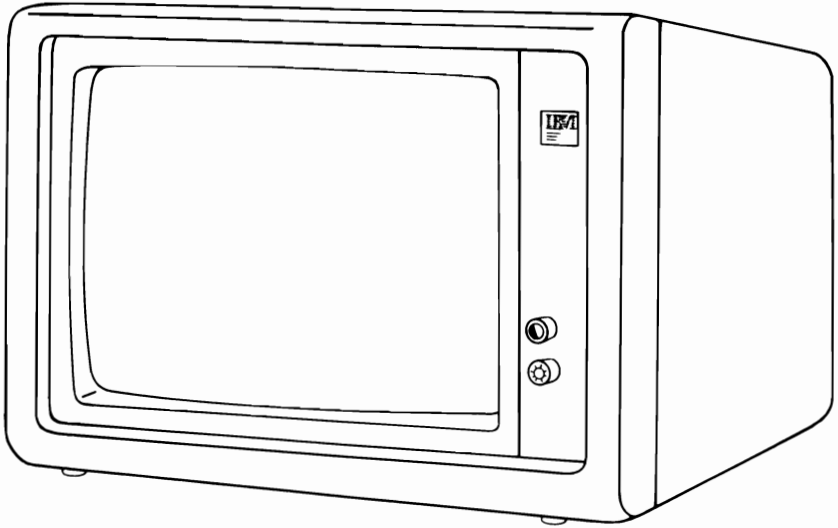
- Medium screwstarter
- 3/16-inch nutdriver
- 1/4-inch nutdriver

- 1 Turn your system unit's power off.
- 2 Turn all externally attached devices' power off (printer, display, etc.).
- 3 Unplug your system unit's power cord from the wall outlet.



- 4 Go to the installation instructions that are in this section, for the external option you are installing.

IBM Monochrome Display



MONOCHROME DISPLAY

If your system has not been installed, go to *CHART 2, Installing Your Internal Options* before installing this option.

Installation Requirements

The monochrome display adapter that you are connecting this option to should already be installed in your system. If not, refer to the option instructions for the display adapter. Install the display adapter before continuing.

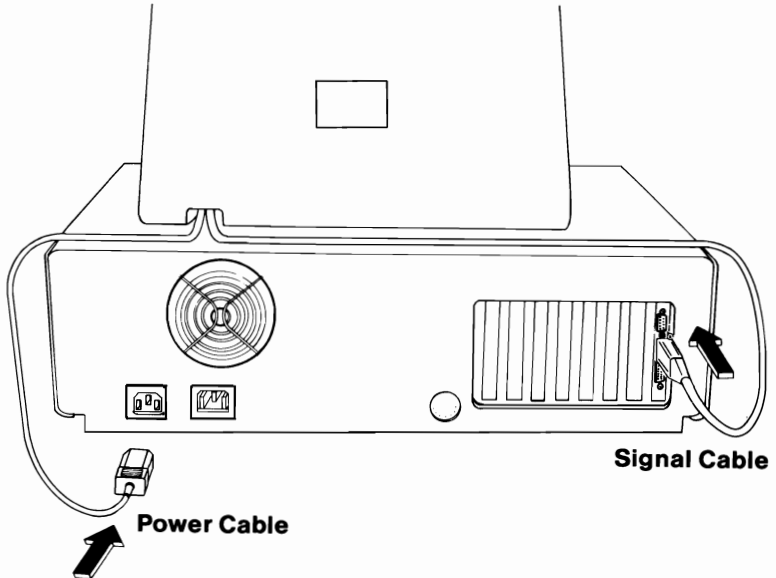
DANGER

Serious shock hazards exist within the covers of the IBM Monochrome Display. Do not open these covers under any circumstances. There are no user-serviceable parts inside.



Cabling Your Display to the System Unit

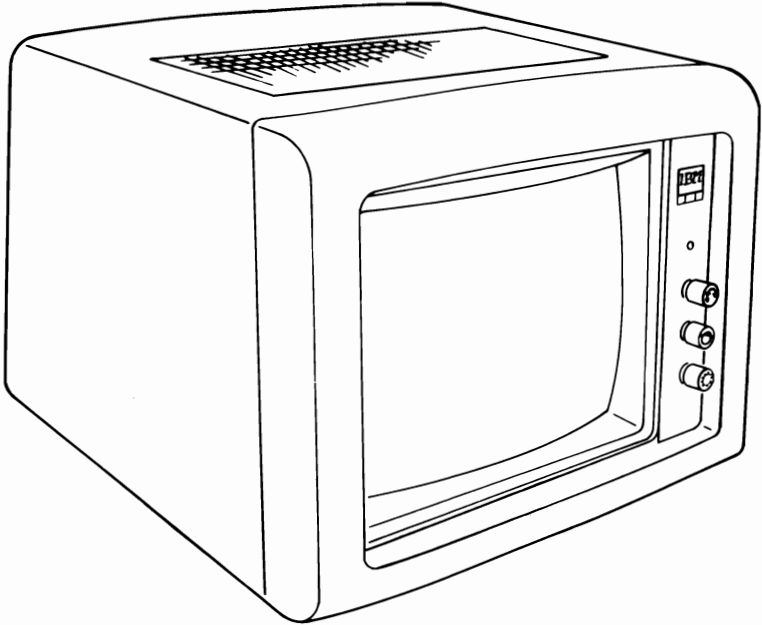
- 1** Connect the monochrome display's signal cable to the monochrome display adapter, and tighten the screws.
- 2** Connect your display's power cable to the back of your system unit.



3 If you have any other external options that need to be installed, install them now. If not, go to "Section 6, System Check List".

Note: The operating instructions for your IBM Monochrome Display are located in the "Operating your IBM Personal Computer AT" section of your *Guide To Operations*.

IBM Color Display



If your system has not been installed, go to *CHART 2, Installing Your Internal Options* before installing this option.

COLOR DISPLAY

Installation Requirements

The color display adapter to which you are connecting this option should already be installed in your system. If not, refer to the option instructions for the display adapter. Install the display adapter before continuing.

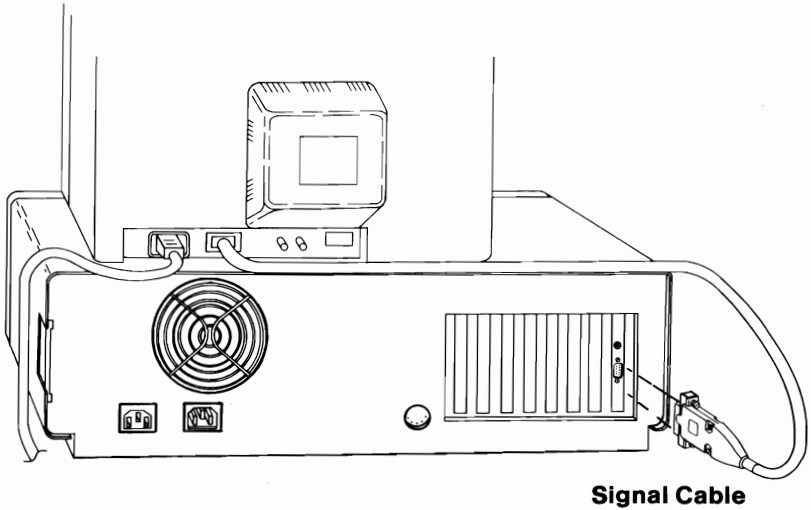
DANGER

Serious shock hazards exist within the covers of the IBM Color Display. Do not open these covers under any circumstances. There are no user-serviceable parts inside.



Cabling Your Display to the System Unit

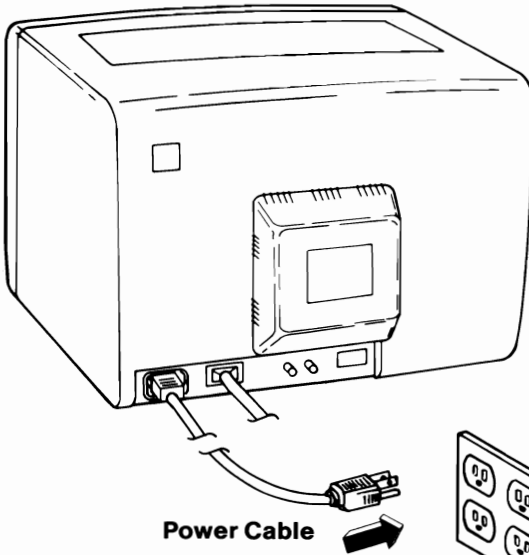
- 1 Connect the IBM Color Display signal cable to the color display adapter.



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 receptacle to avoid possible electrical shock.

- 2** Connect the Power cord to the rear of the IBM Color Display, then to a properly grounded outlet.



Caution
Connect to a
properly grounded
receptacle

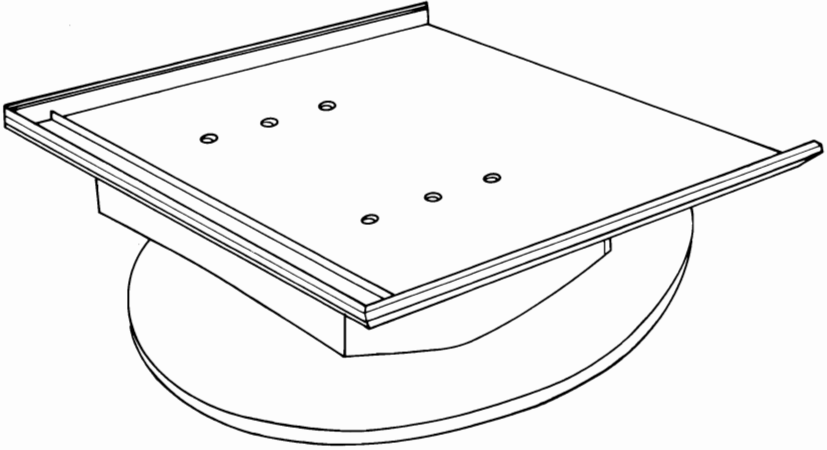
- 3** If you have any other external options that need to be installed, install them now. If not, go to "Section 6, System Check List".

Note: The operating instructions for your IBM Color Display are located in the "Operating your IBM Personal Computer AT" section of your *Guide To Operations*.

Notes:



IBM Personal Computer Display Stand



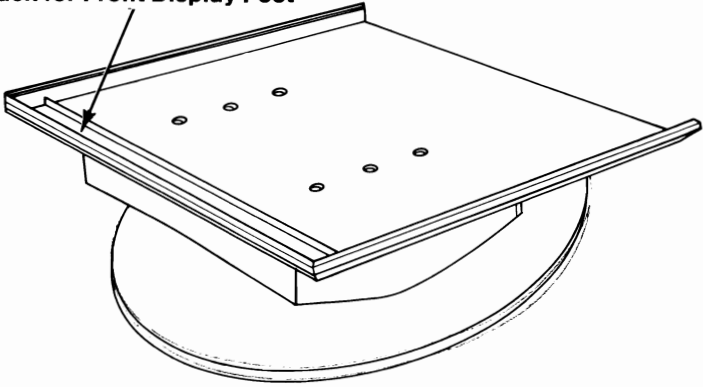
If your system has not been installed, go to *CHART 2, Installing Your Internal Options* before installing this option.

Installation Instructions

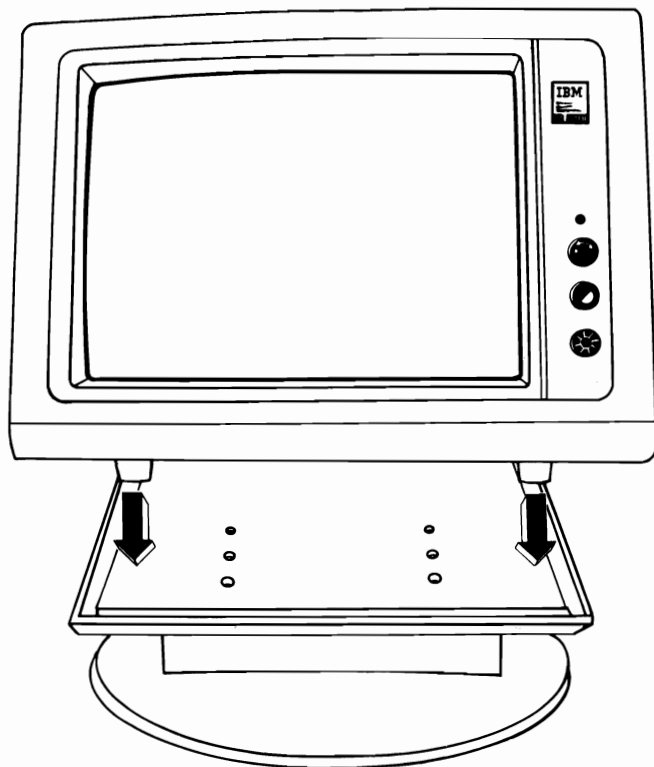
- 1 Place the display stand so the front track faces you.

Note: You may find it easier to position your display on the stand with the display cables disconnected.

Track for Front Display Feet

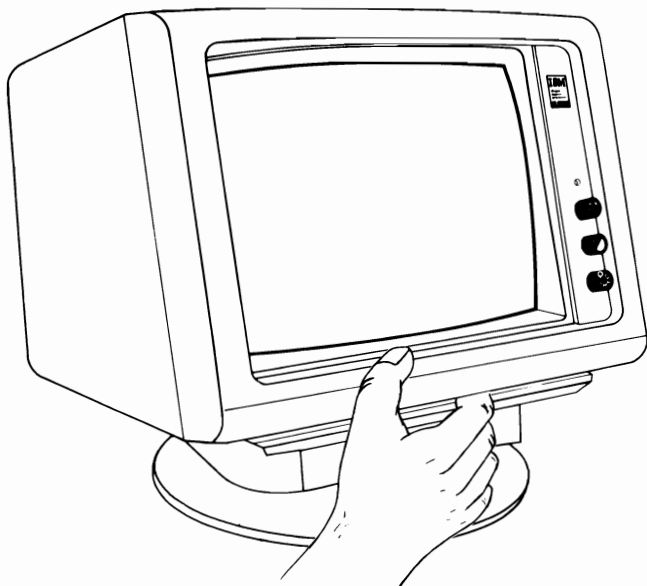


- 2** Lift and gently place the front feet of your display in the track of the display stand.



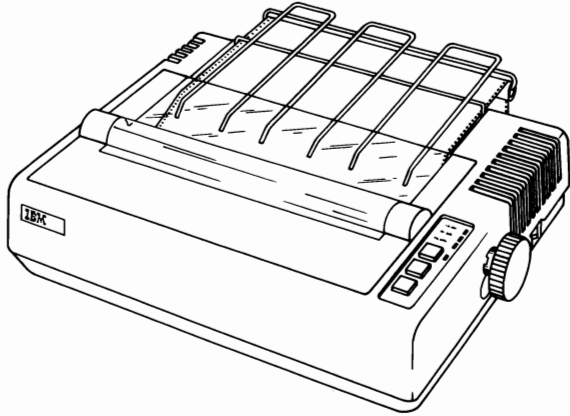
DISPLAY STAND

- 3** You can now adjust your display by pivoting the stand up or down and by rotating it.



- 4** If you have any other external options that need to be installed, install them now. If not, go to "Section 6, System Check List".

IBM Personal Computer Graphics Printer



If your system has not been installed, go to *CHART 2, Installing Your Internal Options* before installing this option.

Installation Requirements

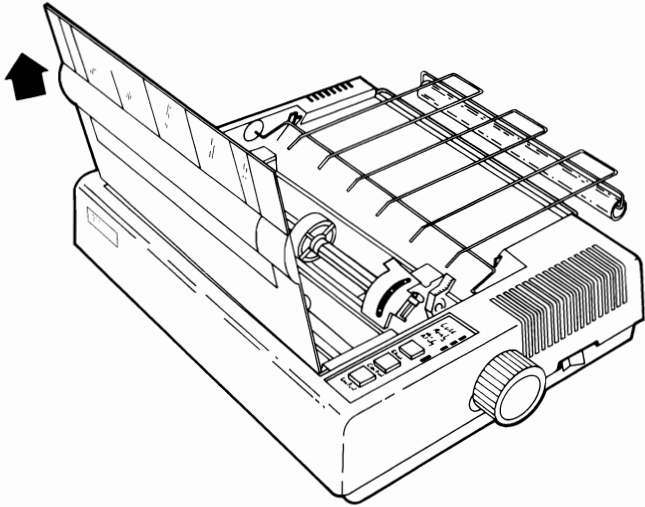
The printer adapter to which you are connecting this option should already be installed in your system. If not, refer to the option installation instructions for the printer adapter. Install the printer adapter before continuing.

DANGER

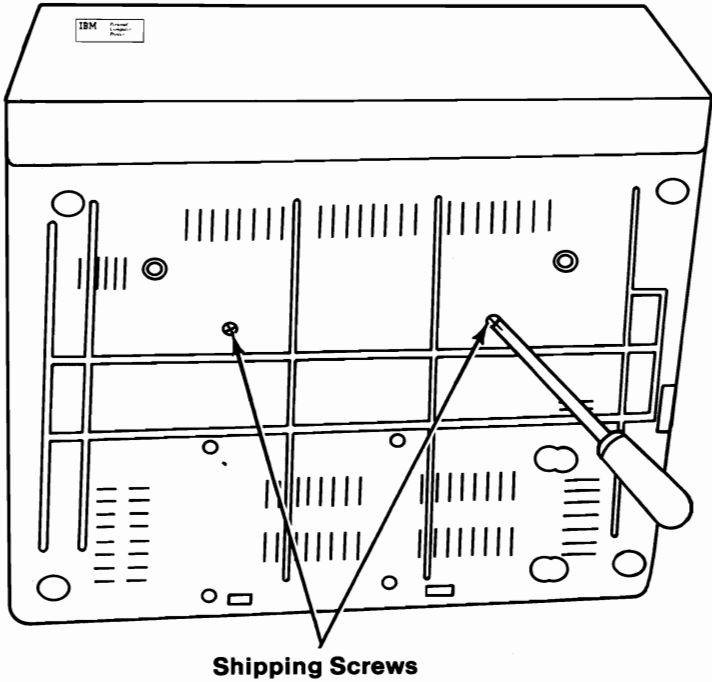
Serious shock hazards exist within the covers of the IBM Personal Computer Graphics Printer. Do not open these covers under any circumstance. There are no user-serviceable parts inside.

Shipping Screw Removal

- 1** Raise the printer access cover and lift it from the printer's base, as shown.

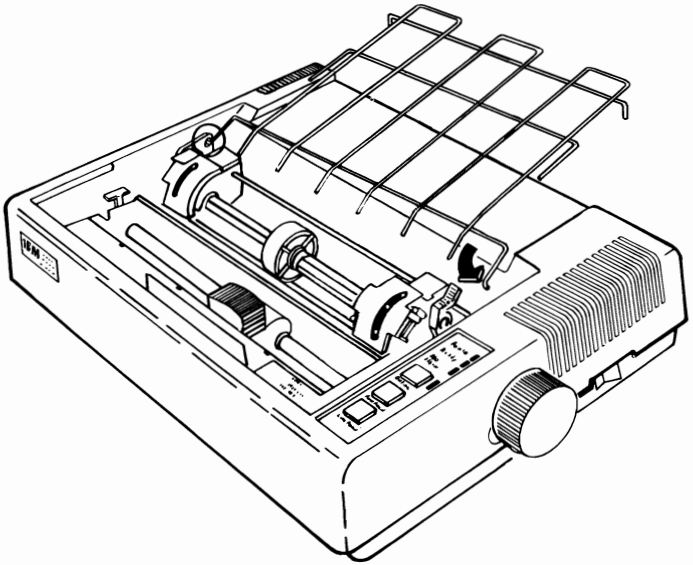


- 2** Using a Phillips screwdriver, remove the two shipping screws from the bottom of your printer.



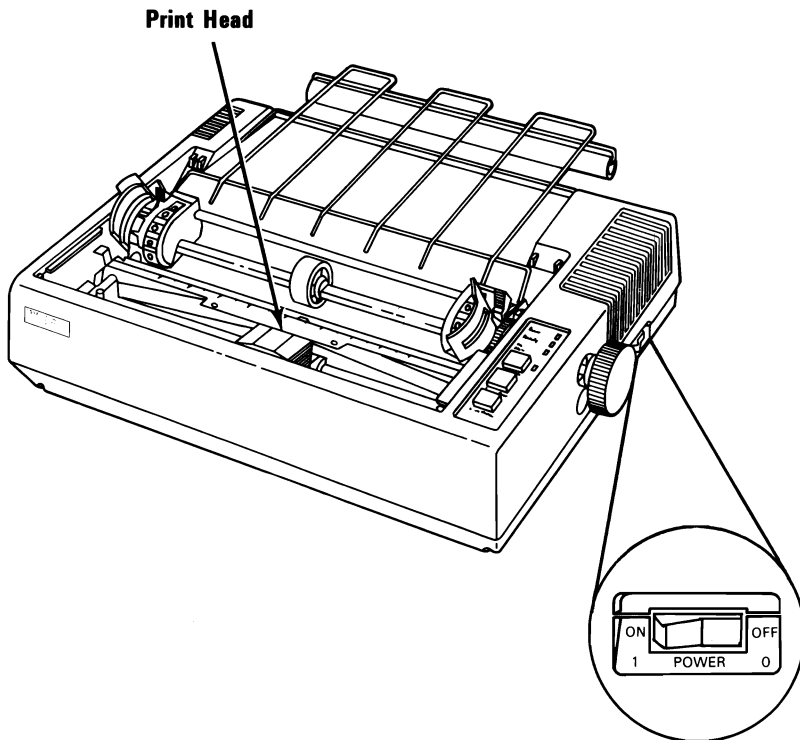
Forms Rack

- 1** Insert one end of the forms rack into the hole in the side of the printer's frame.
- 2** Compress the other side of the rack and insert the end into the hole on that side of the printer's frame.



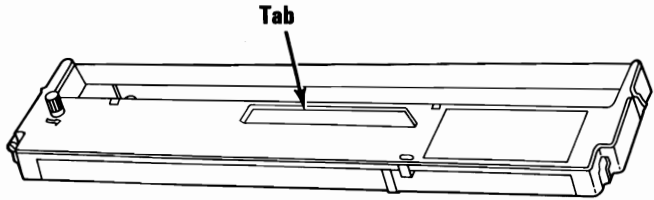
Ribbon Cartridge Installation

- 1 Turn your printer's power off.
- 2 Using your finger, move the print head to the center of your printer.

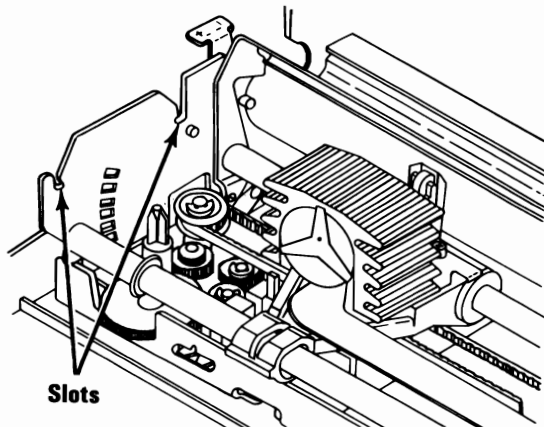
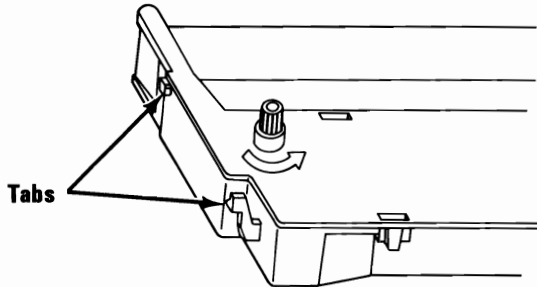


- 3 Remove the ribbon cartridge from the packing material.

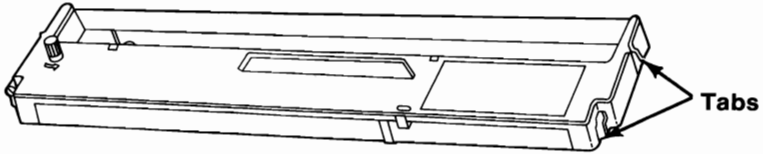
- 4** Grasp the tab in the center of the ribbon cartridge.



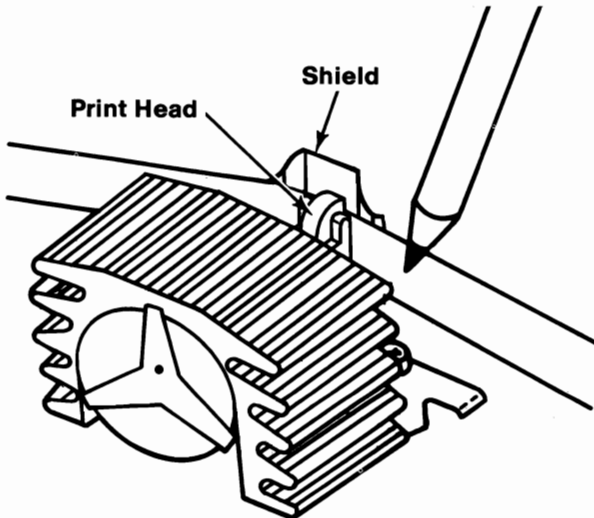
- 5** Guide the two tabs on the left side of the ribbon cartridge into the slots on the left side of the printer's frame.



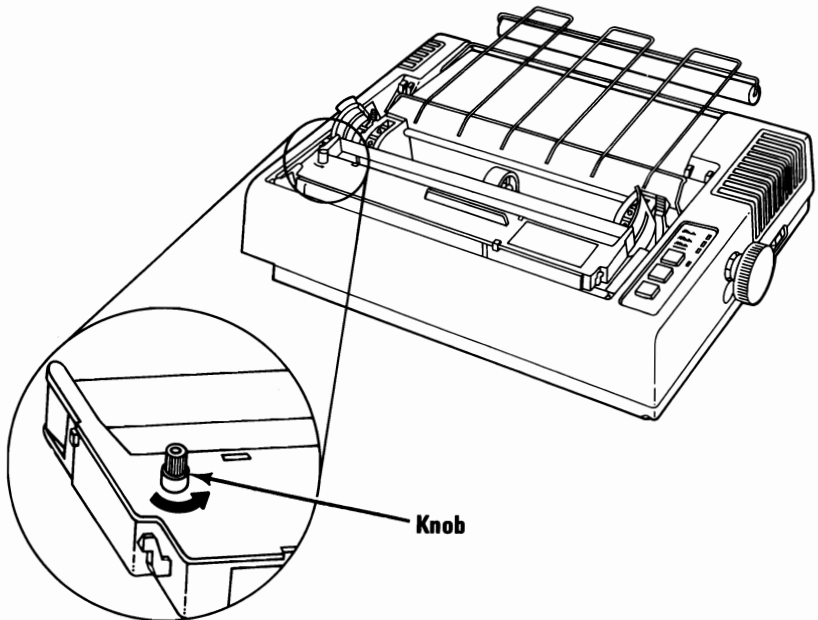
- 6** Guide the two tabs on the right side of the ribbon cartridge into the two slots on the right side of the printer's frame. Press the ribbon cartridge firmly into place.



- 7** Using a pencil or your finger, guide the ribbon into the slot between the print head and the ribbon shield.



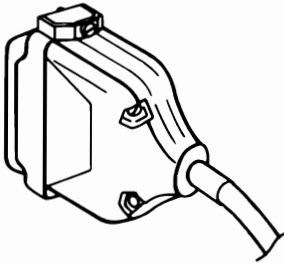
- 8 Turn the knob in the direction of the arrow to remove any slack in the ribbon.
- 9 Carefully move the print head to be sure the ribbon is free to move between the print head and the ribbon shield.



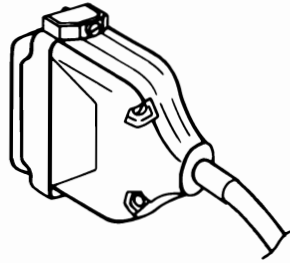
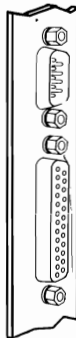
Cabling the Printer

- 1 Turn your system unit's power off.
- 2 Connect the printer cable to the appropriate adapter on your system unit.
- 3 Tighten the screws.

**IBM Monochrome Display
and Printer Adapter**

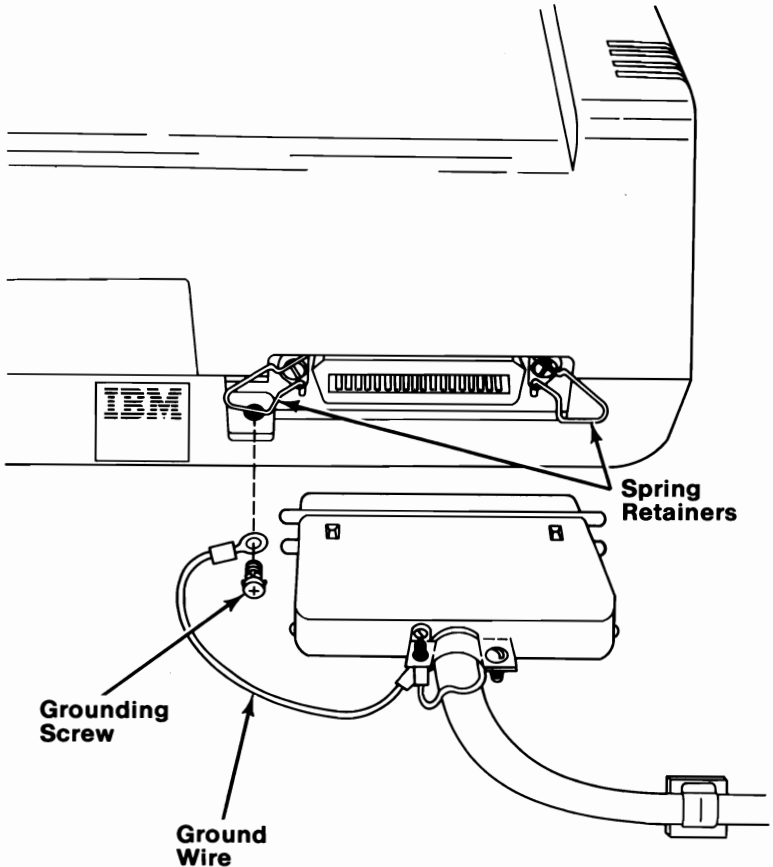


**or Serial/Parallel
Adapter**



4 Connect the printer cable to your printer. Make sure that the cable is pressed firmly into the connector and that the spring retainers are snapped into the slots of the connector.

5 Remove the grounding screw and place the ground wire on the screw; then, tighten in place.

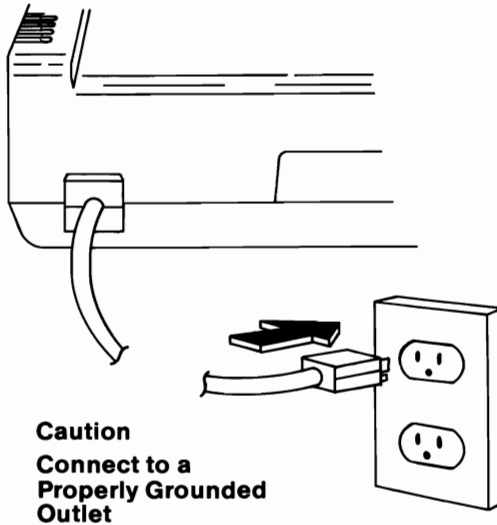


CAUTION

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 receptacle to avoid possible electrical shock.

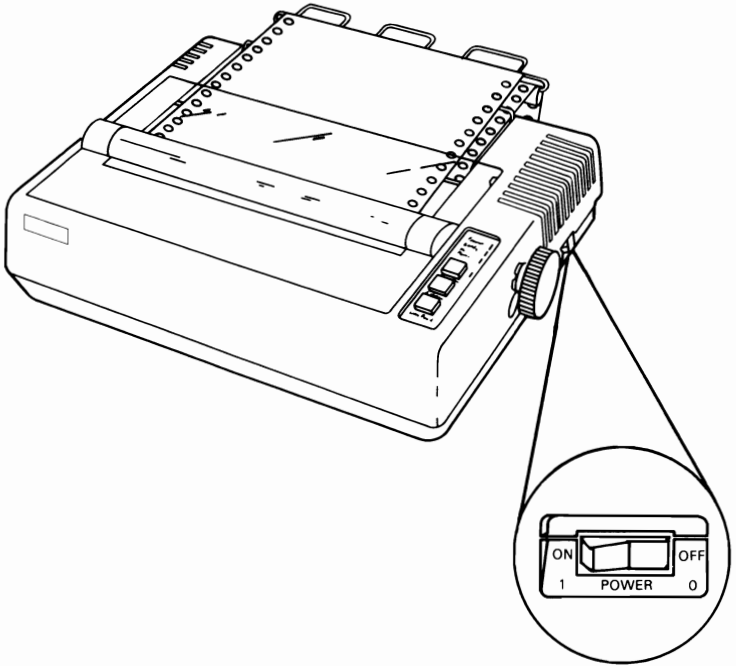
- 6 Plug the power cable into a properly grounded outlet.

Note: If your printer has a detachable power cord, connect it to the printer first and then to the wall outlet.

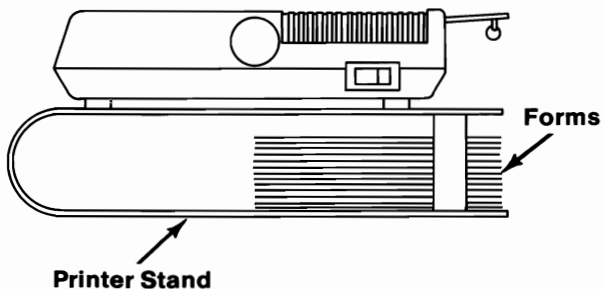


Continuous Paper and Forms Installation

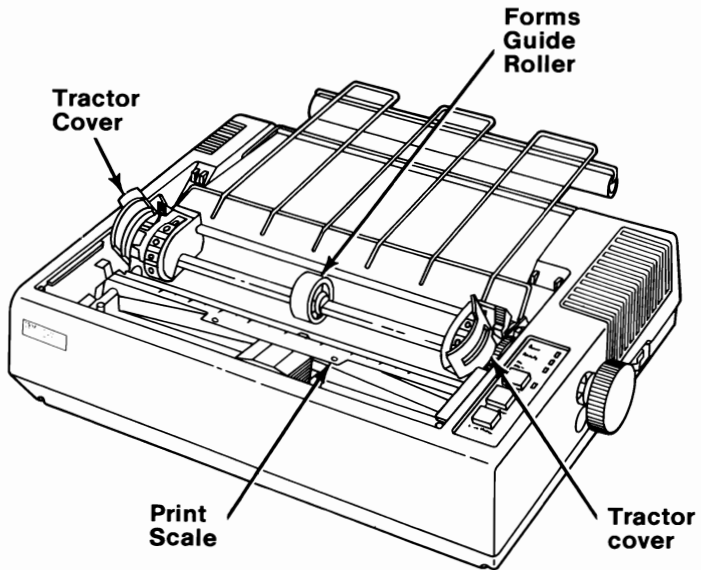
- 1 Make sure your printer's power is off.



- 2 Place the continuous paper or forms behind and below your printer. If you have a printer stand, that's ideal. The floor will also work.

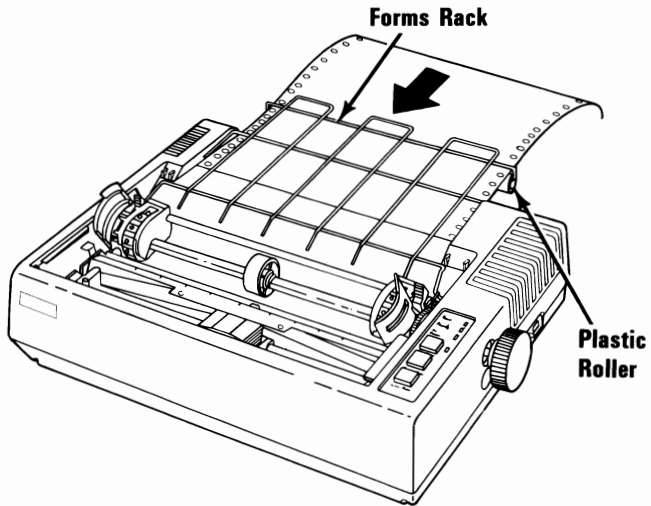


- 3** Center the forms guide roller.
- 4** Open the tractor covers.
- 5** Move the print scale toward the front of your printer.

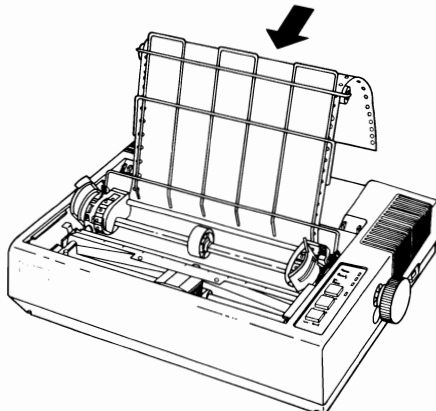


- 6** Insert the end of the paper into the opening between the forms rack and plastic roller.

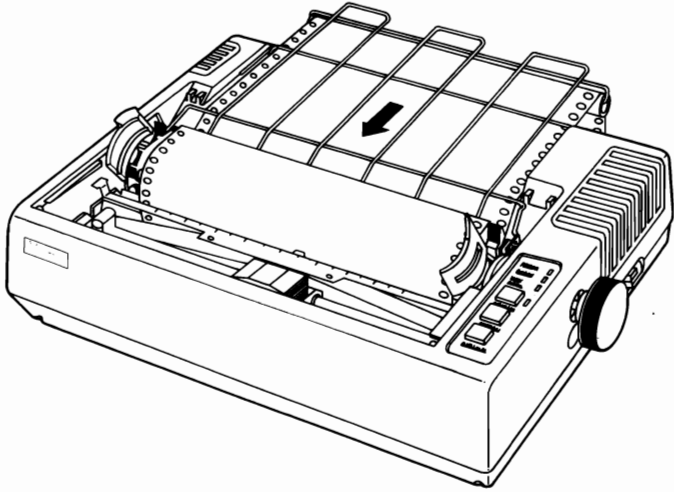
Note: Make sure the printer cables are out of the paper path so they do not interfere with the paper.



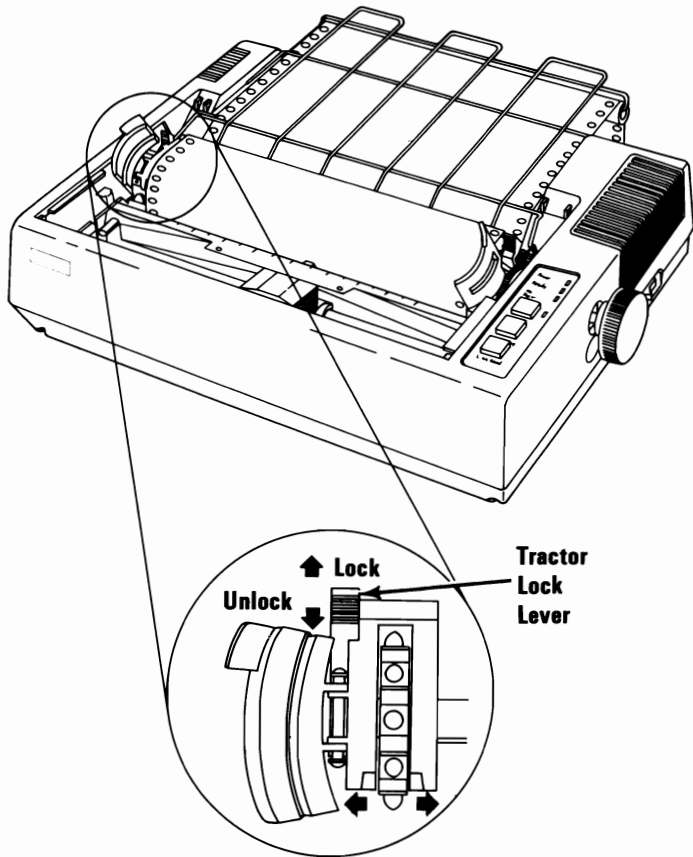
- 7** Tilt the forms rack up, as shown, and guide the paper into the printer opening.



- 8** Push the paper into the opening until 76 to 101 mm (3 to 4 in.) appear in the front.



- 9** If the width of the paper is different from the distance between the tractors, unlock the tractors by moving the tractor lock levers forward and sliding the tractors to the correct width.

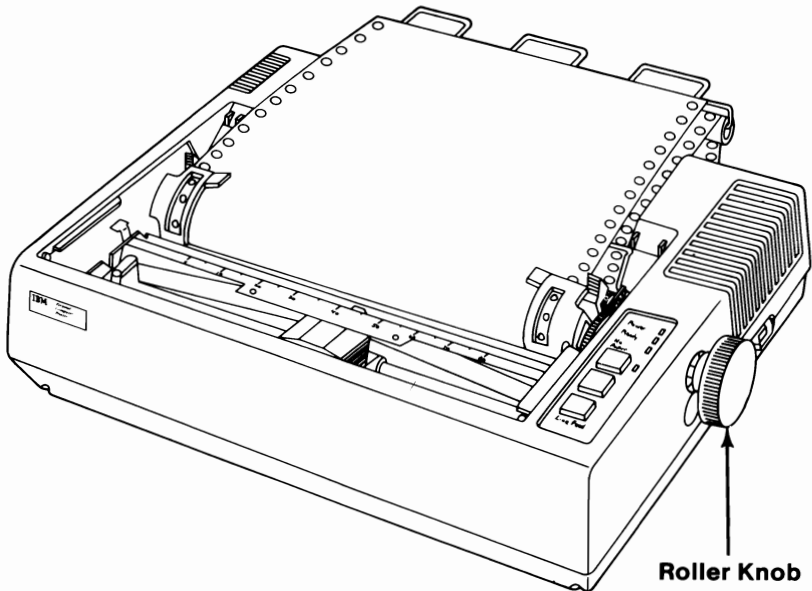


- 10** Place the paper's holes over the top of the tractor pins and close the tractor covers. Adjust the tractors so the paper is centered and free of any buckles.

- 11** Lock the tractors in place by moving the tractor lock levers to the rear.

Warning: Always roll the paper forward. Rolling it backwards may damage your printer.

- 12** Roll the paper up with the roller knob. Ensure that the paper is feeding properly. (Be sure the paper or forms are centered under or behind the printer. Do not allow the paper or forms to rub against anything, including the printer cable.)



- 13** Move the print scale to the rear and against the paper.

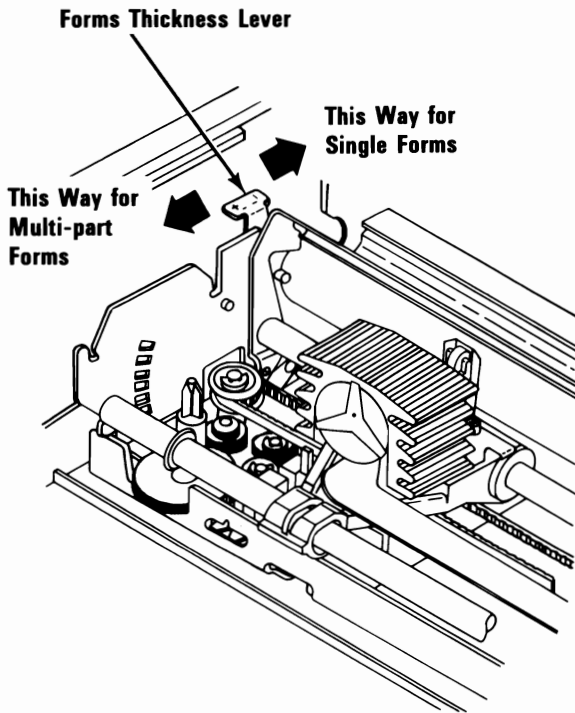
- 14** Install the printer access cover.

Forms Thickness Lever

The Forms Thickness Control lever adjusts the position of the print head to allow room for single sheets or multiple-copy forms. Move the lever toward the rear for single sheets, and toward the front for multiple-copy forms.

This lever can affect print darkness. If the printing is too light, move the lever toward the rear of the printer; if the printing is smeared, move the lever toward the front. The best position for the lever is as far to the front of the printer as possible while still getting good print with a good condition ribbon installed.

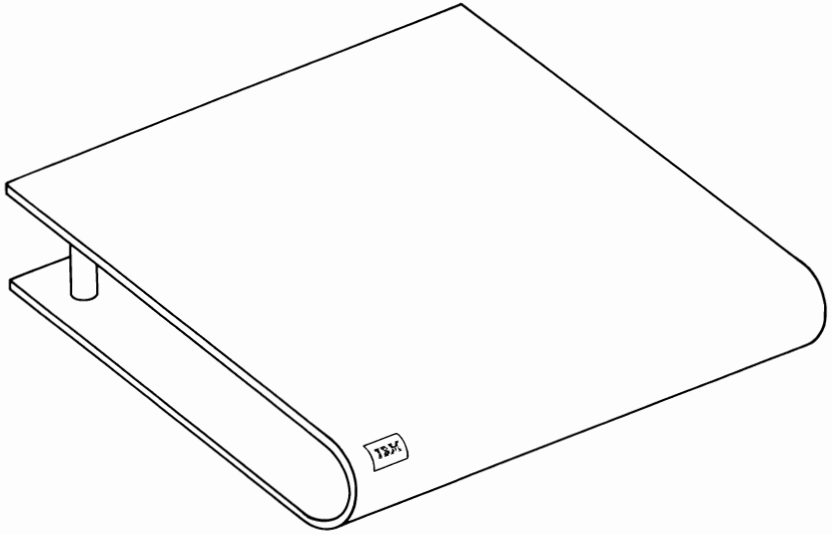
Warning: Positioning the Forms Thickness Control lever too far to the rear for the forms being used will result in premature wear of the print head.



If you have any other external options that need to be installed, install them now. If not, go to "Section 6, System Check List".

The operating instructions for your IBM Personal Computer Graphics Printer are located in the "Operating your IBM Personal Computer AT" section of your *Guide To Operations*.

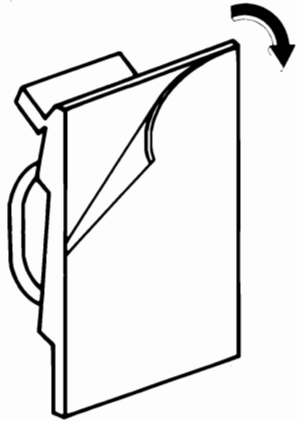
IBM Personal Computer Graphics Printer Stand



If your system has not been installed, go to *CHART 2, Installing Your Internal Options* before installing this option.

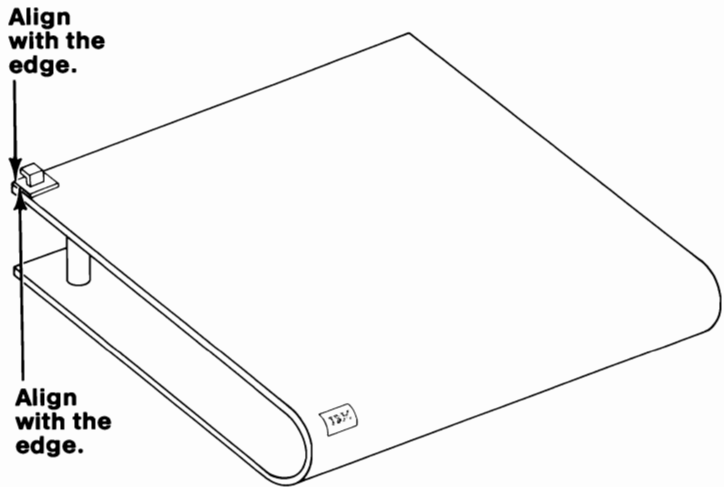
Installation Instructions

- 1 Wipe the surface of the printer stand clean.
Remove the paper backing from the clip.

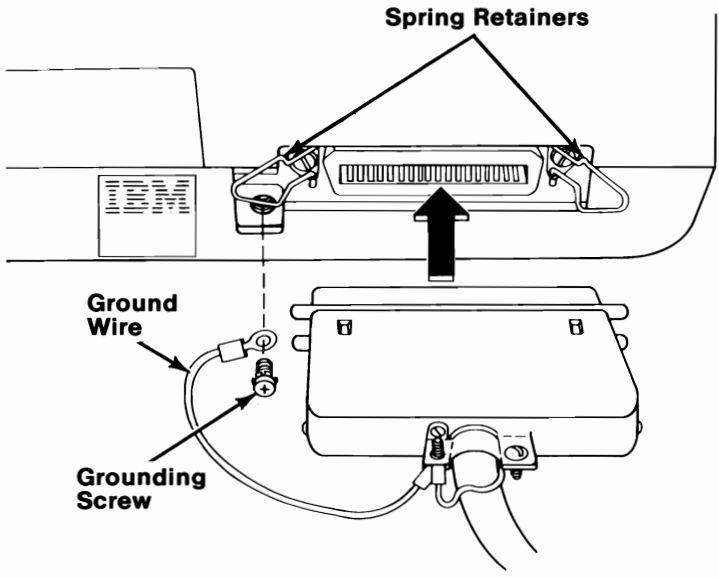


- 2 Place the clip on the stand.

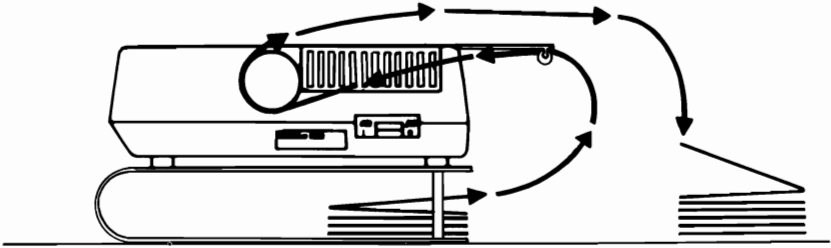
Note: The clip cannot be moved once it is in place.



- 3 Place your IBM Personal Computer Graphics Printer on the top shelf of the stand, 89 mm (3-1/2 in.) from the rear edge of the stand.
- 4 Connect the printer cable to the connector on your IBM printer, and route the cable through the clip.

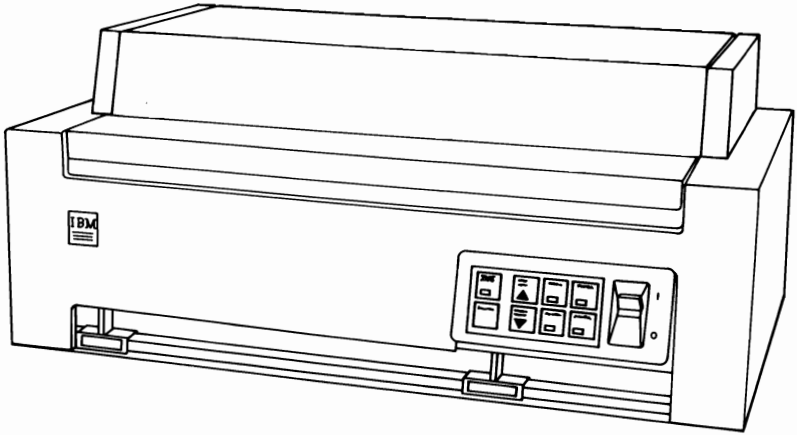


- 5** Place your paper or forms on the bottom shelf of the stand and insert the paper or forms.



- 6** If you have any other external options that need to be installed, install them now. If not, go to "Section 6, System Check List".

IBM Personal Computer Color Printer



COLOR PRINTER

If your system has not been installed, go to *CHART 2, Installing Your Internal Options* before installing this option.

Installation Requirements

The printer adapter to which you are connecting this option should already be installed in your system. If not, refer to the option instructions for the printer adapter. Install the printer adapter before continuing.

DANGER

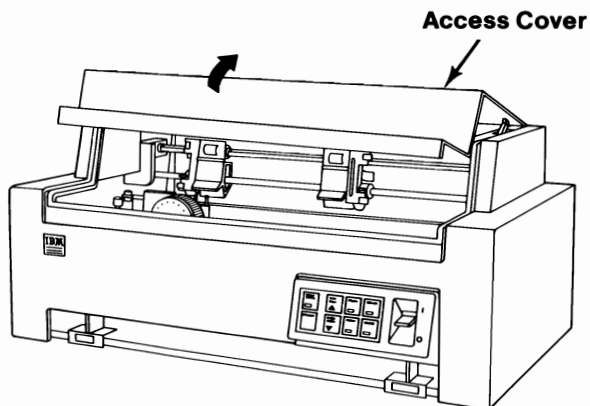
Serious shock hazards exist within the covers of the IBM Personal Computer Color Printer. Do not remove these covers under any circumstances. There are no user-serviceable parts inside.

Installation Instructions

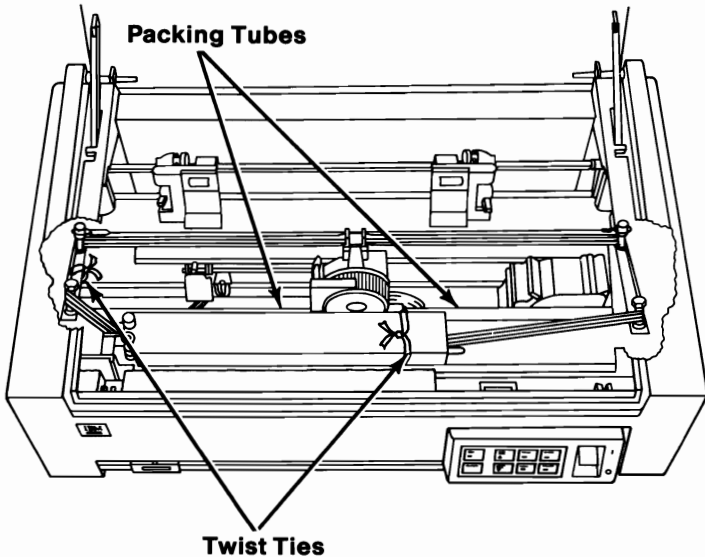
Unpacking

Warning: Do not connect your printer to a wall outlet or to your system unit until you have completed these unpacking instructions. You could damage your printer.

- 1** Follow the instructions printed on the shipping carton to remove your printer from the carton.
- 2** Open the access cover.



- 3 Remove the twist tie from the ribbon cartridge.
- 4 Remove the twist tie from the left side of your printer.
- 5 Remove the packing tubes by carefully pulling them up and off the carriage support shaft.
- 6 Remove the print sample.



Note: You may wish to keep the packing tubes and shipping carton to move the printer in the future.

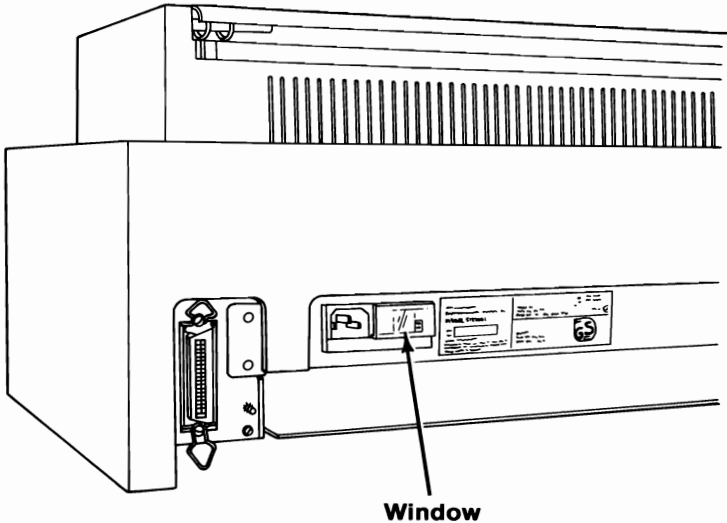
- 7 Close the access cover.

Voltage Check

Warning: Your printer must be set properly for the Vac power available to you. Connecting your printer to Vac power before setting it to the correct voltage range will damage your printer.

Your printer was set at the factory for the standard U.S. voltage range. You must verify this by looking into the window next to the power cord connector on the back of the printer. You will see the number 120.

If you have other than standard U.S. voltage, or need help checking your printer voltage setting, continue with "Voltage Selection" on the next page. If you have standard U.S. voltage go to step 18.



Voltage Selection

Follow these steps to check or set the printer voltage setting.

- 8 Find the correct setting for the voltage range available to you. If you need assistance, contact your place of purchase.

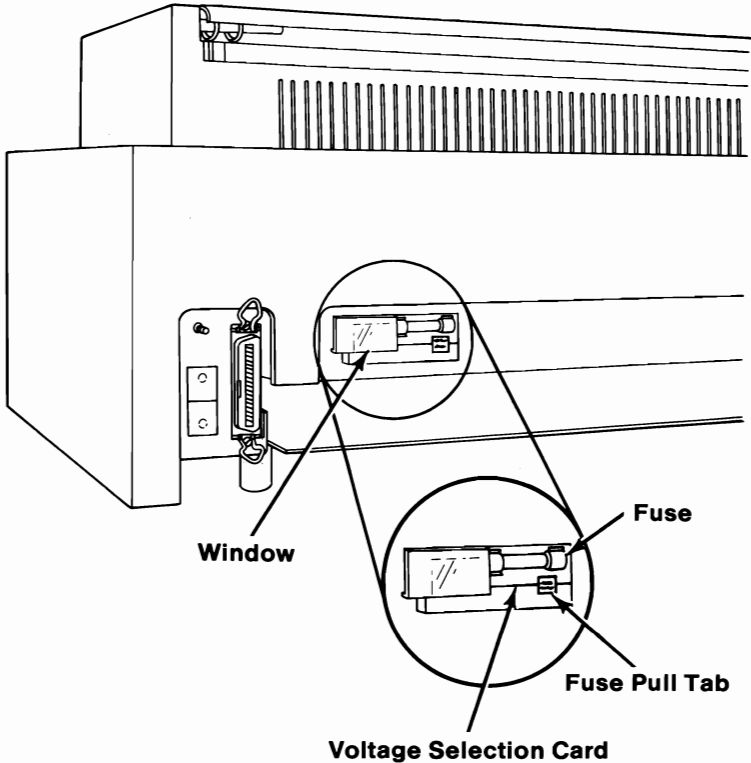
Voltage Range	Setting
90 – 118 Vac	100
102 – 139 Vac	120 (U.S. standard)
180 – 236 Vac	200
190 – 264 Vac	220

- 9 Compare your required setting with the number visible through the window at the back of your printer. This number is the present voltage setting of your printer.

- 10 If your printer is not set correctly, continue with these steps. If you need help with the following steps, contact your place of purchase.

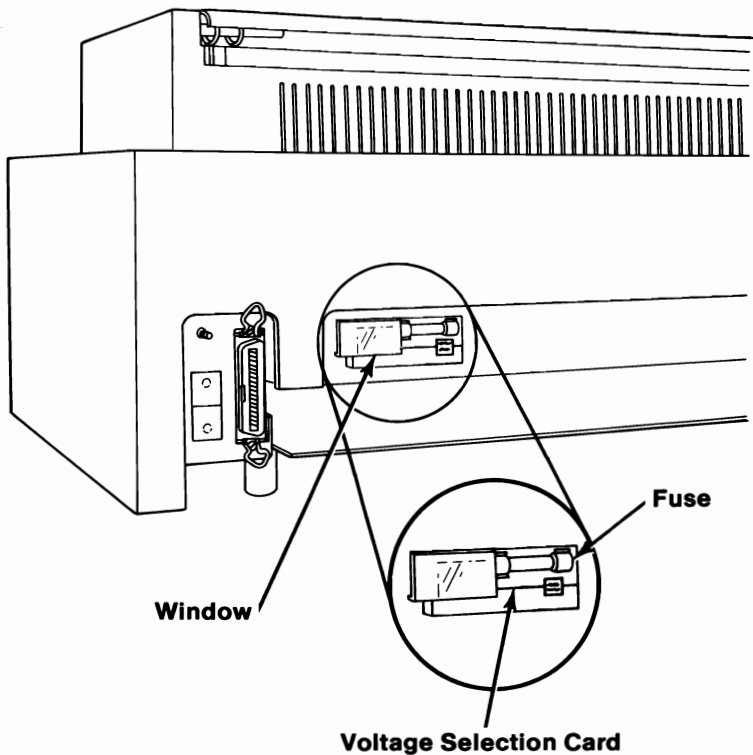
- 11 Turn your printer's power off, and unplug the power cord from the wall outlet and from the printer.

- 12 Open the window by sliding it to the left.
- 13 Pull on the Fuse Pull tab to pivot the fuse out, then remove the fuse from the printer.
- 14 Using a needle-nose pliers or similar tool, pull the voltage selection card straight out of the printer.
- 15 Arrange the voltage selection card so that the setting number you want is right-side up and facing you.



16 Insert the voltage selection card into the printer, and press it all the way in. You should now see only the number for your required voltage setting.

17 Reinstall the fuse between the clips, and close the window by sliding it to the right.

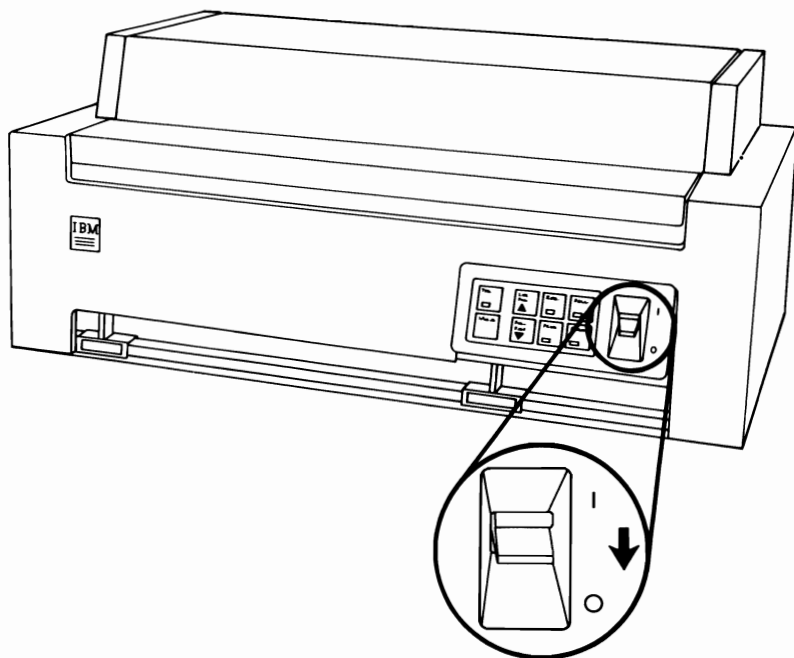


Cabling Your Printer to Your System

- 18** Turn your system unit's power off.

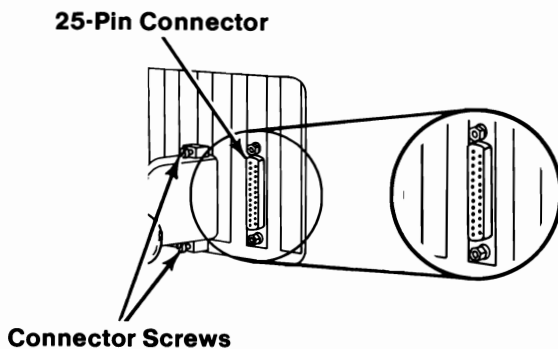
Note: | is the international symbol for On.
O is the international symbol for Off.

- 19** Turn your printer's power off.



20 Find the 25-pin printer adapter connector on your system unit. The figure below will help you identify it.

21 Connect the printer cable to your system unit, and tighten the screws in the cable connector.

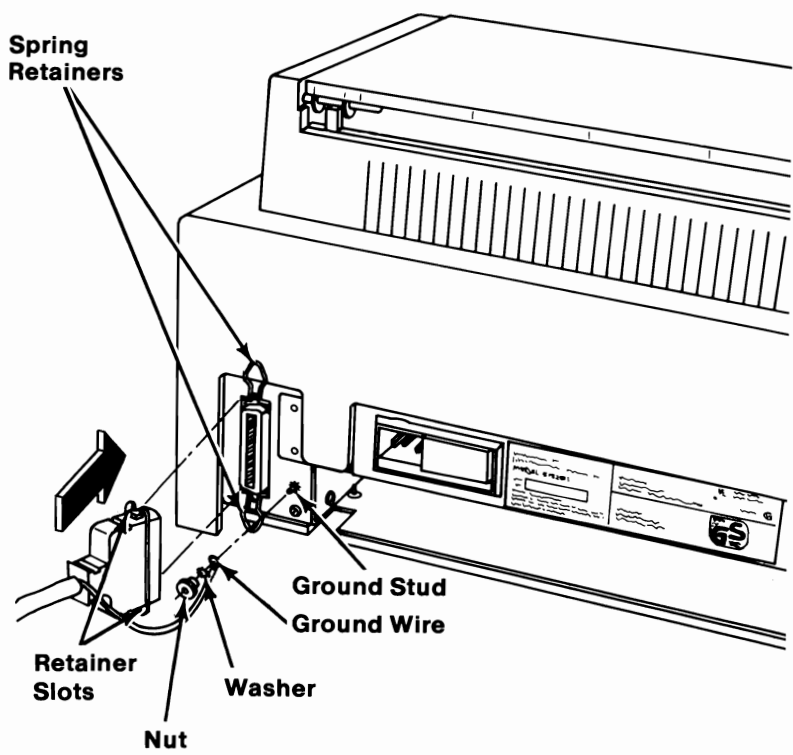


22 Connect the printer cable to your printer. Make sure the cable connector is pressed firmly into your printer.

23 Push the spring retainers into the slots on the edges of the cable connector.

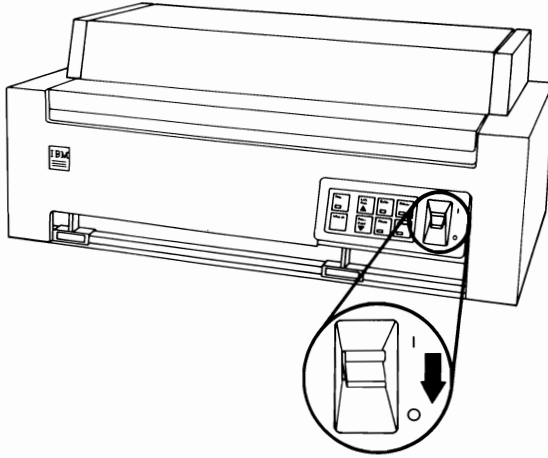
24 Connect the ground wire.

- Remove the nut from the ground stud.
- Remove one of the two star washers.
- Place the ground wire on the stud.
- Install the star washer and nut on the ground stud, and tighten the nut.



Power Cord Connection

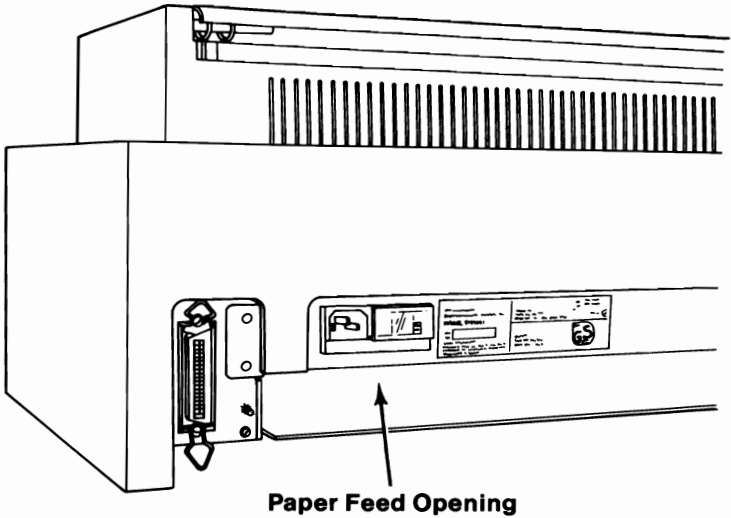
- 1 Turn your printer's power off.



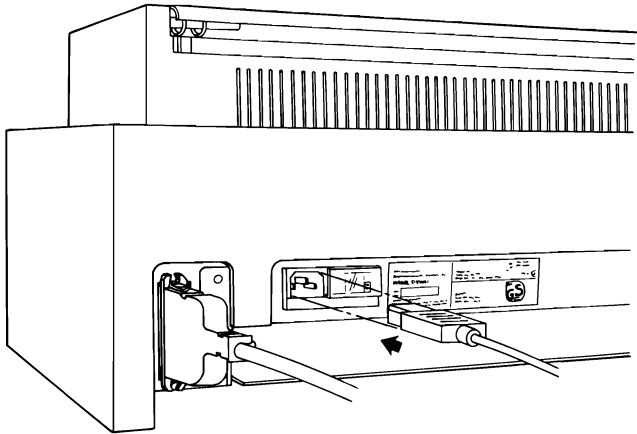
CAUTION

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 receptacle to avoid possible electrical shock.

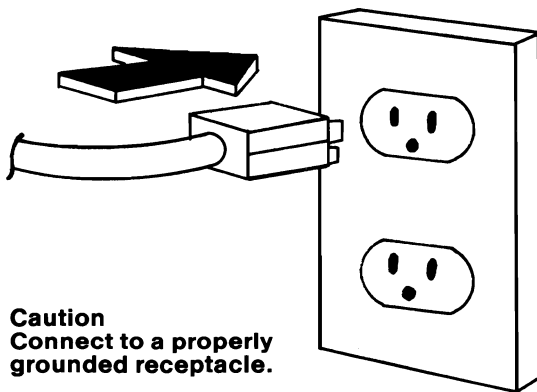
- 2 Locate the power cable in the paper feed opening at the back of the printer.



- 3** Connect the power cord to the rear of your printer.



- 4** Plug the power cord into a properly grounded wall outlet.



Caution
Connect to a properly
grounded receptacle.

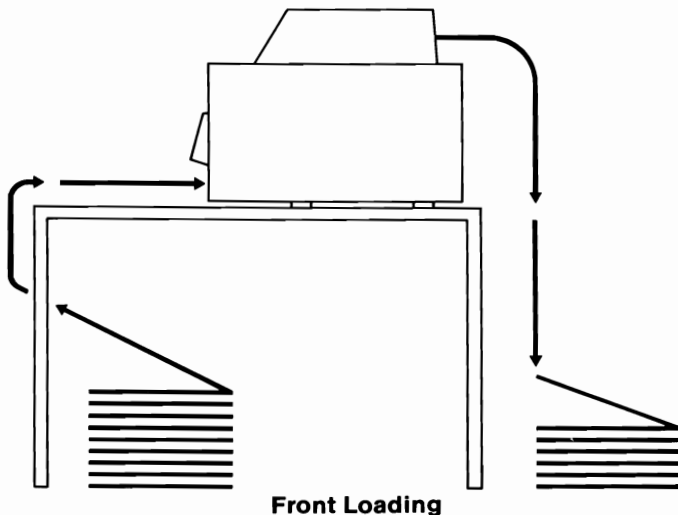
Using Single Sheets of Paper or Forms

Your printer uses either single sheets or continuous multiple-copy (up to four-part) forms. Single sheets can be from 178 mm (7 in.) to 305 mm (12 in.) wide and from 216 mm (8.5 in.) to 432 mm (17 in.) long. The forms can range in widths from 89 mm (3.5 in.) to 390 mm (15.75 in.) including perforations.

The figure below shows forms being loaded from the front of your printer. Rear and bottom loading slots are shown at the end of this section. Single sheets can be loaded only at the front loading slot.

The following two sections describe how to use either type of paper. Each section is complete and independent of the other. To use continuous paper or forms, see "Continuous Paper and Forms Operation" on the next page. To use single sheets, see "Single Sheet Operation" later in this option.

Note: Your printer is designed to operate with the access cover closed. Operating your printer with the access cover open may cause the paper or forms to jam in your printer.



Continuous Paper and Forms Operation

Note: To use single sheets, see "Single Sheet Operation" later in this option.

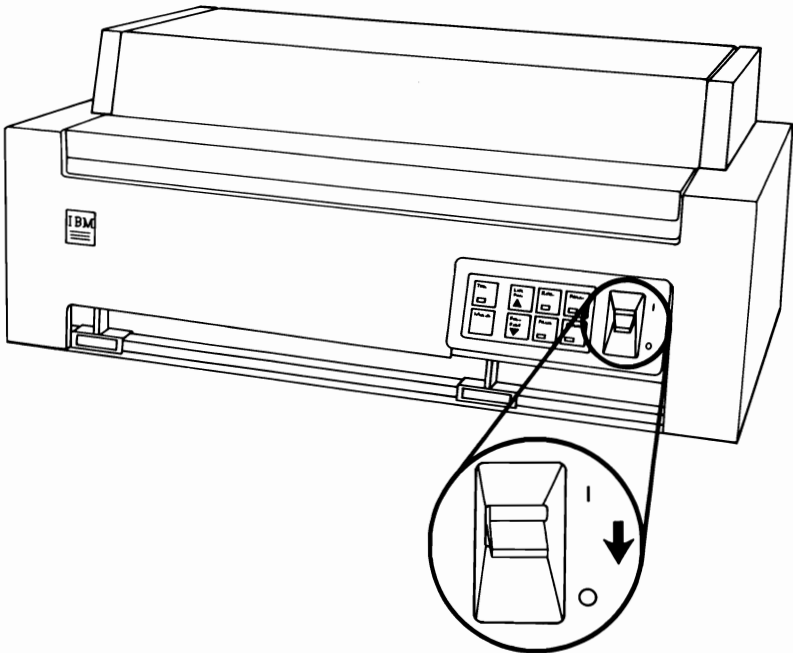
Continuous Paper or Forms Installation

- 1 Place a supply of continuous paper or forms close to the front loading slot.

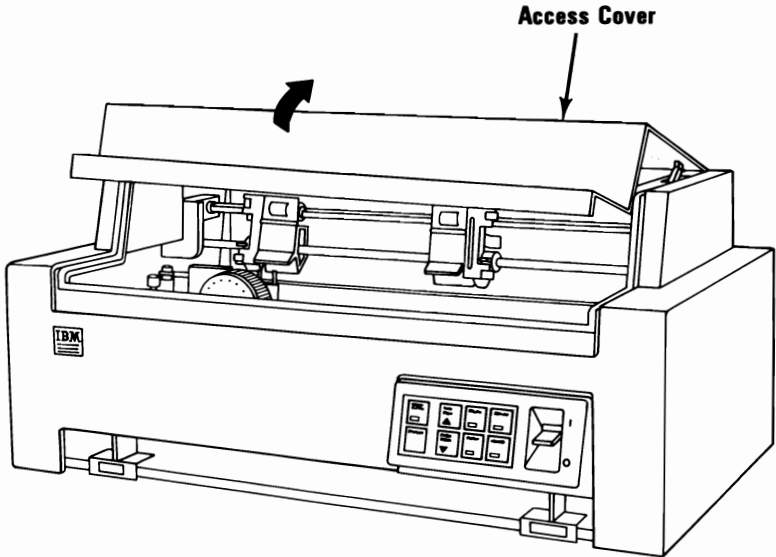
Note: The front loading slot is easiest to use when first learning to use the printer. If you choose to use the rear or bottom loading slot, place a supply of forms close to the loading slot you wish to use.

- 2 Turn your printer's power off.

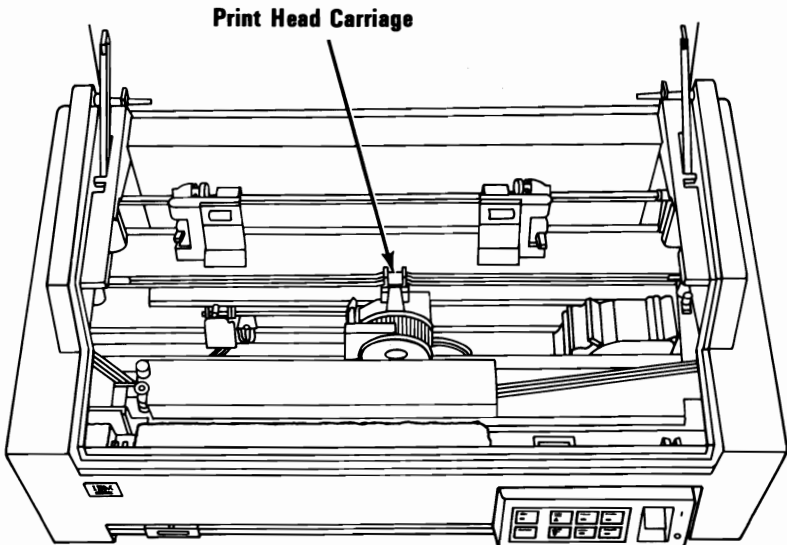
Warning: Turning your printer's power off during printing will result in the loss of data.



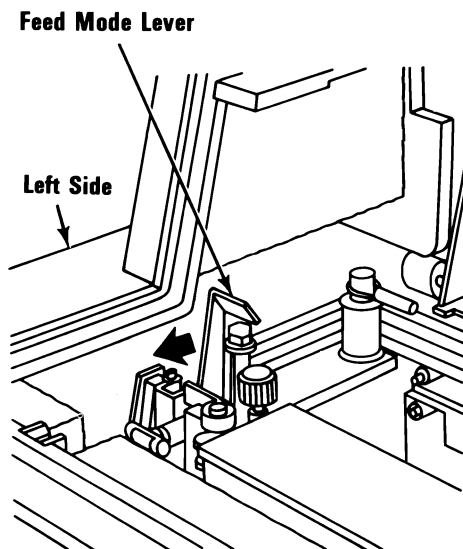
- 3** Open the access cover.



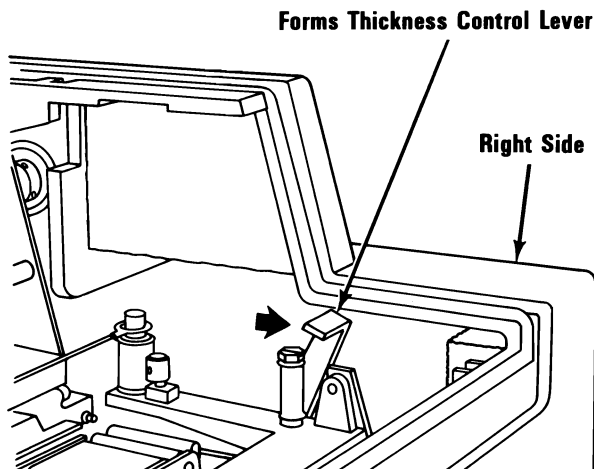
- 4** Center the print-head carriage by sliding it left or right.



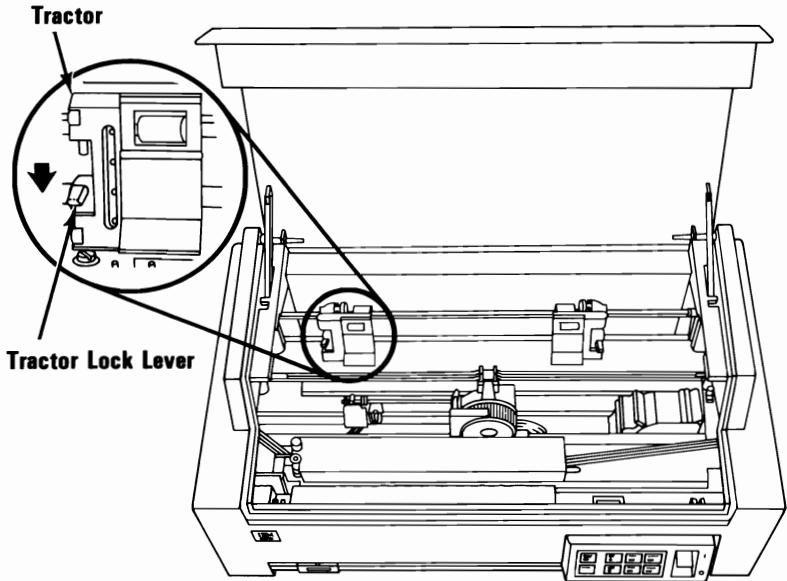
- 5** Move the Feed Mode lever toward the front of your printer to the open (continuous paper or forms) position.



- 6** Move the Forms Thickness Control lever toward the front of your printer.

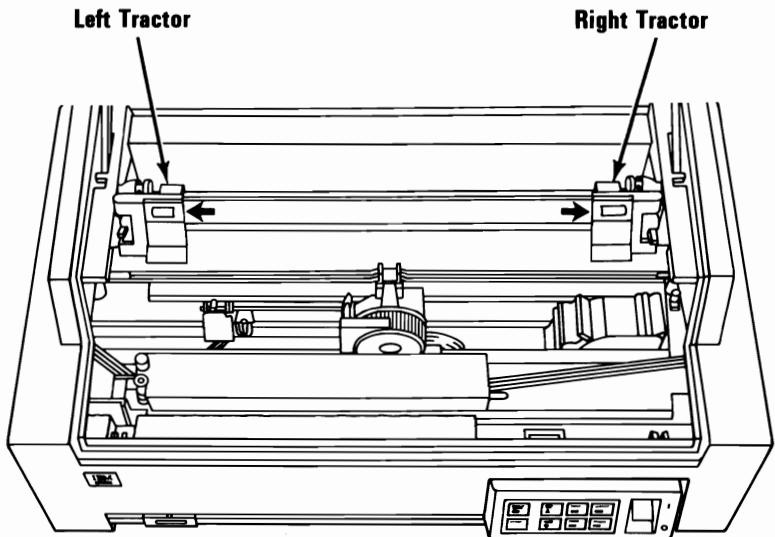


- 7** Unlock both tractors by pushing the Tractor Lock levers down.

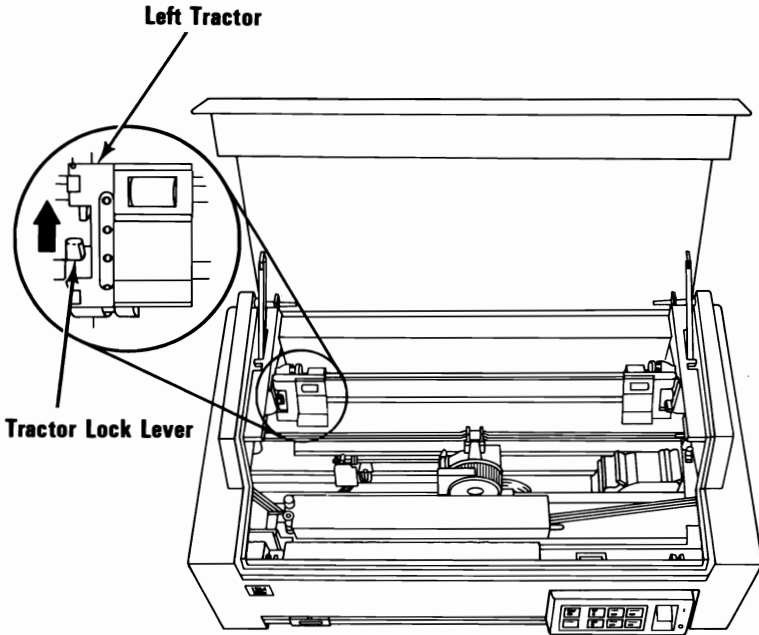


COLOR PRINTER

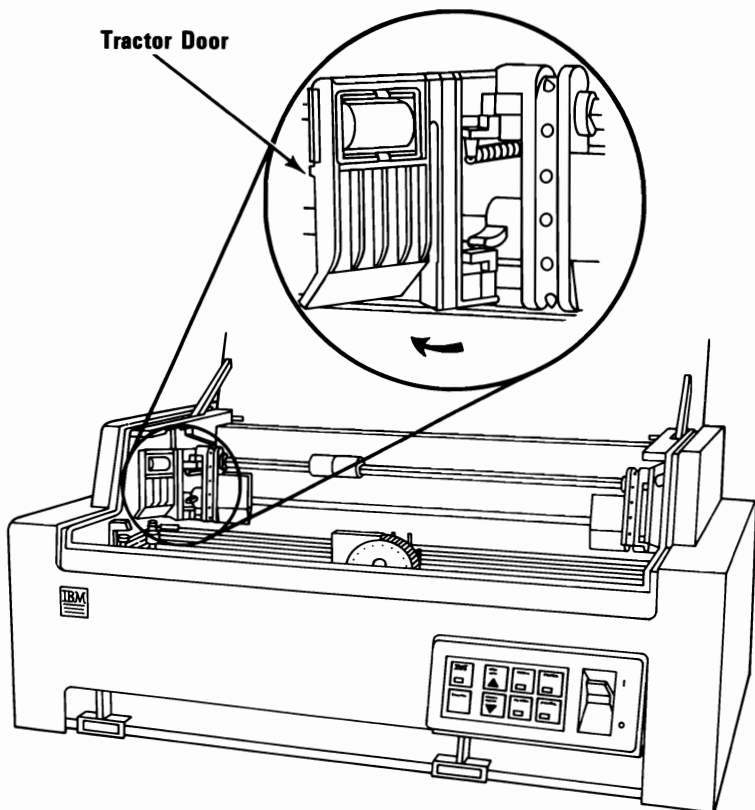
- 8** Slide both tractors to their outermost positions.



- 9** Lock the left tractor in place by pushing the lock lever up.



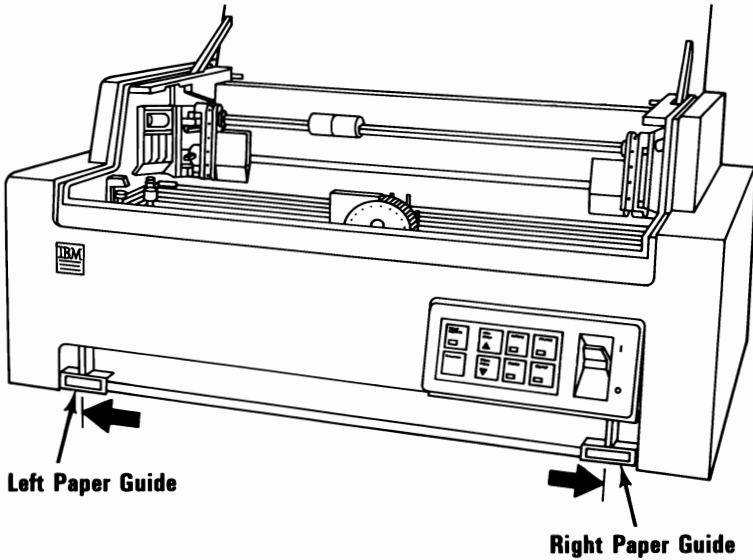
10 Open both tractor doors.



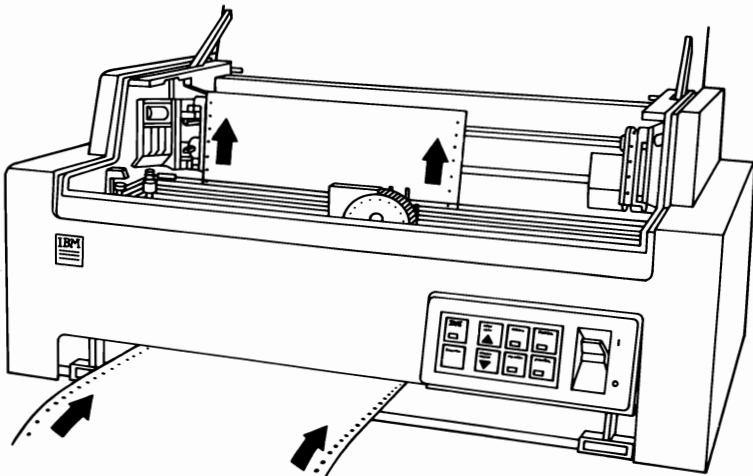
COLOR PRINTER

- 11** Slide both paper guides to their outermost positions.

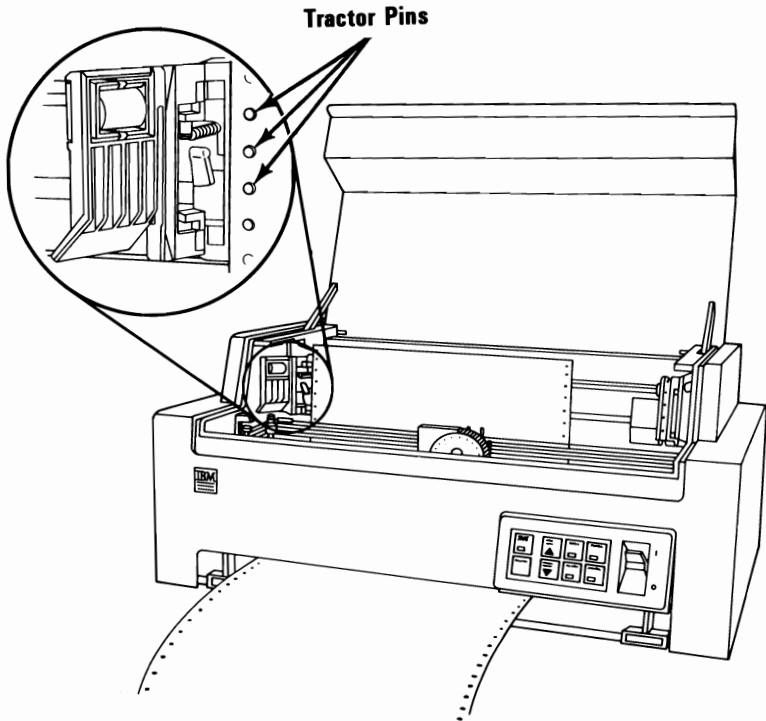
Note: This step is for front loading only.



- 12** Insert continuous paper or forms into the paper loading slot until they just pass the tractors. (Front loading is shown below.)

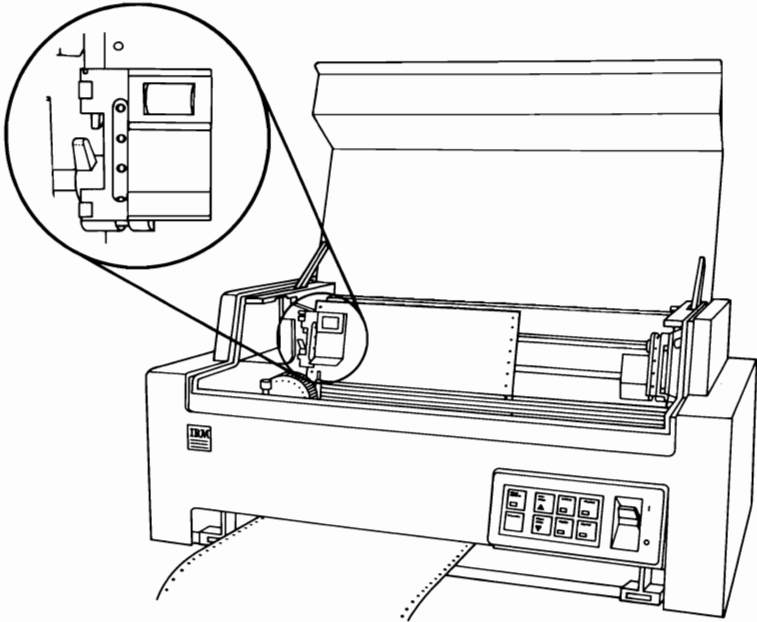


- 13** Adjust the paper so the holes in the left side align with the left tractor pins.

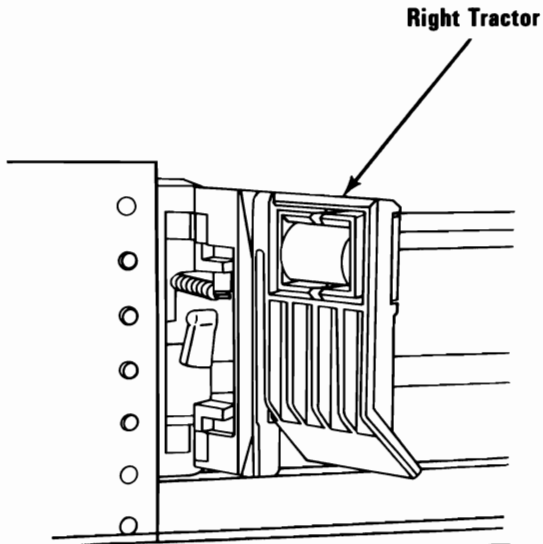


COLOR PRINTER

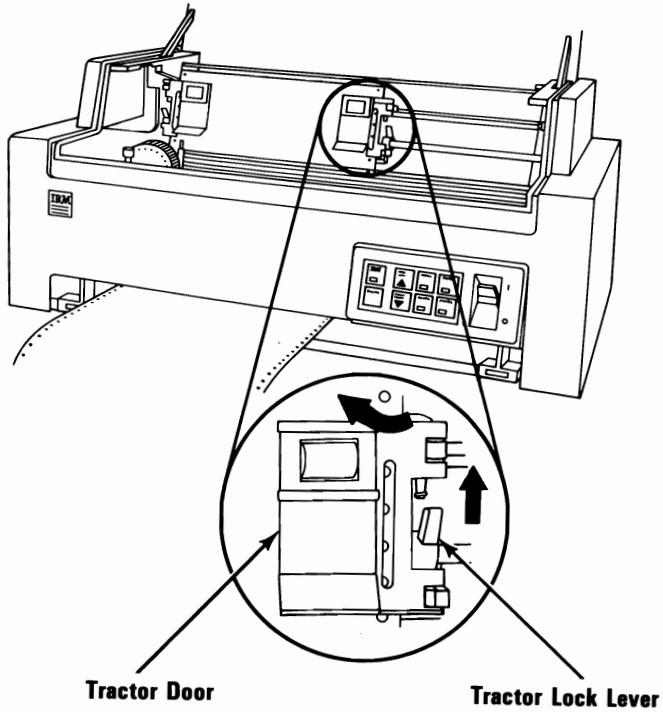
14 Close the left tractor door.



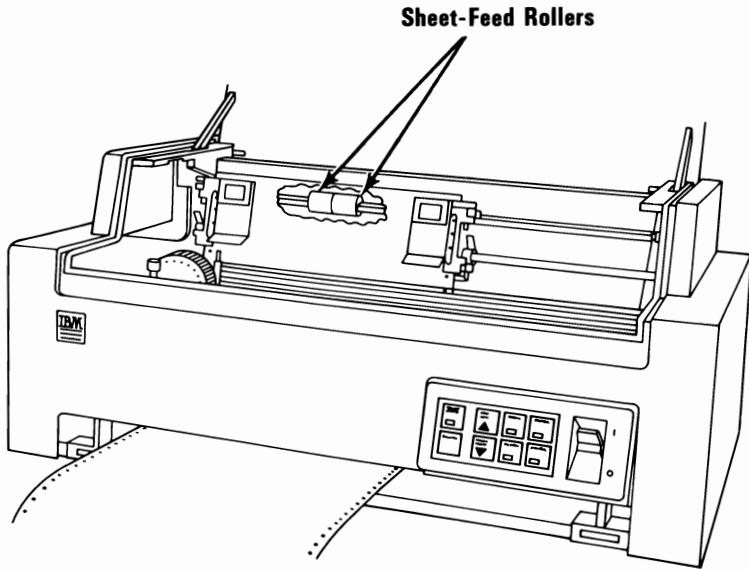
15 Adjust the right tractor so the tractor pins align with the holes in the right side of the paper.



- 16** Close the tractor door and push the lock lever up. If the paper buckles, unlock the right tractor and slide it to the right. Then lock the tractor in place.

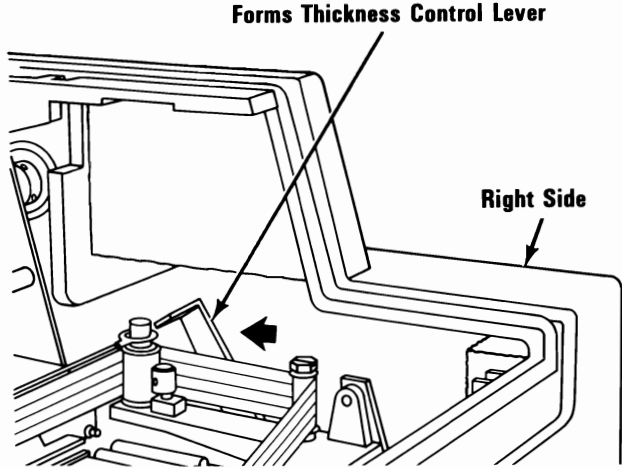


- 17** Center the two sheet-feed rollers between the tractors.

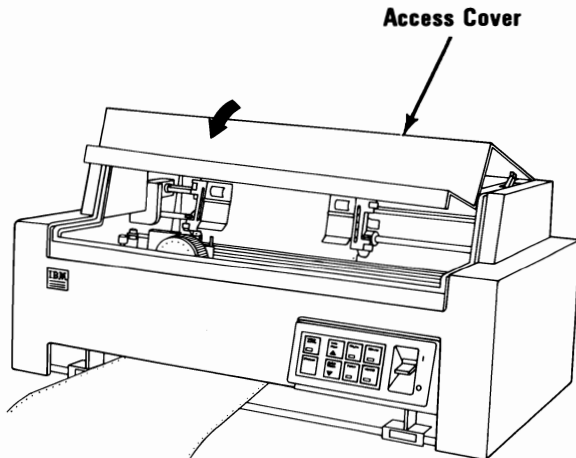


- 18** Move the Forms Thickness Control lever toward the rear of your printer (single-sheet position).

Note: If the printing smears, gradually move this lever toward the front of your printer until the smearing stops. (See "Forms Thickness Control Lever" on the next page.)



- 19** Close the access cover.

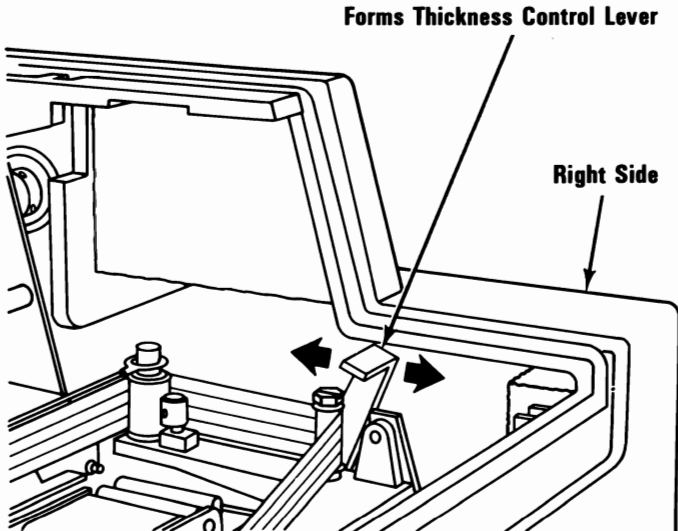


Forms Thickness Control Lever

The Forms Thickness Control lever adjusts the position of the print head to allow room for single sheets or multiple-copy forms. Move the lever toward the rear for single sheets, and toward the front for multiple-copy forms.

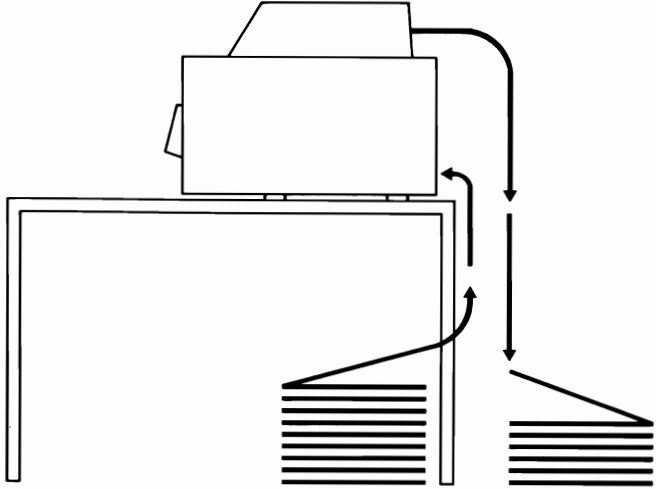
This lever can affect print darkness. If the printing is too light, move the lever toward the rear of the printer; if the printing is smeared, move the lever toward the front. The best position for the lever is as far to the front of the printer as possible while still getting good print with a good condition ribbon installed.

Warning: Positioning the Forms Thickness Control lever too far to the rear for the forms being used will result in premature wear of the print head and platen.

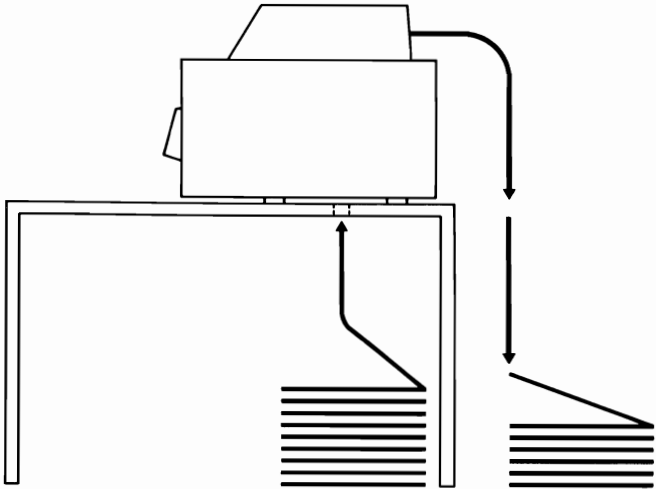


Rear and Bottom Loading Slots

- Continuous paper or forms can also be loaded from the rear or bottom of your printer, as shown in the figures below. The instructions are the same as for front loading with the exception of Step 11.



Rear Loading

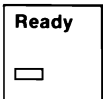




Bottom Loading

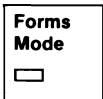
Setting the Top-of-Form

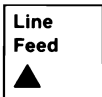
Install paper in your printer and follow the steps below.

Press: **To:**

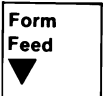

1.  Set your printer to the not-ready mode. 



2.  Move the paper to the approximate position you wish to set as the top-of-form.

3.  Set your printer to the forms mode.

4. 

OR

-  Move the paper up or down to the exact position you wish to set as the top-of-form. 

5.  Set the present position of the paper as the top-of-form and leave the forms mode. 

Setting the Left Margin

When the left tractor is set as far left as possible, your printer will start your lines 25.4 mm (1 in.) to the right of the left side of the paper. If you want to start your lines farther to the right, see "ESC X" under "Printer Control Codes". If you want to print closer to the left side of the paper, follow this procedure.

- 1** Turn your printer's power off.
- 2** Open the printer access cover.
- 3** With continuous paper or forms installed, unlock both tractors by pushing the Tractor Lock levers down.
- 4** Slide the tractors and paper or forms to the right the distance you want to move the left margin.
- 5** Lock both tractors in place by pushing the Tractor Lock levers up. Make sure the tractors are set so the paper lays flat between them.
- 6** Close the printer access cover.
- 7** Turn your printer power on.

- 8 If you have any other external options that need to be installed, install them now. If not, go to "Section 6, System Check List".

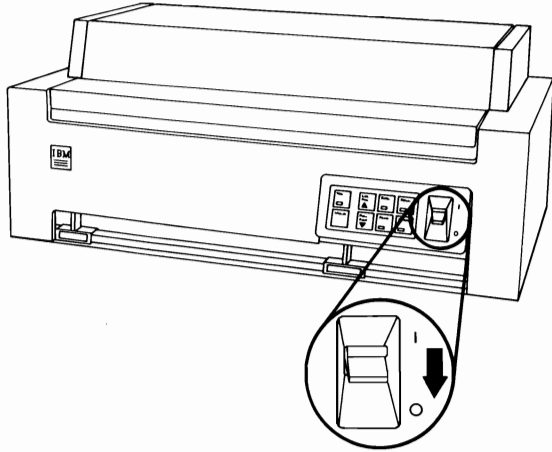
Note: The operating instructions for your IBM Personal Computer Color Printer are located in the "Operating your IBM Personal Computer AT" section of your *Guide To Operations*.

Single-Sheet Operation

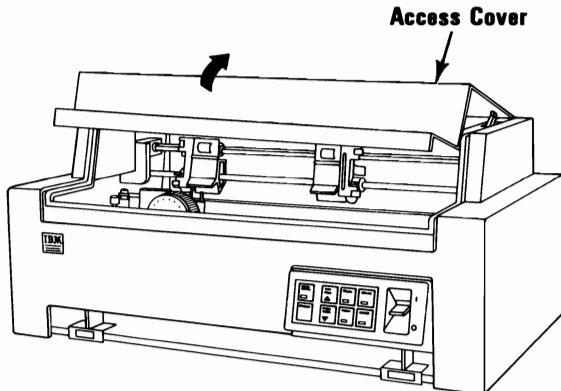
Note: For continuous paper or forms turn to "Continuous Paper and Forms Operation".

Paper Installation

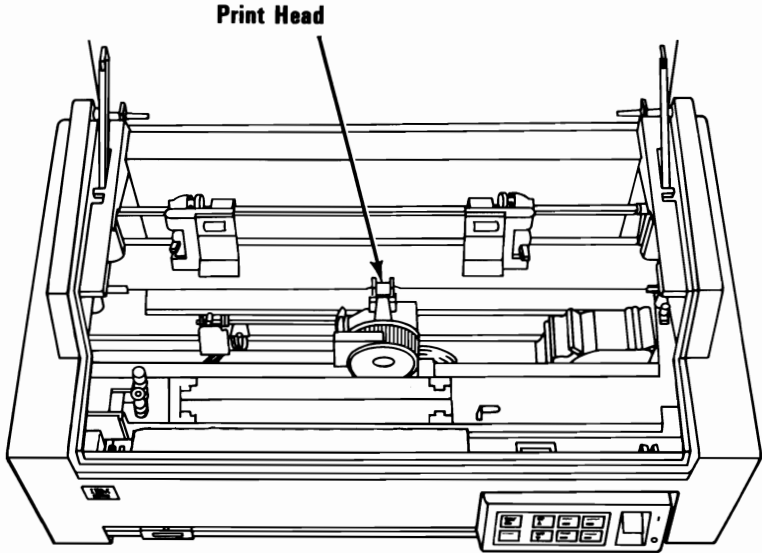
- 1** Remove any paper presently in your printer.
- 2** Turn your printer's power off.



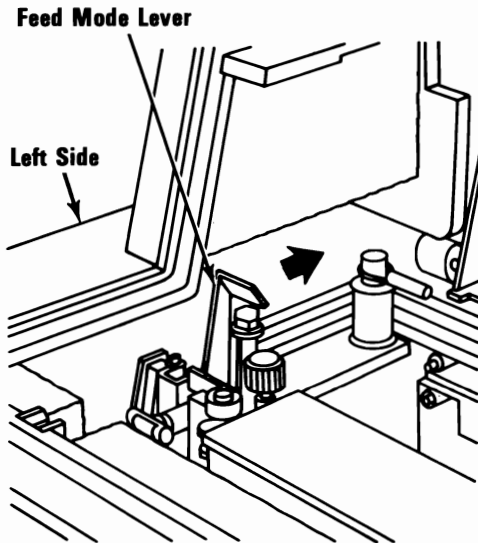
- 3** Open the access cover.



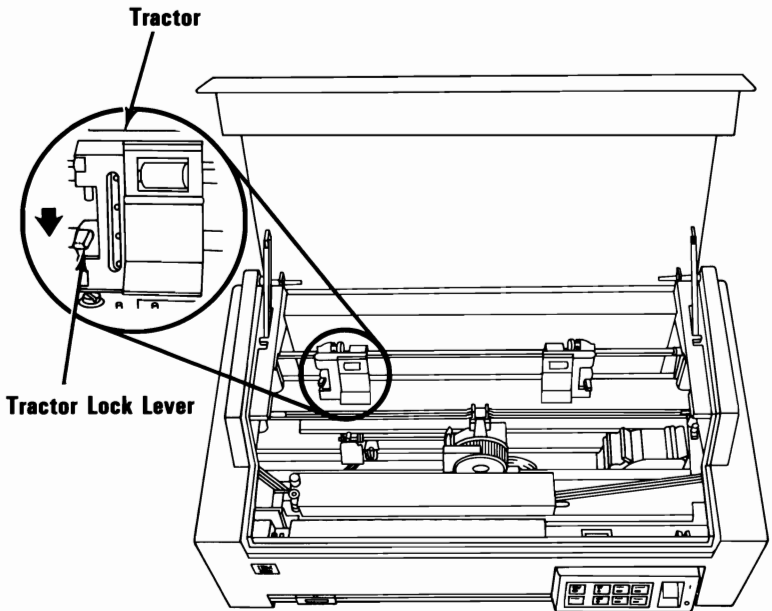
- 4** Center the print-head carriage by sliding it left or right.



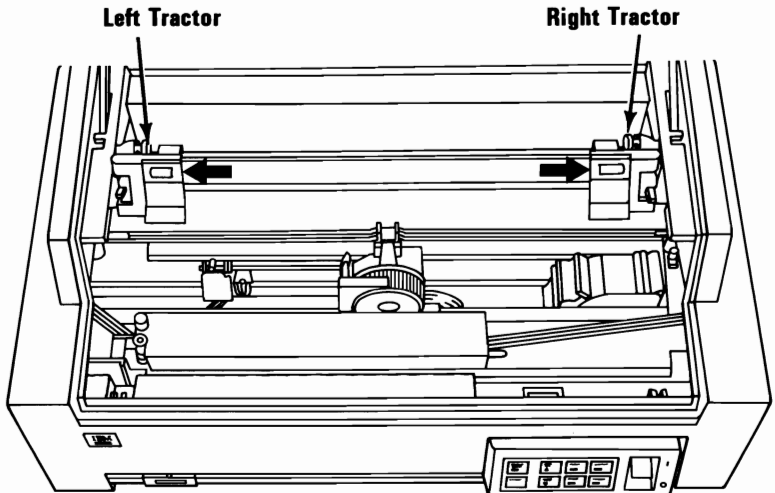
- 5** Move the Feed Mode lever toward the rear of the printer to the closed (single sheet) position.



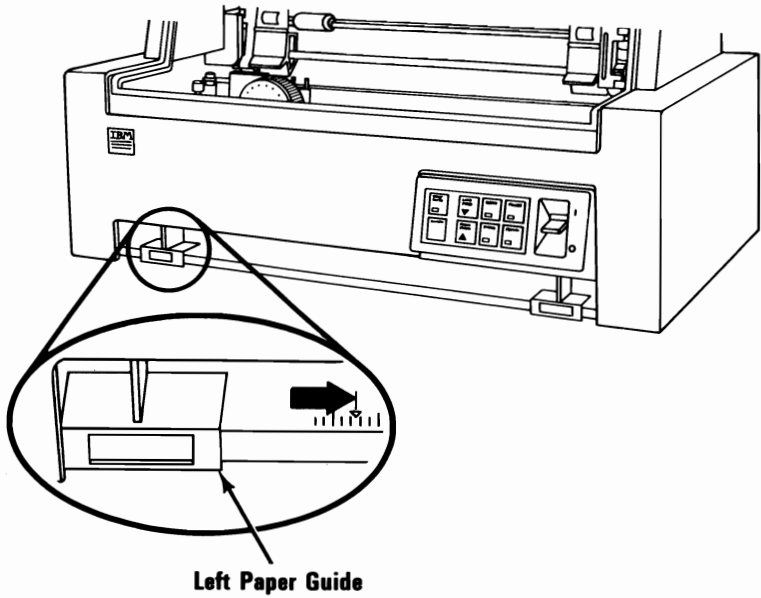
- 6** Unlock both tractors by pushing the Tractor Lock levers down.



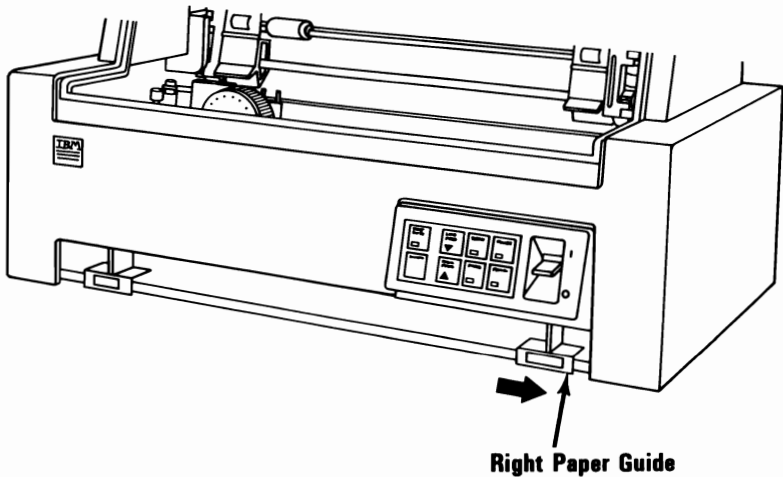
- 7** Slide both tractors to their outermost positions.



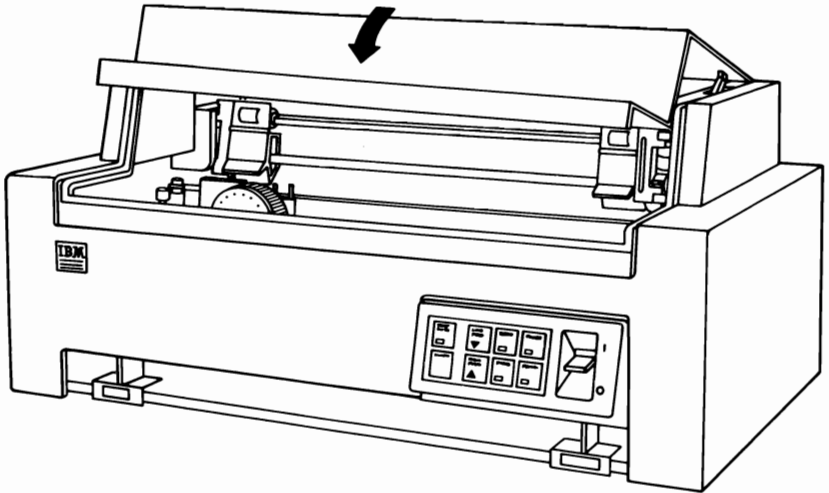
- 8** Slide the left paper guide until its right edge is aligned with the arrowhead on the scale.



- 9** Slide the right paper guide to the far right.

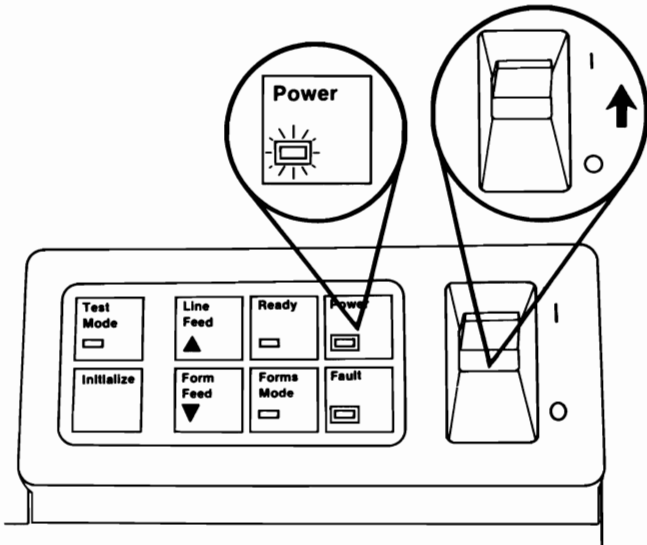


10 Close the access cover.

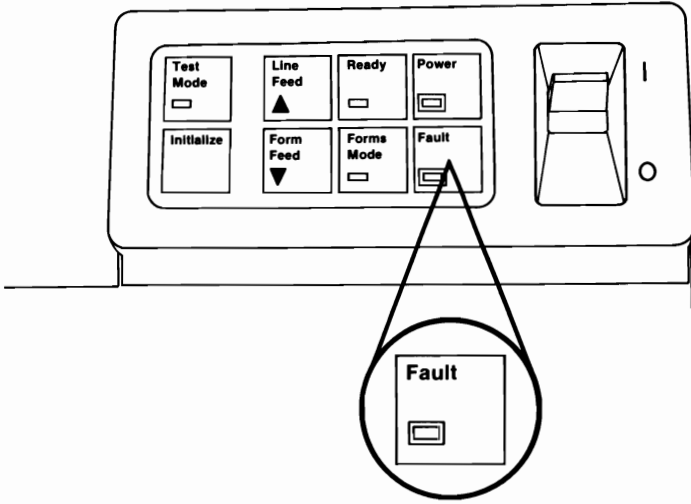


COLOR PRINTER

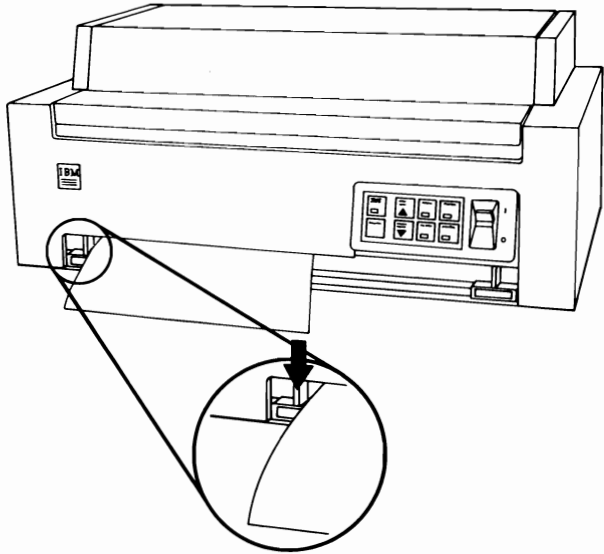
11 Turn your printer's power on.



- 12** Wait for the Fault light to come on (approximately 10 seconds).

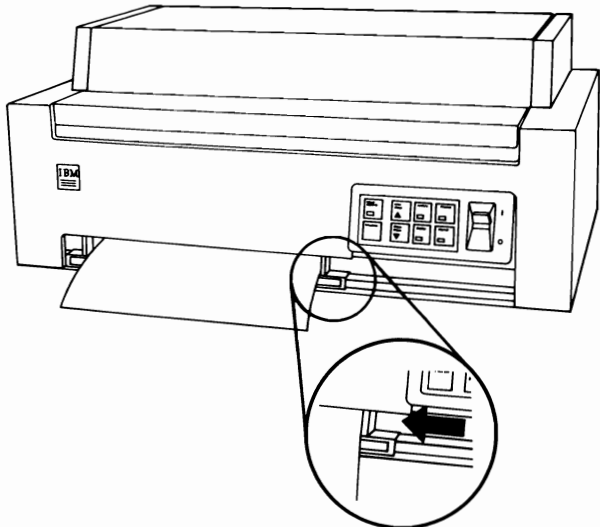


- 13** Place the top-left edge of a test sheet of paper against the left paper guide (do not push the paper up into the feed mechanism).

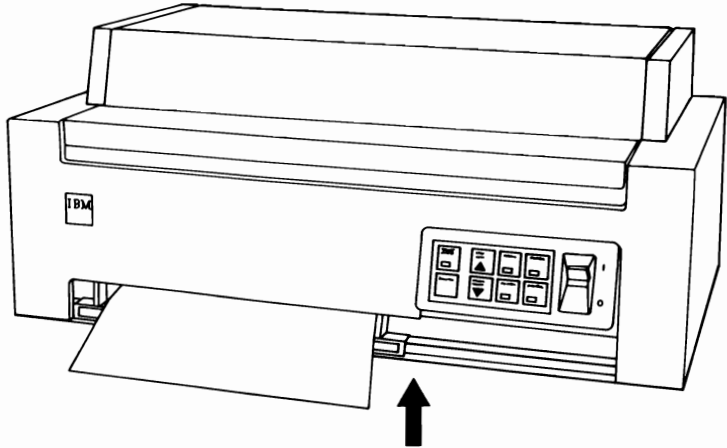


COLOR PRINTER

- 14** Slide the right paper guide against the right edge of the paper.

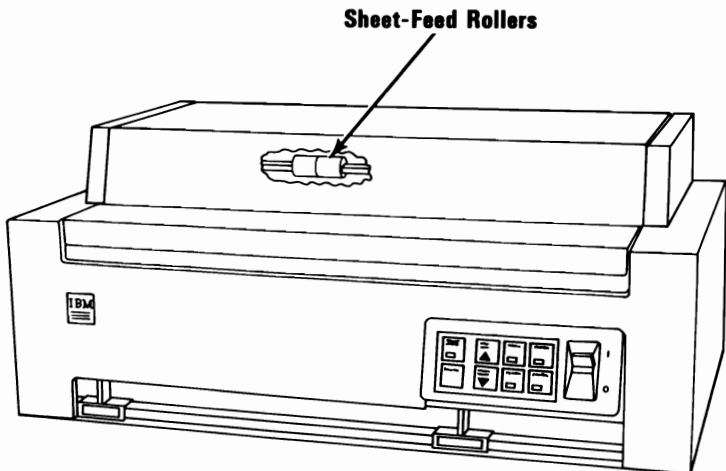


- 15** Insert the paper into the front loading slot until it is caught by the feed mechanism. Your printer automatically moves the paper to the first printable line, approximately 19 mm (3/4 in.) below the top edge of the ribbon.



- 16** Press the Ready button once to turn the Ready light Off.

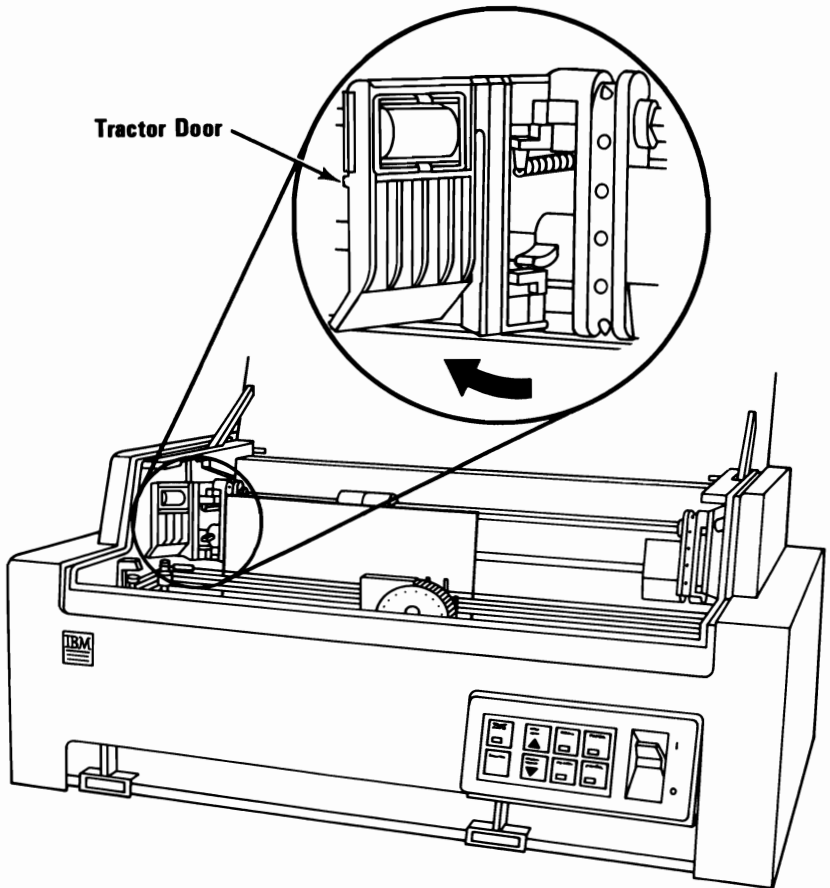
- 17** Press and hold the Line Feed button to advance the paper to the top of the sheet-feed rollers.



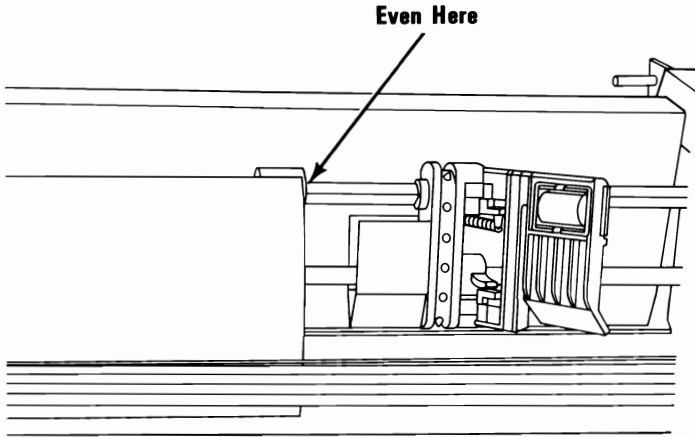
18 Turn your printer's power off.

19 Open the access cover.

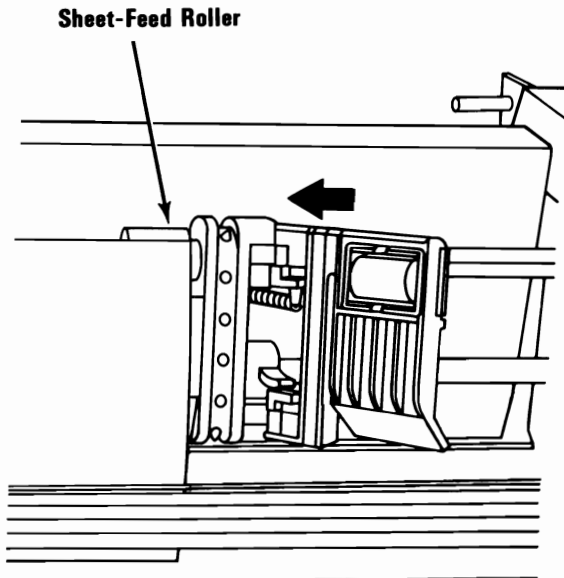
20 Open both tractor doors.



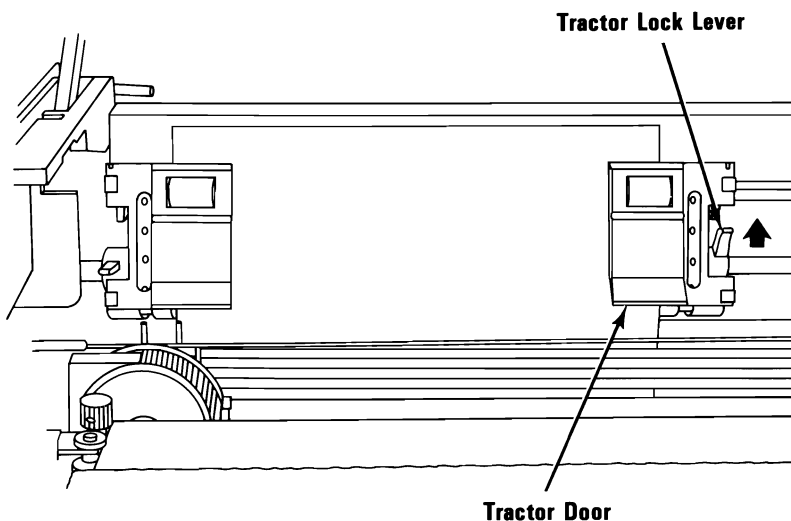
- 21** Adjust the sheet-feed rollers on the tractor drive rail so the outside edges of the rollers are even with the edges of the paper.



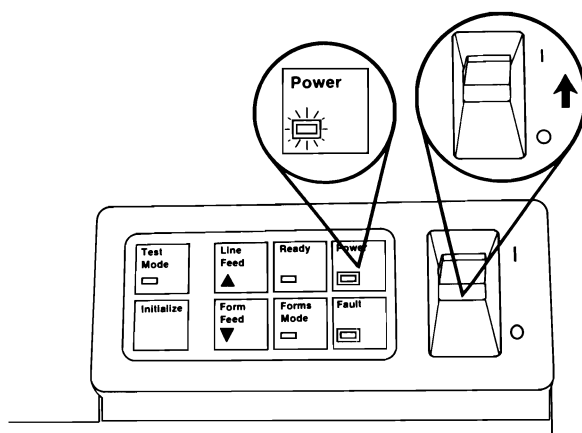
- 22** Slide each tractor against its respective sheet-feed roller.



- 23** Close the tractor doors and lock the tractors in place by pushing the Tractor Lock levers up.

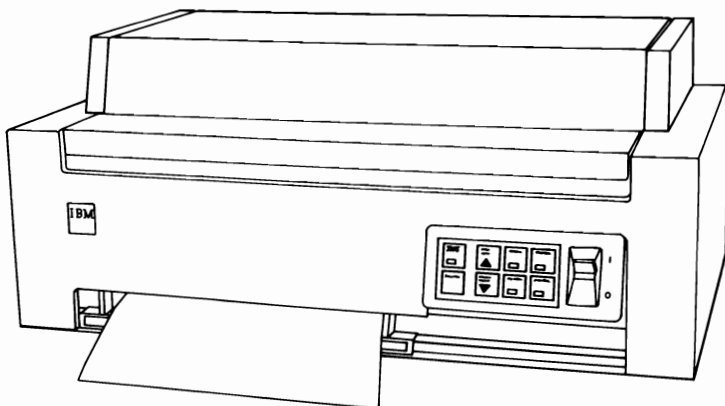


- 24** Close the access cover.
- 25** Turn your printer's power on. Press the Ready button to turn the Ready light off.



26 Press the Form Feed button to move the test sheet of paper out of your printer. The Fault light will then come on.

27 You can now insert a sheet of paper into the front loading slot. The paper will automatically advance to the first printable line.

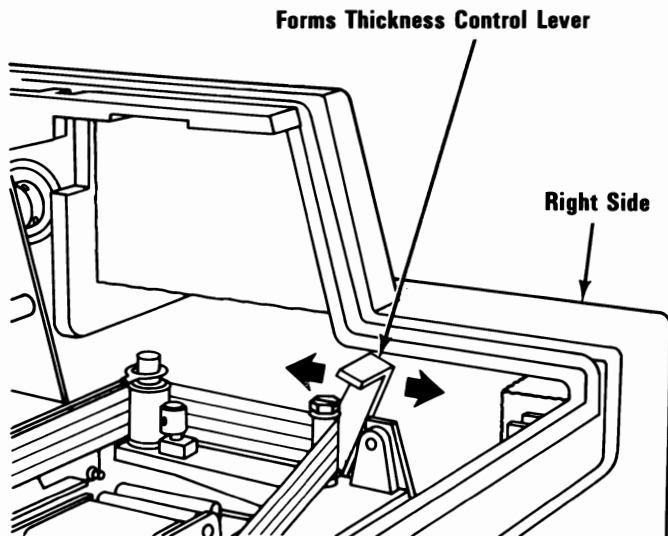


Forms Thickness Control Lever

The Forms Thickness Control lever adjusts the position of the print head to allow room for single sheets or multiple-copy forms. Move the lever toward the rear for single sheets, and toward the front for multiple-copy forms.

This lever can affect print darkness. If the printing is too light, move the lever toward the rear of the printer; if the printing is smeared, move the lever toward the front. The best position for the lever is as far to the front of the printer as possible while still getting good print with a good condition ribbon installed.



Warning: Positioning the Forms Thickness Control lever too far to the rear for the forms being used will result in premature wear of the print head and platen.




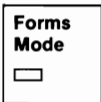
Setting the Top-of-Page

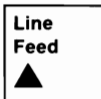

Install paper in your printer and follow the steps below.

Press: **To:**

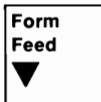
1.  Set your printer to the not-ready mode. 

2.  Move the paper to the approximate position you wish to set as the top-of-page.

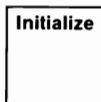

3.  Set your printer to the forms mode.

4.  

OR



Move the paper up or down to the exact position you wish to set as the top-of-page.

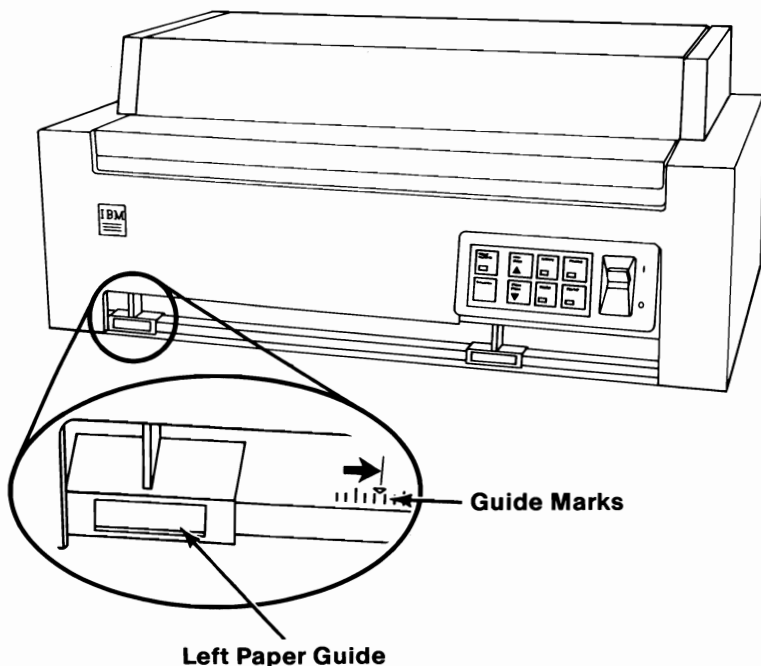
5.  Set the present position of the paper as the top-of-page and leave the forms mode. 

Setting the Left Margin

When the left paper guide is set at the arrow, your printer will start your lines 3.2 mm (1/8 in.) from the left edge of the paper. When the left paper guide is set as far left as possible, your printer will start your lines 38.1 mm (1-1/2 in.) from the left edge of the paper. If you want to start your lines farther to the right, see "ESC X" under "Printer Control Codes".

To adjust the paper position:

- 1** Move the front paper guides to the left or right as needed to change the left-to-right feed position of the paper.
- 2** Refer to "Single Sheet Operation" to adjust the tractors and feed rollers to match the new position of the paper.

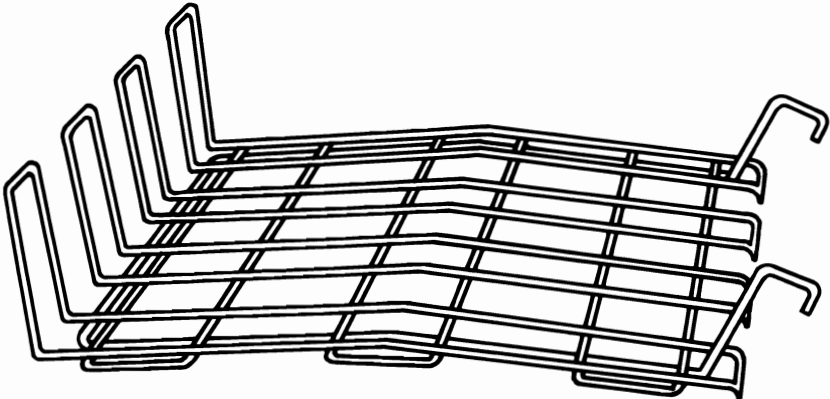


- 3** If you have any other external options that need to be installed, install them now. If not, go to "Section 6, System Check".

Note:

The operating instructions for your IBM Personal Computer Color Printer are located in the "Operating your IBM Personal Computer AT" section of your *Guide To Operations*.

IBM Personal Computer Color Printer Paper Rack

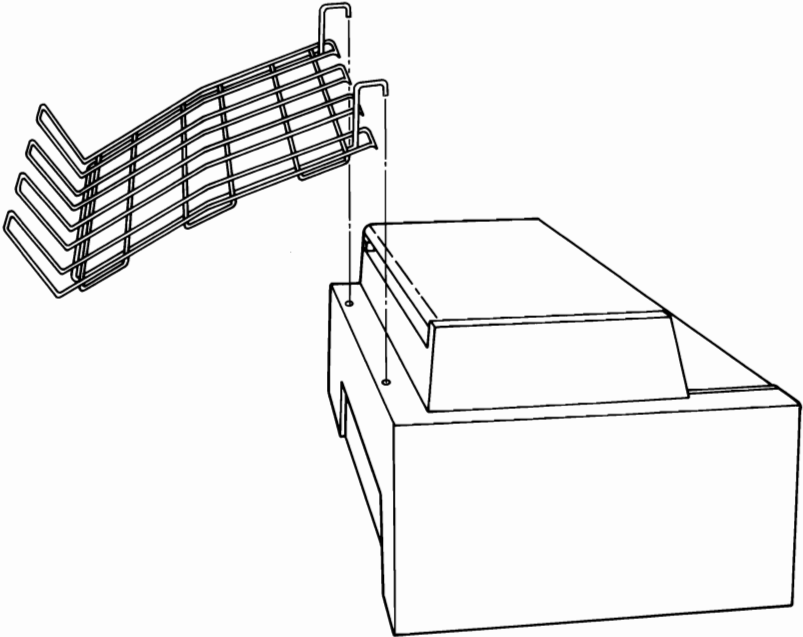


COLOR PRINTER PAPER RACK

If your printer has not been set up, do so before installing this option.

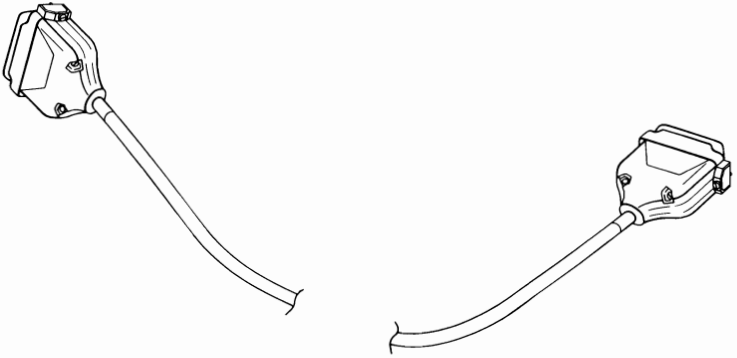
Installation Instructions

- 1 Set your Paper Rack into the holes in the top of your printer as shown.



- 2 If you have any other external options that need to be installed, install them now. If not, go to "Section 6, System Check List".

IBM Communications Cable

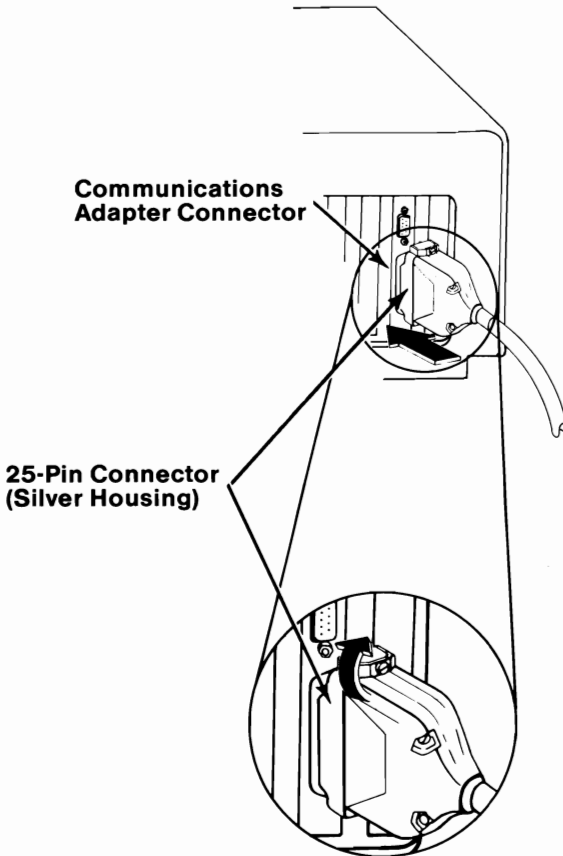


If your system has not been installed, go to *CHART 2, Installing Your Internal Options* before installing this option.

Installation Instructions

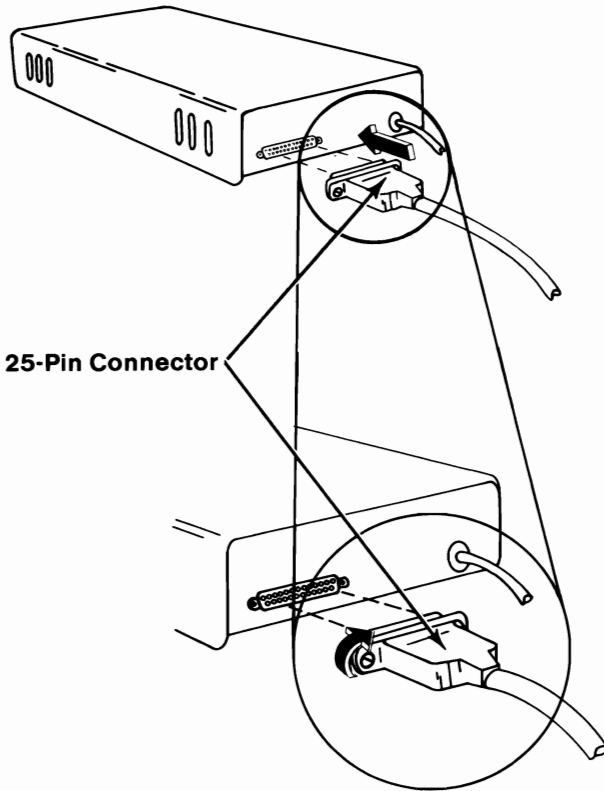
The communications adapter to which you are connecting this option should already be installed in your system. If not, refer to the option instructions for the communications adapter, and install it before continuing.

- 1 Connect the communications adapter cable (silver-colored end) to the communications adapter connector.



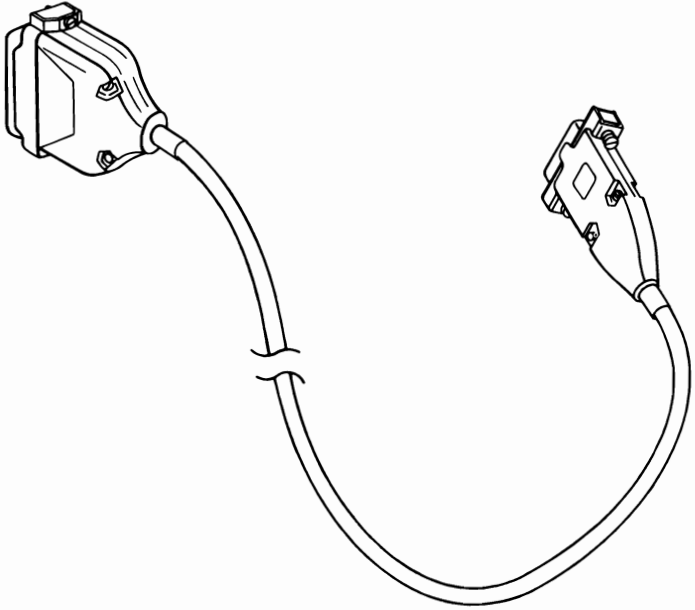
2

Connect the other end of the cable to the modem or any other RS-232 data communications equipment.



- 3** If you have any other external options that need to be installed, install them now. If not, go to "Section 6, System Check List".

IBM Personal Computer AT Serial Adapter Cable



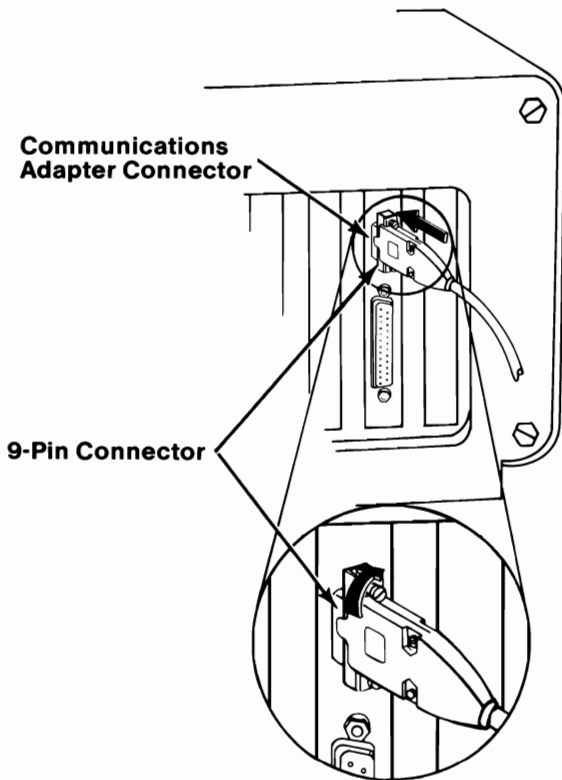
If your system has not been installed, go to *CHART 2, Installing Your Internal Options* before installing this option.

Installation Requirements

The communications adapter to which you are connecting this option should already be installed in your system. If not, refer to the option instructions for the communications adapter, and install it before continuing.

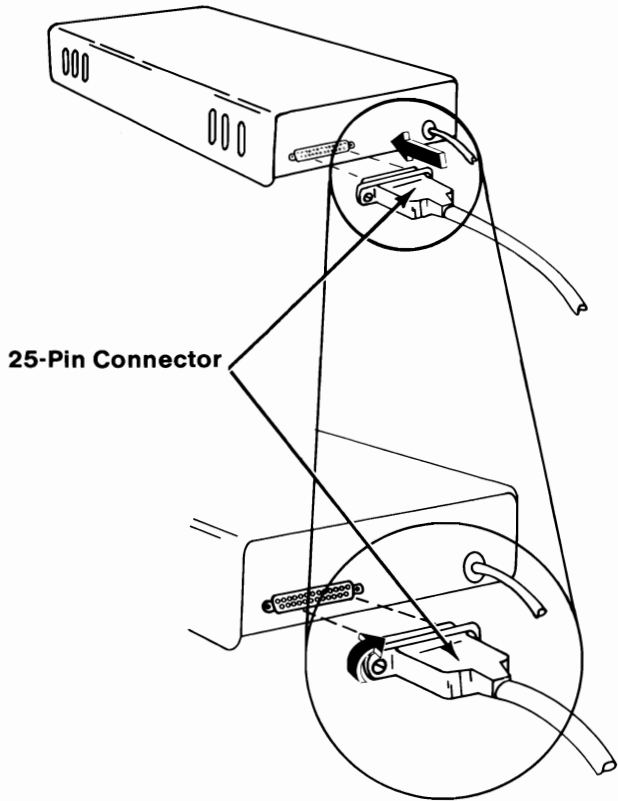
Installation Instructions

- 1 Connect the Serial Adapter cable (9-pin end) to the communications adapter nine-pin connector.



2

Connect the other end of the cable (25-pin end) to the modem or any other RS-232 data communications equipment.



- 3** If you have any other external options that need to be installed, install them now. If not, go to "Section 6, System Check List".

SECTION 6. SYSTEM CHECK LIST

Contents

System Check List	6-3
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Notes:

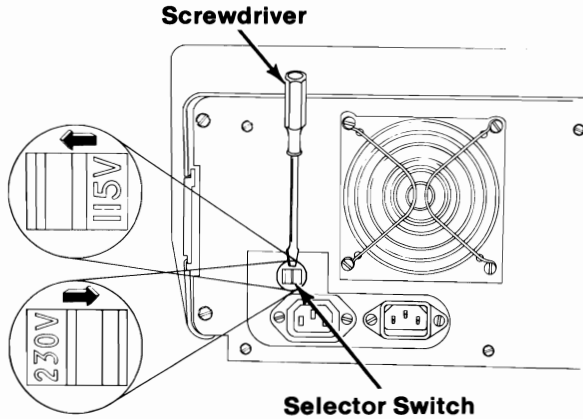


System Check List

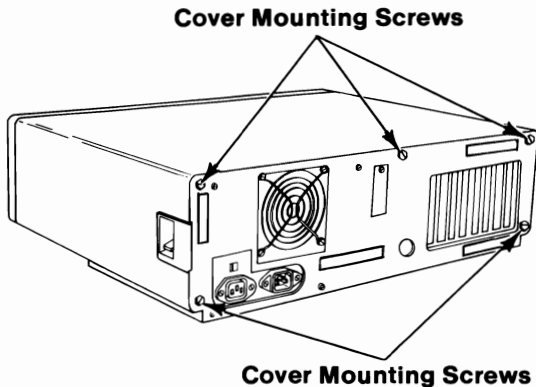
IMPORTANT:

Before you connect the power cable to your system unit be sure:

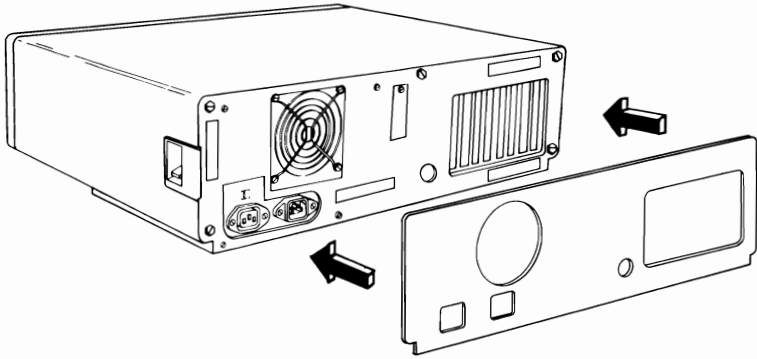
- The 115V - 230V selector switch is set to the proper position. (See *CHART 1, Installing Your Internal Options.*)



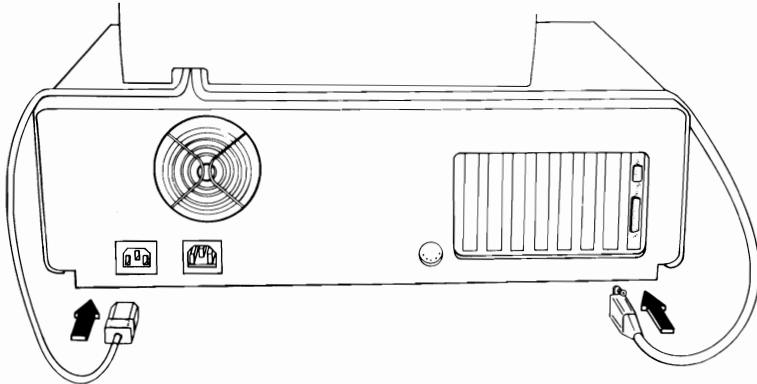
- The system unit cover is on and all five cover screws installed.



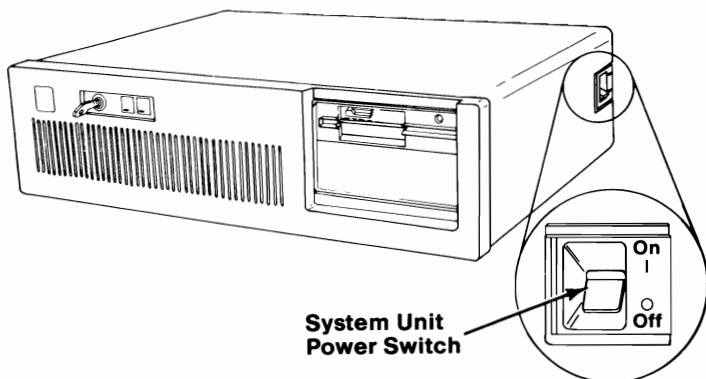
- The back panel is on.



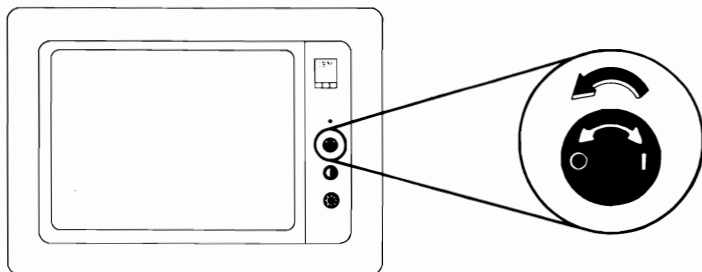
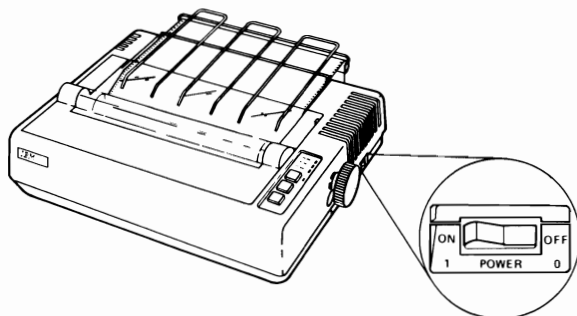
- All external devices are connected.



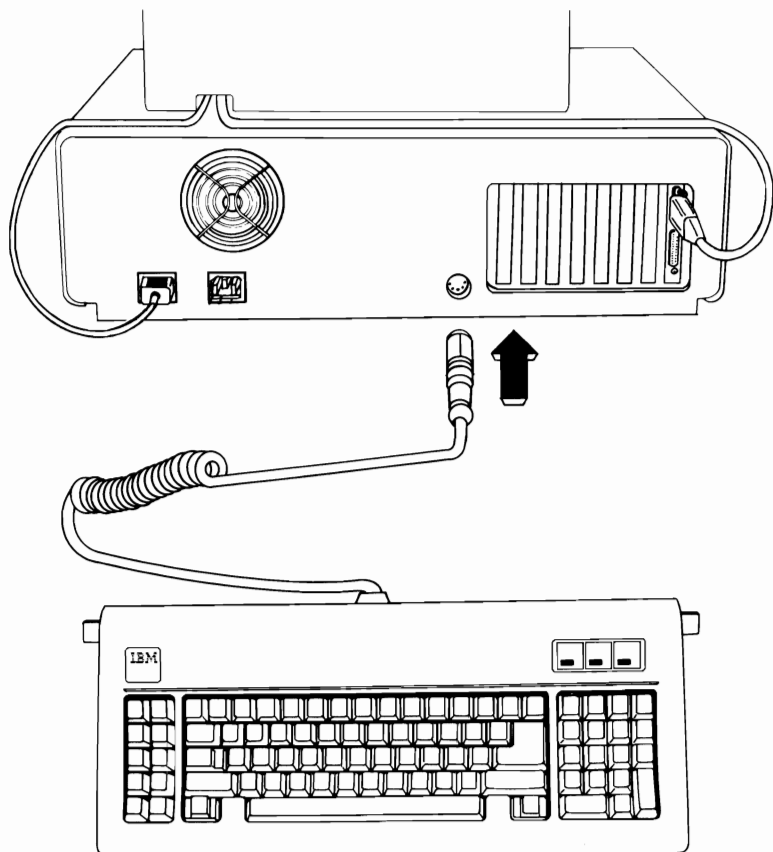
- Your system unit's power is off.



- All externally attached devices' power is off (printer, display, etc.).



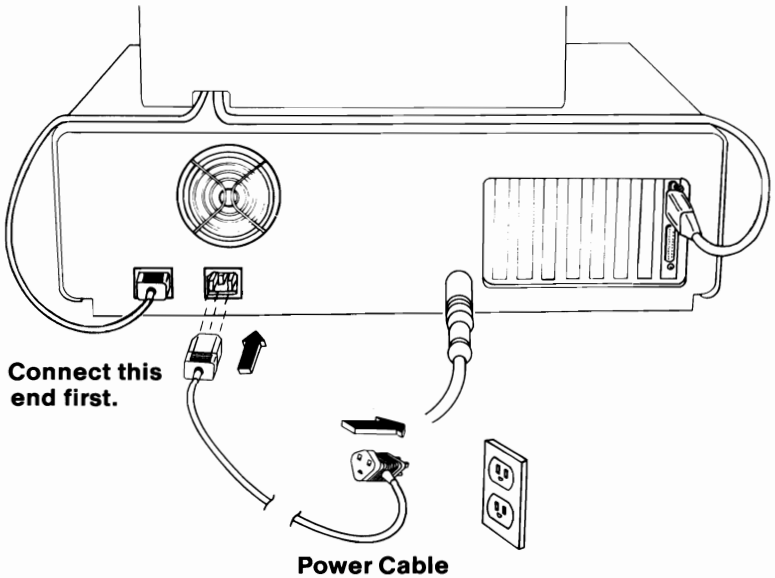
- 1 Connect the keyboard to your system unit.



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 receptacle to avoid possible electrical shock.

- 2** Connect the power cable to the system unit.
Plug the power cable into the wall outlet.



3 Record the serial numbers for any options that you have installed, in "Appendix B" of your *Guide to Operations* manual.

4 Go to the Power-On Self Test.

SECTION 7. POWER-ON SELF TEST

Contents

Power-On Self Test	7-3
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Notes:

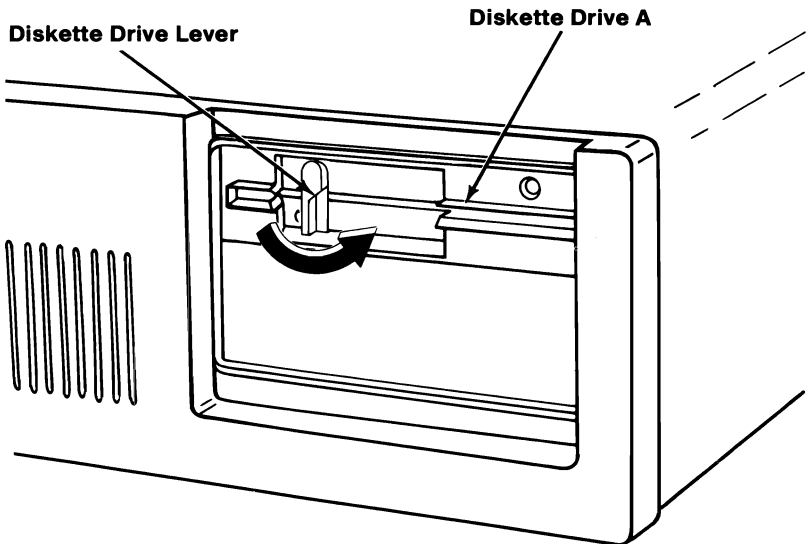


Power-On Self Test

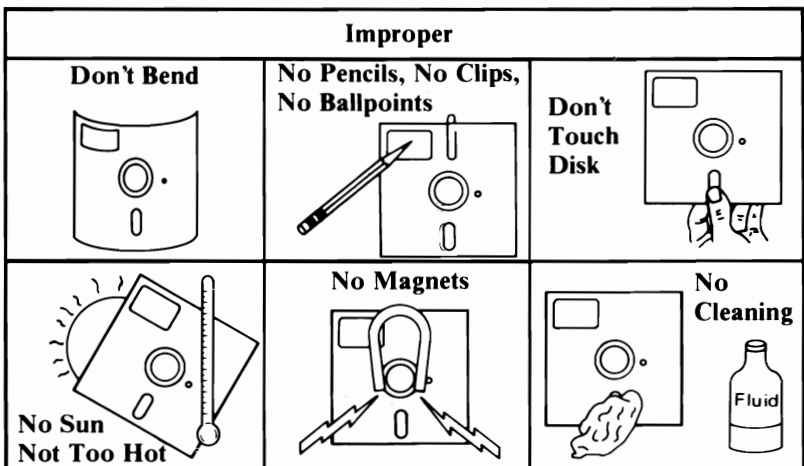
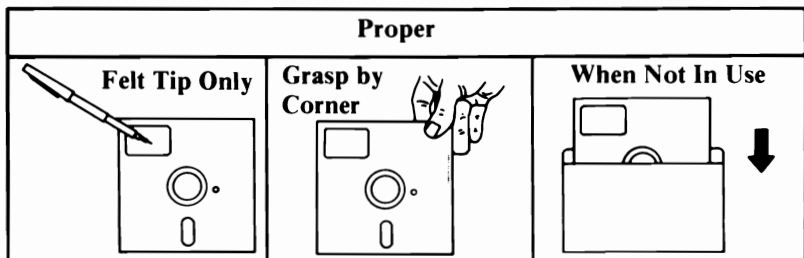
Every time your system unit's power is turned on it does a Power-On Self Test (POST). The POST checks various internal parts to verify that they are working properly.

Note: If you are using your home television or composite display, it must be U.S. television system (NTSC) compatible. Your display or TV may also cause you to experience data errors while using your diskette or disk drive. You can correct this interference by moving your display or TV a minimum of 305 mm. (12 in.) away from your IBM Personal Computer AT.

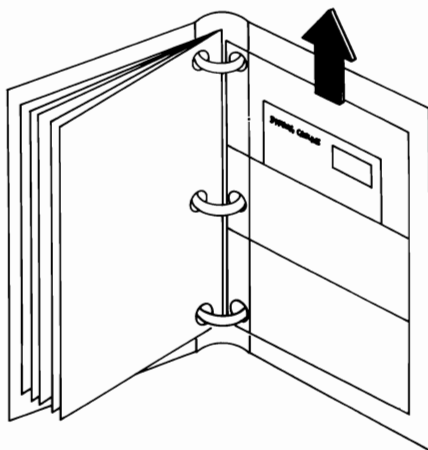
- 1 Rotate the diskette drive lever counterclockwise.



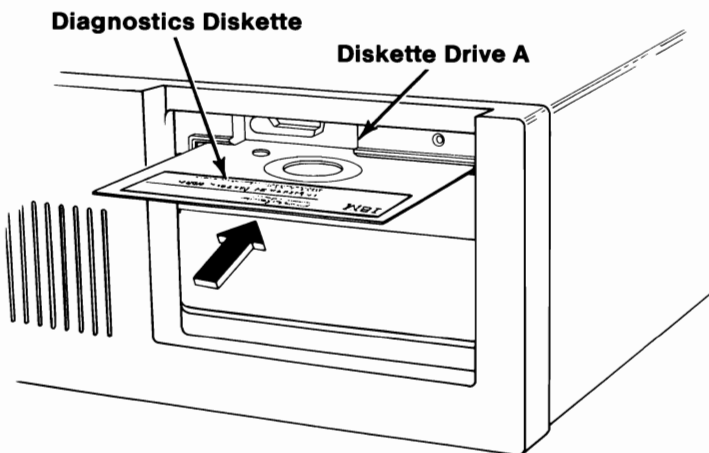
The figures below show proper and improper ways of handling your diskettes. Proper handling will reduce the possibility of damaging them.



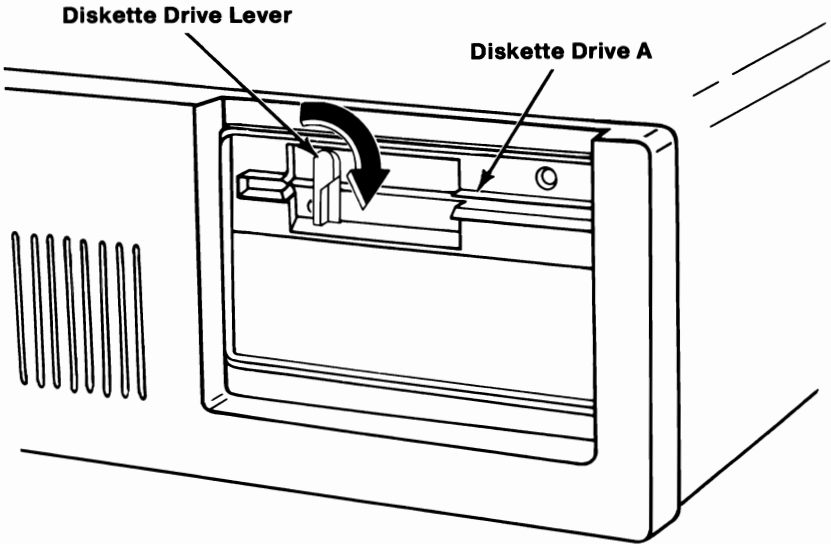
- 2** Get the Diagnostics diskette located in the back of your *Guide to Operations* manual.



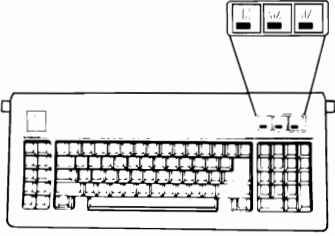
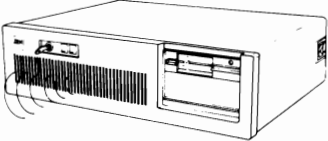
- 3** Insert the Diagnostics diskette into diskette drive A. Push the diskette in until you hear it click into place.



- 4** Rotate the diskette drive lever clockwise.



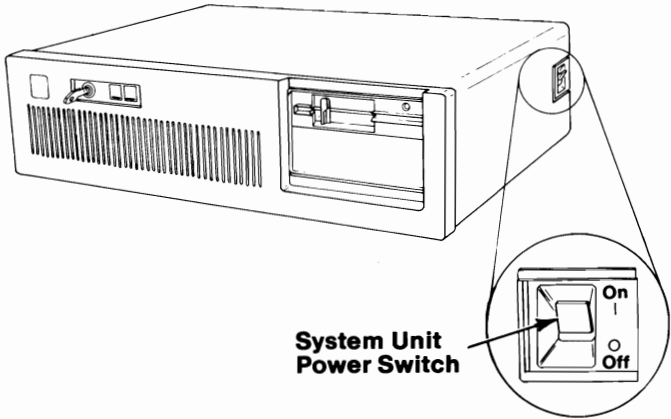
- 5** Before turning your system unit's power on, review the four events that will happen.

<p style="text-align: center;">Event 1</p> <p>Keyboard status lights blink on and off.</p> 	<p style="text-align: center;">Event 2</p> <p>Memory size test appears in upper-left corner of screen.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: 80%;"><p style="text-align: center;">XXXXX KB OK</p></div>
<p style="text-align: center;">Event 3</p> <p>The keyboard status lights blink on and off, then two short beeps are heard when POST is complete.</p> 	<p style="text-align: center;">Event 4</p> <p>This screen appears.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: 80%;"><p>XXXXX KB OK</p><p>161 - System Options Not Set--(Run SETUP) (RESUME=="F1"KEY)</p></div>

6 Turn your display's Brightness and Contrast controls fully clockwise. Turn your display power on (if it has a Power switch).

7 Turn all externally attached devices' (printer, TV, etc.) power on.

8 Turn your system unit's power on.



9 Adjust your display's Brightness and Contrast controls for eye comfort.

10 Your screen looks similar to the one below when:

- Your system is first installed.
- You install a new battery.
- You add or remove an option.

Note: If you received a "302 - System Unit Key Lock is Locked" message, unlock the lock on the front of the system unit before continuing.

XXXXX KB OK

**161 – System Options Not Set–(Run SETUP)
(RESUME="F1"KEY)**

**IS YOUR SCREEN SIMILAR TO THE
SCREEN SHOWN ABOVE?**

YES Go to step 12 "Running the Setup Program".

NO Go to step 11.

- 11** When you install an option that does not require the "Setup" program to be run, the following screen appears.

**The IBM Personal Computer
DIAGNOSTICS
Version 3.00
(C)Copyright IBM Corp.
1981, 1982, 1983, 1984**

SELECT AN OPTION

- 0 – SYSTEM CHECKOUT**
- 1 – FORMAT DISKETTE**
- 2 – COPY DISKETTE**
- 3 – PREPARE SYSTEM FOR MOVING**
- 4 – SETUP**
- 9 – END DIAGNOSTICS**

SELECT THE ACTION DESIRED

?_

**DOES YOUR SCREEN MATCH THE
SCREEN SHOWN ABOVE?**

YES The Power-On Self Test has completed. Your IBM Personal Computer AT is ready to operate. (See "Operating Your IBM Personal Computer AT" in your *Guide to Operation* manual.)

NO If you received something other than the above responses, go to "Testing Your IBM Personal Computer AT" in your *Guide to Operation* manual.

12 Running the Setup Program

Before your system unit can be used for the first time, it must be told what options are installed. Many of the options are sensed by the system unit when you turn the power on; however, it still must be told the date, time, and the type of fixed disk drive. Then it must verify the diskette drive types and memory size.

The answers to the questions this program will ask are listed on the "Setup Information" foldout, which is in the back of this manual.

Now press **F1** to start the "Setup" program; then, follow the instructions on your screen.

Note: If you have any system unit problems during the Installation or Setup program, go to "Testing Your IBM Personal Computer AT" in your *Guide to Operation* manual.

Notes:

