

Operating Your  
System **5364**

IBM S/36 PC

PC

**IBM** System/36

**Operating Your System – 5364**

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Chapter 9 describes how to reload System/36 from diskette or tape.

Chapter 10 describes how to apply a program temporary fix (PTF).

## Exchanging Data Among System/36s

Chapter 11 explains accessing and processing files on another System/36.

Chapter 12 explains how to establish a remote communications link with remote work station support. If you want to establish other remote communications links, refer to the appropriate communications manuals.

## Additional Information

Appendix A contains information intended for an experienced programmer to change the emulation configuration, change attribute appearances, change characters sets, change decimal numbers to hexadecimal numbers, and determine printer differences. The serial number on the 5364 System Unit is also shown.

Appendix B contains information about using the printer description setup program.

Appendix C contains information about Host Graphics Support.<sup>1</sup>

## Understanding Terms Used in This Manual

See the "Glossary" at the back of this manual if you do not understand a term.

When personal computer is used in this manual, it refers to the IBM Personal Computer, the IBM Personal Computer XT<sup>1</sup>, the IBM Personal Computer AT<sup>®</sup>, and the IBM Personal Computer RT<sup>®</sup>. For further information about the personal computer, refer to the appropriate personal computer manual.

## If you want more information . . .

If you want more information while you are using this manual, refer to the *Guide to Optional Information*, GX21-9817, for related publications.

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# About This Manual

## Who should use this manual . . .

This manual is intended for the system console operator, the alternative console operator, or the subconsole operator with a display station attached to a System/36 with a 5364 System Unit.

Before you begin to operate your system, be sure to read Chapters 1 and 2. It is not intended that you read the manual from front to back; instead, when you need to perform a particular task, refer to the chapter where that task is described. With this manual, you can:

- Use a personal computer to operate System/36
- Start and stop the system
- Use the help menus
- Display and reply to messages at the console or subconsole
- Use commands to:
  - Control jobs
  - Control printing of jobs
  - Control devices
  - Check the status of System/36
- Use help to interpret status displays
- Reset the software
- Power off the System/36

- Use a diskette or a tape
- Reload the system
- Apply a program temporary fix
- Establish a communications link using remote work station support

## **How this manual is arranged . . .**

### **What You Should Know about System/36**

Chapter 1 explains how to use emulation.

### **Starting System/36**

Chapter 2 explains how to turn on the System/36.

### **Operating System/36**

Chapter 3 tells you how to switch between sessions on the personal computer and System/36, and how to use console and subconsole displays.

Chapter 4 explains how to display and reply to messages.

### **Using Commands and Procedures**

Chapter 5 contains a list of some of the tasks that can be performed by using procedures and commands.

### **Resetting the System/36 Software**

Chapter 6 explains how to perform a reset sequence.

### **Stopping System/36**

Chapter 7 explains how to stop System/36.

## Using Diskette Drives and Tape Drives

Chapter 8 contains instructions on how to use a diskette or tape.

Chapter 9 describes how to reload System/36 from diskette or tape.

Chapter 10 describes how to apply a program temporary fix (PTF).

## Exchanging Data Among System/36s

Chapter 11 explains accessing and processing files on another System/36.

Chapter 12 explains how to establish a remote communications link with remote work station support. If you want to establish other remote communications links, refer to the appropriate communications manuals.

## Additional Information

Appendix A contains information intended for an experienced programmer to change the emulation configuration, change attribute appearances, change characters sets, change decimal numbers to hexadecimal numbers, and determine printer differences. The serial number on the 5364 System Unit is also shown.

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## Chapter 1. What You Need to Know about System/36

Before you begin to operate your system, you should be aware that the personal computer you will be using as the system console and as a display station *emulates* or *acts like* an IBM 5250 display station. Your system has a program containing enhanced 5250 emulation, which allows the system console to emulate an IBM 5250 display station. If you have a personal computer printer directly attached to your personal computer, your printer can *emulate* or *act like* a 5219 Printer or a 5256 Printer. This chapter describes this display station and printer emulation.

*Note: If you are using a personal computer that is not attached to the system unit as the system console, you must use a separate 5250 emulation or enhanced 5250 emulation program. If your display station is configured as a subconsole, a command display station, or a data display station, refer to the appropriate 5250 emulation manual for information about using emulation.*

### Emulation

The PC devices that can be used with the 5364 System Unit have somewhat different characteristics from the display stations and printers that System/36 was originally designed to use:

- The display imitates a 5250 display.
- The keyboards are arranged differently.
- The printers have different character sets.

To allow these PC devices to work properly with the 5364, the system uses a process called *emulation*, which means that it enables one device (like the PC keyboard) to *imitate* another device (like a 5250 keyboard). The emulation provided at the system console is similar to the emulation used at other personal computer display stations. However, at the system console you do not need to load the 5250 emulation program or the enhanced 5250 emulation program like you do at other personal computer display stations, because the emulation for the console is already loaded for you.

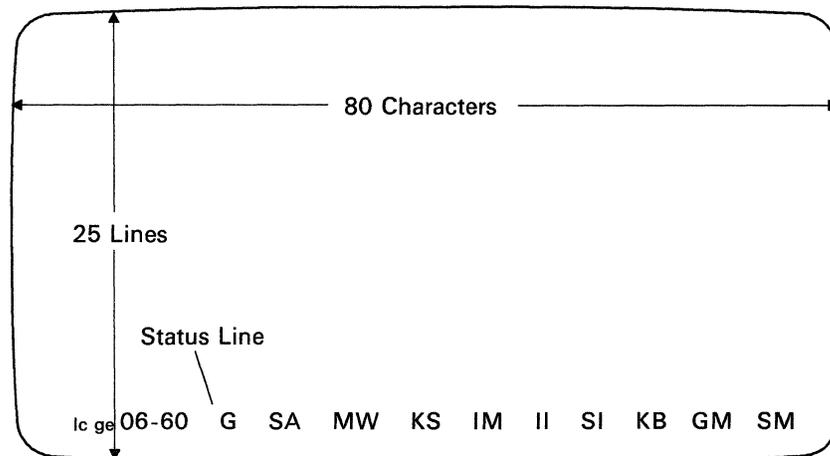
Much of the emulation process is done automatically by the computer, without your even being aware of it. But in some instances, emulation will affect you. For example:

- While you use your personal computer as the system console, you will also be able to use it *at the same time* as a printer control panel and/or as a stand-alone personal computer, by using the **hot key sequence** to switch from one use (or *session*) to another.
- When you use your personal computer as a System/36 display station, the display looks somewhat different from the way it looks as a stand-alone personal computer.
- When you enter information from the personal computer into your system, you may need to refer to a keyboard template that shows which keys on your PC keyboard act as the command keys and the function keys needed to use the System/36 programs.
- When you use a PC printer as a System/36 printer, its controls and characteristics may be different from when it is used as a PC printer.

## Emulated Screen

The screen of a personal computer when it is communicating with a System/36, looks like an IBM 5291 Display Station. The screen uses 25 lines (the bottom line is a status line) and shows 80 characters per line. The displayed information is green on a black background.

If you have a color PC monitor, your PC screen looks like an IBM 5292 Display Station, so you can use multiple colors.



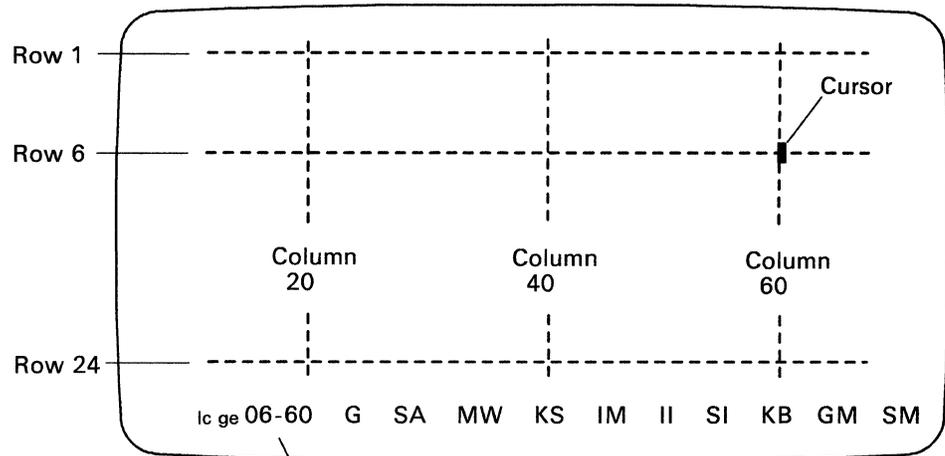
B9085113-2

For more information about your PC screen, see the *IBM Personal Computer Guide to Operations*.

## Locating the Cursor

The leftmost position on the status line of the PC screen, when in emulation mode, describes the location of the cursor (the cursor appears as a blinking rectangle).

The cursor location is displayed on the status line as two 2-digit numbers separated by a dash (the first 2 digits represent the row that the cursor is in, and the second 2 digits represent the column).



Cursor Location

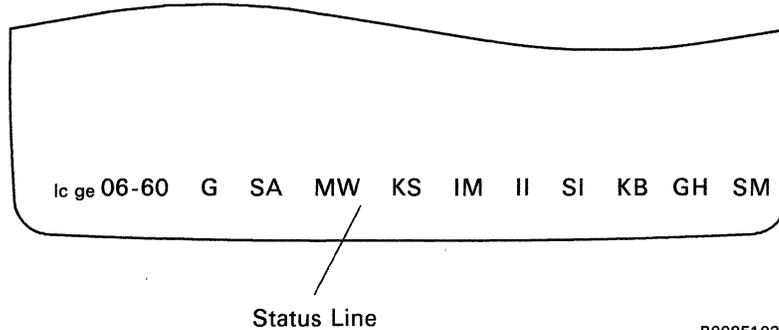
B9085101-3

For example:

The cursor in the illustration is in row **6** and column **60**. This would be displayed on your status line as **06-60**.

## Status Indicators

Status indicators are located on the status line (line 25) of the PC screen when in emulation mode.



The status indicators (see above) appear either on or off. The indicator is *on* when a square block appears around the indicator (that is, in reverse image).

### Notes:

1. *The first three indicators discussed will be shown only if you are using a graphic support feature that allows you to process a graphic data stream. If graphic support indicators are shown on your display, refer to the documentation you received with your graphics package. See Appendix C for information on displaying graphics data.*
2. *When operating in 40-column mode, MW, KS, and IM indicators are not shown. Some of the indicators (such as the Ax indicator) are not normally seen on the status line.*

## Line Check Error (lc)

**lc** The line check error indicates the number of unrecognizable bytes of data that have been received by the personal computer. The count appears in columns 1 and 2 on the status line as a decimal number.

*Note: This field is usually blank (no indicator appears). If a value appears, make sure your personal computer cable is secure, you have the correct work station address in the emulation profile, and only the last work station on your cable is terminated. Then, position the system unit switch to Off, wait 10 seconds, then position the switch to On.*

### **Graphics Error Code (ge)**

**ge** The graphics error code displays a 2-digit error code in columns 5 and 6. If the program is operating incorrectly, a 2-digit error code is displayed.

*Notes:*

- 1. This field is usually blank (no indicator appears).*
- 2. A graphic error can be cleared by pressing the emulated error reset key. For more information, refer to the documentation you received with your graphic package.*

### **Graphics Display On (G)**

**G** The graphics display is on (screen in graphics state).

**G** The graphics display is off (screen in alphameric state).

### **System Available (SA)**

**SA** System/36 is operating and available to the personal computer.

**SA** System/36 is not available to the personal computer.

### **Message Waiting (MW)**

**MW** System/36 has one or more messages for you. (You might hear a beep when the Message Waiting indicator first turns on.)

**MW** System/36 does not have a message waiting for you.

### **Keyboard Shift (KS)**

**KS** The keyboard is in shifted mode.

**KS** The keyboard is in nonshifted mode.

## Graphics Mode (GM)

**GM** The work station is in graphics mode.

**GM** The work station is not in graphics mode.

When this indicator is on (reverse image) the personal computer is processing or waiting to process graphics data.

*Note: Column separators, blink, and underscore are not supported in graphics mode.*

## Select Options Mode (SM)

**SM** The keyboard is in select option mode.

**SM** The keyboard is not in select option mode.

See "Select Options Mode" later in this chapter for additional information.

## Insert Mode (IM)

**IM** Characters can be inserted into an existing field without destroying existing data.

**IM** Characters cannot be inserted into an existing field without destroying data.

## Input Inhibited (II)

**II** Keyboard input is not being accepted by System/36.

**II** Keyboard input is being accepted by System/36.

When the II (Input Inhibited) indicator is *on*, keystrokes are saved and not sent to System/36.

If keystrokes are saved, you can clear them by pressing the assigned reset or the I Reset key.

*Note: For information about I Reset, refer to "Immediate Reset Key Sequence" in Appendix A.*

The II indicator is turned on by System/36 while it is processing your requests. The II indicator is also turned on by error conditions.

The assigned error reset key can be used to turn the II indicator off, if it was turned on by an error condition.

## Session Number (Sn)

**Sn** The session number appears as an S followed by the number of the currently displayed session, for example **S1**.

## Keystroke Buffering (KB)

**KB** Keystrokes have been saved and are waiting for the input inhibited to clear so that they may be sent to System/36. If keystrokes are saved, you may clear them by pressing and holding the personal computer Alt key and then pressing the Scroll Lock key or using I Reset.

*Note: For information about I Reset, refer to "Immediate Reset Key Sequence" in Appendix A.*

**KB** Keystrokes are not being saved.

*Note: This indicator may not be displayed if it is not part of your customization.*

## Work Station Address (Ax)

**Ax** The work station address is displayed to the right of the session number in the location normally used to indicate keystroke buffering (KB). Pressing and holding the personal computer Alt key and then pressing the Ctrl key causes the address to appear. Pressing these keys again returns the KB indicator to the status line.

# Emulated Keyboard

When your personal computer is attached to the System/36, its keyboard normally works like a 5250 keyboard. The command and function key assignments are located as close to the normal PC key position as practical for each keyboard style. (If you use the **hot key sequence** to operate the personal computer as a personal computer, the keyboard works like a PC keyboard. See Chapter 3 for a description of the hot key sequence.)

## Assigned Keys

In this manual, several instructions direct you to press an assigned key. For example, press the assigned enter key. The assigned key you press depends on which style keyboard you selected for the Enhanced 5250 Emulation Program during the setup of the 5364 System Unit.

When you are instructed to press the PC enter key, you press the enter key on the PC keyboard you are using.

## Keyboard Templates

*Enhanced 5250 Emulation Program Keyboard Templates* are included with the 5364 System Unit. These have been provided to make it easy for you to use your personal computer to operate System/36.

When you operate your System/36, you should position the appropriate keyboard template at the top of the keyboard as a reminder of the emulated (assigned) key placement. For example, if you have an IBM Personal Computer AT and are using 5250 emulation in 5250 style, you should use the template labeled *5250 Emulated in 5250 Style on a Personal Computer AT Keyboard*.

## Keystroke Buffer

You should be aware that when keystroke buffering is part of your customization and the Input Inhibited (II) indicator is on, keystrokes (up to 32) are stored in a keystroke buffer and then sent to System/36 when the Input Inhibited indicator is turned off.

If keystrokes have been stored (keystroke buffer indicator is on) and you want to cancel them, press the assigned reset key or the I Reset.

*Note: For information about I Reset, refer to “Immediate Reset Key Sequence” in Appendix A.*

The stored keystrokes are removed from the keystroke buffer (keystroke buffer is off), and an error reset is sent to the system.

## Keyboard Modes

### Alternative Shift Mode

The alternative shift mode is the mode of a keyboard when the Alt key is held down. Like a Shift key, the Alt key provides another *level of shift* for the keyboard.

### Select Options Mode

The select options mode allows you to control the graphics display from the keyboard. The keyboard is in select options mode when SM is shown in reverse image on the status line. Except for the key sequences identified in Figure 1-1, the keyboard is inhibited during select options mode. During select options mode, pressing inhibited keys causes the alarm to sound.

## Select Options Mode Key Sequence

The Select Options Mode Key sequence is used to go into Select Options Mode.

Before you can use this feature (when using a PC style keyboard), you must define a command (Cmd) key. Refer to “Editing and Coding a Keyboard Profile” in Appendix A for information on customizing a keyboard profile.

Press and hold the F2 (emulated command) key, then press the Alt (emulated error reset) key to enter Select Options Mode.

Key Sequence	Description
Emulated Cmd and Reset	Display enters select options mode.
Emulated error reset	Cancel select option mode.
Emulated alpha 1 key (not num pad 1)	Graphics display on or off. Toggles the current state of the graphics display. This selection is always accepted. The Graphics indicator (G) is on (shown in reverse image), when the graphics display is on.
Emulated alpha 2 key (not num pad 2)	Turn status line on or off. Toggles the current state of the graphics status line. This selection is accepted at any time, but is effective only when the Graphics indicator (G) is on (shown in reverse image).
Emulated alpha 3 key (not num pad 3)	Aspect ratio key. Pressing this key adjusts (changes the aspect ratio) the data for the differences in display sizes. Pressing it again returns the data to its normal aspect ratio.
Shift and Emulated alpha 9 key (not num pad 9)	Erases the graphics display. This selection is only accepted when the display is not in graphics mode (GM indicator is shown in the normal image).
Shift and Emulated alpha 0 key (not num pad 0)	<b>Warning:</b> This key sequence may cause unpredictable results.  Terminates graphics processing. This selection is only accepted during graphics mode (GM indicator shown in reverse image).

Figure 1-1. Select Options Mode Key Sequences

## Work Station Address Key Sequence

The Work Station Address (WS Addr) Key sequence is used to display the 5250 work station address for the current emulated session. To enter the WS Addr Key sequence, press and hold the Alt key and then press the Ctrl key. The address is displayed to the right of the session number in the location normally used to indicate keystroke buffering (KB). Entering the WS Addr Key sequence again returns the KB indicator to the status line. The KB indicator may be blank if keyboard buffering is not active.

## Command Keys and Function Keys

Certain keys on your keyboard can be used to cause the system to perform special functions. These keys are called command keys and function keys. For a description of these keys, refer to the manual *Using Your Display Station*. For a table showing how these keys are labeled, refer to Appendix A.

## Emulated Printers

You may have a PC printer directly attached to your personal computer. Using emulation, you can choose to have your PC printer *emulate* or *act like* either a 5219 Printer or a 5256 Printer. The printer you choose to emulate depends on what you want your printed output to look like. For information about how to change your emulated printer from one kind of emulated printer to another, refer to either the manual *Installing and Customizing Your System – 5364* or *Updating to a New Release – 5364*. The following sections describe the displays you will see when you are configuring your printer as either a 5219 emulated printer or a 5256 emulated printer.

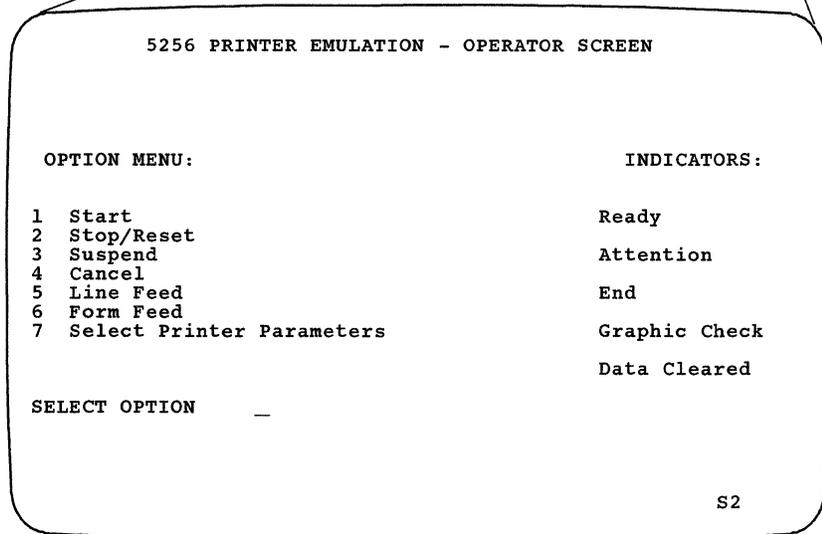
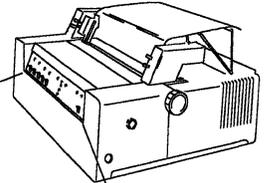
When any PC printer is used as a System/36 printer, it usually looks like an IBM 5256 Printer to the system and is controlled from the personal computer as an emulated session.

Some of the PC printers (IBM 5182, IBM 5201, IBM 5216, NEC 3550) can, if you choose, look like an IBM 5219 Printer instead of a 5256 Printer. See the following sections for information about the 5256 Printer and the 5219 Printer.

*Note: Printer emulation continues when in a PC session unless the printer session has been suspended prior to entering the PC session.*

## Using an Emulated IBM 5256 Printer

When using an emulated 5256 Printer, you are actually using the emulated printer control panel. The printer control panel has operator switches, status indicators, and a printer session number. These appear on the display as follows:



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## **5256 Operator Switches**

The printer control panel emulates the following operator switches:

- Start
- Stop/Reset
- Suspend
- Cancel
- Line Feed
- Form Feed

These switches are selected as options from the 5256 display and are entered by selecting the associated number and then pressing the emulated 5250 enter key.

**Start Option:** Selecting the Start option while the Ready indicator is *on*, performs no function since its intended function is to make the printer ready.

If the Ready indicator is *off* when the Start option is selected, the result depends on the condition of the printer emulation program.

Condition	Result
Printer emulation program just loaded and no error conditions exist.	Turns the Ready indicator on.
Printer emulation program has just been halted by the Stop option, or the Stop option was just used to reset an error condition.	Turns the Ready indicator on and continues printing.
Printer emulation program has just been halted by the Suspend option.	Turns the Ready indicator on, returns the PC printer control to 5256 printer emulation, restores the printer to the state it was in at the time the Suspend option was selected, and continues printing.

**Stop/Reset Option:** Selecting the Stop/Reset option while the Ready indicator is *on*, causes the Ready indicator to be turned off. The printer continues printing until its buffer is empty. The printer emulation program will not process any further commands from System/36 until the Start option is selected.

If this option is selected when the Ready indicator is *off*, it functions as a Reset key.

This option is intended to temporarily halt printing and allow adjustments to the printer, such as changing paper.

**Suspend Option:** If Suspend Option is selected, the ready indicator is turned off and all information in the printer print buffer is printed. No further data or commands are processed by the printer emulation program.

In addition, the current status of the emulated 5256 Printer is saved, the forms advance to the first print line of a new page, and the printer enters its initialized state.

*Note: This option allows you to free the printer from System/36 and make it available for personal computer use.*

The operator can move the forms to any desired position and use the printer for any personal computer printing. When finished with a session, you should position the forms to the first print line of a new page.

*Note: This option is necessary only if the PC application program uses the same printer device name (LPT1, LPT2, and so on). If the PC application program is using a different printer, then System/36 can print at the same time as the PC application program.*

**Cancel Option:** Selecting the Cancel option when the Ready indicator is on causes System/36 to be notified of the cancel request.

**Line Feed Option:** Selecting the Line Feed option when the Ready indicator is off advances the forms to the next print line.

The Line Feed option is ignored when the Ready indicator is on.

**Form Feed Option:** Selecting the Form Feed option when the Ready indicator is off advances the forms to the first print line of the next form.

The Form Feed option is ignored when the Ready indicator is on.

*Note: The operation of this option depends on previous commands to the printer. That is, the forms length assigned must be the same as the actual length of the forms.*

## 5256 Status Indicators

The printer control panel emulates the following status indicators:

- Ready
- Attention
- End of Forms
- Graphic Check
- Data Cleared
- System Available

When an emulated indicator is on, it appears in reverse image on the options display.

**Ready Indicator:** The Ready indicator is turned on by selecting the Start option. Whenever the indicator is on, the printer emulation program is ready to send data to the printer.

The Ready indicator is turned off by an end of forms condition, a reset command from System/36, a printer error (printer in a not ready state), a graphics check error, or an attention message from System/36. You can also turn the Ready indicator off by selecting the Stop or the Suspend option.

**Attention Indicator:** The Attention indicator turns on when the attention of the operator is required by System/36. The indicator can be turned on by a PC printer condition that turns the Ready indicator off and turns the End of Forms or Graphic Check indicator on. The alarm will beep once when this indicator is turned *on*.

Selecting the Stop option turns this indicator *off*.

**End of Forms Indicator:** The End of Forms indicator is turned on when the printer has run out of paper.

See the appropriate printer operator's guide for paper handling procedures. The printer emulation program must be made ready by selecting the Start option to continue printing.

**Graphic Check Indicator:** The Graphic Check indicator is on when an unprintable character is detected in the print buffer and the Set Graphic Error Action command Stop option had been set previously. (The line containing the unprintable character is printed with a substitute character in place of the unprintable character.)

The Ready indicator is turned *off* and the Attention indicator is turned on when the Graphic Check indicator is turned *on*.

Selecting the Stop/Reset option turns the Graphics Check indicator *off*.

**Data Cleared Indicator:** The Data Cleared indicator is turned on when a Clear command is received from System/36 to tell the operator that a problem has occurred and all print buffers have been cleared of data. See the appropriate printer operator's guide for recovery procedures. After the cause of the problem has been corrected, select the Stop option to turn off the Data Cleared indicator, align the forms to print the first line, make the printer ready, and select the Start option.

**System Available Indicator:** The System Available indicator is turned on whenever a printer command other than a Reset command is received from the System/36.

The indicator is turned off when communication with System/36 stops.

**Printer Session Number (Sn):** The printer session number appears on line 25 as Sn (where n is the number of the session).

After you have made your selections from the 5256 Printer Emulation - Operator screen, press and hold the Alt key and press the Esc key to return to the Service Control Menu.

## Setting Up the Printer Functions

System/36 allows you to set up printer functions to perform automatically except for forms handling initialization as follows:

- Follow instructions that apply to the printer you have attached (see the appropriate operator's guide).
- During the 5250 emulation configuration program, enter the personal computer printer command sequence when you are prompted for a printer initialization string. This prompt is displayed only if you use the advanced options.
- Enter the PC printer command sequence where the configuration utility requests a printer initialization string.

## 5256 Emulated Printer Parameters

The printer parameter display appears as follows:

```
5256 PRINTER EMULATION - PRINTER PARAMETERS

SELECT LINE SPACING
  1  6 LPI          [ACTIVE]
  2  8 LPI

SELECT CHARACTER DENSITY
  3  Normal (10 CPI)
  4  Compressed (16 CPI)      [ACTIVE]

  5  Return to Operator Panel

SELECT OPTION  _

OPERATOR MESSAGE FIELD                S2
```

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### Line Spacing

**6 LPI Option:** Selecting the 6 LPI (lines per inch) option causes the printer to print six lines of text per inch of page length.

**8 LPI Option:** Selecting the 8 LPI option causes the printer to print eight lines of text per inch of page length.

*Note:* The current line spacing option is indicated with the word **ACTIVE** appearing next to the option selected.

### Character Density

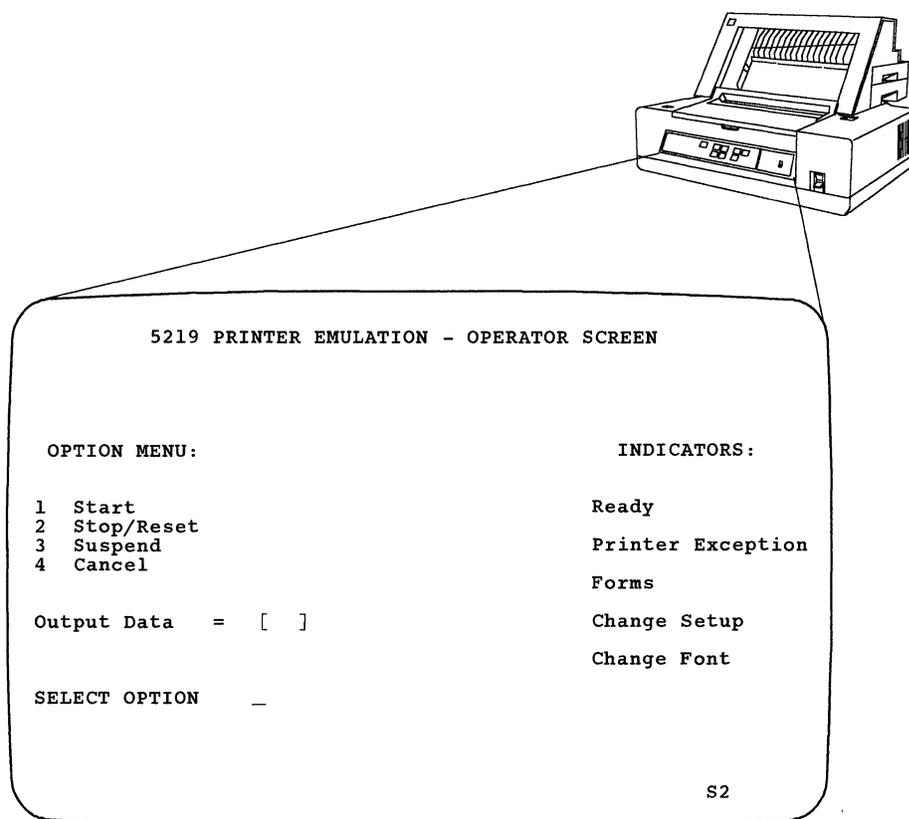
**10 CPI Option:** Selecting the 10 CPI (characters per inch) option causes the printer to print 10 characters per inch. If the attached printer is an IBM Personal Computer Matrix Printer, an IBM Personal Computer Graphics Printer, or an IBM Proprinter and if more than 80 characters are formatted for a line, the extra characters are printed on the following line.

**16 CPI Option:** Selecting the 16 CPI option causes the printer to print 16 characters per inch (compressed print).

*Note:* The current character spacing option is indicated with the word **ACTIVE** appearing next to the option selected.

## Using an Emulated IBM 5219 Printer

When you select the printer session, you are actually using the emulated printer control panel. The printer control panel has operator switches, an output data field, and status indicators. These appear on the display as follows:



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### 5219 Operator Switches

The printer control panel emulates the following operator switches:

- Start
- Stop
- Suspend
- Cancel

These options are selected from the 5219 display and are entered by selecting the associated number and pressing the emulated 5250 enter key.

**Start Option:** Selecting the Start option while the Ready indicator is *on*, performs no function since its intended function is to make the printer ready.

If the Ready indicator is *off* when the Start option is selected, the result depends on the condition of the printer emulation program.

Condition	Result
Printer emulation program was just loaded and no error conditions exist.	Turns the Ready indicator on.
Printer emulation program has been halted by the Stop option.	Turns the Ready indicator on and allows printing to continue.
Printer emulation program has been halted by the Suspend option.	Turns the Ready indicator on, returns the PC printer control to the printer emulation program, restores the printer to the state it was in at the time the Suspend option was selected, and allows printing to continue. The current print line is at the top of the page.

**Stop Option:** Selecting the Stop option while the Ready indicator is *on* causes the Ready indicator to be turned off. The printer continues printing until its buffer is empty. The printer emulation program will not process any further data or commands from System/36 until the Start option is selected.

If this option is selected when the Ready light is off, it functions as a reset key.

This option is intended to temporarily halt printing to allow adjustments to the printer, such as changing paper.

**Suspend Option:** If Suspend option is selected, the Ready indicator is turned off and all information in the printer print buffer is printed. No further data or commands are processed by the printer emulation program.

In addition, the current status of the emulated 5219 Printer is saved, the forms advance to the first print line of a new page, and the printer enters its initialized state.

*Note: This option allows you to free the printer from System/36 and make it available for personal computer use.*

The operator can move the forms to any desired position and use the printer for any personal computer printing. When finished with a session, you should position the forms to the first print line of a new page.

The suspend option is ignored if the Ready indicator is off.

*Note: This option is necessary only if the PC application program uses the same printer device name (LPT1, LPT2, and so on). If the PC application program is using a different printer, the System/36 can print at the same time as the PC application program.*

**Cancel Option:** Selecting the Cancel option when the Ready indicator is on causes System/36 to be notified of the cancel request.

This option is ignored if the Ready indicator is off.

## **Output Data Field**

The output data field is used to provide control and diagnostic information. For information about "Output Data Field Values for the IBM 5219 Printer," refer to Chapter 4. For a list of output data field values for the 5219 Printer, refer to "Output Data Field Values" in Appendix A.

## 5219 Status Indicators

The printer control panel emulates the following status indicators:

- Ready
- Printer Exception
- End of Forms
- Change Setup
- Change Font

When an emulated indicator is on, it appears in reverse image on the options display.

**Ready Indicator:** The Ready indicator is turned on by selecting the Start option when the printer is ready. Whenever the indicator is on, the printer emulation program is ready to process data and the printer is ready to receive the data.

The Ready indicator is turned off by a change font or change setup request, a reset command from System/36, an end of forms condition, a printer exception, or a data transfer error. You can also turn off the Ready indicator by selecting the Stop or Suspend option.

**Printer Exception Indicator:** The Printer Exception indicator turns on when a data stream exception is detected. The 2-digit code that appears in the output data field defines the exception. For a list of output data field values, see Chapter 4.

**End of Forms Indicator:** The End of Forms indicator is turned on when either an automatic sheet feed drawer is empty or the printer is out of continuous forms.

See the appropriate printer operator's guide for paper handling procedures. The printer emulation program must be made ready by selecting the Start option to continue printing.

**Change Setup Indicator:** The Change Setup indicator is turned on when a request is received to change the paper feed method. The 2-digit code that appears in the output data field describes the paper feed mechanism requested. For a list of output data field values, see Chapter 4.

**Change Font Indicator:** The Change Font indicator is turned on when a request is received to change the print wheel. The 2-digit code that appears in the output data field describes the requested printwheel. For a list of output data field values, see Chapter 4.

*Note:* The Change Font indicator is not used with the IBM Color Printer.

**System Available:** The System Available indicator is turned on whenever a printer command other than a Reset command is received from System/36. The indicator is turned off when communication with System/36 stops.

**Printer Session Number (Sn):** The printer session number appears on line 25 as Sn (where n is the number of the session).

After you have made your selections from the 5219 Printer Emulation - Operator screen, press and hold the Alt key and press the Esc key to return to the Service Control Menu.

## Setting Up the Printer Functions

System/36 automatically sets up all printer functions at the attached printer except for forms handling initialization. System/36 defaults to tractor feed; however, it does not send any forms selection commands to the printer. Forms handling initialization can be performed in one of the following ways:

- Follow instructions that apply to the printer you have attached (see the appropriate operator's guide).
- During the 5250 emulation configuration program, enter the personal computer printer command sequence when you are prompted for a printer initialization string. This prompt is displayed only if you use the advanced options. Enter the PC printer command sequence when the configuration utility requests a printer initialization string.
- If no other form feed method is specified, System/36 defaults to continuous form feed.



## Chapter 2. Starting System/36

An initial program load (IPL) is performed each time you start the system. During an IPL, the System/36 attachment programs are loaded into the personal computer main storage either from a PC diskette drive or from a PC disk drive. During the IPL, the System Support Program Product (SSP) is loaded into the main storage of the 5364 System Unit.

This chapter contains information on an IPL from disk. For information on an IPL from diskette, see the manual *Installing and Customizing Your System – 5364* for the release level you are supporting. For information on reloading your System/36 from diskette or tape, see Chapter 9.

### Turning on the 5364 System Unit and the Personal Computer

1. Set the Power switch on the 5364 System Unit to the | (On) position.
2. If the attachment programs are on PC diskettes, insert working PC CODE DSKT04 (or PC CODE DSKT03) into the PC diskette drive A.

*Note: If you are using Host Graphics Support, insert DSKT03 instead of DSKT04. You will later be prompted for DSKT01.*

3. Set the Power switch to the | (On) position for any of your local display stations or printers you want to use.

*Note: Local display stations and printers are all the display stations and printers attached to the system without a communications line.*

4. Set the Power switch on the personal computer to the | (On) position.

5. If you are using a diskette-based system, after the system finishes reading the first diskette, it prompts you to insert PC CODE DSKT01 into the PC diskette drive A.
  - a. Remove the working PC CODE DSKT04 (or PC CODE DSKT03) from diskette drive A and place it in its protective envelope.
  - b. Remove the working PC CODE DSKT01 from its protective envelope.
  - c. Insert the PC CODE DSKT01 into diskette drive A.
  - d. Press the PC enter key.
6. Do one of the following:
  - a. If the System/36 IPL Sign On display is shown, the System/36 command is in the AUTOEXEC.BAT file and is automatically executed when the personal computer is powered on. This may take several minutes to complete. Go to step 8.
  - b. If your personal computer has no disk drive, or if your personal computer has one disk drive, go to step 7.
  - c. If your personal computer has more than one disk drive, make sure the default drive shown on the DOS prompt is the drive that contains the System/36 subdirectory. To change the default drive, type the letter of the drive (for example C or D) followed by a colon (:). Then, press the PC enter key.
7. If the DOS prompt is displayed, type S36 and press the PC enter key.
8. Do one of the following:
  - a. If the Service Control Menu is shown and the security level is Normal, an IPL in Process message is displayed, and the IPL Sign On display will be shown in a few minutes. Go to the section "IPL Sign On Display."
  - b. If the Service Control Menu is shown and the security level is service, select option 3 (*Perform an IPL from disk*) and press the personal computer enter key. Go to the section "IPL Sign On Display."
  - c. If the Service Control Menu is shown and the security level is locked, see "Changing the Service Level" in Chapter 3 of this manual to change the security level to normal, use the software reset sequence described in Chapter 6, and return to step 5 of this procedure.
  - d. If the Service Control Menu is shown with a 4-character system reference code (SRC) in the lower right corner of the display, see the manual *System Problem Determination – 5364*.
  - e. If neither the IPL Sign On display nor the Service Control Menu is shown, see the manual *System Problem Determination – 5364*.

## IPL Sign On Display

To sign on the System/36, you must type the following information on the IPL Sign On display. After you have typed a value in a field, use the assigned field advance key (by default the tab key) to advance the cursor from field to field on the display. When you have finished typing in the information, press the assigned enter key.

*Note: At this point, the assigned enter key that you press is the enter key for the style of keyboard you selected for the Enhanced 5250 Emulation Program.*

IPL SIGN ON		Optional-*	W1
Enter badge . . . . .			
User ID . . . . .			
Password . . . . .			
User Menu. . . . .		*	
Library. . . . .		*	
Procedure. . . . .		*	
IGC session ? . . . . .	Y,N	Y	
Date . . . . .	.MMDDYY	060683	
Time . . . . .	.hhmmss		
Overrides ? . . . . .	N,Y	N	

Help-Assistance for sign on

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**Enter badge:** This prompt is shown only if badge security is active on your system. Pass your badge through the magnetic stripe reader if you have badge security.

**User ID:** If the *Password* prompt is not displayed, type a user ID, such as your name or initials. If the *Password* prompt is displayed, type the user ID that was assigned to you.

**Password:** If you have password security active on your system, type your 4-character password. This password does not appear on the display when you type it.

**User menu:** Leave this field blank to display, following an IPL, either a help menu or a default menu that was assigned to you.

If you are not restricted to a menu, you can type:

- A menu name to override a default menu
- A zero (0) to display the command display

*Note: You will not be able to sign on if the default menu that you are restricted to cannot be found in the default library or in the system library you specified during an IPL. If this happens, see your security officer.*

**Library:** If a library name is displayed, you can:

- Use the displayed library name
- Type a different library name
- Type a zero (0) to use the system library
- Blank out the displayed library name to use either the system library or a default user library

If a library name is not displayed, you can:

- Leave this field blank to use either the system library or a default user library
- Type the name of the library that you want to use
- Type a zero (0) to use the system library

**Procedure:** Leave this field blank to run a default procedure that was assigned to you.

If you are not restricted to a default procedure, you can:

- Type a procedure name to override a default procedure
- Type a zero (0) to avoid running the default procedure

*Note: You will not be able to sign on if the default procedure that you are restricted to cannot be found in the library you specify, in your default library, or in the system library. If this happens, see your security officer.*

If no default procedure was assigned to you and this prompt is left blank, a menu is displayed.

**IGC session:** This prompt is displayed only if your system configuration has the ideographic version of the System Support Program Product (SSP), and if your display station is ideographic-capable.

The default value (Y) is displayed. Use this default value if you want to enter ideographic characters and if you want system messages and displays shown using ideographic characters.

Type an N if you want to enter and display ideographic characters on user-defined displays and if you want Katakana or alphameric characters shown on system displays.

**Date:** The current system date is displayed. The system date format that is displayed can be YYMMDD, DDMMYY, or MMDDYY; where MM means month, DD means day, and YY means year.

You can type a different date or you can use the date that is displayed. If you type a different date, be sure to use the system date format that is shown on the display.

**Time:** Type the current time. The time format is hhmmss; where hh means hour, mm means minutes, and ss means seconds. Type the time in accordance with the 24-hour clock. For example, for an IPL at 4:30 p.m., type 163000 for the time.

This entry activates a timer, which establishes the time displayed on the display or printed on the printed output.

**Overrides:** The default value (N) is displayed. If you do not want to change any system functions, press the assigned enter key to continue with an IPL. For more information on the IPL, see “IPL in Process” later in this chapter.

Type a Y if you want to change some system functions; then, press the assigned enter key. The IPL Overrides menu is shown.

*Note: If you use the default value (N), the IPL Overrides – Programs to be Run During IPL display could appear. Examples of programs to be run are: collecting diagnostic data, applying PTFs, and removing optional SSP features. These programs are described under “Displaying Programs to Be Run During IPL” later in this chapter.*

## IPL in Process

The following information could appear on your display during an IPL:

```
#IPLPROC (user library)
File rebuild is running
```

#IPLPROC is the dedicated SSP IPL procedure. When the dedicated portion of the IPL startup procedure is complete, the following messages are displayed on the bottom line of the display:

```
File rebuild is complete
IPL initialization in progress
```

If you have a dedicated startup procedure (#STRTUP1), it is processed during the dedicated portion of #IPLPROC.

If you have a nondedicated startup procedure (#STRTUP2), the system processes your startup procedure after the #IPLPROC procedure has completed.

When the IPL process is complete, a help menu or a user menu is shown.

## Overriding IPL Values

The IPL Overrides menu is shown if you specified Y for the Overrides prompt on the S/36 IPL Sign On display. Use the IPL Overrides menu to select options to change system functions. Only the system functions that were defined during system configuration are displayed. You can select a specific option, make the change on the display that is shown, and return to the IPL Overrides menu. You can then continue to select options to change system functions, or you can select the option to exit overrides and continue with the IPL. Any changes that you make will affect only the *current* IPL.

To select an option, type the option number following Option and press the assigned enter key.

*Exit overrides and continue with IPL:* Select this option after you complete your changes or if you decide not to make any changes. Continue with an IPL.

*Display programs to be run during IPL:* Select this option to display the programs that will be run during this IPL. The IPL Overrides – Programs to be Run During IPL display is shown.

*Change communications status:* Select this option to change the status of remote work stations. The IPL Overrides – Change Communications Status display is shown.

*Change print spooling status:* Select this option to change the status of print spooling; for example, to clear the spool file or to start the spool writer. The IPL Overrides – Change Print Spooling Status display is shown.

*Change job queue status:* Select this option to change the status of the job queue; for example, to clear the job queue or to start the job queue. The IPL Overrides – Change Job Queue Status display is shown.

## Displaying Programs to Be Run During IPL

The IPL Overrides – Programs to be Run During IPL display appears if you selected option 2 (*Display programs to be run during IPL*) on the IPL Overrides menu. The entries shown (Y, N) are the default values. Only the prompts that correspond to a certain condition on your system are displayed. For example, if you have created a dedicated startup procedure called #STRTUP1, the #STRTUP1 – *dedicated startup procedure* prompt is displayed.

Use the following information to respond to the prompts; then, press the assigned enter key to return to the IPL Overrides menu.

*FILE REBUILD – examine and verify disk VTOC:* This prompt is always displayed. Normally, you should use the default value (Y) to verify and correct the volume table of contents (VTOC) entries. The file rebuild procedure runs in dedicated mode, which means no other task can be started until file rebuild is complete.

Type an N if you have had a system failure and if you have not yet collected all the VTOC information.

*#STRTUP1 – dedicated startup procedure:* This prompt is displayed only if you have created a dedicated startup procedure called #STRTUP1. Use the default value (Y) to run this procedure. Type an N if you do not want to run the procedure during this IPL.

For more information on the dedicated startup procedure, see “#STRTUP1 Procedure” in the *Procedures and Commands Summary* manual.

*#STRTUP2 – nondedicated startup procedure:* This prompt is displayed only if you have created a nondedicated startup procedure called #STRTUP2. Use the default value (Y) to run this procedure. Type an N if you do not want to run the procedure during this IPL.

For more information on the nondedicated startup procedure, see “#STRTUP2 Procedure” in the *Procedures and Commands Summary* manual.

*APAR – collect diagnostic data:* This prompt is displayed if you are performing an IPL because of a processor check or a program check, and a system dump was taken prior to this IPL. Use the default value (Y) to run the authorized program analysis report (APAR procedure) to gather additional information for problem determination.

When this prompt is displayed, you should always run the APAR procedure.

*PTF – apply PTFs to system:* This prompt is displayed if there are program temporary fixes (PTFs) to be applied to the system. Use the default value (Y) to apply the PTFs. Applying a program temporary fix is described in Chapter 9. Type an N if you do not want the PTFs applied during this IPL.

*CNFIGSSP – drop system support:* This prompt is displayed if, during system configuration, you specified that program products, optional System Support Program Product (SSP), or SSP features are to be dropped. Use the default value (Y) to drop the items you specified, during system configuration, from the system. Type an N if you do not want to drop the items you specified, during system configuration, from the system during this IPL. If you type N each time an IPL is performed, this prompt will be displayed until you type a Y.

*FILE REBUILD – remove dump files:* This prompt is displayed if there are dump files in the system that were created before the current IPL date. Use the default value (N) to retain the dump files in the system. Type a Y if you want the dump files removed.

## Changing Communications Status

The IPL Overrides – Change Communications Status display appears if you selected option 3 (*Change communications status*) on the IPL Overrides menu. The entries shown (Y, N) are the default values.

Use the following information to respond to the prompts; then, press the assigned enter key to return to the IPL Overrides menu.

*Vary on remote work stations:* This prompt is displayed if you specified remote work stations as automatic vary-on during system configuration. Automatic vary-on means the remote work stations will be started automatically during this IPL.

Type an N if you do not want the remote work stations to be started automatically during this IPL. After the IPL, you must use the VARY ON command to start the remote work stations.

## Changing Print Spooling Status

The IPL Overrides – Change Print Spooling Status display appears if you selected option 4 (*Change print spooling status*) on the IPL Overrides menu. You can use this display to change the print spool status for this IPL. The entries shown (Y, N) are the default values.

Use the following information to respond to the prompts; then, press the assigned enter key to return to the IPL Overrides menu.

*Note:* When the IPL Overrides – Change Print Spooling Status display is shown, the **Cancel print spooling** prompt is the only prompt that is displayed.

If you use the default value (N) and press the assigned enter key, the *Clear print spool file* prompt and the *Start print spool writer(s)* prompt are displayed.

If you type a Y and press the assigned enter key, the *Delete print spool file* prompt is displayed.

**Cancel print spooling:** Type a Y to cancel print spooling for this IPL.

**Delete print spool file:** Type a Y to delete the print spool file from disk.

**Clear print spool file:** Type a Y to remove all entries that exist on the spool file. All data in the spool file is lost.

**Start print spool writer(s):** The default value for this prompt can be either Y (yes) or N (no), depending on your system configuration.

*If the default value is Y*, the spool writer(s) is started automatically during this IPL. Type an N if you do not want the spool writer(s) started automatically. After the IPL, you must use the START PRT command to start the spool writer(s).

*If the default value is N*, the spool writer(s) is not started automatically during this IPL. If you use the default value N, you must use the START PRT command to start the spool writer(s) after the IPL. Type a Y to start the spool writer(s) automatically during this IPL.

## Changing Job Queue Status

The IPL Overrides – Change Job Queue Status display appears if you selected option 5 (*Change job queue status*) on the IPL Overrides menu. You can use this display to change the job queue status for this IPL. The entries shown (Y, N) are the default values.

Use the following information to respond to the prompts; then, press the assigned enter key to return to the IPL Overrides menu.

*Note: When the IPL Overrides – Change Job Queue Status display is shown, the **Cancel job queue** prompt is the only prompt that is displayed.*

If you use the default value (N) and press the assigned enter key, the *Clear job queue* prompt and the *Start job queue* prompt are displayed.

If you type a Y and press the assigned enter key, the *Delete job queue* prompt is displayed.

**Cancel job queue:** Type a Y to cancel the job queue for this IPL.

**Delete job queue:** Type a Y to delete the job queue file from disk.

**Clear job queue:** Type a Y to remove all jobs from the job queue.

**Start job queue:** The default value for this prompt can be either Y (yes) or N (no), depending on your system configuration.

*If the default value is Y, the job queue is started automatically during this IPL; however, jobs with a job queue priority of zero are not started. Type an N if you do not want the job queue started automatically. After the IPL, you must use the START JOBQ command to start the job queue.*

*If the default value is N, the job queue is not started automatically during this IPL. If you use the default value N, you must use the START JOBQ command to start the job queue after the IPL. Type a Y to start the job queue automatically during this IPL; jobs with a job queue priority of zero are not started.*

## Chapter 3. Operating System/36

This chapter describes how to:

- Switch back and forth between sessions
- Use the console displays
- Use the subconsole displays

For information about operating the personal computer, see the appropriate PC operator's manual.

Chapter 2 of *Using Your Display Station* has information about:

- Using displays
- Using menus
- Using help
- Using the Standby display
- Using the Input/Output display

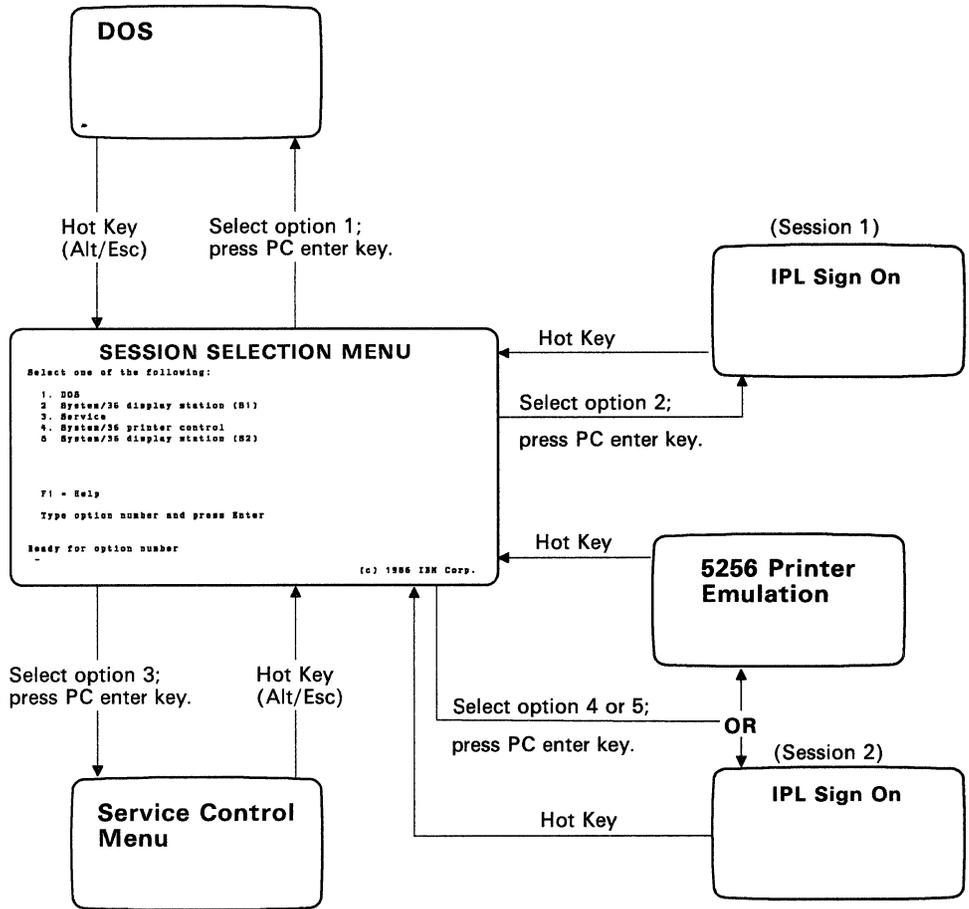
## Switching between Sessions

You will want to switch back and forth when you are using the personal computer as a system console to operate and control the 5364 System Unit. The hot key sequence is a special key sequence that displays the Session Selection Menu. This menu allows you to switch back and forth between a System/36 session, a PC session, a printer session, and a service session.

### *Notes:*

- 1. If you are running a PC application program and you switch to System/36, the PC application program is suspended. When you switch back to the personal computer, the PC application program will continue to run.*
- 2. If you are running a System/36 program and you switch to the personal computer, the System/36 program continues to run.*
- 3. If a display station is attached to the 5364 System Unit via a twinaxial cable, jobs can continue to run at that display station.*
- 4. If you need additional help while using the Service Control Menu, the Service Level Menu, the Change Service Password display, or the Change Service Level Menu, press F1.*

The following illustration shows the paths for switching back and forth:



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## Using the Session Selection Menu

The following Session Selection Menu is the display you use to switch between sessions:

```

                                Session Selection Menu

Select one of the following:

1. DOS
2. System/36 display station (S1)
3. Service session
4. System/36 printer control
5. System/36 display station (S2)

F1 = Help
Type option number and press Enter

Ready for option number
—
                                COPR IBM Corp. 1986
```

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You can use this display to select a DOS session, a System/36 session, a service session, or a printer display.

*Note: The DOS session option will not be shown if DOS is not available on your system. Also, options 4 and 5 will not be shown on the same display. Only one of the options is available at a time.*

The DOS session allows you to run PC DOS commands and applications. The System/36 session allows you to run System/36 jobs. The service session allows you to perform service functions (for example, you may want to change the service level or the service passwords). You can press the F1 key to receive additional help for information about each option on the menu. For information on controlling the printer, see Chapter 1.

## Switching Sessions

You can switch from one session to another using the Session Selection Menu.

The key sequence which causes the display to switch between sessions is called the hot key sequence. The default hot key sequence is Alt-Esc. This sequence of pressing keys may also be customized in your keyboard customization profile for use in the display station and printer control sessions. See Appendix A for an example of customizing the keyboard.

### Switching to a PC Session

1. Press and hold the Alt key.
2. Press the Esc key; the Session Selection Menu is displayed.
3. Select option 1 (*DOS*) and press the PC enter key. The DOS display appears.

*Note: The DOS session option will not be shown if DOS is not available on your system.*

### Switching to a System/36 Display Session

If you are running a PC application program and you switch to System/36, the PC application program is suspended. When you switch back to the personal computer, the PC application program will continue to run.

1. Press and hold the Alt key.
2. Press the Esc key; the Session Selection Menu is displayed.
3. Select option 2 (*System/36 display station [S1]*) and press the PC enter key. The System/36 display for Session 1 appears.

*Note: Or, you can select option 5 for Session 2 if that option is available.*

## **Switching to a Printer Session**

1. Press and hold the Alt key.
2. Press the Esc key; the Session Selection Menu is displayed.
3. Select option 4 (*System/36 printer control*) and press the PC enter key; the Printer Emulation screen appears.

## **Switching to a Printer Session**

1. Press and hold the Alt key.
2. Press the Esc key; the Session Selection Menu is displayed.
3. Select option 4 (*System/36 printer control*) and press the PC enter key; the Printer Emulation screen appears.

## Using the Service Control Menu

The following Service Control Menu appears if you select option 3 on the Session Selection Menu:

```
Service Control Menu

Service level:
Service

Select one of the following:

1. Change service level
2. Display communication line status
3. Perform an IPL from disk
4. Reload the SSP and microcode
5. Configure, customize or verify the system
6. Initialize the disk
7. Perform a system dump
8. Display service function menu
9. Display or alter the modifier code

Alt-Esc==Session selection menu
F1=Help

Ready for option number
—
(message)

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```

B9085302

There are three service levels:

- Normal: This level is used during normal system operation. When the service level is normal, options 1 and 2 are displayed.
- Service: This level is used when it is necessary to perform service functions and reload the SSP. When the service level is service, all options are displayed.
- Locked: This level allows the system to continue operating the same as in the normal level with an exception: only the option to display the Service Level Menu is valid. When the service level is locked, only option 1 is displayed.

## Changing the Service Level

The System/36 is shipped with a service password of PASSWORD and a backup service password of MASTER. You must know these passwords to change the service level.

1. Use the hot key sequence to display the Session Selection Menu.
2. Select option 3 (*Service*) and press the PC enter key. The Service Control Menu is displayed.
3. Select option 1 (*Change service level*) and press the PC enter key. The following Service Level Menu is displayed:

```
Service Level Menu

Service level:
Service

Select one of the following:

1. Change service level
2. Change service password
3. Change backup service password

Alt-Esc==Session Selection Menu
F1=Help
Ready for option number

F3=Service Control Menu

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```

B9085303

4. Select option 1 (*Change service level*) and press the PC enter key. The following Change Service Level Menu is displayed:

```
Change Service Level

Service level:
Service

Enter service or backup password ..... _____

Enter service level ..... 2
1-Normal,2-Service,3-Locked

Alt-Esc==Session Selection Menu      F3=Service Level Menu
Fl=Help

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```

B9085304

5. Type the service or backup service password and select the service level; then press the PC enter key.

*Note: If you have a color monitor with your personal computer:*

- a. *Press the tab key.*
  - b. *Select the service level.*
  - c. *Select the service or backup password.*
  - d. *Press the PC enter key.*
6. You return to the Service Control Menu.

## To Change the Service or Backup Service Password

1. Use the hot key sequence to display the Session Selection Menu.
2. Select option 3 (*Service session*) and press the PC enter key. The Service Control Menu is displayed.
3. Select option 1 (*Change service level*) and press the PC enter key. The Service Level Menu is displayed.
4. Select option 2 (*Change the service password*) or option 3 (*Change the backup service password*) and press the PC enter key. A screen similar to the following appears:

Change Service Password

Service level:  
Service

Enter service or backup service password ..... \_\_\_\_\_

Enter new service password ..... \_\_\_\_\_

Alt-Esc==Session Selection Menu      F3=Service Level Menu  
F1=Help

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B9085305

*Note: If you selected option 3 (**Change the backup service password**) on the Service Level Menu, the Change Backup Service Password display appears.*

5. Type the existing service or backup service password and the new service or backup service password; then press the PC enter key.

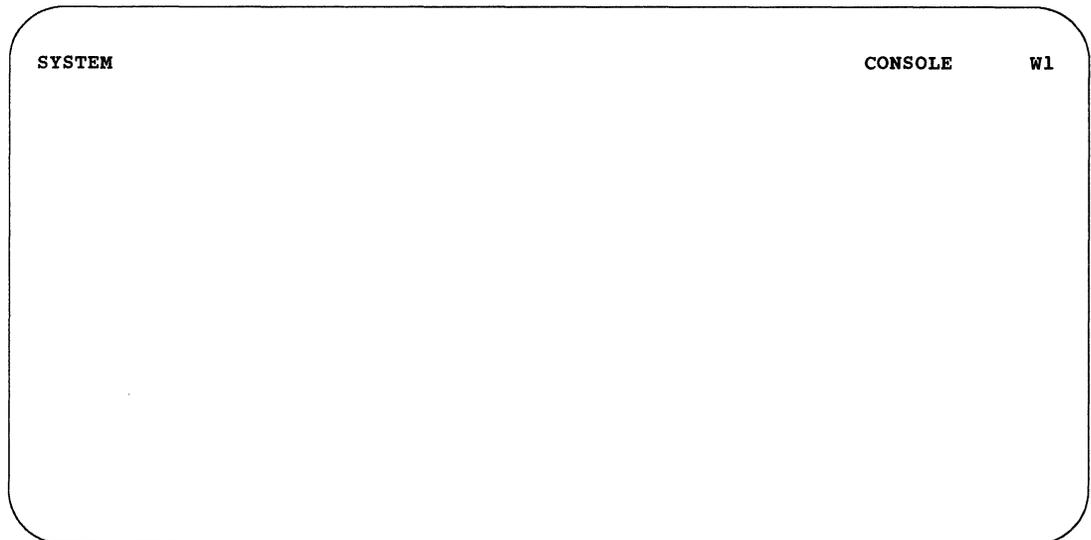
*Note: If you have a color monitor with your personal computer:*

- a. Press the tab key.
  - b. Select the service level.
  - c. Select the service or backup password.
  - d. Press the PC enter key.
6. You return to the Service Control Menu.

# Using the Console Display

The Console display can be displayed only at the system console. To request this display:

1. Hold down the Shift key and press the assigned system request key.
2. Release these keys.
3. Press the assigned enter key; a display similar to the following Console display is shown.



B9085306

You can use the Console display to receive and send messages and to enter all control commands except **JOBQ**, **MENU**, **MODE**, and **OFF**. The control commands enable you to control system activity.

You cannot use the Console display, or any display that has the word **CONSOLE** in the upper right corner or the lower right corner, to enter procedure commands. These commands must be entered on a Command display.

To return to a display after using the Console display:

1. Hold down the Shift key and press the assigned system request key.
2. Release these keys.
3. Press the assigned enter key.

## **Requesting a Help Menu from the Console Display**

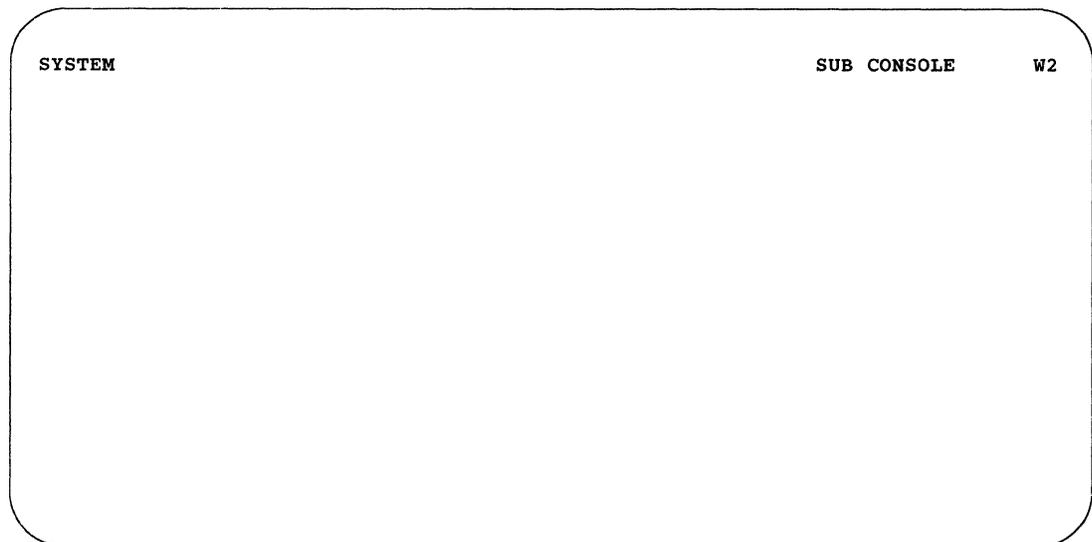
To request a help menu when the Console display is shown:

1. Press the assigned command key 5, or type HELP and press the assigned enter key, to display the System Console menu, or
2. Type the name of a help menu and press the assigned help key, or
3. Type HELP, leave one space, and type the name of a help menu; then, press the assigned enter key.

## Using the Subconsole Display

The Subconsole display can be displayed only at a subconsole (a display station that controls one or more printers). To request this display:

1. Hold down the Shift key and press the assigned system request key.
2. Release these keys.
3. Press the assigned enter key; a display similar to the following Subconsole display is shown.



B9085307

You can use the Subconsole display to receive and send messages and to enter control commands except **JOBQ**, **MENU**, **MODE**, and **OFF**. You cannot enter control commands that are restricted to the system console, such as **START SYSTEM** and **STOP SYSTEM**.

You cannot use the Subconsole display, or any display that has the word **SUB CONSOLE** in the upper right corner or the lower right corner, to enter procedure commands. These commands must be entered on a Command display.

To return to a display after using the Subconsole display:

1. Hold down the Shift key and press the assigned system request key.
2. Release these keys.
3. Press the assigned enter key.

## **Requesting a Help Menu from the Subconsole Display**

To request a help menu when the Subconsole display is shown:

1. Press the assigned command key 5, or type **HELP** and press the assigned enter key, to display the Subconsole menu, or
2. Type the name of a help menu and press the assigned help key, or
3. Type **HELP**, leave one space, and type the name of a help menu; then, press the assigned enter key.

## Chapter 4. Sending and Receiving Messages

A message is a way for the system to communicate with you and for you to communicate with display station operators.

This chapter contains information about:

- System/36 messages
  - Messages that require a response
  - Additional information for a message
  - Displaying messages that are waiting at the console or subconsole
  - Replying to messages at the console or subconsole
- Printer messages
- PC messages

Refer to the manual *Using Your Display Station* for information about:

- Keyboard messages
- System/36 messages
  - Informational messages
  - Messages that require you to perform an action

# System/36 Messages

## Messages That Require a Response

System/36 displays a message for various reasons. For example, you might use a command or a procedure that requests System/36 to perform an action that is not allowed. When this happens, you need to enter a response to the message. The message has an identifier, options that you can enter, and text that explains the message. Following is an example of a message that requires a response:

```
SYS-1120 Options (123)
Dedicated program $CNDED cannot be loaded now... XXXX
```

You can have the system respond to some messages for you. This is called automatic response. For information on automatic response, type *NOHALT* on the entry line and press the assigned help key; the NOHALT Procedure display is shown. Press the assigned help key again to display an explanation of the NOHALT procedure.

Following is an explanation of the various parts of a message.

- The message identifier is 3 or 4 alphabetic characters followed by a dash and four numbers, such as SYS-1120. Each message that has an identifier, other than USER, is described in a messages manual. The following table shows the character code, the code meaning, and the manual where the messages are described:

<b>Code</b>	<b>Meaning</b>	<b>Manual</b>
ASM	Assembler	<i>Assembler Messages</i>
BAS	BASIC	<i>BASIC Messages</i>
CBL	COBOL	<i>COBOL Messages</i>
CNFG	Configuration	<i>System Messages</i>
DDM	Distributed data management	<i>Distributed Data Management and System Messages</i>
DFU	Data file utility	<i>Utilities Messages</i>
DHCF	Distributed Host Command Facility	<i>Communications and Systems Management Guide</i>
DSNX	Distributed system node executive	<i>Communications and Systems Management Guide</i>
EMU, ESU	3270 device emulation	<i>3270 Device Emulation Messages</i>
FORT	FORTRAN	<i>FORTRAN IV Messages</i>
KBD	Keyboard	<i>System Messages</i>
RJE	Remote job entry	<i>MSRJE Messages</i>
RPG	RPG II	<i>RPG II Messages</i>
SDA	Screen design aid	<i>Utilities Messages</i>
SEU	Source entry utility	<i>Utilities Messages</i>
SORT	Sort program	<i>System Messages</i>
SYS	System support program product	<i>System Messages</i>
WSU	Work station utility	<i>Utilities Messages</i>

The messages are listed in sequence within each manual by the 4-digit number. This number is called a message identification code.

- The options you can use to respond to the message are shown within the parentheses (123). Each message shows only the options that are allowed.

The following describes what generally happens when you select an option to respond to a message. Because each message has a different description, always refer to the *Options* part of each message description in the appropriate messages manual for specific details.

*Option 0:* When you select this option, generally the error is ignored and the job continues.

*Option 1:* When you select this option, generally the operation that caused the error is retried and you can continue the job.

*Option 2:* When you select this option, generally the job step is ended. If this option ends the job step, the job continues with the next job step.

*Option 3:* When you select this option, the job is canceled.

*Option D:* This option is available when option 3 is displayed; however, option D is not displayed and is not described in the message description. When you select this option, the contents of main storage and control storage are copied into the dump area on disk. The system actions described for option 3 occur.

*Option H:* This option is available when option 3 is displayed if you are using a help display. When you select this option, the display where you made the error is shown again. You can then correct the error and continue your job.

- The message text, Dedicated program \$CNDED, cannot be loaded now.
- Three periods, ..., at the end of the message text indicate there is additional information that you can display for the message. If you press the assigned enter key or help key *without* typing an option number, the additional message information display is shown.
- If a 4-character system reference code is displayed, XXXX, use the message identifier, SYS-1120, to find the message description. If you need to call for service, record the system reference code, press the assigned print key, and give the code and the printout to your service representative.
- If you do not display the additional message information display, type your response on the entry line and press the assigned enter key.

If you are using the Console display, you must respond to the message with the REPLY command, which is described later in this chapter.

## **Additional Information for a Message**

Following is an example of additional message information that could be shown for message SYS-1120.

There are other programs or system tasks active at this time. Select option 1 to retry; the other programs and tasks may have ended. Select option 2 to end job step; 3 to cancel job.

If more information is needed before responding to the message, refer to the appropriate messages manual.

The allowed options are listed in parentheses.

To respond to the message after you view the information:

1. Type an option number (123).
2. Press the assigned enter key to respond to the message.

## **Displaying Messages That Are Waiting**

### **Displaying Messages at the System Console or at a Subconsole**

To display a message that was sent to the Console display when you are using a command display or when you are running a job, switch to the Console display or a subconsole display. To switch:

1. Hold down the Shift key and press the assigned system request key.
2. Release these keys.
3. Press the assigned enter key to display the message.

To display messages when you are using the Console display, press the assigned enter key; the messages are displayed. If the Message Waiting (MW) indicator stays on:

- The display is full of messages that have not been replied to. See “Replying to Messages at the Console or at a Subconsole” later in this chapter.
- A job that is running may have displayed a message. Return to the command display.

Replying to messages at the system console and at a subconsole is explained later in this chapter.

## Replying to Messages at the Console or at a Subconsole

The display you use when you reply to a message at the Console display and the Subconsole display contains a console roll area, message lines, and entry lines. Following is an example of the Console display.

```
SYSTEM                                     CONSOLE  W1

01 PAYROLL procedure is running
** Enter volume ID for output diskette
   S P
   Start command successful
04 SYS-1405 Options (012 )
   Do you want spool separator pages on printer P1 . . .
   3,PMODS2
   REPLY command successful
   2
   REPLY command successful
05 Library-0 ,Name-NEWINVT
06 SYS-2509 Options ( 1 3)
   #LIBRARY--Specified members not in this library

                                     W3133735
                                     XXXX
```

**A** {

**B** |

**C** |

B9085016-1

- The console roll area **A** can contain messages sent from the system or another operator and information that you have entered on the console display. When this area is full, the old (top) entries roll up and off the display and the new entries appear at the bottom of the display.

Messages that require a reply, which you have not replied to, will not roll off the display. A message is displayed if the display is full of messages that you have not replied to. You must reply to some of the messages to get any new messages. If you do not reply to any of the messages, the system saves the messages that are waiting to be displayed.

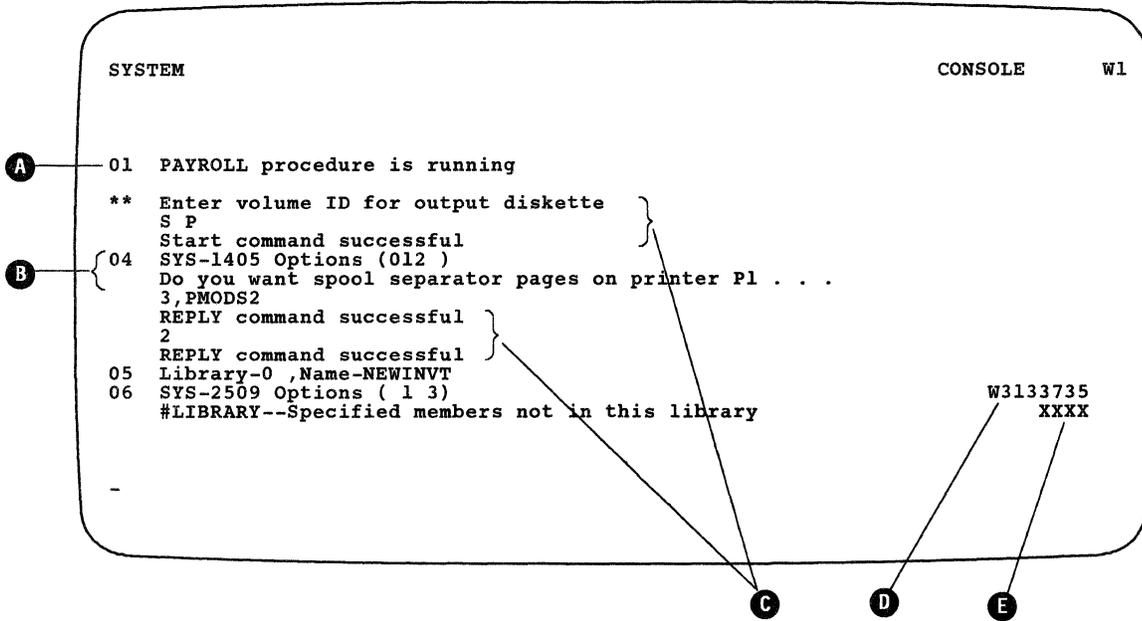
- The message lines **B** contain the most recently displayed messages.
- The entry lines **C** are two lines on which you type commands and reply to messages.

After a message is displayed on the Console display or the Subconsole display, you can:

- Reply to a message that has a reply ID.
- Reply to a message that has a reply ID and response options.
- Reply to all informational messages so they can be removed from the display.
- Clear the display of all messages that you have replied to.

A reply ID is a 2-digit number that appears in the first two columns on the left side of the display. After you reply to a message, the reply ID is replaced by two asterisks (\*\*).

Following is an example of messages displayed on the Console display, and how to reply to the messages.



B9085017-1

- Message **A** is an informational message. No options are displayed. The message has a reply ID of 01.

To reply to message 01, type:

REPLY 01 or R 1 or 1

To reply to all informational messages that have a reply ID, type:

REPLY I or R I

If you do not want informational messages to be displayed, use the INFOMSG NO command. See “Specifying That Informational Messages Are Not to Be Displayed” in the manual *Using Your Display Station*.

- Message **B** (SYS-1405) has a reply ID of 04 and requires you to type an option (012) when you reply. The three periods (...) indicate there is additional information for this message.

To reply to this message with a 1 option, type:

REPLY 04,1 or R 4,1 or 4,1

To display the additional information for this message before you reply to it, type 04 or 4 and press the assigned enter key.

Possible options that could be displayed for a message and their meanings are explained under “Messages That Require a Response” earlier in this chapter.

- These messages **C** are responses to messages or messages that do not require a response. To clear (remove from the display) these messages and messages that have been replied to, type:

REPLY C or R C

- This is the 8-character ID **D** of the job that received this message. This field shows SYSTEM if a message was issued by a system function.
- If a 4-character system reference code is displayed **E**, use the message identifier to refer to the message description in the appropriate messages manual. If you need to call for service, record this code and the message by pressing the assigned print key; give the printout to your service representative.

# Printer Messages

There are two kinds of printer messages: operator messages and printer error messages.

## Operator Messages

Messages for the operator appear on line 25. The messages are as follows:

*Note: If you do not know how to respond to a message, see the operator's guide for the printer you are using.*

Attached Printer Offline

The printer was not ready when you requested a printer operation. This message is removed when the *Start* option is successfully completed by the program.

Attached Printer Offline: Data Loss May Have Occurred

System/36 data was sent to the printer, but a *Printer Not Ready* condition exists.

The printer's internal buffer may have lost some information. System/36 is only informed that the printer was not available. It is not aware of any possible loss of information. This message is removed when you can continue sending information to the printer.

Invalid Option

You have selected an option that does not appear on the emulated operator panel. This message is removed when a valid option is selected.

5256 Emulation Suspended

You have suspended printer emulation, and the printer can now be used by a PC application program. This message is removed when the *Start* option is selected.

## Error Messages

Only the *End of Forms* (out of paper) and *Printer Not Ready* conditions are detected on the PC printers.

End of Forms

**Meaning:** When an End of Forms (out of paper) condition is indicated, the following happens:

- The Ready indicator is turned off.
- The Attention indicator is turned on.
- System/36 is notified of the End of Forms condition.

*Note: If the IBM Color Printer is attached and manual sheet feed has been specified in the profile data set, this condition will not be reported to the system.*

**Recovery:** You should:

1. Select the *Stop* option on the emulated operator panel.
2. Correct the out of paper condition and make the printer ready. See the appropriate printer operator's guide for the printer recovery action.
3. Select the *Start* option on the emulated operator panel. The Ready indicator is turned on.

Printer Not Ready

**Meaning:** A Printer Not Ready condition occurs for any of the following reasons:

- The printer went offline.
- An error condition occurred.
- A time-out error occurred.

The following actions occur:

- The Ready indicator on the emulated operator panel is turned off.
- The Printer Exception indicator is turned on.
- A *Printer Offline* message appears on the message line.
- If System/36 data was sent to the printer when the Printer Not Ready condition occurred, the message line indicates that data may have been lost.

**Recovery:** You should:

1. Select the *Stop* option on the emulated operator panel.
2. Correct the printer problem and make the printer Ready. See the appropriate printer operator's guide for the printer recovery action.
3. Select the *Start* option on the emulated printer operator panel. The Ready indicator is turned on.

## Output Data Field Values for the IBM 5219 Printer

The output data field values are 2-digit codes that appear on the emulated control panel of the IBM 5219 Printer. These codes may indicate a print font, a feature, or a condition that has occurred on your printer.

If a print font has been requested, refer to the information provided for you or request help from your system operator.

If System/36 is expecting a printer operation to occur that uses a feature of your printer, follow the instructions given in the operator's manual for the printer you have attached.

If an error condition has occurred, follow the instructions given in the operator's manual for the printer you have attached.

For a list of these output data field values for the 5219 Printer, refer to "Output Data Field Values" in Appendix A.

# PC Messages

## Errors During Emulation

The following PC messages may appear on the display because of an error during initialization of the Enhanced 5250 Emulation Program:

aaaaa.bbb File Not Found (Error 100)

You requested a file name on the command line (using I=aaaaa.bbb) that was not on the requested (or default) drive. This message is displayed and control is returned to DOS.

File Not Found

A file could not be found in the current subdirectory on the requested or default drive.

*Note: The file name cannot include a path; it must be in the current subdirectory of the requested drive.*

Invalid Drive Name

An invalid drive has been named for the keyboard customization file in the configuration file or as an execution-time parameter (for example, E:\EM\KBPC.PRO).

Invalid File Name

A file name that does not meet the DOS requirements was requested. For example, files cannot include path (subdirectory) information like C:\EM\KBPC.PRO.

File Empty

The file contains no records.

Unusable Initialization Data (Error 200)

The configuration file exists, but does not contain data in the proper format for configuration data. The configuration file is generated by the configuration program (CONFIG.EXE), and can be edited only by CONFIG.EXE. If the configuration data is not recognized, this message is displayed and control is returned to DOS. You should delete the configuration file and run CONFIG.EXE to generate a new file.

## Invalid Syntax

The following messages may appear on the display because of a syntax error in a keyboard profile:

= Sign Missing or Misplaced

The equal (=) sign must be separated from other characters by at least one space or tab.

Define Not Found

The first word of each line in the keyboard customization file must be *define*. This message is displayed when the keyword *define* is missing, misplaced, or misspelled. The word can be shortened, but at least the first 3 characters, *def* are required. The keyword can be uppercase, lowercase, or both.

Definition Line Exceeds 512 Characters

A definition record was found that exceeds the maximum record length of 512 characters. The first 512 characters of the record follow this message on the display.

Invalid Character 'X' Found

A character (x), which is not available on a 5250 display, was found in a definition.

Invalid Mode Definition

The definition record is trying to assign a shift mode that is not valid. The valid shift modes are:

- Alternative = a-PC key name
- Shifted = s-PC key name
- Nonshifted = PC key name

#### Invalid PC Scan Code

The value of the hexadecimal number used for the PC scan code is not in the range of hex 01 through 7F. The number must contain 2 digits.

#### Key Not Definable in Alternative Mode

The Alt, Ctrl, Esc, and Scroll Lock keys cannot be defined in alternative mode. These keys are for special purposes. For example, Alt-Ctrl is used to display the work station address where the keyboard buffer indicator is normally displayed.

#### No Definition

No text follows the keyword *define* on the definition line. The keyword must be followed by an equal sign and a valid 5250 function.

#### Null Definition

A null definition is not allowed. Null definitions are two delimiters running side by side. For example:

```
def s-a = ""  
def a-a = "This" [] 'has a null definition.'  
def a-s = "" "And so does this one!"
```

#### PC Key Name Not Found

Nothing was found on the definition line after the keyword *define*. There must be some text following *define*.

#### Playback Sequence Exceeds 255 Bytes

All available space for storing playback sequences has been used. You must shorten the playback sequences until they all fit into the 255-byte limit.

#### Shift Keys Are Not Definable

The left and right PC shift keys (scan codes 2A and 36) are always defined as shift keys and cannot be changed. A shift key cannot be assigned a string or function. The shift keys can only be used with other keys to select a character or function.

#### String or Function Delimiter Missing

The string delimiter (' or ") or function delimiter ([ or ]) is missing or misplaced on the right of the equal sign. Strings must begin and end with the same delimiter (' or ") and the delimiter may not be used inside the string. Functions must begin with a left bracket ([) and end with a right bracket (]).

#### Unknown Function Name 'xxxx'

A function name (xxxx), which is not available on a 5250 display, was found in a definition.

The function names can be in uppercase, lowercase, or both.

#### Unknown PC Key name

An invalid name was used for a PC key. The special names can be uppercase, lowercase, or both. A common error would be to put a 5250 function name to the left of the equal sign, or to put a blank within the PC key name.

#### 1 Character or Function Only

Only a single character or function may be assigned to each key in the nonshifted mode. You must use the alternative mode to assign a string.

## Chapter 5. Using Commands and Procedures to Do Tasks

This chapter describes how to use the help support to do tasks, and it lists the tasks you may want to do using System/36.

Not all tasks are listed in the following sections; however, some of the more commonly used tasks are listed. For information about additional tasks, see the manuals *Commands and Procedures Summary* or *System Reference*. The tasks listed in this manual are divided into the following groups:

- Creating and maintaining files
- Creating and maintaining libraries
- Creating and maintaining folders
- Processing diskettes or tapes
- Running programs and procedures
- Changing and controlling printers, jobs, and display stations
- Communicating with other systems
- Displaying status
- Maintaining the system

Refer to the appropriate DOS manual for PC commands.

## Using Help Support to Do a Task

When you are signed on the System/36, you can use the help support to do a task. The help support is made up of menus, command displays, procedure displays, and help text. You can use help support when:

- You know the name of the command or procedure that does the task.
- You know the task you want to do, but you do not know the name of the command or procedure that does the task.

### When You Know the Name of a Command or a Procedure

Use the following steps when you know the name of the command or procedure that does the task.

1. Type the name of the command or procedure on the entry line of a command display.
2. Press the assigned help key; a command or a procedure display is shown that enables you to enter the necessary parameters to run the command or procedure that does the task.
3. Type the parameters on the input lines of the command display or the procedure display; or if you need additional explanation of the parameters:
  - a. Press the assigned help key to display the help text.
  - b. After you read the help text, press command key 3 to return to the command display or the procedure display.
  - c. Type the parameters.
4. Press the assigned enter key; the task will start processing.

For information about help support, see “Help for Commands and Procedures” in the manual *Using Your Display Station*.

## When You Do Not Know the Name of a Command or a Procedure

Use the following steps when you do not know the name of the command or procedure that does the task.

1. Begin on the Main menu. To display this menu, type MAIN on the entry line of a command display and press the assigned help key.
2. Type the option number that generally describes the task that you want to do, and press the assigned enter key; another menu is displayed.
3. Type the option that specifically describes the task that you want to do, and press the assigned enter key; another menu is displayed.
4. Continue to select options until the procedure display or command display that does the task is displayed.
5. Type the parameters on the input lines of the procedure display or the command display; or if you need additional explanation of the parameters:
  - a. Press the assigned help key to display the help text.
  - b. After you read the help text, press command key 3 to return to the procedure display or the command display.
  - c. Type the parameters.
6. Press the assigned enter key; the task will start processing.

For information about help support, see “Help for Commands and Procedures” in the manual *Using Your Display Station*.

# Using Commands and Procedures

## Creating and Maintaining Files

Listed in this section are some commands and procedures you can use to perform tasks. These commands and procedures, along with the available help text, described in this chapter and in the manual *Using Your Display Station*, will help you complete your work without having to refer to the manual *Procedures and Commands Summary*.

### Changing

To change the information in a disk file that is defined by the interactive data definition utility (IDDU), use the interactive data definition utility (IDDU).

### Copying

To copy the contents of a disk file into a new disk file, use the COPYDATA procedure. You may create a new disk file that is different than the original because the COPYDATA procedure allows you to do the following:

- Create a new disk file with the same file organization.
- Create a new disk file with a different file organization.
- Change the record length of a file.
- Change the position and length of the keys in an indexed file.
- Copy the records by the key sequence if the original file is indexed.
- Delete specific records from the new file.
- Include specific records in the new file.
- Limit the number of records copied.
- Remove deleted records from the new file.

To add a disk file to an existing file on diskette or tape or copy a file to a blank diskette or tape, use the SAVE procedure.

To copy the history file to a disk file, use the HISTORY procedure.

To copy a spool file to an entry to a disk file, use the COPYPRT procedure.

### Creating

To create an empty disk file, use the BLDFILE procedure or IDDU.

To create a disk file and enter records into the file that is defined by the interactive data definition utility (IDDU), use the interactive data definition utility (IDDU).

### **Organizing**

To organize a file, use the COPYDATA procedure.

### **Printing or Displaying**

To print or display the contents of a file located on disk, diskette, or tape, use the LISTDATA procedure or the LISTFILE procedure.

To print or display the names of all the files located on disk, diskette, or tape, use the CATALOG procedure.

To create a file of the names of all the files located on disk, diskette, or tape, use the CATALOG procedure.

To print or display a file located on disk, diskette, or tape, use the LISTDATA procedure or the LISTFILE procedure.

To print or display the history file, use the HISTORY procedure.

To copy the spool file entry to a disk file, and then display that disk file, use the COPYPRT procedure.

### **Removing**

To remove a file from disk or diskette, use the DELETE procedure.

To copy a disk file and remove deleted records from the file, use the COPYDATA procedure.

### **Renaming**

To rename a disk file, use the RENAME procedure.

### **Saving**

To save one or more disk files on diskette or tape, use the SAVE procedure.

To add a disk file to an existing file on diskette or tape, use the SAVE procedure.

### **Restoring**

To restore one or more diskette files or tape files to disk, use the RESTORE procedure.

### **Securing**

To secure a disk file to be read, changed, created, or removed only by certain operators, use the SECEDIT procedure.

## Creating and Maintaining Libraries

Listed in this section are some commands and procedures you can use to perform tasks. These commands and procedures, along with the available help text, described in this chapter and in the manual *Using Your Display Station*, will help you complete your work without having to refer to the manual *Procedures and Commands Summary*.

### Changing

To change the size of a library or a library's directory, use the ALOCLIBR procedure.

*Note: Before running this procedure, you should use the MSG control command to inform all the users that no one should use the library you will specify in the ALOCLIBR procedure. If a user tries to run the ALOCLIBR procedure for a library that is being used by another job, an error message is displayed, and the ALOCLIBR procedure is not run. When the ALOCLIBR procedure begins running, no other jobs are allowed to use the library until the ALOCLIBR procedure is complete.*

### Condensing

To condense a library (collect all the free space in a library into one area), use the CONDENSE procedure. Before running the CONDENSE procedure, make sure no other jobs are allowed to use the specified library until CONDENSE is complete.

*Note: Before running this procedure, you should use the MSG control command to inform all the users that no one should use the library you will specify in the CONDENSE procedure. If a user tries to run the CONDENSE procedure for a library that is being used by another job, an error message is displayed, and the CONDENSE procedure is not run. When the CONDENSE procedure begins running, no other jobs are allowed to use the library until the CONDENSE procedure is complete.*

### Copying

To copy a library onto diskette or tape, use the SAVELIBR procedure.

### Creating

To create a library and, optionally, copy one or more library members from disk, diskette, or tape into the new library, use the BLDLIBR procedure.

### Printing or Displaying

To print or display the names of all the libraries on disk, diskette, or tape, use the CATALOG procedure.

To create a file of the names of all the libraries located on disk, diskette, or tape, use the CATALOG procedure.

To print or display the contents of a library saved on disk, diskette, or tape, use the LISTFILE procedure.

**Reorganizing**

To reorganize a library, or increase or decrease the size of a library, use the ALOCLIBR procedure. Make sure that the library cannot be used by a display station or job while you are reorganizing the library, or increasing or decreasing its size.

*Note: Before running this procedure, you should use the MSG control command to inform all the users that no one should use the library you will specify in the ALOCLIBR procedure. If a user tries to run the ALOCLIBR procedure for a library that is being used by another job, an error message is displayed, and the ALOCLIBR procedure is not run. When the ALOCLIBR procedure begins running, no other jobs are allowed to use the library until the ALOCLIBR procedure is complete.*

**Restoring**

To restore a library that was copied onto diskette or tape by the SAVELIBR procedure to a library on disk, use the RESTLIBR procedure.

**Saving**

To save a library onto diskette or tape, use the SAVELIBR procedure.

**Securing**

To secure a library to be read, changed, created, or removed only by certain operators, use the SECEDIT procedure.

## Maintaining Folders and Folder Members

Listed in this section are some commands and procedures you can use to perform tasks. These commands and procedures, along with the available help text, described in this chapter and in the manual *Using Your Display Station*, will help you complete your work without having to refer to the manual *Procedures and Commands Summary*.

### Changing

To change the size of a folder, or to increase or decrease the size of a folder, use the ALOCFLDR procedure. Make sure a display station or job is not currently using the folder you want to change before you run the ALOCFLDR procedure.

*Note: Before running this procedure, you should use the MSG control command to inform all the users that no one should use the folder you will specify in the ALOCFLDR procedure. If a user tries to run the ALOCFLDR procedure for a folder that is being used by another job, an error message is displayed, and the ALOCFLDR procedure is not run. When the ALOCFLDR procedure begins running, no other jobs are allowed to use the folder until the ALOCFLDR procedure is complete.*

### Condensing

To condense a folder, use the CONDENSE procedure. Before running the CONDENSE procedure, make sure no other jobs are allowed to use the specified folder until CONDENSE is complete.

*Note: Before running this procedure, you should use the MSG control command to inform all the users that no one should use the library you will specify in the CONDENSE procedure. If a user tries to run the CONDENSE procedure for a folder that is being used by another job, an error message is displayed, and the CONDENSE procedure is not run. When the CONDENSE procedure begins running, no other jobs are allowed to use the folder until the CONDENSE procedure is complete.*

### Copying

To copy a folder to disk, diskette, or tape, use the SAVEFLDR procedure.

To copy a folder member to disk, diskette, or tape, use the ARCHIVE procedure.

**Creating**

To create or maintain a folder, use the TEXTFLDR procedure.

To create or maintain a folder member, use the TEXTDOC procedure.

To create or maintain an interactive data definition utility (IDDU) data dictionary (a type of folder), use the IDUDCT procedure.

**Moving**

To move a folder from one disk location to another, use the MOVEFLDR procedure.

**Printing or Displaying**

To print or display the contents of a folder member archived on disk, diskette, or tape, use the LISTFILE procedure.

To print or display the names of all the folders on a disk, diskette, or tape, use the CATALOG procedure.

To create a file of the names of all the folders located on disk, diskette, or tape, use the CATALOG procedure.

To print an interactive data definition utility (IDDU) data dictionary (a type of folder), use the IDUPRT procedure.

**Removing**

To remove a folder or data dictionary (a type of folder) from disk, use the DELETE procedure.

**Renaming**

To rename a folder or a data dictionary (a type of folder), use the RENAME procedure.

**Reorganizing**

To reorganize a folder or increase or decrease the size of a folder, use the ALOCFLDR procedure or the CONDENSE procedure. Before running the CONDENSE procedure, make sure no other jobs are allowed to use the specified folder until the CONDENSE procedure is complete.

*Note: Before running this procedure, you should use the MSG control command to inform all the users that no one should use the folder you will specify in the ALOCFLDR or CONDENSE procedure. If a user tries to run the ALOCFLDR or CONDENSE procedure for a folder that is being used by another job, an error message is displayed, and the ALOCFLDR or CONDENSE procedure is not run. When the ALOCFLDR or the CONDENSE procedure begins running, no other jobs are allowed to use the folder until the ALOCFLDR or the CONDENSE procedure is complete.*

**Restoring**

To restore a folder from disk, diskette, or tape, use the RESTFLDR procedure.

To restore a folder member from disk, diskette, or tape by the ARCHIVE procedure, use the RETRIEVE procedure.

**Saving**

To save a folder to a disk, diskette, or tape, use the SAVEFLDR procedure.

To save a folder member to disk, diskette, or tape, use the ARCHIVE procedure.

**Securing**

To secure a library to be read, changed, created, or removed only by certain operators, use the SECEDIT procedure.

## Processing Diskettes or Tapes

Listed in this section are some commands and procedures you can use to perform tasks. These commands and procedures, along with the available help text, described in this chapter and in the manual *Using Your Display Station*, will help you complete your work without having to refer to the manual *Procedures and Commands Summary*.

### Copying

To copy all or part of a diskette to another diskette, use the COPYI1 procedure.

To copy a diskette or tape file containing one or more library members to a library, use the TOLIBR procedure.

To copy one or more library members from a library to diskette or tape, use the FROMLIBR procedure.

### Preparing or Initializing

To prepare or initialize a System/36 diskette before using it to save data, use the INIT procedure.

To prepare or initialize a tape before using it to save data, use the TAPEINIT procedure.

### Printing or Displaying

To list the names of files, libraries, and folders contained on a diskette or tape, or to list the general information about a diskette or tape, use the CATALOG procedure.

To create a file of the names of all the files, libraries, or folders located on disk, diskette, or tape, use the CATALOG procedure.

To list a file saved on diskette, use the LISTDATA procedure or the LISTFILE procedure.

### Removing

To remove one or more files or libraries from diskette, use the DELETE procedure.

To erase all files on the diskette, use the INIT procedure.

To erase all files on tape, use the TAPEINIT procedure.

**Restoring**

To restore a file saved on diskette or tape back to disk, use the RESTORE procedure.

To restore a folder from diskette or tape back to disk, use the RESTFLDR procedure.

To restore a library from diskette or tape back to disk, use the RESTLIBR procedure.

**Saving**

To save a disk file onto diskette or tape, use the SAVE procedure.

To save a folder onto diskette or tape, use the SAVEFLDR procedure.

To save a library onto diskette or tape, use the SAVELIBR procedure.

## Running Programs and Procedures

Listed in this section are some commands and procedures you can use to perform tasks. These commands and procedures, along with the available help text, described in this chapter and in the manual *Using Your Display Station*, will help you complete your work without having to refer to the manual *Procedures and Commands Summary*.

### Date

To change the program, job, or job step date, use the DATE procedure.

### History File

To display the history file, use the HISTORY procedure.

### Restarting

To allow a program or job to run on the system after a STOP command is entered, use the START control command.

*Note: If you have system operator authority or higher, you can use the START control command to start a job or program after a STOP control command is entered.*

### Releasing

To release your programs or jobs held on the job queue so they can be run, use the RELEASE control command.

*Note: If you have system operator authority or higher, you can use the RELEASE control command to release programs or jobs that are not your own.*

### Session Date

To change the session date, use the DATE control command.

### Session Library

To change the session library, use the SLIB procedure.

### Stopping

To cancel your currently running program or job, use the CANCEL control command.

*Note: If you have system operator authority or higher, you can cancel programs or jobs that are not your own. However, before doing so, you should send a message to the other operators to inform them that you are canceling their program or job.*

To prevent any programs or jobs from running, use the STOP control command.

*Note: If you have system operator authority or higher, you can use the STOP control command to stop jobs or programs from running.*

To hold one or more of your jobs on the job queue or prevent your jobs on the job queue from being printed, use the **HOLD** control command.

- If you control one or more printers, you can use the **HOLD** control command to prevent one entry or all entries on the spool file that you control from being printed on the printer you control.
- If you have system operator authority or higher, you can also use the **HOLD** control command to:
  - Prevent any one entry or all entries in the spool file from being printed
  - Hold any job on the job queue

## Changing and Controlling Printers, Jobs, and Display Stations

Listed in this section are some commands and procedures you can use to perform tasks. These commands and procedures, along with the available help text, described in this chapter and in the manual *Using Your Display Station*, will help you complete your work without having to refer to the manual *Procedures and Commands Summary*.

### Changing a Default Printer

The system printer is the default printer assigned during the system configuration. If you want to use a different printer, change the appropriate parameter value. The next time you print something, the default printer will be shown again as the printer parameter value. If you want to change the default printer, refer to the manual *Changing Your System Configuration*.

### Displayed Data

To change the current system list device, use the SYSLIST procedure.

### Jobs

To place one or more jobs on the job queue, use the JOBQ control command.

To balance your spooled printer output among a group of printers, use the BALPRINT control command.

To cancel jobs, use the CANCEL control command:

- If you control one or more printers, you can use the CANCEL control command to:
  - Cancel one or all entries in the spool file for a specific printer you control.
  - Cancel one or all entries in the spool file for all printers you control.
  - Cancel one or all entries in the spool file with a specific forms number for a specific printer you control.
  - Cancel all spool entries with a specific user ID for a printer you control.
- If you have system operator authority or higher, you can also use the CANCEL control command to:
  - / Cancel one or all entries on the spool file.
  - Cancel one or all jobs on the job queue.
  - Cancel a currently running job.

- Cancel the session of a display station; that is, you can sign another display station off the system.
- Cancel all spool entries with a specific forms number.
- Cancel all spool entries with a specific user ID.

*Note: Before using the CANCEL control command, you should send a message to the other operators to inform them that you are canceling their program or job.*

To change a job, use the CHANGE control command:

- If you control one or more printers, you can use the CHANGE control command to:
  - Change the position of a spool file entry for a printer you control.
  - Change the printer used for the spool file entries for a printer you control.
  - Change the priority of the spool writer that prints entries for a printer you control.
  - Change the number of separator pages to be placed between the printed output for a printer you control.
  - Change all spool entries with a specific forms number for a printer you control.
  - Change all spool entries with a specific user ID for a printer you control.
- If you have system operator authority or higher, you can also use the CHANGE control command to change the position of a job on the job queue or change the number of jobs that can be run at the same time from the job queue.

To prevent one or more of your jobs from running on the queue or to prevent your entries in the spool file from being printed, use the HOLD control command.

- If you control one or more printers, you can use the HOLD control command to prevent one entry or all the entries on the spool file that you control from being printed on the printer you control.
- If you have system operator authority or higher, you can also use the HOLD control command to:
  - Prevent any one entry or all entries in the spool file from being printed
  - Hold any job on the job queue

To change the processing priority of the next job run from your display station or the next job placed on the job queue, use the **PRTY** control command.

*Note: If you have system operator authority or higher, you can also use the **PRTY** control command to change the processing priority of a currently running job or of a job on the job queue.*

To release your held spool file output for printing or your held jobs on the job queue, use the **RELEASE** control command.

- If you control one or more printers, you can use the **RELEASE** control command to:
  - Release one or more entries in the spool file for a specific printer you control
  - Release all held entries on the spool file for all printers you control
- If you have system operator authority or higher, you can use the **RELEASE** control command to:
  - Release one or all held entries in the spool file
  - Release all jobs on the job queue

To start one or more of the following, use the **START** control command:

- If you control one or more printers, you can use the **START** control command to start the printing of all spool file entries for one or all printers you control.
- If you have system operator authority or higher, you can also use the **START** control command to:
  - Start the printing of all spool file entries for one or all printers
  - Resume the running of a job
  - Start running jobs from the job queue or a job queue priority
  - Resume the SSP-ICF activity that was stopped by a **STOP SESSION** command
  - Resume system activity that was stopped by a **STOP SYSTEM** command
  - Allow jobs to be started from one or more display stations that were stopped by a **STOP WORKSTN** command

To stop a job, use the STOP control command.

- If you control one or more printers, you can use the STOP control command to stop the printing of all entries from the spool file for one printer or all printers you control.
- If you have system operator authority or higher, you can use the STOP control command to:
  - Stop the printing of all spool file entries for any one printer or all printers
  - Stop the processing of a specified job or all jobs
  - Stop the running of jobs from the job queue or a job queue priority
  - Prevent jobs from incoming SSP-ICF sessions
  - Prevent the starting of jobs from all display stations other than the system operator's display station or prevent the starting of jobs from a specific display station

*Note: If you have system operator authority or higher, you can use the STOP control command to stop the job queue or a job queue priority.*

To interrupt a job, press the Attn key; the Inquiry Options display is shown. Select the appropriate option.

*Note: From the Inquiry Options display, you may interrupt up to two jobs for display stations that are not personal computers. If your personal computer has two System/36 sessions and a personal computer session configured, you may interrupt up to two jobs for each System/36 session for a total of four jobs.*

To change the processing priority of the next job run from your display station or the next job placed on the job queue, use the PRTY control command.

*Note: If have system operator authority or higher, you can also use the PRTY control command to change the processing priority of a currently running job on the job queue.*

### **Menus**

To display a help menu, use the HELP procedure.

To display a user menu, use the MENU control command.

### **Messages**

To specify whether informational messages are to be displayed, use the INFOMSG control command.

To change the automatic response level for your display station, use the NOHALT procedure.

To send a message to another display station, use the MSG control command.

*Note: If you have an IBM Personal Computer with a Token-Ring Network, you can send messages using that communications network.*

To reply to a message displayed at the system console or subconsole, use the REPLY control command.

## Printed Data

To display the status of printed output on the spool file, use the STATUS PRT or STATUSF PRT control command.

To display the status of the spool writers, use the STATUS WRT control command.

To change one or more of the following, use the PRINT procedure to change:

- The printer to be used
- The number of lines per page
- The number of characters per inch (cpi) printed horizontally
- The number of lines per inch (lpi) printed vertically
- The forms number to used

To change one or more of the following, use the SET procedure to change:

- The printer to be used
- The number of lines per page
- The forms number to used

To change the current system list device, use the SYSLIST procedure.

To change the printer used when you press the assigned print key and to specify whether a border heading is to be printed, use the PRINTKEY procedure.

To start one or more of the following, use the START control command:

- If you control one or more printers, you can use the START control command to start the printing of all spool file entries for one or all printers you control.
- If you have system operator authority or higher, you can also use the START control command to:
  - Start the printing of all spool file entries for one or all printers
  - Resume the running of a job
  - Start running jobs from the job queue
  - Resume the SSP-ICF activity that was stopped by a STOP SESSION command
  - Resume system activity that was stopped by a STOP SYSTEM command
  - Allow jobs to be started from one or more display stations that were stopped by a STOP WORKSTN command

To stop the printing of spooled output, use the STOP control command.

- If you control one or more printers, you can use the STOP control command to stop the printing of all entries from the spool file for one or all printers you control.
- If you have system operator authority or higher, you can also use the STOP control command to:
  - Stop the printing of all spool file entries for any one or all printers
  - Stop the processing of a specified job or all jobs
  - Stop the running of jobs from the job queue
  - Prevent jobs from incoming SSP-ICF sessions
  - Prevent the starting of jobs from all display stations other than the system operator's display station or prevent the starting of jobs from a specific display station

To restart the printing of the spooled output if you control one or more printers, use the RESTART control command.

To hold spooled output on the spool file to prevent it from printing, or to hold a job on the job queue, use the HOLD control command.

- If you control one or more printers, you can use the HOLD control command to prevent one entry or all the entries on the spool file that you control from being printed on the printer you control.
- If you have system operator authority or higher, you can also use the HOLD control command to:
  - Prevent any one entry or all entries in the spool file from being printed
  - Hold any job on the job queue

To release your held spool file output for printing or release your held jobs on the job queue, use the **RELEASE** control command.

- If you control one or more printers, you can use the **RELEASE** control command to:
  - Release one entry or more entries in the spool file for a specific printer you control
  - Release all held entries on the spool file for all printers you control
  
- If you have system operator authority or higher, you can use the **RELEASE** control command to:
  - Release any one entry or all held entries in the spool file
  - Release all jobs on the job queue

To change a job, use the **CHANGE** control command:

- If you control one or more printers, you can use the **CHANGE** control command to:
  - Change the position of a spool file entry for a printer you control.
  - Change the printer used for the spool file entries for a printer you control.
  - Change the priority of the spool writer that prints entries for a printer you control.
  - Change the number of separator pages to be placed between the printed output for a printer you control.
  - Change all spool entries with a specific forms number for a printer you control.
  - Change all spool entries with a specific user ID for a printer you control.
  - Whether spool file entries should be printed before they are closed
  - The number of copies to be printed
  
- If you have system operator authority or higher, you can also use the **CHANGE** control command to change the position of a job on the job queue or change the number of jobs that can be run at the same time from the job queue.

To cancel one or more of your entries from the spool file, use the CANCEL control command.

- If you control one or more printers, you can use the CANCEL control command to:
  - Cancel one or more entries in the spool file for a specific printer you control
  - Cancel all the entries in the spool files for all the printers you control
- If you are the system operator, you can use the CANCEL control command to:
  - Cancel any one entry or all entries in the spool file
  - Cancel any one job or all jobs on the job queue
  - Cancel a currently running job

*Note: Before using the CANCEL control command, you should inform the other operators that you will be canceling their jobs.*

### **Session Library**

To change the current or session library, use the SLIB procedure.

### **Signing Off**

To sign your display station off the system, use the OFF control command.

To sign another display station off the system, use the CANCEL control command; however, you must be the system console operator to do this.

### **System Console**

To change the work station IDs of one or more printers or display stations, use the ASSIGN control command at the system console.

## Communicating with Other Systems

Listed in this section are some commands and procedures you can use to perform tasks. These commands and procedures, along with the available help text, described in this chapter and in the manual *Using Your Display Station*, will help you complete your work without having to refer to the manual *Procedures and Commands Summary*.

### Defining

To specify which messages should be considered alert messages, use the ALERT procedure.

To specify user-defined messages or which messages should be considered alert messages, use the SETALERT procedure.

To place a communications line or a remote work station online or offline, use the VARY control command.

*Note: If you have system operator authority or higher, you can use the VARY control command.*

### Changing

To change system communications information in the communications configuration record, use the SETCOMM procedure.

To change display station communications information temporarily for a particular display station, use the ALTERCOM procedure.

### Starting

To start the SSP-ICF sessions that were stopped, use the START SESSION command at the system console to allow jobs to be started through the SSP-ICF sessions.

### Stopping

To stop the SSP-ICF session, use the STOP SESSION command at the system console to prevent incoming SSP-ICF subsystem sessions from starting jobs.

To cancel a display station session or a Display Station Pass-Through session, use the CANCEL SESSION control command.

*Note: If you have system operator authority or higher, you can use the CANCEL SESSION control command to cancel a session.*

To interrupt a session or a program running on a remote system when in Display Station Pass-Through or Printer Pass-Through, or when using the Distributed Host Command Facility, press the Attn key; then, select the correct option and press the assigned enter key.

To place a display station offline, use the VARY OFF command.

*Note: If you have system operator authority or higher, you can use the VARY control command.*

## Displaying Status

Listed in this section are some commands and procedures you can use to perform tasks. These commands and procedures, along with the available help text, described in this chapter and in the manual *Using Your Display Station*, will help you complete your work without having to refer to the manual *Procedures and Commands Summary*. For information about using help with STATUS and STATUSF control commands, refer to “Help for Status Displays” in the manual *Using Your Display Station*.

### Displayed Data

To display the current system list device, use the STATUS SESSION (D or D S) control command.

### Displaying Communications Status

To display the status of alert communications or problem management using Communications and Systems Management, use the STATUS ALERT control command.

To display the status of advanced program-to-program communications (APPC) or Advanced Peer-to-Peer Networking (APPN), use the STATUS APPC (or D A) control command.

To display the status of the system communications information for each line, use the STATUS COMCNFIG (or D H) control command.

To display the status of the system communications information for each display station, use the STATUS COMM (or D C) control command.

To display the status of your communications lines being used and lines being shared, use the STATUS LINE (or D L) control command.

To display the status of multiple-session remote job entry (MSRJE), use the STATUS MSRJE (or D M) control command.

To display the status of active SSP-ICF, use the STATUS SUBSESS (or D N) control command.

To display the status of enabled SSP-ICF or enabled Advanced Peer-to-Peer Networking (APPN), use the STATUS SUBSYS (or D I) control command.

To display the status of tape drives, diskette drives, local or remote printers, local or remote display stations, Display Station Pass-Through displays, Printer Pass-Through displays, or Distributed Host Command Facility displays, use the STATUS WORKSTN (or D W) or STATUSF WORKSTN (or DF W) control command.

### Interrupted Jobs

After pressing the Attn key to interrupt a job, select option 5 from the Inquiry Options display and press the Enter key to display the status of the last interrupted job.

**Job Queue**

To display the status of the job queue, use the STATUS JOBQ (or D J) or the STATUSF JOBQ (or DF J) control command.

**Message Status Sent to Consoles or Subconsoles**

To display the status of messages sent to consoles or subconsoles, use the STATUS MESSAGE (or D G) control command.

**Programs or Procedures Running**

To display the current status of programs or procedures that are running, use the STATUS USERS (or D U) or STATUSF USERS (or DF U) control command.

**Session Date**

To display the current or session library, use the STATUS SESSION (D S or D) control command.

**Spool File Status**

To display the status of spool file entries, use the STATUS PRT (or D P) or STATUSF PRT (or DF P) control command.

**Spool Writer Status**

To display the status of the spool writers, use the STATUS WRT (or D WRT) control command.

**Tasks**

To display the status of tasks on the system, use the STATUS SYSTASK (or D T) control command.

## Maintaining the System

Listed in this section are some commands and procedures you can use to perform tasks. These commands and procedures, along with the available help text, described in this chapter and in the manual *Using Your Display Station*, will help you complete your work without having to refer to the manual *Procedures and Commands Summary*.

### Compressing

To compress the disk space or to collect all the free space on disk into an area, use the COMPRESS procedure.

*Note: Before you run the COMPRESS procedure, you should send all the other users a message using the MSG control command. Ask them to sign off the system while you are running the COMPRESS procedure.*

### Disk Space

To collect all the unused space in a library into one area, thus making room for more library members, use the CONDENSE procedure.

Before running the CONDENSE procedure, make sure no other jobs are allowed to use the specified library until CONDENSE is complete.

*Note: Before running this procedure, you should use the MSG control command to inform all the users that no one should use the library you will specify in the CONDENSE procedure. If a user tries to run the CONDENSE procedure for a library that is being used by another job, an error message is displayed, and the CONDENSE procedure is not run. When the CONDENSE procedure begins running, no other jobs are allowed to use the library until the CONDENSE procedure is complete.*

To list the contents of the disk and the areas of the unused space on the disk, use the CATALOG procedure.

### History

To print or display history file entries, use the HISTORY procedure.

To copy the history file to a disk file, use the HISTORY procedure.

To erase information from the history file, use the HISTORY procedure.

To run a procedure when the SSP automatically creates a disk file named HISTCOPY (because the history file is full), use the HISTCOPY procedure and edit the information shown to you.

### Starting

To start one or more of the following, use the START control command:

- If you control one or more printers, you can use the START control command to start the printing of all spool file entries for one or all printers you control.
- If you have system operator authority or higher, you can also use the START control command to:
  - Start the printing of all spool file entries for one or all printers
  - Resume the running of a job
  - Start running jobs from the job queue
  - Allow a display station to be used as a system service display station
  - Resume the SSP-ICF activity that was stopped by a STOP SESSION command
  - Resume system activity that was stopped by a STOP SYSTEM command
  - Allow jobs to be started from one or more display stations that were stopped by a STOP WORKSTN command

### Stopping

To do one or more of the following, use the STOP control command.

- If you control one or more printers, you can use the STOP control command to stop the printing of all entries from the spool file for one printer or all printers you control.
- If you have system operator authority or higher, you can also use the STOP control command to:
  - Stop the printing of all spool file entries for any one printer or all printers
  - Stop the processing of a specified job or all jobs
  - Stop the running of jobs from the job queue
  - Prevent jobs from incoming SSP-ICF sessions
  - Prevent the starting of jobs from all display stations other than the system operator's display station or prevent the starting of jobs from a specific display station

## Chapter 6. Using the Software Reset Sequence

The software reset sequence is the same as turning the system off, and then turning it back on again, with one exception: the software reset sequence allows you to reset the personal computer without having to run through the diagnostics.

**Warning:** Do not use the software reset sequence to leave an emulation session while you are running an application on the personal computer. If you are running an application program under DOS, the personal computer continues to operate, but control is returned to DOS, not to your application program.

Use the following steps to perform the software reset sequence:

1. Sign off System/36.
2. When the Sign On display appears, press and release the Alt-Esc keys until the Session Selection menu appears.
3. Make sure that you want to perform the software reset sequence. To perform the software reset sequence, press and hold the Alt and Ctrl keys, then press the Del key.

*Notes:*

- a. A warning message is displayed telling you that the System/36 is active.
  - b. Make sure that no PC application programs are running.
4. Again, press and hold the Alt and Ctrl keys, then press the Del key.

*Note:* The System/36 and the PC sessions are terminated. Any jobs or applications that are running are canceled and no files are closed.



## Chapter 7. Stopping System/36

This chapter describes the following steps, which are used to stop your System/36:

1. Sign off System/36.
2. Turn off the 5364 System Unit and the personal computer.

### Signing Off System/36

If you are signing off System/36 and want to turn off the 5364 System Unit, see the following section “Turning Off the 5364 System Unit and the Personal Computer.”

If you are signing off System/36 without turning off the 5364 System Unit, you can sign off in one of two ways:

- Type OFF on the entry line of a command display (with or without a menu) and press the assigned enter key, or
- Return to the Main menu, select the *Sign off the system* option, and press the assigned enter key.

If you are using a remote display station on a switched line, or if you are in a Display Station Pass-Through session, type OFF DROP if you do not want the IPL Sign On display shown the next time you sign on the system; type OFF HOLD if you do want it displayed.

*Note:* You can sign on the system without performing an IPL again.

### Turning Off the 5364 System Unit and the Personal Computer

To turn off the 5364 System Unit, you must be at the system console (Session 1). You can use the suggested sequence or, if necessary, you can use an emergency step.

## Suggested Sequence for Turning Off System/36

Make sure that a PC program is not running.

1. Send a message (using the MSG command) to all display station operators stating when the system is going to be turned off.
2. Display and respond to any messages that are sent to you by display station operators.

*Note: Before proceeding to turn off the 5364 System Unit and the personal computer, make sure there are no PC applications running.*

3. Type P S (or STOP SYSTEM) on the entry line of a command display or a console display at the system console and press the assigned enter key.
4. Display and respond to any messages.
5. When the STOP SYSTEM command is complete and the System Available indicator is on, type POWER OFF on the entry line of a command display or a console display at the system console and press the assigned enter key.
6. Remove all diskettes from the diskette drives and put them in their protective envelopes.
7. Set the Power switch on the 5364 System Unit to the O (Off) position.
8. Set the Power switch on the personal computer to the O (Off) position.

## Emergency Steps for Turning Off the 5364 System Unit

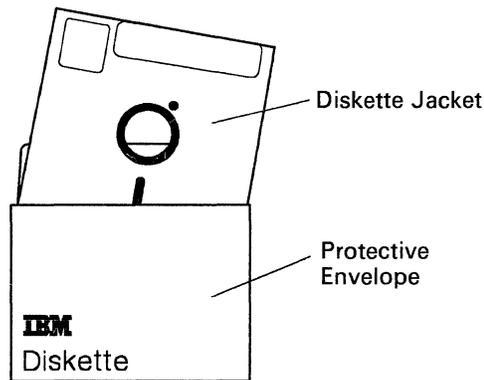
1. Set the Power switch on the 5364 System Unit to the O (Off) position.

*Notes:*

- a. *The system is turned off immediately.*
  - b. *Any jobs or applications that are running are canceled and no files are closed.*
  - c. *A personal computer file that is being used by a PC application may be lost.*
2. Set the Power switch on the personal computer to the O (Off) position.

## Chapter 8. Using a Diskette or a Tape

This chapter describes what you need to know when using a 5-1/4 inch diskette. A diskette is a thin, flexible disk permanently enclosed in a plastic jacket. When the diskette is used by the 5364 System Unit, the disk turns freely within the jacket. The diskette jacket contains a liner material that cleans the diskette as it turns. When the diskette is not in use, it should be kept in its protective envelope.



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The 5-1/4 inch diskettes used for the personal computer and the 5-1/4 inch diskettes used for the 5364 System Unit are two different types and are *not* interchangeable. The personal computer uses 5-1/4 inch double-sided, double density 360 kilobyte diskettes (2D), and the 5364 uses 5-1/4 inch double-sided, high density 1.2 megabyte diskettes (2HD). The IBM Personal Computer AT also uses 5-1/4 inch 2HD diskettes, but they are formatted differently and are *not* interchangeable with the 5364 diskettes.

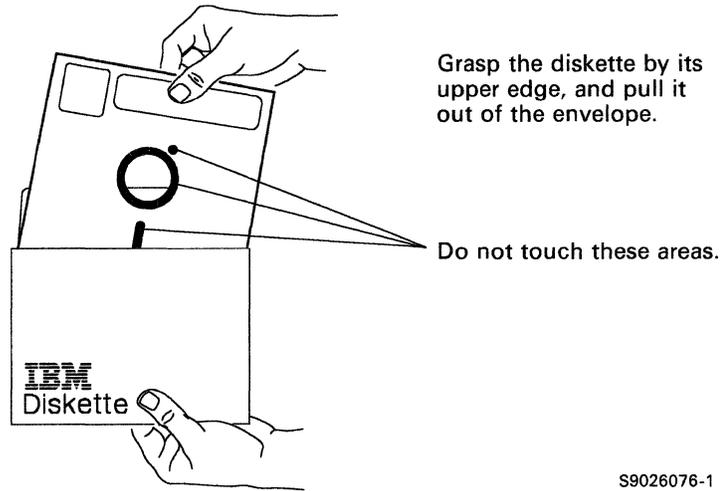
This chapter tells you how to:

- Handle a diskette
- Label a diskette
- Use a diskette
- Initialize a diskette
- Copy a diskette

# Handling a Diskette

IBM diskettes are designed to take the stress of normal and frequent handling. However, there are some precautions that you should note as you handle your diskettes. If you follow these precautions carefully, your diskettes will last longer.

The proper way to remove a diskette from its protective envelope is shown in the following illustration.

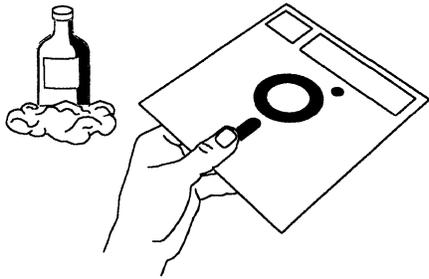


S9026076-1

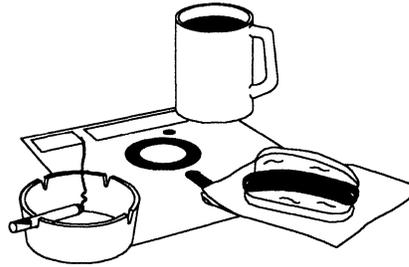
Be sure to keep the protective envelope and return the diskette to the envelope every time you remove the diskette from the diskette drive. As its name implies, the protective envelope is provided to help prevent damage to the diskette. Damage to a diskette can cause problems that range from occasional reading or writing errors to a permanent loss of the information on the diskette.

The following paragraphs and illustrations point out some of the more common diskette handling mistakes. These mistakes are usually the result of not being careful. Diskettes are not, in themselves, costly; but the information they contain can be very costly if it is lost.

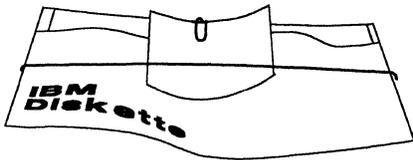
**Do not touch or attempt to clean a diskette surface. A contaminated diskette will not work correctly.**



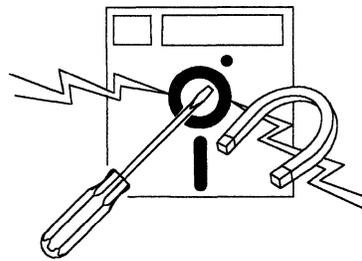
**Do not lay a diskette near smoke or other things that can cause the diskette to be contaminated.**



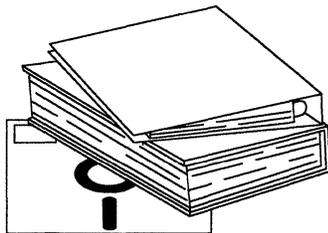
**Do not use clips or rubber bands on a diskette.**



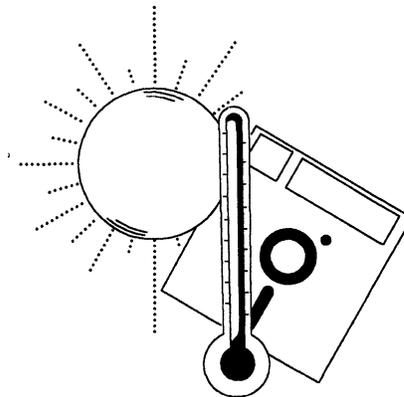
**Do not place a diskette near magnetic materials. Data can be lost from a diskette exposed to a magnetic field.**



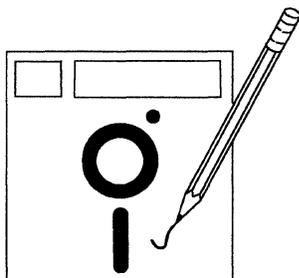
**Do not place heavy books on a diskette.**



**Do not expose diskettes to heat greater than 51.5 °C (125 °F) or to direct sunlight.**



**Do not write outside the label area on a diskette and only write on the label with a felt-tip pen.**



## Labeling a Diskette

A permanent label is attached to the diskette jacket of each diskette before it is shipped. This label indicates the type of diskette.

Temporary labels can be ordered to record changing items, such as:

- The name you give to the diskette
- What data is stored on the diskette (job numbers, names, and dates)
- Who entered the data
- The date the data was verified

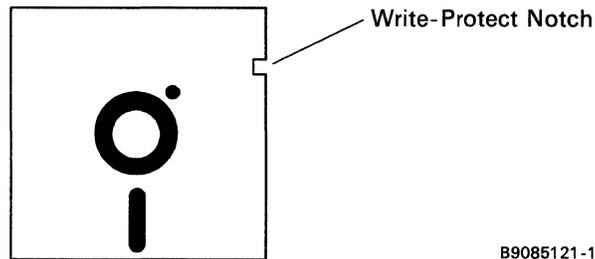
Because there are two different types of diskettes, you may find it helpful to use different labels for PC and 5364 diskettes so as not to mix them up.

When you write information on the labels, do not press hard; you may want to write on the temporary label before you place it on the diskette jacket.

## Using a Diskette

Using a diskette consists of:

- Selecting the correct diskette
- Inserting the diskette
- Removing the diskette



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*Note: Do not cover the write-protect notch on the diskette or you will not be able to write to the diskette.*

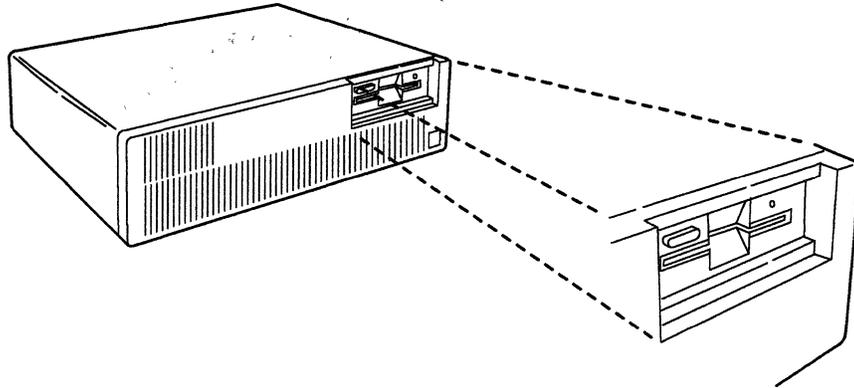
### Selecting the Correct Diskette

The label on each diskette that you use should contain information that identifies the data that is on the diskette. Before you use a diskette to perform a task, check the label to ensure that you are using the correct diskette.

## Inserting the Diskette

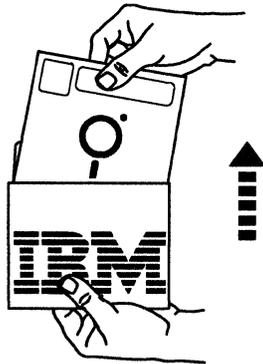
For information on inserting a diskette into the personal computer, see the manual *IBM Personal Computer Guide to Operations*. The following illustrations show how to insert a diskette into the 5364.

1. Locate the diskette drive on the 5364.



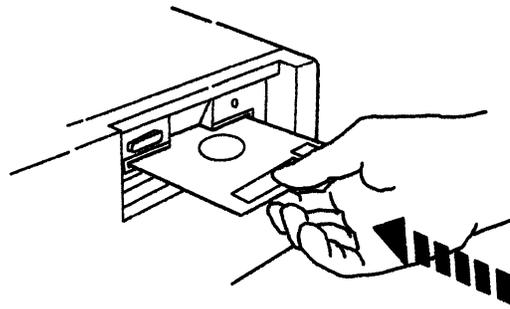
B9085012-2

2. Remove the diskette from its protective envelope.



B9085009-1

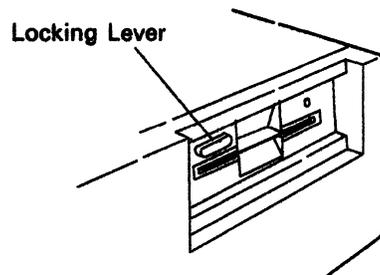
3. Insert the diskette into the slot with the diskette label facing up.



B9085010-2

Make sure the diskette is in the slot all the way. If it is not, the diskette can be damaged and data may be lost.

4. Turn the locking lever to lock the diskette in the slot.

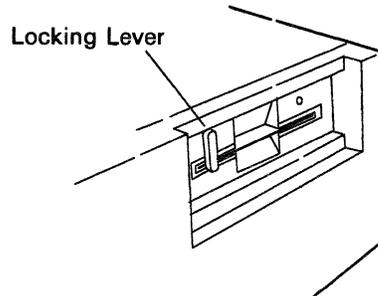


B9085011-2

## Removing the Diskette

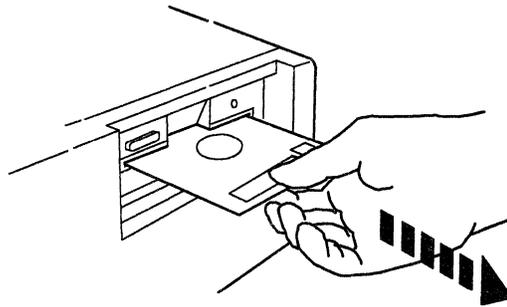
For information on removing a diskette from the personal computer, see the manual *IBM Personal Computer Guide to Operations*. The following illustrations show how to remove a diskette from the 5364.

1. Turn the locking lever to unlock the drive so that the diskette can be removed from the slot.



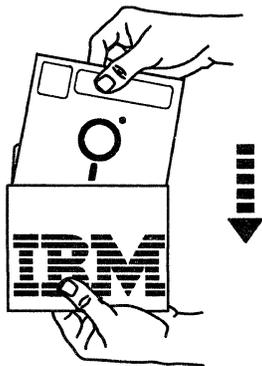
B9085008-2

2. Pull the diskette from the slot.



B9085005-2

3. Put the diskette in its protective envelope.



B9085006-1

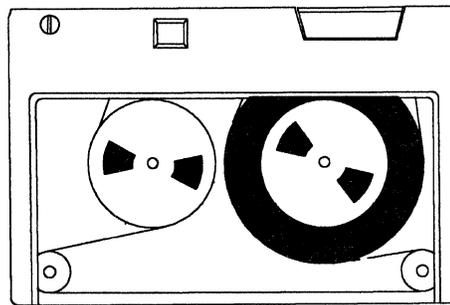
# Using a Magnetic Tape

Magnetic tape is a storage device that is available for System/36 with a 5364 System Unit. You can use tape for permanent storage or backup of files and libraries that you now have on your system. For information about ordering IBM magnetic tapes and accessories for the 6157 Streaming Tape Drive, see Workbook 2, "General Planning Activities" in the manual *What to Do Before Your Computer Arrives*.

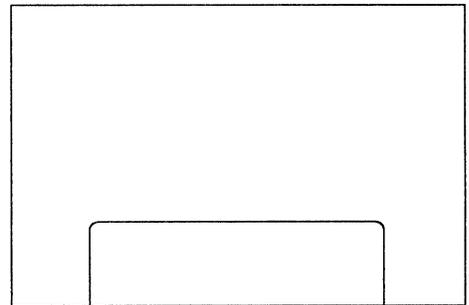
*Note: PC application programs are not supported.*

Shown below is a tape cartridge for the 6157 Tape Drive and its box:

Tape Cartridge



Tape Cartridge Box



S9026132-1

The *6157 Streaming Tape Drive Setup and Operating Instructions* tells you how to:

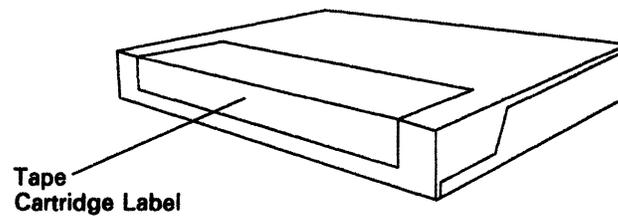
- Operate the 6157 Streaming Tape Drive
- Handle a tape
- Store a tape
- Load a tape
- Unload a tape
- Clean the tape unit or tape drive

## Labeling a Tape

When you store data on tape, you should label the tapes. You can order labels to record information such as:

- The name or number of the tape
- What data is stored on the tape
- The date the data was stored on tape
- Who stored the data on tape

You may want to write the information on the label before you place it on the reel of tape or tape cartridge.



B9085126-0

## Chapter 9. Reloading System/36 from Diskette or Tape

This chapter contains information on reloading System/36. If you need to reload your system (for example, the system is no longer operating), you should use the backup diskettes you created when you performed your first system configuration. When you receive a new release of SSP, you should use the new diskettes to reload your system.

*Note: Before you reload the SSP, make sure that you have the correct PC code to go with the release. If not, refer to the manual **Updating to a New Release**.*

Use the following steps to reload your System/36 from diskette:

1. Determine whether your system is a diskette-based or disk-based system as follows:

**If you will be loading your attachment programs from diskette (diskette-based system),** insert the current working PC CODE DSKT04 into diskette drive A of the personal computer.

*Notes:*

- a. *If your system has host graphics support, insert working PC CODE DSKT03 into diskette drive A of the personal computer.*
- b. *For information about how to use a diskette or a tape, you may refer to the chapter "Using a Diskette or a Tape."*

**If you will be loading your attachment programs from disk (disk-based system),** go to step 2.

2. Set the Power switch on the 5364 System Unit to the | (On) position.

*Note: If your display station has a separate Power switch, turn it to the | (On) position.*

3. Set the Power switch to the | (On) position for any local display stations, tape units, and printers you want use.
4. Set the Power switch on the personal computer to the | (On) position.

5. If you are using a diskette-based system after the system finishes reading the first diskette, it prompts you to insert working PC CODE DSKT01 into diskette drive A.
  - a. Remove the working PC CODE DSKT04 (or PC CODE DSKT03 if you have graphics) from diskette drive A and place it in its protective envelope.
  - b. Remove the working PC CODE DSKT01 from its protective envelope.
  - c. Insert the working PC CODE DSKT01 into diskette drive A.
  - d. Press the PC enter key.

6. If the S36 command is:

**Included in the AUTOEXEC.BAT file**, the S36 command is automatically executed when the personal computer is powered on. Go to step 7.

**Not included in the AUTOEXEC.BAT file:**

- a. Type the time and date if you are prompted for it.
  - b. Type S36 when the DOS prompt is displayed and press the PC enter key.
  - c. Go to step 7.
7. Do one of the following:
    - If the Service Control Menu is shown and the service level is normal, the IPL Sign On display or a command display will be shown shortly. When the IPL Sign On display or a command display is shown, press and hold the Alt key and press the Esc key, and the Session Selection Menu will be displayed. Go to step 8.
    - If the Service Control Menu is shown without a 4-character SRC code in the lower right corner of the display, and the service level is service, go to step 12.
    - If the Service Control Menu is displayed and the Service Level is locked, go to step 9.
    - If the Service Control Menu is shown with a 4-character system reference code (SRC) in the lower right corner of the display, see the manual *System Problem Determination – 5364*.
    - If neither the IPL Sign On display nor the Service Control Menu is shown, refer to the manual *System Problem Determination – 5364*.

8. On the Session Selection Menu, select option 3 (*Service session*) and press the PC enter key. The Service Control Menu is displayed.
9. Select option 1 (*Change service level*) and press the PC enter key. The Change Service Level Menu is displayed.
10. Select option 1 (*Change service level*) and press the PC enter key. The Change Service Level display appears.
11. If you do not have a color display, enter the service or backup password, select option 2 (*Service*) as the service level and press the PC enter key. The Service Control Menu is displayed.

If you have a color display, the cursor will not be displayed at the first prompt on the Change Service Level Menu. You should:

- a. Press the Field Exit key.
  - b. Select option 2 (*Service*).
  - c. Type the service or backup password and press the PC enter key; the Service Control Menu is displayed.
12. If you are performing an IPL:
    - **From diskette**, insert the SSP volume 1 of 14 diskette in the diskette slot of the 5364 System Unit. For information about diskette handling, refer to Chapter 8 “Using a Diskette or a Tape.”

*Note: If you are performing an IPL from diskette, make sure the tape drive is not turned on.*
    - **From tape**,
      - a. Set the Power switch on the tape drive to the | (On) position.
      - b. Remove the SSP tape from the tape cartridge box.
      - c. Insert the SSP tape into the tape drive.

*Note: For information about how to load a tape into the tape drive, refer to the manual 6157 Streaming Tape Drive Setup and Operator Instructions, SC23-0786.*

13. Select option 4 (*Reload SSP and microcode*) and press the PC enter key.

*Notes:*

a. *If the following message appears:*

To IPL, you must reload the System/36 attachment program.

- *If you have a disk-based system, press the Alt, Ctrl, and Del keys twice and go to step 5.*
- *If you have a diskette-based system:*
  - 1) *Remove the working PC CODE DSKT01 from diskette drive A and place it in its protective envelope.*
  - 2) *Remove the working PC CODE DSKT04 (on DSKT03 if you have graphics) from its protective envelope.*
  - 3) *Insert the working PC CODE DSKT04 (or DSKT03) into diskette drive A.*
  - 4) *Press the PC enter key.*
  - 5) *Press the Alt, Ctrl, and Del keys twice and go to step 5.*

b. *If the following message appears:*

Message 3908 INVALID SSP

- *And if you are using a new system, the SSP does not exist on disk. Press the assigned enter key to proceed.*
- *And if you are not using a new system, the SSP should exist on disk, but it is not there. Refer to the **System Messages** and the **Problem Determination – 5364** manuals.*

After a few minutes, the following SSP Generation and Reload - Sign On display should appear. If this display does not appear, see the manual *System Problem Determination - 5364*.

SSP GENERATION AND RELOAD - SIGN ON	
User ID	SYSSSP__
Password	_____
Load functional microcode Y,N	N_____

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14. Enter the following:

**User ID:** If the *Password* prompt is displayed, type your user ID SYSSSP is the default.

**Password:** Type the 4-character password. This password does not appear on the display when you type it. If security is not active, the *Password* prompt is not displayed.

**Load functional microcode:** Type a Y if you want the functional microcode loaded. N is the default.

Press the assigned enter key.

*Notes:*

- a. *At this point, the assigned enter key you press emulates the 5250 keyboard. Use the keyboard templates to see the differences.*
- b. *No matter whether you are loading your SSP from diskette or tape, you will be prompted to load your microcode from diskette.*
- c. *If you are loading the SSP from tape, go to step 18.*

15. If you are performing an IPL from diskette, when the system has finished reading the first SSP diskette, a display similar to the following display is shown.

SSP GENERATION AND RELOAD - INPUT/OUTPUT

End of volume. Insert next diskette.

Insert diskette:

Volume ID	-	01
Sequence number	-	002
SAVELIBR name	-	#LIBRARY
SAVELIBR date	-	850130

Press Enter to continue processing.

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16. If you are performing an IPL from diskette, remove the SSP volume 1 diskette and put the next diskette into the diskette slot of the 5364 System Unit.

17. Press the assigned enter key.
18. Continue to follow the prompts on the display. When the system has finished reading the data, a display similar to the following will be shown.

SSP GENERATION AND RELOAD - MESSAGES

IPL initialization in process - please standby.  
SSP reload complete, remove diskettes.

B9085903

19. If you are performing the IPL:
  - a. From tape and loaded the functional microcode, remove the microcode diskette and place it in its protective envelope.
  - b. From tape and did not load the functional microcode, remove the SSP tape and place it in its tape cartridge box.
  - c. From diskette, remove the last diskette and place it in its protective envelope.
20. After a few moments, the system will automatically perform an IPL from disk and the IPL Sign On display will be shown. For more information about the IPL Sign On display, see Chapter 2.



## Chapter 10. Applying a Program Temporary Fix (PTF)

A program temporary fix (PTF) is a solution to a problem that exists in an IBM-supplied program. PTFs are supplied by IBM or by your IBM-approved remarketer on PTF diskettes. This chapter describes the steps that you can use to apply a PTF to either the personal computer or System/36 and how to print or display information about IBM-supplied PTF diskettes. See the following section to apply a PTF to the personal computer. See “Applying a System/36 PTF” later in this chapter to apply a PTF to System/36.

*Note: If your system has abnormally ended, you may have to perform an IPL again on the system before you can apply the PTF.*

## Displaying or Printing Information About IBM-Supplied PTF Diskettes

You can choose either to display or print information about the IBM-supplied PTF diskettes. To do so, perform the following steps:

1. Type PTF NEWS on the entry line of a command display, a subconsole display, or a console display.
2. Press the Help key.
3. You can do one of the following:
  - Type ALL and press the Enter key to receive:
    - All the newsletters in the PTF library
    - A list of cross-referenced PTFs
    - A PTF index
  - Type Bulletin and press the Enter key for information about any special actions you must perform while applying the PTFs
4. You can do one of the following:
  - Type PRINT and press the Enter key to have the information printed.
  - Type DISPLAY and press the Enter key to have the information shown on your display station.

## Applying a PC PTF

The process of applying a PC PTF to the personal computer depends on whether you are applying the PTF to disk or diskette. If your PC attachment programs are on a PC disk, apply the PTF to your PC disk. If these attachment programs are on diskette, apply the PTF to the your PC diskette.

*Note: This section assumes you are familiar with the steps necessary to load the Disk Operating System (DOS) program. See the appropriate DOS manual for more information.*

## Applying a PC PTF to Disk

This section describes the steps that you use to apply a PTF to a personal computer disk drive. A later section explains how to apply a PTF to the System/36.

*Note: This section assumes that the files from the PC code diskettes have been added to the S36 directory on the PC disk.*

To apply a PC PTF to disk:

1. You must turn off the 5364 System Unit and the personal computer before a PC PTF is applied. If additional information is needed to turn these off, refer to "Turning Off the 5364 System Unit and the Personal Computer" in this manual.
2. Insert the DOS program diskette into diskette drive A of the personal computer.
3. Set the Power switch on the personal computer to the | (On) position. Enter the date and time when prompted.
4. Remove the DOS program diskette from diskette drive A of the personal computer.
5. Set the default disk drive to the drive that contains the S36 directory. To do this, type **x:** when the DOS prompt is shown (where **x:** is the disk drive identifier) and press the PC enter key.
6. At the DOS prompt, type **CD\S36** and press the PC enter key. This makes S36 the current directory.
7. Insert the PC PTF diskette into diskette drive A of the personal computer. At the DOS prompt, type **A:PTF** and press the PC enter key.

Upon completion you should receive the following message:

```
PTF applications completed successfully.
```

If system reference code 1430 or 1431 is displayed, contact your service representative.

8. Remove the PTF diskette that is currently in diskette drive A of the personal computer and put the diskette in its protective envelope.
9. You have now completed applying the PC PTF.

## Applying a PC PTF to Diskette

Do not apply a PC PTF to diskette if the PTF has already been applied to disk. Apply this PTF only to the current working copy diskettes.

If password security is active, you must have service aid authority in order to apply PTFs. If you must apply PTFs, and you do not have service aid authority, see your master security officer so he can change your user profile to give you service aid authority.

To apply a PTF to diskette:

1. You must turn off the 5364 System Unit and the personal computer before a PC PTF is applied. If additional information is needed to turn these off, refer to "Turning Off the 5364 System Unit and the Personal Computer" in this manual.
2. Use the diskette(s) that were created during setup or at the last release update as a current working PC code diskette. The working PC code diskette is labeled R05 WORKING PC CODE DSKTXX, where XX is the diskette number. The program will prompt you for the diskettes you need.
3. Insert the DOS program diskette into diskette drive A of the personal computer.
4. Set the Power switch on the personal computer to the | (On) position.
5. Enter the date and time when prompted. Remove the DOS program diskette from diskette drive A of the personal computer.
6. When the DOS prompt appears, insert the PTF diskette into the diskette drive A of the personal computer.
7. Type **PTF** and press the PC enter key.

The program will prompt you to insert R05 WORKING PC CODE DSKT02 by displaying a message:

```
PC DSKT02
```

8. Remove the PTF diskette from the diskette drive A of the personal computer.

9. Insert R05 WORKING PC CODE DSKT02 into diskette drive A and press the PC enter key.

The program will prompt you to insert either the PTF diskette or one of the working PC code diskettes. Upon completion you should receive the following message:

PTF applications completed successfully.

10. Remove the diskette currently in the diskette drive of the 5364 System Unit and put the diskette in its protective envelope.

If system reference code 1430 or 1431 is displayed, contact your service representative.

You have now completed applying the PC PTF.

## Applying a System/36 PTF

This section describes the steps that you use to apply a PTF to System/36. A previous section explains how to apply a PTF to the personal computer.

If there are no special considerations, the process of applying PTFs to the System/36 consists of:

- Copying the contents of your PTF diskette to the PTF libraries
- Using the PTF libraries to apply the PTFs to the appropriate libraries (during this step, PTF backup libraries are created)
- Initializing a diskette for the PTF backup libraries
- Saving the PTF backup libraries on the initialized diskette
- Deleting the PTF backup libraries from your system

### *Notes:*

1. *If your system has abnormally ended, you may have to perform an IPL before you can apply a PTF.*
2. *If password security is active, you must have service aid authority in order to apply PTFs. If you must apply PTFs, and you do not have service aid authority, see your master security or security officer so he can change your user profile to give you service aid authority.*

## Copying the Contents of Your PTF Diskette to the PTF Libraries

Use the following procedure to copy a PTF diskette to the PTF libraries:

1. Turn on the 5364 System Unit and the personal computer.
2. Sign on the 5364 System.
3. Insert Volume 01 of the PTF diskettes in the diskette drive of the 5364 System Unit.
4. Type PTF COPY on the entry line of the command display and press the assigned enter key.
5. The contents of the PTF diskette will be copied to the PTF libraries. If there are more PTF diskettes to be processed:
  - a. A message, SYS-3366, will be issued instructing you to insert the next diskette.
  - b. Remove the PTF diskette currently in the diskette drive of the 5364 System Unit and put the diskette in its protective envelope.
  - c. Insert the next PTF diskette in the diskette drive of the 5364 System Unit. The volume number of the next diskette to be inserted is identified in the message text.
  - d. Respond to the message by keying in a 1 and pressing the assigned enter key.
  - e. This process will be repeated until all the PTF diskettes have been processed.
6. When the PTF COPY procedure has finished, your beginning menu will be redisplayed. Remove the last PTF diskette from the diskette drive of the 5364 System Unit and put the diskette in its protective envelope.
7. Put this PTF diskette with the backup diskettes that were processed during system configuration. You are now ready to use the PTF libraries to apply the PTFs to the appropriate libraries.

## Using the PTF Libraries to Apply the PTFs to the Appropriate Libraries

After you have copied the contents of your PTF diskette to the PTF libraries, you can either:

- Apply the PTFs immediately, or
- Apply the PTFs the next time you start your system (IPL from disk)

### Applying the PTFs Immediately

If you want to apply the PTFs immediately, you must have a dedicated system. That means no jobs can be currently running on the system. Also, after you apply the PTFs, you should perform an IPL from disk to ensure a complete PTF application. To apply the PTFs immediately:

1. Type PTF APPLY on the entry line of the command display and press the assigned enter key. The PTFs are applied to the appropriate libraries, and either the Main menu or your beginning menu is displayed.
2. After the PTF is processed, a prompt will be displayed indicating that an IPL from disk will be started. Press the assigned enter key in order to begin the IPL. The IPL Sign On display is shown.
3. Type the required information on the IPL Sign On display and press the assigned enter key; the Main menu or your beginning menu is displayed. For more information on the IPL Sign On display, see Chapter 3.

Now that you have applied the PTFs to the appropriate libraries, you should initialize a diskette and save the PTF backup libraries on that initialized diskette. See “Initializing a Diskette for the PTF Backup Libraries” later in this chapter.

#### Notes:

1. *When you apply a PTF, backup libraries are created on disk. You can save these libraries to diskette using the PTF SAVE procedure, and then the backup libraries on the disk may be deleted using the PTF DELETE procedure.*
2. *The PTF libraries (except CSPTFLIB) are deleted by the PTF APPLY procedure after the PTFs are applied to the appropriate libraries.*
3. *A dedicated system is required when PTFs are applied to the #LIBRARY or the microcode.*
4. *When you use the ALLPTF parameter and password security is active, you must have service aids authority in order to apply the PTF.*

## Applying the PTFs the Next Time You Start Your System

If you did not apply the PTFs immediately after you copied the contents of your PTF diskette to the PTF libraries, the next time you start your system (IPL from disk) the following display will appear after you have responded to the IPL Sign On display:

```
                IPL OVERRIDES - PROGRAMS TO BE RUN DURING IPL
To cancel a program, enter N (no).

PTF - apply PTFs to system . . . . . Y,N      Y
```

B9085999

1. Use the default value Y that is shown.
2. Press the assigned enter key; the PTFs are applied to the appropriate libraries and the Main menu or your beginning help menu is displayed.
3. After the PTF is processed, a prompt will be displayed indicating that an IPL from disk will be started. Press the assigned enter key in order to begin the IPL. The IPL Sign On display is shown.
4. Type the required information on the IPL Sign On display and press the assigned enter key. During IPL, messages are displayed to inform you of IPL progress. When the IPL is complete, the Main menu or your beginning menu is displayed.

Now that you have applied the PTFs to the appropriate libraries, you should initialize a diskette and save the PTF backup libraries on that initialized diskette. See "Initializing a Diskette for the PTF Backup Libraries" later in this chapter.

*Notes:*

- 1. When you apply a PTF, backup libraries are created on disk. You can save these libraries to diskette using the PTF SAVE procedure, and then the backup libraries on the disk may be deleted using the PTF DELETE procedure.*
- 2. The PTF libraries (except CSPTFLIB) are deleted by the PTF APPLY procedure after the PTFs are applied to the appropriate libraries.*
- 3. A dedicated system is required when PTFs are applied to the #LIBRARY or the microcode.*
- 4. When you use the ALLPTF parameter and password security is active, you must have service aids authority in order to apply the PTF.*

# Initializing a Diskette for the PTF Backup Libraries

If you are going to initialize a diskette that has been used previously, perform the following steps to ensure that you will be initializing a diskette that contains information you no longer need.

1. Remove your diskette from its protective envelope and insert the diskette into the diskette drive of the 5364 System Unit.
2. Type SYSLIST CRT on the entry line of the command display and press the assigned enter key.
3. Type CATALOG ALL,I1 on the entry line of the command display and press the assigned enter key. The display that is shown indicates the files that are contained on the diskette that you will be initializing.

If there is information on the diskette that you do not want to lose:

- a. Type a 0 (zero) on the entry line and press the assigned enter key.
- b. Remove the diskette from the diskette drive of the 5364 System Unit and put the diskette in its protective envelope.
- c. Use a different diskette and restart at step 1 of this procedure.

If you no longer need the information contained on the diskette and you want to initialize the diskette, continue with step 5.

4. Type a 0 (zero) on the entry line and press the assigned enter key.
5. Type INIT on the entry line of the command display and press the assigned help key (do *not* press the assigned enter key); the INIT Procedure display is shown.
6. Type the volume ID (from 1 to 6 alphabetic or numeric characters). For example, you could name the diskette PTFBAK.
7. Record the volume ID on a piece of paper so that you can write the volume ID on the temporary label of the diskette after the diskette is initialized. You will need to know the volume ID when you save the PTF backup library on this initialized diskette.
8. Use the default value OWNERID, or type from 1 to 14 alphabetic or numeric characters to indicate who owns the diskette.

9. Type `FORMAT2` to indicate that the diskette you are initializing will be formatted in the 1024 bytes-per-sector format and press the assigned enter key. The diskette is initialized.
10. `DO NOT REMOVE` the diskette from the diskette drive.
11. Type `SYSLIST` and press the assigned enter key to make the printer the system list device again.

You are now ready to save the PTF backup libraries on the initialized diskette.

## **Saving the PTF Backup Libraries on the Initialized Diskette**

Your initialized diskette should be in the diskette drive of the 5364 System Unit (step 10 of “Initializing a Diskette for the PTF Backup Libraries”).

1. Type `PTF SAVE` on the entry line of the command display and press the assigned help key. The PTF Procedure display is shown.
2. Type `ALLPTF`, the volume ID, (step 7 of “Initializing a Diskette for the PTF Backup Libraries”) and press the assigned enter key. The PTF backup libraries are saved on diskette.
3. Remove the diskette from the diskette drive of the 5364 System Unit and put the diskette in its protective envelope.
4. Label the diskette by writing the volume ID and the current date on the temporary label of the diskette.
5. Put this diskette with your PTF diskette and the backup diskettes that were processed during system configuration.

Now that you have saved the PTF backup libraries on diskette, you can delete the PTF backup libraries from your system.

## **Deleting the PTF Backup Libraries from Your System**

Type `PTF DELETE` on the entry line of the command display and press the assigned enter key. The PTF backup libraries are deleted from your system.

## Chapter 11. Establishing a Communications Link for Remote Work Station Support

To use the communications support on your system, you need to establish a communications link between your system and another location. The action required, at a display station or the system console, to establish the communications link depends upon which of the communications support you have.

**This chapter only contains a form for Remote Work Station Support (RWS) that your programmer or system manager should fill in** so you know the steps to use to establish a communications link with the communications support that is on your system. Forms establishing communications links for other communications support appear in the appropriate communications reference manuals, which give examples of how to fill in the form with information such as telephone numbers, procedure names, and dial or answer procedures.

Chapter 5 contains information about how to display the status of communications information.

The steps you can take to determine the cause of a problem for communications lines are described in the manual *System Problem Determination – 5364*.

# Using Remote Work Station Support

Form to be filled in by your programmer or system manager.

## To Establish the Communications Link

1. If you have system operator authority or higher, enter the VARY ON command either for each line, cluster controller, or each device that is to be varied online:

For each line, enter VARY ON,,X where X is the line number.

For each cluster controller, enter VARY ON,CXX where XX is the work station address.

For each device, enter VARY ON,XX where XX is the device ID.

2. You may receive one of the following messages:

- a. SYS-3401 SDLC (line number) Operator dial is required

This message is displayed because you have an SDLC switched line, and you must call a remote location. Perform the following steps:

---

---

---

---

- b. SYS-3400 SDLC (line number) Operator answer is required

This message is displayed because you have an SDLC switched line, and you must answer a call from a remote location. Perform the following steps:

---

---

---

---

c. *Other message*

See the *System Messages* manual for an explanation of the message and the steps that you should follow.

## **To End the Communications Link**

If you have system operator authority or higher, enter the VARY OFF command either for each line cluster controller or for each device that is to be varied offline:

- For each device, enter VARY OFF,XX where XX is the device address.
- For each cluster controller, enter VARY OFF,CXX where XX is the cluster controller address.
- For each line, enter VARY OFF,,X where X is the line number.

VARY OFF will not be performed if all display stations on the line are not signed off or if the spool writers for remote printers are not stopped.



## Chapter 12. Accessing and Transferring Files from Another System/36

The diskettes used by the System/36 with the 5364 System Unit are a different size than those used by other System/36s; therefore, if you want to access and transfer other System/36 files, you can use:

- Distributed Data Management (DDM)
- Display Station Pass-Through (DSPT)
- The 6157 Tape Drive to exchange information on tapes

Distributed Data Management (DDM) or Display Station Pass-Through (DSPT) allows you to add, update, and delete records in a System/36 that your system is attached to by means of a communications line. It also allows you to transfer files and libraries.

To use DDM, both your 5364 System Unit and the System/36 it is attached to need the following features:

- SSP Communications Feature 6047
- DDM Feature 6052

If you do not have these features, you can contact your IBM marketing representative or your IBM-approved remarketer.

You can also add, update, delete records in a System/36 that are stored on tape. The tapes can then be exchanged with other System/36s with tape drives. It also allows you to transfer files and libraries.

Additional information on accessing and processing remote files can be found in the manual *Distributed Data Management Guide*.



## **Appendix A. Additional Information**

This appendix is intended for experienced programmers. It contains the following information:

- Changing emulation configuration
- Attribute appearances
- Character sets
- Decimal to hexadecimal conversion
- Printer differences
- System unit serial number

# Changing Emulation Configuration

You can change the emulation configuration by coding a new profile to use and/or redefining the session.

## Redefining a Session

For example, to redefine a session, see “Preparing to Code the Keyboard Profile” in later in this appendix.

## Understanding the Keyboard Profile

The keyboard profile defines what each key is to represent. Keys can be defined to perform a different function for each of the nonshifted, shifted, and alternative shift modes. Keys may also be recorded to *play back* a series of keystrokes (either characters or functions, or a combination of characters and functions).

*Notes:*

- 1. The right and left shift keys are always defined as shift keys and may not be redefined for any other purpose.*
- 2. The Alt, Ctrl, and Scroll Lock keys may only be defined in the nonshifted and shifted modes (they cannot be defined in the alternative shift mode).*
- 3. The Alt key should be defined to perform the reset function in both nonshifted and shifted modes. The function assigned to the Alt key is performed only when the Alt key is pressed and then released and if no other keys have been pressed while the Alt key was held down.*
- 4. A default profile is provided for the shifted and nonshifted definitions for A through Z, 2 through 5, and 7 through = keys. These keys are identical on the personal computer and 5250 keyboards.*

## Understanding the Keyboard Mode

The keyboard mode controls the characters or functions desired when pressing a given key. Three different keyboard modes are used:

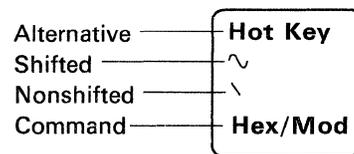
- Shifted mode
- Nonshifted mode
- Alternative shift mode

The shifted mode is the mode of a keyboard when the Shift key is held down or when a shift lock function is active, as with a typewriter, when the Shift key is pressed or the shift lock is active. In this mode an a key displays an A.

The nonshifted mode is the normal mode of a keyboard, as with a typewriter, when the Shift key is not pressed or a shift lock function is not active. In this mode an a key displays an a.

The alternative shift mode is the mode of a keyboard when the Alt (Alternate) key is held down. Like a Shift key, the Alt key provides another level of shift for the keyboard.

For example, on the IBM Personal Computer AT keyboard:



B9085112-1

*Note: The functions of the keys in any keyboard mode can be identified by looking at the keyboard template for the style of keyboard you are using.*

When a key is pressed in the shifted mode, the character or function defined to the "s-" (shifted) mode of the key is entered. Similarly, when a key is pressed in the alternative shift mode, the character or function defined to the "a-" (alternative shift) mode of the key is entered.

For example, if the following definitions have been made in the keyboard customization file:

```
def 1 = [hot key]
def s-1 = '~'
def Ctrl = '\ '
def s-Ctrl = [sys req]
```

When the keyboard is in the shifted mode, including shift lock, and the 1 key is pressed, the ~ is entered because ~ is a 5250 defined character.

The keys defined as shifted function keys must have the Shift key held down even when the keyboard is in shift lock. For example, with the above key definitions, when the Ctrl key is pressed, the \ function is requested of System/36 whether or not you are in shift lock. To use the system request function, you must press the Ctrl key while a Shift key is held down.

## Customizing Personal Computer Keyboards

This section provides information about the personal computer keyboards available for use on the System/36, and contains information you need to customize these keyboards. Using this section, you should be able to:

- Understand the Enhanced 5250 Device Emulation keyboard profiles
- Understand keyboard selection
- Edit or code a keyboard profile
- Code a simple keyboard string

We recommend that the standardization of PC keyboards be considered to ensure a consistent user interface and to ensure that keyboard skills can be easily transferred. Understanding keyboards and the use of these keyboards in your office will enhance your users' ability to be more productive.

## Understanding Keyboard Profiles

When a personal computer *emulates* a display station that is a member of the family of 5250 display stations, the functions of the keys on the keyboard are different than their original personal computer functions.

Keyboard definition files (keyboard profiles), however, which are included with the Enhanced 5250 Emulation Program diskette, allow you to choose whether your keyboard will function like a personal computer keyboard or like a 5291 keyboard. (The 5291 Display Station is one of the family of 5250 display stations.)

A keyboard profile defines what function is assigned to a particular key. Function and key assignments are located as close to the normal personal computer key position as practical for each keyboard style.

The Enhanced 5250 Emulation Program provides the following keyboard profiles:

Keyboard Style	Personal Computer or Personal Computer XT	IBM Personal Computer AT
Personal computer style keyboard profile	KBPC.PRO	KBAPC.PRO
5250 style keyboard profile	KB5250.PRO	KBA5250.PRO

The keyboard style you choose to implement depends upon your use of the personal computer and the System/36. The following table will help determine which keyboard style to implement:

Use	Recommended Keyboard Style
Heavy personal computer use, light System/36 use	Personal computer – personal computer style
Heavy System/36 use, light personal computer use	Personal computer – 5291 style
Heavy personal computer use, light System/36 use	IBM Personal Computer AT – personal computer style
Heavy System/36 use, light personal computer use	IBM Personal Computer AT – 5291 style
User-specific needs	User-created or user-customized keyboard style

You can use any of the keyboard profiles supplied by Enhanced 5250 Device Emulation, modify a particular keyboard profile, or define your own keyboard profile. You can use the sample customized keyboard later in this chapter as a guide to implement your own version.

The personal computer style keyboard profiles provided on the emulation program diskette do not support the following 5250 functions:

- Cursor style
- Hexadecimal
- Reverse image

However, you can assign these functions to a keyboard key by customizing a keyboard profile.

## Modifying an Existing Keyboard Profile

This section explains how you can modify an existing keyboard profile or code a new profile to use while in 5250 emulation mode.

Before you modify an existing keyboard profile, you should have experience with an editor such as EDLIN (provided with DOS). When more detailed keyboard mapping is needed, programming experience is recommended.

The keyboard profile defines what each key is to represent for the emulation program. Keys can be defined to perform a different function for each of the nonshifted, shifted, and alternative shift modes.

Keys can also be defined to play back a series of keystrokes (either characters or functions). Refer to “Coding for Keyboard Strings” later in this chapter for more information.

Keys on the personal computer keyboard are identified in the keyboard profile either by a name or a scan code. (The scan code is a hexadecimal representation for a key.) These names or scan codes are required in the DEFine statements used in the keyboard profile.

When you customize a keyboard profile or create your own keyboard profile, the following rules apply:

- The right and left Shift keys are always defined as Shift keys and may not be redefined for any other purpose.
- The Alt, Ctrl, Esc, and Scroll Lock keys may only be defined in the nonshifted and shifted modes (not definable in the *alternative* shift mode).
- The Alt key should be defined to perform the reset function in both nonshifted and shifted modes. The function assigned to the Alt key is performed only when the Alt key is pressed and then released and if no other keys have been pressed while the Alt key was held down.
- A default definition is assumed for the shifted and nonshifted definitions for the A through Z, the 2 through 5, and the 7 through = keys. The emulation program will complete its start up time sooner if the keys are not specified a second time in the keyboard profile. These keys are identical on the personal computer and the 5250 keyboards.

## Identifying Keys

Keys can be identified either by a name or a hexadecimal scan code. These names or scan codes are required in the define statements used in the keyboard profile.

You may define either a single character or a function in the nonshifted or shifted mode of each key. Strings of characters and functions may be defined in the alternative shift mode.

## Preparing to Code the Keyboard Profile

This section will help you code the keyboard profile for the Enhanced PC Keyboard. You can use a personal computer editor to create this profile. The DOS EDLIN program is an example of an editor that creates files in this format. You must name the profile file. `KBEPK.PRO` is a suggested name for the keyboard profile. Be sure to enter each record (key definition) on a separate line when using the editor.

## Define Command Syntax

You may define either a single character or a function in the non-shifted or shifted mode of each key that you can redefine. Strings of characters and functions may be defined in the alternative shift mode.

## Checking the Command Syntax

The customization file you create is a variable length PC file and is limited to a maximum file length of 512 bytes. Each definition within the file must be contained within one record. The syntax of the DEFine command is:

```
DEFine <mode> <<key> | <scan>> = <<text> | <func>>
```

<mode> = (blank) Nonshifted mode

s- Shifted mode

a- Alternative shift mode

<key> = Name for one of the keys available using the standard PC key assignments.

<scan> = [] Hexadecimal value for the PC scan code enclosed in brackets. Scan codes may be used as an alternative to the key name to identify PC keys.

<text> = '' A string of characters enclosed in quotation marks. You may use either single (') or double (") quotation marks. If you use a quotation mark within a character string, use a different style quotation mark to begin and end the string.

<func> = [] A 5250 function name enclosed in brackets.

For example:

```
DEF s-f1 = [print]
DEF b = 'b'
DEF a-c = 'string 1' [enter] 'string 2' [enter]
```

## Mode Parameter

The mode parameter identifies the shift of the keyboard. The keyboard is either not shifted (an A key would enter an a); shifted (an A key would enter an A); or in alternative shift (an A key would enter a string of characters or functions when defined).

## Key Names and Scan Codes

Key names are identified by their nonshifted mode mnemonic. The IBM Personal Computer and IBM Personal Computer XT key names shown are used to define the IBM Personal Computer and IBM Personal Computer XT keys for all modes.

PC Key Name	PC Scan Code	PC Key Position	5250 Character Function	5250 Purpose
f1	3B	59	attn	Attention
f2	3C	60	cmd	Command
esc	01	1	`	Grave accent
1	02	2	1	1
2	03	3	2	2
3	04	4	3	3
4	05	5	4	4
5	06	6	5	5
6	07	7	6	6
7	08	8	7	7
8	09	9	8	8
9	0A	10	9	9
0	0B	11	0	0
-	0C	12	-	Dash
=	0D	13	=	Equal
backspace	0E	14	←	Backspace
numlock	45	69	←	Field backspace
scrollock	46	70	dup	Duplicate
f3	3D	61	ins	Insert
f4	3E	62	home	Home
tab	0F	15	→	Field advance
q	10	16	q	q
w	11	17	w	w
e	12	18	e	e
r	13	19	r	r
t	14	20	t	t
y	15	21	y	y
u	16	22	u	u
i	17	23	i	i
o	18	24	o	o
p	19	25	p	p

Figure A-1 (Part 1 of 3). Personal Computer Key Names

PC Key Name	PC Scan Code	PC Key Position	5250 Character Function	5250 Purpose
¢	1A	26	¢	Cent symbol
	1B	27	\	Backslash
enter	1C	28	field exit	Field exit
pad7	47	71	7	Pad 7
pad8	48	72	8	Pad 8
pad9	49	73	9	Pad 9
pad -	4A	74	field-	Field -
f5	3F	63	print	Host print
f6	40	64	help	Help
ctrl	1D	29	shift lock	Shift lock
a	1E	30	a	a
s	1F	31	s	s
d	20	32	d	d
f	21	33	f	f
g	22	34	g	g
h	23	35	h	h
j	24	36	j	j
k	25	37	k	k
l	26	38	l	l
;	27	39	;	Semicolon
'	28	40	'	Single quote
` (grave accent)	29	41	}	Right brace
pad4	4B	75	4	Pad 4
pad5	4C	76	5	Pad 5
pad6	4D	77	6	Pad 6
pad +	4E	78	field +	Field +
f7	41	65	↑	Cursor up
f8	42	66	↓	Cursor down
\	2B	43	<	Less than
z	2C	44	z	z
x	2D	45	x	x
c	2E	46	c	c
v	2F	47	v	v
b	30	48	b	b
n	31	49	n	n
m	32	50	m	m

Figure A-1 (Part 2 of 3). Personal Computer Key Names

PC Key Name	PC Scan Code	PC Key Position	5250 Character Function	5250 Purpose
,	33	51	,	Comma
.	34	52	.	Period
/	35	53	/	Slash
prtsc	37	55	↵	New line
pad1	4F	79	1	Pad 1
pad2	50	80	2	Pad 2
pad3	51	81	3	Pad 3
f9	43	67	←	Cursor left
f10	44	68	→	Cursor right
alt	38	56	error reset	Error reset
space	39	57	space	Space
capslock	3A	58	enter ↵	Enter record advance
pad0	52	82	0	Pad 0
pad.	53	83	.	Decimal point

**Figure A-1 (Part 3 of 3). Personal Computer Key Names**

The IBM Personal Computer AT key names shown are used to define the IBM Personal Computer AT keys for all modes.

AT Key Name	AT Scan Code	AT Key Position	5250 Character Function	5250 Purpose
f1	3B	57	attn	Attention
f2	3C	58	cmd	Command
`	29	1	`	Grave accent
1	02	2	1	1
2	03	3	2	2
3	04	4	3	3
4	05	5	4	4
5	06	6	5	5
6	07	7	6	6
7	08	8	7	7
8	09	9	8	8
9	0A	10	9	9
0	0B	11	0	0
-	0C	12	-	Dash
=	0D	13	=	Equal
\	2B	14	}	Right brace
backspace	0E	15	←	Backspace
esc	01	67	↵	New line
numlock	45	68	<	Less than
scrollock	46	69	←	Field Backspace
sys req	54	70	dup	Duplicate
f3	3D	59	ins	Insert
f4	3E	60	home	Home
tab	0F	16	→	Field advance
q	10	17	q	q
w	11	18	w	w
e	12	19	e	e
r	13	20	r	r
t	14	21	t	t
y	15	22	y	y
u	16	23	u	u
i	17	24	i	i
o	18	25	o	o
p	19	26	p	p

Figure A-2 (Part 1 of 3). Personal Computer AT Key Names

AT Key Name	AT Scan Code	AT Key Position	5250 Character Function	5250 Purpose
¢	1A	27	¢	Cent symbol
	1B	28	\	Backslash
enter	1C	29	field exit	Field exit
pad7	47	71	7	Pad 7
pad8	48	72	8	Pad 8
pad9	49	73	9	Pad 9
prtsc	37	74	←	New line
f5	3F	61	print	Host print
f6	40	62	help	Help
ctrl	1D	30	shift lock	Shift lock
a	1E	31	a	a
s	1F	32	s	s
d	20	33	d	d
f	21	34	f	f
g	22	35	g	g
h	23	36	h	h
j	24	37	j	j
k	25	38	k	k
l	26	39	l	l
;	27	40	;	Semicolon
'	28	41	'	Single quotation
pad4	4B	75	4	Pad 4
pad5	4C	76	5	Pad 5
pad6	4D	77	6	Pad 6
pad -	4A	78	field-	Field minus
f7	41	63	↑	Cursor up
f8	42	64	↓	Cursor down
shift	2A	42	shift	Shift
z	2C	43	z	z
x	2D	44	x	x
c	2E	45	c	c
v	2F	46	v	v
b	30	47	b	b
n	31	48	n	n
m	32	49	m	m
,	33	50	,	Comma
.	34	51	.	Period

Figure A-2 (Part 2 of 3). Personal Computer AT Key Names

AT Key Name	AT Scan Code	AT Key Position	5250 Character Function	5250 Purpose
/	35	52	/	Slash
shift	36	53	shift	Shift
pad1	4F	79	1	Pad 1
pad2	50	80	2	Pad 2
pad3	51	81	3	Pad 3
pad +	4E	82	field +	Field +
f9	43	65	←	Cursor left
f10	44	66	→	Cursor right
alt	38	54	error reset	Error reset
space	39	55	space	Spacebar
capslock	3A	56	enter ↵	Enter record advance
pad0	52	83	0	Pad 0
pad.	53	84	.	Decimal point

**Figure A-2 (Part 3 of 3). Personal Computer AT Key Names**

## Enhanced PC Key Names and Scan Codes

Key names are identified by their nonshifted mode mnemonic. The key names shown in Figure A-3 are used to define the keys on the Enhanced PC Keyboard. These keys are now defined for all modes (nonshifted, shifted, or alternative).

*Note: The 5250 characters and functions shown in the following charts are the defaults from the 5250 style keyboard.*

Key Name	PC Scan Code	Key Position	5250 Character Function	5250 Purpose
esc	01	110	attn	Attention
f1	3B	112	cmd 1	Command 1
f2	3C	113	cmd 2	Command 2
f3	3D	114	cmd 3	Command 3
f4	3E	115	cmd 4	Command 4
f5	3F	116	cmd 5	Command 5
f6	40	117	cmd 6	Command 6
f7	41	118	cmd 7	Command 7
f8	42	119	cmd 8	Command 8
f9	43	120	cmd 9	Command 9
f10	44	121	cmd 10	Command 10
f11 (See Note 1)	57	122	cmd 11	Command 11
f12 (See Note 1)	58	123	cmd 12	Command 12
prtsc (See Note 1)	66 (See Note 2)	124	prt pc	Print screen
scrollock	46	125	help	Help
pause (See Note 1)	64 (See Note 2)	126	clear	Clear
` (Grave accent)	29	1	`	Grave accent
1	02	2	1	1
2	03	3	2	2
3	04	4	3	3
4	05	5	4	4
5	06	6	5	5
6	07	7	6	6

**Figure A-3 (Part 1 of 5). Enhanced Personal Computer Keyboard Key Names**

Key Name	PC Scan Code	Key Position	5250 Character Function	5250 Purpose
7	08	8	7	7
8	08	8	8	8
9	0A	10	9	9
0	0B	11	0	0
-	0C	12	-	Dash
=	0D	13	=	Equal
backspace	0E	15	←	Backspace
insert (See Note 1)	5A (See Note 2)	75	ins	Insert
home (See Note 1)	5B (See Note 2)	80	home	Home
pgup (See Note 1)	5C (See Note 2)	85	roll↓	Roll down
numlock (See Note 1)	45	90	(See Note 3)	
pad/ (See Note 1)	65 (See Note 2)	95	/	Slash
pad*	37	100	*	Asterisk
pad-	4A	105	field-	Field minus
tab	0F	16	→	Field advance
q	10	17	q	q
w	11	18	w	w
e	12	19	e	e
r	13	20	r	r
t	14	21	t	t
y	15	22	y	y
u	16	23	u	u
i	17	24	i	i
o	18	25	o	o
p	19	26	p	p
[	1A	27	¬	Not sign
]	1B	28	¶	Paragraph

Figure A-3 (Part 2 of 5). Enhanced Personal Computer Keyboard Key Names

Key Name	PC Scan Code	Key Position	5250 Character Function	5250 Purpose
\	2B	29	\	Backslash
delete (See Note 1)	5D (See Note 2)	76	del	Delete
end (See Note 1)	5E (See Note 2)	81	erase inpt	Erase input
pgdn (See Note 1)	5F (See Note 1)	86	roll↑	Roll up
pad7	47	91	7	Pad 7
pad8	48	96	8	Pad 8
pad9	49	101	9	Pad 9
capslock	3A	30	(See Note 3)	
a	1E	31	a	a
s	1F	32	s	s
d	20	33	d	d
f	21	34	f	f
g	22	35	g	g
h	23	36	h	h
j	24	37	j	j
k	25	38	k	k
l	26	39	l	l
;	27	40	;	Semicolon
'	28	41	'	Single quote
(See Note 4)	2B	42	WTC key	WTC key
enter	1C	43	field exit	Field exit
pad4	4B	92	4	Pad 4
pad5	4C	97	5	Pad 5
pad6	4D	102	6	Pad 6
pad +	4E	106	field +	Field +
(See Note 4)	56	45	WTC key	WTC key
z	2C	46	z	z

**Figure A-3 (Part 3 of 5). Enhanced Personal Computer Keyboard Key Names**

Key Name	PC Scan Code	Key Position	5250 Character Function	5250 Purpose
v	2F	49	v	v
b	30	50	b	b
n	31	51	n	n
m	32	52	m	m
,	33	53	,	Comma
.	34	54	.	Period
/	35	55	/	Slash
up (See Note 1)	60 (See Note 2)	83	↑	Cursor up
pad1	4F	93	1	Pad 1
pad2	50	98	2	Pad 2
pad3	51	103	3	Pad 3
ctrl (left)	1D	58	error reset	Error reset
alt (left)	38	60	cmd	Command
space	39	61	space	Space
alt2 (right) (See Note 1)	55 (See Note 2)	62	cmd	Command
ctrl (right) (See Note 1)	59 (See Note 2)	64	enter	Enter
left (See Note 1)	61 (See Note 2)	79 (See Note 2)	←	Cursor left
down (See Note 1)	62 (See Note 2)	84	↓	Cursor down
right (See Note 1)	63 (See Note 2)	89	→	Cursor right
pad0	52	99	0	Pad 0
pad.	53	104	.	Decimal point
padenter (See Note 1)	67	108	enter	Enter

Figure A-3 (Part 4 of 5). Enhanced Personal Computer Keyboard Key Names

<b>Key Name</b>	<b>PC Scan Code</b>	<b>Key Position</b>	<b>5250 Character Function</b>	<b>5250 Purpose</b>
<i>Notes:</i>				
<ol style="list-style-type: none"> <li>1. <i>This key is new and it is only on the Enhanced PC Keyboard.</i></li> <li>2. <i>This scan code is not produced by the physical keyboard. It is an emulated scan code value.</i></li> <li>3. <i>This is a PC function that is supported during emulation. There is no identical 5250 function.</i></li> <li>4. <i>This key is only present on the Enhanced PC Keyboard that is marketed outside the U. S. and Canada.</i></li> </ol>				

**Figure A-3 (Part 5 of 5). Enhanced Personal Computer Keyboard Key Names**

## Text Characters for Strings

The following characters may be used as text in the DEFine command:

- Alphabetic characters:

a through z  
A through Z

- Numbers:

0 through 9

- Punctuation marks:

. Period  
, Comma  
; Semicolon  
: Colon  
? Question mark  
' Single quote  
" Double quote  
! Exclamation mark  
` Grave accent  
~ Tilde

- Arithmetic characters:

+ Plus  
- Minus  
\* Asterisk  
/ Right slash  
< Less than  
> Greater than  
= Equal

- Special characters:

@	At symbol
#	Pound or number
\$	Dollar
%	Percent
&	Ampersand
(	Left parenthesis
)	Right parenthesis
\	Left slash
	Paragraph
_	Underscore character

*Notes:*

1.  $\neg$ ,  $\phi$ , and  $|$  are not available as 5250 characters because they are not on the PC keyboard. They are defined as functions.
2. All text character strings must be enclosed in quotation marks. You may use either single (') or double (") quotation marks. Quotation marks may not appear inside a character string enclosed in the same type of quotation marks. Use a different quotation mark inside another quotation mark. For example:

*DEFine a-s = "Bob's name"*

## 5250 Functions

The following table shows the functions that may be assigned in the function parameter of the DEFine command.

Function Value	PC and PC XT Key Function	AT Key Function	5250 Function
[up]	↑	↑	Cursor up
[down]	↓	↓	Cursor down
[left]	→	→	Cursor left
[right]	→	→	Cursor right
[space]	Space	Space	Space
[backspace]	←	←	Backspace
[tab]	←	←	Field advance
[backtab]	←	←	Field backspace
[newline]	See Note 1	See Note 1	New line
[field exit]	See Note 1	See Note 1	Field exit
[field +]	+ (Pad)	+ (Pad)	Field plus
[field-]	- (Pad)	- (Pad)	Field minus
[attn]	See Note 1	See Note 1	Attention
[sysreq]	See Note 1	Sys Req	System request
[home]	Home	Home	Home
[print host]	See Note 1	See Note 1	Print screen on System/36 printer
[print pc]	Shift PrtSc	Shift PrtSc	See Note 2
[help]	See Note 1	See Note 1	Help
[roll up]	PgUp	PgUp	Roll↑
[roll down]	PgDn	PgDn	Roll↓
[reset]	Alt	Alt	Error reset
[enter]	↵	Enter ↵	Enter record advance
[dup]	See Note 1	See Note 1	Duplicate field
[testreq]	See Note 1	See Note 1	Test request
[hex]	See Note 1	See Note 1	Hex character
[clear]	See Note 1	See Note 1	Clear screen
[mode]	See Note 1	See Note 1	See Note 4
[cursor]	See Note 1	See Note 1	See Note 3
[insert]	Ins	Ins	Enter insert mode
[delete]	Del	Del	Delete character
[erase input]	See Note 1	See Note 1	Erase input
[shift lock]	See Note 1	See Note 1	Shift lock

<b>Function Value</b>	<b>PC and PC XT Key Function</b>	<b>AT Key Function</b>	<b>5250 Function</b>
[pad]	.	.	Decimal point
[pad0] through [pad9]	Shift or Num Lock and 0 through 9	Shift or Num Lock and 0 through 9	Pad 0 through pad 9
[cmd]	See Note 1	See Note 1	Command
[cmd1] through [cmd10]	F1 through F10	F1 through F10	Command functions 1 through 10
[cmd11] through [cmd20]	Shift and F1 through F10	Shift and F1 through F10	Command functions 11 through 20
[cmd21] through [cmd24]	Alt and F1 through F4	Alt and F1 through F4	Command functions 21 through 24
[testreq]	See Note 1	See Note 1	Test request
[clear]	See Note 1	See Note 1	Clear screen
[mode]	See Note 1	See Note 1	See Note 4
[hex]	See Note 1	See Note 1	Hex character
[hot key]	See Note 1	See Note 1	Switches screen to Session Select menu
<p><i>Notes:</i></p> <ol style="list-style-type: none"> <li>1. <i>This function is not assigned on a standard PC keyboard.</i></li> <li>2. <i>This is a PC function and not available on the IBM 5250 display stations.</i></li> <li>3. <i>This function changes the cursor style.</i></li> <li>4. <i>This function reverses the display image.</i></li> </ol>			

## Coding for Keyboard Strings

Coding for strings are done before the next IPL. That is, the playback sequence takes affect after the next IPL. Coding for these strings must be done with the use of an editor, such as EDLIN, which is provided with DOS.

The alternative shift state of any key on the keyboard, except the Shift, Ctrl, and Scroll Lock keys, may have a sequence of keystrokes assigned to it. The amount of space available for the storage of all of the playback sequences is 512 bytes. Playback sequences may use any combination of characters and functions, provided the sequence fits on a single line in the keyboard profile.

The following shows what the space needs of the available characters and functions are when assigned in a sequence. Use these values to maximize the number of sequences you can define with the 512 bytes available.

- Lowercase alphabetic characters (a through z), numeric characters (0 through 9), space, and the following symbols ( < , . / ; ' { \ ` - = ) require 1 byte each.
- Uppercase alphabetic characters (A through Z) and the following symbols ( > ? : " } ! | ~ @ # \$ % & \* ( ) \_ + ) require 3 bytes each.
- Functions attn, backspace, backtab, cmd, cursor, down, dup, enter, field exit, field-, field+, help, home, insert, left, newline, print (PC), reset, right, tab, and up require 1 byte each.
- Numeric pad functions and unavailable character functions (bar, cent, and not symbols) require 1 byte each.
- Functions cmd1 through cmd12, sysreq, erase input, roll down, roll up, shift lock, and testreq require 2 bytes each.
- Functions clear, cmd13 through cmd24, hex, and mode require 4 bytes each.

One extra byte is required for each sequence to identify it for playback.

## Example One

The easiest way to save space when building an uppercase character string is to use the shift toggle function instead of uppercase characters. For example:

```
DEF a-1 = 'THIS STRING WILL BE UPPERCASE'  
DEF a-2 = [shift toggle]'this string will be uppercase'[shift toggle]
```

The sequence assigned to a-1 (Alt key and 1 pressed together) requires 80 bytes: 3 bytes for each of the 25 characters, 1 byte for each of the four spaces, and the 1 extra byte needed to identify the sequence.

The sequence assigned to a-2 produces the same result as a-1, but requires only 32 bytes. The sequence still requires 1 byte for each of the four spaces and the 1 extra byte to identify the sequence. However, it requires only 1 byte for each of the 25 characters and the shift toggle functions.

## Example Two

Let's assume that you want to assign to the alternative mode the following strings:

```
Armonk, New York 10504
Rochester, Minnesota 55901
International Business Machines Corporation
Old Orchard Road
Highway 52 North at 37th Street
```

Proceed as follows:

1. Start the PC and start the editor.
2. Load the keyboard profile you will be using with the System/36 (for example, the KBPC.PRO profile for the PC style keyboard).
3. Key each of the following define statements on a single line within the profile.

```
def a-a = 'Armonk, New York 10504' fnewline"
def a-r = 'Rochester, Minnesota 55901' fnewline"
def a-o = 'Old Orchard Road' fnewline"
def a-i = 'International Business Machines Corporation' fnewline"
def a-h = 'Highway 52 North at 37th Street' fnewline"
```

Now with System/36 running and using the profile in which you entered the strings, you can have an address printed by just keying a few characters.

Press the Alt key and type ihr. And this results:

```
International Business Machines Corporation
Highway 52 North at 37th Street
Rochester, Minnesota 55901
```

Or you can press the Alt key and type ioa. And this results:

```
International Business Machines Corporation
Old Orchard Road
Armonk, New York 10504
```

You can use the sequence of characters and functions you want. But, remember that each string must appear on a single line and you are limited to 255 characters or functions for the entire keyboard customization file.

You can terminate a sequence while it is being played back by doing the following:

1. Press and hold the Alt key.
2. Press the Scroll Lock key.

### **Immediate Reset Key Sequence (I Reset)**

The Immediate Reset (I Reset) key sequence is used to clear the keystroke buffer and to stop the playback of any defined key sequences. I Reset also clears any Shift Lock or Insert mode states that are in effect. To enter the I Reset Key sequence, press and hold the Alt key and then press the Scroll Lock key.

### **Sample Customized Keyboard Profile**

The following is a sample modification of the KBPC.PRO keyboard profile. Several of the DEFine commands in the modified keyboard profile support specialized DisplayWrite/36 key functions. For example, when the C key is pressed while in alternative shift mode, the DisplayWrite/36 line center function occurs. (On a 5250 keyboard, the line center function occurs when the Cmd key is pressed followed by the C key.)

```

def [ = [cent]
def ] = [bar]
def ' = ""
def \ = '\ '
def , = ','
def . = '.'
def f1 = [cmd1]
def f2 = [cmd2]
def f3 = [cmd3]
def f4 = [cmd4]
def f5 = [cmd5]
def f6 = [cmd6]
def f7 = [cmd7]
def f8 = [cmd8]
def f9 = [cmd9]
def f10 = [cmd10]
def esc = [help]
def backspace = [backspace]
def numlock = [shift toggle]
def scrolllock = [testreq]
def tab = [tab]
def enter = [enter]
def ctrl = [attn]
def prtsc = [newline]
def alt = [reset]
def capslock = [shift toggle]
def home = [home]
def up = [up]
def pgup = [roll down]
def pad- = [field -]
def left = [left]
def right = [right]
def pad+ = [field +]
def end = [dup]
def down = [down]
def pgdn = [roll up]
def insert = [insert]
def delete = [delete]
def s-1 = '!'
def s-6 = [not]
def s-[ = '{'
def s-] = '}'
def s-~ = '~'
def s-\ = '|'
def s-, = '<'
def s-. = '>'
def s-f1 = [cmd11]
def s-f2 = [cmd12]
def s-f3 = [cmd13]
def s-f4 = [cmd14]
def s-f5 = [cmd15]

def s-f6 = [cmd16]
def s-f7 = [cmd17]
def s-f8 = [cmd18]
def s-f9 = [cmd19]
def s-f10 = [cmd20]
def s-esc = [attn]
def s-backspace = [backspace]
def s-numlock = [shift toggle]
def s-scrolllock = [clear]
def s-tab = [backtab]
def s-enter = [newline]
def s-ctrl = [sysreq]
def s-prtsc = [print pc]
def s-alt = [reset]
def s-capslock = [shift toggle]
def s-home = [pad7]
def s-up = [pad8]
def s-pgup = [pad9]
def s-pad- = '-'
def s-left = [pad4]
def s-pad5 = [pad5]
def s-right = [pad6]
def s-pad+ = '+'
def s-end = [pad1]
def s-down = [pad2]
def s-pgdn = [pad3]
def s-insert = [pad0]
def s-delete = [pad.]
def a-f1 = [cmd21]
def a-f2 = [cmd22]
def a-f3 = [cmd23]
def a-f4 = [cmd24]
def a-enter = [cmd] [field exit]
def a-prtsc = [print host]
def a-delete = [erase input]
def a-c = [cmd] 'c'
def a-h = [cmd] 'h'
def a-y = [cmd] 'y'
def a-b = [cmd] 'b'
def a-j = [cmd] 'j'
def a-u = [cmd] 'u'
def a-p = [cmd] 'p'
def a-s = [cmd] 's'
def a-n = [cmd] 'n'
def a-up = [cmd] [up]
def a-down = [cmd] [down]
def a-left = [cmd] [left]
def a-right = [cmd] [right]
def a-tab = [cmd] [tab]
def a-space = [cmd] [space]

```

Keyboard Modifications  
Supporting Use of Specialized  
DisplayWrite/36 Key Functions

Figure A-4. Sample Customized Keyboard Profile

## **Coding for Keyboard Strings**

### **Editing or Coding a Keyboard Profile**

To verify that your keyboard profile is in the desired format, display it using the PC DOS TYPE command. The file should be displayed on the screen, and each record should be on a separate line. The editor, such as EDLIN, which is provided with DOS is an example of an editor that creates files with this format.

To edit or code a keyboard profile, see the configuring and customizing section earlier in this appendix.

## Attribute Appearances

The following table shows the display attributes for the Monochrome Display Adapter and the 5250 display screens.

Hex Code	Meaning	5250 Display Station	PC Monochrome Display
20	Normal	Green characters on black field	Green characters on black field
21	Reverse	Black characters on green field	Black characters on green field
22	High Intensity	Brighter characters on black field	Brighter characters on black field
23	High Intensity and Reverse	Black characters on brighter field	Black characters on green field
24	Underscore	Underscore	Underscore
25	Underscore and Reverse	Black characters on green field, black underscore	Green characters on black field, green underscore
26	Underscore and High Intensity	Bright characters on black field, bright underscore	Bright characters on black field, bright underscore
27	Blank screen	Solid black field, no characters	Solid black field, no characters
28	Blink	Blinking characters on black field	Blinking characters on black field
29	Blink and Reverse	Blinking black characters on green field	Blinking black characters on green field
2A	Blink and High Intensity	Blinking bright characters on black field	Blinking bright characters on black field
2B	Blink, High Intensity, and Reverse	Blinking black characters on bright field	Blinking black characters on green field
2C	Blink and Underscore	Blinking characters on black field, green underscore	Blinking characters on black field, green underscore
2D	Blink, Underscore, and Reverse	Blinking black characters on green field, black underscore	Blinking green characters on black field, green underscore
2E	Blink, Underscore, and High Intensity	Blinking bright characters on black field, bright underscore	Blinking bright characters on black field, bright underscore
2F	Blank screen	Solid black field, no characters	Solid black field, no characters
30	Column Separators	Vertical bar between green characters on black field	Green rectangles in null positions on black field
31	Column Separators and Reverse	Vertical black bars between black characters on green field	Black rectangles with black characters on green field

<b>Hex Code</b>	<b>Meaning</b>	<b>5250 Display Station</b>	<b>PC Monochrome Display</b>
32	Column Separators and High Intensity	Bright bars between bright characters on black field	Bright rectangle for nulls with bright characters on black field
33	Column Separators, High Intensity, and Reverse	Black bars between black characters on bright field	Black rectangle for nulls with black characters on light field
34	Column Separators and Underscore	Green bars between green underscored characters on black field	Green rectangle for nulls with green underscored characters on black field
35	Column Separators, Underscore, and Reverse	Black bars between black characters on green field, black underscore	Green rectangle for nulls with green characters on black field, black underscore
36	Column Separators, Underscore, and High Intensity	Bright bars between bright characters on black field	Bright rectangle for nulls with bright characters on black field, black underscore
37	Column Separators and no characters	Green bars on black field, no characters	Green rectangles for nulls in field, no characters
38	Column Separators and Blink	Green bars between blinking characters on black field	Blinking rectangles for nulls with blinking characters on black field
39	Column Separators, Blink, and Reverse	Black bars between blinking black characters on a green field	Blinking black rectangle for nulls with blinking black characters on green field
3A	Column Separators, Blink, and High Intensity	Bright bars between blinking bright characters on black field	Bright rectangle for nulls with blinking bright characters on black field
3B	Column Separators, Blink, High Intensity, and Reverse	Black bars between blinking black characters on a bright field	Blinking black rectangle for nulls with blinking green field
3C	Column Separators, Blink, and Underscore	Green bars between blinking underscored characters on black field	Blinking rectangles for nulls with blinking underscored characters on black field
3D	Column Separators, Blink, Underscore, and Reverse	Black bars between blinking black underscored characters on green field	Blinking rectangles for nulls with blinking characters on black field, underscored

<b>Hex Code</b>	<b>Meaning</b>	<b>5250 Display Station</b>	<b>PC Monochrome Display</b>
3E	Column Separators, Blink, Underscore, and High Intensity	Bright bars between blinking bright underscored characters on black field	Blinking bright rectangles for nulls with blinking bright characters on black field
3F	Column Separators and no characters	Green bars on black field, no characters	Green rectangles for nulls on black field, no characters

The following table shows the display attributes for the Color Graphics Adapter (when used with a compatible color display) and the 5292 display screens.

<b>Hex Code</b>	<b>Meaning</b>	<b>5292 Display Station</b>	<b>PC Color Display</b>
20	Normal	Green characters on black field	Green characters on black field
21	Reverse	Black characters on green field	Black characters on green field
22	High Intensity	White characters on black field	White characters on black field
23	High Intensity and Reverse	Black characters on white field	Black characters on white field
24	Underscore	Green characters on black field with blue underscore	Green characters on black field with green underscore characters for nulls
25	Underscore and Reverse	Black characters on green field with blue underscore	Black characters on green field with black underscore characters for nulls
26	Underscore and High Intensity	White characters on black field with blue underscore	White characters on black field with white underscore characters for nulls
27	Blank screen	Solid black, no characters	Solid black, no characters
28	Blink	Red characters on black field	Red characters on black field
29	Blink and Reverse	Black characters on red field	Black characters on red field
2A	Blink and High Intensity	Blinking red characters on black field	Blinking red characters on black field
2B	Blink, High Intensity, and Reverse	Blinking black characters on red field	Blinking black characters on red field
2C	Blink and Underscore	Red characters on black field with blue underscore	Red characters on black field with red underscore characters for nulls
2D	Blink, Underscore, and Reverse	Black characters on red field with blue underscore	Black characters on red field with black underscore characters for nulls
2E	Blink, Underscore, and High Intensity	Blinking red characters on black field with blue underscore	Blinking red characters on black field with blinking red underscore characters for nulls
2F	Blank screen	Solid black field, no characters	Solid black field, no characters
30	Column Separators	Blue dots in lower corner with turquoise on black characters	Rectangle characters for nulls on cyan field

<b>Hex Code</b>	<b>Meaning</b>	<b>5292 Display Station</b>	<b>PC Color Display</b>
31	Column Separators and Reverse	Blue dots in lower corners with black on turquoise characters	Black rectangle characters with black characters on cyan field
32	Column Separators and High Intensity	Blue dots in lower corners with yellow characters on black field	Yellow rectangle characters for nulls with brown characters on black field
33	Column Separators, High Intensity, and Reverse	Blue dots in lower corners with black characters on yellow field	Black rectangle characters for nulls with black characters on yellow field
34	Column Separators and Underscore	Segmented blue underscore with turquoise characters on black field	Cyan rectangle characters for nulls with cyan characters on black field, no underscores
35	Column Separators, Underscore, and Reverse	Segmented blue underscore with black characters on turquoise field	Black rectangle characters for nulls with black characters on cyan field, no underscore
36	Column Separators, Underscore, and High Intensity	Segmented blue underscore with yellow characters on black field	Yellow rectangle characters for nulls with yellow characters on black field, no underscore
37	Column Separators and no characters	No characters and no column separators	Red rectangle characters for nulls, no other characters
38	Column Separators and Blink	Pink characters on black field, no column separators	Magenta rectangle characters for nulls with magenta on black field
39	Column Separators, Blink, and Reverse	Black characters on pink field, no column separators	Black rectangle characters for nulls with black characters on magenta field
3A	Column Separators, Blink, and High Intensity	Blue characters on black field, no column separators	Blue rectangle characters for nulls with blue characters on black field
3B	Column Separators, Blink, High Intensity, and Reverse	Black characters on blue field, no column separators	Black rectangle characters for nulls with black characters on blue field
3C	Column Separators, Blink, and Underscore	Blue underscore with pink characters on black field, no column separators	Magenta rectangle characters for nulls with magenta characters on black field

<b>Hex Code</b>	<b>Meaning</b>	<b>5292 Display Station</b>	<b>PC Color Display</b>
3D	Column Separators, Blink, Underscore, and Reverse	Blue underscore with black characters on pink field, no column separators	Black rectangle characters for nulls with black characters on magenta field
3E	Column Separators, Blink, Underscore, and High Intensity	Blue underscore with blue characters on black field, no column separators	Blue rectangle characters for nulls with blue characters on black field
3F	Column Separators and no characters	Black field, no characters	Red rectangle characters for nulls with no other characters

# Printer Information

## IBM 5250 EBCDIC Character Set Table

The IBM 5250 display stations use the character set shown in the following table.

		First Hexadecimal Character															
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Second Hexadecimal Character	0					Space	&	—	ø	Ø	°	μ	¢	{	}	\	0
	1					Required Space	é	/	Ē	a	j	~	£	A	J	Num Space	1
	2					â	ê	Â	Ê	b	k	s	Ÿ	B	K	S	2
	3					ä	ë	Ä	Ë	c	l	t	Pt <sub>s</sub>	C	L	T	3
	4					ã	è	À	È	d	m	u	f	D	M	U	4
	5					á	í	Á	Í	e	n	v	§	E	N	V	5
	6					ã	î	Ã	Ï	f	o	w	¶	F	O	W	6
	7					ä	ï	Ä	Ï	g	p	x		G	P	X	7
	8					ç	ï	Ç	Ï	h	q	y		H	Q	Y	8
	9					ñ	β	Ñ	´	i	r	z		I	R	Z	9
	A					€	!		:	<<	a	i	¬	—		²	³
	B					.	\$	,	=	>>	o	i		ô	û	Ô	Û
	C					<	*	%	@	ď	æ	Ð		ö	ü	Ö	Ü
	D					(	)	—	'		¸		¨	ò	ù	Ò	Ù
	E					+	;	>	=	¸		¸	´	ó	ú	Ó	Ú
	F						¬	?	"	±	⊗		—	õ	ÿ	Õ	

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For example:

An A in the EBCDIC character set is equivalent to hex C1.

## PC Printer Character Conversion

Some of the characters supported by the 5250 display stations are not supported by the PC printers. Therefore, those IBM 5250 characters that cannot be printed by the PC printer must be converted. The characters that are printed are described below.

- Standard alphabetic and special characters have an ASCII equivalent and will print normally. These include:

```
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
0123456789  
-=!@#$%&*()_+'";:/\?..,{}  
<> (space)
```

- Text control characters, such as tabs and carriage returns, will be printed.
- When a PrtSc key is pressed, the hexadecimal value of all ASCII characters on the screen is checked. The printing of character graphics is limited to those characters that have a value less than 7E. All other characters are printed as blanks.

If a printer capable of printing characters with a hexadecimal value greater than 7E is attached, and if it was identified as the attached printer type during the execution of the configuration program (CONFIG.EXE), the program will automatically change the limit to allow the additional characters to print.

## Printer Differences

The PC character set 2 is normally used. If you specify that a PC Matrix Printer is attached, the PC character set 1 is used and prints a default character (or the default character specified by the set graphic error action (SGEA) data stream command received from the system) for the undefined codes.

*Note: For further information about PC character sets, refer to the appropriate PC Guide to Operations manual.*

The following tables show form handling for the 5152, 5182, 5216, 5219, 5256, 3550, 4201, and 5201 Printers.

<b>Printer Specification</b>	<b>IBM 4201</b>	<b>IBM 5152</b>	<b>IBM 5182</b>	<b>IBM 5201</b>
Print Line Length (inches)	8.0	8.0	13.2	13.2
Paper Width: Maximum Continuous Form (inches)	10.0	10.0	16.0	14.9
Paper Width: Maximum Single Sheet (inches)	11.0	Does not apply	12.0	15.4
Paper Width: Minimum Continuous Form (inches)	3.0	4.0	3.0	3.2
Paper Length: Maximum (inches)	Does not apply	Does not apply	17.0	15.0
Lines Per Inch (lpi)	6 or 8	6 or 8	See Note 6	See Note 6
Characters Per Inch (cpi)	See Note 2	See Note 2	See Note 8	See Note 8
Characters Per Line (cpl)	See Note 4	See Note 4	See Note 7	See Note 7
Continuous Forms	Yes	Yes	Yes	Yes
Single Sheet Forms	No	Yes	Yes	Yes

Printer Specification	IBM 5216	IBM 5219	IBM 5256	NEC 3550
Print Line Length (inches)	13.2	13.2	13.2	13.2
Paper Width: Maximum Continuous Form (inches)	14.9	14.5	14.5	Does not apply
Paper Width: Maximum Single Sheet (inches)	15.4	15.4	14.5	Does not apply
Paper Width: Minimum Continuous Form (inches)	3.2	2.0	3.0	5.0
Paper Length: Maximum (inches)	Does not apply	14.3	14.0	Does not apply
Lines Per Inch (lpi)	See Note 6	See Note 1	6 or 8	See Note 6
Characters Per Inch (cpi)	See Note 8	See Note 3	10	See Note 8
Characters Per Line (cpl)	See Note 7	See Note 5	132	See Note 7
Continuous Forms	Yes	Yes	Yes	Yes
Single Sheet Forms	Yes	Yes	Yes	Yes

**Notes:**

1. *The 5219 prints 4, 5-1/3, 6, 8, 9.6, 12, 24, or 48 lpi with 1, 1-1/2, 2, or 3 spaces between lines. This option is controlled by the host.*
2. *The 4201 and 5152 uses 16 cpi unless the 10 cpi option is selected.*
3. *The 5219 prints 10, 12, 15, or proportional spaced cpi. This option is controlled by the host.*
4. *The 4201 and 5152 prints 132 cpl (in compressed print mode) when the 16 cpi option is selected.*
5. *The 5219 prints 132, 158, or 198 cpl (varies if proportional spacing is used). This option is controlled by the host.*
6. *When emulating a 5256, these printers support 6 or 8 lpi. When emulating a 5219, they support 4, 6, 8, 12, or 24 lpi.*
7. *When emulating a 5219, these printers support the same cpl limitations as listed for the 5219 in Note 5.*
8. *When emulating a 5219, these printers support 10, 12, 15 and proportional spaced cpi.*

## Output Data Field Values

The output data codes appear on the operator panel of the your printer. These output data codes for the IBM 5219 Printer are listed later in this section. These codes may indicate a print font, a feature, or a condition that has occurred on your printer. Check the tables first and then follow these instructions.

If a print font has been requested, refer to the information provided for you or request help from your system operator.

If the System/36 is expecting a printer operation to occur that uses a feature of your printer, follow the instructions given in the operator's manual for the printer you have attached.

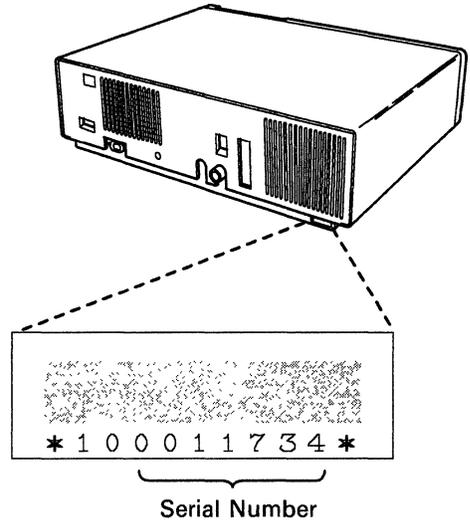
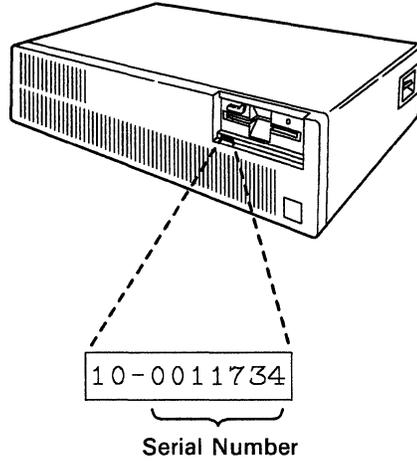
If the error condition has occurred, follow the instructions given in the operator's manual for the printer you have attached.

<b>Output Data Field Value</b>	<b>Setup Indicator On</b>	<b>Form Indicator On</b>	<b>Printer Exception Indicator On</b>	<b>Requested Exception On</b>
Blank	Off	On	Off	Load the paper and select Start.
01	On	Off	Off	Manual paper feed selected. Install appropriate device and select Start.
03	On	Off	Off	Tractor feed selected. Install appropriate device and select Start.
03	On	Off	Off	Automatic Sheet feed selected. Install appropriate device and select Start.
10-14 16-17 20-26 30-32 40	Off	Off	On	You should include the value in the output data field. You should check with the person who submitted the job; then, cancel the job. The person who submitted the job must fix the problem in their job before submitting the job again for printing.
55	Off	Off	Off	The controller stopped the printer. You should check with the person who submitted the job; then, cancel the job. The person who submitted the job fix the problem in their job before submitting the job again for printing.
Any Number	Off	Off	Off	If the Change Font indicator is on, change to the font indicated by your System/36 programmer.

# 5364 System Unit Serial Number

You may be required to give the system unit serial number to your service representative or marketing representative for proper service and products.

The following illustrations show the locations of the 5364 System Unit serial number.



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## Appendix B. Using the Printer Description Setup Program

The printer description table setup program is a menu-driven program used to define the characteristics of a printer to the 5364 System Unit.

A user-defined printer requires a special file, called a printer description table. The printer description table setup program is used to create and revise printer description tables. A planning work sheet and two examples are provided in the diskette file PDTWS.PRN as an aid to gathering the printer information. One printer description table (TBLPRT.PDT) is also provided along with the program files on the PC code diskettes.

Before using the Printer Description Setup Program, copy the program to a working diskette. Information on copying the program is found in "Copying the Printer Description Table Setup Program" in this Appendix.

You should also understand the technical information provided by the printer manufacturer. This program is intended for use by programmers, technicians, or experts on printer functions. If the technical information for your printer is not available, contact your printer dealer or manufacturer for assistance.

*Note: Because of the design differences in printers, all IBM 5219 Printer or IBM 5256 Printer print functions may not work correctly on your printer if you use a printer description table to attach an otherwise unknown printer. In addition, some advanced functions of your printer may not be used.*

Help text is provided with the printer description table setup program. You can print all of the Help text from within the printer description table setup program.

# Copying the Printer Description Table Setup Program

Copy the following files from the PC code diskettes to either your working diskette or fixed disk, using the DOS COPY command:

File	Diskette Location
PDTSETUP.EXE	Diskette 2
PDTSETUP.HPP	Diskette 2
PDTWS.PRN	Diskette 2
TBLPRT.PDT	Diskette 2

## Creating a Printer Description Table

A printer description table work sheet (PDTWS.PRN) is provided in a file on diskette 2 of the PC code diskettes. This work sheet may be displayed or printed and used to assist in planning your printer description table.

*Note: If you have a serial printer, use the DOS MODE command to direct the printer output to the serial port before running PDTSETUP. For example,*

*MODE COM1:1200,n,8,1,p MODE LPT1: = COM1.*

*The baud rate and other communications characteristics have to be defined according to your printer manual.*

1. At the DOS prompt, type **pdsetup** and press the Enter key.
2. Type the name you wish to use for the printer description table. Indicate which drive you are using and which subdirectory, if necessary.

*Note: Do not use the name TBLPRT.PDT unless you wish to revise the default printer description table.*

3. Choose *Print help panels* to obtain a copy of the help text to use for reference.
4. Follow the procedure in the overview and hints section of the help text.

*Note: You can access the help text by pressing the F1 key.*

5. Run the function selection tests.
6. Save the printer description table.
7. To use the table, run the software reset sequence. Change your configuration file to specify this table name to use the printer description table.
8. If you want to make and test additional changes, repeat the procedures starting at step 4.



## Appendix C. Using Host Graphics Support

*Note: If you send data from a graphics job to the PC console and it has not been configured for graphics, the data will be unreadable.*

To display graphics data, you must stop any application that is running in DOS. When a graphics file is sent to your personal computer and a job is running in DOS, the Host Graphics Support display is shown.

### Displaying Graphics

#### HOST GRAPHICS SUPPORT

Graphics can not be displayed until the GR5250.COM program is running in the DOS session.

To run GR5250.COM: Hot key to the DOS session, type GR5250 at the DOS prompt and press the Enter key. Screen graphics can then be processed.

If you choose not to run GR5250.COM in the DOS session, the host job can be canceled from the system console or by using the local select mode option to terminate graphics processing.

B9085C01

When you press the PC enter key, the Enable Screen Graphics display is shown:

```
GR5250
Enable Screen Graphics

1. Return to Host Graphics session
2. Terminate GR5250 and return to DOS

Select an option and press the PC Enter key: __

Note: Option 1 will return to the Host Graphics session
with graphics processing enabled.

Option 2 will terminate GR5250 freeing the DOS session
for use by other programs. This will prohibit graphics
in the host session until GR5250 is restarted.
```

B9086C02

## Starting GR5250.COM

To dedicate the DOS session to your graphics session, run the GR5250.COM program in the DOS session after the 5250 emulation program has been started.

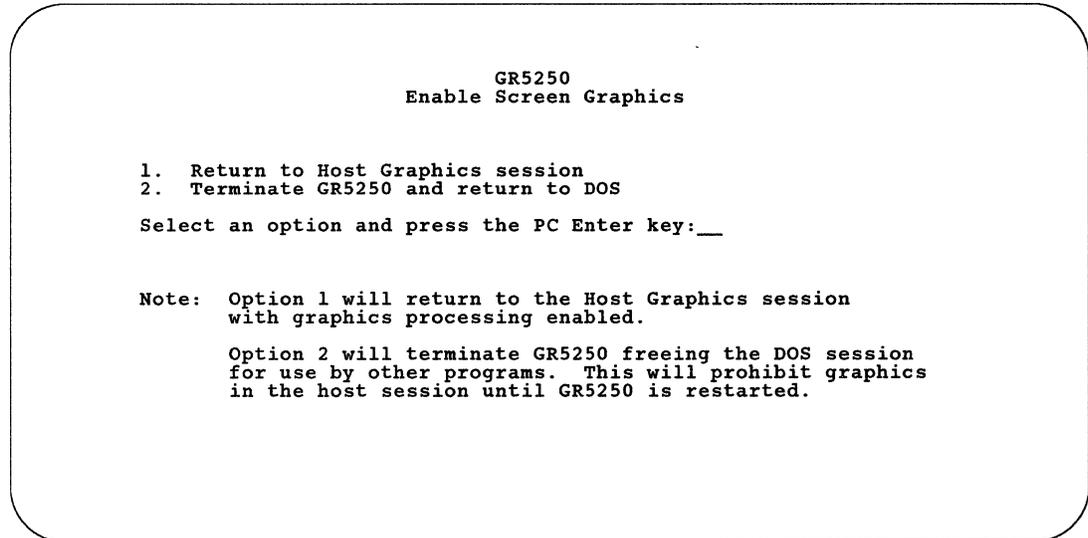
To run the GR5250.COM program:

1. Use the hot key sequence to go to the DOS session.
2. Type GR5250 at the *DOS* prompt.
3. Press the PC enter key.

The program will return you to the graphics session. Graphics data can now be processed.

## Operation if GR5250.COM Is Running

The GR5250 program will continue to run in the DOS session until it is terminated. Any time you use the hot key sequence to go to the DOS session while the GR5250 program is running, the Enable Screen Graphics display is shown:



B9085C03

This display gives you two options and a brief explanation of each:

### **Option 1: Return to Host Graphics Session**

The GR5250.COM program is now running in the DOS session, and graphics screen data may be processed. Select option 1 if you wish to return to the graphics session and perform graphics functions.

## Option 2: Terminate GR5250 and return to DOS

The GR5250.COM program is now running in the DOS session. If you wish to perform other tasks from the DOS session, you must first terminate GR5250.COM. Select option 2 if you wish to terminate GR5250.COM and return to DOS.

### Notes:

1. *If GR5250.COM is terminated, graphics functions can no longer be performed in the graphics session. The GR5250.COM program must be started again in the DOS session before any graphics data can be processed.*
2. *The GR5250.COM program can continue to run in the DOS session even if you are not currently displaying graphics data, without interfering with normal emulation function. However, GR525.COM must be terminated if you wish to regain use of the DOS session.*

## Operation if GR5250.COM Is Not Running

If you attempt to use graphics functions before starting GR5250.COM in the DOS session, the graphics session is suspended and the Host Graphics Support display is shown:

### HOST GRAPHICS SUPPORT

Graphics can not be displayed until the GR5250.COM program is running in the DOS session.

To run GR5250.COM: Hot key to the DOS session, type GR5250 at the DOS prompt and press the Enter key. Screen graphics can then be processed.

If you choose not to run GR5250.COM in the DOS session, the host job can be canceled from the system console or by using the local select mode option to terminate graphics processing.

B9085C04

This display reminds you that GR5250.COM must be running in the DOS session before you can display any graphics. If you want to continue processing graphics data, you must start the GR5250.COM program. If you do not start the program, the graphics session remains suspended until GR5250.COM is started or graphics functions are completed.

## Freeing Up the Graphics Session

You can free the graphics session by:

- Canceling the job from the system console (See Chapter 5.)
- Using the local select option mode in the graphics session to terminate graphics
  1. Press F2 (Cmd).
  2. Press the Alt (Reset) key.
  3. Select option 2 from the menu to terminate the graphics.

*Note: To remove the message display, you must use the terminate graphics function in local select option mode.*

## Ending GR5250.COM

You can terminate the GR5250 program by selecting option 2 from the GR5250 Enable Screen Graphics display.

## Two-Digit Graphics Error Codes

Two-digit graphics error codes are displayed in the status line of the personal computer and also are available to the programmer using the *read status graphics* order. The 2-digit codes are listed in Figure C-1.

Each error falls into one of three categories:

- Recoverable host errors
- Nonrecoverable host errors
- Local errors

The series of steps that is performed when the emulation program detects a graphics error depends on the category of error as follows.

### Recoverable Host Errors

The G5 graphics error is recoverable.

The following events take place when a recoverable type error is detected:

1. Error code is displayed on the status line.
2. Short beep is sounded.
3. Processing continues with the next byte in the graphics block.
4. When a G5 error occurs, the appropriate graphics error aid key codes are sent to the host following completion of graphics block processing.

## Nonrecoverable Host Errors

The following errors are not recoverable:

E1	G1	P1
E2	G2	P5
E3	G3	
E4	G4	
E5		

The following events take place when a nonrecoverable type error is detected:

1. Error code is displayed on the status line.
2. Short beep is sounded.
3. Graphics block processing is stopped.
4. Graphics mode is terminated.
5. Appropriate graphics error aid key codes are sent to the host.

## Local Errors

The following are local errors:

L1  
L2  
L3  
L9

The following events take place when an L9 (nonrecoverable local error) is detected while processing a graphics write block:

1. Error code is displayed on the status line.
2. Short beep is sounded.
3. Graphics is disabled, but the personal computer continues to process in text mode.

The following events take place when recoverable errors, L1, L2, or L3, are detected while processing a graphics write block:

1. Error code is displayed on the status line.
2. Short beep is sounded.
3. Processing continues.

The host is not informed of local errors.

The 2-digit graphics error codes are summarized in the following chart.

Two-Digit Code	Error and Possible Cause
E1	IEEE bus error: <ul style="list-style-type: none"> <li>• Invalid configuration data.</li> <li>• Plotter is not powered on.</li> <li>• Plotter is not attached.</li> <li>• No address match between a host assigned listen address and configuration listen address.</li> </ul>
E2	Talker error:  No interface message was received which confirmed the talker address.
E3	Invalid IEEE set order data:  Set address = 31.
E4	Time-out error: <ul style="list-style-type: none"> <li>• No <i>interface clear order</i> was received after powering on.</li> <li>• No <i>interface clear order</i> was received following an E1 order.</li> <li>• Plotter did not respond after a data transmission within specified time period.</li> </ul>
E5	Listen mode attempted:  Interface message was received which assigned the Emulation Program talker to listen.
G1	Invalid graphic byte: <ul style="list-style-type: none"> <li>• Invalid data byte format.</li> <li>• <i>More data to come order</i> received with no preceding data.</li> <li>• Data byte detected when expecting an order.</li> </ul>
G2	Undefined order:  Order code received which is not supported.
G3	Invalid graphic set order data: <ul style="list-style-type: none"> <li>• <i>Set color table index</i> = 0.</li> <li>• <i>Set marker style</i> &gt; 8.</li> </ul>
G4	<i>Fill polygon</i> error:  The number of nonhorizontal fill edges > 128.
G5	Marker outside display boundaries:  Center coordinate does not allow entire marker to be drawn.
L1	VDI buffer overflow in graphics state.
L2	VDI buffer overflow not in graphics state.

**Figure C-1 (Part 1 of 2). Two-Digit Graphic Error Codes**

Two-Digit Code	Error and Possible Cause
L3	A polygon is too complex (for example, a large number of intersecting lines) and it cannot be drawn using the current fill pattern. The polygon will be drawn using the hollow fill pattern.
L9	VDI exception.
P1	Printer not ready:  Printer Data Follows order or System Copy order received from host.
P5	Invalid printer control order data:  Load printer A/N color mix table index = 7, 15, 23, or 31.

**Figure C-1 (Part 2 of 2). Two-Digit Graphic Error Codes.**

*Note: The status line error code field is cleared when the emulated Reset key is pressed or when a graphics block has been processed with no errors.*

**PCGRAPH: Attempt to Open Graphics Work Station Failed**

You requested that the work station be open for graphics. You should verify that the CONFIG.SYS data set supports graphics.

**PCGRAPH: Default Graphic Parameters Will Be Used**

A configuration data set could not be used with the current display device. For example, trying to use 8 colors on a 4-color display. Defaults for the parameters will be supplied by the program.

**PCGRAPH: Graphics Already Running**

You attempted to start a second graphics session. The session was terminated and control was returned to DOS.

**PCGRAPH: Graphics Buffer Reduced to xxxxx**

Storage for the VDI buffer was insufficient and the buffer size was reduced to xxxxx bytes.

**PCGRAPH: Graphics Session Not Found**

You requested a graphics session but one cannot be found. You should configure a session for graphics and re-execute the program.

**PCGRAPH: Insufficient Storage for Graphics Execution**

The minimum storage required for graphics support was not available. You should make additional storage available.

**PCGRAPH: Invalid Configuration File Data Format**

The format of the configuration data set is invalid. You should specify a valid configuration data set.

**PCGRAPH: PCVDI.EXE Module Not Found**

The VDI interface module was either not found or could not be loaded. You should place PCVDI.EXE in the same subdirectory as the 5250 Emulator and try loading the module again.

**PCGRAPH: Plotter May Not Be Used in This Emulation Session**

**PCGRAPH: Press ENTER to TERMINATE**

A terminating situation was found and the graphics session was terminated.

**PCGRAPH: Unsupported Graphics Device**

You attempted to use an unsupported graphics device. You should specify a supported graphics device.

**PCGRAPH: VDI Device Drivers Not Loaded**

The VDI Device Drivers are not loaded. You should verify that the CONFIG.SYS file is present and that it specifies the correct VDI drivers. Then press the Alt, Ctrl, and Del keys to perform an IPL again.



## Glossary

**#LIBRARY.** The library, provided with the system, that contains the System Support Program Product. See *system library*.

**abnormal termination.** A system failure or operator action that causes a job to end unsuccessfully.

**address.** A name, label, or number that identifies a location in storage, a device in a network, or any other data source.

**alarm.** An audible signal at a display station or printer that is used to get the operator's attention.

**align.** To bring into or be in line with another or with others. For example, to align numbers on the decimal point.

**alphameric.** Consisting of letters, numbers, and other symbols, such as punctuation marks and mathematical symbols.

**alphanumeric.** See *alphameric*.

**alternative.** Offering or expressing a choice.

**alternative console.** See *alternative system console*.

**alternative index.** An index that is built after a physical file is created and that provides a different order for reading or writing records in the file. Contrast with *primary index*.

**alternative system console.** A command display station that can be designated as the system console.

**APAR.** See *authorized program analysis report (APAR)*.

**application.** (1) A particular business task, such as inventory control or accounts receivable. (2) A group of related programs that apply to a particular business area, such as the Inventory Control or the Accounts Receivable application.

**application program.** A program used to perform an application or part of an application.

**archive.** To copy a folder member onto tape, diskette, or disk file.

**archived member.** A folder member that has been saved on a disk, diskette or tape file.

**assigned key.** A key that performs a function different than the function indicated on the keyboard, such as when 3270 or 5250 emulation is being used.

**attachment programs.** The System/36 PC programs that exchange information between the 5364 System Unit and the personal computer. These programs run in the personal computer that is used as the system console.

**authority.** The right to communicate with or use a resource.

**authorized program analysis report (APAR).** A request for correction of a defect in a current release of an IBM-supplied program.

**automatic response severity level.** The value that indicates whether messages should be automatically responded to by the System Support Program Product.

**autowriter.** A System Support Program Product option that causes the spool writer program to be loaded without operator action whenever output exists in the spool file. See also *spool writer*.

**back up.** To copy information, usually onto diskette or tape, for safekeeping.

**backspace.** To move the cursor one character position backward.

**backup copy.** A copy, usually of a file, library member, or folder, that is kept in case the original is unintentionally changed or destroyed.

**badge security.** A System Support Program Product option that helps prevent the unauthorized use of a display station by checking the data from a magnetic stripe on a badge before allowing an operator to sign on.

**basic ideographic character set.** A character set defined by IBM that contains 3226 Kanji and 481 additional characters. The additional characters include Katakana, Hiragana, the alphabet (A through Z and a through z), numbers (0 through 9), Roman numerals (I through X), Greek, Cyrillic, and special symbols. Contrast with *extended ideographic character set*; see also *ideographic character set*.

**batch.** Pertaining to activity involving little or no operator action. Contrast with *interactive*.

**batch processing.** A processing method in which a program or programs process records with little or no operator action. Contrast with *interactive processing*.

**beginning of tape.** A reflective marking near the beginning of a tape reel that indicates where the system can begin recording data.

**bit.** Either of the binary digits 0 or 1. See also *byte*.

**block.** (1) A group of records that is recorded or processed as a unit. Same as *physical record*. (2) Ten sectors (2560 bytes) of disk storage. (3) In data communications, a group of records that is recorded, processed, or sent as a unit.

**Business Graphics Utilities/36 (BGU/36).** A program product that can be used to design, display, print, and plot graphics.

**byte.** The amount of storage required to represent one character; a byte is 8 bits.

**call.** (1) To activate a program or procedure at its entry point. Compare with *load*. (2) In data communications, the action necessary in making a connection between two stations on a switched line.

**cancel.** To end a task before it is completed.

**character.** A letter, digit, or other symbol.

**character key.** A keyboard key that allows the user to enter the character shown on the key. Compare with *command key* and *function key*.

**character set.** A group of characters used for a specific reason; for example, the set of characters a printer can print.

**characters per inch (cpi).** The number of characters printed within an inch horizontally across a page.

**check.** (1) An error condition. (2) To look for a condition.

**close.** To end the processing of a file.

**coaxial cable.** A cable made of a conducting outer metal tube enclosing and insulated from a central conducting core.

**code.** (1) Instructions for the computer. (2) To write instructions for the computer. Same as *program*. (3) A representation of a condition, such as an error code.

**command.** A request to the system to perform an operation or a procedure.

**command display.** A display that allows an operator to display and send messages, and use control commands and procedure commands to start and control jobs. Contrast with *standby display*. See also *console display* and *subconsole display*.

**command display station.** A display station from which an operator can start and control jobs. A command display station can become an alternative system console, can be designated as a subconsole, and can also be used as a data display station. See also *alternative system console*, *data display station*, and *subconsole*.

**command key.** A keyboard key that is used to request specific programmed actions. Compare with *character key* and *function key*.

**command line.** The blank line on a display where commands or option numbers can be entered.

**communications.** See *data communications*.

**compress.** (1) To move files, libraries, or folders together on disk to create one continuous area of unused space. (2) To replace repetitive characters in a file or folder with control characters so that the file or folder takes up less space when saved on diskette.

**compression.** In data communications, a technique for removing strings of duplicate characters and for removing trailing blanks before transmitting data.

**computer graphics.** The use of a computer to produce pictorial representations of relationships, such as charts, and two- or three-dimensional images, by means of dots, lines, curves, and so forth.

**condense.** To move library members together in a library to create one continuous area of unused space in the library.

**configuration.** The group of machines, devices, and programs that make up a data processing system. See also *system configuration*.

**configure.** (1) To describe (to the system) the devices, optional features, and program products installed on a system. (2) To describe to SSP-ICF both the communications facilities connected to System/36 and the attributes of the subsystem and remote system.

**console.** A device used for communication between an operator and the system.

**console display.** A display that can be requested only at the system console. From a console display an operator can display, send, and reply to messages and use all control commands.

**control command.** A command used by an operator to control the system or a work station. A control command does not run a procedure and cannot be used in a procedure.

**control panel.** A panel that contains lights and keys used to observe and operate the status of the operations within the system.

**control station.** The primary or controlling computer on a multipoint line. The control station controls the sending and receiving of data.

**control storage.** Storage in the computer that contains the programs used to control input and output operations and the use of main storage. Contrast with *main storage*.

**control storage initial program load.** The loading of control storage programs from disk or diskette to control storage.

**cpi.** See *characters per inch (cpi)*.

**creation date.** The program date at the time a file is created. See also *program date*, *session date*, and *system date*.

**current library.** The first library searched for any required members. The current library can be specified during sign-on or while running programs and procedures.

**cursor.** A movable symbol on a display, used to indicate to the operator where to type the next character.

**data communications.** The transmission of data between computers and/or remote devices (usually over a long distance).

**data display station.** A display station from which an operator can only enter data. A data display station is acquired and controlled by a program. Contrast with *command display station*.

**data file utility (DFU).** The part of the Utilities Program Product that is used to create, maintain, display, and print disk files.

**DDM.** See *Distributed Data Management (DDM)*.

**dedicated system.** A system intentionally allocated to a single job or task.

**default.** See *default value*.

**default printer.** A printer that is assigned to a system or user and accepts all the printed output from that system or user.

**default prompt.** A field name from a D-specification used to prompt for the field's contents.

**default value.** A value stored in the system that is used when no other value is specified.

**delete.** To remove. For example, to delete a file or a document.

**Development Support Utility (DSU).** A program product that can be used to create, edit, remove, view, or print procedure members and source members.

**device passthru.** See *Display Station Pass-Through (DSPT)*.

**DFU.** See *data file utility (DFU)*.

**direct file.** A disk file in which records are referenced by the relative record number. Contrast with *indexed file* and *sequential file*.

**disable.** In interactive communications, to end a subsystem and free the area of main storage used by that subsystem. Contrast with *enable*.

**disk.** A storage device made of one or more flat, circular plates with magnetic surfaces on which information can be stored.

**disk drive.** The mechanism used to read and write information on disk.

**disk file.** A set of related records on disk that is treated as a unit. See also *record file* and *stream file*.

**disk operating system.** Disk operating system; an operating system for IBM personal computers.

**diskette.** A thin, flexible magnetic plate that is permanently sealed in a protective cover. It can be used to store information copied from the disk or to exchange information with other computers.

**diskette drive.** The mechanism used to read and write information on diskettes.

**diskette 1.** A diskette that contains information on only one side.

**diskette 2D.** A diskette that contains information on both sides, and with two times the amount of information stored in the same space as a diskette 1. Therefore, a diskette 2D holds approximately four times the amount of information as a diskette 1.

**display.** (1) A visual presentation of information on a display screen. (2) To show information on the display screen.

**display screen.** The part of the display station on which information is displayed.

**display station.** A device that includes a keyboard from which an operator can send information to the system and a display screen on which an operator can see the information sent to or the information received from the system.

**Display Station Pass-Through (DSPT).** A communications feature that allows a user to sign on to one System/36 or System /38 from another System/36 or System/38 and run applications on the remote system.

**DisplayWrite/36 (DW/36).** A program product for creating, revising, viewing, and printing documents.

**Distributed Data Management (DDM).** A feature of the System Support Program Product that allows an application program to work on files that reside on a remote system.

**DOS.** See *disk operating system*.

**dot matrix.** (1) In computer graphics, a two-dimensional pattern of dots used for constructing a display image. (2) In word processing, a pattern of dots used to form characters.

**down load.** To transmit a font over a communications line to a 6670 printer.

**DSPT.** See *Display Station Pass-Through (DSPT)*.

**DSU.** See *Development Support Utility (DSU)*.

**dump.** (1) To copy the contents of all or part of storage, usually to an output device. (2) Data that has been dumped.

**dump file.** A file that contains the data areas used by a program that failed.

**DW/36.** See *DisplayWrite/36 (DW/36)*.

**edit.** (1) To modify the form or format of data; for example, to insert or remove characters for dates or decimal points. (2) To check the accuracy of information that has been entered, and to indicate if an error is found. (3) To make changes to a document by adding, changing, or removing text.

**emulation.** Imitation; for example, the imitation of a computer or device.

**enable.** In interactive communications, to load and start a subsystem. Contrast with *disable*.

**end of tape.** A reflective marking near the end of a tape reel that indicates where the system must stop recording data.

**enhance.** To make greater; to improve.

**Enhanced 5250 Emulation.** A feature that allows an IBM personal computer and a printer to be attached to a System/36 and perform the functions of one or two 5250 work stations on one twinaxial cable. The work station(s) can be defined as one display, two displays, or one display and one printer.

**enter.** To type in information from a keyboard and press the Enter key to send the information to the computer.

**enter/update mode.** The mode that is used to enter new statements into a source or procedure member, or to change statements that already exist in a source or procedure member.

**error code.** See *system reference code*.

**error log.** A record of all the errors and informational messages that are found while the document was printed or sent from another system.

**feature.** A programming or hardware option, usually available at an extra cost. For example, Communications is a feature of the System Support Program Product.

**field.** One or more characters of related information (such as a name or an amount). Records are comprised of fields.

**file.** A set of related records treated as a unit.

**file definition.** (1) In RPG, file description and input specifications that describe the records and fields in a file. (2) In IDDU, information that describes the contents and characteristics of a file. A file definition is contained in a data dictionary.

**file name.** The name used by a program to identify a file. See also *label*.

**first-level message.** A message that is issued immediately when an error occurs. See also *second-level message*.

**fixed disk.** A disk that cannot be removed from the system unit. (If you have an 9332 Disk Unit disk, it is not in the system unit).

**folder.** A named area on disk that contains documents, profiles, mail, or data definitions used by office products. Compare with *library*.

**folder directory.** An area, in a folder, that contains information about each member in the folder; for example, the member name and the location.

**folder member.** A named collection of records or statements in a folder. A document is an example of a folder member.

**format.** (1) A defined arrangement of such things as characters, fields, and lines, usually used for displays, printouts, files, or documents. (2) To arrange such things as characters, fields, and lines. (3) In BASIC, a representation of the correct form of a command or statement. (4) In IDDU, a group of related fields, such as a record, in a file.

**formatted diskette.** A diskette on which control information has been written but which may or may not contain any data.

**forms ID.** A unique number, assigned by a user, that identifies each type of paper or form used for printed output.

**forms number.** See *forms ID*.

**function.** The action for which a thing exists.

**function key.** A keyboard key that requests an action but does not display or print a character. The cursor movement and Help keys are examples of function keys. Compare with *command key* and *character key*.

**generation.** For some remote systems, the translation of configuration information into machine language.

**hard copy.** A printed copy. Contrast with *online*.

**hardware.** The equipment, as opposed to the programming, of a system.

**Help key.** A function key that, when pressed, displays online information or some part of the system help support.

**help support.** See *system help support*.

**help text.** The part of the system help support that supplies information about menus, prompts, and messages.

**history file.** A file that contains a log of system actions and operator responses.

**hold.** To prevent a spool job from running.

**host graphics support.** A program that allows an IBM Personal Computer with a color monitor to imitate the operations of a 5292 Model 2 Display Station.

**host system.** The primary or controlling computer in a communications network. See also *control station*.

**hot key.** A key sequence that is used to shift between the PC and System/36 modes when using 5250 Emulation or the 5364 System Unit.

**IBM PC.** An IBM personal computer; for example, an IBM Personal Computer AT.

**ID.** Identification.

**IDDU.** See *interactive data definition utility (IDDU)*.

**ideographic.** Pertaining to 2-byte characters consisting of pictograms, symbolic characters, and other types of symbols.

**ideographic character set.** The combination of the basic and extended ideographic character sets; see also *basic ideographic character set* and *extended ideographic character set*.

**ideographic session.** A display station operating session during which ideographic data is used for system communication with the operator.

**ideographic SSP.** A version of the System Support Program Product that includes formats for help displays in both Katakana 1-byte and Kanji 2-byte ideographic characters. Compare with *Kanji-preferred SSP*.

**ideographic support.** The hardware and programming elements that allow processing of ideographic data.

**IGC.** See *ideographic*.

**index.** (1) A table containing the key value and location of each record in an indexed file. (2) A computer storage position or register, the contents of which identify a particular element in a set of elements.

**index key.** The field within a record that identifies that record in an indexed file.

**indexed address.** An address that is changed by the contents of an index register before or while the instruction is performed.

**indexed file.** A file in which the key and the position of each record are recorded in a separate portion of the file called the index. Contrast with *direct file* and *sequential file*.

**informational message.** A message that provides information to the operator, but does not require a response.

**initial program load (IPL).** The process of loading the system programs and preparing the system to run jobs.

**initialize.** To prepare for use. For example, to initialize a diskette.

**input.** Data to be processed.

**input/output (I/O).** Pertaining to either input or output, or both.

**inquiry.** (1) A request for information in storage. (2) A request that puts a display station into inquiry mode. (3) In data communications, a request for information from another system.

**inquiry mode.** A mode during which the job currently running from a display station is interrupted so that other work can be done. The operator puts the display station in inquiry mode by pressing the Attn key.

**inquiry program.** (1) A program that allows an operator to get information from a disk file. (2) A program that runs while the system is in inquiry mode.

**installation.** The location where a system is installed.

**interactive.** Pertaining to activity involving requests and replies as, for example, between an operator and a program or between two programs. Contrast with *batch*.

**interactive data definition utility (IDDU).** The part of the System Support Program Product used to externally define the characteristics of data and the contents of files.

**interactive processing.** A processing method in which each operator action causes a response from the program or the system. Contrast with *batch processing*.

**interrupt.** (1) To temporarily stop a process. (2) In data communications, to take an action at a receiving station that causes the sending station to end a transmission.

**IPL.** See *initial program load (IPL)*.

**job.** (1) A unit of work to be done by a system. (2) One or more related procedures or programs grouped into a procedure.

**job file.** A disk file that exists until the job that uses it ends.

**job queue.** A list of jobs waiting to be processed by the system.

**job step.** A unit of work represented by a single program or a procedure that contains a single program. A job consists of one or more job steps.

**K-byte.** 1024 bytes.

**Kanji.** (1) The ideographic character set used by the Japanese to represent their native language. (2) A single character in the ideographic character set.

**Kanji-preferred SSP.** A version of the System Support Program Product that includes formats for help displays in Kanji 2-byte ideographic characters. Compare with *ideographic SSP*.

**Katakana.** A native Japanese character set that is used primarily to write foreign words phonetically.

**key.** One or more characters used to identify the record and establish the record's order within an indexed file.

**keyboard.** A group of numeric keys, alphabetic keys, and function keys used for entering information at a display station and into the system.

**keyboard profile.** A data file that describes what each key on the keyboard represents or what functions each key performs.

**Keylock feature.** A security feature in which a lock and key can be used to restrict the use of the display station.

**label.** (1) The name in the disk or diskette volume table of contents or on a tape that identifies a file. See also *file name*. (2) The name that identifies a statement.

**library.** (1) A named area on disk that can contain programs and related information (not files). A library consists of different sections, called library members. Compare with *folder*. (2) The set of publications for a system.

**library directory.** An area, in a library, that contains information about each member in the library; for example, the member name and the location.

**library member.** A named collection of records or statements in a library. The types of library members are *load member*, *procedure member*, *source member*, and *subroutine member*.

**lines per inch (lpi).** The number of characters printed within an inch vertically down the page.

**load.** (1) To move data or programs into storage. Compare with *call*. (2) To place a diskette into a diskette drive or a diskette magazine into a diskette magazine drive. (3) To insert paper into a printer. (4) To mount a tape or insert a tape cartridge into a tape drive.

**load member.** A library member that contains information in machine language, a form that the system can use directly. Contrast with *source member*.

**load module.** A program in a form that can be loaded into main storage and run. The load module is the output of the overlay linkage editor.

**local.** Pertaining to a device, file, or system that is accessed directly from your system, without the use of a communications line. Contrast with *remote*.

**lowercase.** Pertaining to a letter having as its typical form *a f g* rather than *A F G*.

**lpi.** See *lines per inch (lpi)*.

**mail.** Any correspondence (online or hard copy) that is sent between users.

**mail log.** A record of all the mail sent or received by a user.

**main storage.** The part of the processing unit where programs are run. Contrast with *control storage*.

**main storage processor.** Hardware that performs the machine language instructions in main storage.

**master configuration record.** Information, stored on disk, that describes system devices, programming, and characteristics.

**master security officer.** A person who is designated to control all of the security tasks that are provided with the System Support Program Product. A master security officer can, for example, deactivate password, badge, or resource security, or add, change, or remove security information about any system operator. Contrast with *security officer*.

**megabyte.** One million bytes.

**member.** See *library member*.

**menu.** A displayed list of items from which an operator can make a selection.

**menu security.** A System Support Program Product option that restricts an operator to selecting items from a particular menu.

**message.** (1) Information sent to one or more users or display stations from a program or another user. A message can be either displayed or printed. (2) An indication of the condition of the system sent by the system. (3) For IMS/IRSS, a unit of data sent over the communications line.

**message identification.** A field in the display or printout of a message that directs the user to the description of the message in a message guide or a reference manual. This field consists of up to four alphabetic characters, followed by a dash, followed by the message identification code.

**message identification code (MIC).** A four-digit number that identifies a record in a message member. This number can be part of the message identification.

**MIC.** See *message identification code (MIC)*.

**mode.** A method of operation. For an example, see *enter/update mode*.

**monitor.** Programming or hardware that observes, supervises, controls, or verifies the operation of a system.

**monochrome.** Consisting of a single color.

**nonlabeled tape.** A tape that has no labels. Tape marks are used to indicate the end of the volume and the end of each data file.

**nonswitched line.** A connection between computers or devices that does not have to be established by dialing. Contrast with *switched line*.

**off drop support.** Support that disconnects a remote controller.

**OFFICE/36.** The group of office products: DisplayWrite/36 (DW/36), Personal Services/36, and Query/36.

**offline.** Neither controlled directly by, nor communicating with, the computer, or both. Contrast with *online*.

**online.** Being controlled directly by, or directly communicating with, the computer, or both. Contrast with *offline*.

**online information.** Information, read on the display screen, that explains displays, messages, and programs. For some programs, the online information is similar to a printed manual and may contain a table of contents, guide information, help text, a glossary, and an index.

**open.** To prepare a file for processing.

**operating system.** A collection of system programs that controls the overall operation of a computer system.

**operation.** A defined action, such as adding or comparing, performed on one or more data items.

**operator.** (1) A person who operates a device. (2) A symbol that represents an operation to be done.

**optional SSP.** Displays and programs included in the System Support Program Product that can optionally be loaded during system configuration.

**output.** The result of processing data.

**page.** A 2048-byte segment of main storage.

**parameter.** A value supplied to a procedure or program that either is used as input or controls the actions of the procedure or program.

**password.** A string of characters that, when entered along with a user ID, allows an operator to sign on a secured system.

**PC.** A personal computer.

**PC Code diskettes.** The diskettes that contain the attachment programs for the System/36 PC.

**physical record.** (1) A group of records that is recorded or processed as a unit. Same as *block*. (2) A unit of data that is moved into or out of the computer.

**primary index.** The index that is built when a file is created. Contrast with *alternative index*.

**print band.** An interchangeable metal band that contains the print characters used by some printers.

**print belt.** See *print band*.

**print entries.** See *spool file entries*.

**print file.** In MSRJE, a file created by the host system that is printed on your system.

**Print key.** A function key that prints the display shown when the key is pressed.

**print queue.** A list of output waiting to be printed by the system. See also *log*.

**print wheel.** An interchangeable print element used in certain printers.

**printer ID.** The identification code assigned to printers.

**printout.** Information from the computer that is produced by a printer.

**priority.** The relative ranking of items. For example, a job with high priority will be run before one with regular or low priority.

**problem determination.** The process of identifying why the system is not working. Often this process identifies programs, equipment, data communications facilities, or user errors as the source of the problem.

**procedure.** A set of related operation control language statements (and, possibly, utility control statements or procedure control expressions) that cause a specific program or set of programs to be run.

**procedure command.** A command that runs a procedure; usually the same as a procedure name.

**procedure member.** A library member that contains the statements (such as operation control language statements) necessary to perform a program or set of programs.

**processing.** The performance of operations and calculations on data.

**profile.** Data that describes the characteristics of a user, program, device, or remote location.

**program.** (1) A sequence of instructions for a computer. See *source program* and *load module*. (2) To write a sequence of instructions for a computer. Same as *code*.

**program date.** The date associated with a program (job step). See also *creation date*, *session date*, and *system date*.

**program product.** A licensed program for which a fee is charged.

**program temporary fix (PTF).** A temporary solution to or bypass of a defect in a current release of a licensed program.

**prompt.** A displayed request for information or operator action.

**proportional spacing.** A method of spacing in which the space between characters varies according to the width of the characters. (DW/36) A type of printing that provides different amounts of space depending on the size of the character being printed. For example, an *m* takes more space than an *i*.

**PTF.** See *program temporary fix (PTF)*.

**PTF backup library.** A library that contains a copy of the load modules replaced by a PTF. The library is created by the PTF procedure with the **APPLY** parameter specified. When the **REMOVE** parameter is specified, the PTFs are removed and the original load modules are replaced.

**PTF library.** A library that contains the PTFs to be applied by the PTF procedure. The library is created by the PTF procedure with the **COPY** parameter specified.

**Query/36.** A program product that produces files and reports based on those files. The files must be linked to file definitions created with **IDDU**.

**queue.** A line or list formed by items waiting to be processed.

**record.** A collection of fields that is treated as a unit.

**record file.** A file on disk in which the data is read and written in records. Contrast with *stream file*.

**release.** (1) To allow a spool job that is being held to run. (2) A distribution of new function for an existing program product.

**release update.** The process of updating programming support by installing a new release of the System Support Program Product and program products.

**remote.** Pertaining to a device, file, or system that is accessed by your system through a communications line. Contrast with *local*.

**remote location.** Any other system in the network with which your system can communicate. This corresponds to the remote location name specified in the **APPC** subsystem.

**remotely started session.** A session started by an incoming procedure start request from the remote system. Contrast with *acquired session*.

**reorganize.** To move folder members together at the front of the folder to reduce as much as possible the number of folder extents.

**reset.** To return a device or circuit to a clear state.

**restore.** Return to an original value or image. For example, to restore a library from diskette.

**roll.** To move the display image vertically to bring into view information that is above or below the boundaries of the display.

**root directory.** The highest-level directory on a disk or diskette, or on a virtual disk or diskette. It may contain subdirectories as well as files.

**root segment.** The first segment of a program with overlays. The root segment remains in main storage at all times while the program is being run.

**run.** To cause a program, utility, or other machine function to be performed.

**screen design aid (SDA).** The part of the Utilities Program Product that helps the user design, create, and maintain displays and menus. Additionally, SDA can generate specifications for RPG and WSU work station programs.

**scroll.** See *roll*.

**SDA.** See *screen design aid (SDA)*.

**second-level message.** A message that supplies additional information about an error condition when the Help key is pressed for a first-level message. See also *first-level message*.

**security.** The protection of data, system operations, and devices from accidental or intentional ruin, damage, or exposure. See also *system security*.

**security officer.** A person who is designated to control many of the system security tasks that are provided with the System Support Program Product. A security officer can, for example, add, change, or remove security information about system console operators, subconsole operators, and display station operators. A security officer cannot, however, deactivate password, badge, or resource security. Contrast with *master security officer*.

**separator page.** A printed page used to show the end of output for one job and the start of output for another job.

**sequential file.** A file in which records occur in the order in which they were entered. Contrast with *direct file* and *indexed file*.

**session.** (1) The logical connection by which a System/36 program or device can communicate with a program or device at a remote location. (2) The length of time that starts when an operator signs on the system and ends when the operator signs off the system.

**session date.** The date associated with a session. See also *creation date*, *program date*, and *system date*.

**session library.** The library specified, or assigned as a default, when signing on or while running a program.

**SEU.** See *source entry utility (SEU)*.

**shift.** To adjust line contents by moving existing information to the left or right of its original position.

**sign off.** To end a session at a display station.

**sign on.** (Verb) To enter a user identification to begin a session at a display station.

**sign-on.** (Noun) The action an operator uses at a display station in order to begin working at the display station.

**software.** Programs, languages, and/or routines that control the operations of a computer in solving a given problem.

**software reset sequence.** The key sequence used to end all System/36 and PC sessions, then reload DOS and the attachment programs.

**source entry utility (SEU).** The part of the Utilities Program Product used by the operator to enter and update source and procedure members.

**source member.** A library member that contains information in the form in which it was entered, such as RPG specifications. Contrast with *load member*.

**source program.** A set of instructions that are written in a programming language and that must be translated to machine language before the program can be run.

**special character.** A character other than an alphabetic or numeric character. For example; \*, +, and % are special characters.

**spool file.** A disk file that contains output that has been saved for later printing.

**spool file entries.** Output in the spool file waiting to be printed.

**spool writer.** The part of the System Support Program Product that prints output that has been saved in the spool file.

**spooling.** The part of the System Support Program Product that saves output on disk for later printing.

**SSP.** See *System Support Program Product (SSP)*.

**standard label tape.** A tape that follows the IBM standard labeling conventions.

**standby display.** A display that allows an operator to enter data only. When a standby display appears, the display station can be acquired by a program. Contrast with *command display*.

**status.** A condition. For example, the status of a printer, a job, or a communications line.

**status line.** A line at the top of the Edit display that contains information about the document and current operations, including an audit window, the document and folder names, and page and line number.

**stream file.** A file on disk in which data is read and written in consecutive fields. Contrast with *record file*.

**streaming tape unit.** A device for reading or writing data from or on magnetic tape. A streaming tape unit stores data on tape cartridges.

**subconsole.** A display station that controls a printer or printers.

**subconsole display.** A display that can be requested only from a command display that appears on a subconsole. From a subconsole display an operator can display and send messages, and enter all control commands except those that can be entered only at the system console. See also *console display*.

**subroutine member.** A library member that contains information that must be combined with one or more members before being run by the system.

**switched line.** In data communications, a connection between computers or devices that is established by dialing. Contrast with *nonswitched line*.

**system.** The computer and its associated devices and programs.

**system configuration.** A process that specifies the machines, devices, and programs that form a particular data processing system.

**system console.** A display station from which an operator can keep track of and control system operation.

**system date.** The date assigned by the system operator during the initial program load procedure. See also *creation date*, *program date*, and *session date*.

**system dump.** A dump of all active programs (and their associated data) recorded after an error stops the system. Contrast with *task dump*.

**system help support.** The part of the System Support Program Product that uses menus, prompts, and descriptive text to aid an operator.

**system library.** The library, provided with the system, that contains the System Support Program Product and is named #LIBRARY.

**system list device.** The device that receives output for most System Support Program Product utility programs and service aids.

**system log device.** The device or devices designated by the LOG OCL statement to record messages and OCL statements.

**system measurement facility (SMF).** System Support Program Product routines that, in conjunction with control storage routines, observe system and device activity, observe SSP work area usage, and record this data in a disk file.

**system printer.** The printer that is used for any printed output that is not specifically directed to another printer.

**system program.** An IBM-supplied program that is installed on the system. The System Support Program Product (SSP) is an example.

**system reference code.** A four-character code that contains information for a service representative. This code either is provided as part of a message or is displayed on the control panel.

**system security.** A system function that restricts the use of files, libraries, folders, folder members, and display stations to certain users.

**system service display station.** A display station that can use all the procedures, programs, and commands needed to service the system.

**System Support Program Product (SSP).** A group of licensed programs that manage the running of other programs and the operation of associated devices, such as the display station and printer. The SSP also contains utility programs that perform common tasks, such as copying information from diskette to disk.

**system unit.** The part of the system that contains the processing unit, the control panel, the disk drive and the disk, and either a diskette drive or a diskette magazine drive.

**System/36 mode.** An operating session with the 5364 System Unit that uses the System Support Program Product and other System/36 programs.

**table.** A collection of data in which each item is uniquely identified by a label, by its position relative to the other items, or by some other means.

**tape.** A thin, flexible magnetic strip on which data can be stored. It can be used to store information copied from the disk.

**tape cartridge.** A case containing a reel of magnetic tape arranged for insertion into a tape drive.

**tape drive.** A mechanism used to read and write information on magnetic tapes.

**tape mark.** A mark on the tape that indicates the beginning or end of a file or tape.

**tape volume.** A single reel of magnetic tape.

**task.** 1) A unit of work (such as a user program) for the main storage processor. 2) A unit of work that a person does.

**task dump.** A dump of a program that failed (and its associated data). Contrast with *system dump*.

**template.** A pattern to help the user identify the location of keys on a keyboard.

**unique.** The only one.

**user ID.** See *user identification (user ID)*.

**user identification (user ID).** A string of characters that identifies a user to the system.

**utilities.** See *utility program*.

**Utilities Program Product.** A program product that contains the data file utility (DFU), the source entry utility (SEU), the work station utility (WSU), and the screen design aid (SDA).

**utility program.** (1) A program provided to perform a task that is required by many of the programs using the system; for example, a program that copies information from diskette to disk. (2) A program of the System Support Program Product that performs a common task.

**view.** To look at information on a display screen without being able to change that information.

**volume label.** An area on a standard label tape used to identify the tape volume and its owner. This area is the first 80 bytes and contains VOL1 in the first four positions.

**volume table of contents (VTOC).** An area on a disk or diskette that describes the location, size, and other characteristics of each file, library, and folder on the disk or diskette.

**VTOC.** See *volume table of contents (VTOC)*.

**work station.** A device that lets people transmit information to or receive information from a computer; for example, a display station or printer.

**work station address.** (1) A number used in a configuration member to identify a work station attached to a port. (2) The address to which the switches on a work station are set, or the internal default address.

**work station utility (WSU).** The part of the Utilities Program Product that helps you to write programs for data entry, editing, and inquiry.

**WSU.** See *work station utility (WSU)*.

**WSU display.** A display selected by the WSU display command key that allows operators to select a display, review a record, or end a work session.

**1024-byte format.** A format for diskette 2D diskettes with 1024 bytes per sector and 8 sectors per track.

**12-hour clock.** A clock that keeps time from 12:00 A (midnight) to 12:00 P (noon), and from 12:00 P (noon) to 12:00 A (midnight).

**128-byte format.** A format for diskette 1 diskettes with 128 bytes per sector and 26 sectors per track.

**24-hour clock.** A clock that keeps time from 00:00 (midnight) to 12:00 (noon), and from 12:00 (noon) to 24:00 (midnight).

**256-byte format.** A format for diskette 2D diskettes with 256 bytes per sector and 26 sectors per track.

**5250 Emulation.** A feature that allows an IBM personal computer to be attached to a System/36 and perform the functions of a 5250 Display Station.



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