

Operator Reference

IBM

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System/23

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Fourth Edition (April 1982)

This manual is a major revision of and obsoletes SA34-0108-2. Because significant changes have been made throughout this manual, it should be read in its entirety.

Use this publication only for the purpose stated in the Preface.

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About this book

Welcome to the *IBM System/23 Operator Reference* manual.

The information provided in this manual will permit you to easily operate your IBM System/23. The manual shows you the operating procedures needed to make the IBM System/23 work for you.

If this is your first exposure to computers do not be concerned. You need no prior knowledge of computers or data processing to successfully use your IBM System/23.

This manual talks about both the 5322 and 5324 computers that are part of the IBM System/23. The differences between the two computers are shown in the illustrations where they apply. The keys work the same way on both the 5322 and 5324.

Photos and illustrations are provided to show you how to operate your IBM System/23 easily.

As you read this manual, pause and review the illustrations and photos . This will help you become familiar with each operating step before you begin your work. While you are learning to use your computer, you can use this manual as a learning tool. Later, as you become more familiar with your IBM System/23, this manual can be used as a quick reference during your day-to-day operation.

If you have any difficulty that you cannot resolve when using this manual or your IBM System/23, you can always call IBM for assistance.

This manual consists of eight chapters and two appendices. Included is all the information necessary to assist in the successful operation of your IBM System/23.

About this book

Chapter 1, "Operating the system" on page 1-1, discusses the general concepts of operating the IBM System/23.

Chapter 2, "The screen" on page 2-1, covers all the aspects of the screen and screen format.

Chapter 3, "The keyboard" on page 3-1, presents information about the keys.

Chapter 4, "Diskettes and disk" on page 4-1, discusses diskettes and disk concepts.

Chapter 5, "Printers" on page 5-1, shows what the IBM System/23 printers look like and how to operate them.

Chapter 6, "Commands" on page 6-1, explains the commands you can use with your computer.

Chapter 7, "Managing your system" on page 7-1, gives an overview of managing the computer on a day-to-day basis.

Chapter 8, "Help" on page 8-1, tells what to do if you have a problem with your IBM System/23.

Appendix A, "Character sets of different countries," shows the character sets available in different countries.

Appendix B, "Glossary," defines new words you will be learning in your IBM System/23 book.

Related publications

BASIC Language Reference, SA34-0109

Customer Support Functions, Volume I, SA34-0175, and Volume II, SA34-0176

Learning to Use IBM System/23, SA34-0134

System Messages, SA34-0141

Keyboard Aids, SX34-0051

Using your 5247 Disk, SA34-0188

Using your 5217 Printer, SA34-1593

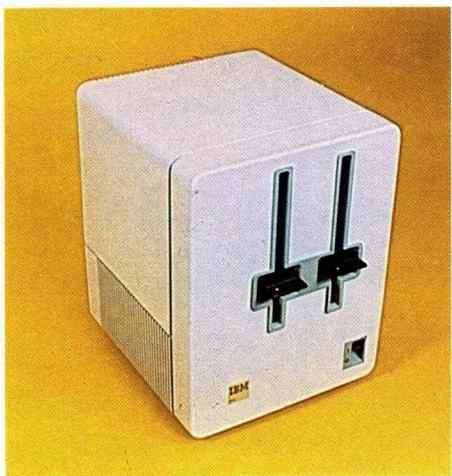
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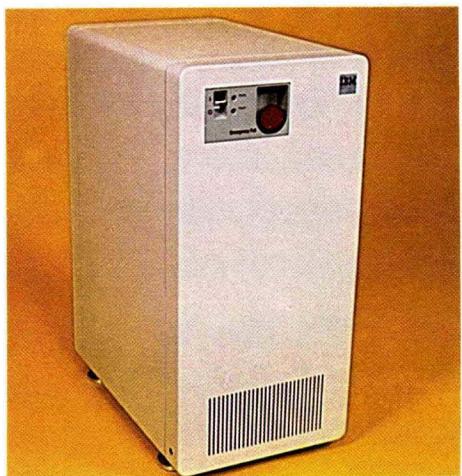
5322 Computer



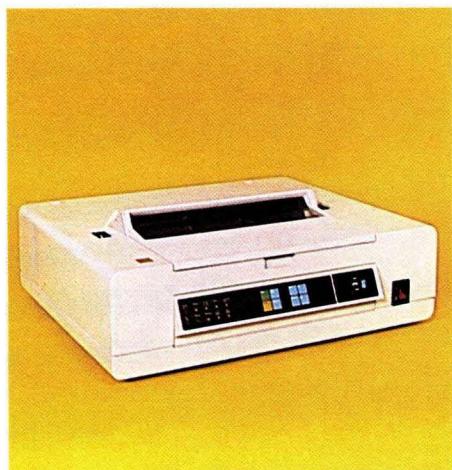
5324 Computer



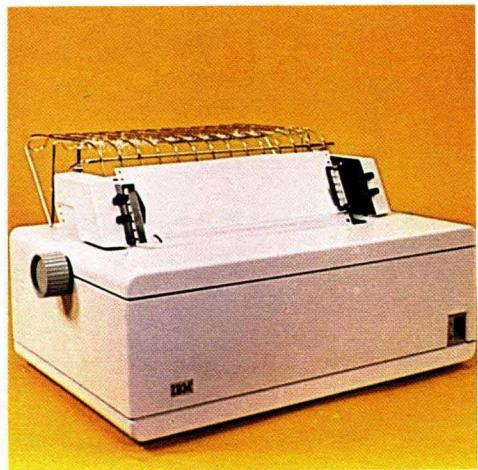
5246 Diskette Unit



5247 Disk Unit



5217 Printer



5241/5242 Printer

About this book

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Operating the system

About this chapter

This chapter provides the information necessary to switch on and switch off your IBM System/23. The information provided also gives explanations of the messages you will see displayed during the startup of your system.

Also provided is information about using a single station (a system that has one computer) and dual-station (a system that has two computers). If you have a system with two computers connected to a single 5246 Diskette Unit, refer to "Using the dual-station IBM System/23" in this chapter.

If your System/23 is connected to a 5247 Disk Unit, refer to "Using the 5247 Disk Unit" in this chapter.

Remember, if you have any difficulty that you cannot resolve, you can always call IBM for assistance.

Starting up your IBM System/23

As the operator, you will need to start up the system when you are ready to begin your work.

The following instructions tell you how to start up your system. After you have become more familiar with the System/23 and have started up the system several times, the procedure will become routine.

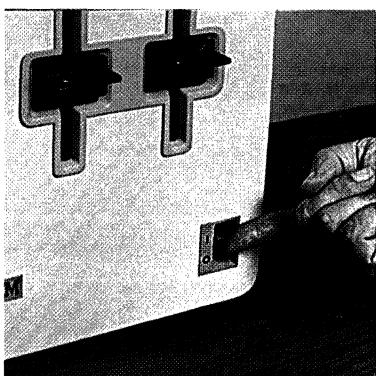
Switching on the system power

First, switch on the power to each unit in the order presented below. If you do not follow this sequence, a message may appear on your screen. You will then have to switch off all the units and repeat the sequence correctly.

1. Does your system have a printer? If so, switch on the power to your printer.

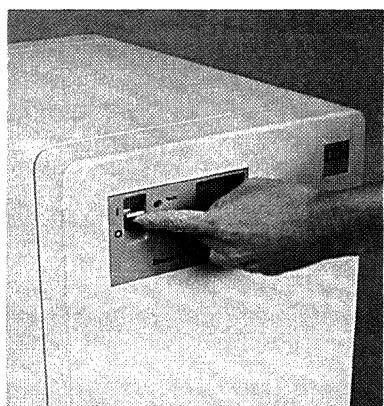


2. Does your system have a 5246 Diskette Unit? If so, switch on the power to your 5246 Diskette Unit. *Do not* switch the 5246 Diskette Unit on or off with diskettes in the unit.



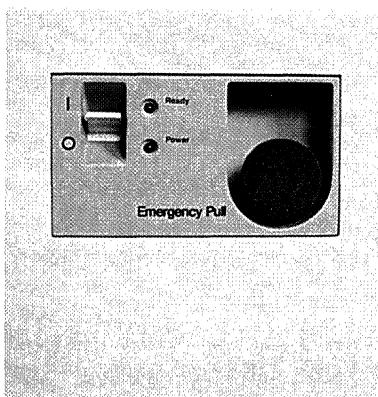
Operating the system

Starting up your IBM System/23 (continued)



3. Does your system have a 5247 Disk Unit? If so switch on the power to your 5247 Disk Unit.

For additional information about the daily operation of your 5247 Disk Unit, refer to *Using your 5247 Disk, SA34-0188*.



The photo shows you the 5247 power switch, lights and the Emergency Pull switch.

After switching on your 5247 Disk Unit, the power indicator (red light) comes on. This shows you the 5247 is receiving power.

Upon completion of internal checks that take about two minutes, the ready indicator (green light) comes on. Your 5247 is now ready to use.

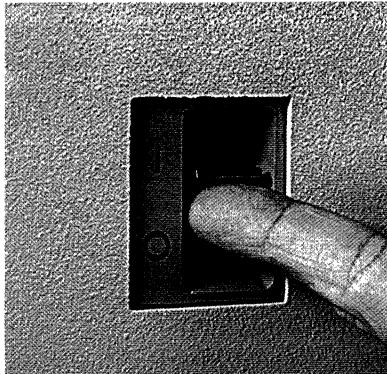
Warning: Use the red Emergency Pull switch only for an emergency shutdown of the 5247. Use of the Emergency Pull switch during normal day-to-day operations of the 5247 may decrease the life of the disk and cause a loss of data.

If the Emergency Pull switch is accidentally pulled, wait five minutes before resetting it. This is done by pushing the switch in and back to its normal position.

Note: If you have switched on a 5247 Disk Unit, wait until the green light comes on before switching on your computer.

4. Finally, switch on the power to your computer.

Remember, if you have any difficulty in starting up your IBM System/23, switch off all the units in any order. After the units are switched off, switch them on again following steps 1–4 in the sequence shown.



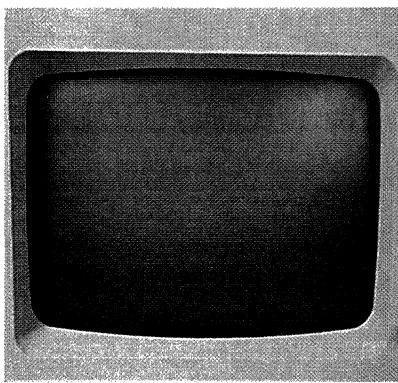
Checking the computer

While your computer is warming up, the system checks to see if everything is working correctly. You will notice a series of numbers appearing at the top of your screen. This is perfectly normal. If the system finds a problem, a dark number on a light green background appears on your screen. Refer to "Startup problems" in Chapter 8 to find out what to do next.

Operating the system

Starting up your IBM System/23 (continued)

Testing successfully

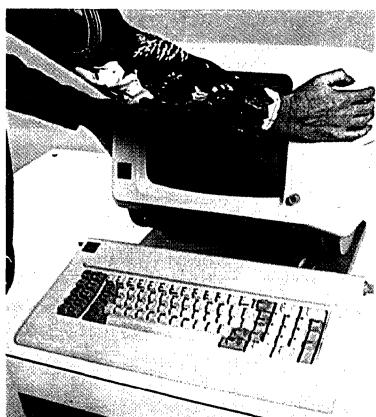


If your computer does not find any problems, the numbers at the top of the screen will disappear. You will see PROC START and READY INPUT in the lower left corner of your screen. Your computer will also sound a "beep" to tell you that it is all right to continue with your work.

Positioning the 5324 screen

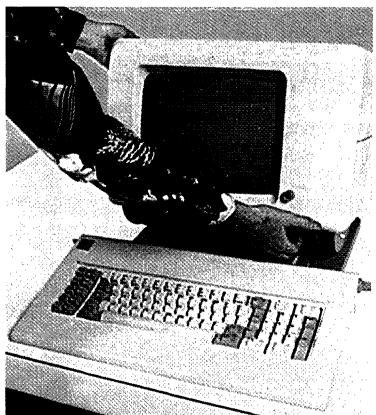
Your 5324 computer screen has many features that you can use in your day-to-day operations. You can suit your viewing and comfort needs by tilting, raising, lowering and moving the screen.

Raising or lowering the 5324 screen



To raise or lower the screen place your hands on the sides of the screen as shown. With an up or down motion, move the screen to a viewing position that suits your needs. The screen will stay in position after you remove your hands from the screen.

Tilting the 5324 screen

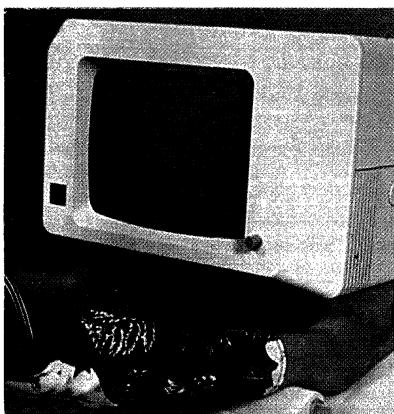


To tilt the screen place your hands on the corners of the screen as shown. Gently tilt the screen forward or backward as desired. The screen will stay in the desired position after you remove your hands from the screen.

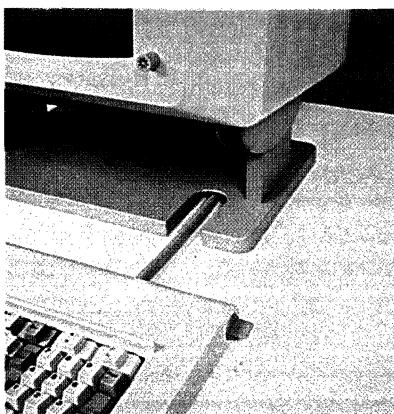
Operating the system

Starting up your IBM System/23 (continued)

Moving the 5324 screen



To move the screen place your hands at the base of the screen as shown. Gently move the screen to the desired location. After moving the screen, you may find it necessary to adjust the cable that passes through the cable opening.



5324 cable

The cable shown in the illustration attaches your keyboard to the computer. An opening at the base of the screen allows the cable to be kept loosely in place. If it is necessary to adjust slack in the cable, do so by moving the cable through the opening.

Never adjust slack in the cable by pulling on the keyboard.

Positioning the 5324 keyboard



Your keyboard has two knobs that permit you to raise or lower the keyboard. The keyboard may be raised or lowered by turning the two knobs on the sides of the keyboard. To position the keyboard, push in on the knobs and turn them to place the keyboard in the desired up or down position. Only two positions are available, slanted or flat.

Moving the 5324 keyboard



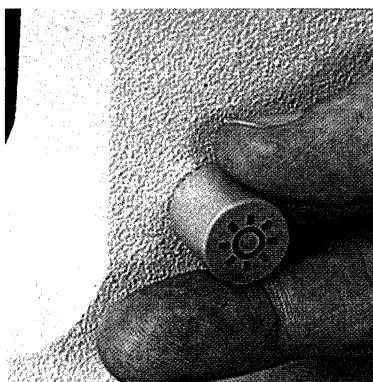
Move the keyboard by grasping the sides and gently lifting it to a desired location on the desk top.

Never move the keyboard by pulling on the cable without first loosening the cable.

Operating the system

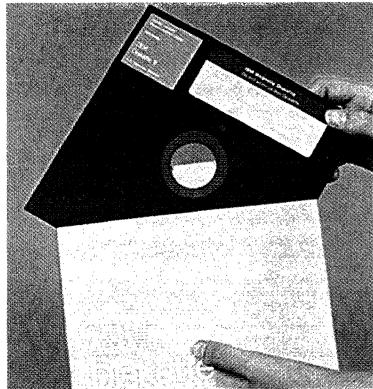
Starting up your IBM System/23 (continued)

Adjusting the screen brightness



Turn the screen brightness knob, located at the lower right corner of your screen, clockwise as far as it will go. This will give you the brightest screen.

After a short warmup, your screen will display some numbers and letters. You can now turn the brightness knob counterclockwise to decrease the brightness. Keep turning the knob until the brightness of the screen is comfortable to your eyes.



Loading machine update programs

PROC START tells you that you can now load the machine update programs into your computer. To load the machine update programs, follow these steps:

1. Locate the Customer Support Functions diskette VOLID=VOL002. The machine update programs required for your computer are on this diskette.

If your computer does not have any diskette drives available but is attached to a 5247 disk, go to step 4.

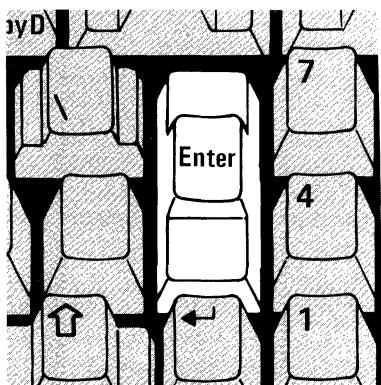
Warning: Be very careful that you do not touch the recording surface of a diskette at any time. Touching the recording surface could cause the information on the diskette to be lost.

C For additional information about handling diskettes and the disk unit refer to Chapter 4, "Diskettes and disk."

2. Remove the Customer Support Functions diskette from the envelope.
3. Insert the Customer Support Functions diskette for your system into diskette drive 1 of your computer as shown in the picture. Diskette drive 1 is the drive on the left. If you have a computer with no diskette drives, use drive 3 (identified by the number on the handle) of the 5246 Diskette Unit. Close the diskette drive by turning the handle clockwise.
4. Press the Enter key. This will load the machine update programs into your computer.



5. You will now be prompted to enter the date. The format for entering the date is YY / MM / DD, where YY=year, MM=month, and DD=day. For example, 84/10/30.
6. After entering the date; press the Enter key.
7. You will now be prompted for the time. The format is HH : MM : SS, where HH=hour, MM=minute, and SS=second. For example, 14:12:59. Note that in the example you are using 24-hour clock time. All hour entries past 12 noon must be in the 24-hour time format.
8. After entering the time; press the Enter key.



Operating the system

Starting up your IBM System/23 (continued)

Checking for READY INPUT

READY INPUT

After the machine update programs are loaded, READY INPUT is displayed in the lower left corner of your screen. If READY INPUT is displayed, you have completed the start-up procedures. The computer is ready to receive your instructions.

You can now:

- Run an application program
- Run a Customer Support Function
- Enter a system command
- Enter a program

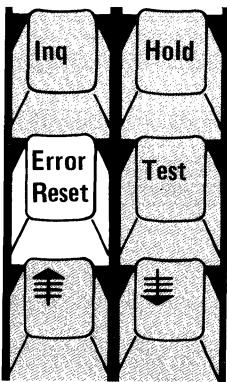
READY INPUT not being displayed

LINK OPTION 10

If READY INPUT is not displayed, an error has occurred and you must find and correct the error. To find and correct the error, use these steps:

1. Look at the bottom line of the screen. This line is called the status line and will be discussed in more detail in Chapter 2, "The screen" on page 2-1. For now, use the status line to find out what went wrong.

-
2. Look at the left side of the status line. You will see either LINK OPTION or LINK ERROR followed by two numbers. These numbers represent the *action code*. Look up the code number in the *System Messages* manual. The manual will tell you what to do to correct the error.
 3. If LINK OPTION is on the status line:
 - Correct the error (for example, put the correct diskette in your drive).
 - Press the Error Reset key and try the operation again.
 4. If LINK ERROR is on the status line:
 - Press the Error Reset key.
 - Correct the error.
 - Press the Enter key.



Operating the system

Switching off your IBM System/23

The following instructions tell you how to switch off the system power after you have finished your work.

Checking program status

Check to make sure that the program has stopped running. Sometimes programs can run for quite awhile. You can tell if a program is running because RUN is displayed in the lower left corner.

RUN

Look at the lower left corner of the screen. If RUN is displayed, the program is still running. You must wait for it to finish. When the program is finished, READY INPUT is displayed, and you may remove your diskettes from the drives.

READY INPUT

Removing diskettes



Remove all the diskettes from the diskette drives. Leave the drive handles in the open or vertical position. Carefully put the diskettes into their envelopes; then store them in a safe place.

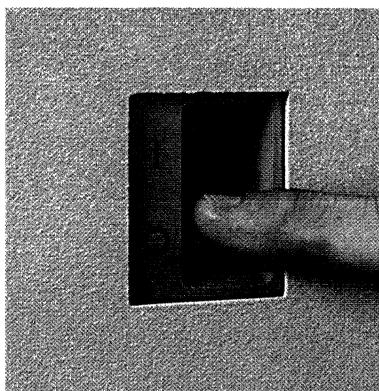
Remember, these diskettes contain your computer programs and business information, so **TAKE CARE OF THEM**.

Warning: You must be very careful that you do not touch the recording surface of the diskette at any time. Touching the recording surface could cause the information on the diskette to be lost.

Operating the system

Switching off your IBM System/23 (continued)

Switching off the system power



Warning: Make sure that all diskettes have been removed and all drive handles are in the open position *before* switching off your system.

Switch off the power to all your units. You can switch off the units in any sequence. If the switch is up, it is ON; when the switch is down, it is OFF. *Push all switches down.*

Note: If you have more than one computer connected to a 5246 Diskette Unit or a 5247 Disk Unit, make sure that the other operator isn't using the 5246 Diskette Unit or a 5247 Disk Unit before switching it off.

If you have a 5247 Disk Unit, the green Ready indicator light will go off immediately after switching off the 5247. Within a few seconds, the red Power indicator light will go off.

C Warning: NEVER use the red Emergency Pull to switch off your 5247 Disk Unit during day-to-day operations. Use of the Emergency Pull may decrease the life of the disk and cause a loss of data. The Emergency Pull switch should only be used in an emergency.

If the Emergency Pull switch is accidentally pulled, wait five minutes before resetting it. The Emergency Pull switch may be reset by pushing it in and back to its normal position.

If assistance is required contact your service representative.

The rest of this chapter is for those who have more than one computer connected to a 5246 Diskette Unit or a 5247 Disk Unit. If you do not have more than one, you need not read the rest of this chapter.

C

C

Operating the system

Using the dual-station IBM System/23

With the addition of a second computer, there are a few additional simple operating concepts you should know. Once you begin working in a dual-station (two computers) environment, the procedures will become quite easy.

Sharing information

For information about sharing the 5247 Disk Unit refer to "Using the 5247 Disk Unit" in this chapter.

Sometimes you may have to wait if the information you wish to use is being used by the other computer. The amount of time you have to wait depends on what the other computer is doing.

How can you tell if the other computer is using the information you want to use? Look at the bottom (status) line on your screen, at the +1 position shown in the picture. This field is blank when you are not using the 5246 Diskette Unit and are not requesting to use it. However, whenever you request to use the 5246 Diskette Unit, either a +1 or a +0 is displayed in this field.

+1 Displayed

If a +1 is displayed in the field, your request to use the 5246 Diskette Unit was successful. The +1 is displayed until you stop using the 5246 Diskette Unit.

+1 1 1

+0 Displayed

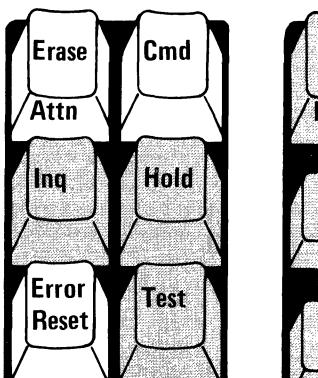
+0 1 1

If a +0 is displayed in the field, it means that your computer is waiting to use the 5246 Diskette Unit for one of the following reasons: either the other computer is using the 5246 Diskette Unit or the 5246 Diskette Unit is not switched on. If you encounter a problem when +0 is displayed, refer to Chapter 8, "Help" on page 8-1

5246 Diskette Unit not switched on

If the 5246 Diskette Unit is not switched on, do the following:

1. Press and hold the Cmd key and press the Attn key. An error code 6010 and action code of 20 will appear on the status line.
2. Turn the 5246 Diskette Unit power switch on.
3. Press the Error Reset key; your computer will now be able to use the 5246 Diskette Unit.



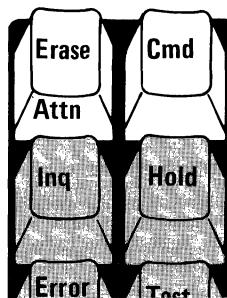
Operating the system

Using the dual-station IBM System/23 (continued)

Waiting for the 5246 Diskette Unit

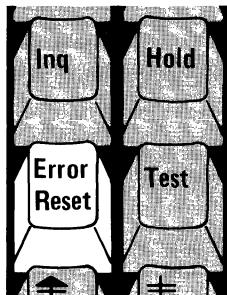
If the 5246 Diskette Unit is powered on and a +0 is displayed, the other computer is using the 5246 Diskette Unit. If you take no action at all, your computer will automatically be able to use the 5246 Diskette Unit when it becomes available.

Cancelling the job



If for some reason you cannot wait for the 5246 Diskette Unit, you may cancel the job as follows:

1. Press and hold the Cmd key and press the Attn key. A 6010 error code and an action code of 20 will appear on the status line.
2. Press and hold the Cmd key and press the Error Reset key. The +0 should no longer be displayed.



Note: If the +0 remains on the screen, repeat the above sequence.

Warning: You should not cancel your waiting time for the 5246 Diskette Unit unless it is absolutely necessary; loss of data or program errors can occur.

Using the 5247 Disk Unit

With the addition of the 5247 Disk Unit to your IBM System/23, there are a few simple operations you should know. Once you begin working with your 5247, the procedures become quite easy.

Sharing information

If you wish to use the 5247 disk and the disk is being shared by one or more of the other computers, there may be a short wait if the information you wish to use is being used by one of the other computers. The amount of time you may have to wait depends on what the other computer is doing with the information that is on the disk.

How can you tell if the other computer is using the information you wish to use? Look at the bottom (status) line of your screen, at the *1 position. This field is blank when you are not using the 5247 disk and you are not requesting to use it. However, when you request to use the 5247 disk, either a *1, *2, *3, or a *4 is displayed.

Operating the system

Using the 5247 Disk Unit (continued)

***1 Displayed**

If the *1 is displayed on the status line (columns 56 and 57), your computer is requesting to use the 5247 disk. No action is required by you when you see a *1 displayed.

*1 1 1

***2 Displayed**

If the *2 is displayed on the status line (columns 56 and 57), it means that another computer has the exclusive use of the 5247 disk. You will not be able to use the disk until the other computer completes its work with the disk.

*2 1 1

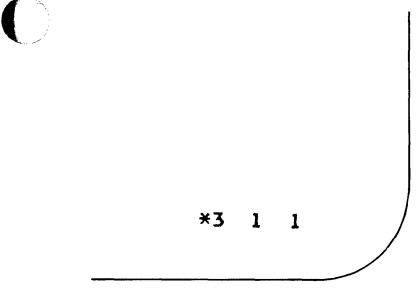
Note: If you cannot wait for the 5247 disk to become available, you may cancel the wait using the following procedure. However, this is **not** recommended as a normal practice, as a loss of data may occur.

1. Press and hold the Cmd key, then press the Attn key. An error code will appear on the status line.
2. Press and hold the Cmd key and press the Error Reset key. The error code will still be on the status line.
3. Press the Error Reset key.

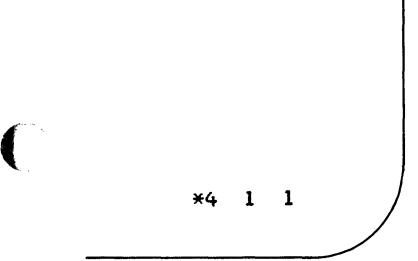
Note: If the *2 remains on the status line, repeat the above steps.

***3 Displayed**

A *3 on the status line (columns 56 and 57), indicates the 5247 disk is processing a request from the computer. No action is required by you when you see a *3 displayed.



*3 1 1



*4 1 1

***4 Displayed**

If the *4 is displayed on the status line (columns 56 and 57), it means that another computer has the exclusive use of the file you wish to use. You will not be able to use the file until the other computer completes its work with the file.

Note: If you cannot wait for the 5247 file to become available, you may cancel the wait using the following procedure. However, this is not recommended as a normal practice as a loss of data may occur.

1. Press and hold the Cmd key, then press the Attn key. A 6540 error code will appear on the status line.
2. Press and hold the Cmd key and press the Error Reset key. The 6540 error code will still be on the status line.
3. Press the Error Reset key.

If the *4 remains on the status line, repeat the above steps.

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Chapter 2. The screen

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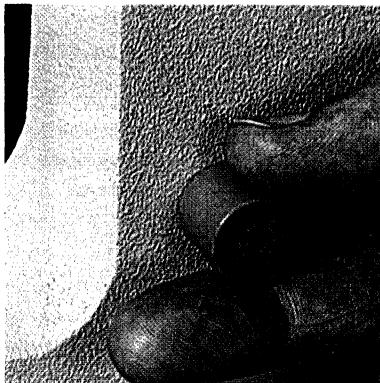
The screen

About this chapter

This chapter discusses the brightness control and the layout of your screen. Use the illustrations in this chapter to help you learn the positions on the screen and show you how to move the cursor. Attention is focused on line 23 (the line on which you type, called the *input* line) and line 24 (the line used by the computer to "talk" to you, called the *status* line).

Most of this chapter describes the fields on line 24. You might find that you will often refer to this section, especially while you are learning to use your system.

Brightness control



The screen's brightness control knob adjusts the brightness of the letters, numbers, and symbols on the screen.

To increase the brightness, turn the knob clockwise.

To decrease the brightness, turn the knob counterclockwise.

The screen

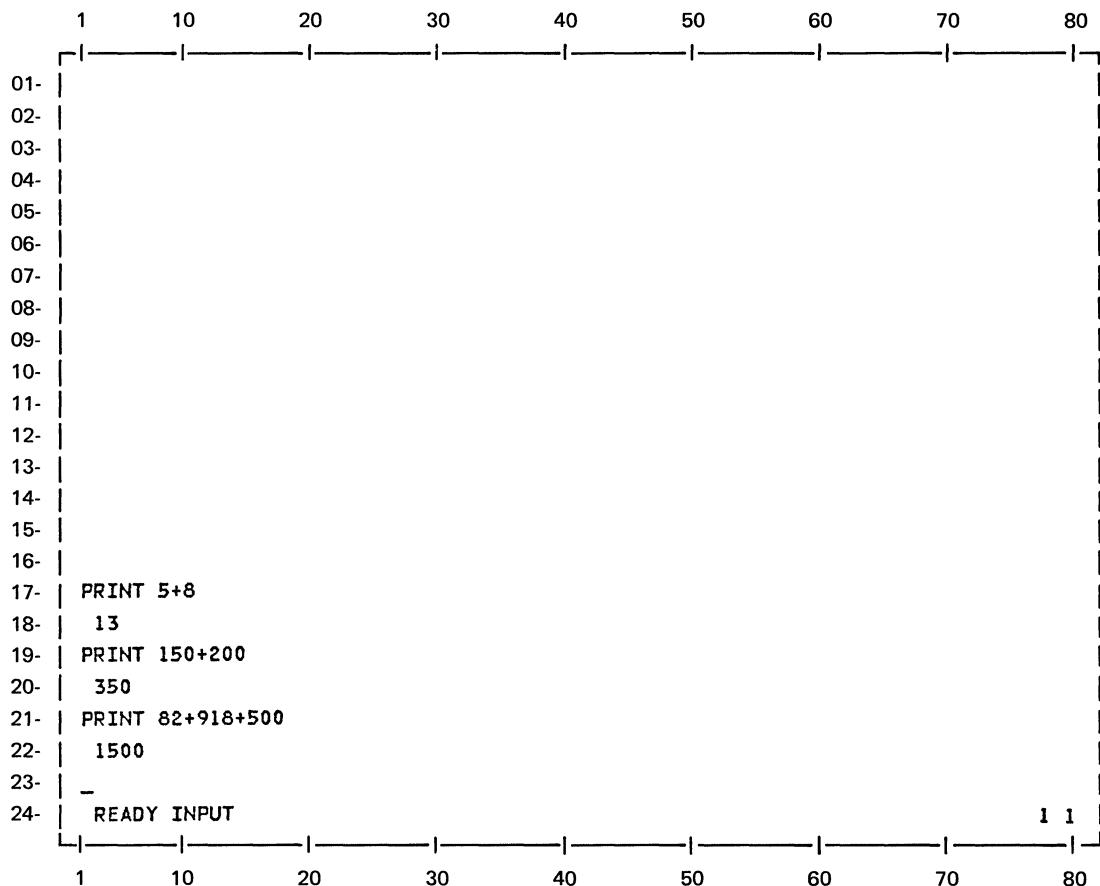
Screen format

Screen format includes:

- Lines
- Positions
- Input line
- Cursor positions
- Status line
- Status line fields
- Split screen

Lines

There are 24 lines from the top (line 1) to the bottom (line 24) of the screen. The top 23 lines are for you to use. Line 24 is for the system to use. In the illustration that follows, the lines are numbered only for your convenience. Line numbers do not appear on the screen.

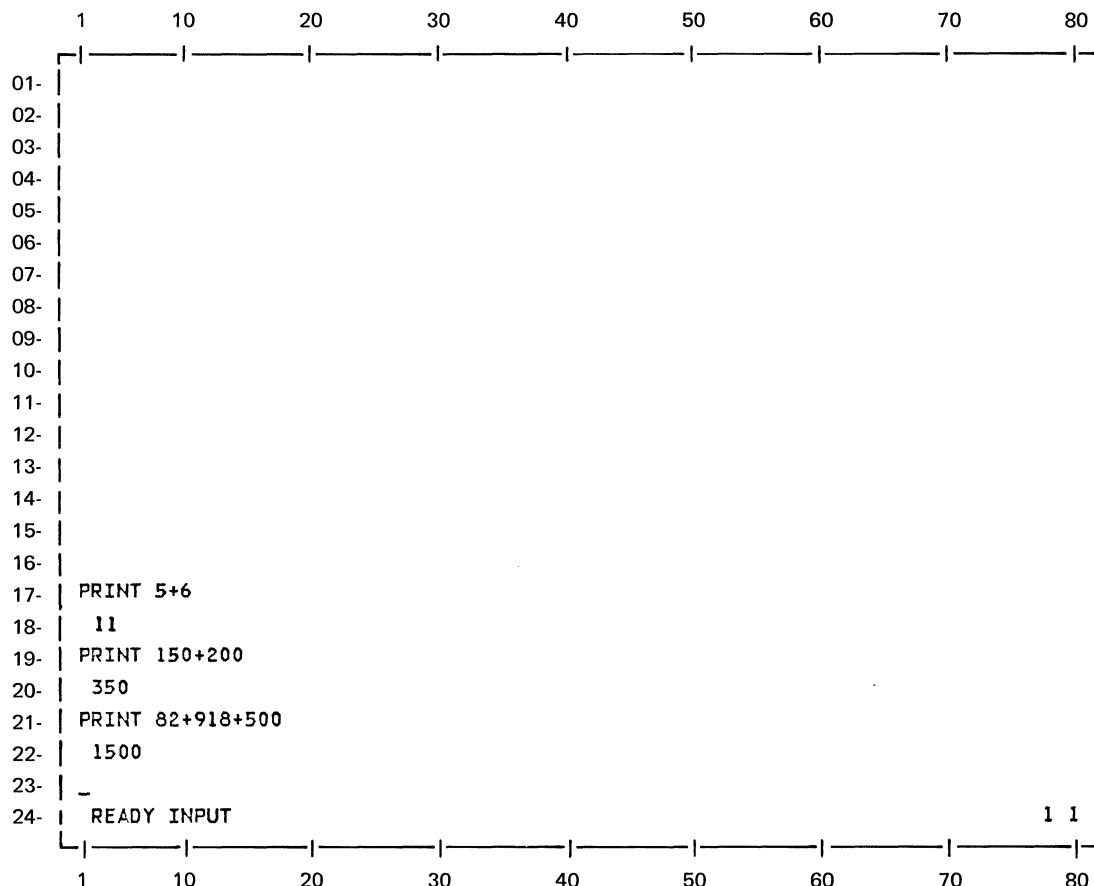


The screen

Screen format (continued)

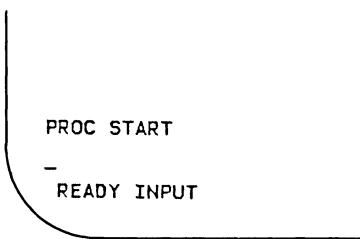
Positions

There are 80 positions, or columns, across each line. The positions are numbered from 1 through 80, from left to right. In the illustration that follows, the positions are numbered only for your convenience. Position numbers do not appear on the screen.



Input line

The input line is line 23 on the screen. Characters that you type on the keyboard are displayed on the input line as you type them. The illustration that follows shows the input line and the cursor after you have successfully loaded the machine update programs. Notice that PROC START has moved up to line 22, because the last thing you did was press Enter.



Note: The graphic information in the following examples is provided for illustration purposes only. The information cannot be entered into the computer in the form shown.

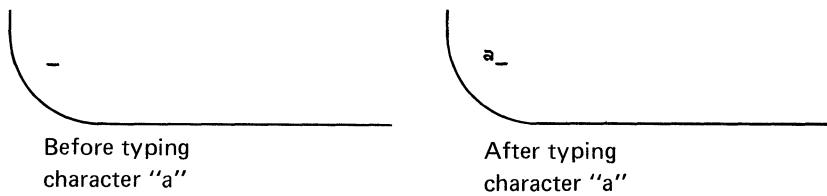
The screen

Screen format (continued)

Cursor positions

The cursor is a small, flashing line that shows where the next typed character appears.

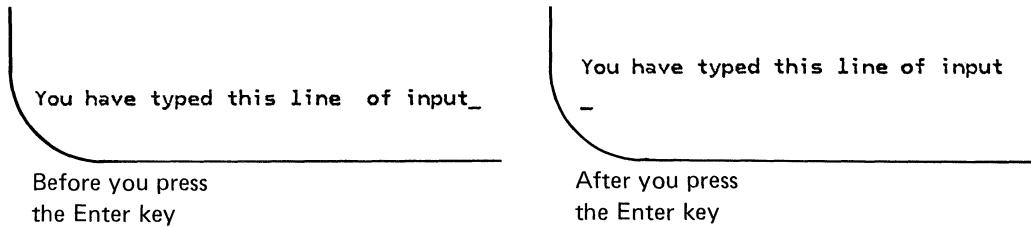
When you switch on the computer power, the cursor appears at position 1 on line 23. As you type a character, the character appears and the cursor moves to the next position on the line. The example below shows how the cursor moves when you type a character.



Normal input. When you have finished typing a line of information and press the Enter key, three things happen:

1. The information is fed into the computer.
2. The line of information moves up to the next line (line 22).
3. The cursor moves back to position 1 on line 23, which is again blank, so you can enter another line.

For example:

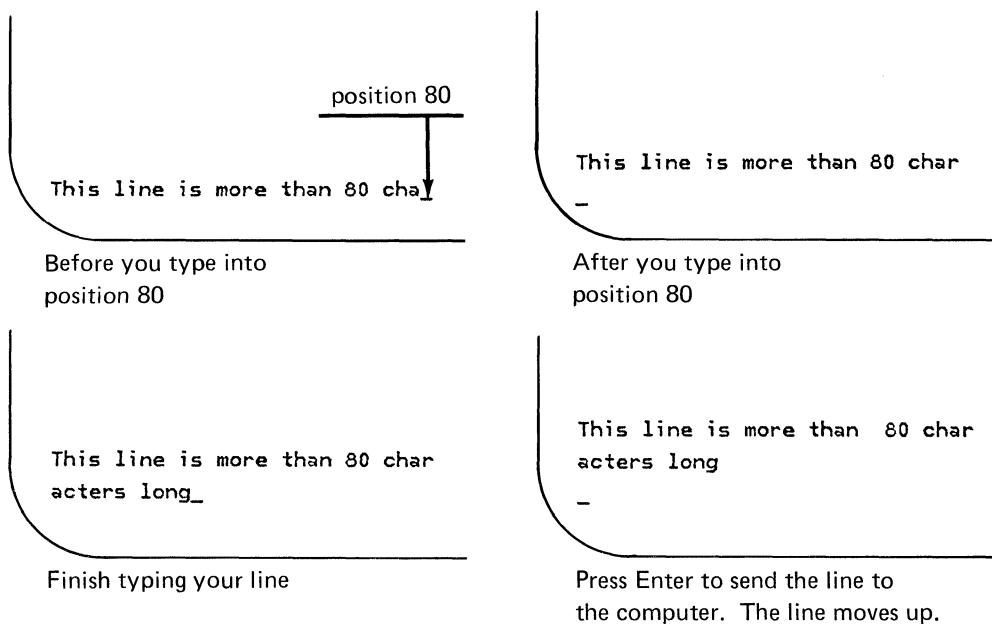


At times, the line of input you type will be longer than 80 characters (the length of the input line). When that happens, just keep typing. When you type a character into position 80, the following happens:

1. The line you have just typed moves up to the next line (line 22).
2. The cursor moves back to position 1 on line 23 (which is again blank) so you can finish the line.

Note, however, that when the first line moved up to line 22, the information was not sent to the computer. The information is entered into the computer only after Enter is pressed.

For example:



The screen

Screen format (continued)

Full-screen processing input. The application programs and Customer Support Functions you may run use a programming technique called full-screen processing. This technique allows you to type information into different areas of the screen. These areas, called *fields*, are defined by the program or function to receive the information.

A typical full-screen processing screen could look like this:

Name	_____
Address	_____
City	_____
State	_____
Zip Code	_____

You can type information into the underlined portions of the screen. These underlined portions are called *input fields*. The rules for typing characters into these fields and moving the cursor depend upon the application program or Customer Support Function you are running. For specific details, refer to your application documents or to *Customer Support Functions*, Volume I.

Status line

The status line is the bottom line (line 24) of the screen. The status line belongs to the system; the information does not move up the screen like the other lines of information do, and you can't move the cursor down to it.

The system uses this line to "talk" to you; that is, to tell you what is happening in the system at the present time. Look at the following examples to see what the system is telling you. After that, the separate parts of the status line will be discussed in more detail.

Example 1

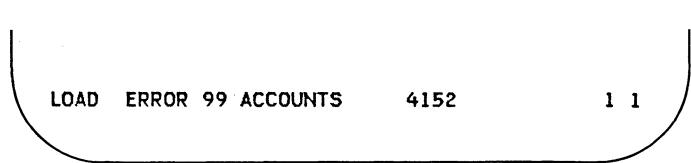


When the status line looks like Example 1, the system is telling you that it is ready for you to do something. In this case, it wants you to type some input on line 23. The first 1 on the far right tells you that you are using the character set for the United States and the second 1 tells you that you are entering lower shift characters. Character sets and the different shift keys are discussed in Chapter 3, "The keyboard" on page 3-1.

The screen

Screen format (continued)

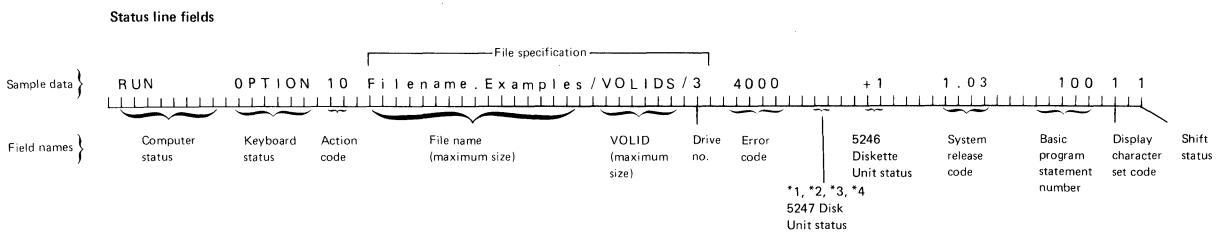
Example 2



When the status line looks like Example 2, the system is telling you that you had an error when you tried to load a program named Accounts. The 99 is an action code that tells you what you should do next. Look up 99 on the Keyboard Aid or in the *System Messages* manual to see what action to take. The 4152 is an error code. Look up the number in the *System Messages* manual to find out what caused the error. The 1 1 on the right has the same meaning as in the previous example.

Status line fields

The status line has separate areas, called *fields*, in which the system gives you information about itself. Each field tells you something different about the system. The illustration below shows how the fields are arranged on the status line.



Each field may be blank at different times, depending upon what the system is telling you.

After you switch on the computer and run PROC START without an error occurring, you will see READY in the *computer status* field and INPUT in the *keyboard status* field.



The rest of this section describes the status line fields.

The screen

Screen format (continued)

Computer status field. The computer status field tells you what your computer is doing.



The computer status words and their meanings are:

<i>Status</i>	<i>Meaning</i>
ATTN	You stopped the BASIC program by holding down the Cmd key and pressing the Attn key.
HOLD	You stopped the system by pressing the Hold key. To resume, press the Hold key again.
LET	A value was assigned to a symbol with the LET statement, and you have pressed Enter.
MAT	A value was assigned with the MAT statement, and you have pressed Enter.
PAUSE	The BASIC program has paused because it wants you to take some action at this time. The action you should take is described in the application run book.
PRINT	You typed PRINT, followed by letters and/or numbers, and pressed Enter.

PROC	A procedure file was running and was interrupted by an error or a request for input.
READY	The computer is waiting for you to enter something.
RUN	A program is running in the computer.
STEP	You are running the system in step mode. The system stops just before running each program statement. To continue to the next step, press the Enter key. The line number of the next program statement is displayed in the BASIC program statement number field of the status line.
system command	The system command you entered is currently running. The system commands are described in Chapter 6, "Commands" on page 6-1.
TRACE	You are running the system in trace mode to find an error in a program. When you select trace mode, the line number of each statement is displayed on the status line as the statement is executed. If you specified TRACEP, the line number of each statement is printed on the system printer.

The screen

Screen format (continued)

Keyboard status field. The keyboard status field gives you information to help you decide what kind of entry you should make from the keyboard.



The keyboard status words, and their meanings are:

<i>Status</i>	<i>Meaning</i>
Blank (spaces)	The only keys that you can use are the Hold, Cmd/Attn, Inq, Test, CopyD, and shift keys. You cannot use the keyboard to enter letters or numbers.
ERROR	The computer has found an error that causes the action code to blink. The computer cannot continue until you correct the error. Follow these steps. <ol style="list-style-type: none">1. Look up the action code on the <i>Keyboard Aid</i> or in the <i>System Messages</i> manual. Also look up the error code shown in the error code field of the status line to find out what caused the error.

-
- C
2. Press the Error Reset key to return the computer to the READY INPUT status or hold down the Cmd key and press the Attn key to return the computer to the READY INPUT status.
 3. Correct the error.
 4. Try the operation again.

FIELDS

You can use the keyboard to type information into fields displayed by a BASIC program or Customer Support Function that uses full-screen processing.

OPTION

The computer has found a condition that causes the action code to blink. You cannot continue until you select an option. When OPTION is displayed, you have the following choices:

- Correct the causes of the action/error code; then press the Error Reset key to re-try the operation.
- Hold down the Cmd key and press the Error Reset key to tell the computer not to re-try the operation that caused the action/error code.
- Hold down the Cmd key and press the Attn key.

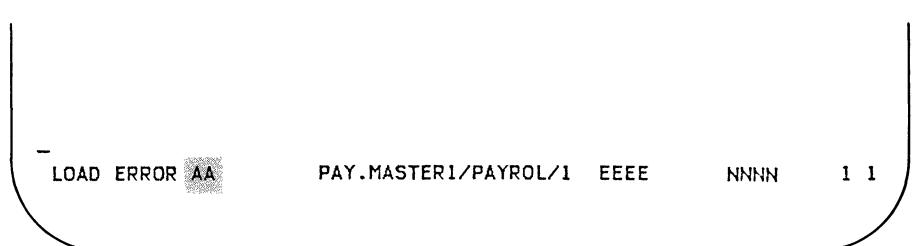
INPUT

You can use the keyboard to enter system commands (see Chapter 6, “Commands” on page 6-1), or to enter information onto the input line.

The screen

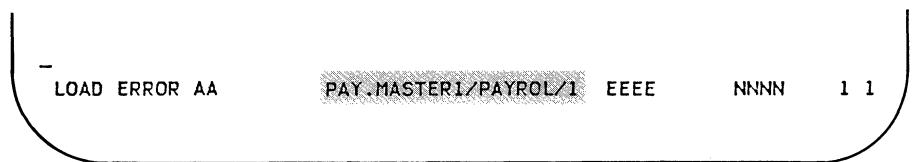
Screen format (continued)

Action code field



When an error occurs, a number is displayed in the action code field. This number, which blinks to attract your attention, represents an action that you must take to correct the error. If Error Reset is pressed, the action code will disappear. To find the meaning of the action code number, refer to the Keyboard Aid or the *System Messages* manual.

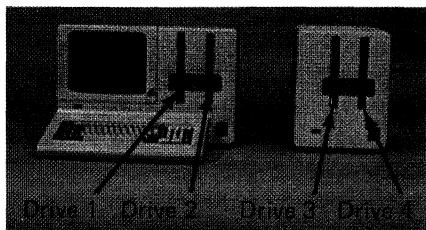
File specification field. For some errors, this field contains information that will be useful when correcting the problem.



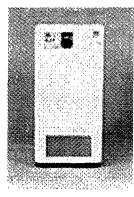
For error codes 4000 through 4999 and 6000 through 6999, this field may contain as many as three items. You can find the error code number in the error code field on the status line. Refer to the above example, which shows the additional error information field.

Filename/VOLID/Drive number

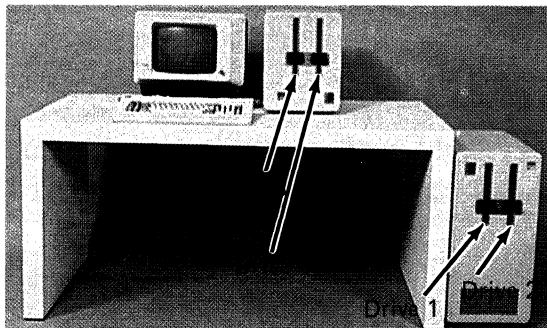
1. Filename—the name of the file requested. In the example, our filename is PAY.MASTER1.
2. VOLID—the name of the diskette. In our example, the diskette name is PAYROL.
3. Drive number—the number of the drive being used. The diskette drives and their numbers are shown below. The 5247 disk is called drive 5.



5322



Drive 5



5324

In our example, the diskette drive being used is drive 1.

The screen

Screen format (continued)

For information about the 5247 Disk Unit (drive 5), refer to Chapter 4, "Diskettes and Disk" in this manual and in *Using your 5247 Disk*, SA34-0188.

Notice that each item in the field is separated by a slash (/). If any of these items is not shown in the field, the slash is still displayed to show you which information is available.

For error codes 6200 through 6299, this field contains the identification number of the printer that caused the indicated error. This information is presented in the following format:

/D, where D is the identification number of the printer in error. The printers and their numbers are:

First printer = 10

Second printer = 11

For error code 0213, the field contains the nonexistent label name that was referenced by the BASIC program. If a nonexistent line number was referenced, this field will be blank.

This field is more for the programmer's use when writing programs. The types of errors that you might cause can usually be fixed by following the instructions in the *System Messages* manual.

Error code field. The error code field shows a number that is the cause of an error or option.

LOAD ERROR AA PAY.MASTER1/PAYROL/I EEEE NNNN 1 1

Refer to the *System Messages* manual for an explanation of the error codes.

The screen

Screen format (continued)

5246 Diskette Unit status field.. This field indicates the status of the optional 5246 Diskette Unit. If you do not have a 5246 Diskette Unit, this field is always blank.



- +1 Indicates that you are using the 5246 Diskette unit.
- +0 Indicates that you are trying to use the 5246 Diskette Unit, but it is unavailable; it is either being used by the other computer or is not switched on.

A blank indicates that you do not have a 5246 Diskette Unit *or* that you are not using the 5246 Diskette Unit.

5247 Disk Unit status field.. This field indicates the status of the optional 5247 Disk Unit. If you do not have a 5247 Disk Unit, this field will always be blank.



***1 Displayed**

If *1 is displayed, your computer is requesting to use the 5247 disk. No action is required by you when you see a *1 displayed on the status line.

*1 1 1

***2 Displayed**

If the *2 is displayed on the status line (columns 56 and 57), it means that another computer has the exclusive use of the 5247 disk. You will not be able to use the disk until the other computer completes its work with the disk.

*2 1 1

Note: If you cannot wait for the 5247 disk to become available, you may cancel the wait using the following procedure. However, this is not recommended as a normal procedure as a loss of data may occur.

1. Press and hold the Cmd key, then press the Attn key. A 6540 error code will appear on the status line.
2. Press and hold the Cmd key and press the Error Reset key. The 6540 error code will still be on the status line.
3. Press the Error Reset key.

Note: If the *2 remains on the status line, repeat the above step.

The screen

Screen format (continued)

***3 Displayed**

A *3 on the status line indicates the 5247 Disk Unit is processing a request from the computer. No action is required by you when you see a *3 displayed.

*3 1 1

***4 Displayed**

If the *4 is displayed on the status line (columns 56 and 57), it means that another computer has the exclusive use of the 5247 file. You will not be able to use the file until the other computer completes its work with the file.

*4 1 1

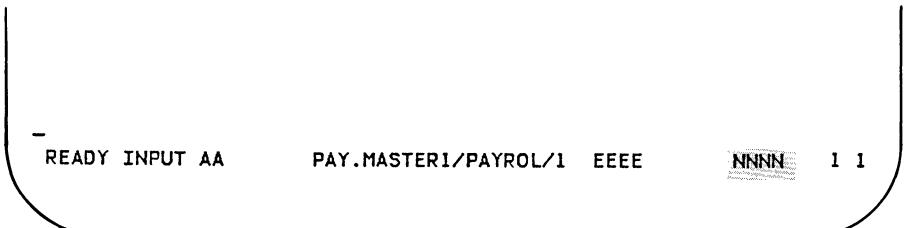
Note: If you cannot wait for the 5247 file to become available, you may cancel the wait using the following procedure. However, this is not recommended as a normal procedure as a loss of data may occur.

1. Press and hold the Cmd key, then press the Attn key. A 6540 error code will appear on the status line.
2. Press and hold the Cmd key and press the Error Reset key. The 6540 error code will still be on the status line.
3. Press the Error Reset key.

Note: If the *4 remains on the status line, repeat the above step.

BASIC program statement number field. The BASIC line number field shows the current BASIC statement line number.

A number is displayed in this field when a BASIC program error occurs or when you are running a program in step mode. After an error occurs in a program, the line number of the error will remain on the screen until another error occurs.

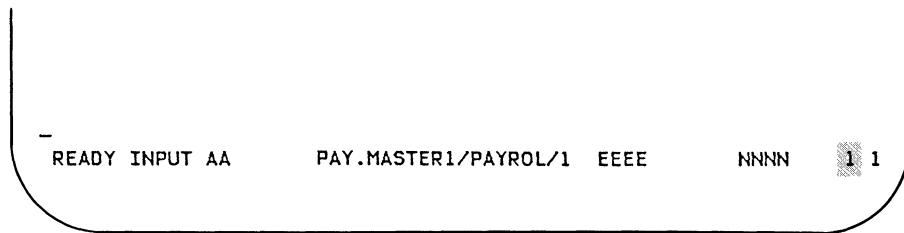


READY INPUT AA PAY.MASTER1/PAYROL/1 EEEE NNNN 1 1

The screen

Screen format (continued)

Display character set code field. The display character set code field shows the character set code symbols that are displayed. Your system can display and print the character sets of several different countries. The number in this field tells you which country's character set you are using for display.



The numbers and the character sets are:

1. United States/Canada (English)/Australia
2. Canada (French)
3. European countries except Spain
4. Miscellaneous graphics including Icelandic alphabet
5. Spain and other Spanish-speaking countries

For details about the character set symbols and character set selection, refer to Appendix A, "Character sets of different countries."

Shift status field. The shift status field shows which of the four keyboard shifts you are using.

READY INPUT AA PAY.MASTER1/PAYROL/1 EEEE NNNN 1 1

The numbers and shifts they stand for are:

1. Lower shift
2. Upper shift
3. Alternate shift
4. Command shift

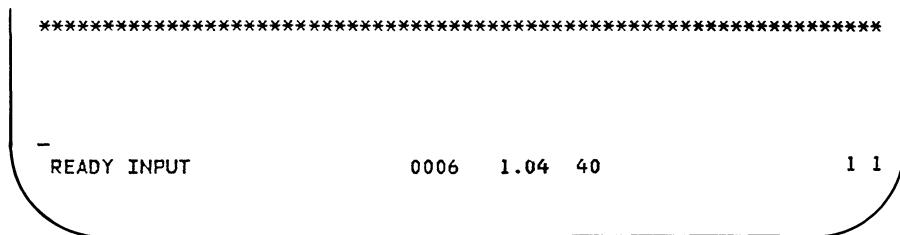
Refer to Chapter 3, "The keyboard" on page 3-1 for details on keyboard shifts.

The screen

Screen format (continued)

Split screen

SPLIT SCREEN mode will allow you to enter commands and correct errors. The conditions shown below will cause the computer to enter a split screen format.



- Press and hold the Cmd key and press the Attn key while the BASIC program is running. To get out of the split screen format and return to normal operation, you must type GO and press the Enter key.
- A BASIC program encountered an error, and you pressed the Error Reset key. To return to normal operation, correct the error, type GO, and press the Enter key. If you cannot correct the error, type GO END and press the Enter key to end the program.
- A pause statement, which is indicated by a pause on the status line, is executed. To return to normal operation, type GO and press the Enter key.
- A program is being executed in step mode. When a program is running in step mode, it will stop before executing each statement, and the split screen will appear. To continue in step mode, press the Enter key.

In a split screen format, the following will occur:

- The data in lines 18-23 is saved and the lines are blanked.
- A row of asterisks (*) appears in line 18 and the cursor is positioned at the beginning of the input line. Any data on lines 1-17 will not be affected.
- BASIC language statements that are entered become part of the program in execution. Certain BASIC statements such as DIM cannot be entered in split screen format.
- Commands can be entered for immediate execution. However, certain commands such as SAVE, REPLACE and RUN cannot be entered in split screen format.
- When you wish to return to the program, enter a GO command.
- Commands that cause information to be scrolled up on the screen (such as DIR and LIST) will occur as if line 19 were at the top of the screen.

2-30 SA34-0108

Chapter 3. The keyboard

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The keyboard

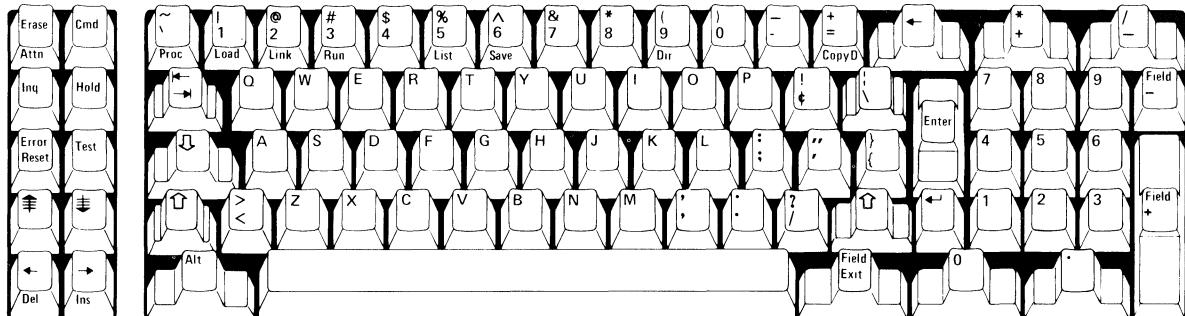
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The keyboard

About this chapter



You will notice that the keys on your computer keyboard are arranged similar to a standard typewriter. No matter which computer you have, each key and key function are identical.

In addition to the alphabetic keys (A through Z), the punctuation keys, the space bar, and the numeric keys (0 through 9 across the top row), the keyboard also has a numeric keypad similar to the keys on a calculator.

This chapter will assist you in understanding the computer keyboard operations and the functions you will use with the keyboard.

Key groups

The following key groups are on your computer's keyboard:

Data keys

- Alphabetic keys
- Numeric/symbol keys
- Numeric keypad keys
- Arithmetic operator keys
- Space bar

Shift keys

- Upper shift keys
- Shift Lock key
- Command (Cmd) shift key
- Alternate (Alt) shift key

Editing keys

- Scroll Up key
- Scroll Down key
- Cursor Left key
- Cursor Backspace key
- Cursor Right key
- Erase key

Program keys

- Enter key
- Error Reset key
- Attention (Attn) key
- Hold key
- Inquiry (Inq) key

The keyboard

Key groups (continued)

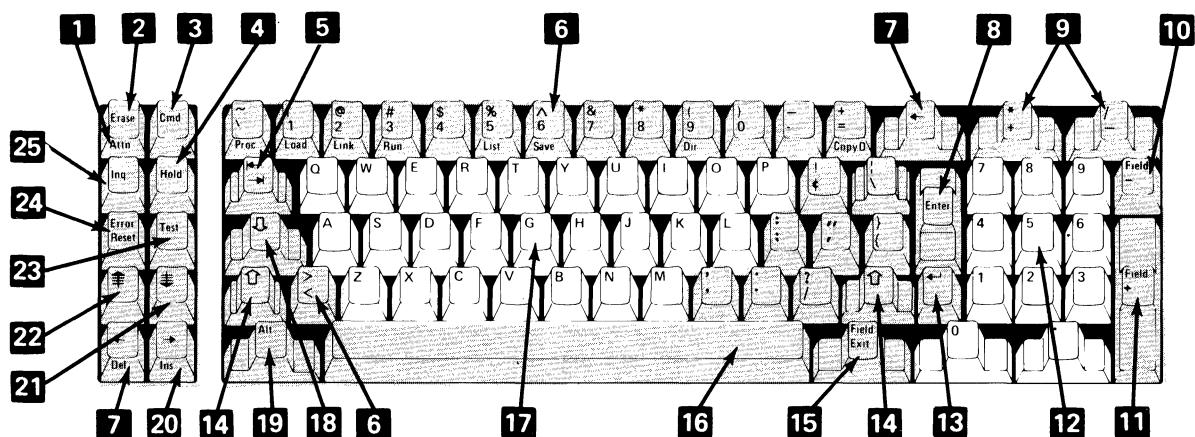
Field keys

- Field Advance key
- Field Backspace key
- New Line key
- Field Exit key
- Field + key
- Field–key

Other keys

- Test key

Keyboard layout

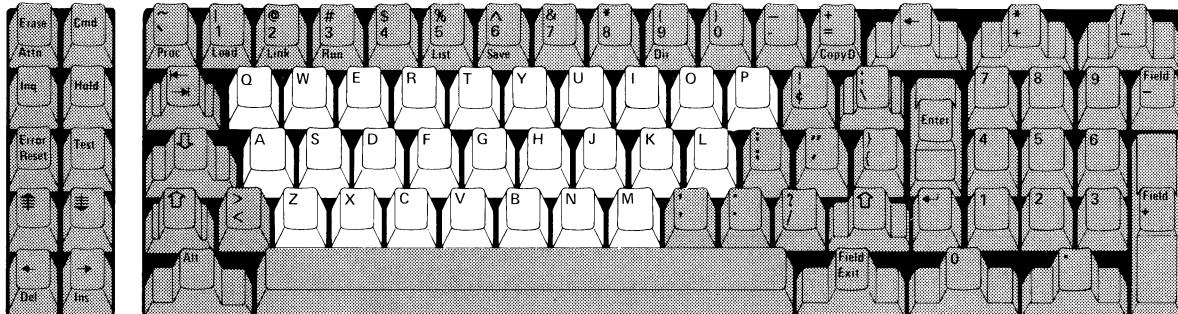


<i>Item (or key)</i>	<i>Page</i>	<i>Item (or key)</i>	<i>Page</i>
1 Attention (Attn) key	3-41	13 New Line key	3-45
2 Erase key	3-35	14 Upper shift keys	3-14
3 Command (Cmd) shift key	3-16	15 Field Exit key	3-50
4 Hold key	3-42	16 Space bar	3-12
5 Field Advance/Field Backspace key	3-47	17 Alphabetic keys	3-7
6 Numeric/symbol keys	3-8	18 Shift lock key	3-15
7 Cursor Left/Cursor Backspace keys	3-28	19 Alternate (Alt) shift key	3-20
8 Enter key	3-39	20 Cursor Right key	3-32
9 Arithmetic operator keys	3-11	21 Scroll Down key	3-25
10 Field – key	3-53	22 Scroll Up key	3-22
11 Field + key	3-52	23 Test key	3-54
12 Numeric keypad keys	3-10	24 Error Reset key	3-40
		25 Inquiry (Inq) key	3-43

The keyboard

Data keys

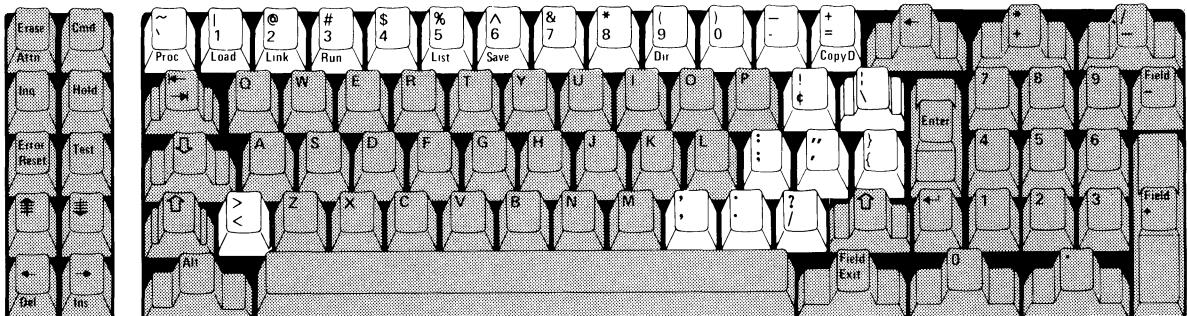
Alphabetic keys



The alphabetic keys are arranged like those on a standard typewriter. Uppercase letters (A, B, C, D . . .) can be displayed by using an upper shift key, with the alphabetic keys, like you would on a standard typewriter.

The alphabetic keys can also be used with the Command (Cmd) shift key to automatically type certain programmer commands. Refer to "Command (Cmd) shift key" and "Keyboard aids" in this chapter for more information.

Numeric keys/symbol keys



The numeric keys and the symbol keys are arranged on top of and next to the alphabetic keys. The keyboard has all the numbers and symbols found on a standard typewriter plus some additional arithmetic symbols.

Type information with these keys just as you would on a standard typewriter. The numeric and symbol keys all have two characters. Type the bottom character on the key top just as you would a lowercase letter. To type the top character, use an upper shift key just as you would when typing an uppercase letter on a typewriter.

The keyboard

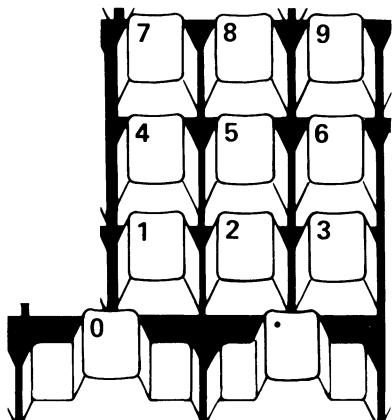
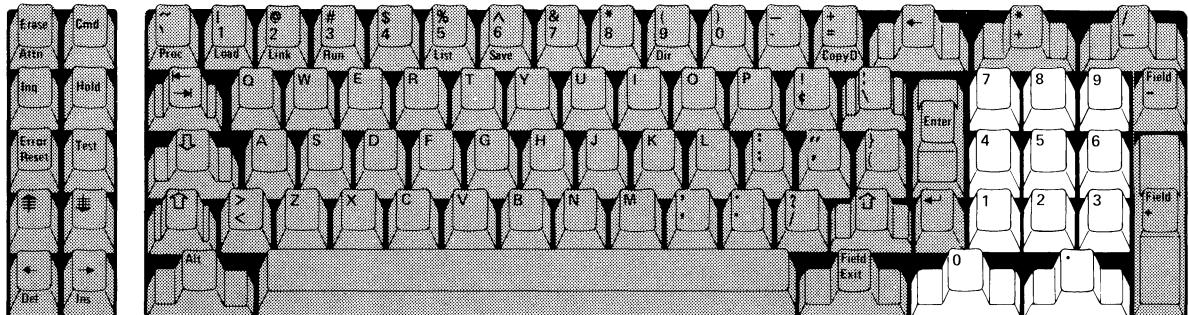
Data keys (continued)

The numeric and symbol keys can also be used with the Command (Cmd) shift key to automatically type certain operator commands. Refer to "Command (Cmd) shift key" and "Keyboard Aids" for more information.

By using various symbol or alphabetic keys with the Alternate (Alt) shift key, you can display certain block graphic symbols. Refer to "Alternate (Alt) shift key" in this chapter for more information.

Note: The symbols ~, ^ and \ are considered as *dead* keys and are used with additional language characters. You must manually advance the cursor when using one of these *dead* keys or you may type a letter or character in the same position such as specified in Appendix A.

Numeric keypad keys



The numeric keypad keys, located on the right side of the keyboard, are arranged like the keys on a calculator.

These keys will display the numbers 0 through 9 and the decimal point with the keyboard in either upper or lower shift.

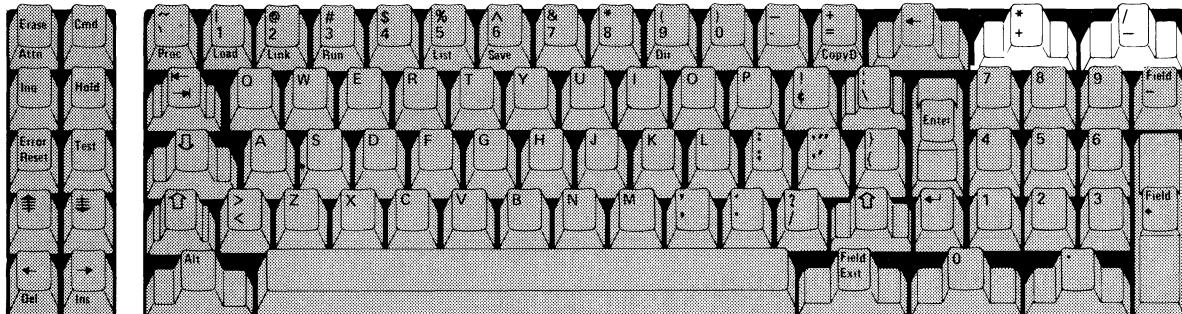
The numeric keypad keys can be used with the Alternate (Alt) shift key to display symbols from the character sets of other countries. Refer to "Alternate (Alt) shift key" in this chapter and to Appendix A, "Character sets of different countries," for more information.

The numeric keypad keys can also be used with the Command (Cmd) shift key to complete particular tasks in Customer Support Functions and IBM applications.

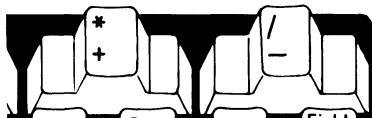
The keyboard

Data keys (continued)

Arithmetic operator keys



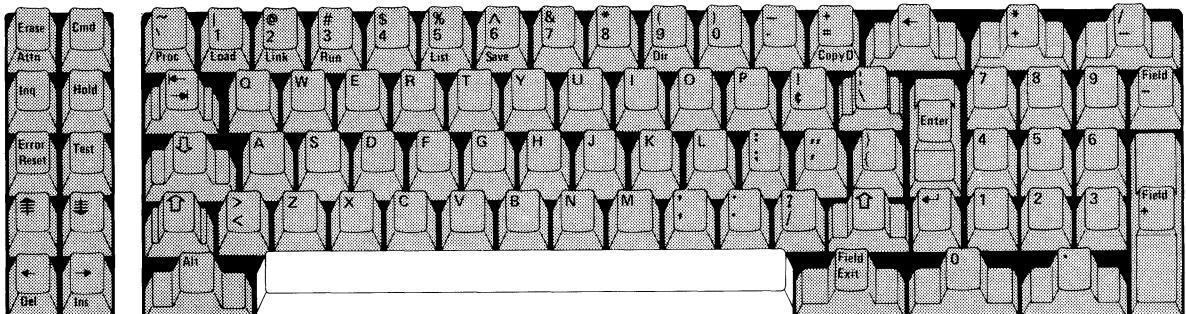
The arithmetic operator keys are located above the numeric keypad.



Press the arithmetic operator keys to display the symbols for addition (+), subtraction (-), multiplication (*), and division (/). Notice that BASIC uses symbols for multiplication (*) and division (/) that are different from the typewriter (X and ÷).

You can display the + and - signs just as you would a lowercase letter. To display the * and / signs, use an upper shift key just as you would for uppercase letters.

Space bar

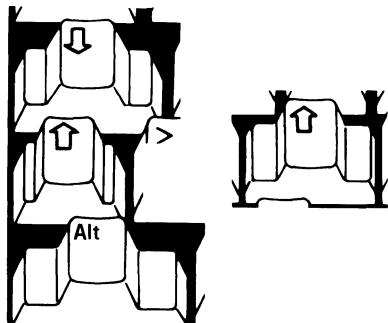
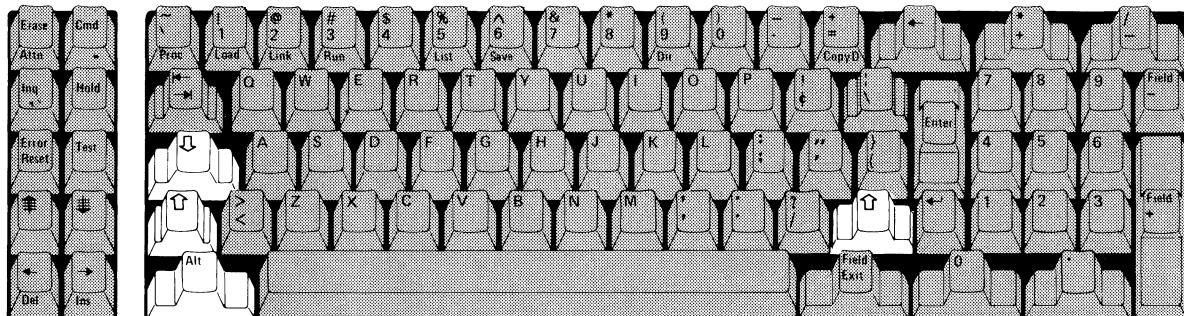


The keyboard has a space bar similar to the one on a standard typewriter. There is one major difference: the space bar on a typewriter skips a space when you press it. However, the space bar on your computer types a blank character on your screen when you press it. If you try to move the cursor under a word by pressing the space bar, you will replace the word with blanks. Use the Cursor Left and Cursor Right keys to move the cursor under a word.

The space bar is a repeating key. If you hold down the space bar, the cursor will move across the screen, inserting blank characters until you release the space bar.

The keyboard

Shift keys



The shift keys are used with other keys on the keyboard to display additional characters. The keyboard has three shift keys and a Shift Lock key.

- Upper shift keys/Shift Lock key
- Command (Cmd) Shift key
- Alternate (Alt) Shift key

Lower shift

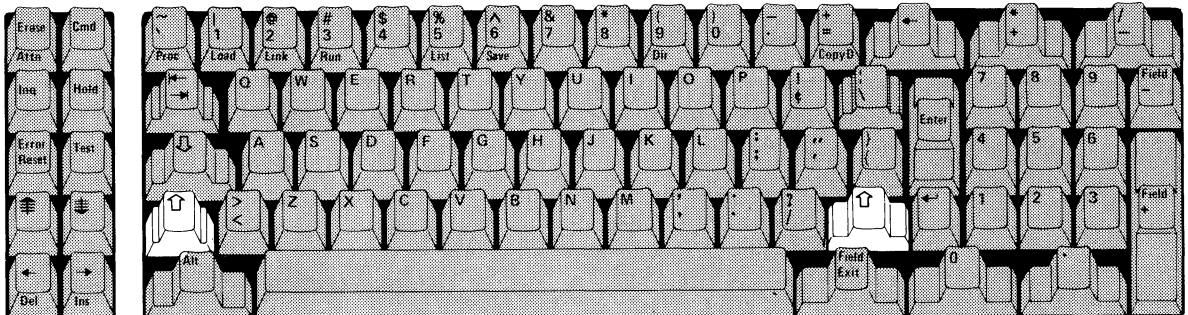


Lower shift means that you are not using any of the shift keys when displaying a character. The keyboard normally displays lower shift characters, which are:

- Lowercase alphabetic letters (a, b, c...)
- Characters in the lower position on the key top. In the illustration, the 3 is in the lower position on the key top.

When the keyboard is in lower shift, the shift status field (position 80) on the status line displays the number 1.

Upper shift keys



The keyboard contains two upper shift keys.

Using the upper shift keys allows you to display upper shift characters. Upper shift characters are:

- Uppercase alphabetic letters (A, B, C....)
- The symbols are on the upper position on the key top.
For example, the # is in the upper position on the key top.

To display an upper shift character:

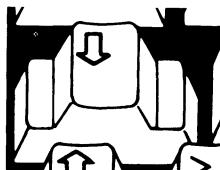
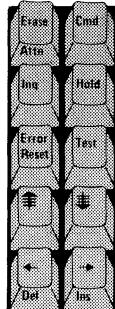
1. Hold down one of the upper shift keys.
2. Press the key for the character you want to display.
3. Release the upper shift key.

When you hold down an upper shift key, the shift status field (position 80) on the status line displays the number 2.

The keyboard

Shift keys (continued)

Shift Lock key

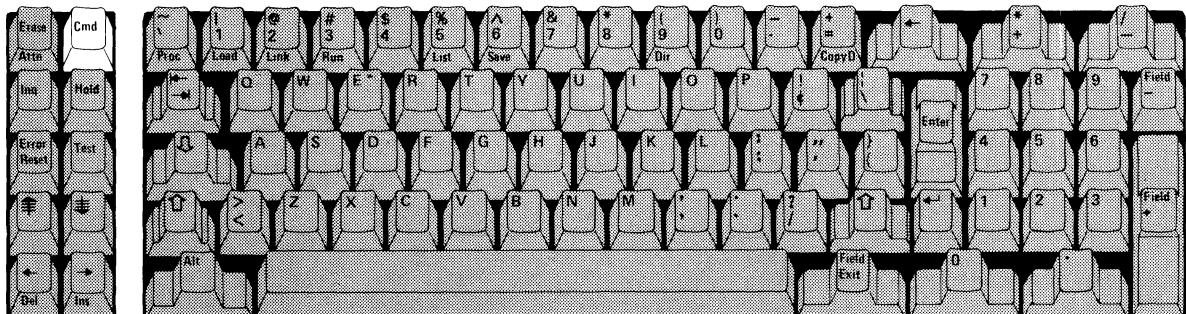


When you press and release the Shift Lock key, the keyboard displays only upper shift characters. The number 2 is displayed in the shift status field (position 80) of the status line.

To release the Shift Lock key and return to displaying lower shift characters, press and release one of the upper shift keys.

This procedure is the same as for the Shift Lock key on a standard typewriter.

Command (Cmd) shift key



If you hold down the Command (Cmd) shift key and press one of the other keys, you can do various things depending upon the key you press.

- You can hold down the Cmd key and press the Erase key to activate the attention function (see "Attention (Attn) key" in this chapter).
- You can hold down the Cmd key and press the Cursor Left key to delete a character from a line (see "Deleting a character" in this chapter).

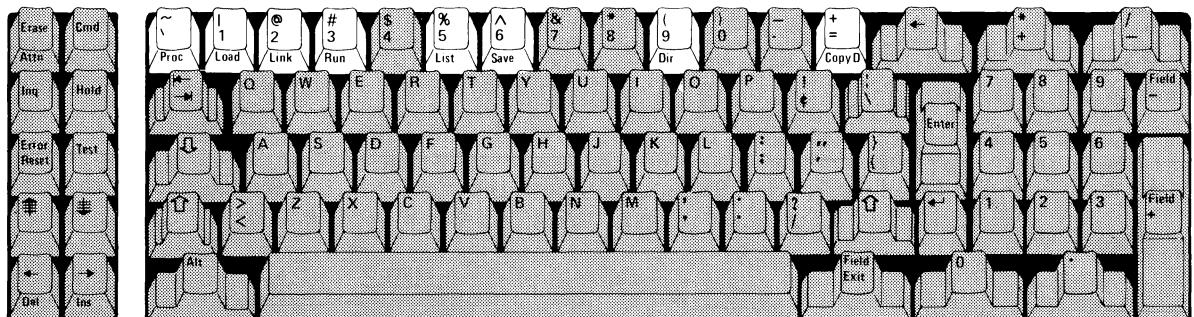


The keyboard

Shift keys (continued)

- You can hold down the Cmd key and press the Cursor Right key to insert a character in a line (see "Inserting a character" in this chapter).
- You can hold down the Cmd key and press the CopyD key to print a copy of the screen on your system printer (see "Printing the contents of the screen" in this chapter).

Note: If you have a problem in printing the contents of the screen when using CopyD, refer to "Printing the contents of the screen" in this chapter.



When you hold down the Cmd key and press one of the keys highlighted in the above illustration, the operator command word, printed on the front of the key, is displayed at the cursor location.

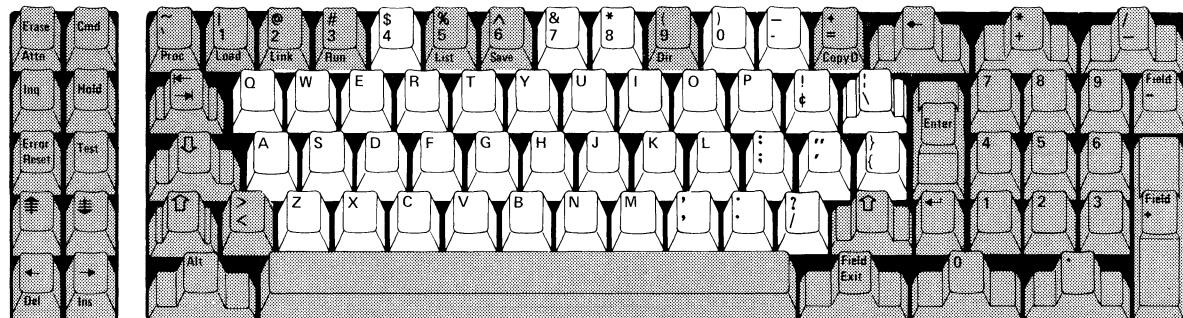
For those keys that don't have a word printed on the front, a Keyboard Aid is provided with the computer. Look at "Keyboard Aids" in this chapter to find the operator command words displayed by these keys.

To execute the command that is displayed, press Enter. (For a description of the commands, refer to the *BASIC Language Reference* manual).

For example, when you press and hold the Cmd key and press the 5 key, the word LIST is displayed. Press Enter, and the program you have loaded is listed on the screen.

The keyboard

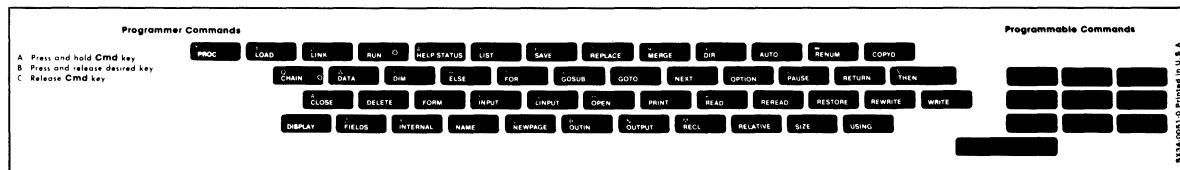
Shift keys (continued)



When you hold down the Cmd key and press one of the keys highlighted in the above illustration, the programmer command associated with the key is displayed at the cursor location.

The programmer commands are not printed on the front of the keys, as are the operator commands. Instead, the Keyboard Aid is provided with the computer to identify the key on the keyboard that is associated with each programmer command.

The Keyboard Aid that you should use to type and display the programmer commands is shown:



When you use this Keyboard Aid, you can easily locate the key you must press to display a particular word. For example, to display the command word PRINT, press the Cmd key and the J key.

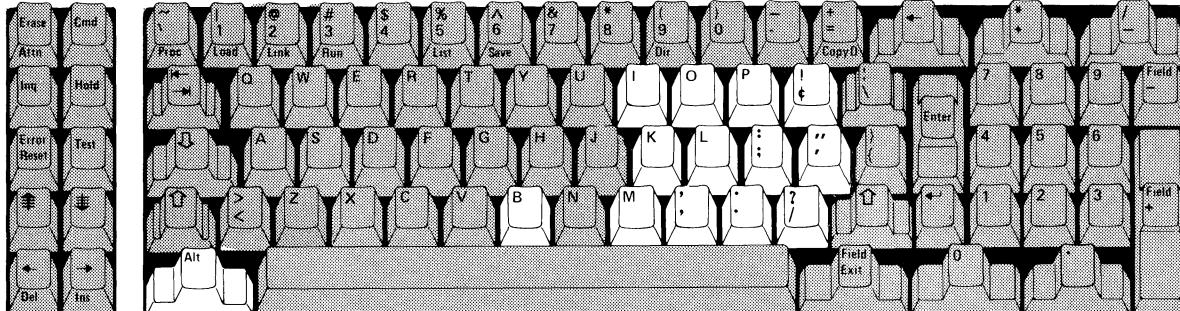
The Cmd key overrides all the other shift keys. When you release the Cmd key, the keyboard returns to either lower shift or upper shift, depending on which shift you were in before you pressed the Cmd key.

The shift status field on the status line displays the number 4 when the Cmd key is pressed.

The keyboard

Shift keys (continued)

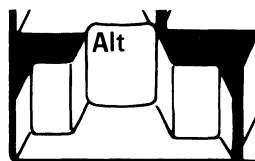
Alternate (Alt) shift key



If you hold down the Alternate (Alt) shift key and press one of the other keys highlighted in the illustration above, you can display various special characters and graphic symbols.

Use the Alt key to:

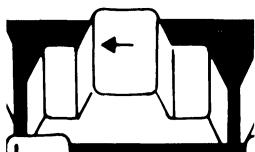
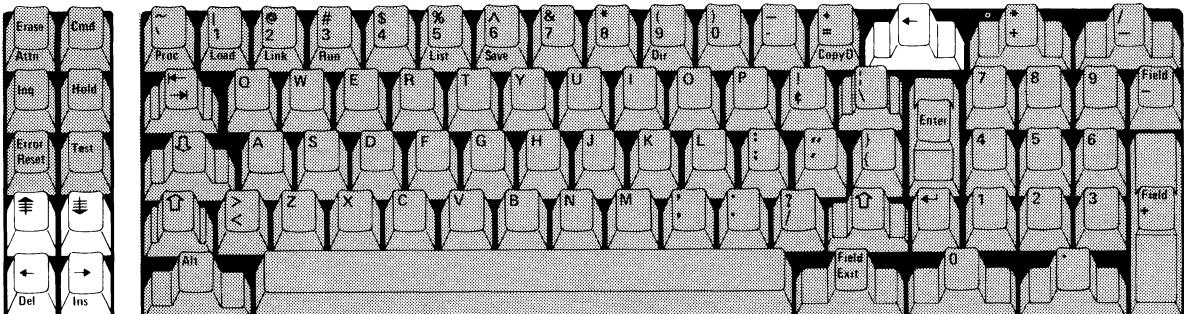
- Change the display character set (see Appendix A).
- Display symbols and graphics.
- Display additional characters of other countries (see Appendix A).



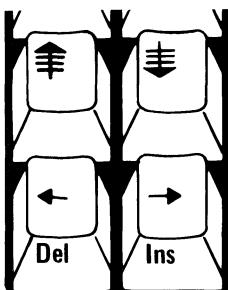
The Keyboard Aid will also help you to identify these characters and symbols.

When the Alt key is pressed, the shift status field on the status line displays the number 3.

Edit Keys



The keys highlighted in the above illustration are edit keys. Use the edit keys to move the cursor across the screen and move the display lines up and down. You can also use these keys to delete and insert characters.



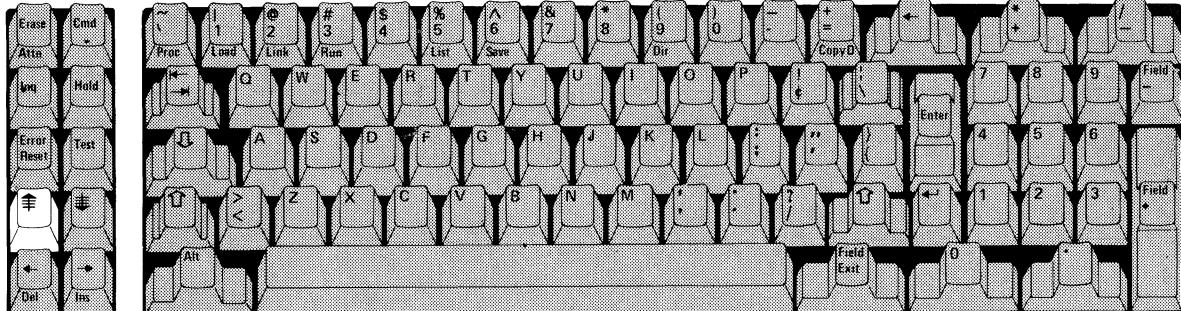
The action of some of the edit keys is affected by holding down one of the shift keys. Where this occurs, you will be directed to the section of this chapter that describes the action in detail.

The action of the edit keys also depends upon whether or not you are using normal input (on line 23) or full-screen processing input. If you are using normal input, the word INPUT is displayed on the status line. If you are in full-screen processing, the word FIELDS is displayed on the status line.

The keyboard

Edit Keys (continued)

Scroll Up key



Normal input. When you press the Scroll Up key, all the lines on the screen (except the status line) move up one line. The top line moves off the screen. If you hold down this key, the lines continue to move up.

FIRST LINE OF DATA
SECOND LINE OF DATA
THIRD LINE OF DATA

Before scrolling up
one line

SECOND LINE OF DATA
THIRD LINE OF DATA

After scrolling up
one line

If a line is longer than 80 characters and a part of the line moves off the screen, the rest of the line is blanked.

FIRST LINE OF 80 CHARACTERS
CONTINUATION OF THE FIRST LINE
THIRD LINE OF DATA

Before scrolling up
one line

CONTINUATION OF FIRST LINE
THIRD LINE OF DATA

After scrolling up
one line

Full-screen processing. When you press the Scroll Up key, the cursor moves to the first position of the previous field.

Part No. 654321

Quantity 123

Cost 423.93

Before pressing the
Scroll Up key

Part No. 654321

Quantity 123

Cost 423.93

After pressing the
Scroll Up key

The keyboard

Edit Keys (continued)

If the cursor is in the top field, it moves to the first position of the bottom field.

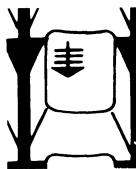
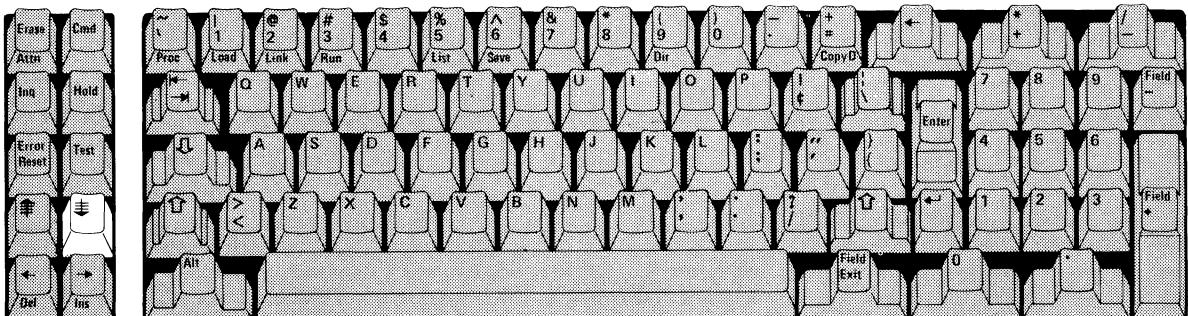
Part No.	6543 <u>2</u> 1
Quantity	123
Cost	423.93

Before pressing the
Scroll Up key

Part No.	654321
Quantity	123
Cost	<u>4</u> 23.93

After pressing the
Scroll Up key

Scroll Down key



Normal input. When you press the Scroll Down key, all the lines on the screen (except the status line) move down one line. The bottom line moves off the screen. If you hold down this key, the lines continue to move down.

FIRST LINE OF DATA
SECOND LINE OF DATA

-
READY INPUT

Before pressing the
Scroll Down key

FIRST LINE OF DATA
SECOND LINE OF DATA

-
READY INPUT

After pressing the
Scroll Down key

The keyboard

Edit Keys (continued)

If a line is longer than 80 characters and a part of the line moves off the screen, the rest of the line is blanked.

FIRST LINE OF DATA
SECOND LINE OF DATA
CONTINUATION OF SECOND LINE
-
READY INPUT

Before pressing the
Scroll Down key

FIRST LINE OF DATA
-
READY INPUT

After pressing the
Scroll Down key

Full-screen processing. When you press the Scroll Down key, the cursor moves to the first position of the next field.

Part No. 654321

Quantity 123

Cost 423.93

Before pressing the
Scroll Down key

Part No. 654321

Quantity 123

Cost 423.93

After pressing the
Scroll Down key

If the cursor is in the bottom field, it moves to the first position of the top field.

Part No. 654321

Quantity 123

Cost 423.93

Part No. 654321

Quantity 123

Cost 423.93

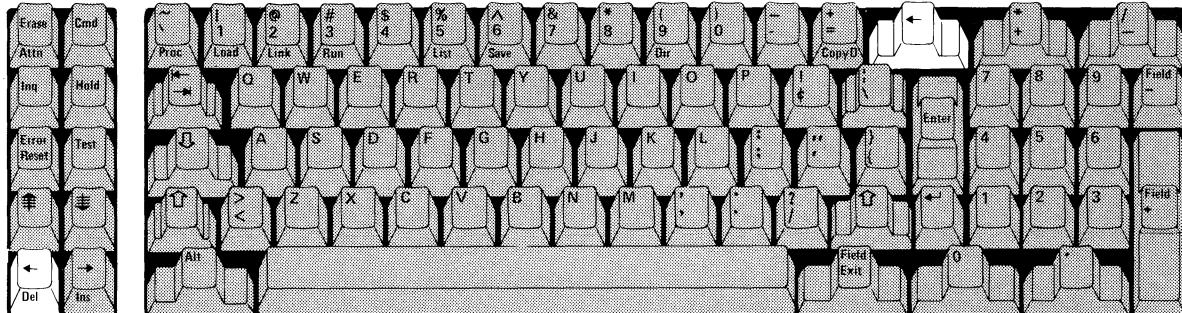
Before pressing the
Scroll Down key

After pressing the
Scroll Down key

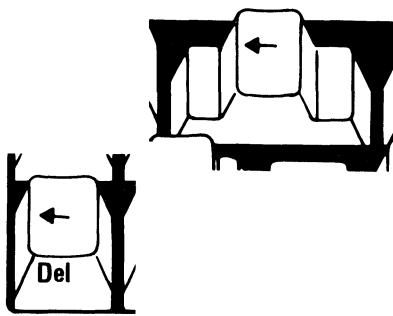
The keyboard

Edit Keys (continued)

Cursor Left key/Cursor Backspace key



The Cursor Left key and the Cursor Backspace key work in the same way, and are explained together.



Normal input. When you press the Cursor Left key or the Cursor Backspace key, the cursor moves one position to the left. If you hold down either key, the cursor continues to move left.

THE CURSOR MOVES LEFT_

READY INPUT

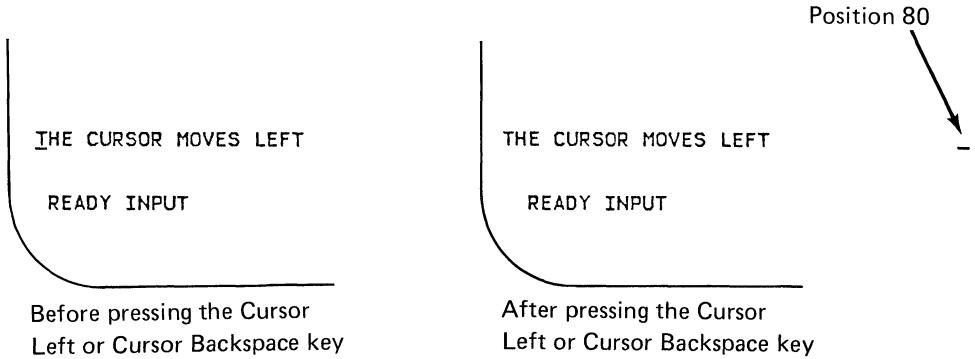
Before pressing the Cursor
Left or Cursor Backspace key

THE CURSOR MOVES LEFTI

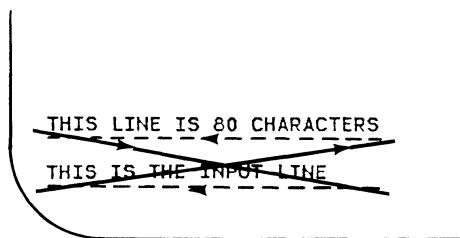
READY INPUT

After pressing the Cursor
Left or Cursor Backspace key

If the input line is less than 80 characters, the cursor moves from position 1 on line 23 to position 80 on line 23.



If the input line is 80 characters or longer, the cursor moves to the left along line 23. When the cursor reaches position 1 of line 23, it moves up to position 80 on line 22 and continues to move left. When the cursor reaches position 1 of line 22, it moves back to position 80 of line 23.



The keyboard

Edit Keys (continued)

Full-screen processing. When you press the Cursor Left key or Cursor Backspace key, the cursor moves one position to the left in the *same* field.

If the cursor is in the first position of the field, the cursor moves to the last position of the preceding field.

The following example illustrates this action.

Part No. 654321

Quantity 123

Cost 423.93

Part No. 654321

Quantity 123

Cost 423.93

Before pressing the Cursor
Left or Cursor Backspace key

After pressing the Cursor
Left or Cursor Backspace key

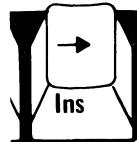
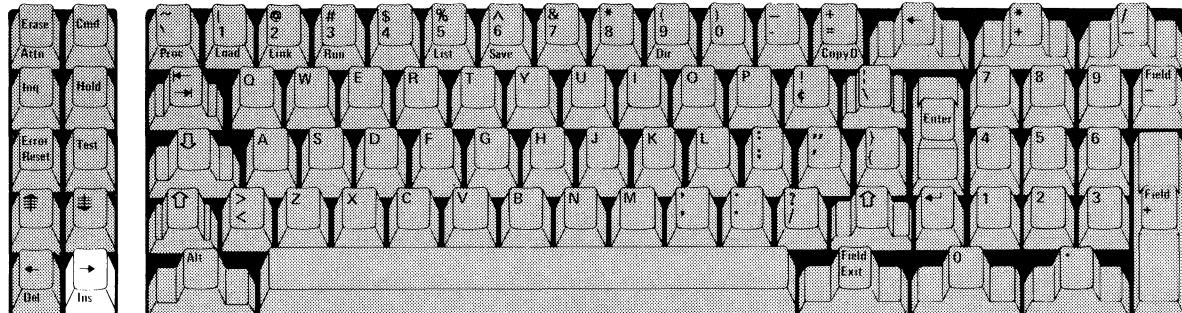
You can use the Cursor Left key with the Cmd key to delete a character. For more information, refer to "Deleting a Character" in this chapter.

Note: The Cursor Left key and the Cursor Backspace key do not work when you hold down the Alt key.

The keyboard

Edit Keys (continued)

Cursor Right Key



Normal input. When you press the Cursor Right key, the cursor moves one position to the right. If you hold down this key, the cursor continues to move to the right.

THE CURSOR MOVES RIGHT

READY INPUT

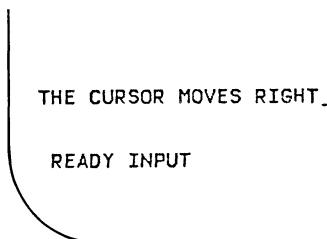
Before pressing the
Cursor Right key

THE CURSOR MOVES RIGHT

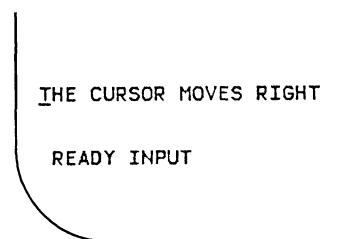
READY INPUT

After pressing the
Cursor Right key

If an input line is less than 80 characters and you press the Cursor Right key, the cursor moves to the right until it reaches position 80. Then it moves from position 80 on line 23 back to position 1 on line 23.



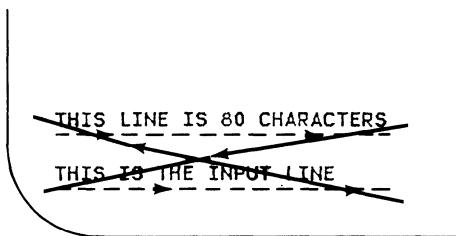
Before pressing the
Cursor Right key



After pressing the
Cursor Right key

If an input line is 80 characters or longer, the cursor moves to the right along line 23. When the cursor reaches position 80 of line 23, it moves up to position 1 on line 22 and continues to move right. When the cursor reaches position 80 of line 22, it moves down to position 1 of line 23.

The example illustrates this action.



The keyboard

Edit Keys (continued)

Full-screen processing. When you press the Cursor Right key, the cursor moves one position to the right in the SAME field.. If the cursor is in the last position of a field, it moves to the first position of the next field.

The example illustrates this action.

Part No.	654321
Quantity	<u>123</u>
Cost	423.93

Before pressing the
Cursor Right key

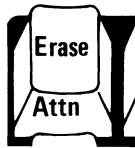
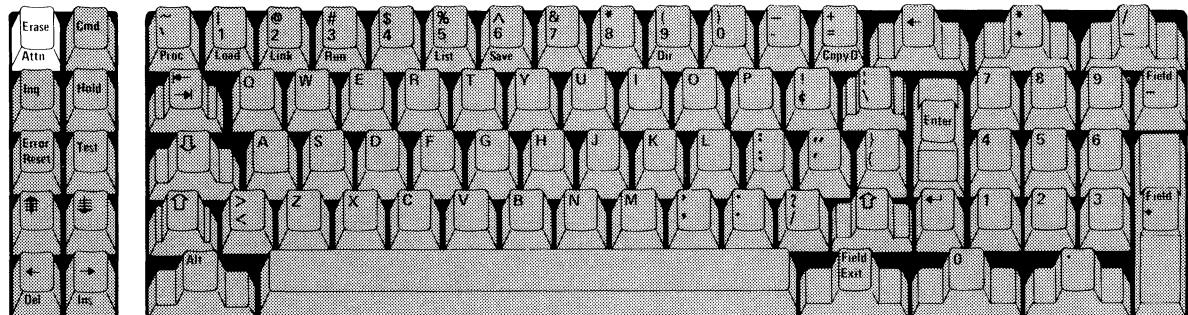
Part No.	654321
Quantity	123
Cost	<u>423.93</u>

After pressing the
Cursor Right key

You can use the Cursor Right key with the Cmd key to insert a character in a word or line. For more information, refer to "Inserting a character" in this chapter.

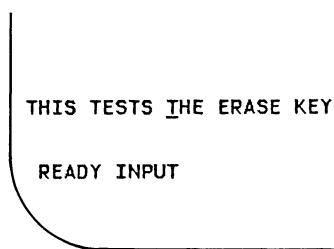
Note: The Cursor Right key does not work when you hold down the Alt key.

Erase key

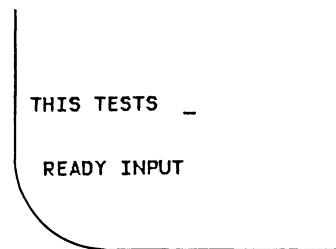


Normal input. When you press the Erase key, the information on the input line is erased from the character above the cursor to the end of the line.

An example of erasing information to the end of the input line is shown:



Lines before pressing
the Erase key

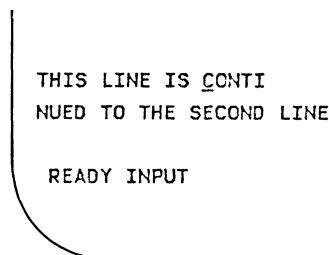


Lines after pressing
the Erase key

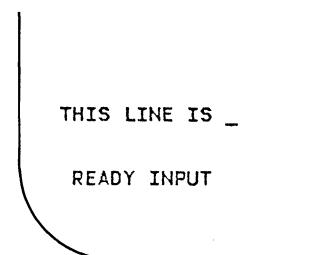
The keyboard

Edit Keys (continued)

If the input line is 80 characters or longer, pressing the Erase key erases all the characters in the line. An example of erasing to the end of an input line that is 80 characters or longer is shown:



Lines before pressing
the Erase key



Lines after pressing
the Erase key

The rest of the input line moves down to line 23.

Note: The input line is treated as one line, even if it continues onto more than one line.

Full-screen processing. Pressing the Erase key erases the rest of the current field to the right of the cursor, starting with the character above the cursor.

An example of pressing the Erase key when the screen is in full-screen processing is shown:

<u>INVOICE #</u>	<u>QUANTITY</u>
12345	142
12388	133

READY FIELD

<u>INVOICE #</u>	<u>QUANTITY</u>
12345	142
1_	133

READY FIELD

Field before pressing
the Erase key

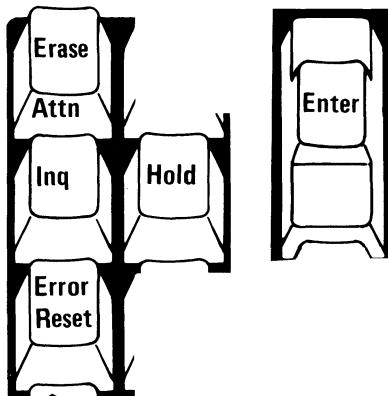
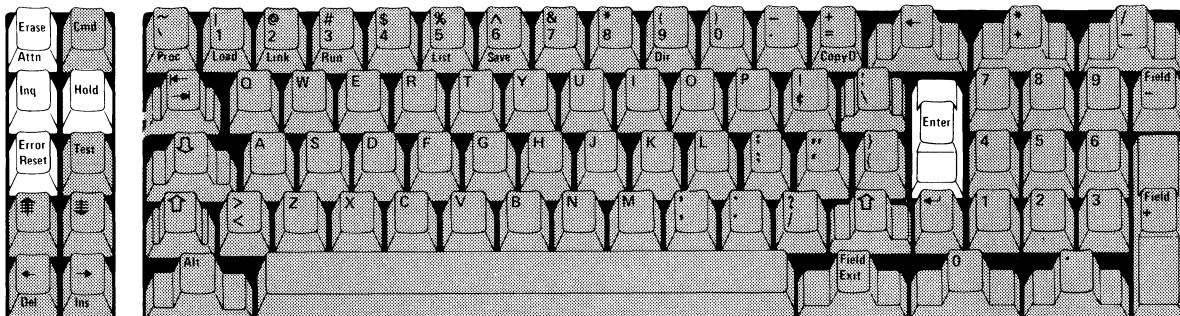
Field after pressing
the Erase key

You use the Erase key along with the Cmd key to activate the attention function. Refer to "Attention (Attn) key" in this chapter for more information.

The Erase key does not work when you hold down the Alt key.

The keyboard

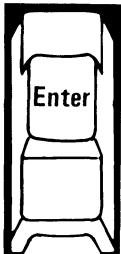
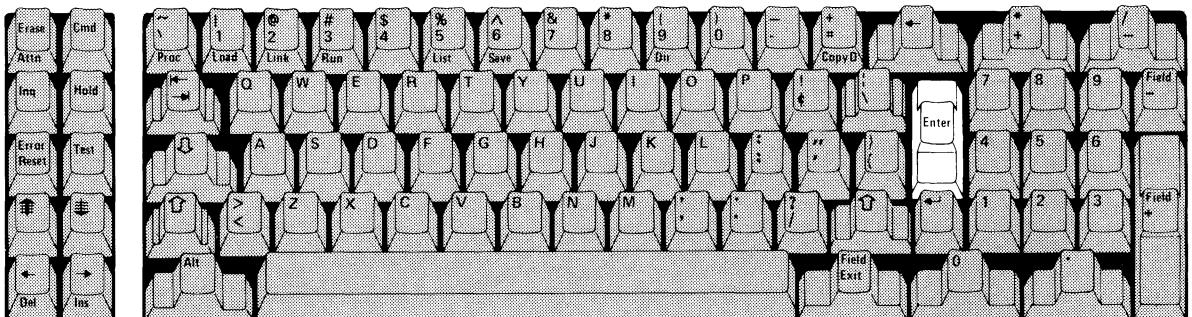
Program Keys



The keys highlighted in the above illustration are program keys. Use the program keys to process information and control the running of your program.

The action of the program keys, which is not affected by pressing any of the shift keys, is the same during both normal input and full-screen processing.

Enter key

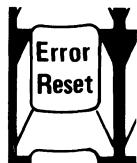
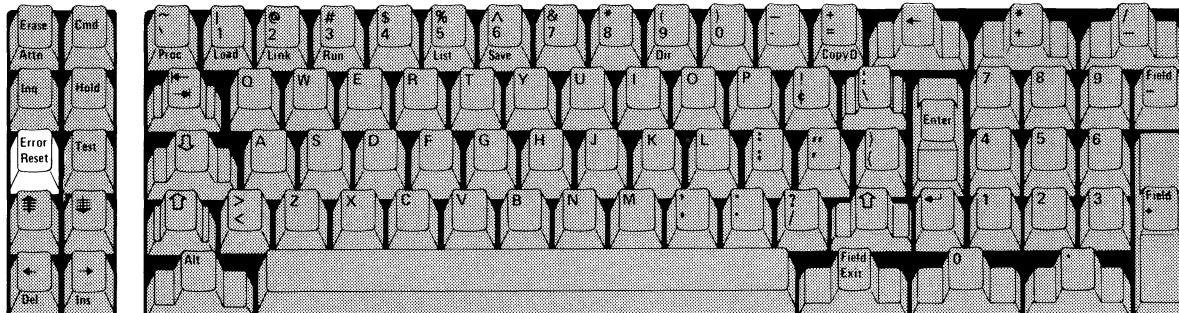


When you press the Enter key, the computer processes the information displayed on the input line. If you are using full-screen processing, the computer processes the information displayed in the input areas.

The keyboard

Program Keys (continued)

Error Reset key

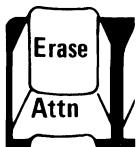
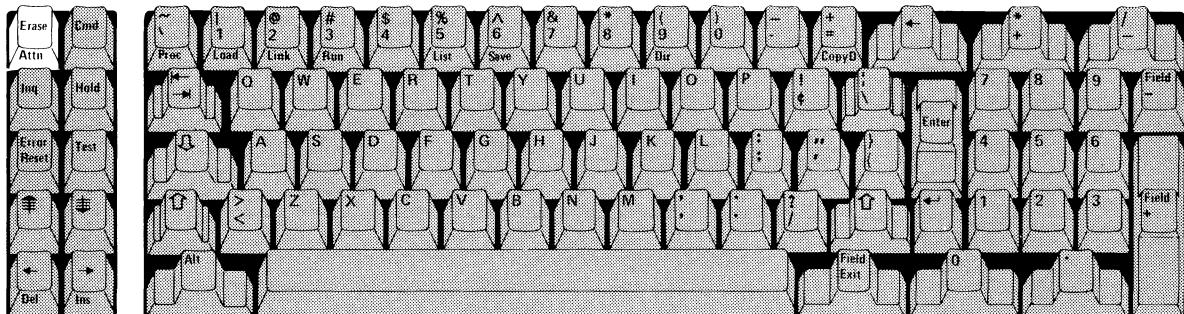


The Error Reset key is used when either OPTION or ERROR is displayed on the keyboard status field on the status line.

If OPTION is displayed, look up the action code on the Keyboard Aid or in the *System Messages* manual to help you correct the error; then press the Error Reset key to re-try the operation. If you do not want to re-try the operation, hold down the Cmd key and press the Error Reset key.

If ERROR is displayed, press the Error Reset key to unlock the keyboard so that you can correct the error. In either case (OPTION or ERROR), write down the action code before pressing the Error Reset key because the action code will be erased.

Attention (Attn) key



You activate the Attention (Attn) key by holding down the Cmd key and pressing the Erase key. Note the Attn printed on the front of the key.

When you activate the Attn key, the program stops running and you can enter information into the computer.

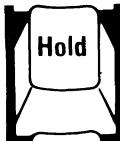
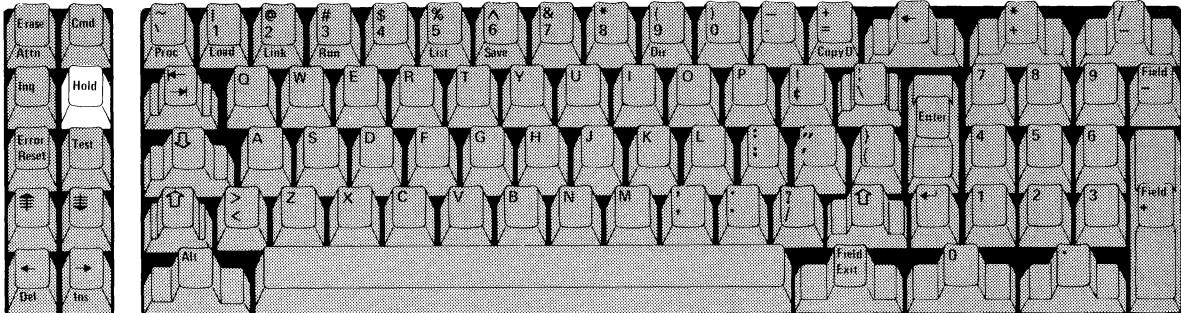
If you activate the Attn key after an error occurs, you tell the computer that you acknowledge the error. The action code field stops flashing, and the keyboard works again so that you can correct the error. After you correct the error, enter the word GO, and the program will start running again from the point where it stopped.

When you activate the Attn function, ATTN is displayed in the computer status field on the status line.

The keyboard

Program Keys (continued)

Hold key



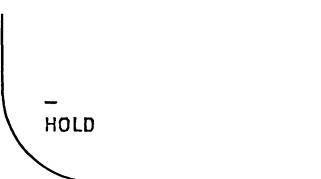
When you press the Hold key, the computer stops. The diskette units and printer may continue to operate.

To resume processing, press the Hold key a second time.

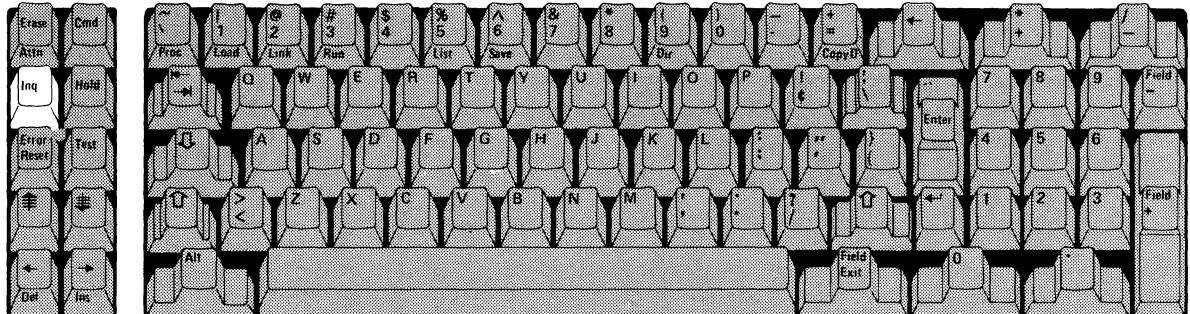
When your computer displays program output, the information on the screen changes very rapidly. You can use the Hold key to stop the information on the screen so that you can read it.

The Hold key will not stop the printer after you have pressed the Cmd key and CopyD key.

The hold status is displayed in the computer status field on the status line.



Inquiry (Inq) key



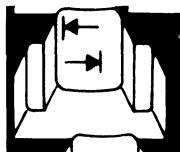
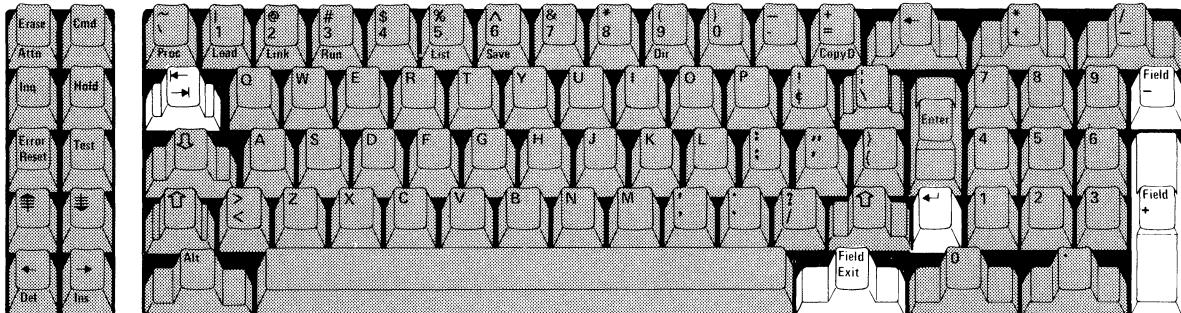
When you press the Inq key, the application program you are running is interrupted.

How and when to use the Inq key is explained in the application program documents.

The **Ins** key has no effect when you hold down either the **Cmd** key or the **Alt** key.

The keyboard

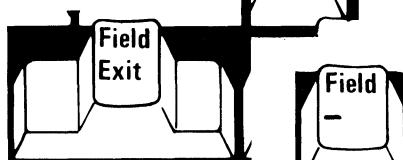
Field keys



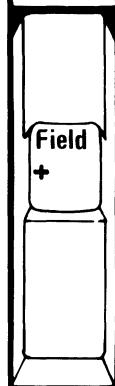
The keys highlighted in the above illustration are field keys. Use the field keys in full-screen processing to move the cursor from one field to another.



The field keys work the same way in lower or upper shift.



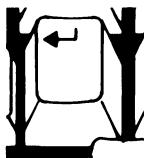
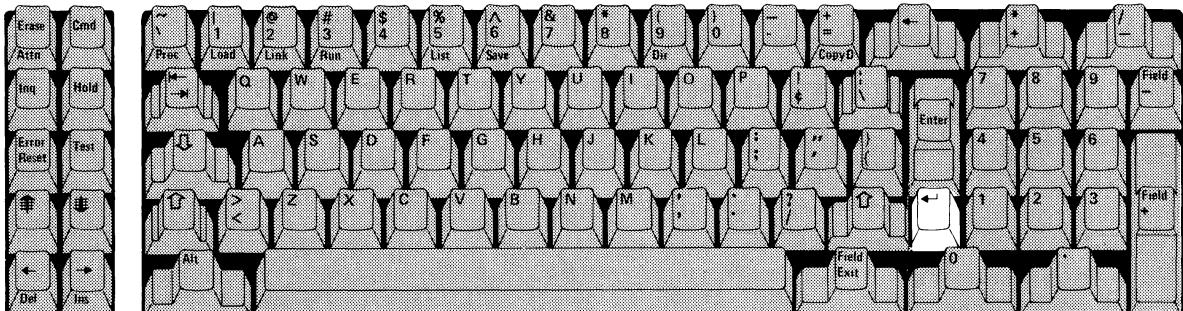
The field keys do not work when you hold down either the Cmd key or the Alt key.



You use the field keys only during full-screen processing. The word FIELDS is displayed in the keyboard status field on the status line.



New Line key



When you press the New Line key, the cursor moves to the first position of the next field on the screen.

Press the New Line key when you have finished typing new information in a field or when you want to leave the information in the field unchanged. The following illustrates the action of the New Line key:

Part No. 654321_

Quantity 123

Cost 423.93

Part No. 654321

Quantity 123

Cost 423.93

Before pressing the
New Line key

After pressing the
New Line key

The keyboard

Field keys (continued)

If the cursor is in the last field when you press the New Line key, the cursor moves to the first position of the first field on the screen.

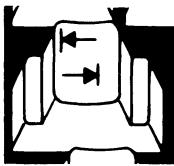
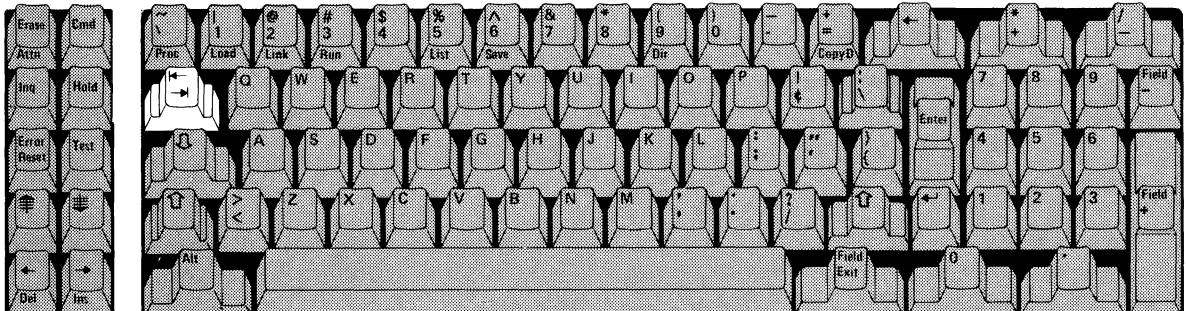
Part No.	654321	Part No.	<u>654321</u>
Quantity	123	Quantity	123
Cost	423.93_	Cost	423.93

Before pressing the
New Line key

After pressing the
New Line key

The New Line key does not work when you hold down the Alt key or the Cmd key.

Field Advance/Field Backspace key



Field Advance. The Field Advance key works the same as the New Line key. It moves the cursor to the next field without erasing any information.. When you use this key, you have to be sure that the keyboard is in lower shift. If it is not, the cursor will backspace to the preceding field instead of advancing to the next field.

The examples illustrate the action of field advance.

<u>INVOICE #</u>	<u>QUANTITY</u>
12345	142
<u>12346</u>	

Before pressing the
Field Advance key

<u>INVOICE #</u>	<u>QUANTITY</u>
12345	142
12346	-

After pressing the
Field Advance key

The keyboard

Field keys (continued)

INVOICE # QUANTITY

12345	142
12346	<u>128</u>

Before pressing the
Field Advance key

INVOICE # QUANTITY

12345	142
12346	128

After pressing the
Field Advance key

Field Backspace. When you hold down the upper shift key and press the Field Backspace key, the cursor moves to the first character position of the preceding field on the screen.

INVOICE # QUANTITY

12345	142
12346	<u>128</u>

Before pressing the
Field Backspace key

INVOICE # QUANTITY

12345	142
<u>12346</u>	128

After pressing the
Field Backspace key

If the cursor is in the first defined field, the cursor moves to the first character position of the last defined field.

INVOICE # QUANTITY
12345 142
12346 128

Before pressing the
Field Backspace key

INVOICE # QUANTITY
12345 142
12346 128

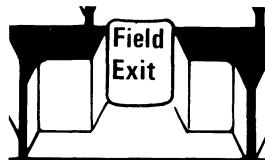
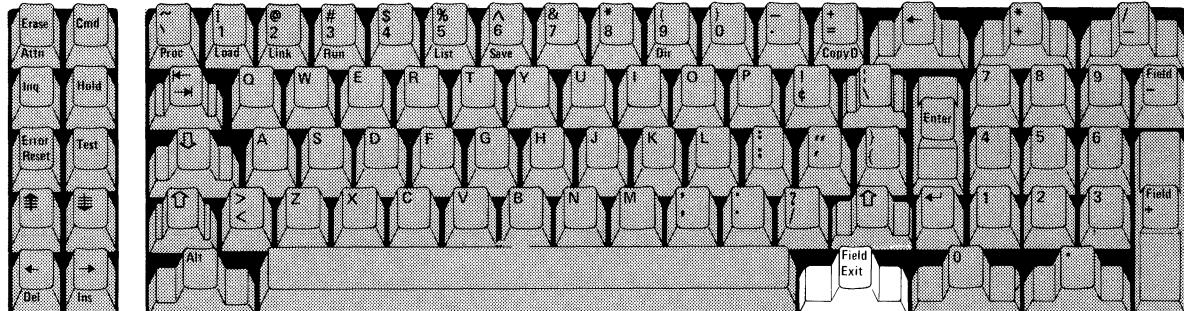
After pressing the
Field Backspace key

The Field Advance/Field Backspace key does not work when you hold down the Alt key or the Cmd key.

The keyboard

Field keys (continued)

Field Exit key



When you press the Field Exit key, the information displayed from the cursor position to the end of the field is *erased* in the last character of the field. When data is entered, the cursor is not advanced, and data is not erased. If the cursor is moved to the last character of field it is erased. The cursor then moves to the first position of the next field.

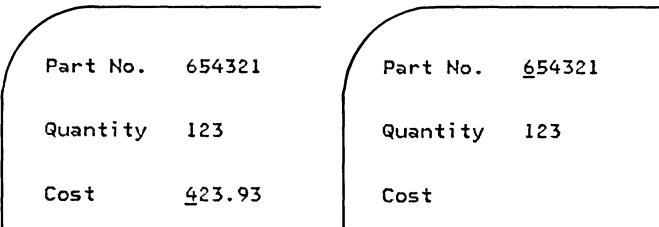
If the data is all numeric, the numbers are moved to the right.

Part No. <u>654321</u>	Part No. <u>654321</u>
Quantity 123	Quantity <u>123</u>
Cost 423.93	Cost <u>423.93</u>

Before pressing the
Field Exit key

After pressing the
Field Exit key

If the cursor is currently in the last field on the screen, it moves to the first position of the first field on the screen.



The diagram consists of two side-by-side rectangular boxes representing computer screens. Both screens show three fields: 'Part No.', 'Quantity', and 'Cost'. In the left box, under 'Cost', the value '423.93' is fully visible. In the right box, under 'Cost', only the first few digits '6543' are visible, with the remainder of the field being cut off by a vertical line. This visual comparison demonstrates that pressing the Field Exit key moves the cursor from the current field ('Cost') to the first field ('Part No.') on the screen.

Part No.	654321	Part No.	<u>654321</u>
Quantity	123	Quantity	123
Cost	423.93	Cost	6543

Before pressing the
Field Exit key

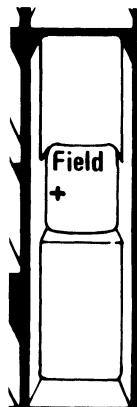
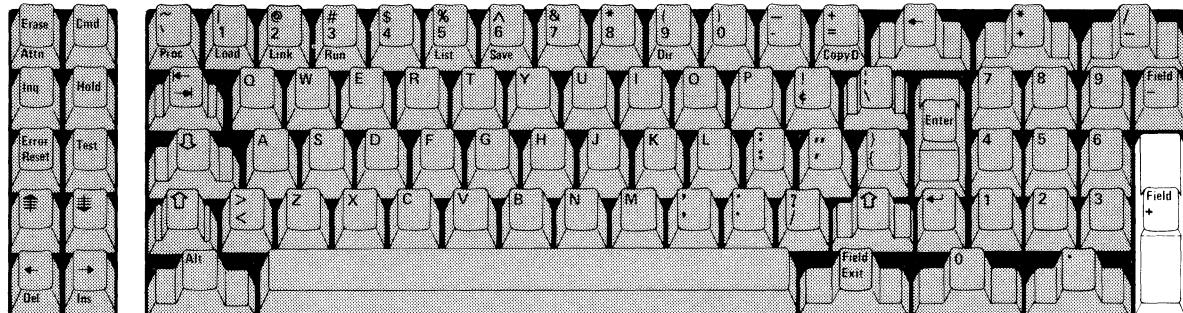
After pressing the
Field Exit key

The Field Exit key does not work when you hold down the Alt key or the Cmd key.

The keyboard

Field keys (continued)

Field + key



When you press the Field + key, the information displayed from the cursor position to the end of the field is *erased*. The cursor then moves to the first position of the next field.

If the cursor is in the last field on the screen, it moves to the first position of the first field on the screen.

The Field + key has no effect when you hold down the Alt key or the Cmd key.

Part No. 654320

Quantity 123

Cost 423.93

Part No. 654320

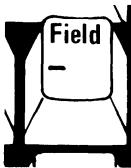
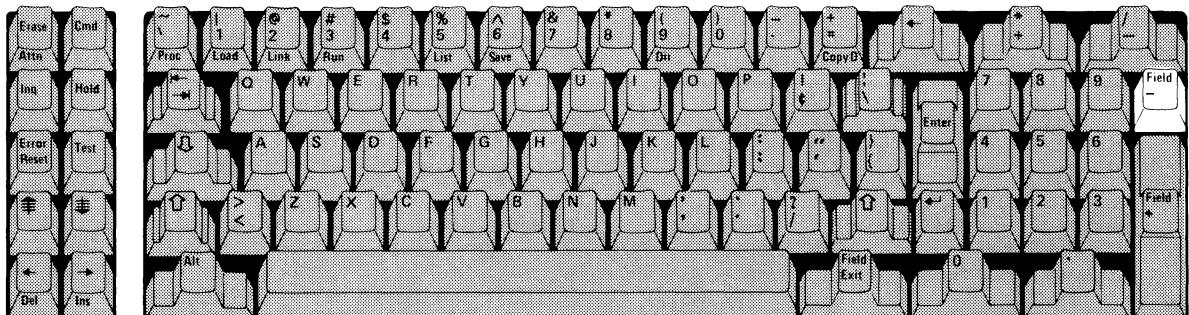
Quantity 123

Cost 423.93

Before pressing the
Field + key

After pressing the
Field + key

Field - key



When you press the Field - key, the information displayed from the cursor position to the end of the field is *erased*.

In a numeric field, a minus sign (-) appears in the first position of the field if the first or last position of the field is blank.

If both positions are not blank, a message is displayed on the status line.

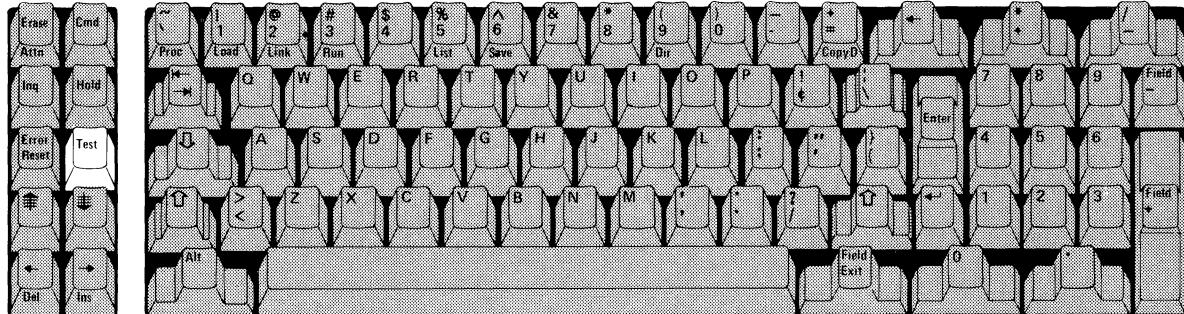
The Field - key has no effect when you hold down either the Cmd key or the Alt key.

The keyboard

Other keys

This key is unique and does not fit into any particular category; it is normally used by service personnel.

Test key



Do NOT press this key unless instructed to do so by your service representative. Follow the instructions carefully.

If you press this key, you may erase important information that has been entered into the computer's storage.

Keyboard operations

Entering information (normal input)

INPUT must be displayed in the keyboard status field on the status line before you can type from the keyboard.

1. Type the first line of information. When you press a key on the keyboard, the character is displayed on the input line above the cursor and the cursor moves to the right, to the next character position.

If a line has more than 80 characters, the first 80 characters of the line move up to the line above the input line (line 22) as the 80th character is displayed. The cursor then moves to character position 1 on the input line.

2. Press the Enter key.

The characters that were displayed on the input line are entered into the system. The characters then move up to the line above the input line, and the cursor returns to character position 1 on the input line.

3. Type the second line of information; again, press the Enter key.

The keyboard

Keyboard operations (continued)

Entering lowercase and uppercase characters

Typing lower shift characters. The keyboard types lower shift characters after the computer is switched on. When you press any key, the lower shift character is displayed.

Typing upper shift characters. To display an upper shift character, hold down one of the shift keys; press the key that you want displayed.. For example, to display the uppercase letter M, hold down one of the upper shift keys and press the M key.

Locking the keyboard in upper shift. To type a large amount of information in upper shift, lock the keyboard in upper shift by pressing the Shift Lock key.

Returning the keyboard to lower shift. Press and release one of the upper shift keys.. The keyboard shift status field shows:

Lower shift=1

Upper shift=2

Entering commands

The READY INPUT, PROC INPUT, or ATTN INPUT status must be displayed on the status line before you can enter a system command.

Entering a command using the Cmd key. Hold down the Cmd key and press any one of the keys located across the top row of the keyboard. The keyword of the command you want to display is printed on the front surface of the key. Then, press the Enter key.

For example, to enter the RUN command:

1. Hold down the Cmd key.
2. Press the key with Run printed on the front of the key (the 3 key).
3. Release the Cmd key and the 3 key.
4. Press the Enter key to enter the command.

Entering information with the command. If you press a key such as the Dir key, you will have to type additional information following the command.. For example, if you press the Cmd key and the Dir key, DIR is displayed, and the cursor moves two spaces to the right. To specify drive number 1, type 1 at the cursor position.

Press the Enter key; you will then be able to see the directory of the diskette in Drive 1. This shows you all the names of files on the diskette.

For further details, refer to Chapter 6, "Commands" on page 6-1, in this manual.

Typing the command keyword. If you want to enter a command that cannot be entered with the command keys, type the keyword just as you would type any other word. For example, if you want to enter the PROTECT command, press the keys to spell the word PROTECT. Additional information following PROTECT is required.

You can also type the words printed on the keys by entering them one character at a time.

The keyboard

Keyboard operations (continued)

Using upper or lower shift. You may enter a command keyword with the Cmd key or by typing the command keyword while entering either upper shift or lower shift characters. The characters are displayed in the shift that you select.

Entering BASIC statements

The READY INPUT or ATTN INPUT status must be displayed on the status line before you can enter a BASIC statement.

Entering a BASIC statement using the Cmd key and an alphabetic key. Hold down the Cmd key and press the key, shown on the Keyboard Aid, for the desired BASIC statement.. For example, to enter the PRINT statement:

1. Hold down the Cmd key.
2. Press the J key.
3. Release both the Cmd key and the J key. PRINT will appear on your screen.

You can also enter the BASIC statements by typing the letters one at a time.

Entering information with the BASIC statement. For most BASIC statements, you must type additional information following the statement. Type this information exactly as shown on the program listing given to you by the programmer; then, press Enter. Refer to the *BASIC Language Reference* manual for more information.

Typing the BASIC statement keyword. If you want to enter a BASIC statement keyword that is not available from the predefined BASIC statement keys:

1. Type the keyword just as you would type any other word.
2. Type the remaining information as you did when you used the Cmd key.

Using upper or lower shift. You may type the BASIC statement keyword with the keyboard in either upper or lower shift. The keywords, variables, and labels are displayed in uppercase when the program is listed. After the Enter key is pressed, they are displayed exactly as they were typed.

The keyboard

Keyboard operations (continued)

Entering data in response to a program (not in full-screen processing). If a program requires information to be entered, a question mark will appear on the input line. Commas in that line are field separators. For example, a program prints:

"Please input the type of transaction, account number, amount"

? __

Starting at the position of the cursor, you type:

deposit,43210,\$25

and press the Enter key.

Ending in a comma allows you to continue the entry line.

For example, you could type:

deposit,43210,

and press the Enter key,

then type:

\$25

and press the Enter key.

This will provide the same result as the single-line entry.

If you enter:

deposit,,,\$25

nothing will be entered in the account number field; the two commas between the transaction field and amount field cause the account number field to be skipped.

Entering data in response to a program (full-screen processing). Refer to "Full-screen processing input" under "Screen format" in chapter 2 of this manual.

Correcting typing mistakes

1. Press the Cursor Left key or the Cursor Backspace key to position the cursor under the character that you want to change.
2. Press the key that displays the correct character. The new character will be displayed over the incorrect character and the cursor moves to the next character position.

If you have more than one character to correct, type the remaining characters needed to correct the mistakes.

Note: Use the Cursor Right key to move the cursor under characters that you do not want erased.

DO NOT press the space bar to move the cursor; it will erase the characters that are above the cursor and input blank spaces. Use the space bar only if you want to erase a character or input a blank space.

The keyboard

Keyboard operations (continued)

Inserting a character

If you forget to type a character, you can insert the missing character as follows:

1. Using the Cursor Left key or Cursor Right key, move the cursor to the position where you want to insert the missing character.
2. Hold down the Cmd key and press the Cursor Right key (note the word Ins on the face of the key). The character above the cursor and all the characters to the right of it move one position to the right. The cursor now appears as an underline below an open space.
3. Enter the character you want to insert by typing that character.

If you have more than one consecutive character to insert, hold down the Cmd key and press the Cursor Right key once for each character you want to insert.

Deleting a character

If you enter an extra character by mistake, you can delete the character as follows:

1. Using the Cursor Left key or Cursor Right key, move the cursor to the character you want to delete.
2. Hold down the Cmd key and press the Cursor Left key (note the word Del on the face of the key). The character is deleted, and all characters to the right of the deleted character are moved to close the space left by the deletion.

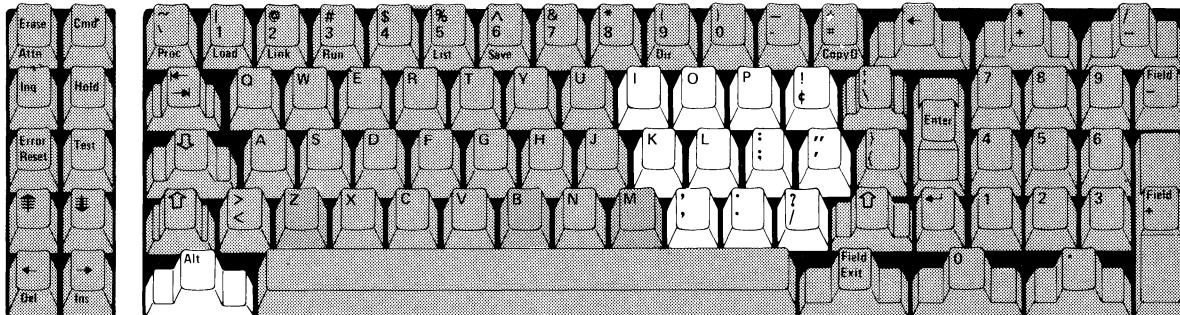
If you have more than one consecutive character to delete, hold down the Cmd key and press the cursor left key once for each character you want to delete.

The keyboard

Keyboard operations (continued)

Selecting graphic symbols

Use the Keyboard Aid to locate the keys that display graphic symbols.



1. Locate the desired graphic symbol on the Keyboard Aid.
2. Hold down the Alt key.
3. Press the graphic symbol key; that symbol will be displayed in the current cursor position on the input line.

Additional Language Characters & Other Symbols																Block Graphics																							
A. Press and hold Alt key	a=099	e=116	ø=239	a=067	é=081	é=112	é=177	é=124	é=106	é=139	A. Press and hold Alt key	a=100	é=113	ø=128	a=068	é=087	é=089	é=178	é=074	é=183	ø=175																		
B. Select number from list and enter on numeric pad	a=100	é=113	ø=128	a=068	é=087	é=089	é=178	é=074	é=183	ø=175	B. Select graphic from list and enter	a=101	é=119	ø=089	a=069	é=088	é=220	é=180	é=090	é=184	ø=154																		
C. Release Alt key	a=101	é=119	ø=089	a=069	é=088	é=220	é=180	é=090	é=184	ø=154	C. Release Alt key	a=102	é=120	ø=252	a=070	é=085	é=221	é=159	é=143	é=185	ø=155																		
If it appears, verify by pressing and holding Alt key and entering display identifier. To restore display, press and hold Alt key and enter zero	a=102	é=120	ø=252	a=070	é=085	é=221	é=159	é=143	é=185	ø=155	a=103	é=117	ø=253	a=072	é=086	é=222	é=176	é=193	é=234	ø=180																			
	a=103	é=117	ø=253	a=072	é=086	é=222	é=176	é=193	é=234	ø=180	a=104	é=248	ø=173	a=075	é=254	é=206	é=179	é=223	é=186	ø=186																			
	a=104	é=248	ø=173	a=075	é=254	é=206	é=179	é=223	é=186	ø=186	a=105	é=249	ø=174	a=076	é=255	é=205	é=170	é=187	é=250	ø=189																			
	a=105	é=249	ø=174	a=076	é=255	é=205	é=170	é=187	é=250	ø=189	a=106	é=237	ø=172	a=077	é=256	é=206	é=171	é=188	é=181	ø=191																			
	a=106	é=237	ø=172	a=077	é=256	é=206	é=171	é=188	é=181	ø=191	a=107	é=238	ø=174	a=078	é=257	é=207	é=172	é=189	é=183	ø=194																			
	a=107	é=238	ø=174	a=078	é=257	é=207	é=172	é=189	é=183	ø=194	Display Identifier: 1=USA 2=Canada 3=Europe 4=Iceland 5=Spain/Spanish Speaking	Block Graphics																											

For example, if you want to enter the graphic symbol | - following the PRINT statement:

1. Hold down the Alt key.
2. Press the apostrophe key (').
3. Release both keys.



The keyboard

Keyboard operations (continued)

Printing the contents of the screen

The contents of the screen may be printed on the system printer at any time during normal processing by doing the following:

1. Press the Hold key.
2. Be sure that the printer has been switched on and that it has paper.
3. Hold down the Cmd key and press the CopyD key.

As soon as you press the CopyD key, the printer will begin printing; it is not necessary to press the Enter key.

Under normal operation, you cannot stop the printer while it is printing the contents of the screen. But, if a machine malfunction such as a paper jam occurs, switch off the *printer*.

4. When printing is complete, press the Hold key.

Note: If a CopyD command is not in progress and an error code of 6113 appears on the status line after pressing the Cmd key and the CopyD key, do the following:

- Press the Error Reset key to remove the 6113 error code from the status line.
- Switch off your printer. At this time an error code of 6120 (Printer off during print), and an action code of 18 (Switch on printer) will appear on the status line.
- Fix the printer problem. For 5217 Printer problems refer to the *Using Your 5217 Printer*, SA34-1593.
- Switch on the printer.
- Press the Error Reset key, then press and hold the Cmd key and press the CopyD key.

If you still have a problem with the printer that you cannot fix, call your service representative.

The keyboard

Keyboard aids

The Keyboard Aid consists of four plastic overlays that rest on the shelf at the top of your keyboard. The overlays contain four different Keyboard Aids.

Operator action codes

Operator Action Codes			
A. Read the blinking action code on the screen and locate it in the list to the right.	10 Insert diskette	15 Fix command or procedure	20 Check 5246 usage
B. Follow instructions next to action code.	11 Put forms in printer	16 Use correct type of file	21 Switch on 5246
C. If you're not sure what to do refer to the Messages manual. If still in doubt seek help.	12 Give VOLID and/or drive number	17 Provide space for file	22 Press field Exit key or Enter key
	13 Fix file name or VOLID	18 Switch on printer	23 Enter numeric data
	14 Use a different file name	19 Check file usage	24 Enter corrected data
			25 SAVE then LOAD
			26 Check write protection
			27 Check access protection
			28 Continue or cancel
			94 Fix program
			95 Use correct level of Customer Support Function
			96 Recover file(s)
			97 Call your service representative
			98 Fix printer
			99 Look up error code
			S43400510 Printed in U.S.A.

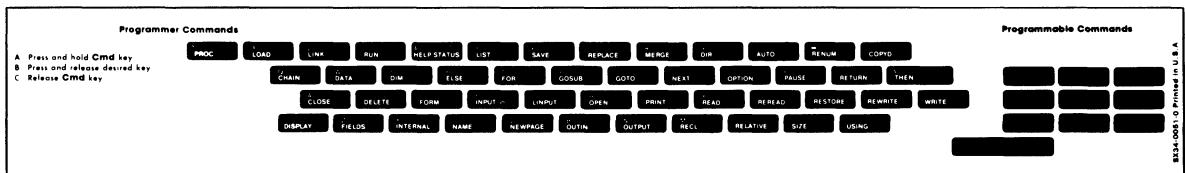
This Keyboard Aid shows the operator action codes and what they mean. Refer to this overlay when your computer displays an action code. Refer to the action code field on the status line to find the action code.

Operator commands—country

Operator Commands												Additional Commands				
A. Press and hold Cmd key B. Press and release desired key C. Release Cmd key												S43400510 Printed in U.S.A.				
PROC	LOAD	LINK	RUN	HELP	STATUS	LIST	SAVE	REPLACE	MERGE	DIR	AUTO	RENUM	COPYD			
1	2	3	4	5	6	7	8	9	0							

This Keyboard Aid shows the operator command words which you can display by using the Cmd key and any of the keys shown on the aid. This Keyboard Aid also has instructions for entering the operator command words. Notice that some of the operator command words are also printed on the front surface of the keys.

Programmer commands



This Keyboard Aid shows the system commands and keywords you can enter by using the Cmd key and any of the keys shown on the aid. These words are normally used by the programmer when entering programs. Notice that the programmer command words are *not* printed on the front surface of the keys. You must use the aid to find these words.

The keyboard

Keyboard aids (continued)

Additional language characters/block graphics

Additional Language Characters & Other Symbols																Block Graphics															
A. Press and hold Alt key B. Select number from list and enter on numeric keypad C. Release Alt key.																A. Press and hold Alt key B. Enter graphic symbol from diagram and enter. C. Release Alt key.															
If it appears, verify by pressing and holding Alt key and entering display identifier. To restore display, press and hold Alt key and enter zero.																B124-0081-0 Printed in U.S.A.															
A=099 E=116 ð=239 à=067 è=081 á=112 É=177 ð=124 í=106 »=139 A=100 È=113 #=128 à=068 ñ=087 ß=069 ï=178 I=074 ñ=183 ð=175 A=101 i=119 ð=089 à=069 ñ=088 ï=180 I=090 ñ=184 ð=154 A=102 I=120 ð=251 à=070 ñ=095 ï=180 I=091 ñ=185 ð=155 A=103 ð=117 ð=253 à=071 ñ=096 ï=182 I=092 ñ=186 ð=180 A=104 ð=118 ð=254 à=156 ñ=204 ï=183 I=192 ñ=234 ð=186 A=105 ð=105 ð=254 à=156 ñ=204 ï=183 I=192 ñ=234 ð=186 C=109 ð=236 ð=173 c=072 ð=205 ï=141 I=170 I=187 ï=182 ð=186 C=110 ð=237 ð=172 e=063 ð=206 ï=140 I=171 ñ=224 ï=181 ð=191 E=115 ð=238 ð=174 e=084 ð=207 ï=142 ï=182 ï=138 ð=144																B124-0081-0 Printed in U.S.A.															
Display identifier: 1=USA 2=Canada 3=Europe 4=Iceland 5=Spain/Spanish Speaking																															

This Keyboard Aid has two sections:

- The additional language character section shows you how to use the Alt key and the numeric keypad to display characters from the character sets of other countries.
- The block graphics section shows you how to use the Alt shift key and the keys shown on the aid to display a variety of block graphic symbols.

Chapter 4. Diskettes and disk

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Diskettes and disk

About this chapter

This chapter describes the diskette and how the diskette functions as a storage medium for information.

A presentation of diskette concepts and applications is also provided. This information will enable you to see the relationship of the diskette, the diskette drive, and the information you will be storing on the diskette.

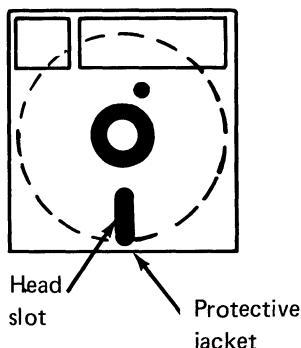
Many of the diskette concepts and applications described in this chapter also apply to the 5247 Disk Unit.

For additional information about the 5247 Disk Unit, refer to *Using your 5247 Disk*, SA34-0188.

An important part of this chapter is the information about the handling and storing of your diskette. Improper handling of your diskette can cause information to be lost; therefore, please review the information carefully.

Diskettes and diskette drives

Diskettes



A *diskette* is a thin, circular, flexible disk enclosed in a jacket that protects the diskette surfaces from damage. If you could see the diskette out of its protective jacket, the diskette would look much like a 45-rpm record.

When you insert the diskette into a diskette drive, the information stored on the diskette is available for use by the computer. As you enter information into the computer, it can be stored on the diskette.

Recording information on a diskette is much like recording on an audio cassette tape. Like the audio cassette tape, information on the diskette is not changed until you record new information over the old information.

When you remove the diskette from its paper envelope, you can see the recording surface of the diskette through the *head slot*. The large center hole is used to spin the diskette past the recording head that reads and writes the information on the diskette.

You should never touch the exposed recording surface of the diskette. To do so may damage the diskette and the information on it.

Diskettes and disk

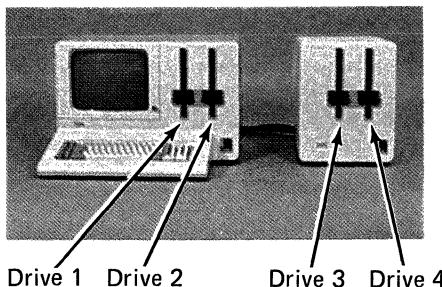
Diskettes and diskette drives (continued)

Diskette drives

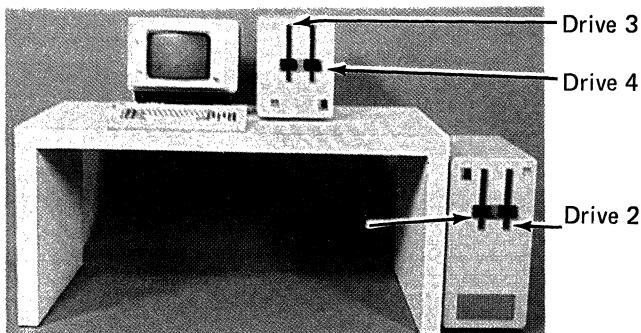
The diskette drive in the computer or the optional 5246 Diskette Unit holds the diskette and either reads previously stored information from the diskette (called input) or writes new information on the diskette (called output).

All System/23s must have at least one diskette drive for storing information or be attached to a 5247 Disk Unit that is part of a multi-work station system containing a diskette drive.

The System/23 can have a maximum of four diskette drives (two drives in the computer and two drives in the optional 5246 Diskette Unit). Each diskette drive has a number, as shown in the picture. The number is found on the drive handle.



5322



5324

Even if your computer does not have diskette drives 1 and 2, the numbers assigned to the optional diskette unit are always 3 and 4.

The handle on your diskette drive also shows a small 1D or 2D in addition to the drive number. These numbers indicate the type of diskette you can use in your diskette unit.

For example, if you have:

1D on the handle, use type 1 diskette only.
2D on the handle, use type 1, 2 or 2D diskette.

About the 5247 Disk Unit

If you have a 5247 Disk Unit you will notice that it does not contain a diskette drive opening. The reason is that the 5247 does not use diskettes, but has its own permanent disk that can be looked upon as one or more large diskettes. This permanent disk requires no operator attention.

Although your 5247 does not contain diskette drive slots, you can look upon your 5247 as another drive like those in your computer and 5246 Diskette Unit. Therefore, when you refer to the 5247 disk, always call it drive 5.

Additional information about the 5247 Disk Unit is found in *Using your 5247 Disk*, SA34-0188.

Diskettes and disk

Diskette and disk concepts

You can use your computer to perform many of the same tasks that are performed in your business office. One of these tasks is the storage of information.

The information in a business office can be information about a customer or the guidelines that determine the way business is done within the company.

The same types of information are stored on your diskette or disk. The information is called *data* and the instructions to store and use your data are called *procedures* or *programs*.

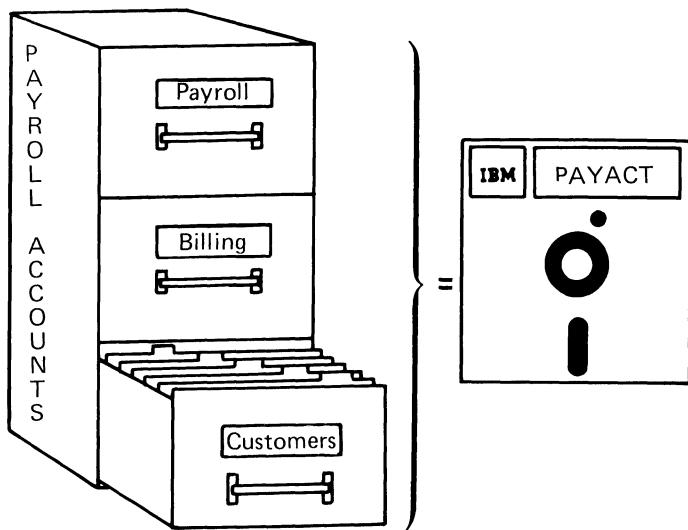
The computer stores data or programs by using methods that are similar to those used in your business office.

Volume and VOLID

A diskette or disk, which can be compared to a file cabinet, is also called a *volume*. The difference between the diskette and disk is that a diskette can only have one volume, while a disk can have many.

Just as you refer to a file cabinet with a name or number, the disk volume or diskette is also given a name. This is called the *volume identification* or *VOLID*. A volume has one additional name called *OWNERID* that is used to identify the owner of a volume. For example, ABCCorp.

You assign a VOLID to the disk volume or diskette before storing data or programs on it. The VOLID can consist of up to six English letters or numbers. For example, the VOLID of the disk volume or diskette that stores the information in the file cabinet may have a VOLID of PAYACT, an abbreviation of "Payroll accounts."



Diskettes and disk

Diskette and disk concepts (continued)

Files and filenames

A file may contain data, programs, or procedures. The programs and procedures tell the computer what to do with the data. The same disk volume or diskette may contain program files, procedure files, and data files. The following text pertains to data files.

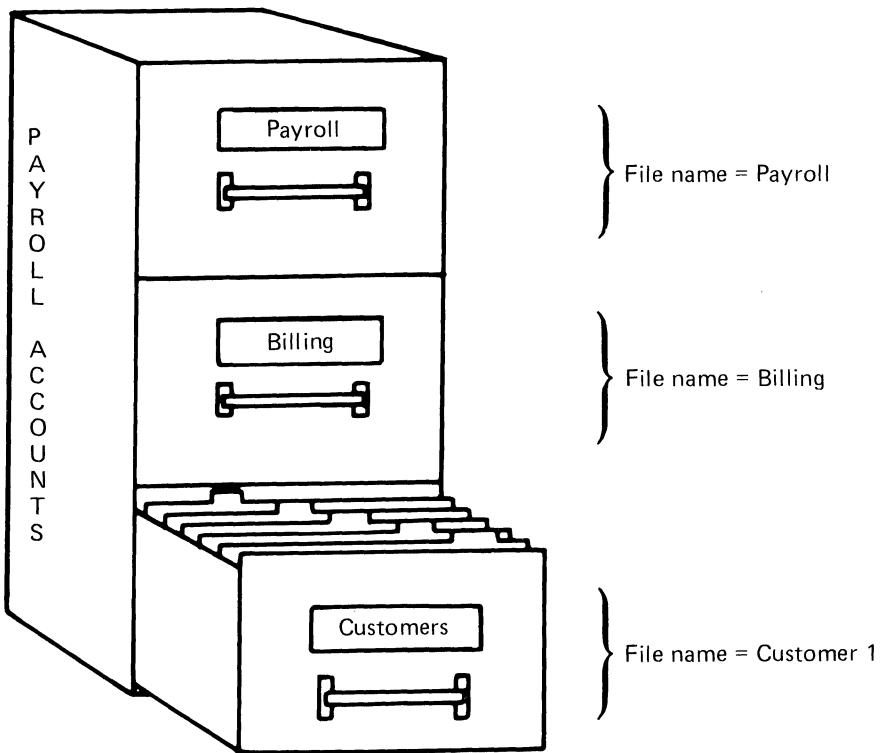
Like your filing system, one file drawer could be payroll information, another file drawer could be billing information, and another file drawer could be customer information.

One disk volume or diskette can store many files. Or, one disk volume or diskette can store one large file.

A programmer assigns a unique *filename* to each file so that it can be located easily.

The preceding illustration shows the filenames that could be assigned to each drawer in the file cabinet.

You can now see the relationship of your filing cabinet to your diskette or disk. The filing cabinet name is "Payroll accounts" and your disk volume or diskette name is PAYACT. The file drawers are called payroll, billing, and customers. Your disk volume or diskette files are called payroll, billing, and customer.



Diskettes and disk

Diskette and disk concepts (continued)

Creating a filename

A filename is assigned to identify the information that is in a file. It is important to remember that each file on a disk volume or diskette must have its own unique name. When creating a filename, observe the following rules:

- A filename can have up to 17 letters, numbers, and periods.
- The first character of the filename must be a letter (A-Z).
- If a filename is longer than eight characters, you must divide it into two or more names joined by periods.
- A filename cannot contain blanks.

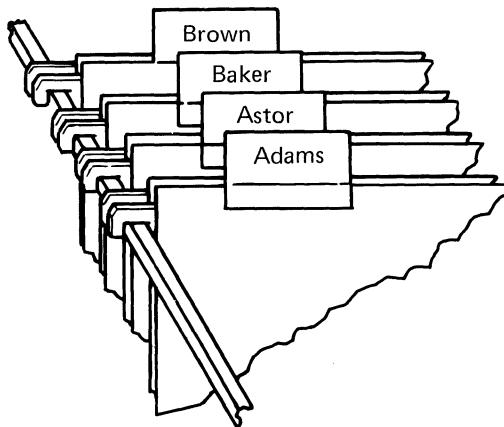
Examples of filenames are:

DATA BILLS.APR.YR1984
PAYROLL ACCOUNTS.PAYABLE
WEEK21 WEEK21.DATA

A single disk volume or diskette cannot contain two files with the same name. However, the same file may appear on different disk volumes or diskettes.

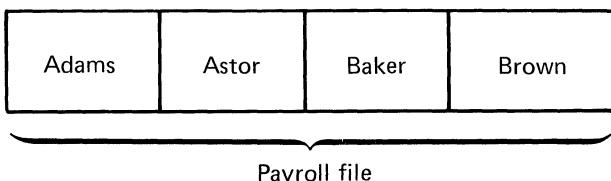
Records

A *record* is a collection of related items treated as one unit. For example, the information stored in the drawer of the file cabinet marked "Payroll accounts" could consist of alphabetically arranged folders containing employee payroll information. Each folder can be thought of as one record.



This information can be stored on the disk volume or diskette in the same order as in the file cabinet drawer. Each employee's folder of payroll information would require one record in the file named "Payroll."

When all employee payroll records are stored on the disk volume or diskette, the "Payroll" file is arranged as shown.

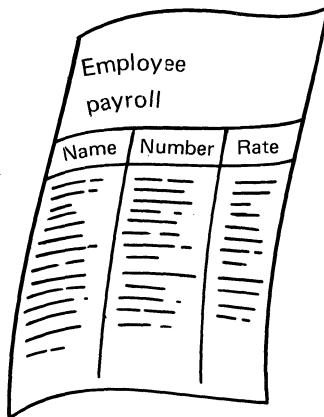


Diskettes and disk

Diskette and disk concepts (continued)

Fields

A *field* is one item of information in a record. For example, one field of the employee payroll record may be the employee's name. Other fields could be the employee's number, rate of pay, job class, etc.



A field is the amount of space set aside for each piece of information (data) in the record. The length of the field (that is, the maximum number of characters that can be placed in the field) is determined by the programmer.

For example, your customer number may consist of 10 numbers. A programmer will set aside a field of 10 characters just for your customer number.

Finding information on a diskette or disk

Let us review what was covered on the previous pages about diskette and disk concepts.

We have discussed the filename, the disk volume or diskette name (VOLID), and the diskette drive and disk drive. These are used by the computer to locate information on a diskette or disk. If the computer is to perform a task using a file, it must know where the file is and what the filename is.

For example, if you were asked to locate a file, you would have to know the filename. If you knew the name, you could find the file by searching every cabinet in every office. The computer looks for files in much the same way.

If the computer has only the filename to go by, it will search all the diskette drives or the 5247 disk (called drive 5) until the file is found. The search will start with the lowest drive number in the system. The computer will look on drive 1, then drive 2, and so on up to drive 4.

Diskettes and disk

Diskette and disk concepts (continued)

If you have a 5247 disk, it will be searched next. Remember your 5247 disk is referred to as drive 5. All volumes on the disk will be searched.

If the 5247 disk contains several volumes and the file name you are trying to find is located in more than one volume, the first volume the computer finds will be the one used.

In this case you should provide the VOLID of the disk volume that contains the file to ensure the computer finds the correct one.

Once the file is found, the computer will look no further. If the diskettes in drives 1 and 2 both contain files with the name you asked for, the computer will use the file in drive 1 because it is the first one found.

If the computer knows both the filename and drive number, it can find the file much faster because it does not have to search all the drives. The computer can go directly to the drive specified.

If the computer knows the filename, diskette name and disk volume (VOLID), and drive, it will go to the given drive and check the VOLID of the disk volume or diskette to see if it matches the one given. The computer will then look for the file.

It is extremely important, therefore, that you provide the computer with as much information as possible.

Inserting and removing a diskette

Inserting a diskette

Follow these steps when inserting a diskette into a diskette drive.

These steps apply only to a diskette and not to the disk in your 5247 Disk Unit. You are not required to handle the disk in the 5247 Disk Unit.

Step 1.

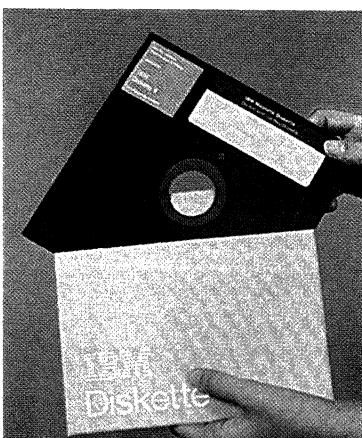
Open the diskette drive by turning the diskette drive handle up and to the left until it stops and is in a vertical position.
Remove any diskette already in place.



Step 2.

Grasp the upper edge of the diskette and remove the diskette from the paper envelope.

Place the paper envelope in a safe location. When you are finished using the diskette, put it back in its envelope.



Diskettes and disk

Inserting and removing a diskette (continued)

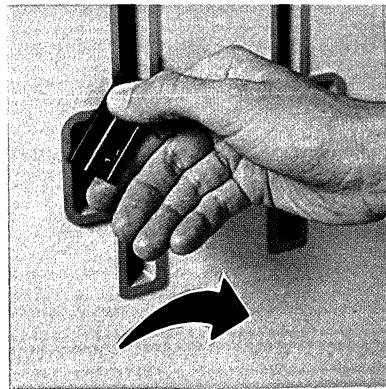
Step 3.

Hold the diskette by its upper edge, label facing you, and slide the diskette into the diskette drive, as shown in the picture. Do not force or bend the diskette.

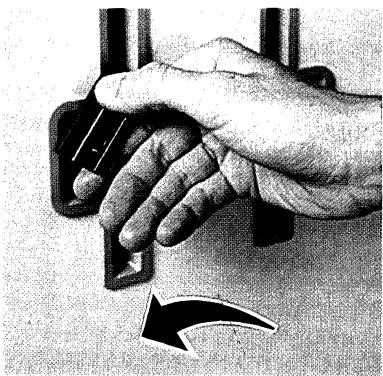


Step 4.

After the diskette is fully inserted, close the diskette drive by turning the diskette drive handle to the right and down until the handle reaches the stop and is in a horizontal position.



Removing a diskette



Follow these steps to remove a diskette from a diskette drive. Make sure that READY INPUT is displayed in the lower left corner of the screen before removing a diskette. You can also remove the diskette when OPTION 10 appears on the screen. If this option appears, READY INPUT will not appear on the screen.

Step 1.

Open the diskette drive by turning the diskette drive handle up and to the left until the handle is in a vertical position.

These steps apply only to a diskette. You are not required to handle the disk in your 5247 Disk Unit.

Step 2.

Grasp the edge of the diskette and slowly pull the diskette straight out of the diskette drive.

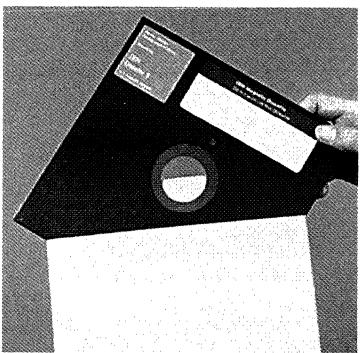


Diskettes and disk

Inserting and removing a diskette (continued)

Step 3.

Return the diskette to its paper envelope. Place the diskette in a diskette storage box or other type of container that will prevent damage to the diskette.



Handling and storing diskettes

Because your diskette can be easily damaged, you should be especially careful when handling it. Careless handling can result in the loss of information that has been recorded on the diskette. Also, a damaged diskette may not record new information.

If you have a 5247 Disk Unit, there are no handling or storage requirements.

Here are some precautions to take to avoid accidentally damaging your diskette:

- When you remove a diskette from its envelope, grasp the diskette by its upper edge and pull it out straight.



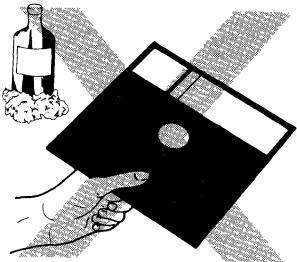
- Return the diskette to its envelope as soon as you remove the diskette from the diskette drive. One of the most common causes of diskette damage is dust getting into the diskette.

Diskettes and disk

Handling and storing diskettes (continued)

Short-term storage

Store often-used diskettes in their envelopes. If you lay them flat, put no more than ten in one stack; if you stand them on edge, support the diskettes so that they do not lean or sag.

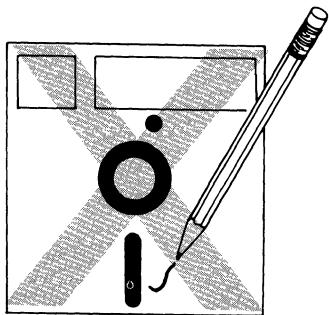


Long-term storage

Store seldom-used diskettes in their storage boxes, with each diskette in its envelope.

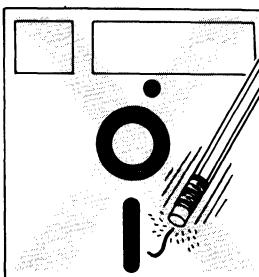
DO NOT touch the head slot or any other unprotected surface of the diskette. Body oils and perspiration cause diskette damage.

DO NOT try to clean the surface of the diskette. Contaminated diskettes should not be used.

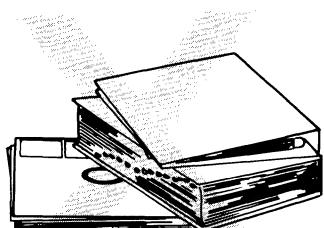


DO NOT write on the diskette outside the label area.

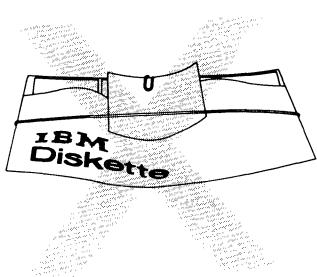
DO NOT write on the diskette label with a pencil. Mark the diskette label with a fiber-tip pen *before* attaching the label to the diskette.



DO NOT erase labels on the diskette or make erasures on or near the diskette. Eraser crumbs on the diskette surface will make the diskette unusable.



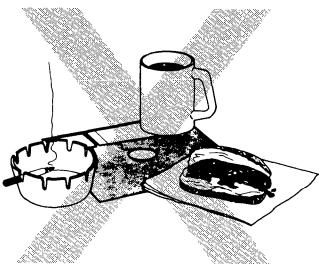
DO NOT place heavy objects on the diskette; the weight can seriously damage the surface.



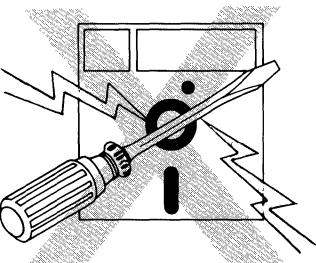
DO NOT use clips or rubber bands on the diskette or bend it in any way.

Diskettes and disk

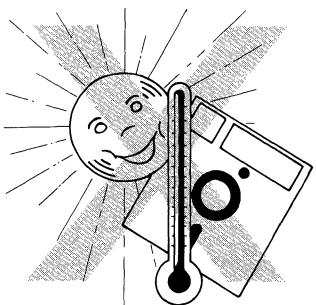
Handling and storing diskettes (continued)



DO NOT lay the diskette near food, drinks, or ashtrays where foreign materials can contaminate the diskette surface.



DO NOT allow the diskette to be near anything that might be magnetized. A magnetic field can cause data loss. Magnetic fields can be found near fluorescent lights, electronic calculators, dictation equipment, and telephones.



DO NOT expose the diskette to heat greater than 51C (125F) or to direct sunlight.

Note: If a diskette has been exposed to temperatures outside the range of 10C to 51C (50F to 125F), keep the diskette at room temperature for approximately five minutes before inserting it into a diskette drive.

Chapter 5. Printers

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Operating the Printer Switch Feature	5-27
Removing the platen	5-28
Installing the platen	5-30

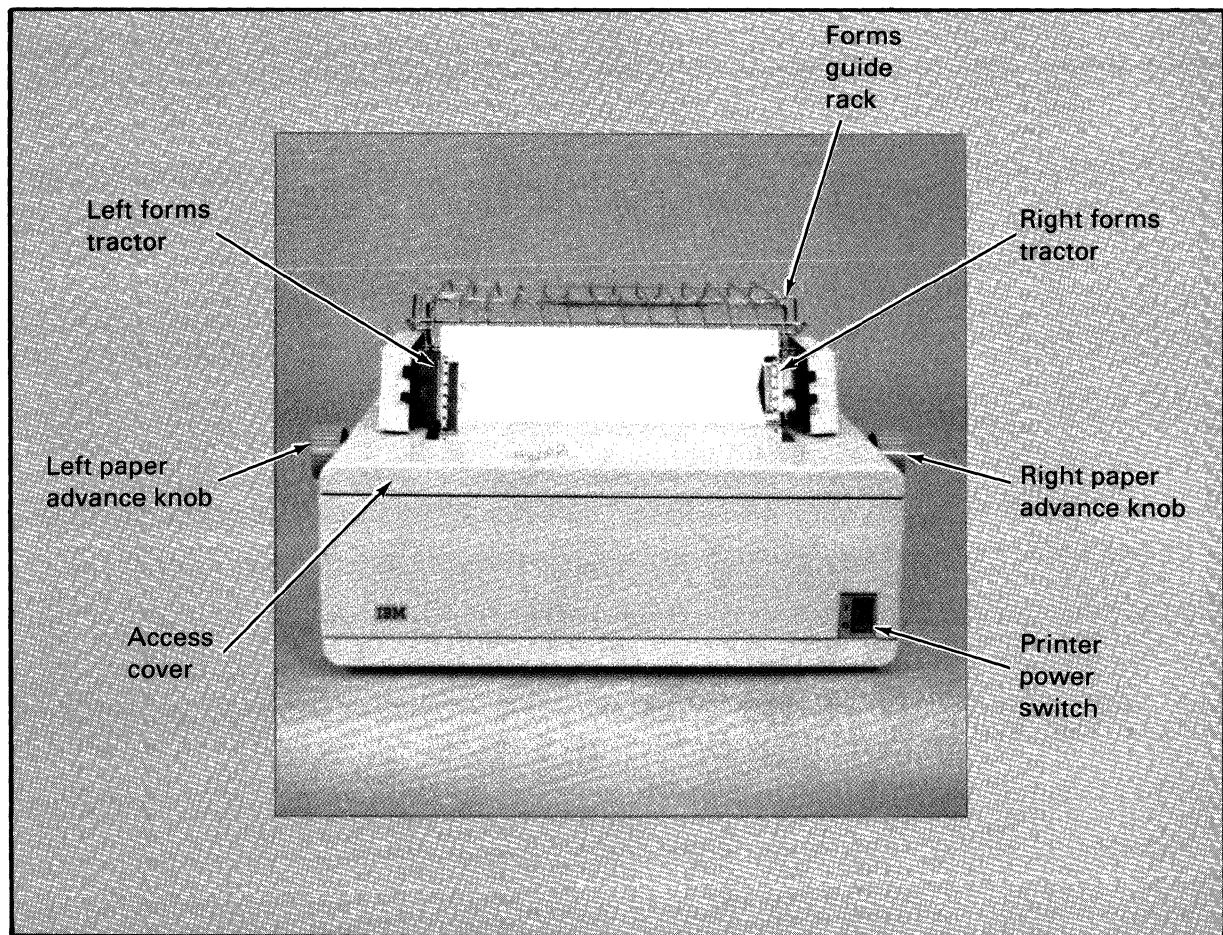
Printers

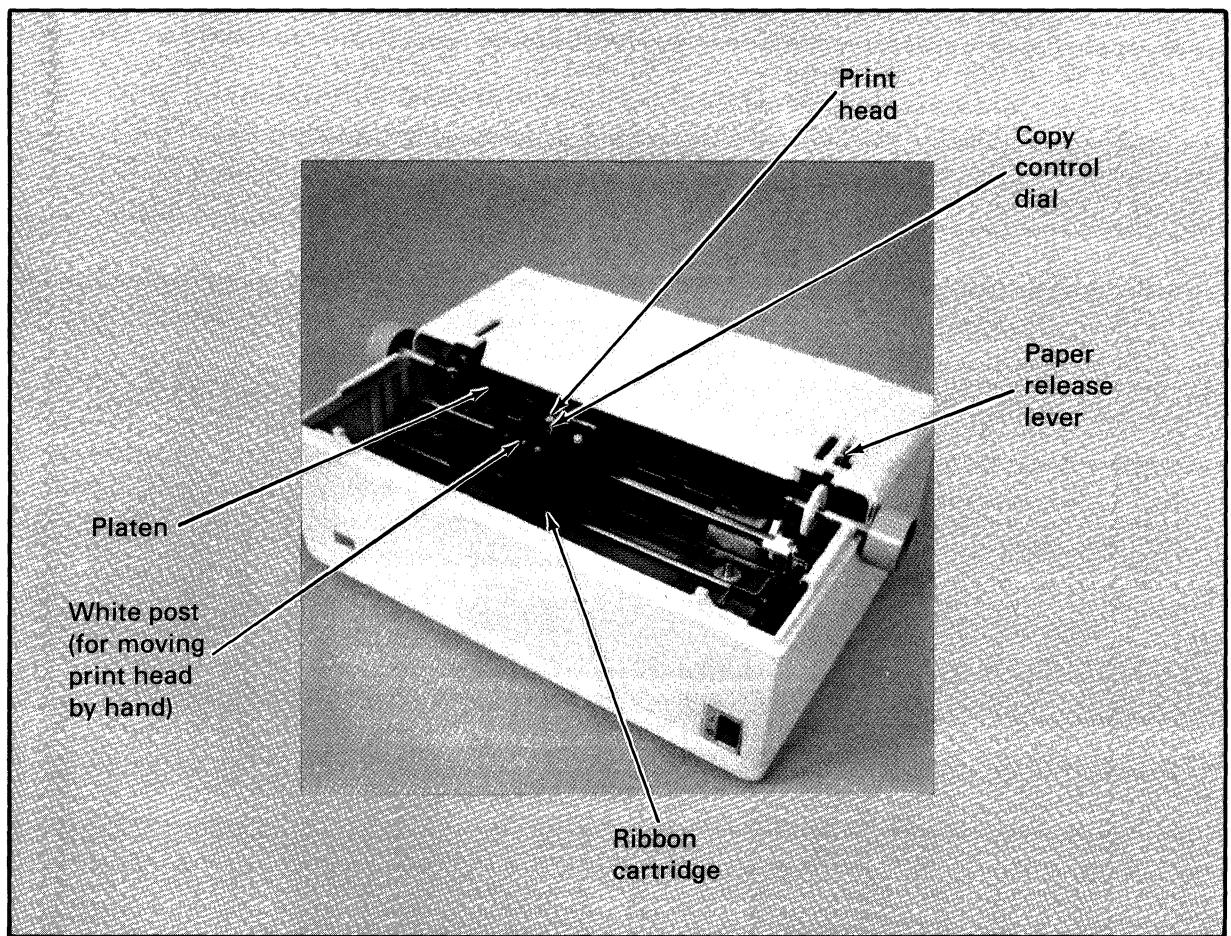
About this chapter

This chapter tells you how to operate the IBM System/23 printer controls, and how to remove and install the separate parts of the printer as well as the forms and ribbon.

The following illustrations show the controls and parts that will be explained to you in this chapter.

Information about the 5217 Printer can be found in the *Using Your 5217 Printer*, SA34-1593.



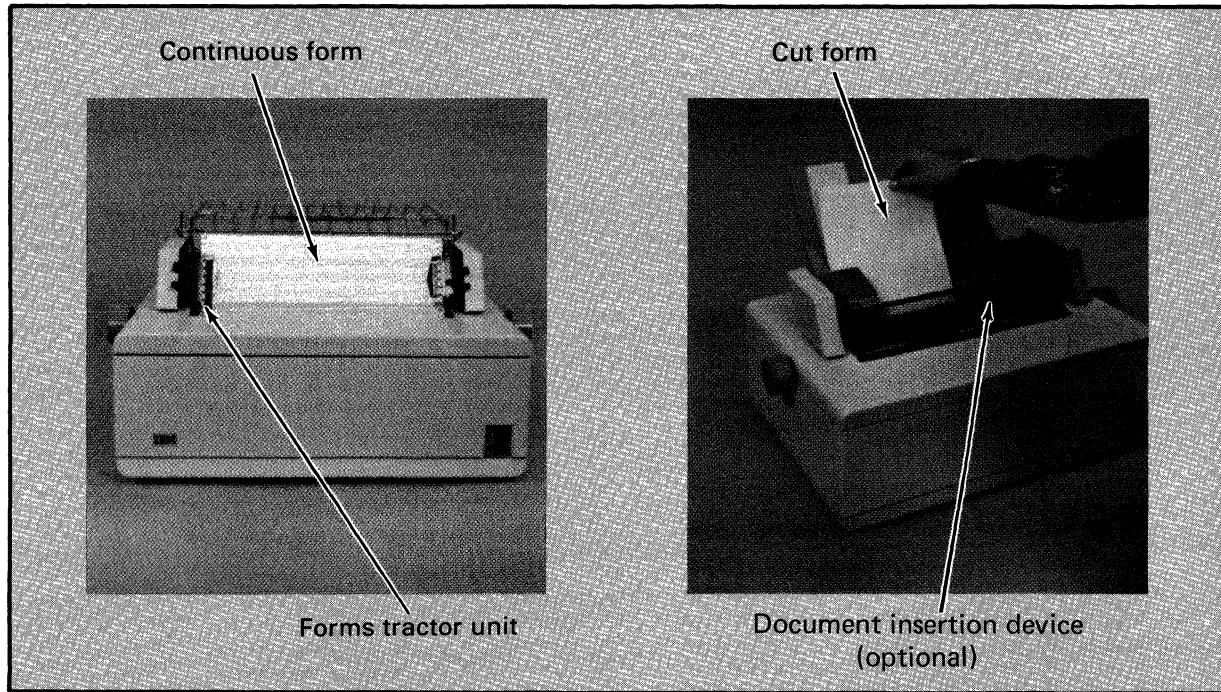


Printers

Forms

There are two basic types of forms you will use for printing: continuous forms and cut (individual) forms.

Both types come in different thicknesses. The thickness is determined by the number of copies you wish to print. For one copy, use single-part paper; for more than one copy, use multiple-part paper.



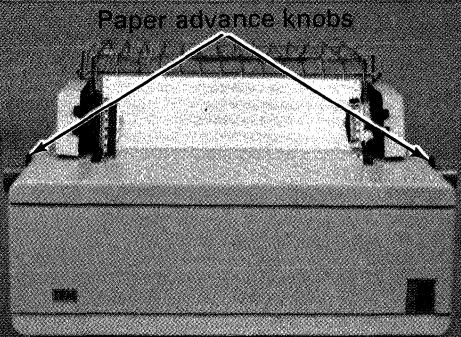
You may use up to 4-part paper in your 5241 Printer. The maximum number of copies recommended for use in the 5242 Printer is also 4-part paper. You may use 5- or 6-part paper in your 5242 Printer if the results of a test print are satisfactory.

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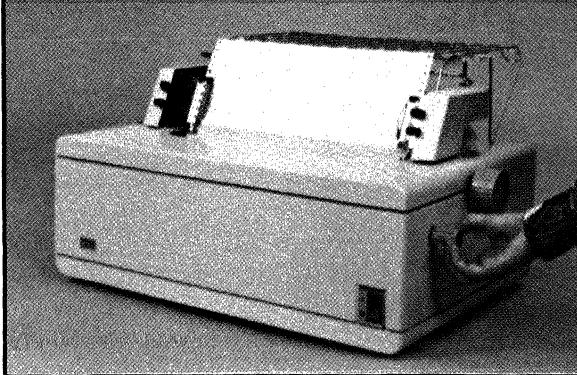
Printers

Controls

Paper-advance knobs (2). You can move the forms through the printer by turning these knobs just like those on a typewriter.

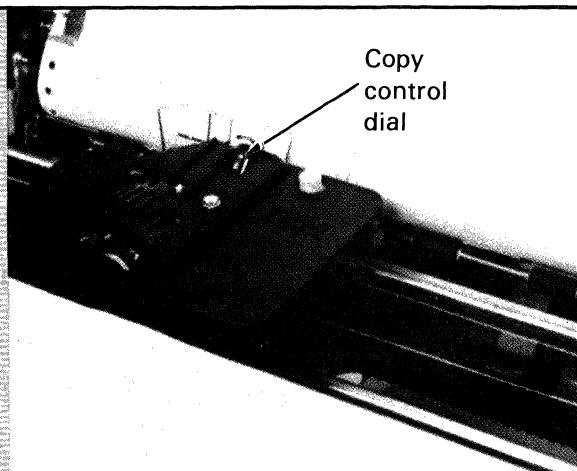


Horizontal fine adjustment knob (5242 Printer). This control is used to adjust where printing starts at the left margin.



Copy-control dial. The copy-control dial changes the distance between the print head and the paper, similar to a typewriter. It is used to adjust print legibility and reduce ribbon smudging.

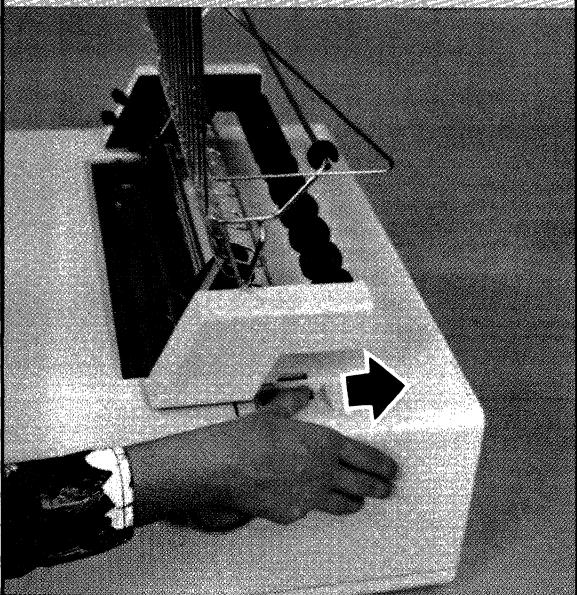
- For *single-part forms*, set the dial at 0 and move it toward 8. This adjustment should be continued until printing is clear.
- For *multiple-part forms*, set the dial at 0 and move toward 8 until printing on the last part is legible and printing on the first part is free from ribbon smudging.



Paper release lever. When you set the paper release lever to the load position, forms movement is controlled by the platen. You can move the paper by turning the left or right paper advance knob.

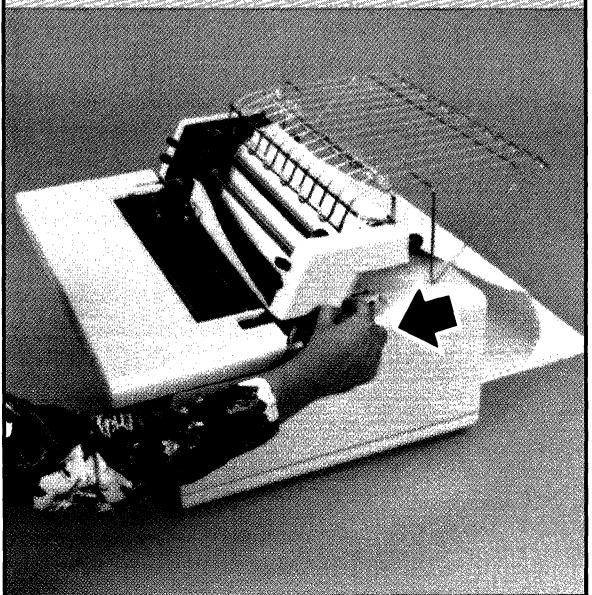
The load position is used to:

- Insert or remove forms.
- Print on cut (individual) forms.



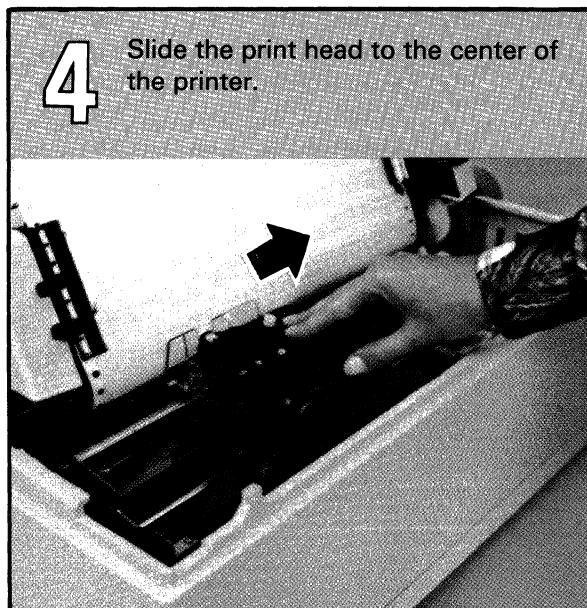
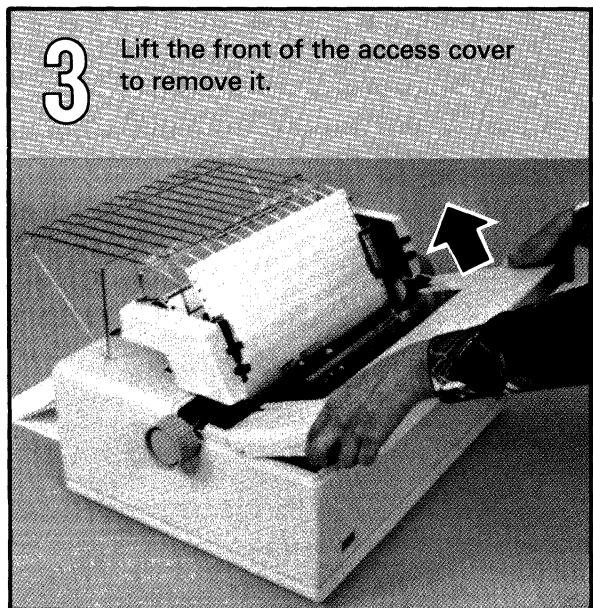
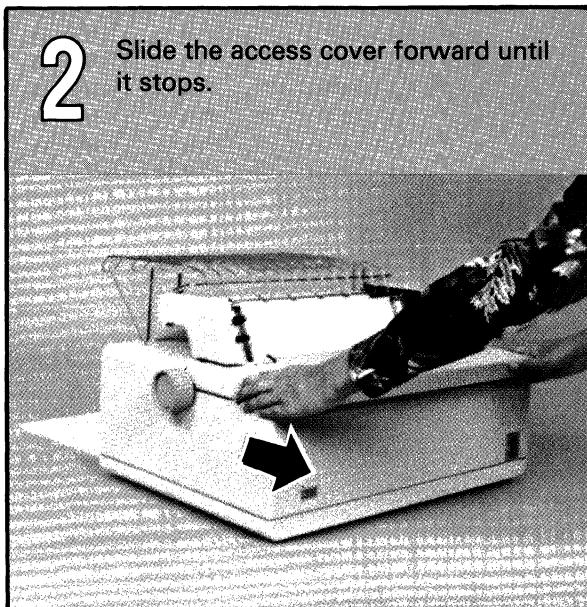
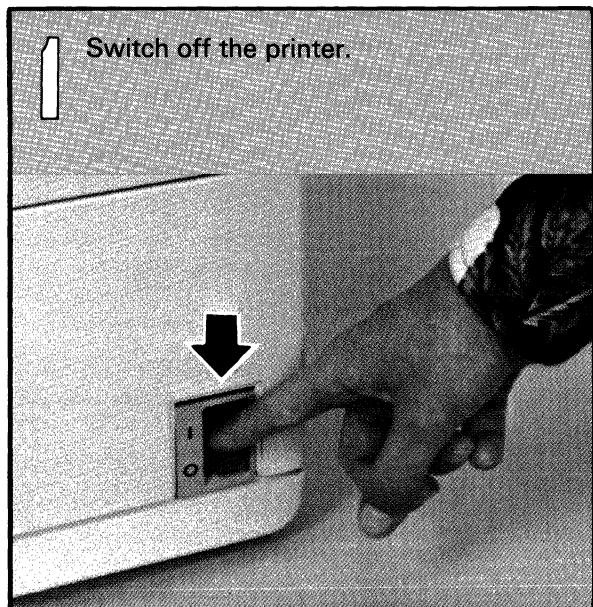
When you set the paper release lever to the print position, the forms move through the printer under control of the forms tractor unit. You can move the paper by turning the left or right paper advance knob.

The print position is used to print on continuous forms only.

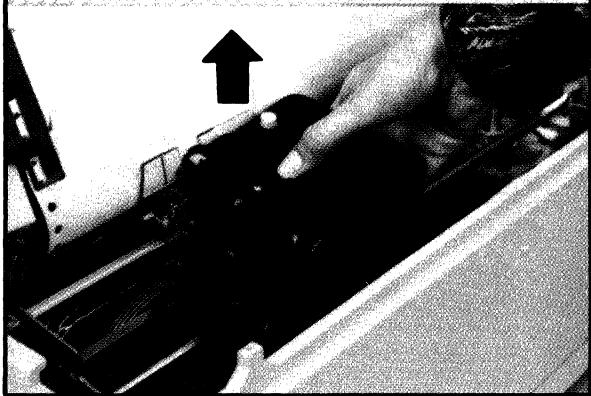


Printers

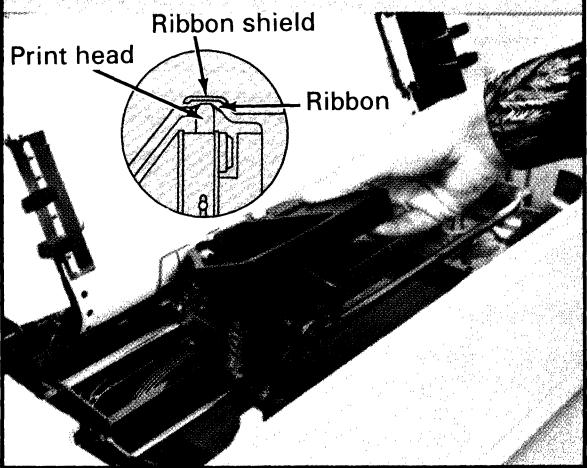
Changing the ribbon cartridge



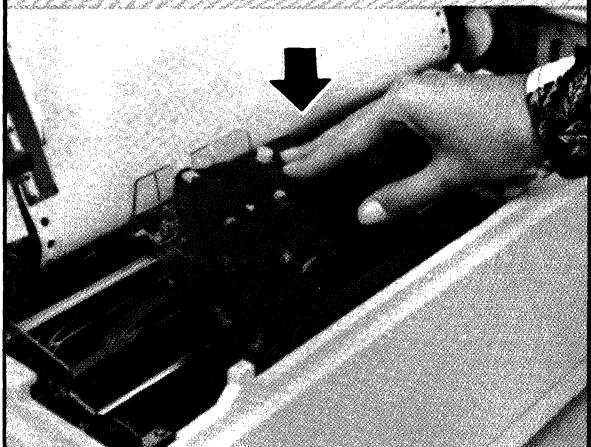
5 Grip the cartridge as shown. Press down on the print head cover screw with your thumb while lifting with your fingers, until the cartridge snaps free.



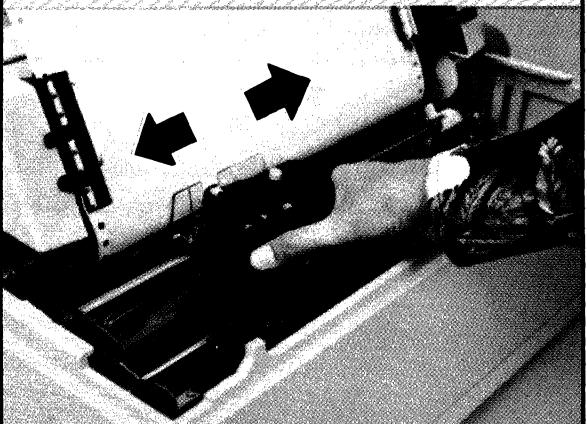
6 Install the new ribbon by inserting the ribbon between the print head tip and the ribbon shield.



7 Press the cartridge down until it snaps into place.



8 Move the print head left and right to ensure that the ribbon moves from left to right (the blue ribbon advance knob will turn clockwise).

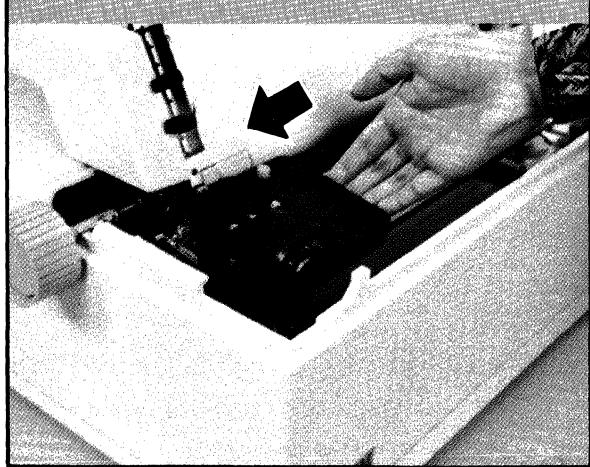


Printers

Changing the ribbon cartridge (continued)

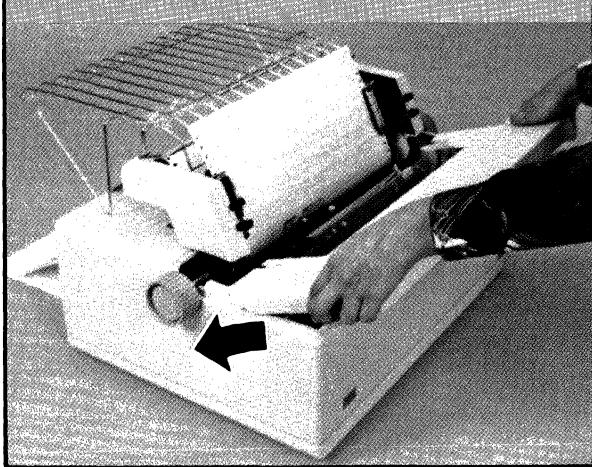
9

Slide the print head to the extreme left.



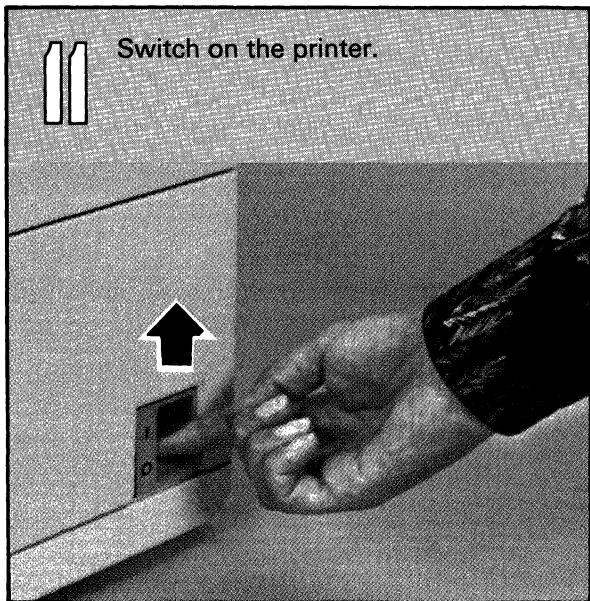
10

Replace the access cover.



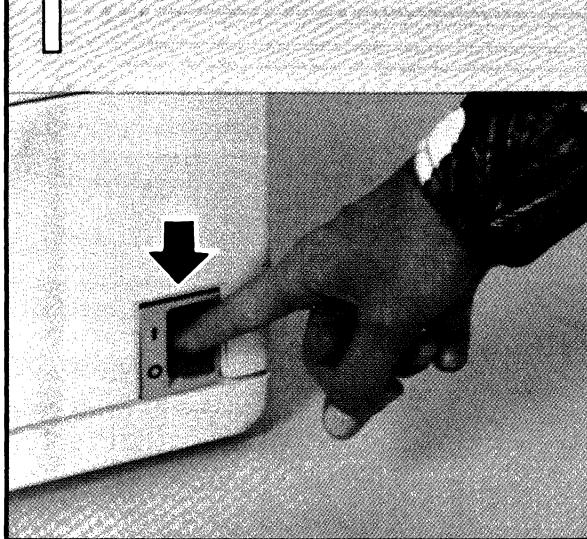
11

Switch on the printer.



Removing the forms tractor

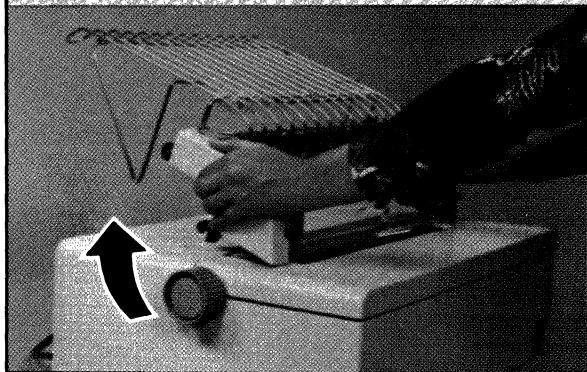
1 Switch off the printer.



2 Refer to "Removing continuous forms" in this chapter and remove any forms that are in the printer.

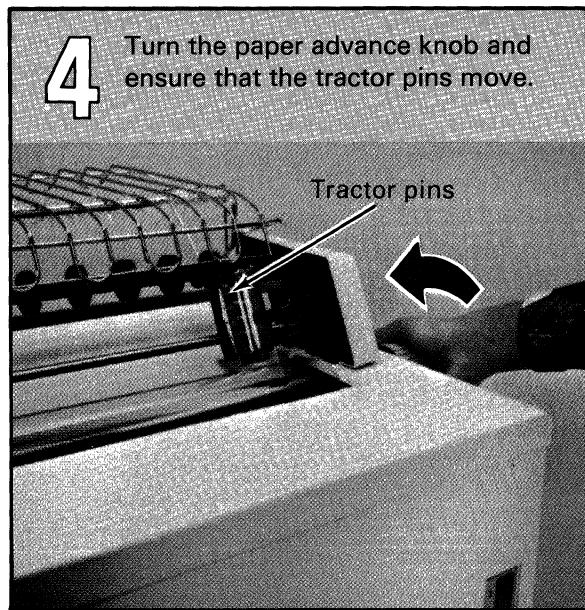
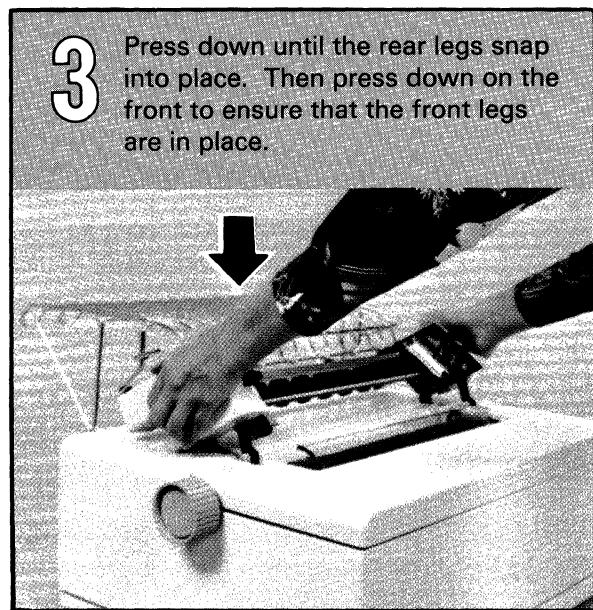
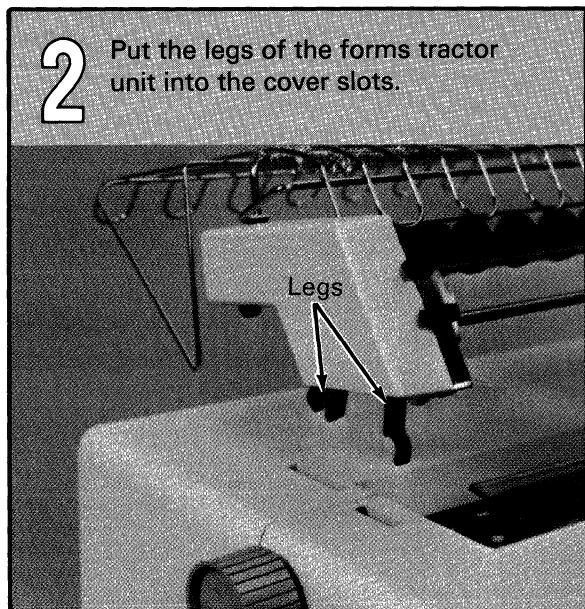
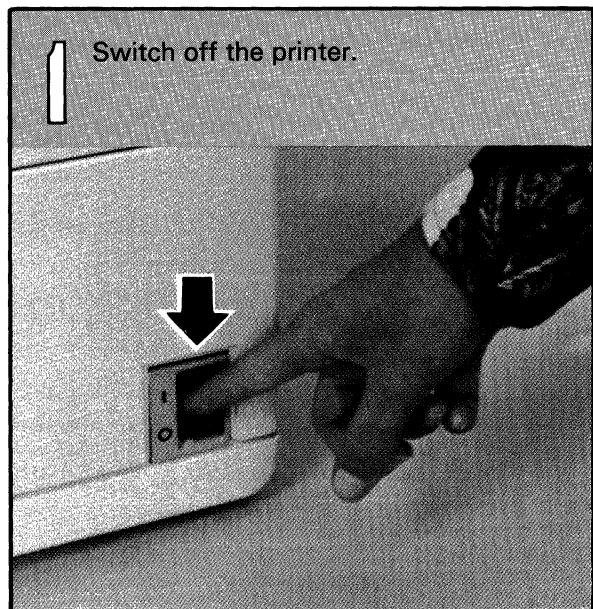
2

3 Grasp both sides of the forms tractor unit and pivot it toward the front until the rear legs snap free. Then lift the unit straight up to remove it.



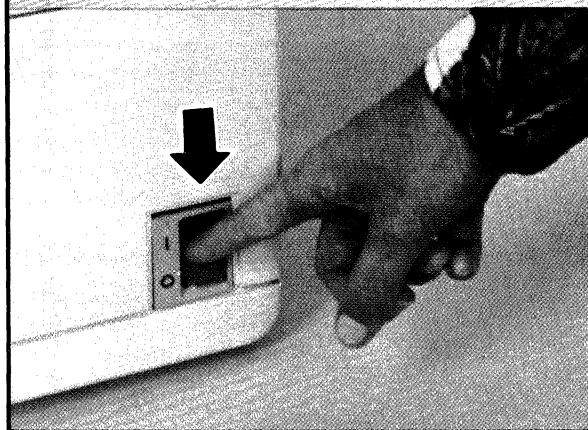
Printers

Installing the forms tractor unit

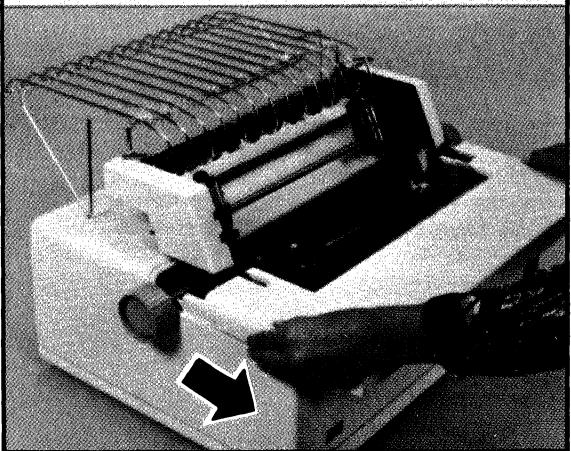


Loading continuous forms

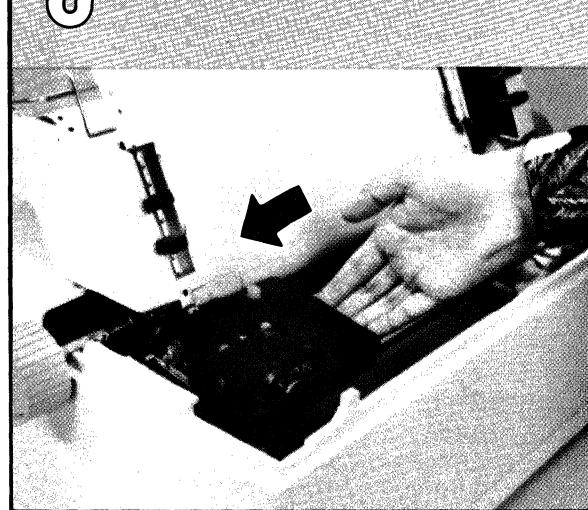
- 1 Switch off the printer if you need to load paper when starting your job. To load forms during an operation, begin at step 4.



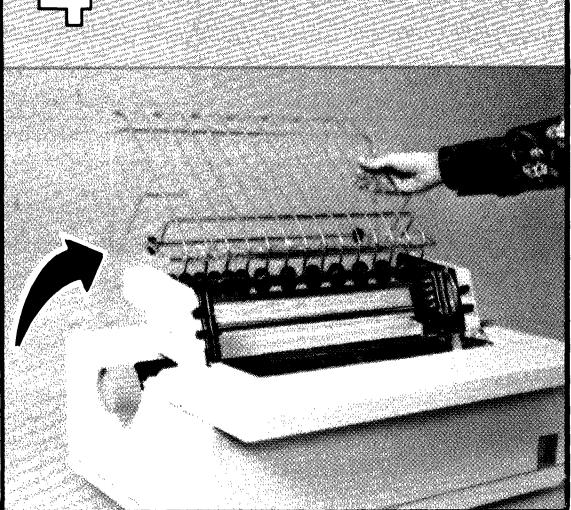
- 2 Slide the access cover forward until it stops.



- 3 Slide the print head to the extreme left. (Cover shown removed.)



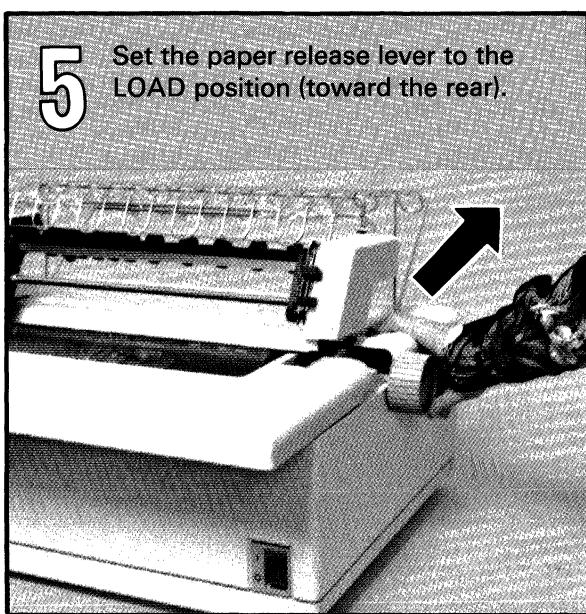
- 4 Raise the forms guide rack. *Do not remove the forms tractor.*



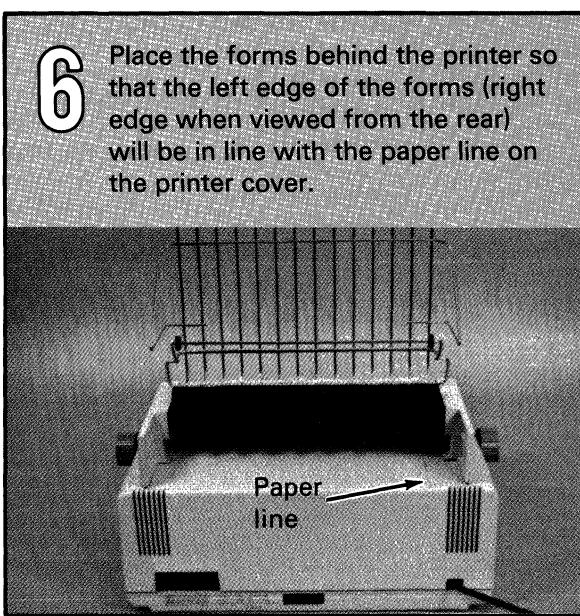
Printers

Loading continuous forms (continued)

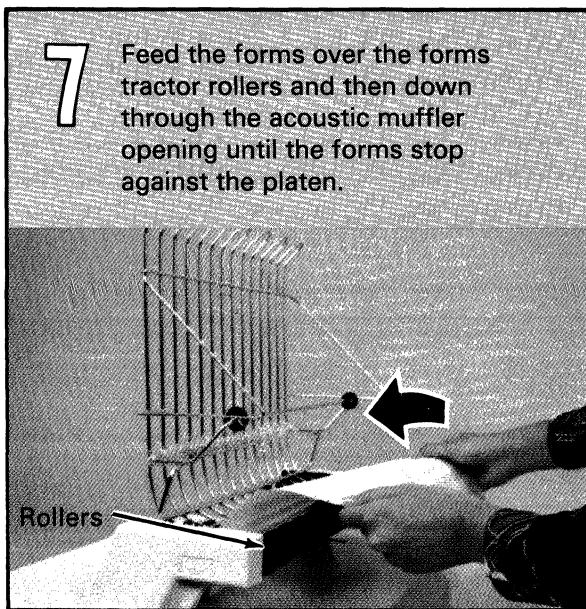
- 5** Set the paper release lever to the LOAD position (toward the rear).



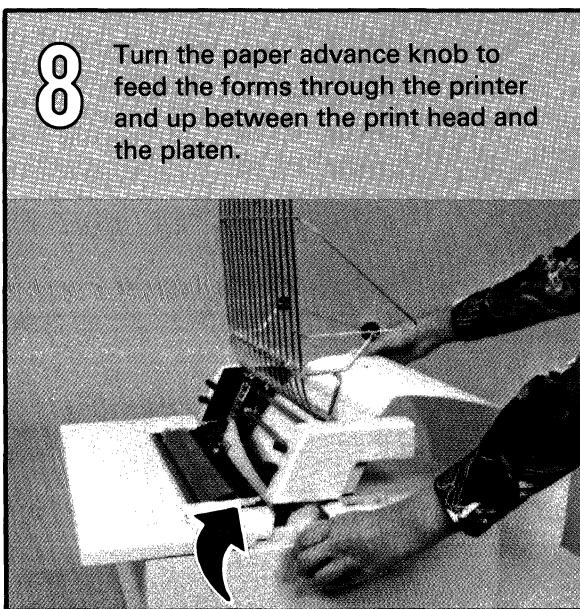
- 6** Place the forms behind the printer so that the left edge of the forms (right edge when viewed from the rear) will be in line with the paper line on the printer cover.



- 7** Feed the forms over the forms tractor rollers and then down through the acoustic muffler opening until the forms stop against the platen.

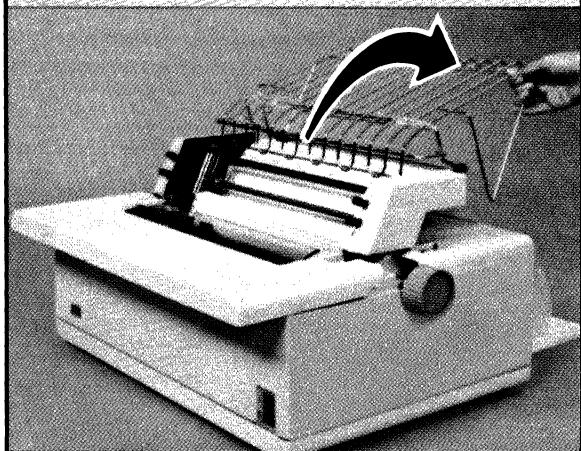


- 8** Turn the paper advance knob to feed the forms through the printer and up between the print head and the platen.



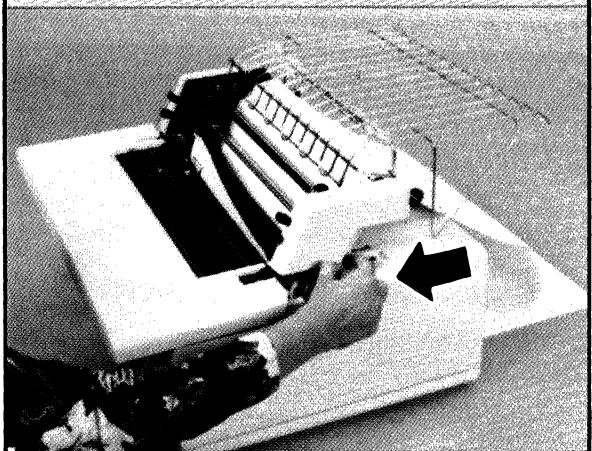
9

Lower the forms guide rack.



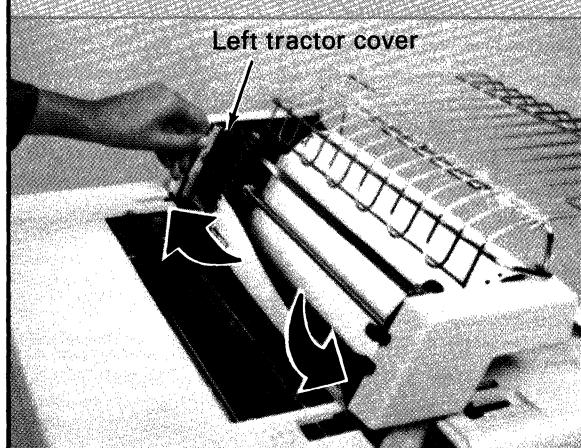
10

Set the paper release lever to the PRINT position (toward the front).



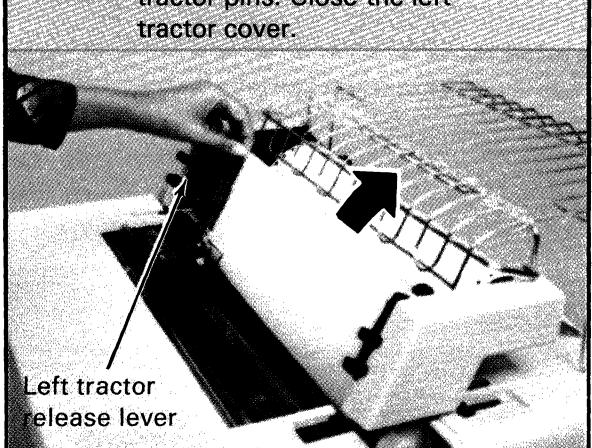
11

Open the right and left tractor covers.



12

Pull up the paper until you can slip the holes in the left edge of the paper over the left tractor pins. Close the left tractor cover.



Printers

Loading continuous forms (continued)

13

Align the paper (by moving the right tractor) so the holes in the right edge are over the right tractor pins. (Access cover shown closed.)



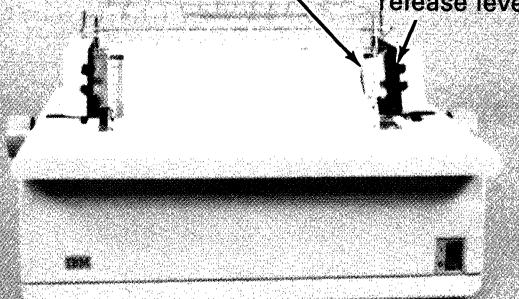
14

Check that the left edge of the forms is in line with the paper line on the printer cover. The left tractor can be moved slightly if necessary. Squeeze the left tractor release levers to move the tractor left or right.

15

A Slip the forms over the right tractor pins. You may have to squeeze the right tractor release levers to move the right tractor under the forms.

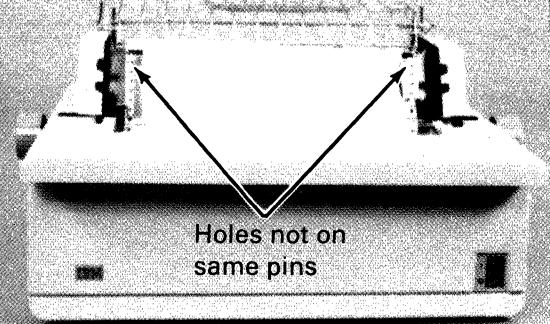
Right tractor Right tractor release lever



15

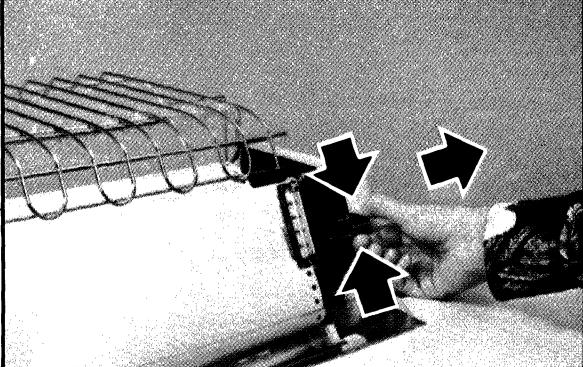
B Check that the holes in the right side match the same pins as the holes in the left side. Close the right tractor cover.

Holes not on
same pins



16

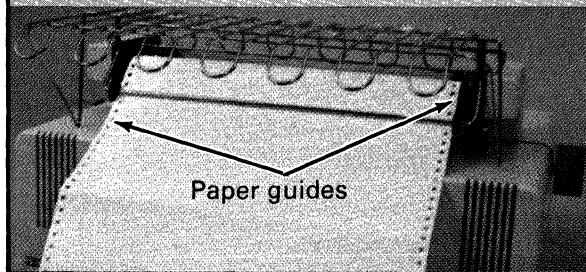
Squeeze the release levers on the right tractor and move the tractor to the right to remove any slack in the forms. The paper does not have to be *tight*.



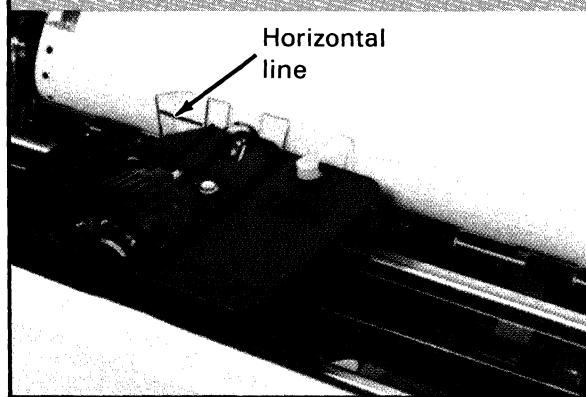
Printers

Loading continuous forms (continued)

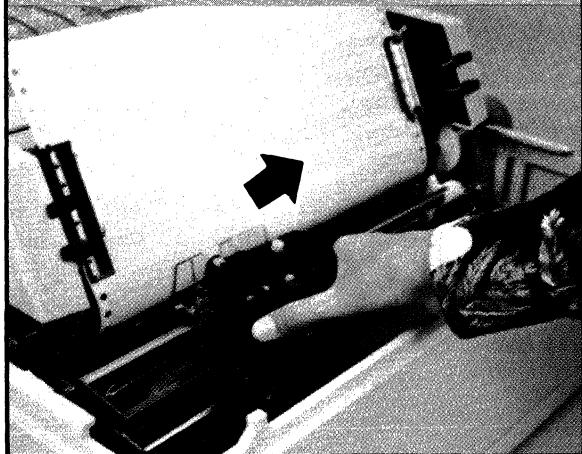
- 17** Gently pull the forms to the rear to remove slack. Then move the paper guides left or right so that they just touch the paper and will keep the forms feeding in a straight path. You may have to move the supply of forms slightly to keep the left edge in line with the paper line on the printer cover.



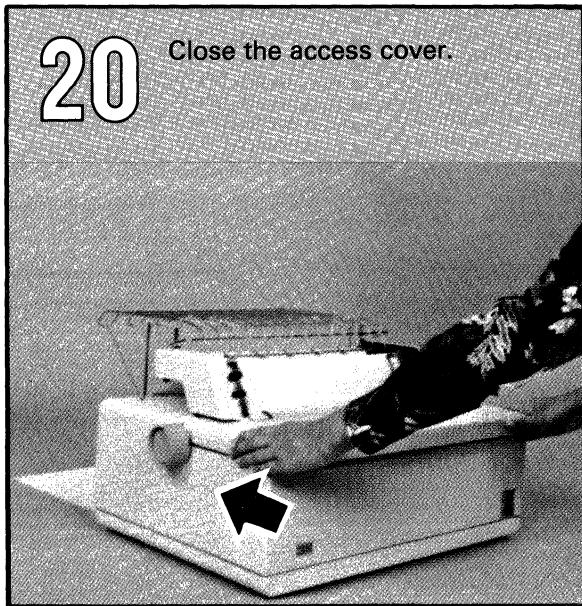
- 19** Turn the paper advance knob until the red horizontal line on the plastic guide is over the paper where you want the first line to print. (Cover shown removed.)



- 18** Slide the print head to the right and in front of the paper. (Cover shown removed).



- 20** Close the access cover.



21

Switch on the printer.



22

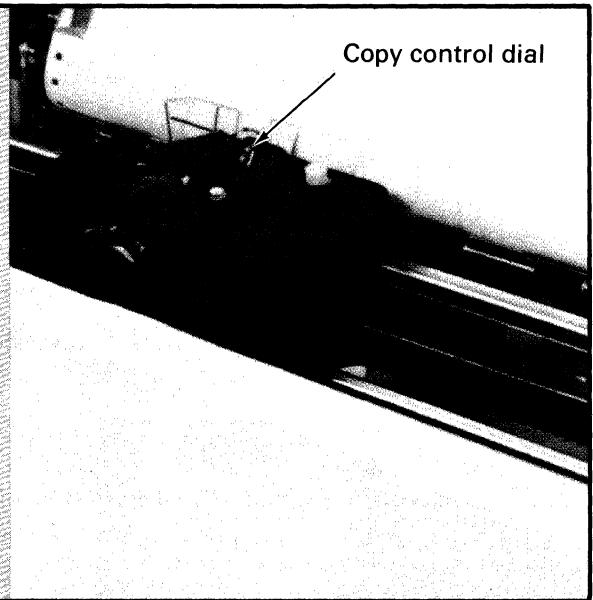
At this step, the printer is ready to print. Start a job and print a few lines. Then:

- Press the Hold key to stop printing.
- Check the printing.
- Refer to steps 23 or 24 if there is a problem.
- To resume printing, press the Hold key.

23

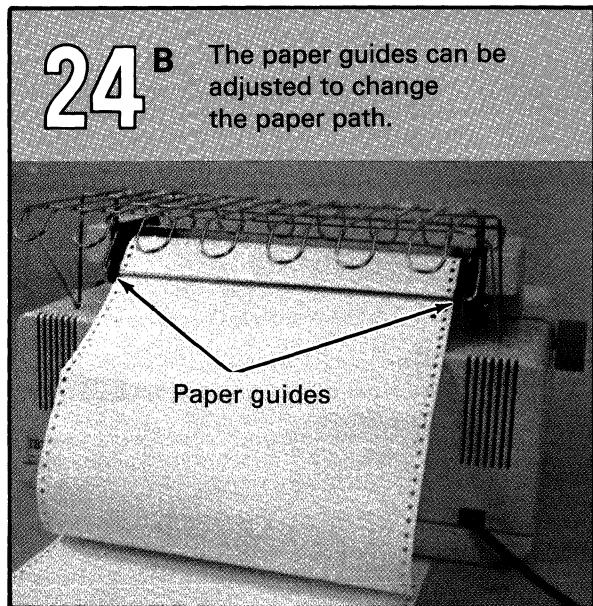
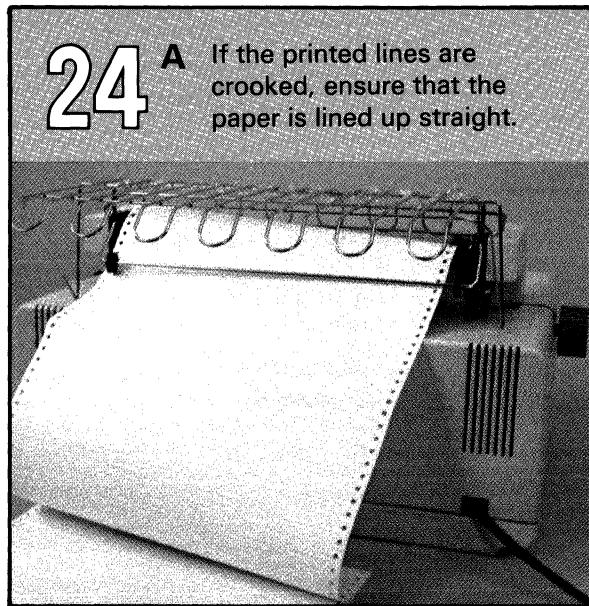
Adjust the copy control dial for the thickness of the forms being used.

- Open the access cover.
- For *single-part forms*, set the dial at 0 and adjust it toward 8 until the printing is clear.
- For *multiple-part forms*, set the dial at 0 and adjust it toward 8 until printing on the last part is legible and the first part is free from ribbon smudging.



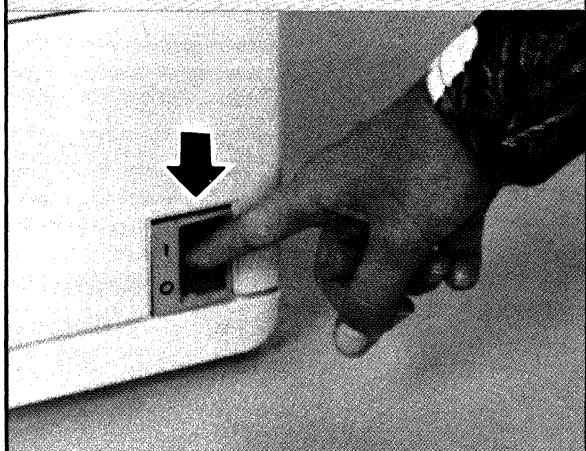
Printers

Loading continuous forms (continued)

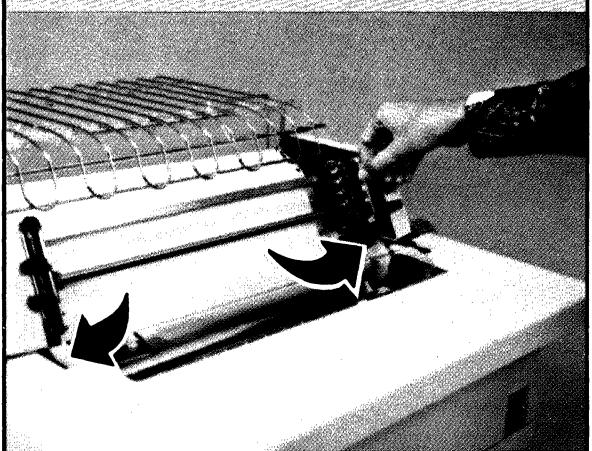


Removing continuous forms

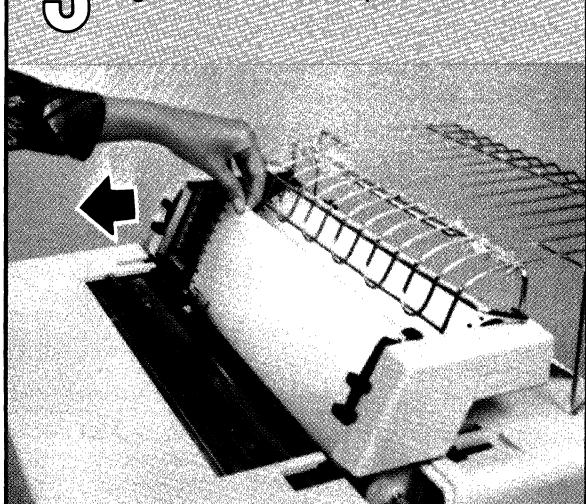
- 1** Switch off the printer. If you need to load forms during an operation, leave the printer switched on.



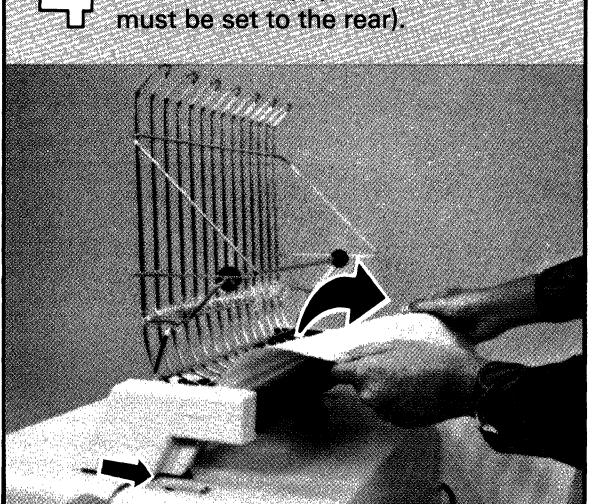
- 2** Open the right and left tractor covers.



- 3** Remove the forms from the right and left tractor pins.



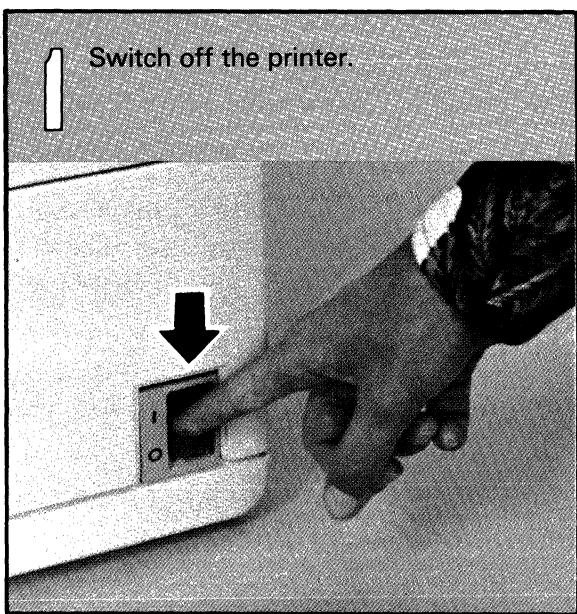
- 4** Pull the forms out of the printer from the rear (paper release lever must be set to the rear).



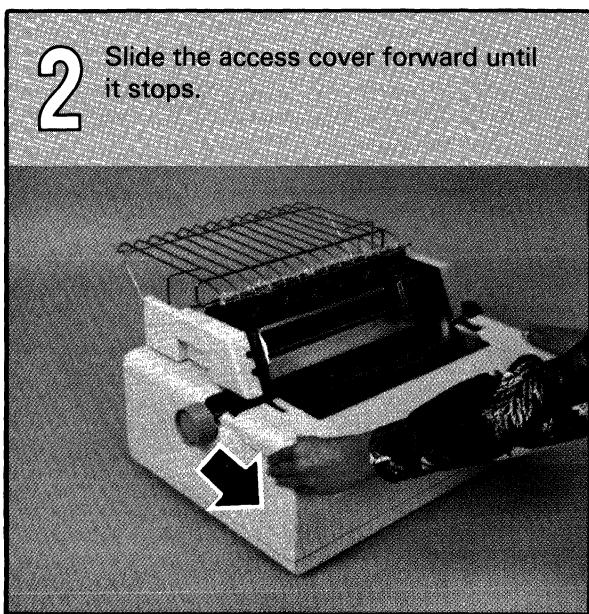
Printers

Loading cut (individual) forms

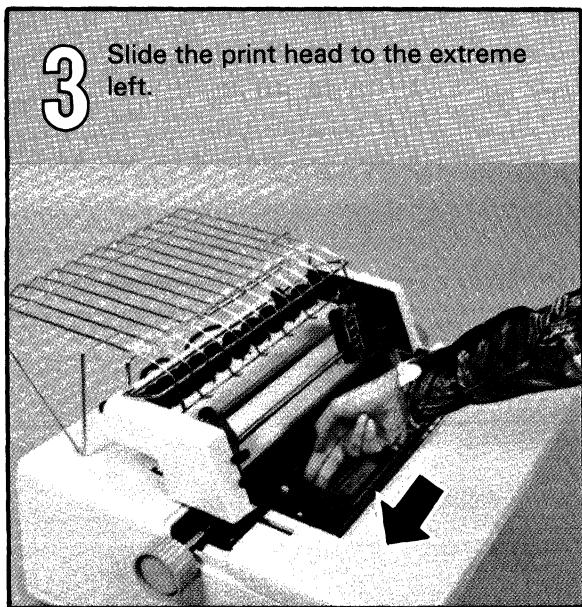
1 Switch off the printer.



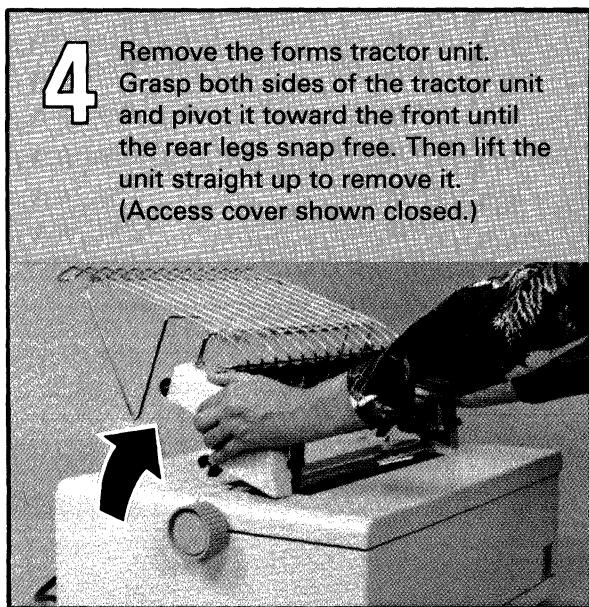
2 Slide the access cover forward until it stops.



3 Slide the print head to the extreme left.

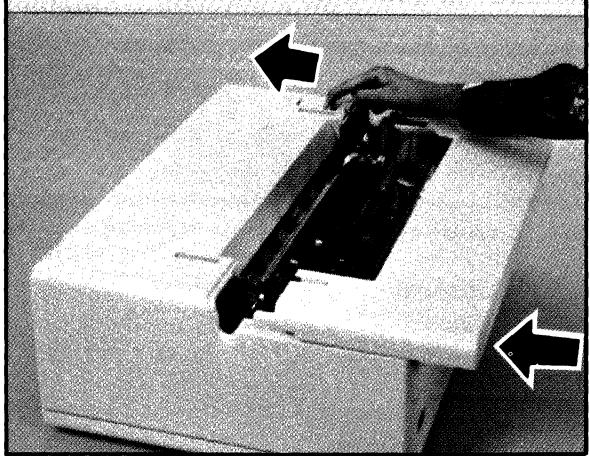


4 Remove the forms tractor unit. Grasp both sides of the tractor unit and pivot it toward the front until the rear legs snap free. Then lift the unit straight up to remove it. (Access cover shown closed.)



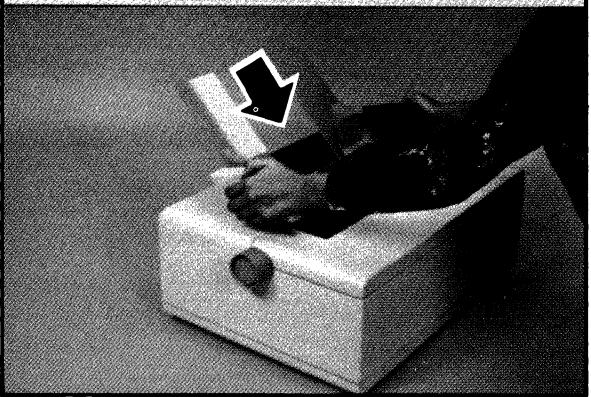
5

Move the paper release lever to the rear. Close the access cover.



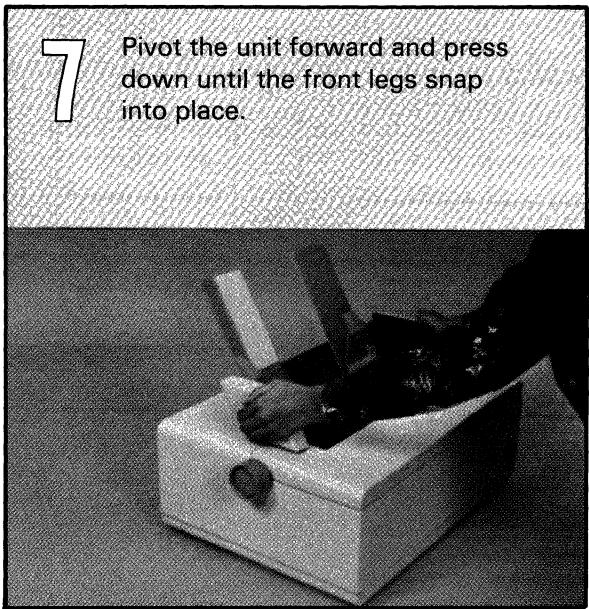
6

Position the rear legs of the document insertion device in the rear cover slots and press down until the legs snap into place.



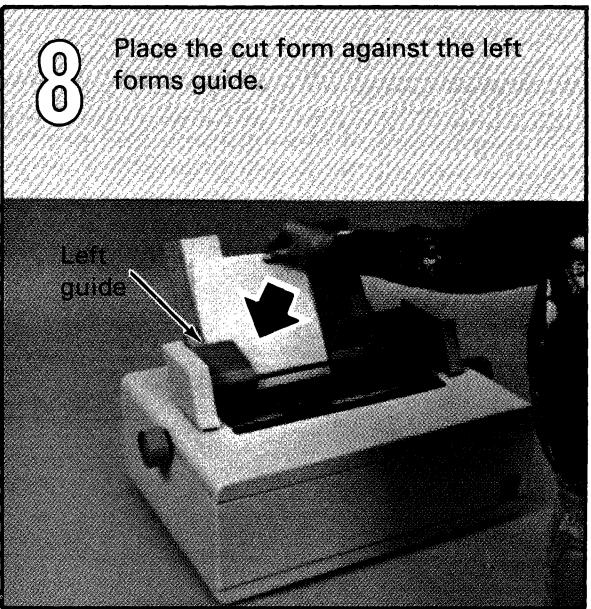
7

Pivot the unit forward and press down until the front legs snap into place.



8

Place the cut form against the left forms guide.

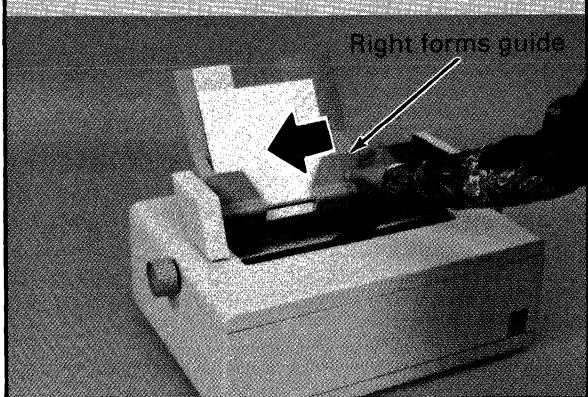


Printers

Loading cut (individual) forms (continued)

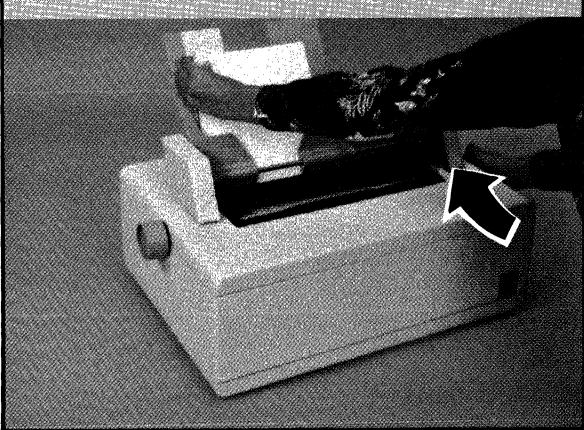
9

Push the form down until it is against the rear of the platen. Then move the right forms guide to the right edge of the paper, ensuring forms are not bound by forms guide.



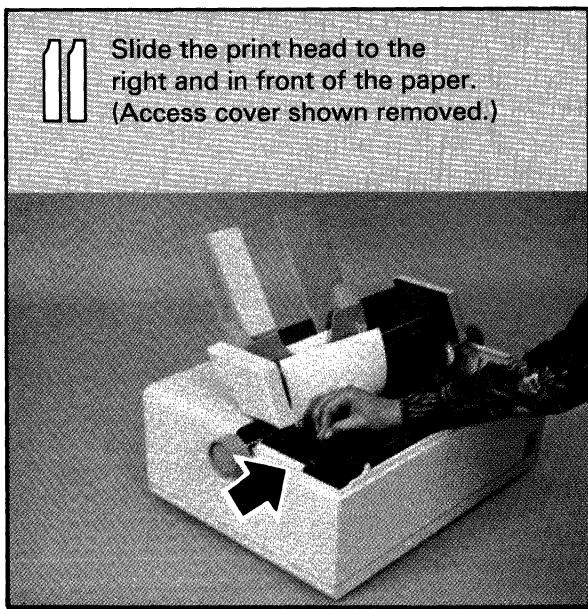
10

Feed the paper with one hand; turn the paper advance knob with the other hand until the paper appears in front of the platen.



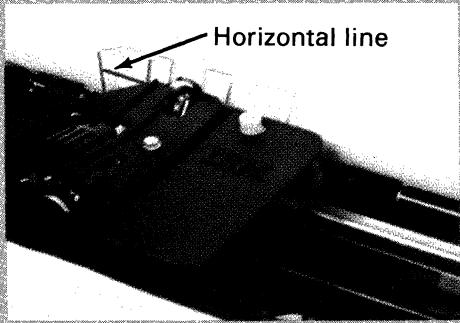
11

Slide the print head to the right and in front of the paper. (Access cover shown removed.)



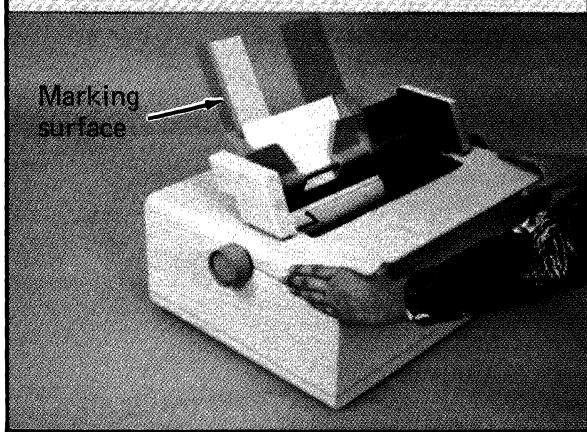
12

Turn the paper advance knob until the top edge of the paper is at least even with the top edge of the plastic guide. The paper may be raised above the guide to ensure proper printing.



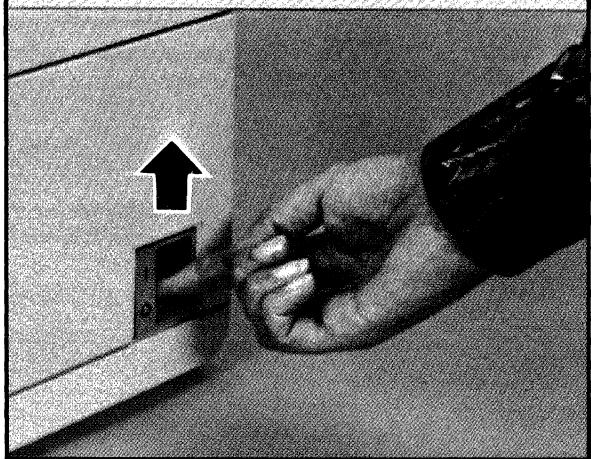
13

You can mark the left side of the insertion device with the paper position.



14

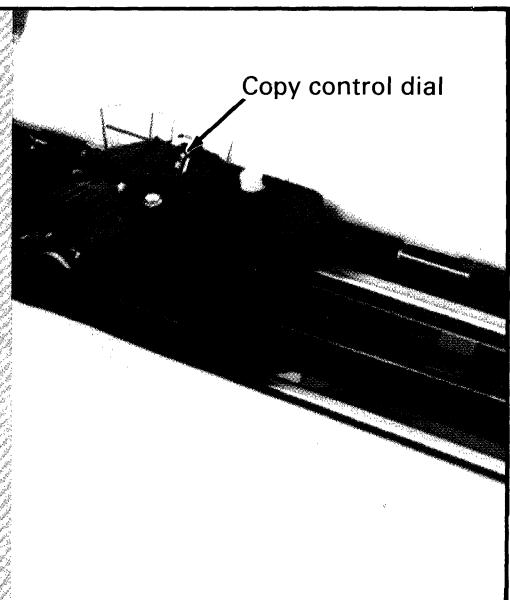
Switch on the printer.



15

For *single-part* cut forms, the dial should be set at 0 and adjusted toward 8 until printing is clear.

For *multiple-part* cut forms, the dial should be set at 0 and adjusted toward 8 until printing on the last part is legible and the first part is free from ribbon smudging.



Printers

Loading cut (individual) forms (continued)

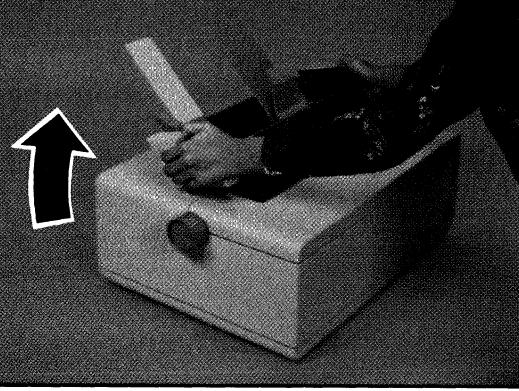
16

To remove cut forms, turn the paper advance knob and feed the paper out.

Note: The document insertion device must be removed and the forms tractor unit installed before using continuous forms.

17

Grasp both sides of the tractor unit and pivot it toward the front until the rear legs snap free. Then lift the unit straight up to remove it.



Operating the Printer Switch Feature

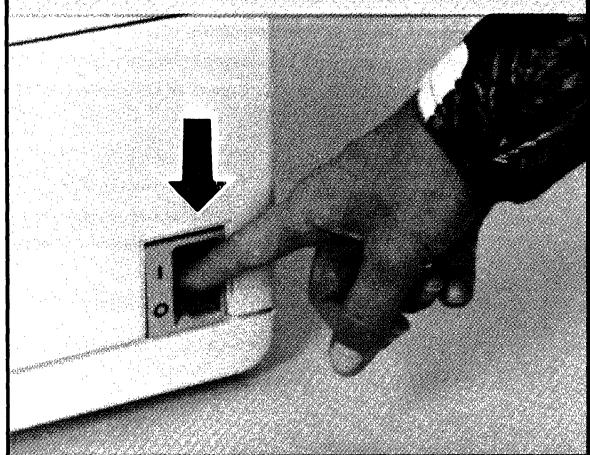
WARNING

Switch off the printer when changing the Printer Switch Feature from one computer to the other.

You use the Printer Switch Feature when you have two computers sharing one printer. You have to manually select the computer you wish to use the printer. Only one computer at a time may use the printer.

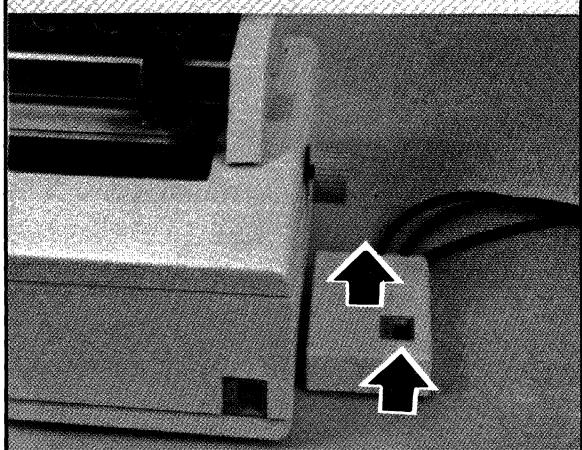
To change from one computer to the other:

1 Switch off the printer and the computer you wish to switch to.



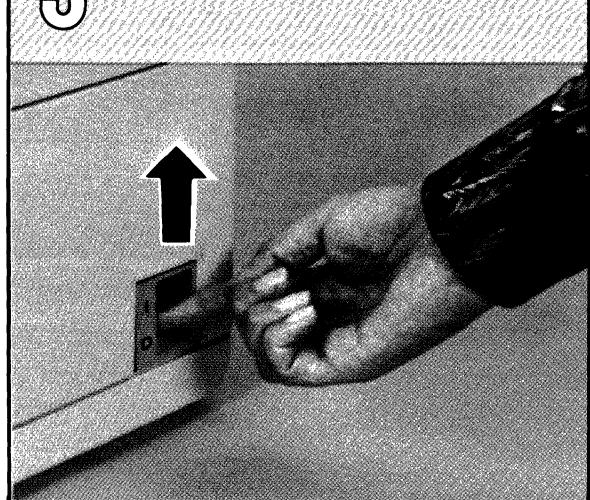
2

Change to the other computer by using the selector switch.



3

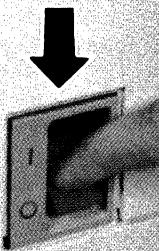
Switch on the printer and the computer you wish to switch to.



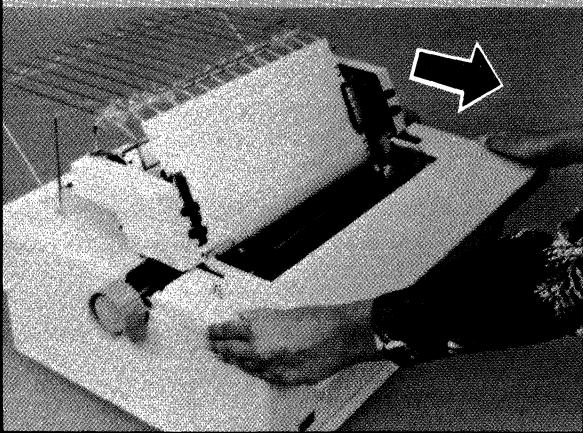
Printers

Removing the platen

1 Switch off the printer. Remove any forms that are in the printer. See "Removing Continuous Forms" in this chapter if you need assistance.



2 Slide the access cover forward until it stops.

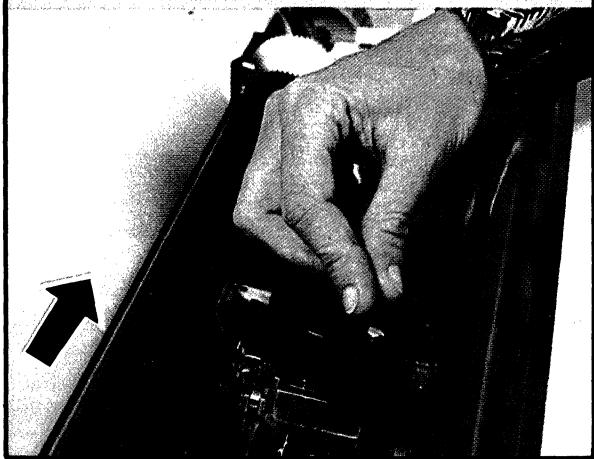


3 Remove the forms tractor. See "Removing the forms tractor" in this chapter if you need assistance.



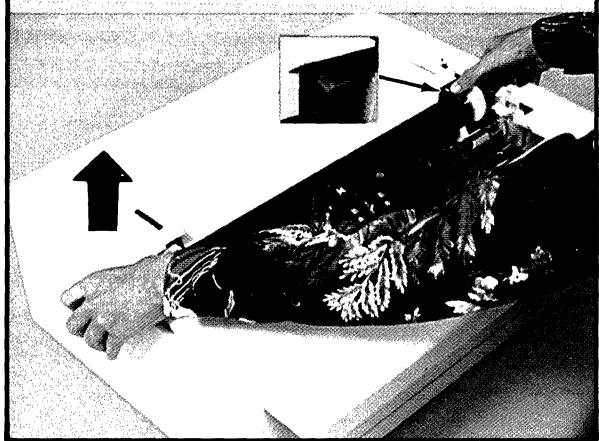
4

Move the print head to the center of the platen.



5

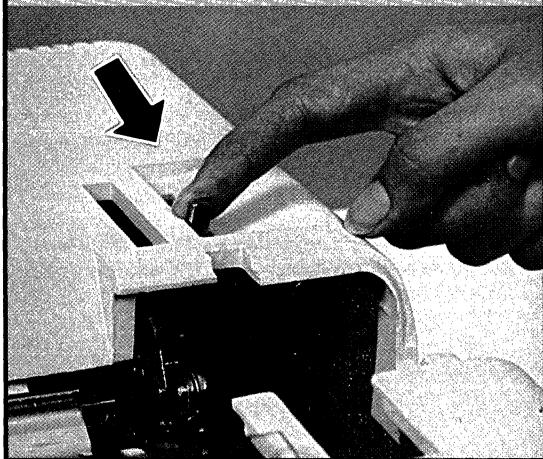
Remove the platen by lifting both paper advance knobs while pressing down on both platen release levers.



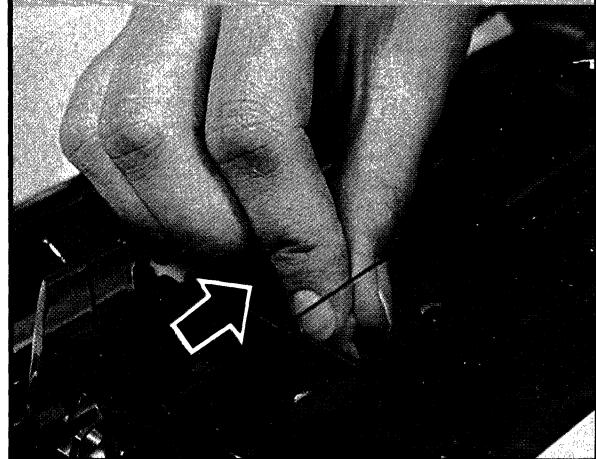
Printers

Installing the platen

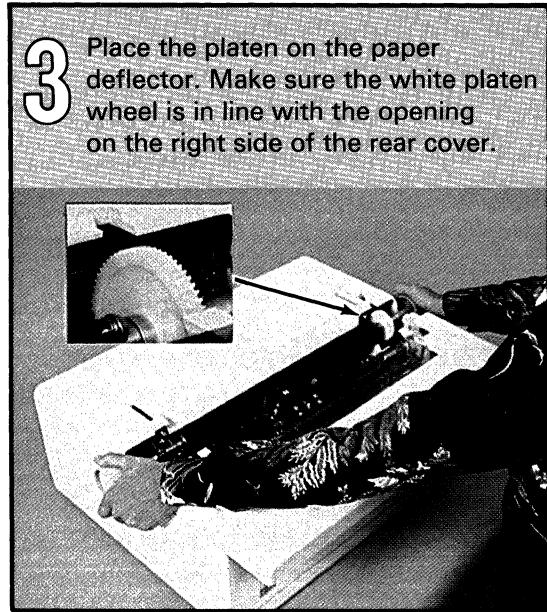
- 1** Set paper release lever to the forward position (toward the front).



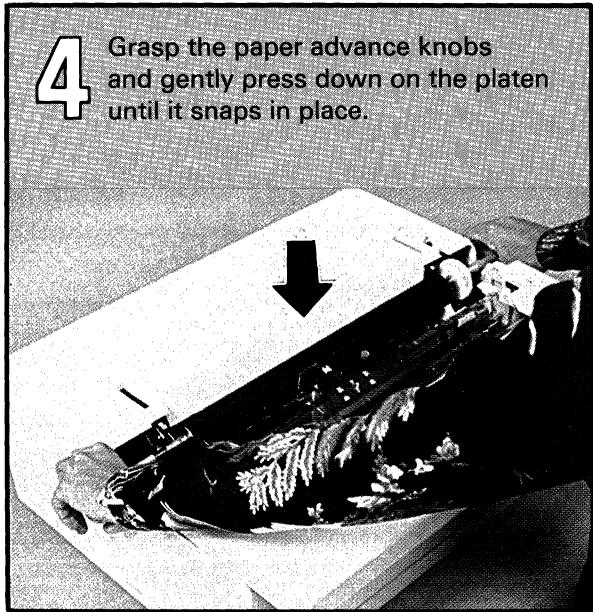
- 2** Move the print head to the center of the printer. Make sure the paper deflector does not move.



- 3** Place the platen on the paper deflector. Make sure the white platen wheel is in line with the opening on the right side of the rear cover.

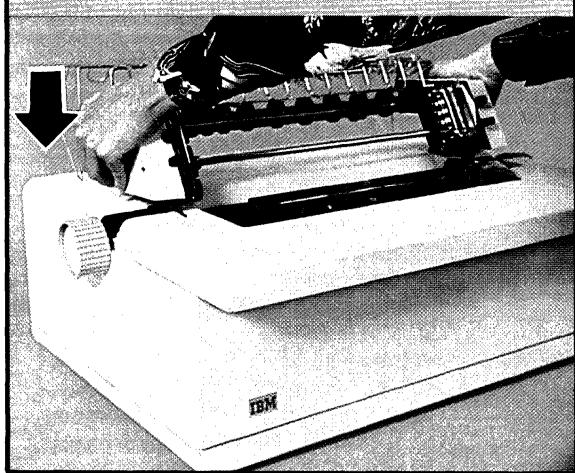


- 4** Grasp the paper advance knobs and gently press down on the platen until it snaps in place.



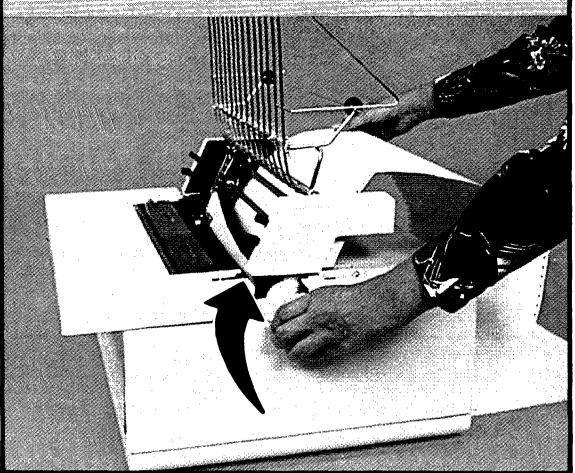
5

Replace the forms tractor. See "Installing the forms tractor" in this chapter if you need assistance.



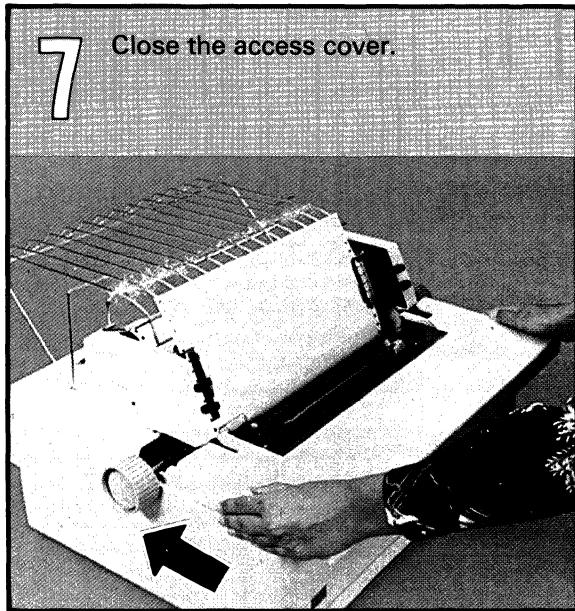
6

Replace the forms. See "Loading Continuous Forms" in this chapter if you need assistance.



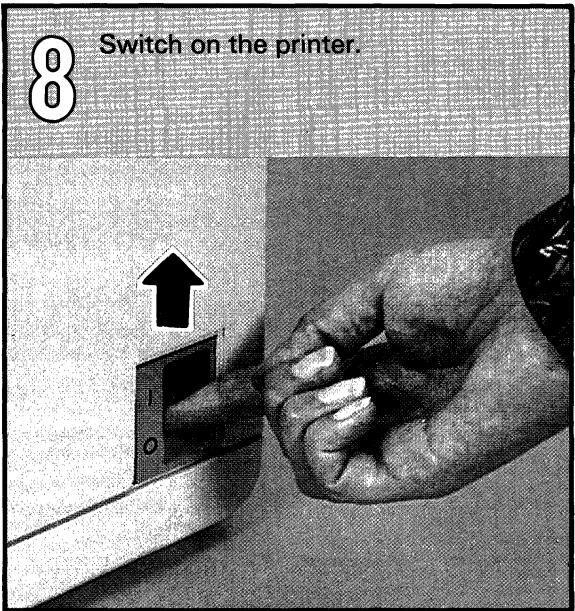
7

Close the access cover.



8

Switch on the printer.



Chapter 6. Commands

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Commands

About this chapter

The information in this chapter is for your use during the day-to-day operation of your computer. If information is required for programming purposes, the *BASIC Language Reference* manual should be used.

All commands used by your computer are included in this chapter. The purpose of each command, when you should use it, and what you should enter, are described.

The commands described in this chapter are:

ALERT	LINK	RUN
AUTO	LIST and LISTP	SAVE
CLEAR	LOAD	SKIP
DATE	MERGE	SORT
DEL	PROC	SUBPROC
DIR	PROCERR	SYSTEM
DROP	PROTECT	TIME
FREE	RENAME	VOLID
GO	RENUM	
HELP STATUS	REPLACE	

Entering the commands

Commands can be entered either by typing them into the computer from the keyboard or from a procedure file.

This chapter describes how to enter commands by using the keyboard. The *BASIC Language Reference* manual describes how commands are used in procedures.

You can enter a command into the computer whenever INPUT is displayed on the status line. When you enter a command, simply type the command using either uppercase or lowercase letters, followed by any required information; then press the Enter key. You can also use the Cmd key with an alphabetic or numeric key to enter the entire keyword at once. The computer will respond to your command.

The commands are listed in alphabetical order.

Commands

Describing the commands

ALERT

The ALERT command must be part of a procedure and cannot be entered from the keyboard. When this command is received by the computer, the computer "beeps" to attract your attention and ALERT is displayed on the status line.

A message may be displayed to tell you what to do, such as change diskettes or replace printer forms.

If you are running an application program, follow the restart instructions in the application documentation. If restart instructions are not available, follow these steps:

1. Complete the task described on the screen.
2. Type GO on the input line.
3. Press the Enter key.

AUTO

The AUTO command automatically gives you line numbers for entering programs or data statements.

The format of this command is:

AUTO beginning line number,increment

where:

- | | |
|------------------------------|---|
| <i>beginning line number</i> | is the first line number you want displayed. If you do not enter anything, the first line number displayed is 00010 (line 10). |
| <i>increment</i> | tells how many numbers you want to skip between the line numbers. If you do not specify an <i>increment</i> , the computer will use 10. You cannot specify <i>increment</i> without specifying <i>beginning line number</i> . |

For example, if you type AUTO and press the Enter key, the following is displayed:

AUTO
000010 __

Type your information on line 00010 and press the Enter key:

AUTO
00010 INFORMATION YOU TYPED
000020

Commands

Describing the commands (continued)

Other examples of the AUTO command are:

AUTO 10,5	10, 15, 20, ...
AUTO 5	5, 15, 25, ...
AUTO 100,20	100, 120, 140, ...

The *beginning line number* must be a positive number from 1 through 99999 and the *increment* may be a positive number from 1 through 99998.

Automatic line numbering is ended when you press the scroll up key without typing any information on the input line, or if you type over the line number and press the Enter key.

CLEAR

You should enter the CLEAR command before typing a program into the computer. If you are entering data statements, type CLEAR DATA. Doing this will erase all information stored in the program or data file work area.

There are four uses for CLEAR:

CLEAR	Clears the work area so that you can enter program statements.
CLEAR ALL	Closes all open files, clears the work area, and erases all information on the screen except for status line information.
CLEAR DATA	Clears the data statements from the work area so that you can enter new data statements.
CLEAR PROC	Closes any procedure files currently open.

Commands

Describing the commands (continued)

DATE

You can enter the date into the computer by typing DATE followed by the year, month, and day. The structure of this command is:

DATE yy/mm/dd

For example, to enter a date of April 15, 1985, you would type:

DATE 85/04/15

and press the Enter key.

If you type PRINT DATE\$, the current setting will be displayed.

DEL

The DEL command is used to delete one line or several consecutive lines from a BASIC program or data work area.

The format of this command is:

DEL first line number,last line number

where:

first line number

is the line number of the first line of a group of lines you want to delete or the only line you want to delete. You must specify this number.

Note: The first line number must be less than the last line number.

last line number

is the number of the last line of a group of consecutive lines you want to delete.

For example, if you want to delete the following lines, you should type:

To delete

Type

Line 20

DEL 20

Lines 20 through 90

DEL 20,90

Note: If the program or data field contains line numbers 15, 25, 35, 45 and you type DEL 20,40, you will find that lines 25 and 35 will be deleted.

DIR

When you enter the DIR (directory) command, information about the diskette or disk in the drive you have specified is displayed or printed. You can look upon the DIR command as a means of providing you with a directory or list of information.

As an example, imagine the DIR command as being similar to the directory of offices you would find in a large office building. To find the office you wish to visit, you would first consult the directory to obtain the specific floor, office number, or other data.

Commands

Describing the commands (continued)

The format of this command is:

DIR drive number,PRINT or

DIR /VOLID/drive number, PRINT (for 5247 disk)

where:

VOLID is the name of the volume whose directory you wish to list.

drive number is the number of the drive that contains the volume.

Remember, the disk unit is considered as drive 5.

PRINT means that you want the information printed on the system printer.

The DIR command is useful for finding the diskette and disk format, verifying the names of files, identifying open files, and obtaining several other facts about the diskette or disk.

If you want to see the diskette directory of a diskette in drive 2, you would type DIR 2 and press the Enter key. You could also type DIR 2,PRINT to list the information on the system printer.

Using DIR with the 5247 disk

If your computer is connected to a 5247 Disk Unit, you will need to specify additional information with the DIR command. This additional information is necessary because your 5247 disk may contain more than one volume.

If the 5247 disk contains more than one volume, the computer has to know which volume you wish to list directory information for. Therefore, when using the DIR command for the 5247 disk, you should always provide a VOLID.

For example, let's assume your disk has two volumes on it. Their names are VOL001 and VOL002. (To find out what volumes are on your disk, use the VOLID command described in this chapter.)

If you wish to display directory information for the disk volume whose volid is VOL002, you would type:

```
DIR /VOL002/5 or DIR /VOL002/5,print
```

then press the Enter key.

This tells the computer that you wish to display directory information for the volume whose name is VOL002 and that the volume is located on drive 5, (the disk). The / character is a separator and must be used as shown.

If you use the DIR command on the 5247 disk without providing a *VOLID*, directory information for the first volume only will be displayed.

Commands

Describing the commands (continued)

Note: The following DIR information pertaining to the 5247 disk is provided for programmers and operators interested in being able to locate a file quickly.

If you wish to see if VOL002 contains a file called ANYFILE, you would type:

```
DIR ANYFILE/VOL002/5 or DIR ANYFILE/VOL002/5,print
```

then press the Enter key.

If the file is on the volume the file name and other information about the file will be displayed. If the file is not on the volume, no file information will be displayed.

You can also use the DIR command to display information about a group of files on a disk volume. For example, if you wanted to list information for all the files on VOL002 with a name beginning with the letter C, you would type:

```
DIR C*/VOL002/5 or DIR C*/VOL002/5,print
```

then press the Enter key.

If there are any files on VOL002 with a name beginning with the letter C, they will all be displayed. If there are no such files on VOL002, no file information will be displayed.

The format of the information on the screen after entering the DIR command is shown in the following example:

1	2	3	4	5	6	7	8	9	10	11	12	13 A	13 B	14 A	14 B	15	16
VOL001		3018064	0091	0000	512							ISI	ISH	OSI	OSI		2
10 COPY			00030208	00030208	00030208	0001											
04 FILE.ONE			00024576	00024576	00016200	0045						OSI	OSH	OSI	OSI		
05 FILE.TWO			00024576	00024576	00015872	0045											
09 PROGRAM.FILE			00002560	00002560	00002560	0001P											
04 FILE3			00002048	00002048	00000000	0001						OSU	OSU				
05 FILE4			00005120	00005120	00000512	0001						ISU					
04 FILE.INTERNAL			00003584	00003584	00000957	0001											
04 INTERNAL.FILE			00002048	00002048	00000000	0001						NS					

- | Number | Tells you |
|--------|--|
| 1 | Name of the diskette (also called the VOLID) or disk volume. |
| 2 | Diskette type—type 1, type 2, or type 2D. This field will be blank when doing a DIR for the disk. |
| 3 | How much unused space is on the diskette or disk. |
| 4 | The number of file labels available. For the disk, the initial amount of file labels is 98. File labels are added automatically as needed. There may be up to 9998 file labels per volume. |
| 5 | How many areas on the diskette are defective. This has no meaning when doing a DIR to the disk. |
| 6 | Number of characters that can be stored in each area. |

Commands

Describing the commands (continued)

- 7** File type. Check for type 05 (the COPY Customer Support Function can print only type 05 files).
- 8** Filename—the name assigned to a file on a diskette or disk.
- 9** How many characters the file will hold.
- 10** How many characters the file contains.
- 11** How many different places on the diskette or disk where parts of the file can be found.
- 12** File protection indicator. A "P" in this field indicates the file can only be used for input.

Note: For drive 5 (5247 disk), fields 13A and 13B contain the file sharing status and reserve sharing status for the station you are now using.

- 13** Indicates station number 1.
- 13 A** File sharing status for station 1.
- 13 B** Reserve sharing status for station 1.

-
- 14** Indicates station number 2.
 - 14 A** File sharing status for station 2.
 - 14 B** Reserve sharing status for station 2.

Note: For drive 5 (5247 disk), fields 14A and 14B contain a summary of sharing information for all other stations that are currently using the file. If this field is blank, no other stations are using the file.

- 15** Used only for disk. Station now using the file.
- 16** Used only for disk. Indicates file has not been closed properly.

Fields **13 A** and **13 B**, and **14 A** and **14 B** indicate whether or not a file can be shared.

Commands

Describing the commands (continued)

The seven types of file sharing are:

ISI	File is currently open for input and will allow other opens for input.
OSI	File is currently open for output and will allow opens for input.
ISH	File is currently open for input and will allow opens for input or output.
OSH	File is currently open for output and will allow opens for input and output.
NS	File is currently being used and will not allow any further usage.
OSU	File is currently open for output and will allow other opens for input or output.
ISU	File is currently open for input and will allow other opens for input or output.

Notes:

1. If you do not specify a VOLID for drive 5 (5247 disk), the first volume on the disk will be used.
2. If numbers 1-6 are the only fields that you see, check the last column for a "P" This indicates that the diskette is protected.

For example:

BILLS 2 0598016 0006 0000 512 P

The "P" at the far right is the volume protection indicator.

DROP

The DROP command will allow a file to appear empty. The file remains on the volume so that you can write new information over the old. The DROP file stays reserved, and you can use the same file space for new information.

The format of this command is:

DROP *filename/VOLID/drive number*

where:

filename

is the name of the file you want to drop. You can find the name of the file by using the DIR command. You must enter the *filename*.

VOLID

is the name of the diskette or volume on the disk. When dropping a file on the 5247 disk, you should always provide the VOLID of the disk volume containing the file.

drive number

is the number of the drive that contains the diskette or disk. Remember the disk unit is considered as drive 5.

Commands

Describing the commands (continued)

Note: Do not drop a file unless you are certain that the information is no longer needed. Once a file is dropped, it may be recovered provided it has not been reused. Refer to "Recover or Disk Recover" in *Customer Support Function*, Volume 1.

For example, to drop a file named PAY.MASTER, which is located on a diskette in drive 2, type:

DROP PAY.MASTER //2

and press the Enter key.

Refer to "Recovering a dropped or freed file" in *Customer Support Functions*, Volume I, if it becomes necessary to recover a file that was accidentally dropped by typing the DROP command.

Note: You can find which disk volume contains the file you wish to drop by using the following procedure:

1. Use the VOLID command to find the names of the volumes on the disk.
2. Use the DIR command for each volume in order to find the file required.

FREE

The FREE command deletes a file from the disk volume or diskette. The file is no longer on the diskette or disk volume, so you can use the space to create new files.

The format of this command is:

FREE *filename/VOLID/drive number*

where:

filename

is the name of the diskette file you want to delete. You can find the name of the file by using the DIR command. You must enter the *filename*.

VOLID

is the name of the disk volume or diskette. When freeing a file on the 5247 disk, you should always provide the VOLID of the disk volume containing the file.

drive number

is the number of the drive that contains the diskette or disk. *Drive number* is optional.

Commands

Describing the commands (continued)

To free a file named PAY.MASTER, which is located on a diskette in drive 2, type:

FREE PAY.MASTER//2

and press the Enter key.

Notes:

1. Do not free a file unless you are certain it is no longer needed. Once freed, it is uncertain whether you can recover the file. Refer to "Recover or Disk Recover" in *Customer Support Functions*, Volume 1, if it becomes necessary to recover a file that was accidentally freed by typing the FREE command.
2. You can find which disk volume contains the file you wish to drop by using the following procedure:

Use the VOLID command to find the names of the volumes on the disk.

Use the DIR command for each volume in order to find the file required.

GO

The GO command is used to resume or end the running of a BASIC program or a procedure file.

When you enter the GO command, it will restart the running of a BASIC program that was stopped by one of the following:

- A BASIC statement (PAUSE)
- The Attn key
- The Inq key
- An error condition

Note: You must correct the error first because GO will execute the error line again.

If you want to restart from a line other than the next line of the program, specify the starting line number after GO. For example, GO 100.

To end the running of a program or procedure, and close its files, type:

GO END

and press the Enter key.

Other types of GO commands are:

GO RUN, GO STEP, GO TRACE, GO TRACEP

For further explanation of these forms, refer to the *BASIC Language Reference* manual.

Commands

Describing the commands (continued)

HELP STATUS

HELP STATUS is useful for displaying the name of the file that is in the computer. It also displays information useful to the programmer, such as the remaining storage and the type of work area in the computer.

An example of the information displayed after entering HELP STATUS is shown here:

HELP STATUS

1278 (storage remaining)	PROGRAM (work area type)	PAYROLL.FDP (filename)
-----------------------------	-----------------------------	---------------------------

LINK

The LINK command copies the Customer Support Function, which you specify, into the computer.

The format of this command is:

LINK *filename/VOLID/drive number*

where:

filename is the name of the Customer Support Function you want to run. By using the DIR command, you can determine if you have the proper Customer Support Functions diskette inserted.

VOLID is the name of the disk volume or diskette. If you have a 5247 disk you should always provide the VOLID.

drive number is the number of the drive that contains the diskette or disk. *Drive number* is optional.

For example, if you want to run the COPY function, you could type one of the following:

LINK COPY

LINK COPY//2 (to show that the diskette is in drive 2)

LINK COPY/VOL002/5 (to show that COPY is on the disk (drive 5) Volume that has a VOLID of VOL002)

Commands

Describing the commands (continued)

LIST and LISTP

You can use the LIST command to display lines of a program.
Use the LISTP command to print all or parts of the program on
your printer (system printer 10 only).

The format of the LIST or LISTP command is:

LIST beginning line number,ending line number

LISTP beginning line number,ending line number

LIST label

where:

beginning line number

is the number of the first line of a group of consecutive lines you want to display or print. If you type only this number, you will display that line and see the preceding 22 lines.

ending line number

is the line number of the last line of a group of consecutive lines you want to display or print. You cannot specify *ending line number* unless you specify *beginning line number*.

label

is a label on a statement in your program.

For example, enter the following to display specific lines of a program:

<i>Enter (LIST or LISTP)</i>	<i>Lines displayed or printed</i>
LIST	First 22 lines of program
LIST 250,250	Line 250 only.
LIST 250	Line 250 and preceding 21 lines. at one time. If you ask to see more than 22 lines, use the Scroll Up key to view the rest of the program.
LISTP 250	Line 250 and all following lines will be printed on the system printer.
LIST ABC	Line labelled ABC and all preceding lines.

Commands

Describing the commands (continued)

If LIST is used to display a portion of your program, you can use the Scroll Up key to view the remaining lines.

LIST or LISTP is ended by one of the following:

1. Displaying or printing all the information you asked for.
2. Pressing the Cmd key and the Attn key while displaying or printing.
3. Using the Scroll Down key will cause information on the screen to move down one line, replacing the top line with a blank line. Once you have pressed the Scroll Down key, you can no longer use the Scroll Up key to view the rest of the program. You must use the LIST command to redisplay the lines.

LOAD

The LOAD command is used to copy a program or procedure file into the computer.

The format of this command is:

LOAD *filename/VOLID/drive number*

where:

filename is the name of the program or data file you want to transfer. You can find the name of the file by using the DIR command. You must enter the *filename*.

VOLID is the name of the disk volume or diskette. If you have a 5247 disk, you should always provide the VOLID.

drive number is the number of the drive that contains the diskette or disk. *Drive number* is optional.

For example, you want to transfer a program named PROCESS, which is located on a diskette in drive 3. The diskette name (VOLID) is MASTER. You can enter any one of the examples shown:

```
LOAD PROCESS
LOAD PROCESS/MASTER
LOAD PROCESS/MASTER/5 (To show that the program is on
a volume whose VOLID is MASTER on drive 5, the disk.)
LOAD PROCESS//3
```

Commands

Describing the commands (continued)

If PROCESS contained data instead of a program, you would enter one of the following:

LOAD PROCESS,DATA
LOAD PROCESS/MASTER,DATA
LOAD PROCESS/MASTER/5,DATA
LOAD PROCESS//5,DATA

MERGE

The MERGE command is used to combine information in the computer with information stored on a diskette or disk file.

If details about this command are required, refer to the *BASIC Language Reference* manual.

PROC

When you enter PROC and a file specification, as shown below, a previously set up procedure file is opened. As soon as the file is opened, it starts to run and performs the actions defined.

The format of this command is:

PROC *filename/VOLID/drive number*

where:

filename

is the name of the procedure file you want to run. You can find the name of the procedure file by using the DIR command. You must enter the *filename*.

VOLID

is the name of the disk volume or diskette. If you have a 5247 disk, you should always provide the VOLID.

drive number

is the number of the drive that contains the diskette or disk. *Drive number* is optional.

Commands

Describing the commands (continued)

For example, you want to run a procedure file named PREP, which is located on a diskette in drive 2. The diskette VOLID is JOBS. You can enter any one of the examples shown:

PROC PREP
PROC PREP/JOB
PROC PREP//2
PROC PREP/JOB/5 (To show the procedure file is on a volume that has a VOLID of JOBS on drive 5, the disk.)

If a procedure file should stop running, check the following:

- When READY INPUT appears on the status line, the procedure has been completed successfully.
- If there is an ALERT message on the screen, follow any instructions that may be in the message. To continue, type GO, and press the Enter key.
- If the procedure has stopped due to an error, use the error code on the status line to determine what the error is and how to correct it. Correct the error, type GO, and press the Enter key to continue.
- If you cannot correct the error, press the Error Reset key to clear the error; then, type GO END and press the Enter key. READY INPUT should appear on the status line.
- If READY INPUT does not appear on the status line, type GO END and press the Enter key again.

PROCERR

The PROCERR command is used by the computer programmer. Refer to the *BASIC Language Reference* manual for additional information.

PROTECT

The PROTECT command may be used to close a file that has been accidentally left open by a system or program error. The PROTECT command is also used to protect a file. You cannot write information to, or delete information from, a protected file.

The format of this command is:

PROTECT *filename/VOLID/drive number,option*

Select one of the following for the command structure:

Note: RELEASE ALL and CLOSE ALL are to be used in error situations. Once you have determined that an error condition exists, the use of RELEASE ALL will allow further access to the file.

PROTECT *filename/VOLID/drive number,RELEASE ALL*
PROTECT *filename/VOLID/drive number,RELEASE*
PROTECT *filename/VOLID/drive number,CLOSE*
PROTECT *filename/VOLID/drive number,CLOSE ALL*

where:

filename is the name of the diskette or disk file you want to protect. You can find the name of the file by using the DIR command. If a file is open, a sharing status is shown in the sharing status field of the directory (see the

Commands

Describing the commands (continued)

		DIR command in this chapter). You must enter the <i>filename</i> .
VOLID		is the name of the disk volume or diskette. If you have a 5247 disk, you should always provide the VOLID.
<i>drive number</i>		is the number of the drive that contains the diskette or disk. <i>Drive number</i> is optional.
<i>OPTIONS</i>		<i>FILE CHANGES</i>
ALL		Specifies that the CLOSE and RELEASE parameters apply to all stations.
CLOSE		Specifies that the file is to be marked "not currently in use." (This does not apply to the disk unit.)
		Note: Be very careful no one else is using the file.
RELEASE		Specifies that the file is to be marked "not currently in use" and not reserved for future use.
		Note: Be very careful no one else is using the file.

Additional command structures are:

PROTECT filename/VOLID/drive number, ON

PROTECT filename/VOLID/drive number, OFF

ON Specifies that you wish to protect the file. A protected file can be used for input only.

OFF Specifies that you wish to remove file protection.

If you want to give a file protection (that is, keep information from being written on or deleted from the file), use the ON option. Using the following example, you could enter:

PROTECT PAY.MASTER/PAYROLL/2,ON

If you want to later remove this protection, you could enter:

PROTECT PAY.MASTER/PAYROLL/2,OFF

You can tell if a file is protected by looking at the directory (see the DIR command in this chapter). If you have a 5247 disk, use the VOLID command to list the volumes on the disk. Then use the DIR command for each volume to find the job.

The following is an example using the DIR command to display the status of files and using the PROTECT command to close and release files. Notice how the file sharing status fields change as a result of each PROTECT command.

If you have a 5247 disk, use the VOLID command to list the volumes on the disk. Then use the DIR command for each volume to find the file.

Commands

Describing the commands (continued)

```
dir 2
```

```
BILLS 2 0599040 0008 0000 512  
05 FIXED.EXPENSES      0000512 0000512 0001  
05 MONTHLY.BILLS       0000512 0000512 0001
```

NS



NS

```
protect fixed.expenses,close
```

```
dir 2
```

```
BILLS 2 0599040 0008 0000 512  
05 FIXED.EXPENSES      0000512 0000512 0001  
05 MONTHLY.BILLS       0000512 0000512 0001
```

NS NS



```
protect fixed.expenses,release
```

```
dir 2
```

```
BILLS 2 0599040 0008 0000 512  
05 FIXED.EXPENSES      0000512 0000512 0001  
05 MONTHLY.BILLS       0000512 0000512 0001
```

NS NS



```
protect monthly.bills,release all
```

```
dir 2
```

```
BILLS 2 0599040 0008 0000 512  
05 FIXED.EXPENSES      0000512 0000512 0001  
05 MONTHLY.BILLS       0000512 0000512 0001
```

Note: Ensure that your station is not using the file. If you are sharing a 5246 Diskette Unit or 5247 Disk Unit with another computer, ensure that the other operator is not using a file before you use the PROTECT command to close it. A loss of data could occur. Refer to "File-sharing problems" in Chapter 8 of this manual for additional information.

RENAME

You can use the RENAME command to change the name of a file.

The format of this command is:

RENAME *old filename/VOLID/drive number,new filename*

where:

old filename is the name that is now assigned to the file.

VOLID is the name of the disk volume or diskette. If you have a 5247 disk, you should always specify a VOLID.

drive number is the number of the drive that contains the diskette or disk. Drive number is optional.

new filename is the new name that you are assigning to the file.

For example, to change a file named YTD.GROSS.SALES to YR76.GROSS.SALES you would enter:

RENAME YTD.GROSS.SALES,YR76.GROSS.SALES

**RENAME YTD.GROSS SALES/DISK01/5,YR76.GROSS
SALES**

(To show that the file is on a volume that has a VOLID of DISK01 on drive 5, the disk.)

Commands

Describing the commands (continued)

RENUM

The RENUM command renumbers the lines of a program.

The format of this command is:

RENUM *first line number,increment*

where:

first line number

is the number that you want the first line of the program to have. If you don't specify a number, the computer will begin with line 00010.

increment

tells how many numbers you want to skip between the line numbers. If you do not specify an *increment*, the computer will use 10. You cannot specify *increment* without specifying *first line number*.

The following example shows the result of entering RENUM.

Before

```
00010 INPUT A,B  
00011 Q=INT(A/B)  
00020 IFQ=0 GOTO 30  
00025 GOTO 00010  
00030 PRINT Q  
00040 END
```

After

```
00010 INPUTA,B  
00020 Q=INT (A/B)  
00030IFQ= GOTO 50  
00040 GOTO 00010  
00050 PRINT Q  
00060 END
```

The following example shows the result of entering the RENUM command with an increment value.

RENUM 10,50

Before

00010 REM LINE 1
00020 REM LINE 2
00030 REM LINE 3
00040 REM LINE 4

After

00010 REM LINE 1
00060 REM LINE 2
00110 REM LINE 3
00160 REM LINE 4

Commands

Describing the commands (continued)

REPLACE

The REPLACE command is used to return programs or procedures to an existing diskette or disk file.

The format of this command is:

REPLACE *filename/VOLID/drive number, source or lock*

where:

filename is the name of the diskette or disk file that will receive the program or data. Usually, this will be the *filename* you used when you loaded the file into the computer. The *filename* in a REPLACE command is optional.

VOLID is the name of the disk volume or diskette. If you have a 5247 disk, you should always provide a VOLID.

drive number is the number of the drive that contains the diskette or disk. *Drive number* is optional.

source is used to replace the program in source format. If you do not specify *source*, the program will be replaced in internal format. You cannot use this parameter if *lock* is specified.

lock

tells the computer that the program being returned to the diskette or disk file is to be locked. You cannot list, save in source format, or merge a locked program.

You should use the SAVE command to create a new file and save information. If you use REPLACE to save information on a new file, an error occurs.

To illustrate the use of REPLACE, assume that you have loaded a program from a diskette or disk file into the computer and have changed some of the information. You now want to return the changed program to the existing file from which it came. To do this, you would use the REPLACE command.

As an example, assume that a diskette with a VOLID of PAYROL is in drive 2. The program you changed came from a file named JOB. To return the changed program to the JOB file, you could enter any one of the following examples:

```
REPLACE JOB/PAYROL/2  
REPLACE JOB/PAYROL  
REPLACE JOB//2  
REPLACE JOB  
REPLACE
```

Commands

Describing the commands (continued)

RUN

When you type RUN, the program you have copied into the computer is told to start.

To start a program after the LOAD command has completed loading the program into the computer, type:

RUN

and press the Enter key.

To start a program running in step manner (run one statement at a time), type:

RUN STEP

press the Enter key.

To start a program running in trace manner (to find the flow of a program), type:

RUN TRACE

or

RUN TRACEP and press the Enter key. (TRACEP prints the output on the system printer.)

For a further explanation of RUN STEP, RUN TRACE, and RUN TRACEP, see the *BASIC Language Reference* manual.

SAVE

When you enter the SAVE command, a new file is created, and the program or procedure in the computer is stored in the newly created file. The name of the new file is the filename you specify with the SAVE command.

The format of this command is:

SAVE *filename/VOLID/drive number, source or lock*

where:

<i>filename</i>	is the name of the diskette or disk file you are creating to save the program or data on. You must give the file a <i>filename</i> . No other file on the diskette or disk volume can have the same name.
<i>VOLID</i>	is the name of the disk volume or diskette. If you have a 5247 disk, you should always provide a VOLID.
<i>drive number</i>	is the number of the drive that contains the diskette or disk. <i>Drive number</i> is optional if the VOLID specified.
<i>source</i>	is used to save a program in <i>source</i> format. If you do not specify this parameter, the program will be saved in internal format. You cannot use this parameter if <i>lock</i> is specified.

Commands

Describing the commands (continued)

lock

tells the computer that the program or data file being saved is to be locked. You cannot list or merge a locked program.



For more information refer to *BASIC Language Reference* manual.

If you want to return data to an existing file, you must use the REPLACE command. If you use the SAVE command to return data to an existing file, an error occurs.

As an example of using the SAVE command, assume that a diskette with a VOLID of PAYROL is in drive 2. To save information in a file, that you name JOB1, you could enter *one* of the following:

SAVE JOB1/PAYROL/2

SAVE JOB1/PAYROL

SAVE JOB1//2

Note: If no VOLID is specified for drive 5 (5247 disk), the first volume on the disk will be used.



SKIP

The SKIP command is used by the computer programmer when programming a procedure file. Refer to the *BASIC Language Reference* manual for additional information.

SORT

When you enter the SORT command, you tell the computer to start sorting information in a predetermined order.

The format of this command is:

SORT *filename/VOLID/drive number*

where:

filename is the name of the SORT control file you want to use in the SORT. This control file is provided by a programmer and determines the order in which the information is to be sorted. You must enter the *filename*.

VOLID is the name of the disk volume or diskette. If you have a 5247 disk, you should always provide a VOLID.

Commands

Describing the commands (continued)

drive number

is the number of the drive that contains the diskette or disk with the control file. *Drive number* is optional.

To illustrate the use of the SORT command, assume that a diskette with a VOLID of CHECKS is in drive 2. You have been instructed to sort the PAYROLL file using the control file named SORT.PAYROLL, which is located on the diskette named CHECKS. You could enter any one of the examples shown here to complete the SORT.

```
SORT SORT.PAYROLL  
SORT SORT.PAYROLL/CHECKS  
SORT SORT.PAYROLL/CHECKS/2  
SORT SORT.PAYROLL//2
```

For more information about SORT, refer to "SORT and PRESORT," in the *Customer Support Functions*, Volume II.

SUBPROC

The SUBPROC command is used by the computer programmer when programming a procedure file.

If information about this command is required, refer to the *BASIC Language Reference* manual.

SYSTEM

The SYSTEM command is used by the computer programmer. Refer to *BASIC Language Reference* manual.

TIME

You can use the TIME command if you want to set the computer's clock at any time during the operation.

Note: The time is automatically set to 00:00:00 when the computer is turned on. If PRINT TIME\$ is used, the current setting will be displayed.

The format of this command is:

TIME HH:MM:SS

Commands

Describing the commands (continued)

where:

- | | |
|----|---|
| HH | is the hour, Using the 24-hour system,
00:00:00 is 12 midnight, and 23:00:00 is 11
p.m. |
| MM | is the number of minutes after the hour. |
| SS | is the number of seconds after the minute. |

For example, if the hour is 3:30 p.m. exactly, you would enter:

TIME 15:30:00

When the time changes from 23:59:59 to 00:00:00, the date
will not change. You may reset the date using the DATE
command.

VOLID

The VOLID command is used to change the disk volume or diskette name or to protect the volume. The old VOLID or owner-ID can be changed to a new VOLID or new owner-ID. This command can also be used to display the VOLIDs of all the disk volumes and diskettes that are in the system.

The format of this command is:

VOLID *old VOLID, new VOLID, owner-ID, ON or OFF*

where:

old VOLID is the present name of the disk volume or diskette

new VOLID is the new name you want to give the disk volume or diskette. This name can be from 1 through 6 English letters or numbers.

owner-ID is the name of the disk volume or diskette owner. This name was assigned when the disk volume or diskette was prepared, and can have from 1 through 14 English letters or numbers. If you want the disk volume or diskette to have a new *owner-ID*, type the new name; otherwise, leave this space blank.

ON means you wish to protect data on the volume being accessed. You cannot read data from, or write data to, a protected volume.

Commands

Describing the commands (continued)

OFF means you wish to remove protection from a volume. If you use OFF, you must specify the owner-ID.

For example, to change the VOLID of a disk volume or diskette named DEBITS to DEBTS1, you would enter:

VOLID DEBITS,DEBTS1

To change the *owner-ID* of the previous example to JONES, while changing the *VOLID* to DEBTS1, you would enter:

VOLID DEBITS,DEBTS1,JONES

To display the VOLIDs of all volumes currently in the diskette drives (and on the 5247 disk), simply type VOLID and press Enter. The drive number, VOLID and owner ids will be displayed as shown below.

1 DEBTS JONES

Notes:

1. Make sure the disk volume or diskette has no files in use before you change the VOLID. Use the DIR command to check for files in use. If you change the VOLID of a disk volume or diskette with open files in use, unpredictable results will occur. Refer to information about the DIR command in this chapter for additional information.
2. VOLIDs on drive 5 are listed in order. The first VOLID listed is the first volume. This is the default volume when *only* drive 5 is specified in a file specification.

Chapter 7. Managing your system

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Managing your system

About this chapter

This chapter deals mainly with diskette systems. For information about managing your 5247 disk refer to *Using your 5247 Disk Unit*, SA34-0188.

The procedures you follow in the daily operation of your computing system are established by the nature of your business and the application programs run on your system. These procedures vary from one business to another.

There are, however, procedures that are the same regardless of the nature of your business and the application programs used. These procedures involve the overall management of your system:

- Maintaining your diskette files
- Backing up a diskette
- Updating your machine programs
- Keeping accurate records

This chapter provides the information you need to manage your system.

Maintaining your diskette files

The procedure for removing unused files from a diskette is referred to as *file maintenance*. This procedure is similar to removing old, unused file folders from the drawer of a file cabinet. If you no longer need some of the files on your diskettes, you can delete them and make room for new information.

Displaying the filenames

Note: For information about displaying filenames for the disk, refer to the DIR command in Chapter 6 of this manual.

Before deleting files, you should know which files are on the diskette.

The DIR command quickly displays or, if you choose, prints this information.

To display the names of all files stored on your diskette, enter the DIR command followed by a space and the number of the diskette drive that contains the diskette.

For example, type DIR 2 and press Enter to display the filenames plus other information from the diskette in drive 2.

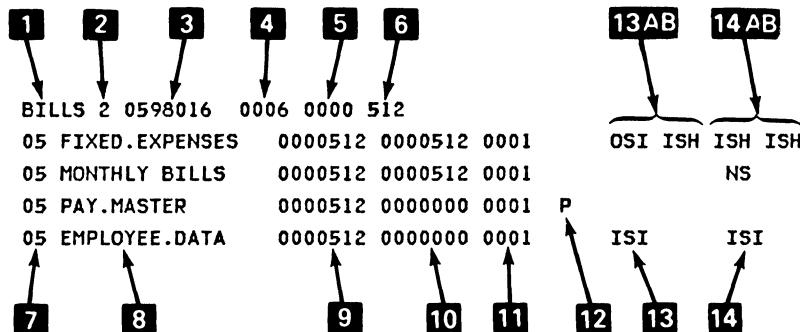
Type DIR 2,PRINT to print the filenames plus other information from the diskette in drive 2.

Managing your system

Maintaining your diskette files (continued)

This illustration shows the information provided by the DIR command:

Note: If you have a 5247 Disk Unit refer to the DIR command in Chapter 6 of this manual.



The information that is most useful to you, the operator, is described below. Refer to Chapter 6, "Commands" on page 6-1, for information about entering the DIR command.

- 1 Name of the diskette (also called the VOLID).
- 2 Diskette type: type 1, type 2, or type 2D.
- 3 How much unused space is on the diskette.
- 4 The number of file labels available.
- 5 How many areas on the diskette are defective.
- 6 Number of characters which can be stored in each area.
- 7 File type. Check for type 05 (the Copy Diskette Customer Support Function can only print type 05 files).

-
- 8** Filename. The name assigned to a file on a diskette.
 - 9** How many characters the file will hold.
 - 10** How many characters the file contains.
 - 11** How many places on the diskette where parts of the file can be found.
 - 12** File protection indicator. A "P" in this field indicates that the file can only be used for input.
 - 13** Indicates station number 1.
 - 13 A** File sharing status for station 1.
 - 13 B** Reserve sharing status for station 1.
 - 14** Indicates station number 2.
 - 14 A** File sharing status for station 2.
 - 14 B** Reserve sharing status for station 2.

Fields **13 A**, and **13 B**, and **14 A**, and **14 B** indicate whether or not a file can be shared.

Managing your system

Maintaining your diskette files (continued)

The five types of file sharing are:

- | | |
|-----|--|
| ISI | File is open for input and will allow other opens for input. |
| OSI | File is open for output and will allow opens for input. |
| ISH | File is open for input and will allow opens for input or output. |
| OSH | File is open for output and will allow opens for input. |
| NS | File is being used and will not allow any further usage. |

Deleting a file

You can delete the information in a file by using the DROP command.

The DROP command will allow a file to appear empty. The file remains on the diskette so that you can write new information over the old.

To drop a file with a filename of PAYROLL:

1. Insert the diskette with the filename PAYROLL in drive 2 (or any drive).
2. Type DROP PAYROLL //2 (or any drive).
3. Press the Enter key.

The FREE command deletes the file you specify, and makes the space it occupied available for other files.

To free a file with a filename of PAYROLL, you should type FREE PAYROLL and press the Enter key.

Before using either the DROP or FREE command, be certain that the file is no longer required. Once a file is dropped or freed, it may not be possible to recover it.

Managing your system

Backing up a diskette

As diskettes are used, they pick up particles of dust and dirt; this causes the diskette to wear out. This process may be gradual over a period of many months or years if the diskette is not used very often. The diskette may wear out rapidly if used frequently in a dusty or contaminated environment.

Because it is difficult to predict when a diskette will wear out, it is recommended that you make a backup copy of every diskette.

It is important to remember to back up the diskettes that contain important data or information.

PLEASE MAKE A BACKUP COPY OF YOUR DISKETTES!!

Diskette backup methods

Two methods of backup are described here: the two-diskette backup method and the three-diskette backup method.

With the two-diskette method, the first diskette (Diskette A) is used only for processing, and the second diskette (Diskette B) is used only to store a backup copy. When you have determined that the information on Diskette A is accurate and up-to-date, you then copy Diskette A to Diskette B. Every time you add to or change the information on Diskette A, you should copy Diskette A to Diskette B. Set Diskette B aside and don't use it.

With the three-diskette backup method, you use the first two diskettes (A and B) as described for two-diskette backup. However, you also copy the information onto a third diskette (Diskette C). Diskette C is kept off-site and is only updated periodically. If you keep a copy off-site, you are assured that if your diskettes on-site were accidentally destroyed, you would be able to recover the programs and information from the third diskette.

There is one important point to remember. You should not copy Diskette A to Diskette B until you are sure that Diskette A is correct. Once you update your backup diskette, the old information is lost. You cannot retrieve the old version of the program or information.

Managing your system

Backing up a diskette (continued)

How to backup a diskette

To make a backup copy of a diskette, use the COPY Customer Support Function.

The COPY function is stored on the Customer Support Functions diskette and is loaded into the computer when you enter LINK COPY. Select either "Image copy" or "Copy all files," depending upon your needs.

For step-by-step instructions for running the Copy Diskette Customer Support Function, refer to *Customer Support Functions*, Volume I.

Certain application programs also give you a chance to make a backup copy of a diskette. Refer to the instructions provided with each application for more details.

Receiving new machine updates

The operation of your computer is controlled by programs that are loaded into the computer before it is shipped to you.

These programs can only be changed by machine updates, provided by IBM. You were shown how to load machine updates, using the PROC START command in Chapter 1.

The machine updates you originally received with your system are stored on the Customer Support Functions diskette VOLID=VOL002 (diskette 2 of 2). Whenever new machine updates are needed, IBM sends them to you on a diskette. When you receive a diskette with new machine updates, you should add them to your VOLID=VOL002 (diskette 2 of 2) Customer Support Functions diskette so that they will all be in one place when you run PROC START.

To add the machine updates, use the SELECT Customer Support Function. How to use the SELECT function is described in "SELECT," in *Customer Support Functions*, Volume I. Start the procedure by referring to the "Build" section in that chapter.

Once you have added the new machine updates to your Customer Support Functions diskette, you will have a current set of machine updates to load into your computer each time you switch on the computer.

Do not forget to make a backup copy of your new Customer Support Functions diskette.

Managing your system

Keeping accurate records

The efficiency of your daily operation will be increased through the use of up-to-date records.

Keeping records can help you in the following ways:

- Lets you know how long it takes to run each program so you can plan your day better.
- Lets you know which jobs you have completed and which jobs you still have to run.
- Lets you keep track of your diskettes and backup copies of diskettes.

The following forms are provided to help you keep accurate records:

- Operation log
- Diskette log
- Backup log

Operation log

An operation log can help you keep track of the overall operation of your System/23 computing system. A sample operation log is shown here. You may want to change this log to suit your needs. You can keep track of which programs are run, who ran them, and how long it took to run them. You can also enter remarks concerning any problems you have with the programs you are running.

Operation Log

Date	Job Description	Opr.	Time On	Time Off	Remarks
4-16	RUN BILLING	FHR	8 ⁴⁵ _{AM}	11 ⁵⁰ _{AM}	NO PROBLEMS
4-18	RUN PAYROLL	FHR	1 ¹⁵ _{PM}	4 ⁰⁵ _{PM}	NO PROBLEMS

Managing your system

Keeping accurate records (continued)

Diskette log

You should keep a list of your diskettes and record the purpose for which they are used. A sample diskette log is shown here. The "Level" column refers to the backup level of the diskette. Backup procedures are described in this chapter.

When you use a new diskette, assign a serial number and date to it and, using a fiber-tip marker, record that information on the permanent diskette label. Having *clearly labeled diskettes* is important in your day-to-day operations.

After months or years of use, your diskettes will eventually wear out. Many factors contribute to diskette wear. By checking the date on the diskette label for when you started to use the diskette or watching the log for how often you use it, you can plan when to test the diskette by preparing it again. Preparing a diskette lets you see if any areas of the diskette have become defective. You could lose information if you use a defective diskette. A good practice might be to review this log every six months and prepare any diskettes that have been used frequently. Remember, prepare only those diskettes whose files are not *useful*.

Refer to "PREPARE," *Customer Support Functions*, Volume I for information on how to prepare a diskette.

Diskette Log

Managing your system

Keeping accurate records (continued)

Backup log

You should routinely make backup copies of your diskettes. Store your backup copies in a safe location. Procedures for making copies are described in this chapter. The method for copying a diskette is described in "COPY," *Customer Support Functions*, Volume I.

A log of your backup diskettes will help you keep track of the current information on a diskette. A sample log is shown here.

Backup Log For ACCOUNTS RECEIVABLE FILE

Date	Level	Description
1-20	B	BACKUP THROUGH 1-20
1-20	C	BACKUP THROUGH 1-20 OFFSITE COPY
1-27	B	BACKUP THROUGH 1-27
2-3	B	BACKUP THROUGH 2-3
2-10	C	BACKUP THROUGH 2-10 OFFSITE COPY

Chapter 8. Help

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About this chapter

If you have a problem with your system, we want you to be able to correct the problem as soon as possible.

This chapter will help you in doing your own checkout. By doing your own checkout, you may be able to correct the problem without assistance from IBM.

This chapter describes various problems you may have, as well as solutions to these problems. You will notice that doing your own checkout is really quite easy.

To do your checkout using this chapter, find your problem under the problem heading. Then, follow the checkout steps provided. In most cases, you should be able to correct your problem quickly.

If your problem is not included in this chapter, or if you cannot correct your problem, call IBM. Please record all error codes and failure symptoms, and have them ready to give to the IBM representative you talk to.

Startup problems

Nothing happens

You switch on the printer, 5246 Diskette Unit, 5247 Disk Unit, or computer and nothing happens.

1. Check the electrical power cable at the wall outlet; ensure that it is pushed in all the way.
2. Check the power outlet.

Try plugging something else into it to see if it works.

Is it "dead"?

3. Check the power cables.

Are they plugged into the connector on the unit?

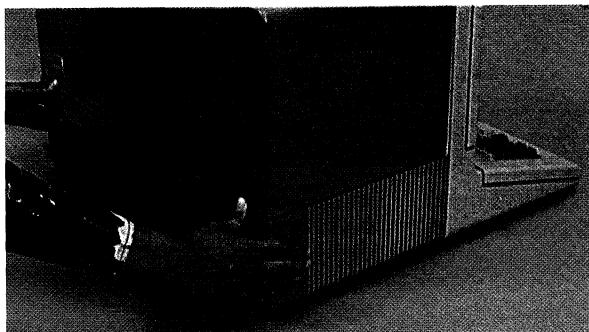
Refer to your *Setup Instructions* manual for help.

4. Check the machine fuse or circuit breaker. (See step 5 for circuit breaker information.)

CAUTION

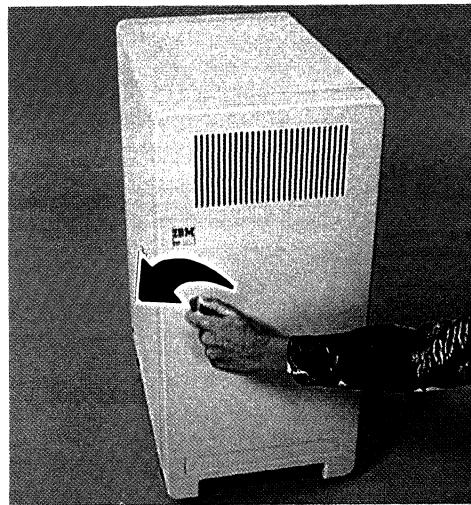
Be certain to unplug the machine power cable from the wall outlet before replacing the fuse or checking the circuit breaker.

-
- a. For the 5322 computer, remove the lower panel at the rear of the machine. Grip the panel and lift upward.



5322

- b. For the 5324 computer, open the rear door of the floor standing unit by turning the knob to the left.



5324

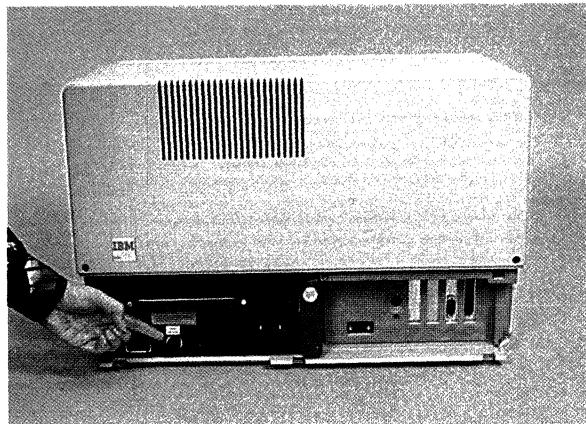
Help

Startup problems (continued)

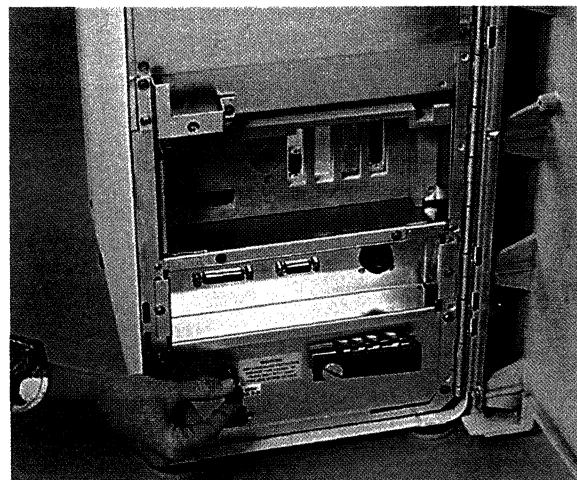
(If your machine is equipped with a circuit breaker go to Step 5.)

- c. For the 5322, is the red or green indicator light on?
For the 5324, is the fan operating?

No—Replace the fuse. Replace with Type 3AG, 5 ampere 125 V, "sloblo."



5322



5324

If the problem remains after replacing the fuse, contact your service representative for assistance.

Yes—The fuse is all right. Refer to your *Setup Instructions* manual to make sure you have set up your computer properly. If the problem remains, call your service representative for assistance.

5. For those machines equipped with a circuit breaker switch, follow all safety precautions mentioned. Place the circuit breaker switch in the up (on) position. If the problem remains, contact your service representative.

CAUTION

Be certain to unplug the machine power cable from the wall outlet before checking the circuit breaker.

Startup problems (continued)

Number 3C shaded on your screen

There is a problem with your System/23 that you cannot correct. Contact your service representative for assistance.

Number 3D shaded on your screen

There is a communication failure between the 5247 Disk Unit and your computer, or another computer has locked the 5247 disk.

1. Has another work station locked the 5247 disk? Wait until the work station completes its work and frees the disk.

If item 1 does not apply then:

2. Check the power switch on the 5247 Disk Unit.

Is it in the up position?

3. Check the power cable to the 5247 Disk Unit.

Is it plugged in tightly?

4. Check the cable connection at the rear of your 5247 Disk Unit and your computer.

Are the connections secure?

5. If the problem still exists, contact your service representative.

Note: If you can work without the use of your 5247 Disk Unit, press the Error Reset key and continue.

Number 3E shaded on your screen

Check the status of your 5247 Disk Unit.

1. Has the green Ready light come on after switching on your 5247 Disk Unit? (It takes about two minutes for the green Ready light to come on after switching on the 5247 Disk Unit.)
2. If the green Ready light was on then went off, try switching on your 5247 Disk Unit again as follows:
 - a. Switch off your computer.
 - b. Switch off your 5247 Disk Unit.
 - c. Switch on your 5247 Disk Unit and wait for the green Ready light to come on.
 - d. Switch on your computer.
3. If the problem still exists, contact your service representative.

Notes:

1. If 3E appears a second time on your screen followed by a series of numbers, record the numbers and have them available for your service representative.
2. If you can work without the use of your 5247 Disk Unit, press the Error Reset key and continue.

Startup problems (continued)

Number 35 shaded on your screen

The keyboard may have a problem.

1. Do not press any keys while the checkout tests are being made.
2. Switch off the computer; then switch it on to try the checkout tests again.
3. If the problem remains, contact your service representative for assistance.

Number 36 or 3A shaded on your screen

The printer is not working.

1. Check the cable connection between the computer and the printer. If there is nothing wrong then:
2. Press the Error Reset key.

A problem still remains on the printer but you may be able to run your job without the printer.

3. If you are unable to continue, contact your service representative for assistance.

Number 37 or 3B shaded on your screen

Your printer power is not switched on.

1. Check the printer power switch.

Is it in the up position?

2. Check the power cable to the printer. Is it plugged in tightly?
3. Switch off the circuit breaker at the rear of the printer, then switch it on again.
4. Press the Error Reset key.
5. If the problem still exists, contact your service representative for assistance and report failure symptoms and error code.

Another letter or number flashing

Switch off all units; then switch them on again.

If the number is still flashing, record the letters or numbers that are flashing and contact your service representative for assistance and report failure symptoms and error code.

Startup problems (continued)

READY INPUT not on status line

1. Check the screen brightness control.

Turn the screen brightness knob clockwise to increase the brightness.

Note: If READY INPUT does not appear in the lower left corner of the screen and numbers across the top lines of the screen blink, there is a computer problem. Go to step 3.

2. Check the status line for other messages or action/error code numbers that may help to identify the cause of the problem.
3. If problem remains, contact IBM for technical support. Report failure symptoms and error code.

Note: If you have two computers, refer to the next paragraph for assistance.

Power-on problem with dual computers

You have encountered a problem in switching on one of the computers:

1. The other computer may be searching for a file that does not exist. This causes the 5246 Diskette Unit to be locked out for your computer.
2. Your computer will produce power-on information with no error. However, an error indication will appear as a +O on the status line.
3. If the other operator has incorrect information entered, or the diskette that is being requested is not inserted or available, you should use Cmd/Error Reset to free the 5246 Diskette Unit so that your system may continue.

Problem when keying in a program

You are keying in a BASIC program and encounter a problem. If there is no programmer assistance available, the following should be done to record the problem.

1. Press Error Reset.
2. Insert "!" before the first letter.
3. When finished keying in all statements, enter LISTP.

Startup problems (continued)

+ 0 Displayed

If a +0 appears in the status line, it means your computer wants to use the 5246 Diskette Unit. Usually the +0 will only appear for a second or two, then change to a +1. This means your computer is using the diskette unit.

If the +0 remains on the screen for more than a few seconds, say a minute, it means that your computer cannot use the 5246 Diskette Unit for one of the following reasons:

- The 5246 Diskette Unit is not switched on.
- The other computer (if you have two computers connected to the same 5246 Diskette Unit) is already using the 5246 Diskette Unit.

To correct the problem, do the following:

1. See if the 5246 Diskette Unit is switched on. If it is, try step 2. If it isn't, do a, b, and c below.
 - a. Press and hold the Cmd key and press the Attn key. An error code 6010 and an action code of 20 will appear on the status line.
 - b. Switch on the 5246 Diskette Unit.
 - c. Press the Error Reset key. Your computer will now be able to use the 5246 Diskette Unit.
2. This step applies if you have two computers connected to the same 5246 Diskette Unit.

If the 5246 Diskette Unit is turned on and a +0 remains on the status line, it means the other computer is using the 5246 Diskette Unit in a manner that will not allow your computer to use it.

You may wish to check with the other operator to see if:

- a. The other computer is running a Customer Support Function (such as "Image Copy," PREPARE, RECOVER, or LABEL) that will not allow the 5246 Diskette Unit to be shared, or
- b. The other computer is waiting for the operator to insert a diskette in the 5246 Diskette Unit. (Error code 4000, and action code 10 will be on the other computer's status line.)
- c. The other computer is on hold.

If a or b is true, you do not need to do anything. Your computer will automatically use the 5246 Diskette Unit when the other computer has finished using it and a 1 appears on your computer status line.

If c is true, the other operator should press Hold to release the computer.

Startup problems (continued)

***2 Displayed**

If the *2 is displayed on the status line (column 56 and 57), it means that another computer has the exclusive use of the 5247 disk. You will not be able to use the disk until the other computer completes its work with the disk.

Note: If you cannot wait for the 5247 disk to become available, you may cancel the wait using the following procedure. However, this is not recommended as a *normal* procedure as a loss of data may occur.

1. Press and hold the Cmd key, then press the Attn key. A 6540 error code will appear on the status line.
2. Press and hold the Cmd key and press the Error Reset key. The 6540 error code will still be on the status line.
3. Press the Error Reset key.

Note: If the *2 remains on the status line, repeat the above steps.

***4 Displayed**

If the *4 is displayed on the status line (column 56 and 57), it means that another computer has the exclusive use of the 5247 file. You will not be able to use the file until the other computer completes its work with the file.

Note: If you cannot wait for the 5247 file to become available, you may cancel the wait using the following procedure. However, this is not recommended as a *normal* procedure as a loss of data may occur.

1. Press and hold the Cmd key, then press the Attn key. A 6540 error code will appear on the status line.
2. Press and hold the Cmd key and press the Error Reset key. The 6540 error code will still be on the status line.
3. Press the Error Reset key.

Note: If the *4 remains on the status line, repeat the above steps.

Diskette problems

Diskette will not go into drive

1. Make sure that you have removed the diskette from the protective paper envelope.

Note: The protective envelope is the paper cover that loosely fits over the diskette.

2. Make sure that the diskette drive is empty.

Diskette sticks out of drive

1. You inserted the diskette incorrectly.

Hold the diskette by the large label and slide it into the drive.

2. You didn't slide the diskette in far enough. Push it in until you feel it touch the back of the drive.

Do not force the diskette into the drive. If you feel it touch something before it is all the way into the drive, stop. Remove the diskette and try inserting another diskette.

3. If the problem remains, contact your service representative for assistance.

Diskette drive handle not closing

1. Push the diskette in all the way. Push it in until you feel it touch the back of the drive.

Do not force the diskette into the drive. If you feel it touching something before it is all the way into the drive, stop. Remove the diskette and try inserting another diskette.

2. The handle is stuck.

Do not force it.

3. If the problem remains, contact your service representative for assistance.

Diskette problems (continued)

Drive not ready-action/error code displayed

1. Did you insert a diskette into a drive?
2. Did you insert the diskette correctly?
3. Did you put more than one diskette in the drive?
4. Did you turn the diskette drive handle to the closed position?

The handle should be turned to the right to make the diskette drive ready.

5. If the problem occurs when attempting to use drive 3 or 4, check the switch on the rear of the 5246 Diskette Unit. The switch should be in the up position.
6. If the problem remains, contact your service representative for assistance. Report failure symptoms and error codes.

Printer problems

Printer not working

Note: If you are having a problem with your 5217 Printer, refer to the *Using Your 5217 Printer*, SA34-1593.

1. Make sure that the printer is switched on. The power switch should be in the up position. The switch in the rear of the printer should also be in the up position.
2. You typed the wrong program name. Make sure that the correct program is running.
3. The printer is out of paper or forms. Look at the status line for an action/error code.
4. The copy-control dial may be set to the wrong position. Move the copy control dial toward 0 and try printing again.
5. The printer ribbon may be worn out and may be printing lightly.

Replace the ribbon when the printing becomes too light.

6. Ensure that the printer ribbon is properly positioned to print. Refer to the ribbon loading directions in Chapter 5, Printers if you need help.
7. The printer is not attached to the computer. See the *Setup Instructions* manual for directions.
8. If the problem remains, contact your service representative for assistance. Report failure symptoms and error codes.

Printer problems (continued)

Paper not moving

1. When using forms with holes along the edges, the tractor pins may not be aligned with the holes in the forms.

Refer to "Loading continuous forms" in Chapter 5 for instructions.

2. Make sure that nothing is preventing the form from moving freely up into the printer, such as:
 - a. Printed forms stacking on top of the forms moving into the printer.
 - b. The box containing the form moving into the printer is not being positioned correctly.
3. If single sheets of paper are being used, ensure that:
 - a. The document insertion device is correctly installed.
 - b. The paper-release lever is in the load position.

Refer to "Loading cut (individual) forms" in Chapter 5.

4. Ensure that the forms tractor assembly is positioned correctly. Refer to Chapter 5 of this manual if assistance is needed to position the forms tractor.
5. If the problem remains, contact your service representative for assistance.

Paper wrinkling and tearing

1. Check the box the forms are in. It must be positioned directly behind the printer with the tractor holes in line with the forms tractor on the printer.
2. Check the forms tractor on the printer. The right and left forms tractor is movable and should be adjusted so the forms are tight.
3. Check that the holes on the right side of the paper are on the same pins as the corresponding holes on the left side.
4. Check the paper-release lever; it should be in the print position.

Refer to "Loading continuous forms" in Chapter 5 if you need help. If the problem remains, contact IBM for technical assistance.

Help

Display problems

Nothing is seen on screen

1. Wait about 30 seconds after switching on the computer for the screen to warm up.
2. Turn the brightness knob clockwise until you see information on the screen.

Screen too bright

The brightness knob is turned too far clockwise. Turn it counterclockwise until the brightness of the screen suits you.

Keyboard problems

Uppercase letters displayed but you want lowercase

1. The keyboard is locked in upper shift. The Shift Lock key was pressed.
2. Press either one of the upper shift keys to reset the keyboard to lower shift.

Symbols displayed but you want numbers

1. The keyboard is locked in upper shift. The Shift Lock key was pressed.
2. Press either one of the upper shift keys to reset the keyboard to lower shift.

Hint: You may find the number keys on the keypad easier to use.

No spaces between words

You are not pressing the space bar hard enough. You must press all the keys firmly.

Hint: Type a little slower and press the space bar in the center.

File-sharing problems-General

If your computer is attached to a 5247 disk, you should first determine if the file that caused the problem is on the disk. To do this, follow the procedure in this chapter under "File-sharing problems-5247 disk."

If you determine that the file causing the problem is not on the 5247 disk, or you do not have a 5247 disk, use the following procedure to correct the problem.

A file-sharing problem occurs when you wish to use a file and it is already being used. If your System/23 has a file-sharing problem, it will cause a 4148 error code to be displayed in the error code field of the status line.

The way you correct the problem depends on which of the following categories you are in:

Category 1. You have one or more computers, but they do not share a 5246 Diskette Unit.

Category 2. You have more than one computer and a shared 5246 Diskette Unit.

Category 1 instructions:

Do the following if you are in Category 1 and get a 4148 error code.

1. Record all information on the screen. You can do this by writing it down or holding the Cmd key and pressing the CopyD key to print it on the system printer.
2. Look at the file specification field on the status line. The filename shown is the name of the file that caused the error.
3. Press the Error Reset key.
4. If READY INPUT appears on the status line, go to step 7a; if not, go to step 5.

-
5. Try to determine if the file is in use.
 - a. Check any documentation you may have about the program or procedure you are running. Look for information on the how the file is used, how to correct errors, and how to rerun your job.
 - b. If possible, contact the programmer who wrote the program or procedure, and ask for help.
 6. If you are *sure* the file is not in use, go to step 8; if you are in doubt, go to step 7.
 7. After completing a, b, c, and d of this step, you will have to rerun the program or procedure.
 - a. Type CLEAR ALL on the input line.
 - b. Press the Enter key. All information on the screen will be erased and READY INPUT will appear on the status line. If an error occurs, record the information; then press the Error Reset key.
 - c. Using the file specification that caused the error:

Type: PROTECT file specification, RELEASE
 - d. Press the Enter key. When READY INPUT appears on the screen, you are ready to rerun the program or procedure. If you should get another 4148 error code for the same file while rerunning, contact your programmer.
 8. If you are *sure* the file is not in use, do the following:
 - a. Using the file specification that caused the error:

Type: PROTECT file specification, RELEASE
 - b. Press the Enter key.
 - c. Type GO.

File-sharing problems-General (continued)

- d. Press the Enter key. The program or procedure will continue running. If you get another 4148 error, contact your programmer.

Category 2 instructions:

Do the following if you are in Category 2 and get a 4148 error:

1. Copy all information that appears on the screen by writing it down on the TRAP form provided in Appendix A of the System Messages manual.
2. Look at the file specification field on the status line. The filename shown is the name of the file that caused the error.
3. Press the Error Reset key.
4. Determine if the file that caused the error is located in the 5246 Diskette Unit. Use the information shown in the file specification field of the status line as follows:
 - a. If there is a drive number shown, it is the drive that contains the file. If the drive number is 1 or 2, follow the Category 1 instructions. If the drive number is 3 or 4, go to step 5.
 - b. If no drive number is shown, use the DIR command to find the file, as follows:
 - c. Type: DIR 3 (or DIR 3, PRINT) and press the Enter key.
 - d. Look at the information displayed by the DIR command. See if the name of the file that caused the error is there. If it is, go to step e; if not, go to step g.
 - e. If a diskette name (VOLID) was shown in the file specification for the file that caused the error, go to step f; if not, go to step g.

-
- f. See if the diskette name (VOLID) displayed by the DIR command matches the one in the file specification that caused the error. If it does, go to step 6.
 - g. Type: DIR 4 (or DIR 4, PRINT) and press the Enter key.
 - h. Look at the information displayed by the DIR command. See if the name of the file that caused the error is there. If it is, go to step i; if not, go to step k.
 - i. If a diskette name (VOLID) was shown in the file specification for the file that caused the error, go to step j; if not go to step 6.
 - j. See if the diskette name (VOLID) displayed by the DIR command matches the one in the file specification that caused the error. If it does, go to step 6.
 - k. If you could not find the file in drive 3 or 4 of the 5246 Diskette Unit, follow the Category 1 instructions starting with step 5.
- 5. Type DIR, followed by the drive number from the file specification that caused the error.
 - 6. You should now be looking at directory information for the file that caused the error.
 - 7. Refer to the file-sharing status fields in the description of the output of the DIR command in Chapter 6, "Commands" on page 6-1. There are two columns for station 1 and two columns for station 2.
 - 8. See if any of the following groups of characters appear in any of the file sharing status columns:.

(NS,OSI,ISI,ISH,OSH)

File-sharing problems-General (continued)

- a. If any of the characters appear in one or both columns for station 1, the file is in use by station 1.
- b. If any of the characters appear in one or both columns for station 2, the file is in use by station 2.

Note: It is possible for the file to be in use by both stations at the same time.

9. To find out which station you are:
 - a. Type: PRINT WSID\$ on the input line.
 - b. Press the Enter key.
 - c. If "01" is displayed, you are using station 1.
 - d. If "02" is displayed, you are using station 2.
10. If the file-sharing status field indicates that the file is in use by your station and not by another station, follow the "Category 1 directions" provided in this section.

Note: You do not have to follow steps 4-8 of the "Category 1 instructions" because you should already have that information.

11. If the file-sharing status field shows that the file is in use by the other station or both stations, do the following:
 - a. Check with the operator of the other station to see if that station is really using the file. In some cases, the file may appear to be in use when it is not. (see the note at the end of this section).

Steps 1 and 2 of the Category 1 instructions may help you to determine if the file is actually being used.

- b. If you are *positive* the other operator is not using the file (for example READY INPUT is on the status line or the other station is turned off), go to step 12.

-
- c. If the other station is using the file, wait until you are sure it has finished (READY INPUT on the status line); then go to step 12.
 - d. If you are not sure if the other station is using the file, take the same action as in step c.

12. Type:

PROTECT file specification, RELEASE ALL

then: Press the Enter key.

13. Type:

GO

then:Press the Enter key. The program should continue.

Note: If file-sharing status fields for a file appear to be in use when they are not really in use, the problem could be caused by one of the following:

- a. A TRAP occurred while the file was in use.
- b. The 5246 Diskette Unit or computer lost power due to a power outage, blown fuse, or being turned off while the file was in use.
- c. A program error caused the file-sharing status field to be updated incorrectly.
- d. A diskette was removed before a job was finished.

File-sharing problems-5247 disk

If your System/23 has a file-sharing problem, a 4148 error code will be displayed in the error code field of the status line. File-sharing problems will only occur if another computer using the file on the disk loses its ability to communicate with the 5247.

If this happens, the file or files that were being used by the failing computer can be made available to other work stations. Use the PROTECT command from any available work station as follows:

Type: PROTECT file specification, RELEASE ALL

Press: Enter key. When READY INPUT appears on the screen, the files should be ready for use.

Note: The PROTECT command will not affect any files now in use by your computer or other computers that are using the 5247.

Computer problems

What to do when you get a system trap

When a computer TRAP problem occurs during the running of a program, lines of TRAP data appear at the bottom of your screen. This indicates your computer may be in what is called a "TRAP" condition.

A system TRAP is caused by an unrecoverable system error. When the trap occurs, the current operation stops and you see two lines of trap information on the screen. No status line is displayed. The top line of trap information begins with the word TRAP, which tells you that a trap has occurred.

If you get a trap:

1. Record all trap information exactly as it appears on the screen.
2. Check the first digit following the word TRAP.
3. If this digit is either 1, 2, or 8:
 - a. Switch off the computer.
 - b. Switch on the computer.
 - c. Restart the operation.
 - d. If the trap happens again, call your IBM service representative and have the recorded trap information available.
 - e. If the trap does not happen again, continue the operation and save the trap information for future reference by your IBM service representative.

If your computer has a 5247 Disk Unit, but no 5246 Diskette Unit, follow the instructions in steps 5, 7 and 8.

Computer problems (continued)

4. If this digit is either 0 or 4:
 - a. Find the diskette you labeled "list storage information" and go to step 5. If you have not prepared your List storage diskette, go to step 4b.
 - b. If you do not have this diskette, but you do have a 5247 Disk Unit do steps 5, 7 and 8. Otherwise do the following:
 - Switch off your computer.
 - Switch on your computer.
 - Follow the directions in "Preparing a diskette to save list storage information" in this chapter
 - After you have prepared the diskette, continue with normal operation.
5. Press the Hold key, the Test key, and then the "9" key on the top row of the keyboard. The word "monitor" will appear at the top of the screen.
6. Insert the diskette you labeled "List storage information" in drive number 1 (or drive number 3 if your computer has no drives, but does have a separate 5246 Diskette Unit).
7. Press the "F" key; then press the "0" (zero) key on the top row of the keyboard to save storage information on the diskette. To save storage information on the 5247 disk press the "F" key; then press the "D" key.

-
8. When the system has finished saving information on the diskette or disk, a  will appear on the screen.
 - a. If the center of  is *not* blinking, go to step 9.
 - b. If the center of  is blinking, it means the computer has failed to save the trap information. Do the following: Be sure the diskette you are using was created as described in "Preparing a diskette to save list storage information." If not, follow the directions in step 4b above.

Note: If you are trying to save trap information on a 5247 disk, retry the operation by pressing the "F" and "0" (zero) keys again. If a second failure occurs, contact IBM for technical support for further assistance.

If the diskette is correct, re-try the operation by closing the drive handle and pressing the F and 0 (Zero) key.

If a second failure occurs, remove the diskette and save it for reuse. Turn the machine off, then on and continue with normal operations.

Contact IBM for technical support and further assistance, if needed.

Computer problems (continued)

9. If the  is *not* blinking, do the following:
 - a. Press the "E" key.
 - b. Remove the "list storage information" diskette.

Note: If you have saved trap information on a 5247 disk, you will have to use a computer and a diskette drive that are attached to a 5247 disk. This will allow you to put the saved TRAP information on a diskette. The LISTSTOR Customer Support Function will perform this task. For further information see "LISTSTOR" in *Customer Support Functions* SA34-0175.
 - c. Write today's date after "Used date."
10. Switch off the computer, then switch on the computer and continue your work. You may wish to create another diskette at this time to replace the one just used.
11. Contact IBM for technical assistance and information on what to do with the diskette.

List storage

It is not necessary to have a trap condition in order to do the list storage Customer Support Function. You may wish to list storage if you have an unknown error or as an aid to testing computer code.

To perform this operation, you will use the same method as you did for a system trap; however, you will start at step 5.

The LISTSTOR Customer Support Function is used to selectively print the storage information from the LISTSTOR diskette just created.

It is not necessary to do a restart to perform this procedure.

Preparing a diskette to save list storage information

The following procedure should be used when preparing a diskette to save list storage information:

1. Insert the Customer Support Functions diskette that contains the PREPARE function into any diskette drive.
2. Insert the diskette you wish to prepare in any other drive. It must be a diskette 1,2 or 2d.

Warning: All information on the diskette to be prepared will be destroyed. Be sure that it does *not* have any useful information on it.

Help

Computer problems (continued)

Note: If you are preparing a diskette to save list storage information from the 5247 disk, go to step 3b.

3. The following should be typed on the input line.
 - a. PROC STGDUMP
 - b. PROC DSKDUMP
4. Press the Enter key.
5. When you see the following screen, go to step 6.

Prepare Diskette Procedure File			8000
CHOICE 2	OWNERID OWNERID	PROTCTCONT Y	
MESSAGES 1	NUMLABEL 50	DATAFILECONT Y	
PRINTER 10	DENSITY 1	PROTCTDATACONT Y	
FORMAT 2	DRVNO <input checked="" type="checkbox"/>	OPENFILECONT N	
NEWVOLID DMPSTG	OLDVOLID		
LINK	FIELDS	Cmd 9 Cervel 1.03	7001 1 1

-
6. Press the Error Reset key.
 7. Replace the "X" on the screen with the number of the diskette drive containing the diskette you want to prepare (not the Customer Support Function diskette). To do this simply type over the "X."
 8. Press the Enter key.
 9. When READY INPUT appears on the status line you are finished.
 10. Place a label on your diskette with the following information on it.

List Storage Information

Today's date -----

Used date -----

Note: You should always have one or two diskettes handy to save List Storage information. You can create those diskettes at any time, using the above procedure.

For additional information on the List Storage Customer Support Function, refer to LISTOR in *Customer Support Function Volume II, SA34-0176*.



Appendix A. Character sets of different countries

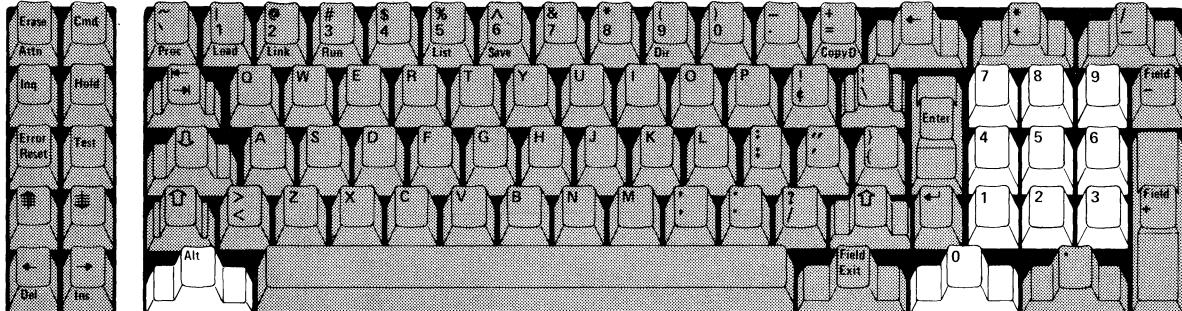
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Finland/Sweden	A-13
France (Azerty arrangement)	A-13
France (Qwerty arrangement)	A-14
International	A-14
Italy	A-15
Japan (Katakana)	A-15
Norway	A-16
Spain (Spanish language)	A-16
Switzerland (French language)	A-17
Switzerland (German language)	A-17
United Kingdom	A-18
United States/Canada/(English language)/Australia ..	A-18

Character sets of different countries

Selecting single characters

Your system has the ability to display single characters or entire character sets of countries other than your own.



When you hold down the Alt key and type a number on the numeric keypad with a value from 64 through 255, a character shown on the Keyboard Aid is displayed.

Additional Language Characters & Other Symbols												Block Graphics											
A Press and hold Alt key B Select number from list and enter from numeric keypad C Release Alt key												A Press and hold Alt key B Select graphic from diagram and enter C Release Alt key											
A-.099 E-.113 S-.239 a-.067 e-.081 s-.112 E-.177 B-.124 i-.105 >-.139												A-.104 F-.133 B-.189 a-.068 e-.088 f-.178 B-.089 I-.074 v-.183 @-.175											
A-.105 F-.134 B-.190 a-.069 e-.089 f-.179 B-.090 I-.075 v-.184 @-.176												A-.106 F-.135 B-.191 a-.070 e-.090 f-.180 B-.091 I-.076 v-.185 @-.155											
A-.107 F-.136 B-.192 a-.071 e-.091 f-.181 B-.092 I-.077 v-.186 @-.160												A-.108 F-.137 B-.193 a-.072 e-.092 f-.182 B-.093 I-.078 v-.187 @-.161											
A-.109 F-.138 B-.194 a-.073 e-.093 f-.183 B-.094 I-.079 v-.188 @-.162												A-.110 F-.139 B-.195 a-.074 e-.094 f-.184 B-.095 I-.080 v-.189 @-.163											
A-.111 F-.140 B-.196 a-.075 e-.095 f-.185 B-.096 I-.081 v-.190 @-.164												A-.112 F-.141 B-.197 a-.076 e-.096 f-.186 B-.097 I-.082 v-.191 @-.165											
A-.113 F-.142 B-.198 a-.077 e-.097 f-.187 B-.098 I-.083 v-.192 @-.166												A-.114 F-.143 B-.199 a-.078 e-.098 f-.188 B-.099 I-.084 v-.193 @-.167											
A-.115 F-.144 B-.200 a-.079 e-.099 f-.189 B-.100 I-.085 v-.194 @-.168												A-.116 F-.145 B-.201 a-.080 e-.100 f-.190 B-.101 I-.086 v-.195 @-.169											
A-.117 F-.146 B-.202 a-.081 e-.101 f-.191 B-.102 I-.087 v-.196 @-.170												A-.118 F-.147 B-.203 a-.082 e-.102 f-.192 B-.103 I-.088 v-.197 @-.171											
A-.119 F-.148 B-.204 a-.083 e-.103 f-.193 B-.104 I-.089 v-.198 @-.172												A-.120 F-.149 B-.205 a-.084 e-.104 f-.194 B-.105 I-.090 v-.199 @-.173											
A-.121 F-.150 B-.206 a-.085 e-.105 f-.195 B-.106 I-.091 v-.200 @-.174												A-.122 F-.151 B-.207 a-.086 e-.106 f-.196 B-.107 I-.092 v-.201 @-.175											
Display Identifier: 1=USA 2=Canada 3=Europe 4=Iceland 5=Spain/Spanish Speaking																							

To display a character from a different country:

1. Make sure that READY INPUT is displayed on the status line.
2. Locate the additional language characters Keyboard Aid.
3. Locate the desired character on the Keyboard Aid; the character is represented by a number that ranges in value from 64 through 255.
4. Hold down the Alt key.
5. Type the number keys that display the desired character.
6. When you release the ALT key, the character is displayed.

For example, if you want to display the word *señor*:

1. Type the letters *se*.
2. Locate the *ñ* on the Keyboard Aid; the number to the right of the *ñ* is 73.
3. Hold down the Alt key.
4. Type 73, using the numeric keypad keys.
5. Release the ALT key. The *ñ* will appear on the screen.
6. Type the letters *or*.

Character sets of different countries

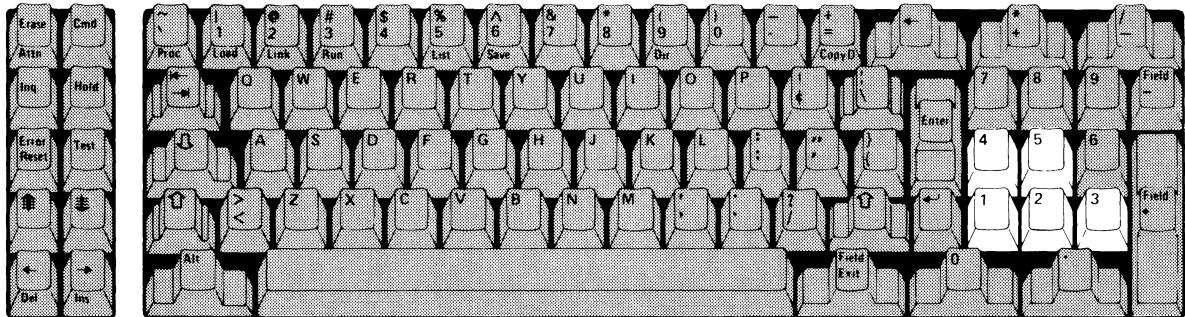
Selecting single characters (continued)

If you make an error and press a number sequence that is less than 64 or greater than 255, the computer “beeps.” To correct this error, type the correct number sequence.

Note: You can display the characters of other countries while you are typing either upper shift or lower shift characters. You cannot display these characters while in command shift.

There are some special letters that can be displayed in all five alphabets, and some that cannot. If the symbol  is displayed, it means that the special letter you created cannot be displayed in that alphabet.

Selecting another display character set



When you hold down the Alt key and press a number key from 1 through 5 on the numeric keypad, one of five display character sets is selected, as shown on the additional language characters Keyboard Aid.

Additional Language Characters & Other Symbols												Block Graphics												
A. Press and hold Alt key. B. Select number from list and enter via numeric pad. C. Release Alt key.												A. Press and hold Alt key. B. Select graphic from diagram and enter. C. Release Alt key.												
If it appears, verify by pressing and holding Alt key and a numeric keypad. To restore display, press and hold Alt key and enter zero.												Alt												
A=099 E=116 D=339 A=067 E=081 D=112 F=177 B=124 I=106 Z=139 A=100 I=113 D=128 E=068 B=067 D=078 I=079 V=183 B=175 A=101 I=119 D=089 A=069 E=088 D=220 J=180 J=090 K=184 E=154 A=102 I=120 U=252 A=070 I=085 U=221 A=159 E=143 K=185 P=155 A=103 I=117 U=253 A=071 H=073 U=222 C=176 I=192 F=234 V=160 A=158 N=105 U=254 A=156 E=204 Y=223 R=178 I=208 F=250 Z=186 C=104 O=236 Y=173 C=072 D=205 Y=141 I=170 I=187 F=182 J=188 E=115 D=237 D=172 E=083 D=206 C=171 V=224 I=181 F=191 D=238 Y=174 E=084 D=207 Y=142 C=138 I=144												Alt												
Display Identifier: 1=USA 2=Canada 3=Europe 4=Iceland 5=Spain/Spanish Speaking																								

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The numbers and the character sets are:

1. United States/Canada/(English)/Australia
2. Canada (French)
3. European countries except Spain
4. Miscellaneous graphics including Icelandic alphabet

Character sets of different countries

Selecting another display character set (continued)

5. Spain and other Spanish-speaking countries

To select the display character set of another country:

1. Ensure that READY INPUT is displayed on the status line.
2. Locate the additional language characters Keyboard Aid (shown on the preceding page). This aid identifies the display character sets and the number that selects each set.
3. Select the display character set that you want to use.
4. Hold down the Alt key.
5. Press the character set number (1–5) on the numeric keypad.

For example, if your native character set is the United States display character set (1) and you want to display characters from the Spanish display character set (5):

1. Hold down the Alt key.
2. Press the number 5 on the numeric keypad.
3. Release both keys.

The display character set field on the status line changes from 1 to 5.

To return the keyboard to the United States display character set:

1. Hold down the Alt key.
2. Press the number 0 or 1 on the numeric keypad.
3. Release both keys.

As soon as you have released both keys, the Spanish display character set changes to the United States character set.

The display character set field on the status line changes back from 5 to 1 for the United States character set.

Character sets of different countries

Special considerations for displayed characters

<u>Displayed graphic</u>	<u>Name</u>	<u>Printed graphic</u>	<u>Name</u>
'	apostrophe	'	grave, acute accent
"	quotation mark	"	diaresis, umlaut
,	comma	,	cedilla
-	hyphen	-	overscore
-	hyphen	-	single/double underscore
̄	line graphic	̄	logical or, not
Y	uppercase Y	¥	yen sign
I	lowercase l	I	number 1
	line graphic	:	vertical line broken
f	lowercase f	ƒ	florin, guilder sign
i	lowercase i	ı	dotless i
-	hyphen	~	tilde
I	capital	Í	grave, capital
O	capital	Ó	grave, capital
-	hyphen	-	syllable hyphen (SHY)

Special symbols and codes

SPECIAL SYMBOLS, CODES, AND COUNTRIES

		1	2	3	4	5
CODE	SYMBOL	A	D	E	I	D
066	å		x	x	x	
067	ä			x	x	x
068	à		x	x	x	
069	á	x			x	x
070	ã	x				
071	â			x	x	
072	ç	x	x	x	x	
073	ñ	x			x	
074	ł	x	x	x	x	x
081	é	x	x	x	x	x
082	è		x	x	x	
083	ë		x	x	x	
084	è		x	x	x	
085	í	x			x	x
087	í	x	x	x	x	x
088	í			x	x	
089	þ	x		x	x	x
090	ј	x	x	x	x	x
095	^	x	x	x	x	x
098	À		x			
099	Ã			x	x	x
100	À		x			
101	Ã				x	
102	Ã	x				
103	Ã			x	x	

		1	2	3	4	5
CODE	SYMBOL	A	D	E	I	H
104	ç	x	x			x
105	ñ	x				x
106	;	x	x	x	x	x
109	-	x	x	x	x	x
112	ø	x		x	x	x
113	é		x	x	x	x
114	ê		x			
115	é		x			
116	è		x			
117	í				x	x
118	í			x		
119	í		x			
120	í	x	x	x	x	x
121	্	x	x	x	x	x
124	়	x	x	x	x	x
128	ø		x	x		
138	«	x	x			
139	»	x	x			
140	ð				x	
141	ý				x	
142	þ				x	
143	±	x				
144	·	x	x	x	x	
154	¤	x				x
155	¤	x				x

Character sets of different countries

Special symbols and codes (continued)

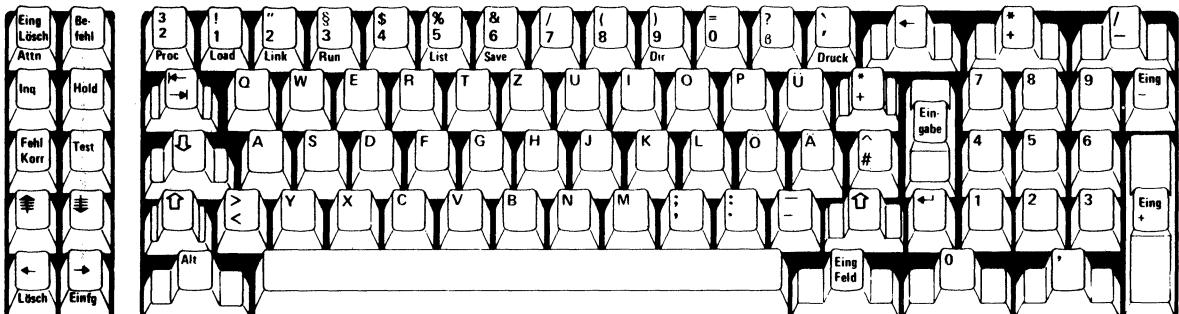
		1	2	3	4	5
CODE	SYMBOL	A	D	E	I	H
159	¤			x	x	
160	₱		x	x	x	
161	‐	x	x	x	x	x
170	ı	x			x	
171	¸	x			x	
172	฿			x		
173	ߺ				x	
174	߱			x		
175	ߴ	x				
176	߶	x	x		x	
177	߸	x	x	x	x	x
178	߹	x	x	x	x	x
179	ߺ	x				
180	߻	x	x	x	x	x
181	߳	x	x	x	x	
182	ߵ	x				
183	߷	x				
184	߸	x	x	x	x	x
185	߹	x				
186	߻	x	x	x	x	x
187	ߵ	x	x	x	x	x
191	ߵ	x	x	x	x	x
192	{	x	x	x	x	x

		1	2	3	4	5
CODE	SYMBOL	A	D	E	I	H
202	-	x	x	x	x	x
203	đ		x	x		x
204	ö			x	x	x
205	ð			x		x
206	ô	x			x	x
207	ð	x				
208	ÿ	x	x	x	x	x
219	ö		x	x		x
220	ü	x	x	x	x	x
221	û		x	x		x
222	ú	x			x	x
223	ÿ		x	x		
224	\	x	x	x	x	x
234	ë	x	x	x	x	x
235	ö		x			
236	ô			x	x	x
237	ð	x	x	x	x	x
238	ô			x		x
239	ð	x				
250	׮	x	x	x	x	x
251	װ	o		x		
252	ׁ	ü		x	x	x
253	ׁ	û		x		
254	ׁ	ú			x	

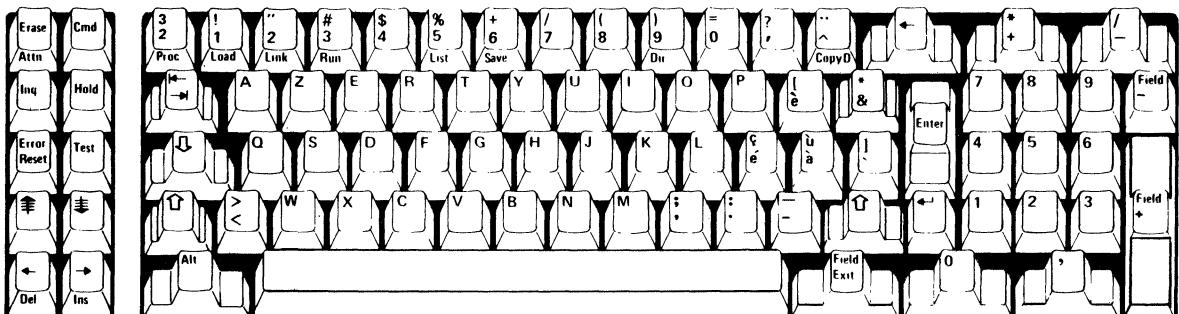
Keyboards of different countries

The following illustrations show the keyboards used by different countries:

Austria/Germany



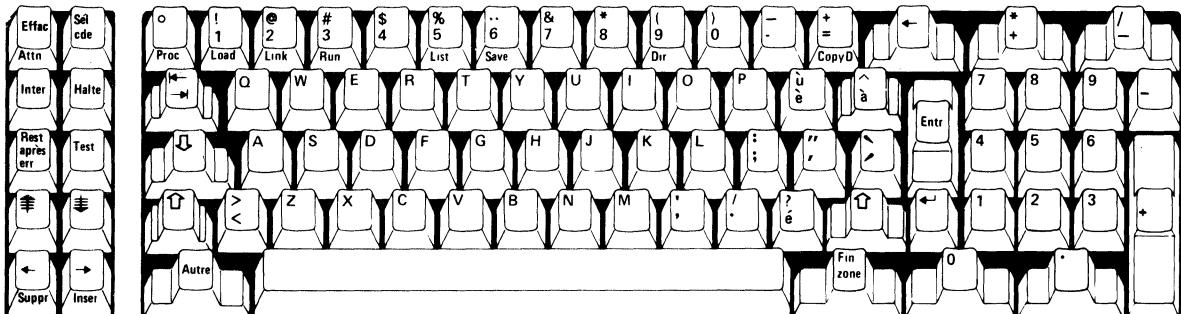
Belgium



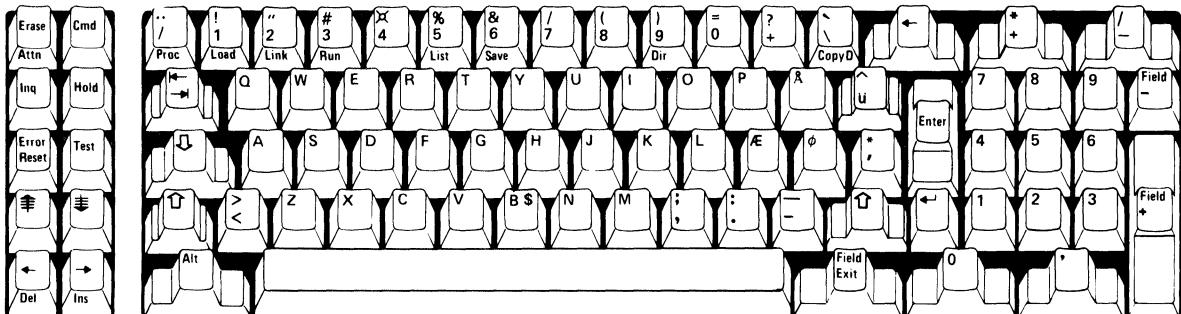
Character sets of different countries

Keyboards of different countries (continued)

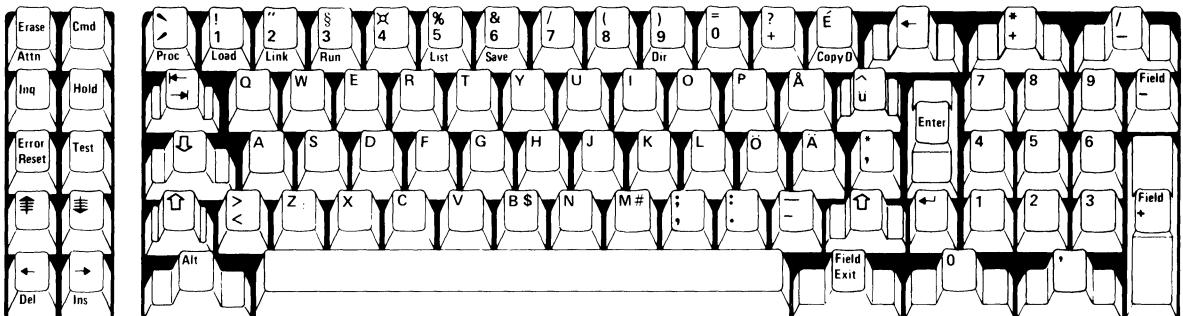
Canada (French language)



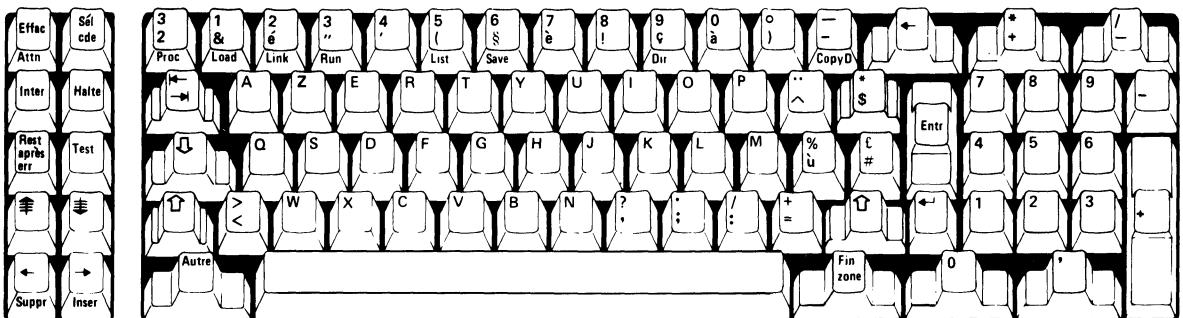
Denmark



Finland/Sweden



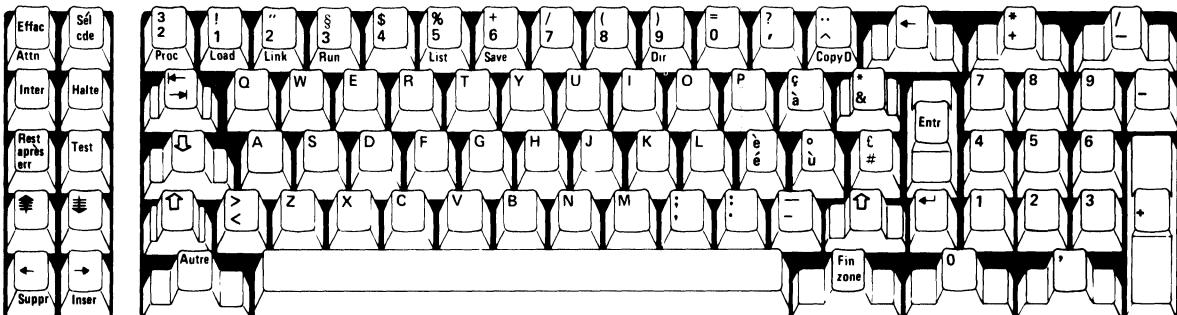
France (Azerty arrangement)



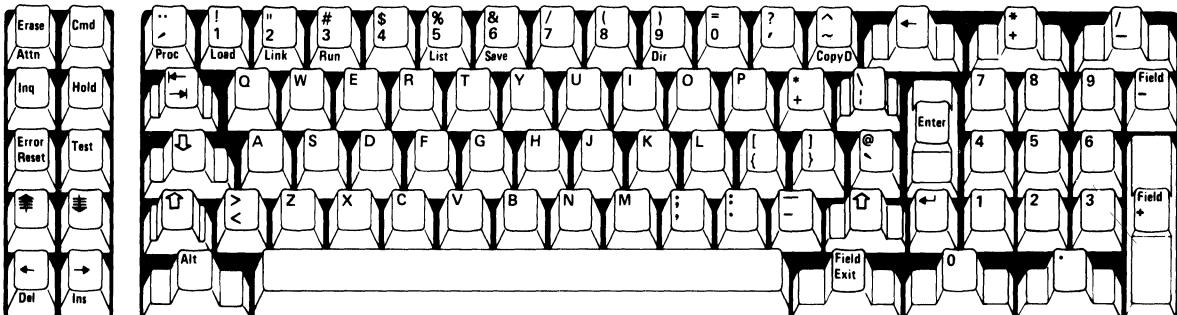
Character sets of different countries

Keyboards of different countries (continued)

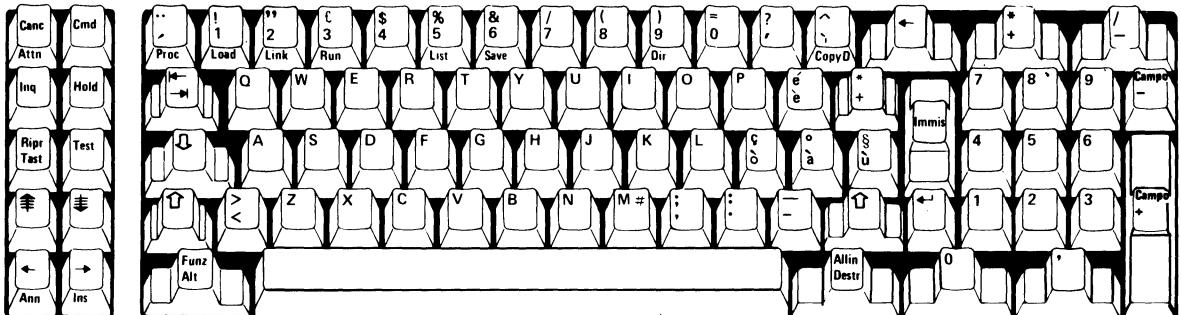
France (Qwerty arrangement)



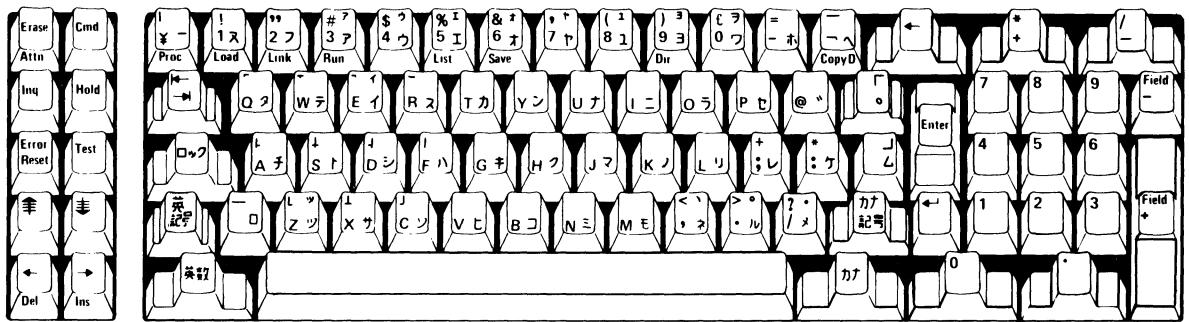
International



Italy



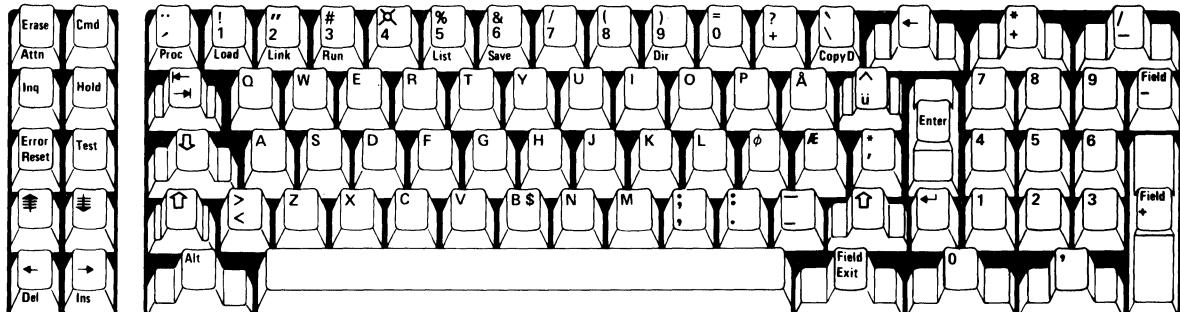
Japan (Katakana)



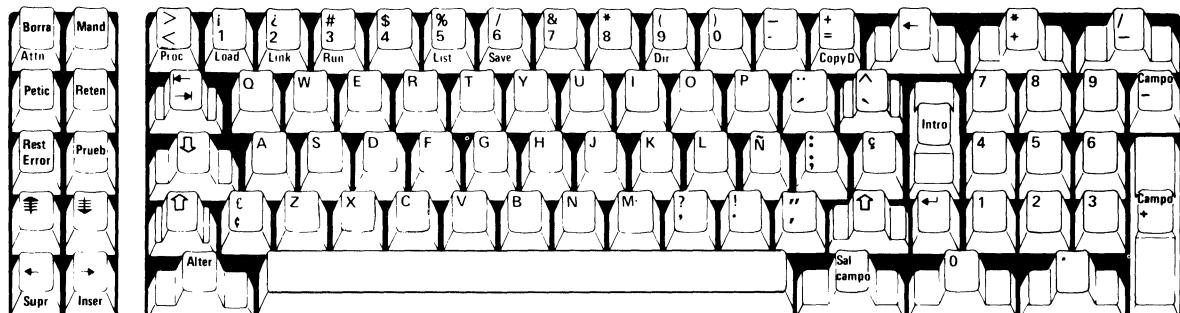
Character sets of different countries

Keyboards of different countries (continued)

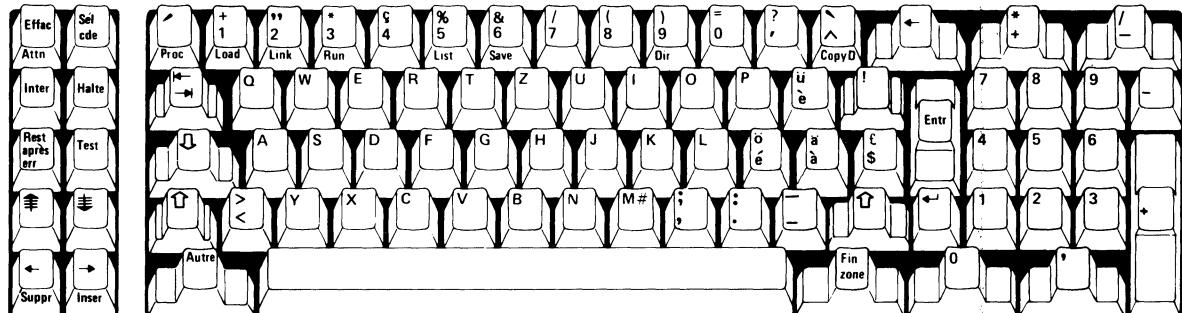
Norway



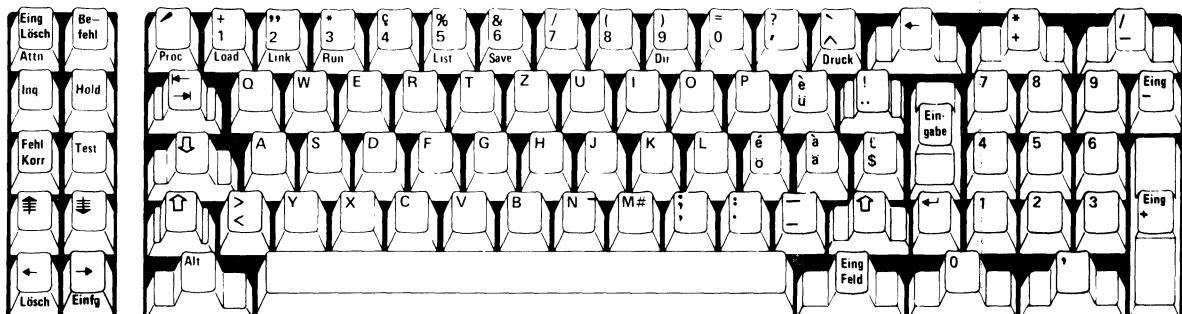
Spain (Spanish language)



Switzerland (French language)



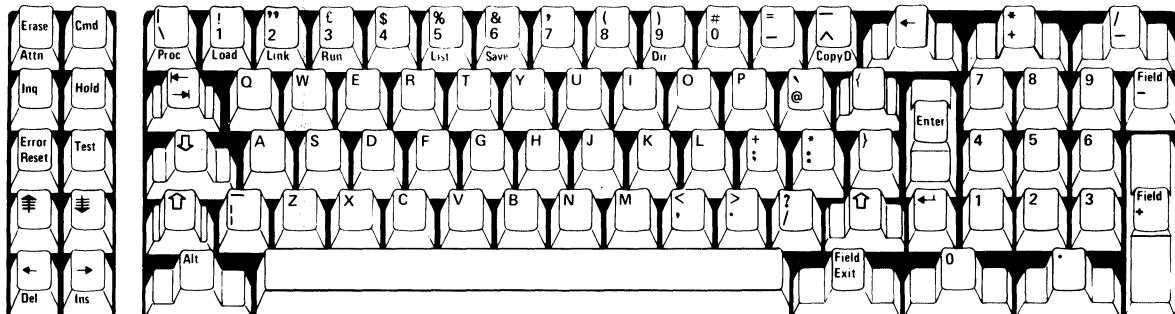
Switzerland (German language)



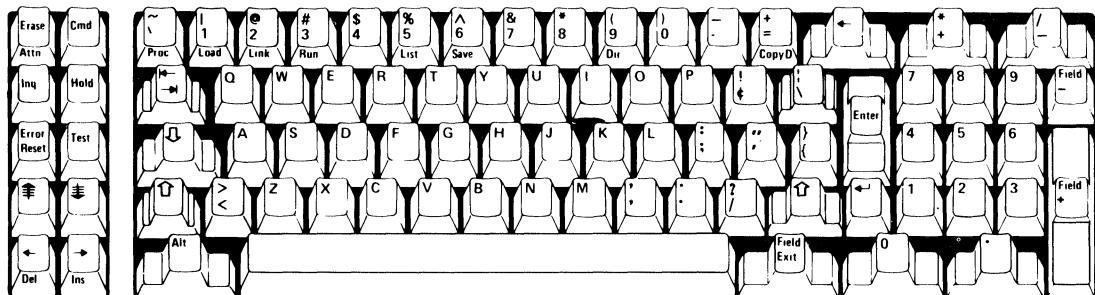
Character sets of different countries

Keyboards of different countries (continued)

United Kingdom



United States/Canada/(English language)/Australia



Appendix B. Glossary

A

access: The way the computer looks for files for the purpose of reading or writing data.

access-protected: A file status that does not allow the operator to use a file on a diskette or disk volume.

action code: In System/23, a code number that is displayed and requires a response by the operator.

address: A name, label, or number on a diskette that identifies the location where information is stored.

alphabetic: The English letters "a" through "z."

alphanumeric: Both letters and numbers, usually including special symbols such as \$ and #.

argument: The reference number or code that is used by the computer in looking up records in a file. (An employee number would be the *argument* used to find the record containing employee data.)

array: An orderly arrangement of information in a data file.

attention key: A key on the 5322 and 5324 computer keyboard that, when pressed, stops the computer activity being performed.

attribute: A characteristic of a piece of information such as the length and type of a filename.

automatic: A computer operation that, under certain conditions, will run without the help of an operator.

B

backup copy: A copy of a file or other information that is kept for reference in case the original is damaged or destroyed.

backup diskette: In System/23, a diskette that contains information copied from another diskette or disk volume. It is kept for reference and used in case the original is damaged or destroyed.

block: A group of items such as words, characters, or numbers that are looked upon by the computer as a single unit of information.

branch: In a computer program, the point that allows the computer to stop processing one set of information and start processing another set.

buffered data: Information that is temporarily set aside by the computer while it acts on other information.

business machine: A machine designed to do clerical or accounting jobs.

byte: A series of adjacent numbers that are looked upon as a single number, character, or symbol.

Glossary

C

cable: Two or more wires enclosed in a protective jacket. In a System/23, cables are used to electrically connect the machines.

cancel: To remove or to clear information that has been entered into the computer's storage.

character: A letter, number, or other symbol used to represent information.

character position: On a screen, the 80 unique positions on a line that can be occupied by a character or symbol.

choice: An option on a menu that the operator chooses to tell the computer what to do next.

coded function key: A key that normally produces a character, but performs a special function when it is pressed at the same time as the Cmd key.

command: A word the operator enters into the computer that tells the computer to start, continue, or stop an operation.

computer: A machine that can accept information and perform various tasks with that information.

computer operation: An action taken by the computer.

computing system: In System/23, the total grouping of separate units, normally consisting of a computer, diskette unit, and printer.

contention: A condition that occurs when two operators using two computers try to find the same information at the same time.

continuous forms: Connected paper forms that feed continuously through a printer. The connection between the forms is usually perforated so they can be torn apart. These forms can have one or more carbon copies.

conversion: The process of changing from one method, or one system, to another.

copy: To duplicate information.

CPS: Characters per second.

cursor: A movable line on the screen that indicates the position where information can be entered.

customer engineer: A person who provides services and maintenance for IBM products.

customer support functions: Programs provided by IBM to help while running the System/23. For example, COPY, PREPARE.

cut form: A single sheet not connected to other sheets. The sheet may have one original and one or more carbon copies.

D

data: A term used to describe facts, letters, or numbers entered into the computer for processing. Usually referred to as information.

data file: An organized collection of information. For example, a payroll file, an inventory file, or an accounts receivable file.

default: The action or choice assumed by the computer when no other action or choice has been specified.

delimiter: A part of a computer program that separates and organizes items of information.

density: The amount of information that can be stored in a specific location in the computer's storage.

diagnostic: A process used to detect or isolate a malfunction or a mistake.

diagnostic diskette: A diskette used to fix the cause of hardware problems.

digit: The numbers 0–9.

directory: An item of information used by the computer to locate files on a diskette or disk volume.

disk: A magnetic device used for storing information.

disk volume: The area on the disk that contains information that can be located by using the volume identifier or VOLID.

diskette: A flexible magnetic disk used for saving computer information.

diskette name: A name assigned to a diskette that consists of six English characters or numbers. This permits the diskette to be identified by the computer. In the IBM System/23, the diskette name and VOLID are the same thing.

diskette storage: The place where information is saved. For example, magnetic diskette.

display: A visual presentation of information usually on a screen.

drive: A part of the computer. In System/23, referred to as diskette drive, diskette slot or disk drive.

dual-station: One or more computers in the same location that share a diskette unit.

duplicate: To copy or reproduce information without changing it.

E

edit: To prepare, rearrange, add, or delete information for a record. For example, to change the address.

Glossary

element: In the IBM System/23, the name of one type of information such as payroll numbers, salary information, and employee names.

enter: To put information into the computer.

erase: To remove information that was entered into the computer. Also referred to as delete.

error: A mistake or malfunction.

error code: A number appearing on the bottom line of the screen that indicates a mistake or malfunction occurred requiring operator action.

error condition: The condition resulting from a mistake or a malfunction.

error message: Information in the *System Messages* manual that provides instructions for correcting the mistake or malfunction as indicated by an error code.

execute: In the IBM System/23, to carry out the operation requested by the computer program or the operator.

F

failure: A condition that occurs that prevents a task from being completed.

Federal Communications Commission (FCC): A board having the power to regulate all

interstate and foreign electrical communication systems originating in the United States.

field: One piece of information in a record. For example, a record in a telephone book includes three fields: name, address, and number.

file: A collection of related records treated by the computer as one record. In the IBM System/23, a line of an invoice may form an item, a complete invoice may form a record, and a complete set of invoices may form a file.

filename: A name assigned by a computer operator to a group of related data items.

format: The arrangement (or order) of information, including such items as characters, lines, punctuation, and page numbers.

function: An action by the computer such as reading files and copying diskettes.

G

group: Related information such as all the filenames that begin with the same name or group of letters. For example, PAY or employee number.

H

hardware: In the IBM System/23, physical equipment or machines, as opposed to software. Software is information on a diskette.

hard copy: A printed copy of machine output; for example, printed reports or listings.

head: A device used to transfer information to and from diskettes or disks.

I

ID: Identification in coded form.

index: A list used by the computer to locate information.

information area: The place on the computer screen displaying information just entered into the computer. The information area may also contain information the computer has been asked to find in a file.

information field: The specific place on the computer screen where information is displayed.

input: Transferring information or data into the computer.

inquiry: The process of asking the computer to display information on the computer screen.

instruction: In programming, a term that directs the computer to complete one task.

interrupt: To halt or stop a computer in such a way that it can be started again without any loss of information; for example, pressing the Hold key.

I/O: Input/output. The place where information comes from (input) and the place where information goes (output).

K

key in: To type information that you want to enter into the computer.

keyboard: An arrangement of keys by which a machine is operated and information is entered.

key entry: The typing of information through a keyboard.

L

label: One or more characters used to identify a file stored on a diskette.

length: The number of letters, numbers, or symbols that make up one piece of information.

line: One or more characters typed as a complete set of information before the Enter key is pressed.

line number: A number associated with a line in a printout, display, program, or data file.

list: To print or display information.

load: To transfer information into the computer.

Glossary

location: A specific place in the computer where information is saved.

M

magnetic disk: A flat circular disk with a magnetized surface on which information can be saved.

main storage: An area in the computer where information and instructions are saved for processing.

master file: A file that is used for a job and is usually permanent even though its content may change. For example, a customer master file will contain all customers' names, although their addresses may change.

menu: Choices listed on a screen that can be selected by the operator.

message: The explanation for a numbered code displayed on the bottom line of the screen.

N

nested: Information or program instructions that are located within a larger group of instructions.

numeric: Information represented by numbers.

O

open: To allow information on a file to be available for use.

operation: A task.

operator: A person who runs a machine.

output: The results of a task processed by the computer. Also refers to the place that receives the results of a task.

P

paper jam: A condition in which paper forms have not fed properly through the computer.

printer: A device that lists output information from a computer on paper.

process: To perform a task in a computer.

processor: Part of a computer that interprets and runs instructions.

program: A set of instructions and information that tells the computer how to perform certain tasks.

programmer: A person who designs, writes, and tests computer programs.

programming: Designing, writing, and testing computer programs.

R

read: To acquire information from a saved area.

record: A collection of many pieces of information treated as one. For example, one telephone record contains three pieces of information: name, address and number.

reset: To return a computer to a ready condition.

restart: To resume processing in a computer.

revision: The process of changing the text and/or format of a document or computer program.

S

screen: A surface that displays information from the computer or information you type.

scroll: To move the screen image vertically to show information that is above or below the top or bottom of the screen.

slot: A vertical opening into which a diskette is inserted.

software: Computer programs or procedures.

statement: An instruction that is part of a computer program.

storage: Placing or keeping data in a specific area of the computer.

string: A connected set of records, words, or characters.

syntax: The structure or format of information, commands, or instructions in the BASIC programming language used by the IBM System/23.

system: In data processing, a group of machines. In System/23, a system could consist of a computer, diskette unit, and printer.

System/23: A compact computer designed primarily for small businesses.

T

trap: In System/23, an unrecoverable error that causes the system to stop.

U

unit: One device or machine in a computing system.

update: To change with current information.

user: Anyone who requires the services of a computing system.

USERID: User identification.

V

VOLID: Volume identification. Usually referred to as diskette name.

Glossary

W

wait state: The condition of a computer when all operations are suspended.

write: To transfer information to storage or to another save area.

write-protected: An area on the diskette on which information cannot be written.

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