PRINTER INTERFACE TYPE 60

OPERATOR'S MANUAL

This printer interface can only be installed in models of the H513 series. Before installation, please make sure that the rating plate on the rear of the machine mentions "H513".

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ABOUT THE PRINTER INTERFACE

What this Printer Interface Can Do

After you have the printer interface kit installed in your machine, you will be able to use it as a desktop printer for your personal computer.

To ensure that the printer can be used with a wide range of application programs, emulation modes for three different printer types have been provided. These emulation modes are for:

- ❒ HP LaserJet IIIP (3/P/Si mode)
- ❒ Epson LQ
- ❒ Epson FX

There is a slot for an optional font cartridge (for a HP compatible font cartridge) and a slot for an optional font card (for an Epson font card or for a PostScript or HP plotter emulation mode card).

The printer comes with 1 megabyte of memory, and you can add up to an extra 5 megabytes, making a possible total of 6 megabytes.

> If you need optional font cards or cartridges, obtain them from your computer store. The manufacturer of this machine does not supply these items, and cannot guarantee satisfactory operation of the machine with every font card and cartridge that is available. See Appendix D for more on optional font cards and cartridges.

Sharing the Printer with Two Computers

Your printer has two different interfaces (these will be referred to as **channels** in this manual, because the printer's software uses this term, or its abbreviation "CH"). There is a Centronics parallel channel and an RS-232C serial channel, and you can connect one computer to each. The RS-232C channel accepts data from a computer at high speeds up to 19,200 bps. The printer can automatically detect which channel data is coming in on, and data is printed on a first-in first-out basis.

You can connect the printer to two computers at the same time, using both channels. This is known as Multi-user mode. There are two basic types of Multi-user mode; these are described on page 13.

If you wish, you can allocate a different emulation mode to each channel, and different sets of printer settings. You can also allocate separate parts of the printer's memory to each channel. See page 39 for details on how to share your printer between two computers.

Working with the Printer and the Fax Machine at the Same Time

In a few cases, the machine can handle two tasks at the same time. The following tables show how to operate the machine while a job is currently in progress.

1. If you wish to print a file from the computer while the fax machine is busy

Current Task (Fax Machine)	Printing a File from the PC
Immediate Transmission	Possible; you can print your file immediately if you wish.
Memory Transmission	
Scanning a document and storing it to memory	Printing is delayed until the fax document has been completely scanned.
Receiving a fax message	If a fax message is being received to memory, you can print. However, if a received fax is being printed, the file from the PC will remain in the buffer until the incoming fax has been printed.
Printing a fax message from memory	Possible; however, the file from the PC will remain in the buffer until the current task has finished.
Making a copy	

2. If you wish to use the fax machine (or if someone tries to send you a fax message) while you are printing a file from the computer

Desired Use of the Fax Machine	Whether Possible or Not
Immediate Transmission	You can store a document in the memory, and transmission will begin immediately.
Memory Transmission	
Scanning a document and storing it to memory	Possible; you can start immediately, even though the machine is printing a file from the computer.
Receiving a fax message	Incoming fax messages will always be stored in the memory if the machine is printing. They will be printed after the machine has finished.
Printing a fax message from memory	The message will be printed after the machine has finished the current task.
Making a copy	Not possible; wait until the machine has finished printing the copy.

Note: You can tell if the machine is printing a file from the computer by looking at the ◇ indicator (you can tell by looking at the indicator even if the machine is in fax standby mode). When it is flashing, the computer is sending data to the printer. When it is steady, only printing is taking place; the computer is not sending data.
If the indicator remains steady but nothing is being printed, see Form Feed on page 14.

Operating the Printer

On Line
You can print data from your computer at any time, if the printer is on line (see page 14 for how to switch the printer on line).

Off Line
No data can be received from the computer if the printer is off line. However, any data in the printer buffer can be printed manually by the Form Feed procedure (see page 14).

Function 37: Printer "Ready"/Set Up Mode (Selectype Mode)
In this mode, you can access a wide range of printer set-up features. Printer setup mode is called "Selectype" mode. It is described on page 22 and the pages following. You can switch between On Line and Off Line if the printer "READY" display is showing, but not if the printer is in Selectype mode.

To enter Printer Ready/Set Up Mode, use Function 37

Function 3 7

```
READY: P 3/P/Si
```

You can combine these into a keystroke program to enter this mode quickly. For information on how to make a keystroke program, see the Operator's Manual for your fax machine.

To leave Printer Ready/Set Up mode:

Return to standby mode only from the printer "READY" display (shown above right). To return to the "Ready" display, press the ← arrow on the scroll key repeatedly.

Press Function to return to standby mode.

Also, if you do not touch the machine for 4 minutes while it is in printer mode, the machine will return to standby mode.

CONVENTIONS

The following conventions were used when writing this manual.

Keynames: Mainly, these have been placed in a different typeface, and enclosed in a box. For example: Function means "Press the Function key". For the arrow keys on the scroll key, ↑ (for example) means "Press the ↑ arrow on the scroll key".

Displays: Messages seen in the bottom line of the display panel are shown in a larger box, normally to the right of the operation that causes the display to appear.

ABOUT THIS MANUAL

Operation Panel: This section will acquaint you with the buttons and indicators on the operation panel that are for use only with the printer. It also outlines how to access the various printer control functions.

Installation: This section shows you how to connect your computer to the printer and check that it is working properly. It also tells you how to install the optional font cards and cartridges that you can get for your printer.

Basic Operations: This section shows you how to perform basic operations, such as resetting the printer and switching it on or off line.

Selecting the Emulation Mode: This section tells you how to select one of the emulation modes.

Adjusting the Printer Settings: This section shows you how to modify the machine's settings.

Solving Problems: This section explains any error messages that may appear on the screen while you are using your fax machine as a printer. It also tells you how to solve some common problems. However, for mechanical problems such as paper jams, refer to your fax machine's Operator's Manual.

Appendix A. Specifications: This contains a list of the printer's most important specifications. Also see the Specifications section in your fax machine's manual.

Appendix B. HP Emulation Mode: This section contains technical information on the HP LaserJet emulation mode. It also shows you how to fine-tune the emulation mode to adjust the appearance of your output.

Appendix C. Epson Emulation Modes: This section is similar to Appendix B, except that it deals with the Epson emulation modes.

Appendix D. Optional Font Cards and Cartridges: This section gives details about the optional cards and cartridges that you can use with this printer interface kit.

Appendix E. List of Features: This section lists up all the features that can be adjusted with "Selectype" mode, along with their factory settings.

Appendix F. Connector Pin Configuration: This section shows the names of the signals present on the serial and parallel connectors at the back of the machine. Show this to a technician if you are having problems.

Appendix G: Status Sheet: This gives a sample status sheet printout.

BUTTONS

To operate the printer, you will use the four buttons marked ←, →, ↑, and ↓ on the scroll key . See your fax machine's Operator's Manual to see where the scroll key is on your fax machine.

The main uses of these four printer mode buttons are as follows.

←

Press this to enter printer setup mode from printer "Ready" mode. Set up mode is also known as Selectype mode. Also, when in printer setup mode, press this repeatedly to return to printer "Ready" mode.

↑

This button has three main functions:

- ❒ If the ⌙ (Line Fail) indicator is flashing, read the error message on the display and correct the problem (see page 45 for details). Then, press this button to resume printing.
- ❒ If you hold this button down for several seconds, RESET appears on the display and all printer settings are returned to their previously stored settings. If you continue to press this button after RESET appears, INITIALIZE will appear on the display, and the printer settings will return to the power-on default settings. For more on resetting the machine, see page 15.
- ❒ If you switch the printer off line then press this button during a multi-copy print run, any remaining copies will be canceled.

↓

When the printer is off line and the ◇ (Feed) indicator is lit, press this button to print out the data remaining in the printer's memory. If you are using more than one channel, you can print data received by each channel alternately. See Form Feed on page 14. (As a reminder, note that this arrow key points towards the printout tray.)

When the printer is on line and the ◇ (Feed) indicator is either off or blinking slowly, press this button to print on paper fed in from the by-pass tray. This is called Manual Feed.

→

Watch the ↦ (on line/off line) indicator, and press this button to switch the printer between on line and off line modes. Do this only when the machine is in printer "Ready" mode. (As a reminder, note that the arrow on the arrow key points the same way as the arrow in the On Line indicator.)

INDICATORS

To monitor the printer's status, look at the display panel. The various messages that appear on the display panel are explained on page 45. Also, there are three indicators for use only with the printer. See your fax machine's operator's manual to see where these are on your fax machine. The indicators are as follows.

Line Fail indicator

This indicator flashes when a printing error is detected. An error message appears on the display (see page 45 for details concerning error messages).

Feed indicator

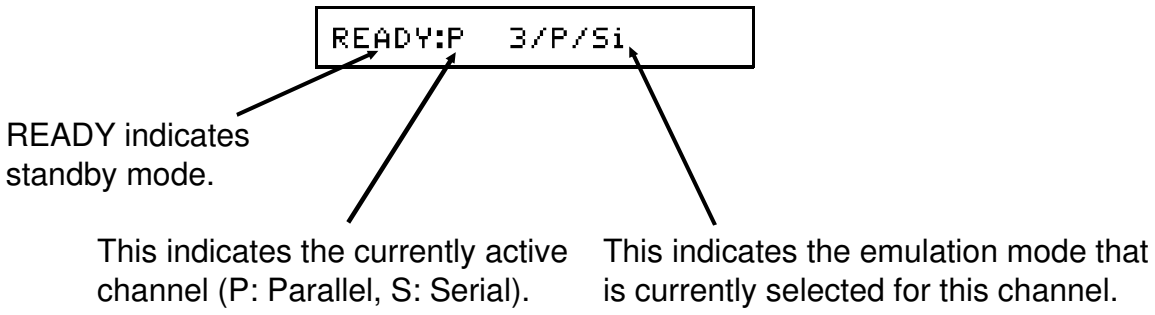
- **If this indicator is flashing rapidly:** The printer is receiving data from the computer, or receiving data and printing previously received data at the same time.
- **If this indicator is lit and the printer is printing:** All data has been received and printout is in progress.
- **If this indicator is lit and the printer is not printing:** Data has been received and stored in the printer's buffer, but it has not yet been printed. See Form Feed (page 14).
- **If this indicator is flashing slowly:** The printer is receiving data through a channel other than the currently selected channel, using Autosense mode (see page 13 for more details on channels and Autosense mode).

On Line indicator

This indicator is lit when the printer is on line, indicating that the printer is ready to receive data. If the printer is off line, the indicator is out. The indicator flashes while the printer is switching between on and off line status.

DISPLAY

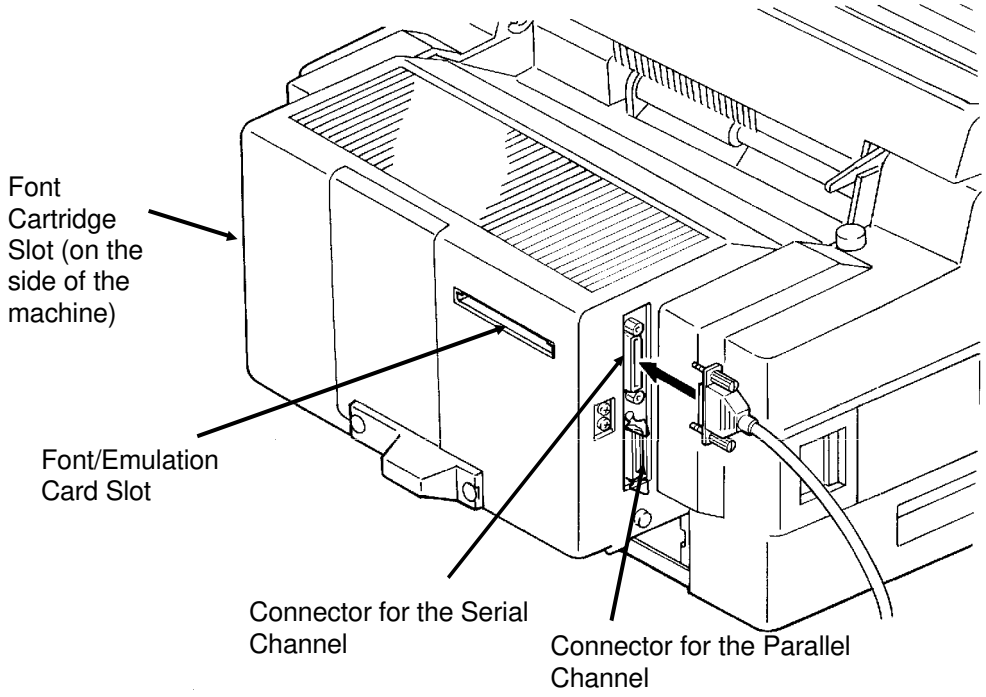
The display on the operation panel shows the printer's current status. When the machine is in printer "READY:" mode, the bottom line of the display should appear something like the following.



INSTALLING THE INTERFACE KIT

Make sure that the machine is unplugged before you have the interface kit installed. The installation must be carried out by a qualified service technician.

CONNECTION TO THE COMPUTER



There is no cable provided with the printer interface kit. To connect the printer to your computer, you will need either:

❒ A cable for the parallel channel, also known as a Centronics cable.
❒ A cable for the serial channel, also known as a null modem RS-232C cable.

If you plan to connect two computers, you will need one of each.

Make sure that the computer and the printer are both switched off and unplugged before connecting or disconnecting the cable at either end.
Cables should not be longer than 2.5 metres [about 8 feet].

When connecting the printer to your computer, determine which channel you will be using. Some computers only provide one type of channel. If your computer has both types, use the parallel channel, leaving the serial channel free for other devices, such as modems. If you are in doubt about which type of connection to use, consult your dealer.

The printer is initially set up for the parallel channel. If your computer has a parallel channel, you should be able to connect it up with a properly shielded, twisted pair cable and use it without having to change any of your printer's settings.

If you have to use a serial channel, you may also need to adjust some of the serial channel settings, such as Baud rate (see page 37), to match your computer's settings.

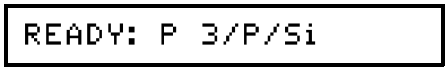
If you plan to connect a computer to each channel, see page 13.

TESTING THE PRINTER

The printer has two built-in tests: the status sheet, and the test print. These tests let you check the operation of your printer and obtain information on printer settings.

Printing a Test Page

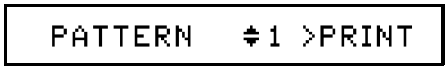
1. Function 3 7



2. Hold down ← until the display is as shown on the right. Then release it immediately.
   Note: If you did not hold down ← long enough, press ← twice, then repeat step 2.

3. Hold down ↑ or ↓ until the display is as shown on the right.

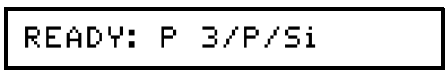
4. →



5. Select either the vertical lines test pattern ("1" is displayed) or the horizontal line test pattern ("2" is displayed).
   Use ↑ or ↓ to select the test pattern.

   When the correct one is displayed, press →.
   The machine prints a test pattern.

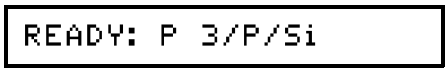
6. Press ← twice to return to printer "Ready" mode.



7. Press Function to leave printer mode.

Printing the Status Sheet and Font Samples

1. **Function** 3 7

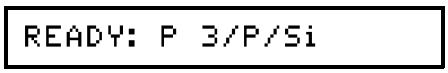


2. Press ← until the screen is as shown on the right, then release it immediately.

3. Hold down ↓ until STATUS SHEET (or FONT SAMPLE if you need the font samples) appears on the display.

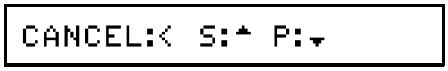
4. Press → twice to print the status sheet (or the font samples). The printer may take a few seconds to print this.

5. Press ← twice to return to printer "Ready" mode.



6. Press **Function** to leave printer mode.

Note:
- ❒ The status sheet shows the printer's current settings. You can use macros to store various sets of printer settings for different uses of the printer. If you wish to print the settings stored with each macro, perform the LOAD MACRO routine first, then follow the above steps.
  For full information about macros: See pages 32 to 34 .
- ❒ **If you have already set the printer in Individual Multi-user mode:** The following display appears at step 2.

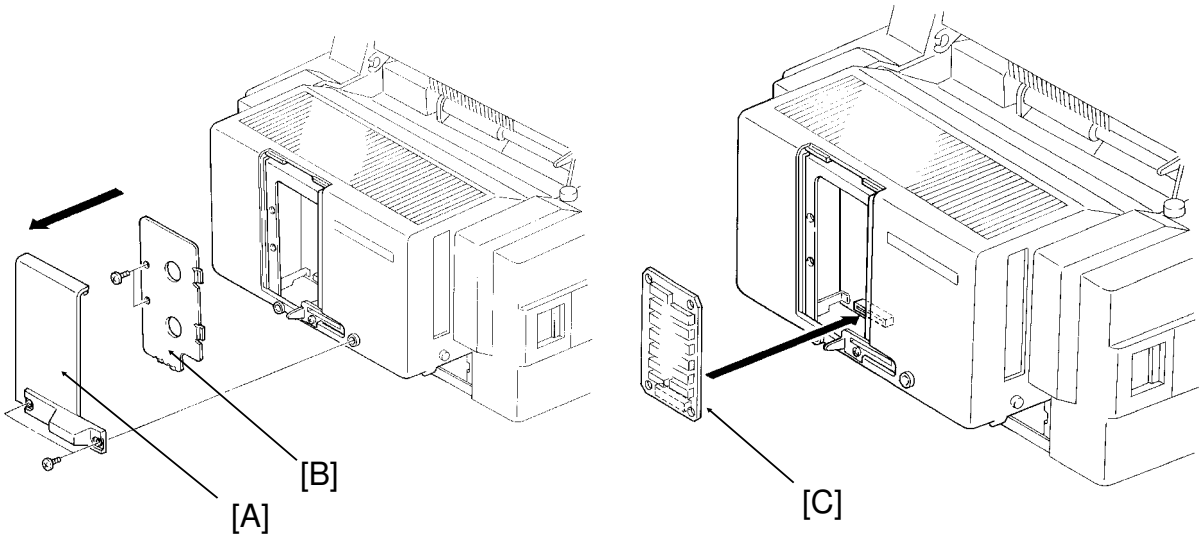
  Press ↑ to select the serial (S) channel, or ↓ to choose the parallel (P) channel, then go on to step 3.
- ❒ **If you have already set the printer in Autosense Multi-user mode:** You can only print out the status sheet or font samples for the channel that was displayed on the screen immediately before you started this procedure. If you wish to see the settings for the other channel, you will have to select the other channel using the CH feature (for example, change from AUTOSENSE S to AUTOSENSE P). Then print the status sheet or font samples. For information on the CH feature, see page 39.
- ❒ A sample of the status sheet is shown in Appendix G.

OPTIONAL KITS

Memory Expansion Board

Your machine has 1 megabyte of memory for the printer (this memory is separate from the memory that is used for facsimile document memory). If you need some more memory for your printer, contact your dealer. The printer can have a maximum of 6 megabytes.

The installation procedure is as follows.



WARNING
Do not remove any screws other than the four screws mentioned in this procedure. High voltages are present inside the machine. Do not attempt to install the memory board unless the machine is turned off and the power cord is unplugged.
Also, do not touch any of the contacts on the machine's circuit boards, because many of the components can be destroyed by the static electricity on you or your clothing.

1. If there are any messages stored in your fax machine's memory, print them (see "Substitute Reception" in your fax machine's Operator's Manual.
2. Turn off the power, and unplug the machine from the wall socket.
3. Remove covers [A] and [B]. **See the above Warning.**
4. Insert the RAM chips into the sockets on the memory expansion board [C]. See the instructions provided with the memory board for how to do this.
5. Insert the memory expansion board [C].

6. Put back covers [A] and [B].
7. Plug in the machine, then turn on the power.

Caution
Do not plug in or switch on until everything is connected up.

Optional Font and Emulation Mode Cards

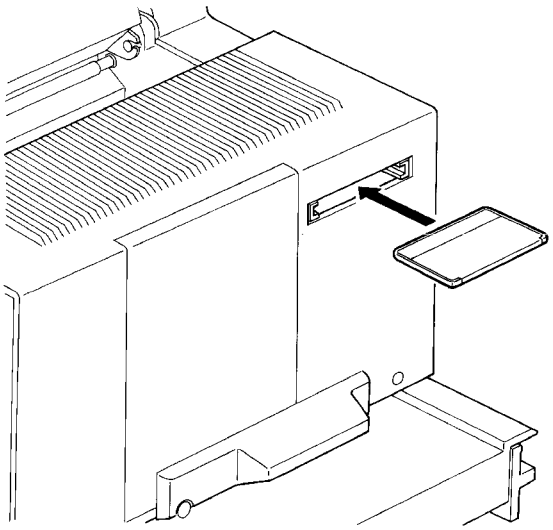
See Appendix D for details on the types of font and emulation mode cards available, how to use them, and how to maintain them.

To install a card, do the following:

1. Make sure that the machine is in printer "Ready" mode and that it is off line (the ↦ indicator must be off).
   - ❒ The ◇ indicator must be off. If it is flashing, the printer is receiving data. If it is lit but not flashing, press ↓ to print the data that is still in the buffer.
   - ❒ Never insert a card if the printer is on line, or while you are making printer settings (using Selectype mode), or while the printer is resetting.

2. Hold the card so that the maker's logo is pointing up and the arrow is pointing towards the slot.
   - ❒ Make sure that the card is the correct way up.
   - ❒ The card is slightly bent. Do not try to flatten it or bend it further.
   - ❒ Do not touch the small gold contacts along the card's edge.

3. Carefully slide the card in to the slot.
   - ❒ Do not force it into the slot.



If REMOVE CARD appears on the display, you inserted the card when the printer was on line or when the printer memory contained some data. Remove the card and press ↑. Then go back to step 1 of the installation procedure.

To take a card out of the slot, do the following:

1. Make sure that the machine is in printer "Ready" mode and that it is off line (the ↦ indicator must be off).
   - ❒ The ◇ indicator must be off. If it is flashing, the printer is receiving data. If it is lit but not flashing, press ↓ to print the data that is still in the buffer.

2. Grasp the card at the center and gently pull it straight out of the slot.

Never remove a card if the printer is on line, while making printer settings (using Selectype mode), or while the printer is resetting. If you remove a card while the printer is in one of these states, a REINSERT CARD message will appear on the display. An error will also occur if you remove a card while the ◇ indicator is on, even if the printer is off line. See the error message descriptions (page 45) for more details.

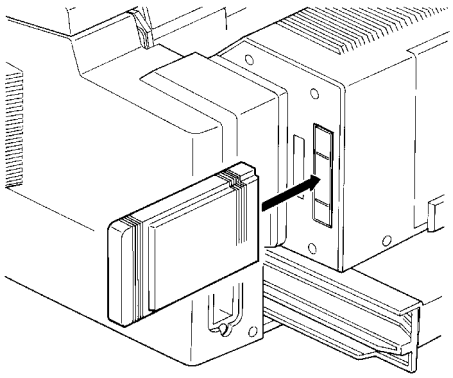
Optional Font Cartridges

See Appendix D for details on the types of font cartridges available, how to use them, and how to maintain them. To install a font cartridge, do the following:

1. Make sure that the machine is in printer "Ready" mode and that it is off line (the ↦ indicator must be off).
   - ❒ The ◇ indicator must be off. If it is flashing, the printer is receiving data. If it is lit but not flashing, press ↓ to print the data that is still in the buffer.
   - ❒ Never insert a font cartridge if the printer is on line, or while you are making printer settings (using Selectype mode), or while the printer is resetting.

2. Hold the font cartridge so that the label is facing your left.
   - ❒ Make sure that the font cartridge is facing the correct way.

3. Press firmly until the cartridge snaps into place.
   - ❒ Do not use excessive force.



If REMOVE CARD appears on the display, you inserted the cartridge when the printer was on line or when the printer memory contained some data. Remove the card and press ↑. Then go back to step 1 of the installation procedure.

To take a cartridge out of the slot, do the following:

1. Make sure that the machine is in printer "Ready" mode and that it is off line (the ↦ indicator must be off).
   - ❒ The ◇ indicator must be off. If it is flashing, the printer is receiving data. If it is lit but not flashing, press ↓ to print the data that is still in the buffer.

2. Grasp the cartridge at the edge and slowly pull it straight out of the slot.

Never remove a cartridge if the printer is on line, while making printer settings (using Selectype mode), or while the printer is resetting. If you remove a cartridge while the printer is in one of these states, a REINSERT CARD message will appear on the display. An error will also occur if you remove a cartridge while the ◇ indicator is on, even if the printer is off line. See the error message descriptions (page 45) for more details.

CONNECTING THE PRINTER TO TWO COMPUTERS

Multi-user Modes

Your printer has two channels. One is serial (RS-232C) and the other is parallel (Centronics). You can hook up a separate computer to each channel.

If you connect two computers to your printer, you can set up the printer to monitor the two channels in one of two different ways.

- ❒ **Autosense Multi-user Mode:** In this mode, the printer automatically detects which channel is receiving data, and allocates all the available printer memory to that channel.
- ❒ **Individual Multi-user Mode:** The printer allocates a fixed proportion of available printer memory to each channel.

To select one of these, use the CH feature (see page 39 for how to program this feature).

Configuring the Serial and Parallel Channels

Your printer will probably work straight away with the default settings. However, if your computer is having problems communicating with the printer, you may have to adjust the I/F CONFIG (Interface Configuration) settings (see page 36 and the pages following). The settings must match the settings for your computer.

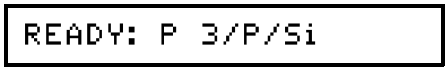
TURNING THE PRINTER ON LINE AND OFF LINE

The printer must be on line before it can receive data from the computer. When the printer is off line, it will not accept data from the computer.

To switch between on line and off line:

1. Make sure that the machine is in printer READY: mode.

   Note: If the machine is in fax standby mode, press **Function** 3 7 .



2. Press the ➔ key.

The ↦ indicator is lit when the printer is on line, indicating that the printer is ready to receive data. If the printer is off line, the indicator is out. The indicator flashes while the printer is switching between on and off line status.

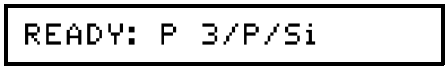
FORM FEED

If the ◇ indicator is lit and the printer is not printing, data has been received and stored in the printer's buffer, but it has not yet been printed.

To print the data:

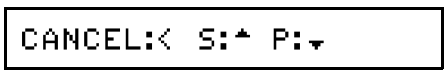
1. Make sure that the machine is in printer READY: mode.

   Note: If the machine is in fax standby mode, press **Function** 3 7 .



2. Switch the printer off line (press ➔), then press ↓ to print.

If the printer is in Individual Multi-user mode: You can specify which channel to print from. The display will be as follows if you do a form feed.



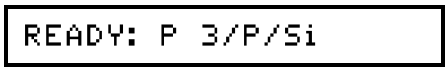
❒ To print data from the parallel channel, press ↓.
❒ To print data from the serial channel, press ↑.
❒ If you do not wish to print data, press ← to exit from this procedure.

See page 13 for details on your printer's multi-user modes.

RESETTING THE PRINTER

You may need to reset the printer sometimes.

1. Make sure that the machine is in printer READY: mode.



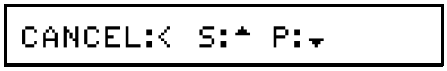
   Note: If the machine is in fax standby mode, press **Function** **3** **7** .

2. Hold the ↑ button down for several seconds. RESET appears on the display and all printer settings are returned to their previously stored settings.

If you continue to press the ↑ button after RESET appears, INITIALIZE will appear on the display, and the printer settings will return to the power-up default settings.

Caution: If you reset the machine while it is printing, the current page will be printed, but other data remaining in the printer's memory will be discarded.

If the printer is in Individual Multi-user mode: You can specify which channel to reset. The display will be as follows if you reset the machine.



❒ To reset the parallel channel, press ↓, or to reset the serial channel, press ↑.
❒ If you do not wish to reset any channel, press ← to exit from the reset procedure.

If the printer is in Autosense Multi-user Mode: You can only reset the channel that was displayed on the screen immediately before you reset the printer.

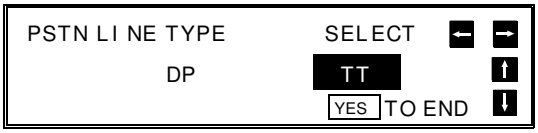
❒ See page 13 for details on your printer's multi-user modes.
❒ For more on initializing the printer, see page 55.

SELECTING THE CASSETTE FOR COMPUTER PRINTOUTS

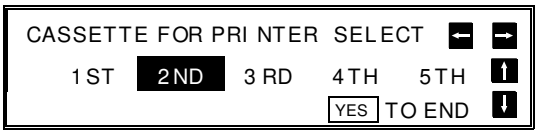
You can use the following procedure to select which cassette is used when you print a file from your computer.

❒ Paper must be in theorientation (that is, the short side must feed in first).

1. Make sure that the machine is in standby mode, ready for fax communication.
2. **Function** **6** **0** **2** **2** **2** **2** **8** **1**



3. Press ↓ until the screen is as shown on the right.



4. Select the required cassette by pressing ← or → until it is highlighted on the screen, then press **Yes** .

Note:
- ❒ If you have a duplex tray installed, you will see "----" on the screen instead of "1ST"
- ❒ If you do not have an optional paper feed unit, you will not see "3RD" or "4TH" on the screen.

The machine returns to standby mode for fax communication.

If you are going to print on pre-printed forms, observe the following precautions.

❒ Inform the person who supplies you with forms that you will be using them in a laser printer.

❒ Forms must be printed using heat resistant ink that will not melt, vaporize, or give off toxic emissions when subject to heat of about 200 °C [392 °F] for 0.1 second.

❒ Before putting the forms in the cassette, make sure that the ink is completely dry. Otherwise, it may transfer to rollers inside the machine, interfering with the printer's mechanisms.

OVERVIEW

Your printer has the following three emulation modes:
❒ HP LaserJet series IIIP
❒ Epson LQ-2500
❒ Epson FX-800/1000 (FX-86e/286e)

In addition, other emulation modes are available by installing optional Epson cards. See Appendix D for more information.

The emulation mode that you select affects the following:
❒ The printer that you select from your application software's printer selection menu.
❒ The available symbol sets and fonts, and the available optional font cards or cartridges.
❒ Some features connected with paper handling, such as the printable area.

See Appendix D for more information about the available cards and cartridges.

HP LASERJET III EMULATION MODE

Your printer interface will be in this mode when it is delivered. When your printer is in this mode (also known as 3/P/Si mode), select one of the following drivers from your computer application software's printer selection menu, in the following order of preference.
❒ HP LaserJet IIISi
❒ HP LaserJet IIIP
❒ HP LaserJet series III
❒ HP LaserJet IIP
❒ HP LaserJet series II
❒ HP LaserJet Plus
❒ HP LaserJet 500
❒ HP LaserJet

If none of the above printers is listed among your program's options, select any printer model that uses the HP Printer Command Language (PCL). For printing documents, HP LaserJet III mode is recommended.

See Appendix B for the information on the difference between this machine and the IIISi, and for more information about the HP LaserJet III emulation mode.

EPSON LQ AND FX EMULATION MODES

When your printer is in Epson LQ or FX printer mode, select one of the following drivers from your computer application software's printer selection menu.

- ❒ LQ-2500, LQ-1050/850, LQ-1000/800 (expanded ESC/P), LQ-500, LQ-1500 (with version 2 ROM), LQ printer
- ❒ FX-1000/800 (286e/86e), FX-85, FX-80

If none of the above printers is listed among your program's options, choose the first available of the following: RX, Epson printer, Standard printer, Draft printer. For printing documents, FX-1000 mode is recommended.

See Appendix C for more information about the Epson LQ and FX emulation modes.

CHANGING THE EMULATION MODE

If you use different printer modes with different application programs, you may have to switch emulation modes frequently. There are two ways to switch emulation modes:

- ❒ Using the Selectype Level 2 MODE ASSIGN feature (this must be performed on the printer's operation panel using the procedure described below)
- ❒ Using an emulation control language

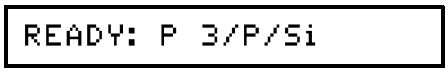
- Using the MODE ASSIGN Feature -

Your printer has two channels, one serial (RS-232C) and one parallel (Centronics). You can select a different emulation mode for each of the channels.

- ❒ You can select one of three settings: 3/P/Si (HP emulation mode), LQ, or FX.
- ❒ If you install the Epson GL Identity card (see page D-4 for more about this card), the EPSON GL choice is also available.

To select an emulation mode, do the following.

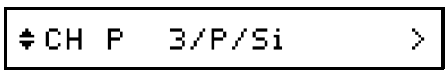
1. **Function** 3 7



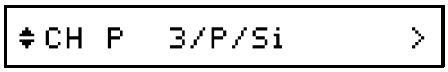
2. Hold down ← until Selectype Level 2 appears, as shown on the right, then release the key immediately.

3. Press ↓ until MODE ASSIGN appears.

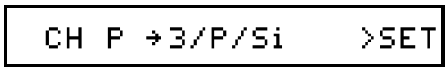
4. →



5. Press ↑ or ↓ to select the channel to adjust. In this example, we shall adjust the parallel channel (CH P should be displayed; to adjust the setting for the serial channel, CH S should be displayed; ignore the setting for CH O).



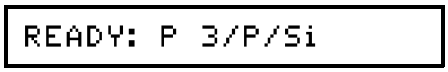
6. →



7. Press ↑ or ↓ until you see the emulation mode that you need. Example: Epson LQ mode.

8. →

9. Press ← three times to return to printer "Ready" mode.



10. **Function**

- Using an Emulation Control Language -

Two emulation control languages are available to change the emulation mode.
❒ Epson Job language (EJL)
❒ Printer Job Language (PJL)

Procedures in these languages are done entirely from the computer; there is no need to be by the printer. This is useful if the printer is located some distance away from your computer. However, you need to be an experienced user to make the best use of these control languages; some examples are given below.

Epson Job Language (EJL)

EJL allows you to switch your printer into any of the available emulation modes. To use EJL, make two batch files and one text file for each emulation mode that you plan to use. Two batch files are needed: one to switch over the printer if it is on a serial port (such as com1), and one to switch it over if it is on a parallel port (such as lpt1).
❒ **ejlhp.bat, ejlhpcom.bat, hp.txt**: To switch the printer into HP LaserJet mode
❒ **ejlfx.bat, ejlfxcom.bat, fx.txt**: To switch the printer into Epson FX mode
❒ **ejllq.bat, ejllqcom.bat, lq.txt**: To switch the printer into Epson LQ mode
❒ **ejlgl.bat, ejlglcom.bat, gl.txt**: To switch the printer into Epson GL mode (requires the Epson GL emulation card)

- Format of the Text File -

The basic format of each text file is: <ESC> <SOH>@EJL ENTER LANGUAGE=[mode]

Example: To switch to HP LaserJet III emulation mode.

The text file **hp.txt** would be: <ESC> <SOH>@EJL ENTER LANGUAGE=LJ-3

- Format of the Batch Files -

There are two batch files for each emulation mode. One is for a printer connected to your computer's parallel port, and the other is for a printer connected to the serial port.

Parallel Port: The batch file **ejlhp.bat** would look like this:

```
rem     This batch file changes the printer to HP LaserJet III emulation
rem     if it is connected to your parallel port.
copy hp.txt prn
```

Serial Port: The batch file **ejlhpcom.bat** would look like this:

```
rem     This batch file changes the printer to HP LaserJet III emulation
rem     if it is connected to your com1 serial port.
mode com1:9600,n,8,1,
copy hp.txt com1
```

- Creating the Text File -

Either:
If you have Microsoft Windows, use Windows Notepad to create the text file.

- ❒ To create the <ESC> character, type Ctrl-[(hold down the Ctrl key and press the left square bracket key).
- ❒ To create the <SOH> character, type Ctrl-A.
- ❒ Type the rest of the line:

  @EJL ENTER LANGUAGE=[mode]

  where [mode] is:

LJ-3	for HP LaserJet III emulation
LQ	for Epson LQ emulation
FX	for Epson FX emulation
GL	for Epson GL Emulation

  Also, you can type PJL if you wish to use the Hewlett Packard Printer Job Language.

Or:
If you do not have Microsoft Windows, you have to use a BASIC language interpreter program and DOS Edit.

- ❒ Start QBASIC, the BASIC language interpreter that comes with MS-DOS. Type QBASIC and press Enter.

❒ Type in the following BASIC program:

```
REM This program creates a text file for switching emulations
input "Name the text file that you want to create"; n$
OPEN n$ FOR OUTPUT AS #1
PRINT #1, CHR$(27); CHR$(1);
PRINT #1, "@EJL ENTER LANGUAGE="
CLOSE
```

❒ Save the program by selecting "Save As" in the File menu. Specify a file name.

❒ Run the program. To do this, select "Start" in the Run menu. The program prompts you to name the text file. Then it will create the text file.

❒ Exit QBASIC by selecting "Exit" in the File menu.

❒ Use DOS Edit to add the appropriate mode parameter to the end of the file.

LJ-3	for HP LaserJet III emulation
LQ	for Epson LQ emulation
FX	for Epson FX emulation
GL	for Epson GL Emulation

For example, to switch to Epson LQ emulation, add LQ to the end of the file.
<ESC><SOH>@EJL ENTER LANGUAGE=LQ

❒ Save the file by selecting "Save" in the File menu

- Creating the Batch File -

Use any DOS or Windows text editor.

- Using a Batch File -

For example, whenever you wish to use EJL to switch the printer into HP LaserJet III mode, type **ejlhp** at the DOS command line, then press **Enter**.

After this, the display on the printer will appear as follows:

```
READY: P EJL
```

Then, when you print a file from the computer, the printer will switch into HP LaserJet III mode and print the file.

Note: If you are in Epson GL plotter emulation mode, you cannot use EJL to change to another emulation mode. You must use the MODE ASSIGN feature of Selectype Level 2.

Printer Job Language

This emulates the HP LaserJet series III printer's PJL feature. Some information on PJL commands is given in Appendix B. For full details, see an HP LaserJet III printer manual.

INTRODUCTION

Selectype Mode (Printer Setup Mode - Function 37)

Printer setup mode (also called Selectype mode) is divided into two levels.
- ❒ Level 1 contains commonly-used printing and font selection features.
- ❒ Level 2 contains printer mode and printer configuration adjustments that you may not wish to use as often.

Note: In many cases, your application software will override the Selectype settings. If you are getting unexpected results, check your application software settings.

To view the current settings of your printer, print the status sheet (see page 9).

Note: Any changes that you make to the settings will be erased if you switch the power off, unless you save the new settings.
- ❒ To save your Level 1 settings, use the SAVE MACRO feature of the SYSTEM CONFIG menu (see page 32).
- ❒ To save your Level 2 settings, use the P-CONFIG SAVE feature (see page 42).

Level 1 Features

One of the following features appears in the display when you enter Level 1. Scroll through the list with the ↑ and ↓ keys until you see the feature that you need.

INPUT: This feature has no effect on the printer's operation.
PAGE SIZE: Use this to specify the size of paper that is being used.
COPIES: Use this to select the number of copies to be printed. This setting is only effective for copies of documents output in printer interface mode.
ORIENT.: Use this to select the printing orientation: portrait (vertical) or landscape (horizontal)
FONT: Use this to select a font from those available in the current emulation mode.
STATUS SHEET: Use this to print a list of the current printer settings.
FONT SAMPLE: Use this to print the fonts that are available in the current emulation mode.
SUB CONFIG.: This menu allows you to control settings within the current emulation mode that can be adjusted.
SYSTEM CONFIG.: This menu contains routines for memory allocation, remaining memory space display, printer offset, and macros to store your Level 1 settings.
S: P: This prompt asks you which channel you wish to adjust. This is only seen if you have set up both the serial and parallel channels using the Level 2 CH feature, and selected the Individual mode (see page 39).

Level 2 Features

One of the following features appears in the display when you enter Level 2. Use the ↑ and ↓ keys to scroll through the list until you see the feature that you need to use. (To return to the printer "Ready" display, press ← repeatedly.)

TEST PRINT: Use this to print a test pattern.
MODE ASSIGN: Use this to select an emulation mode.
I/F CONFIG.: Use this to change the configuration of the serial and parallel channels.
RX-BUFFER SIZE: Use this to change the size of the printer's data buffer.
CH: If you are connecting your printer to more than one computer, use the CH feature to allocate memory to each channel.
CH TIMEOUT: Use this to define the channel timeout. If no data is sent during the specified time period, the printer switches to the other channel.
AUTO CONT.: If you switch Auto Continue on, the printer will continue printing when certain types of error are detected.
P-CONFIG. SAVE: Use this to save all the current Level 2 settings. These settings will take effect every time you switch the machine on.
FACTORY RESET: Use this to reset all Level 1 and 2 settings to the factory settings.
VERSION: Use this to check the version numbers of the printer control software and fonts.
PAGE COUNTER: This counter only gives the total number of pages made by the printer. For a count of the pages made by your machine, including faxes and copier printouts, use the counter feature described in your fax machine's Operator's Manual.
STANDBY: Do not use this feature.

See appendix E for a more detailed list of these features and their possible settings.

Using Selectype Mode

The Display

When you enter Selectype mode, menus and options appear on the display. The display shows feature names on the left side and optional settings for each feature on the right side.

The display also uses the following icons.

If seen to the left of an option, this indicates that you can press either ↑ or ↓ to view other options or features.

If seen to the left of an option, this indicates the current setting of the feature. You can press either ↑ or ↓ to view other options or features.

This icon indicates that you can press ➔ to enter a submenu, select an option, set an option, or execute an action.

Buttons

- Entering Selectype Mode -

← Use this to enter Selectype mode from printer "Ready" mode. To enter Level 1, press the button until "SELECTYPE LEVEL 1" appears on the display, then release it immediately. To enter Level 2, hold the button down longer, until "SELECTYPE LEVEL 2" appears on the display.

- Within Selectype Mode -

Use the arrow buttons to move through menus and to select, display, set, or execute Selectype options.

➔

Use this to enter a submenu, set an option, or select or execute an action.

←

Use this at any time to return through the menu levels to the main menu or to get out of Selectype mode.

↑ and ↓

Use these buttons to scroll through the available choices. Either press the button once to view the options one at a time, or hold the button down to scroll quickly through the options.

Sample Selectype Procedure

The following sample procedure will help you to become familiar with the purpose of the various icons on the display. We shall practice with the INPUT feature in Level 1.

1. Enter the required Selectype mode from the printer "Ready" mode.

In our example, press ← until "SELECTYPE LEVEL1" is displayed.

"SELECTYPE LEVEL1" only remains briefly on the display. Shortly after, one of the features from the Level 1 menu will be displayed. In this case, the INPUT feature is displayed.

2. Display the required feature from the main menu.

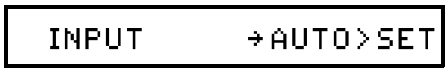
There is an ▲▼ icon to the left of the feature. This means that you can press ↑ or ↓ to scroll through the Level 1 main menu.

The > icon at the right side of the display indicates that you can start to work on the INPUT feature if you press →. (The INPUT feature has no effect on your machine, so you can use it for practice.)

In the above example, the current setting (AUTO) is also displayed. However, some features have extensive submenus. In this case, only the feature name may be displayed. For example, see the display on the right.

3. Enter the displayed feature.

Press → to begin work on the feature.



The → icon indicates that AUTO is the current setting of this feature. You can use the ↑ or ↓ button to display other possible settings.

The message to the right of the > icon shows what will happen if you press →. SET means that you will store the currently displayed setting. EXE or PRINT may be seen for some features.

4. Display the required setting for this feature.

Press ↑ or ↓ to scroll through the possible settings until you see the one that you want. Hold down ↑ or ↓ if you wish to scroll quickly through the possible settings.

The ⬍ icon to the left of "STD" indicates that STD is a possible setting, but it is not the current setting. An → icon would indicate that this is the current setting.

Note: If you want to return to the main menu at any time without changing a setting, press ← until you get back to the main menu.

5. Store the displayed setting.

When you see the setting that you want, press →.

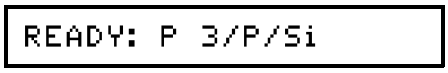
The new setting is stored, and you are returned to the main menu for Level 1. The new setting is displayed. If you wish, you can scroll through the main menu with the ↑ or ↓ key to change another setting. If you have finished changing settings, go on to step 6.

Note: You cannot move directly to a setting that is in a different Selectype level. For example, you cannot directly access a Level 2 feature while you are in Level 1. You must return to printer "Ready" mode, then enter Level 2.

6. Go back to printer "Ready" mode.

Press ← as many times as necessary until you see the following.

Then press ← once more to go to printer "Ready" mode.



7. Return the machine to standby mode for fax communication.

To return the fax machine to standby mode, press **Function** .

Also, if you do not touch the machine for 4 minutes, the machine returns to standby mode automatically.

Note: If you press **Function** while still in the middle of a procedure, your setting will not be stored (unless you pressed → (SET) first). However, when you enter printer setup mode again, the display will take you immediately to where you were just before you left it. Also you may have to reset the machine on/off line.

SELECTYPE LEVEL 1 FEATURES

How to Enter Selectype Level 1

The procedure for entering Level 1 is as follows.

If you have set your printer in Autosense Multi-user mode: The changes that you make to the Level 1 settings will only be valid for the channel that is displayed on the screen to the right of READY just before you enter Selectype mode.

1. Make sure that the printer is in printer "Ready" mode.
   Note: If the machine is in fax standby mode, press **Function** 3 7 .

2. Press ← until the display is as shown on the right. Then release the key immediately.

   ```
   SELECTYPE  LEVEL1
   ```

   Note: If you press the ← key for too long, you will enter Level 2 mode. If so, press ← until you get to standby mode, then try again.

   If you have set the printer in Individual Multi-user mode: The display on the right will now appear.

   ```
   CANCEL:< S:^ P:v
   ```

   Either:
   - ❒ Press ↑ to select the serial channel. Go to step 3.
   - ❒ Press ↓ to select the parallel channel. Go to step 3.
   - ❒ Press ← to leave Level 1.

3. The display soon changes to show one of the Level 1 menu features. An example is shown on the right.

   ```
   ≑INPUT       AUTO   >
   ```

4. Press ↑ or ↓ until the feature that you want is displayed.

If you change a Level 1 setting and want to keep it permanently (that is, if you do not want the machine to go back to the old setting when you switch the power off), save your current settings as a macro with the SAVE MACRO routine (see page 32), then make that macro the power-on macro with the POWERON MACRO routine (page 34).

Each of the Level 1 features is explained in the following pages. For a concise list of the features that are available in level 1, see page 22.

INPUT

This setting has no effect.

PAGE SIZE

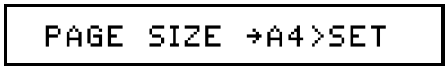
Use this to select the paper size that you wish to print on. If your machine has more than one paper cassette, make sure that the cassette that you selected with Function 81 (see page 16) is loaded with this size of paper. Note that the paper must be in the ⌙ orientation (that is, with the short side feeding into the machine).

Available Options: A4, Letter, Legal, and Government Legal.

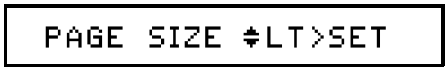
1. Enter Level 1 mode (see page 27).

2. Press ↑ or ↓ until PAGE SIZE is displayed.

3. To change the current setting: ➔



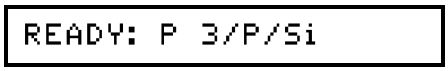
4. Press ↑ or ↓ until the required setting is displayed.



Note:
- ❒ If you see " - - - - " on the right hand of the screen instead of ">SET", the printer cannot use the displayed paper size. The ➔ key will be ignored if you press it.
- ❒ A4 can only be selected for by-pass feed.

5. Store the displayed setting: ➔

6. ← twice to return to printer "Ready" mode.



COPIES

You can print up to 999 copies of your output. During printing, if you had previously selected a number greater than one, the display will show how many copies have been completed so far during the print run. For example, if you set the COPIES feature to 10 and five copies have been printed so far, the display will show "5/10".

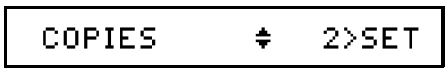
Available Options: 1 to 999

1. Enter Level 1 mode (see page 27).

2. Press ↑ or ↓ until COPIES is displayed.

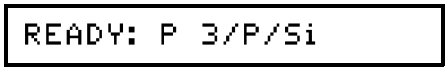
3. To change the current setting: ➔

4. Press ↑ or ↓ until the required setting is displayed.



5. Store the displayed setting: ➔

6. ← twice to return to printer "Ready" mode.



ORIENT.

This allows you to select either landscape or portrait mode. The settings available differs depending on the emulation mode. See Appendixes B and C for details.

FONT

This allows you to select a font for printing. The fonts available are different for each emulation mode. See Appendixes B and C for details.

STATUS SHEET

This feature lets you print a sheet of the current settings.

The procedure is given on page 9. Also, see the sample in Appendix G.

Note: If you wish to print a status sheet for each of your macros, do the following for each of your macros.

- ❒ Load the macro (see page 33 for the LOAD MACRO feature).
- ❒ Print the status sheet using the STATUS SHEET procedure.

FONT SAMPLE

This feature allows you to print all the fonts that are available for the current emulation mode.

The procedure is given on page 9.

SUB CONFIG.

This is a menu of features within Level 1. This menu allows you to fine-tune the way that the current emulation mode works. The settings available in the SUB CONFIG. menu differ with each emulation mode; see Appendixes B and C for details.

SYSTEM CONFIG.

This is another menu of features within Level 1. The features are as follows.
- ❒ Memory-related features: FULL PRINT, MEMORY LEFT
- ❒ Printer offset adjustments: T-OFFSET, L-OFFSET
- ❒ Macros: LOAD MACRO, SAVE MACRO, DELETE MACRO, POWERON MACRO

To enter System Config. mode, do the following.

1. Enter Level 1 mode (see page 27).

2. Press ↑ or ↓ until SYSTEM CONFIG is displayed.

- FULL PRINT -

This setting specifies how much of your printer's memory is set aside for page composition.

The default setting of 0 is enough for most uses of the printer. However, if you are printing complex pages, you may need to increase the setting. If you ever see the SET FULL PRINT error message on the display, you will have to increase the setting.

For example, if you set a value of 5, you are allocating 5 x 20 KB = 100 KB.

The amount of memory that you set aside with this feature will not be available for any other purpose. So it is best to leave the setting at 0 until you see a SET FULL PRINT message. Then increase the setting in small increments until the error does not appear.

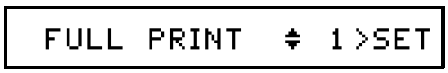
After increasing the setting, you may see INSUFF. MEMORY or PAGE BUFFER FULL next time you try to print. In this case, you must either install an optional printer memory kit or try to make do with a lower setting for FULL PRINT.

1. Enter SYSTEM CONFIG mode (see above).

2. →, then ↑ or ↓ until FULL PRINT is displayed.

3. →

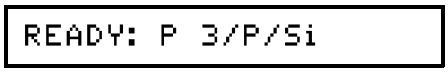
4. Press ↑ or ↓ until the required setting is displayed.



5. Store the displayed setting: →

6. ←

7. ← twice to return to printer standby mode.



The following table shows the maximum setting that you will need for each paper size. Your machine may not be able to use all these paper sizes; check the specifications section in your fax machine's operator's manual.

Paper Size	Setting
A4	51
Letter	47
Legal	62

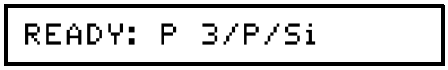
- MEMORY LEFT -

Use this feature to display the amount of memory available. This helps you to check whether a newly-installed memory option is working properly, or to see how much memory is available for fonts or complex graphics.

1. Enter SYSTEM CONFIG mode (see page 30).

2. →, then ↑ or ↓ until MEMORY LEFT is displayed. In this case, there is 219 K.

3. After checking, press ← three times.



- T-OFFSET and L-OFFSET -

These allow you to make fine adjustments to the position of the printed image on the page.

- ❒ T-OFFSET allows you to raise or lower the printing position by up to about 5 mm [0.2 inch]. T-OFFSET is the distance relative to the top of the page.
- ❒ L-OFFSET allows you to move the printing position to the left (negative values) or to the right (positive values) by up to about 5 mm [0.2 inch]. L-OFFSET is the distance relative to the left edge of the page.

Available Settings: -64 to +63 dots. Each dot is about 0.0846 mm [1/300 inch]. For example, a setting of "1" for T-OFFSET will move the print area down by 1/300 inch.

The following example procedure shows how to adjust the L-OFFSET feature.
The T-OFFSET feature is similar in operation.

1. Enter SYSTEM CONFIG mode (see page 30).

2. →, then ↑ or ↓ until T-OFFSET is displayed.

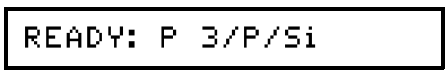
3. ➔

4. Press ↑ or ↓ until the required setting is displayed.

5. Store the displayed setting: ➔

6. ←

7. ← twice to return to "READY:" mode.



- SAVE MACRO -

Macros are a convenient way to easily call up a given configuration. A macro allows you to save more than one setting to satisfy the requirements of various applications.

Using this feature, you can save the current Level 1 settings as a macro. Then you will be able to load up those particular settings later, whenever you need them, using the LOAD MACRO procedure (see page 33).

Available Options: 1 to 4

Caution
You can save up to 4 macros. Each macro can be for either the serial channel or for the parallel channel, but not for both channels.

Before starting this procedure, make sure that you have made all the Level 1 settings that you wish to store in this macro.

Storing a macro takes up memory space. If you store multiple macros, you may have to upgrade your printer memory.

1. Enter SYSTEM CONFIG mode (see page 30).

2. ➔, then ↑ or ↓ until SAVE MACRO is displayed.

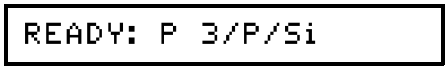
3. ➔

4. Press ↑ or ↓ until the required number is displayed.
   Example: Macro number 2.

5. Store the current settings as the displayed macro number: ➔ (EXE: Execute)

6. ←

7. ← twice to return to printer "Ready" mode.



Caution: Do not switch off the printer while it is saving a macro. If you do, you may see START UP ERROR next time you turn the printer on.

- LOAD MACRO -

Use this feature to load one of the macros that you have already stored with the SAVE MACRO feature.

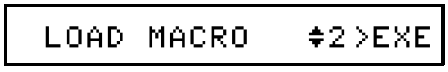
Available Options: 0 to 4, If you select 0, all Level 1 settings return to their factory settings.

1. Enter SYSTEM CONFIG mode (see page 30).

2. ➔, then ↑ or ↓ until LOAD MACRO is displayed.

3. ➔

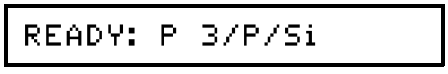
4. Press ↑ or ↓ until the required macro number is displayed.



5. Load the macro: ➔ (EXE: Execute)

6. ←

7. ← twice to return to printer "Ready" mode.



- POWERON MACRO -

Use this option to specify which macro contains the Level 1 settings you wish to use immediately after you switch the power on.

Available Options: 0 to 4, If you select 0, the factory settings will be used.

1. Enter SYSTEM CONFIG mode (see page 30).

2. ➔, then ↑ or ↓ until POWERON MACRO is displayed.

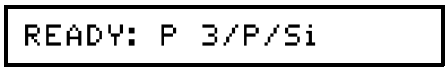
3. ➔

4. Press ↑ or ↓ until the required macro number is displayed.

5. Store the displayed macro number: ➔

6. ←

7. ← twice to return to printer "Ready" mode.



- DELETE MACRO -

Use this feature if you wish to delete one of your macros.

Available Options: 1 to 4

1. Enter SYSTEM CONFIG mode (see page 30).

2. ➔, then ↑ or ↓ until DELETE MACRO is displayed.

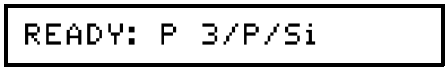
3. ➔

4. Press ↑ or ↓ until the required macro number is displayed.

5. Delete the displayed macro: ➔

6. ←

7. ← twice to return to printer "Ready" mode.



SELECTYPE LEVEL 2 FEATURES

How to Enter Selectype Level 2

Unlike Level 1, the procedures for Level 2 are the same even if you have set up both of your printer's channels.

1. Make sure that the printer is in printer "Ready" mode.
   Note: If the machine is in fax standby mode, press **Function** **3** **7** .

2. Press and hold down ← until the display is as shown on the right. Then release the key immediately.

   ```
   SELECTYPE  LEVEL2
   ```

   Note: If you let go the ← key before you reached Level 2 mode, press ← until you get to printer "Ready" mode, then try again.

3. The display soon changes to show one of the Level 2 menu features. An example is shown on the right.

   ```
   ≑  TEST PRINT      >
   ```

4. Press ↑ or ↓ until the feature that you want is displayed.

If you change a Level 2 setting and want to keep it permanently (that is, if you do not want the machine to go back to the old setting when you switch the power off), do the P-CONFIG SAVE routine on page 42.

Each of the Level 2 features is explained below. For a concise list of the features that are available in level 2, see page 23.

TEST PRINT

Use this feature to print a test pattern.

Available Options: 1 (vertical lines), 2 (horizontal lines)

The procedure is given in the "Installation" section (see page 8).

MODE ASSIGN

Use this feature to select the emulation mode that you wish to use. If you are using both printer channels, you can select a different emulation mode for each channel.

The procedure is given in the "Selecting an Emulation Mode" section (see page 17).

I/F CONFIG. (Interface Configuration)

This feature allows you to configure your printer's channels to match the signals output by your computer(s).

- Parallel Channel -

For the parallel channel, there are three settings. Normally, you do not have to change any of these unless you have special requirements.

- ❒ **SLCTIN:** If SLCTIN is OFF, the printer is continuously selected and ignores device control codes DC1 and DC3. In almost all cases, leave SLCTIN set to OFF. When SLCTIN is ON, the SLCTIN signal goes HIGH at power-up and control codes DC1 and DC3 are valid.
  Available Options: ON, OFF

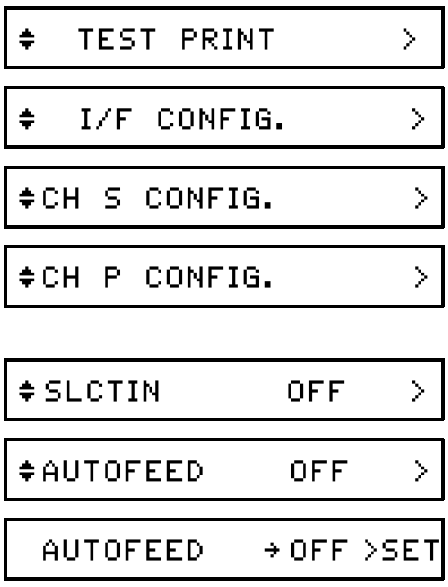
- ❒ **AUTOFEED:** If AUTOFEED is OFF, the printer ignores the AUTOFEED signal on pin 14 and does not send an automatic line feed (LF) command with each carriage return (CR). If AUTOFEED is ON, the printer adds a line feed to each carriage return that it receives. If your text lines overprint each other, set AUTOFEED to ON.
  Available Options: ON, OFF

- ❒ **BUSY DELAY:** Use this to set the delay period from the ACKNLG signal to the BUSY signal.
  Available Options: -5, 0, +5 (microseconds), MIN. The MIN option sets the ACKNLG signal to HIGH.

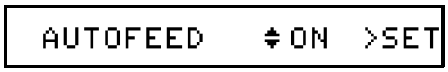
Factory Settings: SLCTIN: OFF, AUTOFEED:OFF, BUSY DELAY: 0

Example procedure: To switch AUTOFEED on.

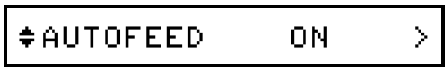
1. Enter Level 2 mode (see page 35).
2. Press ↑ or ↓ until I/F CONFIG. is displayed.
3. ➔
4. Press ↑ or ↓ until CH P CONFIG. is displayed.
5. ➔
6. Press ↑ or ↑ until AUTOFEED is displayed.
7. To change the current setting: ➔



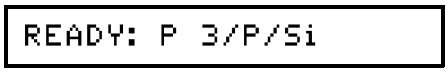
8. Press ↑ or ↓ until the required setting is displayed.



9. Store the displayed setting: ➔



10. ← four times to return to printer "Ready" mode.



- Serial Channel -

There are nine settings for the serial channel. These settings must match the settings that your computer's serial channel is using. Check your computer's manual for this information.

- ❒ **WORD LENGTH:** This specifies how many bits there are between the start and stop bits. **Available Options**: 8-bit or 7-bit.
- ❒ **BAUDRATE:** This allows you to set the data transfer rate for the serial channel. **Available Options:** 300, 600, 1200, 2400, 4800, 9600, 19200
- ❒ **PARITY:** Parity is a basic form of error detection. **Available Options:** ODD, EVEN, NONE. If you select NONE, there is no parity check.
- ❒ **STOP BIT:** Use this to select the number of stop bits that are sent to the printer with each character to signal the end of a character. **Available Options:** 1 or 2
- ❒ **DTR:** Use this to turn the printer's DTR (Data Terminal Ready) communications protocol on or off. You can use DTR protocol in combination with the XON/XOFF option setting.
- ❒ **XON/XOFF:** Use this to turn the printer's XON/XOFF communications protocol on or off. You can use DTR protocol in combination with the DTR option setting.
- ❒ **ENQ/ACK:** Not used. Keep OFF.
- ❒ **DSR:** When DSR (Data Set Ready) is OFF, the DSR signal is permanently set to HIGH, allowing the printer to send data to the computer. For most communication purposes, this option should be kept OFF. When DSR is ON, data is sent to the computer only when the DSR signal is HIGH.
- ❒ **CTS:** When CTS (Clear To Send) is OFF, the CTS signal is permanently set to HIGH. For most communication purposes, this option should be kept OFF. When CTS is ON, data is sent to the computer only when the CTS signal is HIGH.

Factory Settings

WORD LENGTH: 8-bit	BAUDRATE: 9600	PARITY: NONE
STOP BIT: 2	DTR: ON	XON/XOFF: ON
ENQ/ACK: OFF	DSR: OFF	CTS: OFF

Example Procedure: To change the Baud rate to 4800.

1. Enter Level 2 mode (see page 35).

2. Press ↑ or ↓ until I/F CONFIG. is displayed.

3. ➔

4. Press ↑ or ↓ until CH S CONFIG. is displayed.

5. ➔

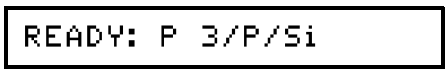
6. Press ↑ or ↓ until BAUDRATE is displayed.

7. To change the current setting: ➔

8. Press ↑ or ↓ until the required setting is displayed.

9. Store the displayed setting: ➔

10. ← four times to return to printer "Ready" mode.



RX-BUFFER SIZE (Receive Buffer Size)

This feature allows you to change the size of the printer's input buffer. A larger buffer allows you to quickly transfer data from the computer's memory to the printer's memory. The printer then prints the data from its own memory, and the computer's memory is free for other tasks.

The settings that are available depend on how much printer memory you have installed in your printer. Memory used for fax communication (SAF or ECM memory) is not included. If you have no additional memory for your printer, the factory setting is 5 KB.

If you set the buffer size too high for the amount of memory that you have installed, you may get an error message telling you to add memory. If your document is larger than the buffer, the computer must wait for the printer to buffer, format, and print the page.

1. Enter Level 2 mode (see page 35).

2. Press ↑ or ↓ until RX-BUFFER SIZE is displayed.

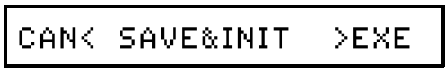
3. ➔

Note: CH P indicates that the setting on the screen is for the parallel channel. If you wish to adjust the serial channel, now press ↑ or ↓ until you see CH S. Ignore CH O if it appears.

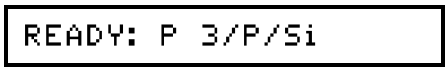
4. ➔

5. Press ↑ or ↓ until the required setting is displayed.

6. Store the displayed setting: ➔



7. Either:
   - ❒ Press ← to cancel the new setting. Go to step 4, or press ← three times to return to printer standby mode.
   - ❒ Press ➔ to store the new setting. The printer resets itself and returns to printer "Ready" mode.



CH (Channel)

If you are only using one computer with the printer, ignore this section. If you are using two computers, read this section carefully before deciding what settings to use.

The CH feature gives you the choice of two settings to specify how the printer's memory is allocated to each channel. The CH setting has no effect on fax memory.

- ❒ **AUTOSENSE:** The printer automatically detects which channel (parallel or serial) is receiving data, and allocates all the available printer memory to that channel.
- ❒ **INDIVIDUAL:** Use to allocate a separate portion of the available memory for each channel.

AUTOSENSE is less complicated and requires less total memory. However, there is a small chance that files sent from two different computers at exactly the same time will interfere with each other. INDIVIDUAL mode eliminates this possibility.

There are two ways to set up Autosense mode: AUTOSENSE P and AUTOSENSE S.

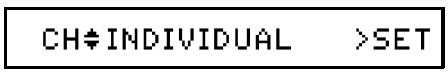
For example, if you select AUTOSENSE P mode, the printer stays on the P (parallel) channel. If data comes in on the S (serial) channel, the printer will switch to the S channel immediately, but only if the time stored in CH TIMEOUT has elapsed since the last data came in on the P channel. If the time hasn't yet elapsed, it will wait until it has elapsed before switching over. (CH TIMEOUT, see page 41.)

1. Enter Level 2 mode (see page 35).

2. Press ↑ or ↓ until CH is displayed.

3. To change the current setting: ➔

4. Press ↑ or ↓ until the required setting is displayed.

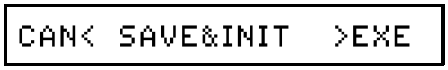


5. Store the displayed setting: ➔

❒ **If you selected AUTOSENSE:**

Select either AUTOSENSE P or AUTOSENSE S (ignore AUTOSENSE O). Press ↑ or ↓ until the correct setting is displayed.

Press ➔.

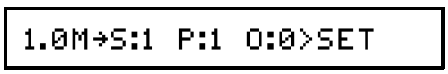


Then either:

❒ Press ➔ to store the new settings.
The machine resets itself and returns to printer standby mode.

❒ Press ← to cancel your changes.
Then go back to step 3 or press ← twice to return to printer "Ready" mode.

❒ **If you selected INDIVIDUAL:**

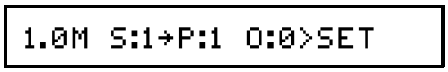


You must now assign memory to each channel. Each channel that you are using needs at least 0.5 MB of memory. You must use 1.5 MB if the channel is using either PostScript or GL emulation mode; this is available as an optional card. Please do not adjust the O setting.

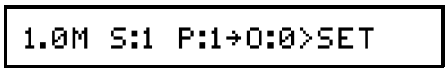
The value on the left of the screen shows you how much printer memory you have available in megabytes (or MB). The number to the right of each channel is the proportion of memory allocated to each channel. For example, if you specify S:1 P:1 O:0, both S and P channels will have half the memory each. If you specify S:2 P:1 O:0, the serial channel will have two thirds of the memory, and the P channel one third.

Assign a value from 0 to 9 for each channel. Use the arrow buttons to choose the values.

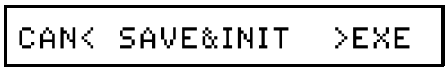
Allocate the required memory proportion to the S channel. The value can only be from 0 to 9. Press ↑ or ↓ until the setting is correct. Then press ➔.



Do the same for the P channel.

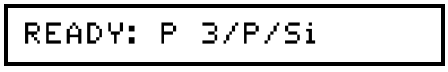


Ignore the O channel setting. Just press ➔.



Then either:

- ❒ Press ← to cancel the new setting. Then go back to step 3 or press ← twice to return to printer "Ready" mode.
- ❒ Press ➔ to store the new setting. The machine resets itself and returns to printer "Ready" mode.



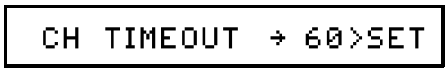
CH TIMEOUT (Channel Timeout)

This allows you to set the time for a channel timeout. If the printer is on line and receives no new data for the number of seconds specified, and if there is data in the other channel, the printer will automatically switch to the other channel. The factory setting is 60 seconds.

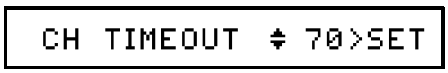
Available Options: 10 to 600 seconds (in steps of 10).

1. Enter Level 2 mode (see page 35).

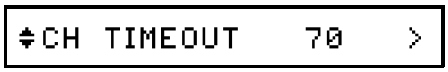
2. Press ↑ or ↓ until CH TIMEOUT is displayed.
3. To change the current setting: ➔



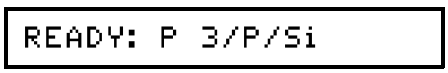
4. Press ↑ or ↓ until the required setting is displayed.



5. Store the displayed setting: ➔



6. ← twice to return to printer "Ready" mode.



AUTO CONT (Auto Continue)

When you switch this feature ON, the printer will continue printing after a certain period of time when one of the following error occurs: SET FULL PRINT, PAGE BUFFER FULL, PAPER SIZE ERROR, TRAY SET xxx, INSUFF MEMORY

If this feature is OFF, you will have to press the ↑ button to continue printing.

In most cases, leave this feature OFF. The warning on page 45 explains why.

1. Enter Level 2 mode (see page 35).

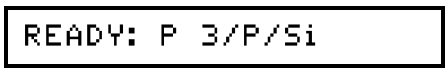
2. Press ↑ or ↓ until AUTO CONT. is displayed.

3. To change the current setting: ➔

4. Press ↑ or ↓ until the required setting is displayed.

5. Store the displayed setting: ➔

6. ← twice to return to printer "Ready" mode.

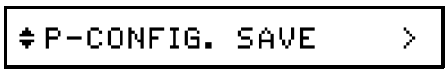


P-CONFIG SAVE (Power-up Configuration)

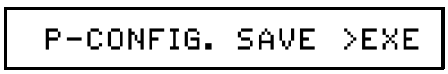
Use this feature to save your Level 2 settings so that they will take effect each time you switch your printer on.

1. Enter Level 2 mode (see page 35).

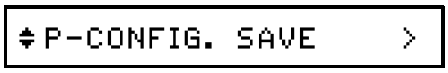
2. Press ↑ or ↓ until P-CONFIG SAVE is displayed.



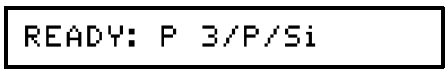
3. ➔



4. To save the current Level 2 settings: ➔



5. ← twice to return to printer "Ready" mode.



Note: If you ever need to return the printer to the factory settings, see FACTORY RESET (page 43).

FACTORY RESET

Use this feature to reset all Level 1 and Level 2 settings to their factory settings.

Note: ❒ **If you wish to reset the Level 1 settings, but not the Level 2 settings:** Use the LOAD MACRO routine to load macro 0 (see page 33).

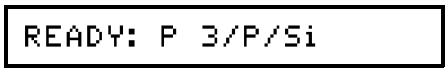
❒ **If you wish to reset the Level 2 settings, but not the Level 1 settings:** Store the current Level 1 settings as a macro (see SAVE MACRO, page 32). Then do the FACTORY RESET procedure as stated below. Then reload the macro that you just stored containing your Level 1 settings (see LOAD MACRO, page 33).

1. Enter Level 2 mode (see page 35).

2. Press ↑ or ↓ until FACTORY RESET is displayed.

3. ➔

4. Reset the machine: ➔



Caution: Do not turn off the printer until the READY message appears on the display. If you turn the printer off too soon, you may see "START UP ERROR" the next time you turn on the printer. See page 48 for how to clear the error.

VERSION

Use this feature if you wish to display the version number of the printer's control software and fonts.

1. Enter Level 2 mode (see page 35).

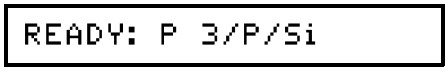
2. Press ↑ or ↓ until VERSION is displayed.

3. ➔. The printer control software (C-ROM) version number is displayed.

4. Press ↑ or ↓. The font version number is displayed.

5. ➔

6. ➔ twice to return to printer "Ready" mode.



PAGE COUNTER

Use this feature to display the following page counters:
❒ PAGE COUNTER: How many pages your printer has printed since it was installed.
❒ PCU COUNTER: How many pages printed so far with the current master unit.

These counters do not include copies or printed fax messages and reports. The counters only show how many pages have been output from the computer.

1. Enter Level 2 mode (see page 35).

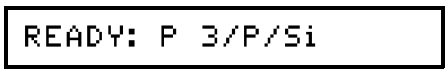
2. Press ↑ or ↓ until you see PAGE COUNTER.

3. To display the PCU counter: →

Note: If you wish to reset the PCU counter to clear the CHANGE PCU error message (see page 45), open the printer cover then press ↑ and ↓ at the same time. The counter resets after you execute step 4.

4. ←

5. ← twice to return to printer "Ready" mode.



STANDBY

Please do not adjust this feature.

STATUS AND ERROR MESSAGES

While the printer is being used, messages on the display panel indicate the status of the machine and alert the user to any errors that may occur. This section gives an alphabetical list of these messages, and explains how to clear any associated problems.

Note
If you see the ↳ indicator flashing, first correct the problem, then press the ↑ arrow on the scroll key to clear the error. (However, if the AUTO CONT. option is set to ON (see page 42), some errors clear automatically, even though the problem remains. Therefore, in most cases, it is best to leave AUTO CONT. off to avoid the possibility of damaging your printer.)

The error messages are described below.

ADD MEMORY FOR CH-x
There is not enough memory for channel x. Either:
- ❒ Decrease the RX-BUFFER SIZE setting (see page 38).
- ❒ Change the CH setting to AUTOSENSE (see page 39).
- ❒ Adjust the memory distribution in the INDIVIDUAL setting of the CH function (see page 39).
- ❒ Ask your dealer to install additional printer memory.

CHANGE PCU
Reset the PCU counter (see page 44). Do not change the master unit.

CHAR CREATING
The printer is creating characters. Please wait.

COPY END x/y
Multi-copy printing was canceled. 'x' represents the current page number, and 'y' shows the number of copies currently set in the COPIES setting (see page 28).

COVER OPEN PCU xxxxxx
The printer cover is open, or the toner cartridge or master unit is not installed. Close the cover or install the missing component. See the machine's Operator's Manual for how to install a toner cartridge.
'xxxxxx' shows the current PCU counter value (see page 44). You can reset this counter by pressing ↑ or ↓ while this message is displayed.

DATA: {x} {mode}
The printer has received data but is not yet printing or is off line. To resume printing, press ← if the printer is off line, or press ↓ to print the data. 'x' shows the current channel, and 'mode' shows the current printer mode.

FEED JAM
Paper was not fed from the cassette, or jammed on the way into the printer. See your fax machine's Operator's Manual for information on how to clear paper jams.

FONT CREATING
The printer is creating a font. Please wait.

GRAPHIC DRAWING
The printer is composing a graphic. Please wait.

ILLEGAL CARD #x
The card or cartridge in slot x cannot be read. Take the printer off line then press ↑. If the error message remains, make sure the printer is off line, then remove the card or cartridge. The value of 'x' will be either A (for a card) or C (for a cartridge). See page 7 for the location of the slots.

INITIALIZE
The printer is now resetting itself.

INSUFF. MEMORY
The printer does not have enough memory for the current job. Press ↑. If the message remains, press ↑, or reset the machine (see page 15).
You can also clear this error by switching the printer off, waiting a few seconds, then switching back on. However, you may have to simplify the page you are trying to print, or add more memory to the printer (ask your dealer to add memory).

PAGE BUFFER FULL
The printer's buffer filled up, and an incomplete page was fed out as a result. Press ↑ to clear the error. You may need to add more memory to the printer (ask your dealer to add memory).

PAPER FEEDING
The machine is now feeding paper, after you pressed ↓. Please wait.

PAPER JAM
Paper is not being fed into the printer, or paper is jammed inside the machine. See your fax machine's Operator's Manual for information on how to clear paper jams.

PAPER OUT
There is no paper in the cassettes. Add paper (or use manual feed). See your fax machine's Operator's Manual for information on how to add paper.

PAPER OUT {paper source} {paper size}
There is no paper in the paper source from which the printer expects to feed paper. Load paper of the indicated size into the cassette.

PAPER SIZE ERROR
The PAGE SIZE setting does not match the paper in the selected paper source. Press ↑ to clear the error. Then either load the correct size of paper in the cassette, or change the PAGE SIZE setting (see page 28 or use your application software).

PRINTING
The printer has received data and is printing. Please wait.

PRINT STOP x/y
The printer is pausing during a multi-copy printout. Please wait; printing should soon resume automatically. 'x' represents the current page number, and 'y' shows the number of copies currently set in the COPIES setting (see page 28).

READY: {x} {mode}
The printer is ready to print. 'x' shows the current printer channel and 'mode' shows the current printer mode. This is the printer "Ready" mode.

REINSERT CARD
You may have removed a card while the ◇ indicator was still lit or while the printer was on line. To correct the error, make sure the printer is off line. Then reinsert the card or cartridge and press ↑.

REMOVE CARD
You may have inserted a card/cartridge when the ◇ indicator was on or while the printer was on line. To correct this error, take the printer off line, then remove the card or cartridge, then press ↑. Before you reinsert the card or cartridge, make sure that all the data in the buffer has been printed and that the printer is off line. If the ◇ indicator is on, press ↓ to print out the remaining data.

RESET: {x} {mode}
The printer has been reset to the settings stored in the macro number that is currently specified with the LOAD MACRO setting (see page 33). 'x' shows the current printer channel and 'mode' shows the current printer mode.

SAVE MEMORY OVERFLOW
This message may appear while you are trying to save a macro with the SAVE MACRO routine (see page 32). However, the printer does not have enough memory to store the macro. Delete any unused macros using the DELETE MACRO routine (see page 34), then repeat the SAVE MACRO routine.

SERVICE REQ. xxxxx
A controller or printer engine error has been detected. 'xxxxx' is the error code. Write down the error code then switch off the printer. Turn the printer back on after a few seconds. If the error message still appears, turn off the printer and unplug it, then call your service representative.

SET FULL PRINT
This message may appear when you are trying to print a page that contains graphics. Pressing ↑ may clear the problem and allow you to continue printing. However, if the message appears often, you should increase the FULL PRINT setting (see page 30).

STARTUP ERROR
If this message appears when you turn on the printer, the power may have been switched off while the printer was performing a save operation. To clear the error, press → to return the printer to its factory default settings. WAIT appears while the reset is in progress.

TONER LOW
The toner has almost run out. When this message first appears, you can only print 25 more pages from the computer before you have to replace the toner cartridge. However, the machine can print up to 100 more pages of incoming fax messages.

TONER OUT
The toner cartridge must be replaced. See your fax machine's Operator's Manual for information on how to add fresh toner.

TRAY SET {paper source} {paper size}
The PAGE SIZE setting (see page 28) does not match the paper in the specified paper source. Either change the PAGE SIZE setting, or load the correct paper size. Press ↑ to print the page when you have corrected the problem.

WAIT
The printer is being reset after a startup error. Please wait.

PRINTING PROBLEMS

The printer does not print, or stops printing

The ↦ (on-line/off-line) indicator is on, but nothing is printed

- ❒ Check that both ends of the cable from the computer to the printer are plugged in securely.
- ❒ Check that you are using the correct type of cable to meet the specifications of your computer and your printer.
- ❒ You may not have selected the correct I/F CONFIG settings (see page 36). See your computer manual for the correct settings for your computer.
- ❒ The software may not be installed for your printer correctly. Use the program's setup or install procedure to check the printer settings on your computer's display. Also, make sure that your printer's emulation mode is set up correctly (see page 17).
- ❒ If the Power Saver feature on the fax machine is switched on, nothing can be printed. To release the Power Saver, press the **Function** key twice. Then you can print. Note that the Power Saver is not reinstated after the end of printing.

The ↦ (on-line/off-line) indicator is off

- ❒ The printer is off line. Press ➔ once to make the printer come on line. The ↦ indicator should light up.

PAPER OUT or TONER OUT is displayed

- ❒ Replace the paper or toner. See your fax machine's Operator's Manual for the correct procedure.

The printout is not what you expected

The font you selected with software commands cannot be printed

- ❒ The correct orientation (portrait or landscape) may not have been selected. Make sure that the orientation matches the selected font.
- ❒ The font that you selected with your software package may not be available. Check that you have installed the correct font card or cartridge.

Characters not belonging to the symbol set are being printed

- ❒ The expected symbol may not be available in the printer. Be sure that you have installed the correct font card or cartridge.
- ❒ The correct symbol set may not have been selected. Specify the desired symbol set (containing international characters and symbols) with your software, or use a Selectype procedure (see SYMSET on page B-7, and COUNTRY and CGTABLE on page C-4). The symbol sets that are available depend on the emulation mode that you have selected.

All the text has been printed on the same line, or the text is overprinting itself on the same line

❒ Line feed commands are not being sent at the end of each line of text. If you are using the parallel channel, you may be able to correct the problem by switching AUTOFEED on (see page 36). Some software packages will allow sending line feed commands in the setup.

Text is printed with an extra blank line even after you set AUTO LF to OFF

❒ Your computer may be sending the extra line feed command. Ask your service representative to disable the AUTOFEED signal on your cable.

Some or all of the output is garbled or printed as asterisks

❒ The cable may not be plugged in completely. Check both ends.
❒ The I/F CONFIG settings may not be set up correctly to match your computer. Your computer and your printer must use the same settings if you are using the serial channel. Check your computer manual, and adjust the I/F CONFIG settings (see page 36).
❒ Use the data dump mode (see page 54) to check the data that is being sent from the computer.

The position of the printout is not what you expected

The printed page differs from the actual length of the paper

❒ Your software may be overriding the printer's Selectype settings. Check the page length setting in the application software setup.
❒ The Selectype form length setting may not be correct. See FORM on page B-7 and TEXT on page C-4. The procedure depends on the emulation mode that you are using.

The left or right margin setting does not match the actual paper width

❒ The margin settings of your application software may not be correct. Check the software's settings.
❒ Use Selectype to change the left and right margin settings. This can only be done if you are using an Epson emulation mode. In HP LaserJet mode, you have to send the appropriate commands from your computer. There is some more information on this in Appendix B, but you may need a Hewlett-Packard reference manual for this.

Even after changing the page length or margin positions, the printed position is not correct

❒ Try adjusting the T-OFFSET and L-OFFSET settings (see page 31).

The printer prints a page and then stops

The display reads PAPER SIZE ERROR and the ↦ indicator blinks

- ❒ You have selected the wrong paper size with your application software.
- ❒ You may be trying to use a paper size that your printer cannot handle. Check your fax machine's specifications to see what paper sizes it can handle.
- ❒ The P-SIZE setting may not match your paper size. Either:
  If the ◇ indicator is out, press ↑ to clear the error. Then change the P-SIZE setting (see page 28) if necessary.
  If the ◇ indicator is on, check the current P-SIZE setting (see page 28) and put some paper of the same size in the cassette. If the P-SIZE setting is incorrect, press ↑ to reset the printer, then change the P-SIZE setting.

Caution:
- ❒ When you reset the printer, any remaining data that was sent from the computer will be lost.
- ❒ If you continue to print using paper that is smaller than the paper size set with your software, toner may accumulate inside the machine and damage the master unit. Make sure that your software and P-SIZE settings match the paper size in the cassette. If AUTO CONT is on, a paper size error is detected but cleared automatically and printing continues. Therefore, to avoid damage to your printer, keep AUTO CONT set to OFF (see page 42).

PROBLEMS WITH GRAPHICS

Graphic images do not print

After changing the emulation mode, you cannot print graphics

- ❒ You may not have the correct printer driver installed. Set up your software package to match your printer's current emulation mode.

You cannot print graphics using the serial channel

- ❒ The WORD LENGTH setting may not be correct (see page 37).When printing graphics, this setting should be at 8.

When printing a mix of text and graphics, the page does not print or is only partially printed. The display may also show SET FULL PRINT

- ❒ Change the FULL PRINT setting (see page 30).
- ❒ Your printer may not have enough memory. Simplify the page or ask your dealer to install additional memory. To clear the error, press ↑.

An INSUFF MEMORY message appears and graphics cannot be printed

- ❒ Change the FULL PRINT setting (see page 30) or the RX-BUFFER setting (see page 38).
- ❒ Your printer may not have enough memory. Simplify the page or ask your dealer to install additional memory. To clear the error, press ↑.
- ❒ If you are set up in CH INDIVIDUAL mode, check that the memory share is set up so that the channel used for printing complex pages has a large enough share of the memory. See page 39 for how to share the memory between channels in INDIVIDUAL mode.

PROBLEMS WITH SELECTYPE MODE

Selectype does not function as expected

Settings made with Selectype are ignored

- ❒ Your computer software may be changing the printer's settings or initializing the printer. You may have to change the initialization sequence sent by the software. See your software manual for more information. You should be able to make any required printer setting by configuring the software package correctly.
- ❒ You may have made a combination of settings using Selectype mode that your printer cannot act upon. Normally, the printer checks for such incompatible settings, but some combinations may elude the checking procedure. Try a different combination of settings.
- ❒ You may not have saved your settings before turning off the printer. For Level 1 settings, use the SAVE MACRO and POWERON MACRO routines (see pages 32 and 34). For Level 2 settings, use the P-CONFIG SAVE routine (see page 42).
- ❒ You may have saved settings to the same macro number in more than one channel. Never save settings to the same macro number for more than one channel. If you used macro 1 for the serial channel, do not store a macro 1 for the parallel channel; the settings in one channel may affect the settings in another.

The desired Selectype settings are not displayed

- ❒ You may be trying to select a setting that is not available in the current emulation mode. The available settings are not the same for each emulation mode. Also, some settings are not displayed if you have not installed certain items of optional equipment, such as font cartridges.
- ❒ You may have entered the wrong Selectype level. See the lists on pages 22 and 23 to find out what level your setting is in.

After turning on the printer, START UP ERROR is displayed.
After pressing ➔ to recover from the error, your previously selected settings have been changed

❒ This message may appear if you turned off the printer while it was printing, or while it was executing a FACTORY RESET, P-CONFIG SAVE, or SAVE MACRO routine. Print a status sheet to see the current settings (see page 9). Adjust any settings that are incorrect.

PROBLEMS WITH OPTIONAL CARDS AND CARTRIDGES

When font cards or cartridges are used, the printer does not operate as expected

The desired font cannot be selected

❒ Check that the card/cartridge is installed correctly.
❒ The font that you selected may not be available for the current page orientation (portrait or landscape). See Appendix D for more information.
❒ The FONT feature (see page B-5 for HP fonts or page C-2 for Epson fonts) may not be set correctly. See Appendix D for information on how to use the FONT feature with optional cards and cartridges.

Fonts cannot be selected from the card or cartridge, and the message CARD ERROR appears

❒ The small gold connectors on the edge of the card/cartridge may be dirty. Wipe them with a clean tissue.
❒ The cartridge may be incompatible with this printer. See Appendix D for a list of compatible cartridges.

DATA DUMP MODE

Data dump mode is a special feature that makes it easy for experienced users to find the cause of communication problems between the computer and the printer. Data dump mode provides an exact printout of the codes reaching the printer. To start data dump mode, do the following.

1. Make sure that the printer is loaded with paper.
2. Hold down ↑ until you see "INITIALIZE" on the printer's display
3. Hold down ← until you see "READY P:DUMP" on the printer's display.
4. Print something from the computer, or run a program that causes the printer to print something (such as a word processing package). Your printer prints out all the codes sent to it in hexadecimal (base 16) format as shown in the following sample.

```
                ********    HEX DUMP LIST    ********          PAGE     1

0000    1B 52 00 1B 43 45 1B 6B 00 1B 70 00 1B 63 0C 1B  .R..CE.k..p..c..
0001    74 01 1B 32 54 72 6F 75 62 6C 65 20 73 68 6F 6F  t..2Trouble shoo
0002    74 69 6E 67 20 20 20 20 20 0D 0A 54 68 69 73 20  ting     ..This
0003    63 68 61 70 74 65 72 20 64 69 73 63 75 73 73 65  chapter discusse
0004    73 20 70 72 6F 62 6C 65 6D 73 20 79 6F 75 20 6D  s problems you m
0005    61 79 20 65 6E 63 6F 75 6E 74 65 72 20 61 6E 64  ay encounter and
0006    20 74 68 65 69 72 20 6C 69 6B 65 6C 79 20 73 6F   their likely so
0007    6C 75 74 69 6F 6E 73 2E 20 0D 0A 0D 0A 49 66 20  lutions. ....If
0008    61 6E 20 65 72 72 6F 72 20 6F 63 63 75 72 73 2C  an error occurs,
0009    20 79 6F 75 72 20 62 65 73 74 20 73 6F 75 72 63   your best sourc
000A    65 20 6F 66 20 69 6E 66 6F 72 6D 61 74 69 6F 6E  e of information
000B    20 0D 0A 69 73 20 74 68 65 20 64 69 73 70 6C 61   ..is the displa
000C    79 20 6F 6E 20 74 68 65 20 63 6F 6E 74 72 6F 6C  y on the control
000D    20 70 61 6E 65 6C 2E 20 0D 0A                     panel. ..
```

5. To turn off the data dump mode and stop printing, press → to switch the printer off line. When the printer goes off line, either switch off the printer or hold down ↑ until INITIALIZE appears on the display.

Look at the sample printout. It shows which codes are being sent to the printer. In the text field, printable characters are shown as their true ASCII characters. Non-printable codes, such as control codes, are shown as dots.

For example, on the fifth line, the first two codes are 73 and 20. Code 73 represents the letter s, and code 20 represents a space. Look at the fifth line of the text field; you will see an s followed by a space.

To interpret the first line of codes on the sample printout on the previous page, see the following table.

Hex codes	Command	Function
1B 52 00	ESC R 0	Select the USA character set
1B 43 45	ESC C 69	Set the page length
1B 6B 00	ESC k 0	Select the typeface
1B 70 00	ESC p 0	Turn proportional mode on/off

RESETTING THE PRINTER

You may need to reset the printer sometimes.

There are four types of printer reset.

Type 1: Return all the printer's settings to the default power-on settings

Either:
❒ Switch the power off, wait for at least 5 seconds, then switch on again.
❒ Press ↑ until the display shows INITIALIZE.

Type 2: Erase all data received from the computer and return the Selectype Level 1 settings to the saved settings

Press ↑ until RESET appears on the display. All printer settings are returned to their previously stored settings.

Note: If you reset the machine while it is printing, the current page will be printed, but other data remaining in the printer's memory will be discarded.

This type of printer reset is the one described on page 15.

Type 3: Return the Selectype Level 1 settings to their saved settings

Perform the LOAD MACRO routine (see page 33).

Type 4: Return the Selectype Level 1 and 2 settings to original factory settings; this disregards any settings that you have made earlier. The procedure is as follows.

1. Do a FACTORY RESET (see page 43).
2. Adjust any Level 2 settings that need to be different from the factory settings.
3. Load the macro that contains the required Level 1 settings.

APPENDIX A. SPECIFICATIONS

Power consumption: 230 W in standby mode, 500 W while printing

Resolution: 300 x 300 dots per inch

Printing speed (Engine speed): 10 pages per minute, after less than 20 seconds for the first page.

Paper size: A4, Letter, and Legal. All sizes must be in the ⬓ orientation (the short side must feed in first).

Printable area: Refer to pages B-1 and C-1.

Memory capacity: 1 megabyte, expandable to up to 6 megabytes total memory. This is for the printer only. Fax and printer memory are completely separate.

Channels: One serial (RS-232C), one parallel (Centronics)

Emulation modes: HP LaserJet III, Epson LQ, Epson FX.

For other specifications, refer to the Operator's Manual for your fax machine.

APPENDIX B. HP EMULATION MODE

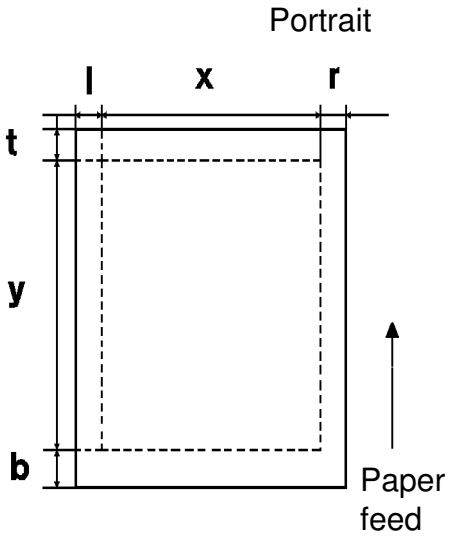
This section informs you about using your printer's HP emulation mode. It describes the unique features of your printer's HP emulation as well as the differences between your printer's HP emulation and printing with an actual HP LaserJet printer.

HP EMULATION MODE VS HP LASERJET III

Your printer differs slightly from a HP LaserJet III because the two printers use different technologies. The differences in printing are explained below.

	Your Printer	HP LaserJet Series III
Input paper supply	Refer to the specifications for the base fax machine.	200 sheets
Paper size	Letter, Legal, Government Legal, A4. All sizes must be in the ⬎ orientation (the short side must feed in first).	Letter, Legal, A4, Executive, Monarch 7-3/4 Commercial 10, DL, C5
Resident fonts	Bitmap: 14, Scalable: 13	Bitmap: 10, Scalable: 8
Maximum no. of fonts per page	Depends on the amount of memory	
Page buffer mode	Built-in	Not available

Printable Area



The size of the printable area for the HP LaserJet series III and this printer is the same. The maximum number of characters per line is also the same. However, the position of the printout on the page may not be exactly the same as for output from a HP LaserJet series III.

If you wish to match your printing to the output produced on a HP LaserJet series III printer, use the T-OFFSET and L-OFFSET controls (see page 31) to make fine adjustments to the printing start position. However, the offset controls can move data outside the printable area, so some data may be missing.

The printable areas for various paper sizes are shown in the following table.

Paper Size	l	x	r	t	y	b
A4	50	2380	50	50	3407	50
Letter		2450			3200	
Legal		2450			4100	

Units: Dots at 300 dpi

Character Clipping

If a character is partially outside the printer area, the HP LaserJet mode clips it and the part outside the printer area is not printed.

Paper Handling

When using HP emulation mode, the paper size is not determined by the paper cassette as it is with a HP LaserJet series III printer. Use the PAGE SIZE feature (see page 28) to select the paper size that you need.

Downloaded Fonts

When the machine is in the 3/P/Si emulation mode, you can download fonts to the machine in the same manner as you would download to a Hewlett-Packard LaserJet printer.

Resident Fonts

The printer offers a variety of fonts in HP emulation mode. The following table lists these fonts.

When using your application software to select a font, use the font names in the right hand column of the table.

Fonts	Font name in HP emulation mode
Courier: Standard, bold, italic	Courier
Line printer	Line printer
Epson Roman T, standard, bold, italic, bold italic	CG Times
Epson sans serif U standard, italic, bold, bold italic, medium condensed*, bold condensed*, medium condensed italic*, bold condensed italic*	Univers
ITC Zapf Dingbats*	ITC Zapf Dingbats

Note: The five fonts marked with an asterisk (*) are only available with a LaserJet II-ISi driver or by using a printer command.

If your program does not have a driver for the HP LaserJet IIISi but can send printer commands, send the commands below to select the HP LaserJet IIISi fonts.

	Esc (#	Esc (s#P	Esc (s#B	Esc (s#S	Esc (s#T
Epson sans serif U medium condensed	#	1	0	4	52
Epson sans serif U medium condensed italic	#	1	0	5	52
Epson sans serif U bold condensed	#	1	3	4	52
Epson sans serif U bold condensed italic	#	1	3	5	52
ITC Zapf Dingbats	#	1	0	0	45

For the value of # in the Esc commands, see the symbol sets starting on page B-9.

Symbol Sets

Your printer can access a variety of symbol sets. Many of these symbols differ only in the international characters specific to each language. This appendix provides character tables for a representative sample of the symbol sets available in HP emulation mode. These tables, starting on page B-9, show both the characters and their hexadecimal codes.

The following table shows the available character sets, and whether they are bitmap or scalable fonts.

'✔' means Yes, '✖' means No

Symbol Set	Available Fonts		
	Bitmap	Scalable	Scalable (ITC Zapf Dingbats)
Roman--8	✔	✔	✖
Norway 1	✔	✔	✖
Roman Extension	✔	✖	✖
French	✔	✔	✖
HP German	✔	✔	✖
Italian	✔	✔	✖
JIS ASCII	✔	✔	✖
ECM 94-1	✔	✔	✖
Swedish2	✔	✔	✖
ANSI ASCII	✔	✔	✖
Norweg2	✔	✔	✖
UK	✔	✔	✖
German	✔	✔	✖
HP Spanish	✔	✔	✖
Legal	✔	✔	✖
French 2	✔	✔	✖

Symbol Set	Available Fonts		
	Bitmap	Scalable	Scalable (ITC Zapf Dingbats)
Chinese	✔	✔	✖
Spanish	✔	✔	✖
IRV	✔	✔	✖
Swedish	✔	✔	✖
Portugese	✔	✔	✖
PC Multi	✔	✔	✖
IBM Portugese	✔	✔	✖
IBM Spanish	✔	✔	✖
IBM-US	✔	✔	✖
IBM-DN	✔	✔	✖
PsMath	✖	✔	✖
Windows	✖	✔	✖
PsText	✖	✔	✖
VeInternational	✖	✔	✖
VeUS	✖	✔	✖
MsPublishing	✖	✔	✖
VeMath	✖	✔	✖
DeskTop	✖	✔	✖
Math-8	✖	✔	✖
PiFont	✖	✔	✖
VeZapfDingbats	✖	✖	✔
PsZapfDingbats	✖	✖	✔
Zd100	✖	✖	✔
Zd200	✖	✖	✔
Zd300	✖	✖	✔

OPERATING AS A LASERJET IIISi

If your application software's printer selection menu has the HP LaserJet IIISi, select this if you want to take advantage of all of your printer's features.

In addition to the differences between your printer and the LaserJet III as described on page B-1, there are a few extra differences between your printer and the LaserJet IIISi.

On your printer, the JobOffset and PaperDestination commands are ignored, and the Duplex command is treated as a page eject command. Also, your printer cannot use the network interface boards.

USING SELECTYPE MODE TO ADJUST THE HP EMULATION MODE

ORIENT (Page Orientation)

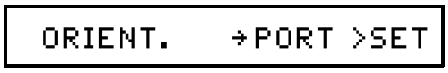
This feature allows you to select the direction in which characters are printed on the page.

Available Options: PORT (portrait; vertical), LAND (landscape; horizontal), R-PORT (opposite direction of portrait), R-LAND (opposite direction of landscape)

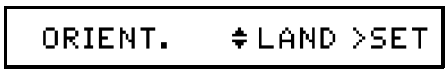
1. Enter Level 1 mode (see page 27).

2. Press ↑ or ↓ until ORIENT. is displayed.

3. To change the current setting: ➔

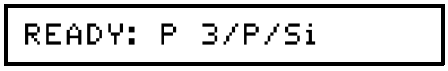


4. Press ↑ or ↓ until the required setting is displayed.



5. Store the displayed setting: ➔

6. ← twice to return to printer "Ready" mode.

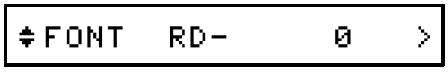


FONT

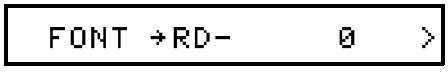
Use this feature to select the source of your font, and the font itself.

1. Enter Level 1 mode (see page 27).

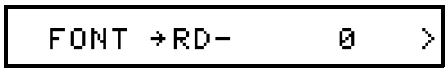
2. Press ↑ or ↓ until FONT is displayed.



3. ➔



4. If you have installed an optional font cartridge, press ↑ or ↓ to select the required font source.
   - ❒ RD is for the resident fonts. If you have installed an optional font card or cartridge, you will also have the choice of A (for the fonts on the font card), C (for the fonts on the cartridge), or DL (for downloaded fonts) . See Appendix D for more on the use of optional font kits.



5. ➔

```
FONT  RD-→    0>SET
```

6. Press ↑ or ↓ until the required font number is displayed. Example: Font number 1.

```
FONT  RD-≑    1>SET
```

Note: Font types are displayed only as numbers in this procedure. To see the font types that correspond to each font number, print a font sample sheet (use the FONT SAMPLE procedure on page 9).

7. Store the displayed setting: ➔

```
≑FONT  RD-     1   >
```

If you have just selected a scalable font, you must perform an additional step.

For proportional fonts: The display is as shown on the right.

```
HEIGHT≑  12PT.>SET
```

❒ Press ↑ or ↓ to select the point size that you need, then press ➔.
Available settings: 4.00 to 999.75 in steps of 0.25

For fixed pitch fonts: The display is as shown on the right.

```
PITCH≑  10CPI >SET
```

❒ Press ↑ or ↓ to select the spacing in characters per inch, then press ➔.
Available settings: 0.44 to 99.99 in steps of 0.01

8. ← until the machine returns to printer "Ready" mode.

```
READY: P 3/P/Si
```

You can only select fonts that match the current orientation setting. If you change the SYMSET or ORIENT settings, the available font numbers may change.

To save the selected font as the default font, use the SAVE MACRO routine (see page 32).

SUB CONFIG.

SUB CONFIG. is a menu within SelecType Level 1. It contains two features.

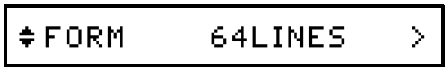
- ❒ **FORM:** Use this to set the number of lines for the selected page size and orientation. The setting that you choose affects the line spacing on printouts. This setting is affected by the PAGE SIZE, ORIENT, and FONT settings.
  Available Options: 0 to 128.
  If you select 0, the line spacing will be 1/6 inch [about 4.2 mm].
  If *** appears on the display, you selected a number that is out of the possible range for the paper that you are using.
- ❒ **SYMSET:** Use this feature to select one of the 41 resident HP symbol sets. See page B-9 and subsequent pages for tables of these symbols.

Example SUB CONFIG Procedure: Change the FORM setting to 128 lines.

1. Enter Level 1 mode (see page 27).

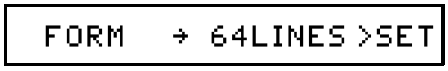
2. Press ↑ or ↓ until SUB CONFIG. is displayed.

3. ➔

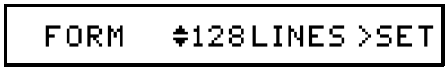


If FORM is not displayed, press ↑ or ↓ until it is.

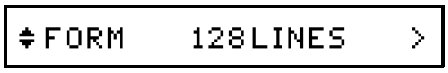
4. ➔



5. Press ↑ or ↓ until the required setting is displayed.

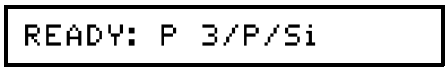


6. Store the displayed setting: ➔



7. ←

8. ← twice to return to printer "Ready" mode.



AVAILABLE FONTS AND SYMBOL SETS

This section describes the fonts and symbol sets available in HP emulation mode.

There are a variety of resident bitmap and scalable fonts. To explain the difference between these two types of font, the following table shows the attributes that can be changed for bitmap and scalable fonts.

'✔' means Yes, '✖' means No

Attribute	Bitmap	Scalable
Orientation	✔	✔
Symbol Set	✔	✔
Pitch	✖	✔
Point Size	✖	✔
Typestyle	✔	✖
Weight	✖	✖

Resident Bitmap Fonts

The following table lists the attributes of the resident bitmap fonts available with HP emulation mode.

Font Name	Spacing	Height	Typeface	Style	Weight
Courier	10 cpi	12 point	Courier	U	Medium
Courier bold				U	Bold
Courier italic				I	Medium
Courier	12 cpi	10 point		U	Medium
Courier bold				U	Bold
Courier italic				I	Medium
Line Printer	16.66 cpi	8.5 point	Line Printer	U	Medium

- ❒ All fonts are available in Portrait and Landscape modes.
- ❒ 26 symbol sets are available for all fonts. See the table on page B-4 for details.
- ❒ In the Style column: U = Upright, I = Italic

Resident Scalable Fonts

This table lists the attributes of the resident scalable fonts available with HP emulation.

Font Name	Symbol Set	Height (pt)	Typeface	Style	Weight
Epson Roman T	36 sets	0.25 - 999.75	Epson Roman T	U	Medium
Epson Roman T Bold				U	Bold
Epson Roman T Italic				I	Medium
Epson Roman T Bold italic				I	Bold
Epson sans serif U			Epson sans serif U	U	Medium
Epson sans serif U bold				U	Bold
Epson sans serif U italic				I	Medium
Epson sans serif U bold italic				I	Bold
Epson sans serif U medium condensed				CU	Medium
Epson sans serif U bold condensed				CU	Bold
Epson sans serif U medium condensed italic				CI	Medium
Epson sans serif U bold condensed italic				CI	Bold
ITC Zapf Dingbats	5 sets		ITC Zapf Dingbats	U	Medium

- ❒ All orientations (portrait, landscape, reverse portrait, and reverse landscape) are available for each font.
- ❒ The spacing for all fonts is proportional.
- ❒ In the Style column: U = Upright, I = Italic, CU = Condensed Upright, CI = Condensed Italic

To see a sample of the fonts, do the FONT SAMPLE routine (see page 9).

Note: This printer can print fonts generated by Bitstream FaceLift and Bitstream Fontware Installation Kits using Bitstream Typeface Packages for the PC. Refer to your FaceLift or Fontware User Guide for instructions on using Bitstream typefaces with HP LaserJet compatible printers.

Symbol Sets

Your printer can access a variety of symbol sets. Many of these symbol sets differ only in the international characters specific to each language.

The following tables show the symbol sets that are available when your printer is in HP emulation mode. The ID number in brackets after the symbol set's name shows what number to insert in the ESC code to select that particular symbol set.

Roman-8 (8U)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p				¯	â	Å	Á	Þ
1			!	1	A	Q	a	q			À	Ý	ê	î	Ã	þ
2			"	2	B	R	b	r			Â	ý	ô	Ø	ã	·
3			#	3	C	S	c	s			È	°	û	Æ	Đ	µ
4			$	4	D	T	d	t			Ê	Ç	á	å	ð	¶
5			%	5	E	U	e	u			Ë	ç	é	í	Í	¾
6			&	6	F	V	f	v			Î	Ñ	ó	ø	Ì	—
7			'	7	G	W	g	w			Ï	ñ	ú	æ	Ó	¼
8			(	8	H	X	h	x			´	¡	à	Ä	Ò	½
9			)	9	I	Y	i	y			`	¿	è	ì	Õ	ª
A			*	:	J	Z	j	z			^	¤	ò	Ö	õ	º
B			+	;	K	[	k	{			¨	£	ù	Ü	Š	«
C			,	<	L	\	l	|		~	¥	ä	É	š	■
D			-	=	M	]	m	}			Ù	§	ë	ï	Ú	»
E			.	>	N	^	n	~			Û	ƒ	ö	ß	Ÿ	±
F			/	?	O	_	o	▒			£	ç	ü	Ô	ÿ	

ECMA-94 Latin-1 (0N)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p				°	À	Ð	à	ð
1			!	1	A	Q	a	q			¡	±	Á	Ñ	á	ñ
2			"	2	B	R	b	r			¢	²	Â	Ò	â	ò
3			#	3	C	S	c	s			£	³	Ã	Ó	ã	ó
4			$	4	D	T	d	t			¤	´	Ä	Ô	ä	ô
5			%	5	E	U	e	u			¥	µ	Å	Õ	å	õ
6			&	6	F	V	f	v			¦	¶	Æ	Ö	æ	ö
7			'	7	G	W	g	w			§	·	Ç	×	ç	÷
8			(	8	H	X	h	x			¨	¸	È	Ø	è	ø
9			)	9	I	Y	i	y			©	¹	É	Ù	é	ù
A			*	:	J	Z	j	z			ª	º	Ê	Ú	ê	ú
B			+	;	K	[	k	{			«	»	Ë	Û	ë	û
C			,	<	L	\	l	|		¬	¼	Ì	Ü	ì	ü
D			-	=	M	]	m	}			-	½	Í	Ý	í	ý
E			.	>	N	^	n	~			®	¾	Î	Þ	î	þ
F			/	?	O	_	o	▒			¯	¿	Ï	ß	ï	ÿ

IBM-US (10U)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		▶		0	@	P	`	p	Ç	É	á	▒	└	╨	α	≡
1	☺	◀	!	1	A	Q	a	q	ü	æ	í	▒	┴	╤	ß	±
2	☻	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3	♥	!!	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6	♠	▬	&	6	F	V	f	v	å	û	ª	╢	╞	╓	μ	÷
7	•	↨	'	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	◘	↑	(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	•
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	♂	←	+	;	K	[	k	{	ï	ø	½	╗	╦	█	δ	√
C	♀	∟	,	<	L	\	l	|	î	£	¼	╝	╠	▄	∞	η
D	♪	↔	−	=	M	]	m	}	ì	Ø	¡	╜	═	▌	φ	²
E	♫	▲	.	>	N	^	n	~	Ä	₧	«	╛	╬	▐	ε	■
F	☼	▼	/	?	O	_	o	⌂	Å	ƒ	¤	┐	╧	▀	∩	

IBM-DN (11U)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		▶		0	@	P	`	p	Ç	É	¦	▒	└	╨	α	≡
1	☺	◀	!	1	A	Q	a	q	ü	È	ˊ	▒	┴	╤	ß	±
2	☻	↕	"	2	B	R	b	r	é	Ê	ó	▓	┬	╥	Γ	≥
3	♥	!!	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4	♦	¶	$	4	D	T	d	t	Â	Ë	¨	┤	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	Ï	¸	╡	┼	╒	σ	⌡
6	♠	▬	&	6	F	V	f	v	¶	û	³	╢	╞	╓	μ	÷
7	•	↨	'	7	G	W	g	w	ç	ù	¯	╖	╟	╫	τ	≈
8	◘	↑	(	8	H	X	h	x	ê	¤	Î	╕	╚	╪	Φ	°
9	○	↓	)	9	I	Y	i	y	ë	Ô	⌐	╣	╔	┘	Θ	•
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	♂	←	+	;	K	[	k	{	ï	ç	½	╗	╦	█	δ	√
C	♀	∟	,	<	L	\	l	|	î	£	¼	╝	╠	▄	∞	η
D	♪	↔	−	=	M	]	m	}	‗	Ù	¾	╜	═	▌	φ	²
E	♫	▲	.	>	N	^	n	~	À	Û	«	╛	╬	▐	ε	■
F	☼	▼	/	?	O	_	o	⌂	§	ƒ	»	┐	╧	▀	∩	

PcMultilingual (12U)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		▶		0	@	P	`	p	Ç	É	á	▒	└	ð	Ó	−
1	☺	◀	!	1	A	Q	a	q	ü	æ	í	▒	┴	Ð	ß	±
2	☻	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	Ê	Ô	‗
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	Ë	Ò	¾
4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	È	õ	¶
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	Á	┼	ı	Õ	§
6	♠	▬	&	6	F	V	f	v	å	û	ª	Â	ã	Í	µ	÷
7	•	↨	'	7	G	W	g	w	ç	ù	º	À	Ã	Î	þ	¸
8	◘	↑	(	8	H	X	h	x	ê	ÿ	¿	©	╚	Ï	Þ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	®	╣	╔	┘	Ú	··
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Û	·
B	♂	←	+	;	K	[	k	{	ï	ø	½	╗	╦	▒	Ù	1
C	♀	∟	,	<	L	\	l	|	î	£	¼	╝	╠	▬	ý	3
D	♪	↔	−	=	M	]	m	}	ì	Ø	¡	Ç	═	¦	Ý	2
E	♫	▲	.	>	N	^	n	~	Ä	×	«	¥	╬	Ì	¯	■
F	☼	▼	/	?	O	_	o	⌂	Å	ƒ	»	┐	¤	▀	´	

Legal (1U)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	°	p								
1			!	1	A	Q	a	q								
2			"	2	B	R	b	r								
3			#	3	C	S	c	s								
4			$	4	D	T	d	t								
5			%	5	E	U	e	u								
6			&	6	F	V	f	v								
7			'	7	G	W	g	w								
8			(	8	H	X	h	x								
9			)	9	I	Y	i	y								
A			*	:	J	Z	j	z								
B			+	;	K	[	k	$								
C			,	‗	L	®	l	¶								
D			−	=	M	]	m	†								
E			.	ç	N	©	n	™								
F			/	?	O	_	o	▒								

ISO ANSI ASCII (0U)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p								
1			!	1	A	Q	a	q								
2			"	2	B	R	b	r								
3			#	3	C	S	c	s								
4			$	4	D	T	d	t								
5			%	5	E	U	e	u								
6			&	6	F	V	f	v								
7			'	7	G	W	g	w								
8			(	8	H	X	h	x								
9			)	9	I	Y	i	y								
A			*	:	J	Z	j	z								
B			+	;	K	[	k	{								
C			,	<	L	\	l	|								
D			-	=	M	]	m	}								
E			.	>	N	^	n	~								
F			/	?	O	_	o	▒								

Ventura Math (6M)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	≅	Π	‾	π			◇	®	≤	↓	|	∏
1			!	1	A	Θ	α	θ			✓	⊃	◆	←	·	™
2			∀	2	B	P	β	ρ			⌊	⊇	≥	®	∠	⇐
3			#	3	X	Σ	χ	σ			⌈	⌠	∂	″	⌡	⇔
4			∃	4	Δ	T	δ	τ			|		ℵ	ƒ		∨
5			%	5	E	Y	ε	υ			|	♣	′	ℑ	{	∑
6			&	6	Φ	ς	φ	ϖ			⌈	⊕	ℜ	©	⌠	™
7			∍	7	Γ	Ω	γ	ω			|	⊗	℘	±	⟩	|
8			(	8	H	Ξ	η	ξ			⇑	⊆	∞	→		↓
9			)	9	I	Ψ	ι	ψ			⇒	∪	♠	↑	¬	∅
A			*	:	ϑ	Z	φ	ζ			⇓	—	∝	≠	∇	∩
B			+	;	K	[	κ	{			∉	…	•	≡	⌠	∈
C			,	<	Λ	∴	λ	|			⊂	|	/	°	|	©
D			-	=	M	]	μ	}			⌡	∧	♥	↔	⌡	∉
E			.	>	N	⊥	ν	~			|	↵	×	⌉	⌡	⌡
F			/	?	O	_	ο				⌋	≈	ϒ	∫	÷	⟨

Ventura International (13J)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	‘	p			„	‰	â	Å	Á	Œ
1			!	1	A	Q	a	q			À	“	ê	î	Ã	œ
2			"	2	B	R	b	r			Â	”	ô	Ø	ã	¶
3			#	3	C	S	c	s			È	°	û	Æ		†
4			$	4	D	T	d	t			Ê	Ç	á	å		‡
5			%	5	E	U	e	u			Ë	ç	é	í	Í	–
6			&	6	F	V	f	v			Î	Ñ	ó	ø	Ì	—
7			’	7	G	W	g	w			Ï	ñ	ú	æ	Ó	
8			(	8	H	X	h	x			©	¡	à	Ä	Ò	
9			)	9	I	Y	i	y			®	¿	è	ì	Õ	ª
A			*	:	J	Z	j	z			™	¤	ò	Ö	õ	º
B			+	;	K	[	k	{			‹	£	ù	Ü	Š	«
C			,	<	L	\	l	|		›	¥	ä	É	š	•
D			-	=	M	]	m	}			Ù	§	ë	ï	Ú	»
E			.	>	N	^	n	~			Û	*f*	ö	ß	Ÿ	
F			/	?	O	_	o					¢	ü	Ô	ÿ	…

Ventura US (14J)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	‘	p			„	‰				
1			!	1	A	Q	a	q				“				
2			"	2	B	R	b	r				”				¶
3			#	3	C	S	c	s				°				†
4			$	4	D	T	d	t								‡
5			%	5	E	U	e	u								–
6			&	6	F	V	f	v								—
7			’	7	G	W	g	w								
8			(	8	H	X	h	x			©					
9			)	9	I	Y	i	y			®					
A			*	:	J	Z	j	z			™					
B			+	;	K	[	k	{								
C			,	<	L	\	l	|								•
D			-	=	M	]	m	}				§				
E			.	>	N	^	n	~								
F			/	?	O	_	o					¢				…

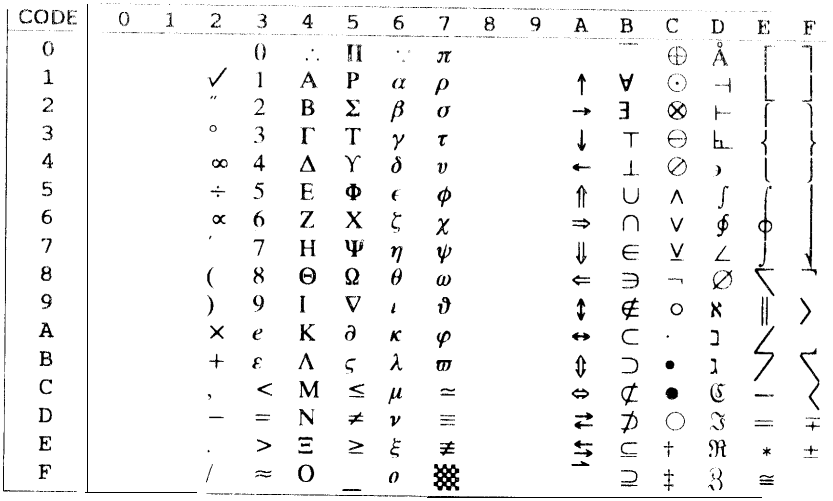
PS Math (5M)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	≅	Ш	‾	π				°	ℵ	/	◇	
1			!	1	A	Θ	α	θ			ϒ	±	ℑ	∨	⟨	⟩
2			∀	2	B	P	β	ρ			′	″	ℜ	®	®	∫
3			#	3	X	Σ	χ	σ			≤	≥	℘	©	©	⌠
4			∃	4	Δ	T	δ	τ			/	×	⊗	TM	TM	⎮
5			%	5	E	Y	ε	υ			∞	∝	⊕	∏	∑	⌡
6			&	6	Φ	ς	ϕ	ϖ			f	∂	∅	✓	⎧	⎪
7			∍	7	Γ	Ω	γ	ω			♣	•	∩	·	⎪	⎪
8			(	8	H	Ξ	η	ξ			♦	÷	∪	¬	⎪	⎪
9			)	9	I	Ψ	ι	ψ			♥	≠	⊃	∧	⎨	⎪
A			*	:	ϑ	Z	φ	ζ			♠	≡	⊇	∨	⎪	⎪
B			+	;	K	[	κ	{			↔	≈	⊄	⇔	⎪	⎪
C			,	<	Λ	∴	λ	|			←	…	⊂	⇐	⎩	⎪
D			−	=	M	]	μ	}			↑	|	⊆	⇑	⎪	⎪
E			.	>	N	⊥	ν	~			→	—	∈	⇒	⎪	⎪
F			/	?	O	_	o				↓	↵	∉	⇓	⎪	⎪

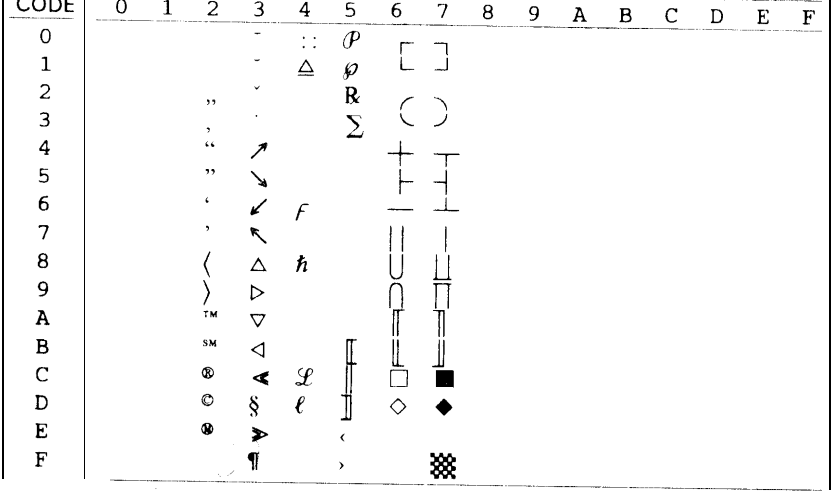
PS Text (10J)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p						—		
1			!	1	A	Q	a	q			¡	–	`		Æ	æ
2			"	2	B	R	b	r			¢	†				
3			#	3	C	S	c	s			£	‡	ˆ		ª	
4			$	4	D	T	d	t			/	·				
5			%	5	E	U	e	u			¥					ı
6			&	6	F	V	f	v			ƒ	¶				
7			’	7	G	W	g	w			§	•				
8			(	8	H	X	h	x			¤	‚	¨		Ł	ł
9			)	9	I	Y	i	y				„			Ø	ø
A			*	:	J	Z	j	z			“	”	°		Œ	œ
B			+	;	K	[	k	{			«	»	¸		º	ß
C			,	<	L	\	l	|		‹	…				
D			-	=	M	]	m	}			›	‰	˝			
E			.	>	N	^	n	~			fi					
F			/	?	O	_	o				fl	¿	˛			

Math-8 (8M)



Pi Font (15U)



Microsoft Publishing (6J)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0					2		‘					°			Ω	
1			1								’	•	`	`		
2			”			℞					”	•	´	´		
3			3			Š	%	š			^	•	ˆ	ˆ		
4			4			™					~	○	¯	¯		
5			5									○	ˉ	ˉ		1
6			7									◯	˘	˘	IJ	ij
7			’									▪	˙	˙	Ŀ	ŀ
8			9									■	¨	¨	Ł	ł
9			0			Ÿ	ˋ				fi	■				
A			8			Ž		ž			fl	▫	°	°		
B			†								ff	□	¸	¸		
C			’	„			ℓ				ffi	□				
D			–	‡	–						ffl	‰	˝	˝		
E			…		–	⁶		“		Pt	‹	◆	˛	˛		
F			/		Œ	=	œ			*f*	›	◇	ˇ	ˇ	’n	

Windows (9U)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p				°	À	Ð	à	ð
1			!	1	A	Q	a	q		‘	¡	±	Á	Ñ	á	ñ
2			"	2	B	R	b	r		’	¢	²	Â	Ò	â	ò
3			#	3	C	S	c	s			£	³	Ã	Ó	ã	ó
4			$	4	D	T	d	t			¤	´	Ä	Ô	ä	ô
5			%	5	E	U	e	u			¥	µ	Å	Õ	å	õ
6			&	6	F	V	f	v			¦	¶	Æ	Ö	æ	ö
7			’	7	G	W	g	w			§	·	Ç	×	ç	÷
8			(	8	H	X	h	x			¨	¸	È	Ø	è	ø
9			)	9	I	Y	i	y			©	¹	É	Ù	é	ù
A			*	:	J	Z	j	z			ª	º	Ê	Ú	ê	ú
B			+	;	K	[	k	{			«	»	Ë	Û	ë	û
C			,	<	L	\	l	|			¼	Ì	Ü	ì	ü
D			-	=	M	]	m	}			-	½	Í	Ý	í	ý
E			.	>	N	^	n	~			®	¾	Î	Þ	î	þ
F			/	?	O	_	o	▩			¯	¿	Ï	ß	ï	ÿ

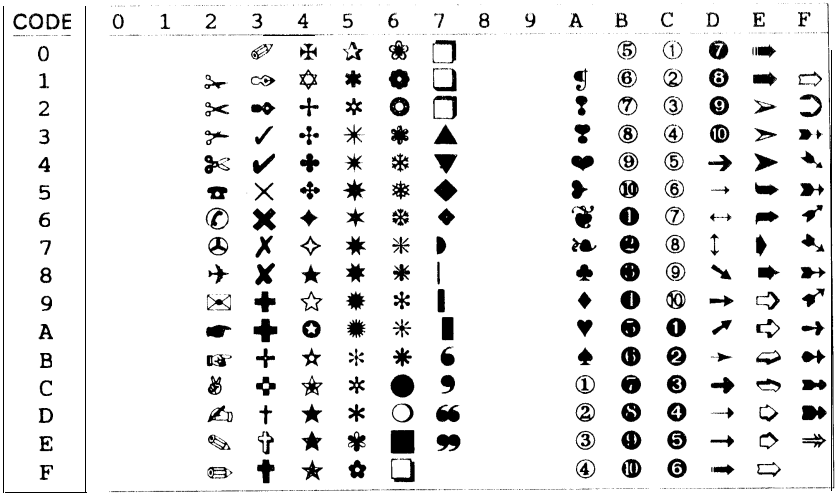
Desktop **(7J)**

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	‘	p				“	—	‹	a	´
1			!	1	A	Q	a	q			¶	”	±	›	o	`
2			"	2	B	R	b	r			§	μ	×	«	æ	^
3			#	3	C	S	c	s			†	‰	÷	»	Æ	¨
4			$	4	D	T	d	t			‡	•	°	,	ð	~
5			%	5	E	U	e	u			©	●	′	„	Đ	ˇ
6			&	6	F	V	f	v			®	○	″	·	ij	˘
7			’	7	G	W	g	w			™	○	¼	¡	IJ	˝
8			(	8	H	X	h	x			%	■	½	¿	ł	°
9			)	9	I	Y	i	y			¢	■	¾	Pt	Ł	·
A			*	:	J	Z	j	z			–	▫	1	ℓ	œ	¯
B			+	;	K	[	k	{			—	□	2	£	Œ	¸
C			,	<	L	\	l	|			…	'	3	¥	ø	˛
D			-	=	M	]	m	}			fi	¬	/	¤	Ø	
E			.	>	N	^	n	~			fl	¦		f	þ	ı
F			/	?	O	_	o	▩				=		ß	Þ	

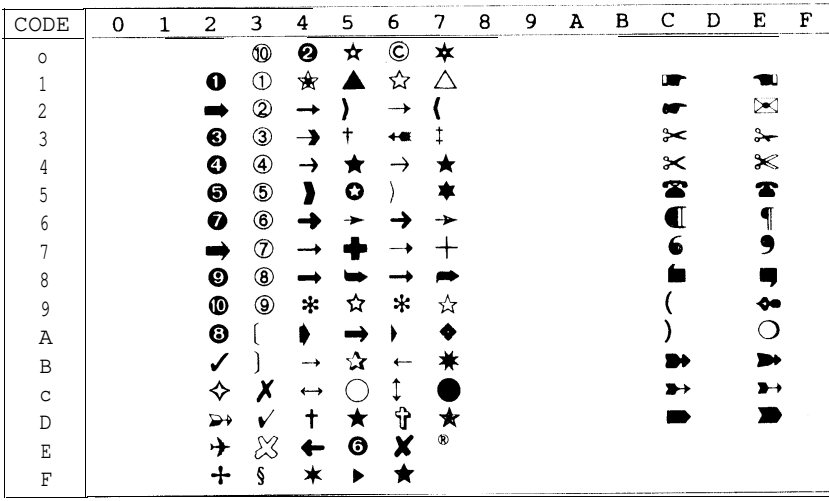
Ve Zapf Dingbats (9L)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				✐	✠	☆	❀	❒			➡	➢	❣	④	❥	→
1			✁	✑	✡	✱	❁	❑			↔	⑩	♣	①	↕	➔
2			✂	✒	✢	✲	❂	❒			➨	❶	⑧	❾	❼	➜
3			✃	✓	✣	✳	❃	▲			⇨	➭	❶	⑦	⇛	➝
4			✄	✔	✤	✴	❄	▼			⇨		①	❦		➘
5			☎	✕	✥	✵	❅	◆			⇦	❧	❢	②	⇨	➙
6			✆	✖	✦	✶	❆	❖			⇦	⑥	③	⑩	⇦	➤
7			✇	✗	✧	✷	✳	◗			⇨	⑤	④	⑥	⇨	➛
8			✈	✘	★	✸	✴	|			→	❹	❥	③		➞
9			✉	✚	☆	✹	✵	▌			→	⑨	♥	②	➘	⑦
A			☛	✚	✪	✺	✶	▌			➡	❾	❿	❶	❽	⑧
B			☞	✛	☆	✻	✷	❻			❷	❼	❷	❺	➵	❺
C			✌	✜	✯	✼	●	❟			❸	❽	❤	⑤	➴	➢
D			✍	†	★	✽	○	❝			➵	→	♦	♠	➶	❻
E			✎	✞	★	✾	■	❞			➴	❿	⑨	➶	➵	➵
F			✏	✝	★	✿	❑				➵	❻	❡	➲	❽	➡

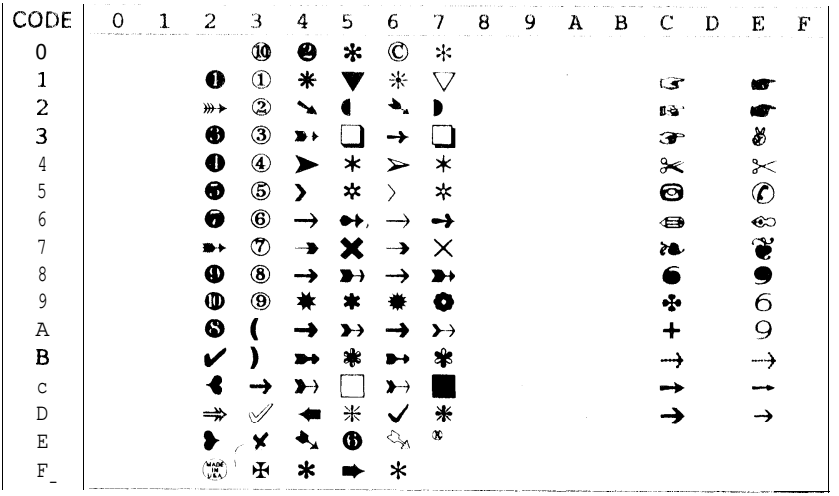
Ps Zapf Dingbats (10L)



Zd 100 (11L)



Zd 200 (12L)



CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				⑩	❷	✻	©	✳								
1			❶	①	✳	▼	✳	▽					☞		☛	
2			➳	②	➘	◖	➴	◗					☞		☛	
3			❸	③	➵	❑	→	❑					☞		✌	
4			❹	④	➤	✶	➢	✶					✂		✂	
5			❺	⑤	❯	✲	〉	✲					✆		✆	
6			❻	⑥	→	➧	→	➜					✍		✍	
7			➵	⑦	➔	✖	→	✕					❧		❦	
8			❽	⑧	→	➵	→	➵					●		●	
9			❿	⑨	✸	✱	✸	✪					✤		6	
A			❾	(	→	➳	→	➳					+		9	
B			✔	)	➵	❋	➵	❋					→		→	
C			➧	→	➳	☐	➳	■					→		→	
D			⇛	✓	⬅	✳	✓	✳					→		→	
E			➧	✘	➴	❻	✍	❀								
F_			MADE IN USA	✠	✱	➡	✳									

Zd 300 (13L)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				10	2	✳	@	✸								
1			1	1	❄	✦	❄	|					☛		☞	
2			⬅	2	♦	{	◇	}					☜		☞	
3			3	3	♠	✕	♤	✕					✓		✓	
4			4	4	⇨	✿	⇨	✲					✂		#	
5			5	5	{	✹	}	✳					☎		☏	
6			7	6	⇦	♥	⇨	♡					✎		✍	
7			←	7	⇨	▮	⇨	▌					❡		❡	
8			9	8	⇨	⬅	⇨	⇜					❝		❞	
9			10	9	✣	✤	✣	+					✣		❞	
A			8	(	⇨	⬅	⇦	⬅					✲		❞	
B			❣	)	⇦	☮	⇨	✪					➠		➡	
C			✡	//	⇨	◇	⇨	◆					←		←	
D			➲	?	✚	❀	✝	❄					⬅		⇦	
E			☆	✓	♣	6	♤	@								
F			❤	✳	✽	❃	✚									

HP EMULATION COMMAND SUMMARY

This section lists the printer commands supported by HP emulation mode. For more information on printer commands, see the Hewlett- Packard LaserJet III Printer Technical Reference Manual.

To use these commands, you have to make batch files and data files. Normally, only experienced users attempt to use these codes. However, you can get a rough idea about how to make batch and data files by looking at page 19 and the pages following that. Also, you will probably have to consult Hewlett Packard manuals and other software development materials to get the most out of these commands.

All commands closely emulate the HP LaserJet series III except for the following:

ESC &l#A
This can be used to select the following four paper sizes:

A4
Letter
Legal
Government Legal

This command overrides the PAGE SIZE setting (see page 28). Other paper sizes cannot be specified with this command.

ESC &l#H

You cannot use the ESC #H command to specify manual paper feeding. The values for # produce the effects listed in the following table.

#	This printer	HP LaserJet series III
0	Eject current page	Eject current page
1	Feed from standard paper cassette	Feed from cassette tray
2		Feed from manual feed slot
3		Ignore
4	Ignore	Ignore

ESC &l#P sets the page length and paper size. The paper sizes available with this command are the same as those available with ESC &l#A.

Printer commands arranged by topic

The HP printer commands supported in HP LaserJet Series III emulation are listed below.

Control codes

BS	Backspace
LF	Line feed
FF	Form feed
CR	Carriage return
SO	Shift out
SI	Shift in
ESC	Escape
HT	Horizontal tab
SP	Space

Orientation

ESC &1#O	Orientation

Font selection

Primary	Secondary	Symbol set
ESC(0A	ESC)0A	HP Math 7
ESC(0B	ESC)0B	HP Line Draw-7
ESC(0C	ESC)0C	HP Large Characters
ESC(0D	ESC)0D	ISO 60: Norwegian v1
ESC(1D	ESC)1D	ISO 61: Norwegian v2
ESC(0E	ESC)0E	HP Roman Expansion
ESC(0F	ESC)0F	ISO 4: United Kingdom
ESC(1F	ESC)1F	ISO 25: French
ESC(0G	ESC)0G	HP German
ESC(1G	ESC)1G	ISO 21: German
ESC(8G	ESC)8G	HP Greek8
ESC(0H	ESC)0H	Hebrew-7
ESC(8H	ESC)8H	Hebrew-8
ESC(0I	ESC)0I	ISO 15: Italian
ESC(6J	ESC)6J	Microsoft Publishing
ESC(7J	ESC)7J	Desk Top
ESC(8J	ESC)8J	Document
ESC(10J	ESC10J	PS Text
ESC(13J	ESC13J	Ventura International
ESC(14J	ESC14J	Ventura US
ESC(0K	ESC)OK	ISO 41: JIS ASCII
ESC(1K	ESC)1K	ISO 13: Katakana

ESC(2K	ESC)2K	ISO 57: Chinese
ESC(8K	ESC)8K	Kana-8
ESC(9K	ESC)9K	Korean-8
ESC(0L	ESC)0L	Line Draw-7
ESC(1L	ESC)1L	HP Block Characters
ESC(2L	ESC)2L	Tax Line Draw
ESC(8L	ESC)8L	Line Draw-8
ESC(9L	ESC)9L	Ventura ITC Zapf Dingbats
ESC(10L	ESC)10	L PS ITC Zapf Dingbats
ESC(11L	ESC)11L	ITC Zapf Dingbats Series 100
ESC(12L	ESC)12L	ITC Zapf Dingbats Series 200
ESC(13L	ESC)13L	ITC Zapf Dingbats Series 300
ESC(0M	ESC)0M	Math-7
ESC(1M	ESC)1M	Tech-7
ESC(5M	ESC)5	M PS Math
ESC(6M	ESC)6M	Ventura Math
ESC(8M	ESC)8M	Math-8
ESC(0N	ESC)0N	ECMA-94 Latin 1 (ISO 8859/1)
ESC(2N	ESC)2N	ECMA-94 Latin 2 (ISO 8859/2)
ESC(5N	ESC)5N	ECMA-128 Latin 1 (ISO 8859/9)
ESC(10N	ESC)10N	ECMA-113/88 Latin/Cyrillic (ISO 8859/5.2)
ESC(0O	ESC)0O	OCR A
ESC(1O	ESC)1O	OCR B
ESC(2O	ESC)2O	OCR M
ESC(0P	ESC)0P	APL (Typewriter Paired)
ESC(1P	ESC)1P	APL (Bit Paired)
ESC(0R	ESC)0R	Cyrillic ASCII (ECMA-113/96, ISO 8859/5)
ESC(1R	ESC)1R	Cyrillic
ESC(3R	ESC)3R	PC Cyrillic
ESC(0S	ESC)0S	ISO 11: Swedish for names
ESC(1S	ESC)1S	HP Spanish
ESC(3S	ESC)3S	ISO 17: Spanish
ESC(4S	ESC)4S	ISO 16: Portuguese
ESC(5S	ESC)5S	ISO 84: Portuguese
ESC(6S	ESC)6S	ISO 85: Spanish
ESC(7S	ESC)7S	HP European Spanish
ESC(8S	ESC)8S	HP Latin Spanish
ESC(16S	ESC)16S	HP-GL Download
ESC(17S	ESC)17S	HP-GL Drafting
ESC(18S	ESC)18S	HP-GL Special Symbols
ESC(0T	ESC)0T	Thai-8
ESC(8T	ESC)8T	Turkish-8
ESC(0U	ESC)0U	ISO 6: ASCII
ESC(1U	ESC)1U	Legal
ESC(2U	ESC)2U	ISO 2: International Reference Version

ESC(5U	ESC)5U	HPL Language Set
ESC(7U	ESC)7U	OEM-1
ESC(8U	ESC)8U	Roman-8
ESC(9U	ESC)9U	Windows
ESC(10U	ESC)10U	PC-8
ESC(11U	ESC)11U	PC-8 D/N (Danish/Norwegian)
ESC(12U	ESC)12U	PC-850
ESC(17U	ESC)17U	PC-852
ESC(15U	ESC)15U	Pi Font
ESC(8V	ESC)8V	Arabic-8
ESC(0Y	ESC)0Y	3 of 9 Barcode
ESC(1Y	ESC)1Y	Industrial 2 of 5 Barcode
ESC(2Y	ESC)2Y	Matrix 2 of 5 Barcode
ESC(4Y	ESC)4Y	Interleaved 2 of 5 Barcode
ESC(5Y	ESC)5Y	CODABAR Barcode
ESC(6Y	ESC)6Y	MSI/Plessey Barcode
ESC(7Y	ESC)7Y	Code 11 Barcode
ESC(8Y	ESC)8Y	UPC/EAN Barcode
ESC(15Y	ESC)15Y	USPS Zip
ESC(s#P	ESC)s#P	Spacing
ESC(s#H	ESC)s#H	Pitch (cpi)
ESC(s#V	ESC)s#V	Point size
ESC(s#S	ESC)s#S	Style
ESC(s#B	ESC)s#B	Weight
ESC(s#T	ESC)s#T	Typeface
ESC &k#S		Font pitch

Page length, page size, text length

ESC &l#P	Page length
ESC &l#A	Page size
ESC &l#F	Text length

Margins

ESC &l#E	Top margin
ESC &l#L	Set left margin
ESC &a#M	Set right margin
ESC 9	Clear side margins

Offset

ESC &l#U	Left offset registration
ESC &l#Z	Top offset registration

Vertical line spacing

ESC &l#C	Set vertical motion index
ESC &l#D	Set lines per inch

Half-line feed

ESC =	Half line feed

Specialized printer control

ESC E	Printer reset
ESC &l#X	Select number of copies
ESC %#X	Exit LaserJet mode

Miscellaneous

ESC &k#H	Horizontal motion index
ESC &k#G	Line termination
ESC &s#C	End of line wrap
ESC &l#H	Paper input control

Cursor positioning

ESC &a#C	Horizontal (columns)
ESC &a#R	Vertical (lines)
ESC &a#H	Horizontal (decipoints)
ESC &a#V	Vertical (decipoints)
ESC *p#X	Horizontal (dots)
ESC *p#Y	Vertical (dots)

Underline

ESC &d#D	Enable auto-underlining
ESC &d@	Disable auto-underlining

Display functions, transparent print data

ESC Y	Enable display functions
ESC Z	Disable display functions mode

Perforation skip mode

ESC &l#L	Perforation skip mode

Font management

ESC *c#D	Specify font ID
ESC *c#E	Specify character code
ESC *c#F	Font and character control
ESC *c#R	Specify symbol set ID
ESC *c#S	Symbol set control
ESC (f#W[data]	Define symbol set
ESC (s#W[data]	Download character
ESC)s#W[data]	Create font (font descriptor)
ESC (#X	Designate downloaded font (primary)
ESC)#X	Designate downloaded font (secondary)
ESC (3@	Font default (primary)
ESC)3@	Font default (secondary)

Macros

ESC &f#Y	Macro ID
ESC &f#X	Macro control

Push/Pop position

ESC &F#S	Push/Pop position

Raster graphics

ESC *t#R	Raster graphics resolution
ESC *r#F	Raster graphics presentation
ESC *r#A	Start raster graphics
ESC *b#Y	Raster Y offset
ESC *b#M	Set raster compression mode
ESC *b#W[data]	Transfer raster graphics
ESC *r#T	Raster graphics height
ESC *r#S	Raster graphics width
ESC *rB	End raster graphics version B
ESC *rC	End raster graphics version C

Advanced graphics

ESC *v#T	Select pattern
ESC *v#N	Select source transparency mode
ESC *v#O	Select pattern transparency mode
ESC *c#A	Horizontal rectangle size (dots)
ESC *c#B	Vertical rectangle size (decipoints)
ESC *c#H	Horizontal rectangle size (decipoints)
ESC *c#V	Vertical rectangle size (decipoints)
ESC *c#P	Print graphics
ESC *c#G	Specify graphic pattern

Vector graphics

ESC %#B	Enter GL/2 mode
ESC *c#K	Plot horizontal size
ESC *c#L	Plot vertical size
ESC *c#Q	User-defined pattern control
ESC *c#T	Set picture frame anchor point
ESC *c#W[data]	Define pattern
ESC *c#X	Picture frame horizontal size
ESC *c#Y	Picture frame vertical size
ESC *p#R	Set pattern reference point

GL/2 mode
Configuration and status group

IP	Input P1 and P2
IR	Input relative P1 and P2
SC	Scale
IW	Input window
RO	Rotate coordinate system
IN	Initialize
DF	Default values

Line and fill attributes group

LA	Line attributes	LT	Line type
UL	User defined line type	SP	Select pen
PW	Pen width	WU	Pen width unit selection
FT	Fill type	SV	Screened vectors
RF	Raster fill definition	AC	Anchor corner
SM	Symbol mode	TR	Transparency mode

Vector group

PD	Pen down	PU	Pen up
PA	Plot absolute	PR	Plot relative
AA	Arc absolute	AR	Arc relative
AT	Absolute arc three point	RT	Relative arc three point
CI	Circle	PE	Polyline encoded

Polygon group

EA	Edge rectangle absolute	ER	Edge rectangle relative
RA	Fill rectangle absolute	RR	Fill rectangle relative
EW	Edge wedge	WG	Fill wedge

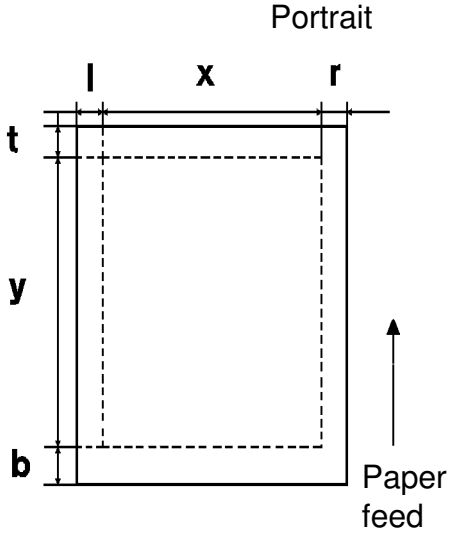
Your printer is able to emulate a selection of Epson LQ and FX printers. This means that you can use your printer with software that supports Epson LQ and FX printers.

OPERATING AS AN LQ OR FX PRINTER

Your printer's Epson emulation modes provide options not available with most LQ or FX printers, including control over most printer features and output quality using Selectype mode.

Printable Area

The size of the printable area in Epson emulation mode is shown here. The printable areas for various paper sizes are also shown.



Paper Size	l	x	r	t	y	b
A4	47	2386	47	47	3414	47
Letter		2456			3206	
Legal		2456			4106	

Units: Dots at 300 dpi

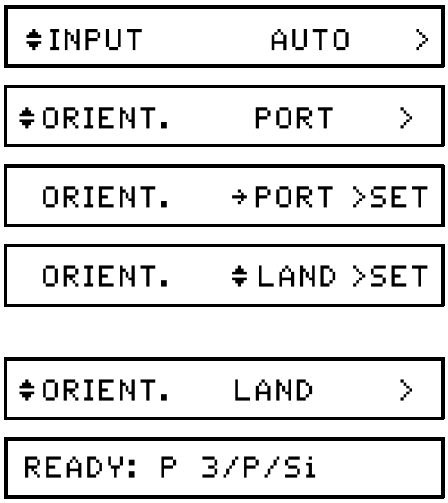
USING SELECTYPE TO ADJUST EPSON LQ AND FX EMULATION

ORIENT (Page Orientation)

This feature allows you to select the direction in which characters are printed on the page.

Available Options: PORT (portrait; vertical), LAND (landscape; horizontal)

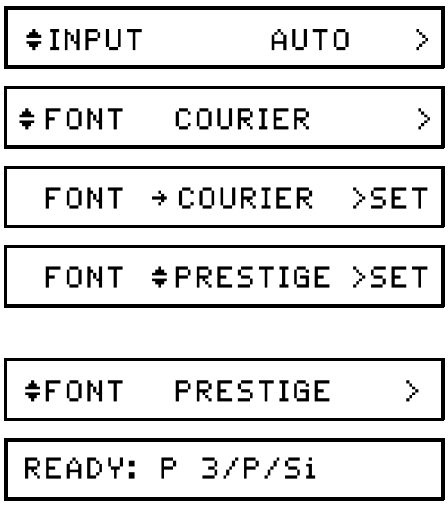
1. Enter Level 1 mode (see page 27).
2. Press ↑ or ↓ until ORIENT. is displayed.
3. To change the current setting: ➔
4. Press ↑ or ↓ until the required setting is displayed.
5. Store the displayed setting: ➔
6. ← twice to return to printer "Ready" mode.



FONT

Use this feature to select the font.
Available Options: Courier, Prestige, DL (downloaded)

1. Enter Level 1 mode (see page 27).
2. Press ↑ or ↓ until FONT is displayed.
3. To change the current setting: ➔
4. Press ↑ or ↓ until the required setting is displayed.
5. Store the displayed setting: ➔
6. ← twice to return to printer "Ready" mode.



After selecting the font, you can adjust the character spacing and font size with the PITCH and CONDENSED settings in the SUB CONFIG menu.

When the machine is in an Epson emulation mode, you can download fonts to the machine in the same manner as you would download to an Epson printer.

SUB CONFIG.

The SUB CONFIG. is a menu within Selectype Level 1. It contains these features.

- **PITCH:** Use this to select a character pitch of 10, 12, or 15 characters per inch (cpi), or proportional spacing (PROP). A setting of 10 provides more space between characters, and 15 provides less.

- **CONDENSED:** Use this to change the character spacing. Condensed printing is useful for spreadsheets and other applications where you need to fit a lot of information on each line. Fonts with a pitch of 15 cpi cannot be condensed.

- **L-MARGIN:** Use this to set the left margin. Margin units are determined by the current pitch (cpi) and the condensed setting (on or off). The factory setting is 0.

  If you select proportional, 10 cpi and condensed determine the margin units. If you change the setting of ORIENT, PAGE SIZE, or WIDE PAGE (when PAGE SIZE is set to A4 [8.3" x 11.7"]), the left margin defaults to 0.

- **R-MARGIN:** Use this to set the right margin. Margin units are determined by the current pitch (cpi) and the condensed setting (on or off). The factory setting is 80.

  If you select proportional, 10 cpi and condensed determine the margin units. If you change the setting of ORIENT, PAGE SIZE, or WIDE PAGE (when PAGE SIZE is set to A4 [8.3" x 11.7"]), the right margin defaults to the following setting.

Paper Size	Condensed	Portrait			Landscape		
		10 cpi	12 cpi	15 cpi	10 cpi	12 cpi	15 cpi
A4	OFF	77	93	116	111	134	167
	ON	133	155		191	223	
A4-80 col	OFF	80	96	120	111	134	
	ON	137	160		191	223	
Letter	OFF	80	96	120	105	126	157
	ON	137	160		180	210	
Legal	OFF	80	96	120	135	162	202
	ON	137	160		231	270	

- **FORM TOP:** Use this to specify the distance from the top of the sheet to the baseline of the first printable line. The factory setting is 0.5 inch [12.7 mm].
  Available Options: 0.5 to 1.5 inches [12.7 to 38.1 mm] in increments of 0.05 inch [0.127 mm].

- **TEXT:** Use this to set the page length. The unit of measurement for this setting is 1/6 inch [4.2 mm]. The factory setting is 66 (6 lines per inch, 2.4 lines per cm).

  If you change the ORIENT, PAGE SIZE, or FORM TOP settings, the form length setting automatically returns to the default setting for the paper size.

- **SKIPBOTTOM:** If you switch this feature ON, the printer inserts the number of line spaces specified by the ESC N (skip-over-perforation) command between the last line printed on the page and the first printable line on the next page. The total number of lines skipped equals the FORM TOP setting plus the amount of skip-over-perforation set with ESC N. Since most application programs insert their own top and bottom margins, use this feature only if your program does not provide them.

- **CGTABLE:** Use the character generator table option to select the graphics character table, the italics table, or the download table. The graphics table (PcUSA) contains graphics characters for printing lines, corners, and shaded areas; international characters; Greek characters; and mathematical symbols. Selecting the italics table defines the upper half of the character table as italic characters. The download table (DLoad) is not available when you are in FX emulation mode.
  Available Options: PcUSA, PcMulti, PcPort, PcCanF, PcNord, DLoad, ITALIC

- **COUNTRY:** Use this to select one of the 13 international symbol sets. See page C-6 for samples of the characters and symbols in each set.
  Available Options: USA, France, Germany, UK, Denmark, Sweden, Italy, Spain1, Japan, Norway, Denmk2, Spain2, LatinA

- **J-REPRINT:** Use this to reprint after a paper jam. When it is set to ON and a page jams in the printer, the page is reprinted after you clear the jam. If it is set to OFF, jammed pages are not reprinted automatically, but complex pages may print faster.

- **AUTO CR:** Use this automatic carriage return feature to perform a carriage-return line-feed (CR-LF) whenever the print position exceeds the right margin. If AUTO CR is OFF, the printer does not print characters beyond the right margin and it does not perform a linewrap until it receives a CR. Most application programs take care of this function, so there is normally no need to change this setting.

- **ZERO CHAR:** This option determines whether the printer prints a zero with a diagonal slash or a normal unslashed zero. This feature is useful when distinguishing between an upper case letter O and a zero when printing programming lists.

❒ **WIDE PAGE:** When this feature is ON, you can print up to 80 characters at 10 cpi across an A4 page. When it is OFF, you can print up to 77 characters at 10 cpi. The setting is only valid when PAGE SIZE is at A4. If you change the WIDE PAGE setting when another size is selected, L-MARGIN automatically defaults to 0 and R-MARGIN and TEXT LINES return to the default setting for the currently selected paper size.

❒ **B-IMAGE:** With B-IMAGE set to DARK or LIGHT, your printer can correctly emulate the graphics densities set with the printer commands. When you select DARK, the bit image density is high. When you select LIGHT, the bit image density is low.
Available Options: DARK, LIGHT, BCODE

The BCODE setting converts bar codes to bit images by automatically filling in any vertical gaps between dots. This produces unbroken vertical lines that can be scanned by a bar code reader.

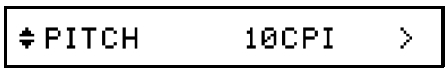
Note: This mode reduces the size of the image being printed and may cause some distortion when printing bit image graphics.

Example Procedure: Change the PITCH setting to 12 cpi.

1. Enter Level 1 mode (see page 27).

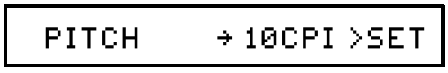
2. Press ↑ or ↓ until SUB CONFIG. is displayed.

3. →

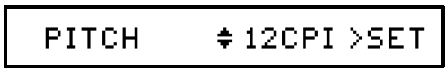


If PITCH is not displayed, press ↑ or ↓ until it is.

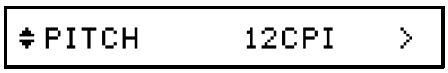
4. →



5. Press ↑ or ↓ until the required setting is displayed.

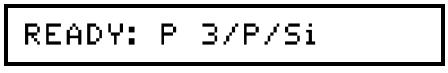


6. Store the displayed setting: →



7. ←

8. ← twice to return to printer "Ready" mode.



AVAILABLE FONTS AND SYMBOL SETS

This section describes the resident fonts and symbol sets available in LQ and FX emulation modes.

Resident Fonts

The printer offers a variety of resident fonts in the LQ and FX emulation modes. The following table lists the resident fonts available in LQ and FX emulation modes.

Font Name	Pitch (cpi)	Orientation
Courier	10	P/L
Courier bold	10	P/L
Courier	12	P/L
Courier bold	12	P/L
Line printer	16.66	P/L
Prestige	12	P
Prestige	20	P

P: Portrait, L: Landscape

Character Sets

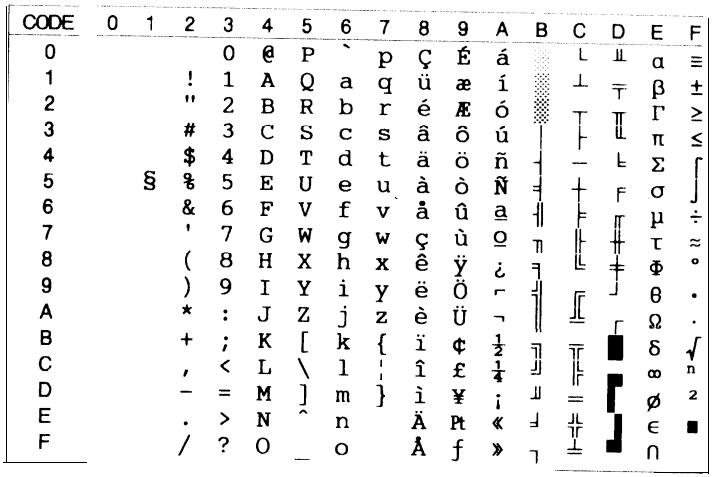
This section provides character tables for the character sets available in the LQ and FX emulation modes. The tables show both the characters and their hexadecimal values.

Epson Italic Character Table

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p				*0*	*@*	*P*	*`*	*p*
1			!	1	A	Q	a	q			*!*	*1*	*A*	*Q*	*a*	*q*
2			"	2	B	R	b	r			*"*	*2*	*B*	*R*	*b*	*r*
3			#	3	C	S	c	s			*#*	*3*	*C*	*S*	*c*	*s*
4			$	4	D	T	d	t			*$*	*4*	*D*	*T*	*d*	*t*
5			%	5	E	U	e	u			*%*	*5*	*E*	*U*	*e*	*u*
6			&	6	F	V	f	v			*&*	*6*	*F*	*V*	*f*	*v*
7			'	7	G	W	g	w			*'*	*7*	*G*	*W*	*g*	*w*
8			(	8	H	X	h	x			*(*	*8*	*H*	*X*	*h*	*x*
9			)	9	I	Y	i	y			*)*	*9*	*I*	*Y*	*i*	*y*
A			*	:	J	Z	j	z			*	*:*	*J*	*Z*	*j*	*z*
B			+	;	K	[	k	{			*+*	*;*	*K*	*[*	*k*	*{*
C			,	<	L	\	l	¦			*,*	*<*	*L*	**	*l*	*¦*
D			-	=	M	]	m	}			*-*	*=*	*M*	*]*	*m*	*}*
E			.	>	N	^	n	~			*.*	*>*	*N*	*^*	*n*	*~*
F			/	?	O	_	o				*/*	*?*	*O*	*_*	*o*	

Note: You do not need to select the italic character table to print italics. You can print italics when one of the other character tables is selected.

Pc USA



CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p	Ç	É	á	▒	└	╨	α	≡
1			!	1	A	Q	a	q	ü	æ	í		┴	╤	β	±
2			"	2	B	R	b	r	é	Æ	ó	▒	┬	╥	Γ	≥
3			#	3	C	S	c	s	â	ô	ú		├	╙	π	≤
4			$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
5		§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6			&	6	F	V	f	v	å	û	ª	╢	╞	╓	μ	÷
7			'	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8			(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9			)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	θ	•
A			*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B			+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
C			,	<	L	\	l	¦	î	£	¼	╝	╠	▐	∞	n
D			−	=	M	]	m	}	ì	¥	¡	╜	═	▌	ø	2
E			.	>	N	^	n		Ä	Pt	«	╛	╬	▄	∈	■
F			/	?	O	_	o		Å	ƒ	»	┐	╧	▀	∩	

Epson International Character Sets

	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
U.S.A	#	$	@	[	\	]	^	`	{	¦	}	~
France	#	$	à	°	ç	§	^	`	é	ù	è	¨
Germany	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
United Kingdom	£	$	@	[	\	]	^	`	{	¦	}	~
Denmark I	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy	#	$	@	°	\	é	^	ù	à	ò	è	ì
Spain I	Pt	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
Japan(English)	#	$	@	[	¥	]	^	`	{	¦	}	~
Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Denmark II	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Spain II	#	$	á	¡	Ñ	¿	é	`	í	ñ	ó	ú
Latin America	#	$	á	¡	Ñ	¿	é	ü	í	ñ	ó	ú

LQ AND FX EMULATION COMMAND SUMMARY

This section lists the control codes and ESC codes supported in the LQ and FX emulation modes. Some LQ and FX printer codes are not available, either because the functions are not required (such as draft printing) or are not possible because of the different technologies used in these printers.

To use the commands explained in this section, you have to make batch files and data files. Normally, only experienced users attempt to use these codes. However, you can get a rough idea about how to make batch and data files by looking at page 19 and the pages following that. Also, you will probably have to consult Epson manuals and other software development materials to get the most out of these commands.

The following commands are either not available or are ignored in LQ or FX emulation mode:

ESC <	Unidirectional mode (one line)
ESC 8	Disable paper end detector
ESC 9	Enable paper end detector
ESC U	Select print direction
ESC s	Set/cancel half-speed printing
ESC r	Select color printing
ESC i	Incremental view

The following commands are available in FX mode but not in LQ mode:

ESC 1	7/72-inch line feed
ESC ^	Select 9-pin graphics mode
ESC I	Select character code table

The printer commands listed below function in a slightly different way when used in LQ or FX emulation mode. Also, many of the commands that control the print position use approximations because of the difference in print density between the LQ and FX printers.

ESC G/ESC E
These commands produce identical bolding effects on your printer. On an actual LQ series printer, these two commands create slightly different effects and can be combined to produce darker characters.

SI/ESC SI
These commands print 10 cpi characters in a 16.66 cpi font, and 12 cpi characters in a 20 cpi font. On an actual LQ/FX series printer, these commands condense the font.

ESC x
This command is normally used to select between draft and LQ quality with an LQ or FX printer. However, this command has no effect on your printer's print quality since all characters are printed at 300 dpi (dots per inch).

ESC w

This command produces double-height characters but differs between LQ and FX emulation modes, as follows:

- ❒ LQ mode - If you send the ESC w command when the print position is set at the first line of the logical page, LQ printers print only the bottom half of the characters. Your printer prints the entire character.
- ❒ FX mode - When combining ESC w and ESC W to produce double-width, double-height characters, FX printers do not increase the stroke weight for vertical lines. Your printer in FX emulation does increase the vertical line width. Also, when this command is set with the print position set at the first line of the page, FX printers change the baseline position in order to print the entire character. For your printer, the baseline is not changed.

ESC &, ESC K, ESC L, ESC Y, ESC Z, ESC *, and ESC ^

This printer uses an image processing technique that emulates, as closely as possible, the image densities available on FX and LQ printers. Because of this process, the graphics commands listed above do not produce exactly the same output on the printer that they would on an FX or LQ printer.

ESC C, ESC C0 (zero)

When you send the ESC C or ESC C0 command to change the page length on the LQ or FX printers, you can print more than one page on the same sheet of paper. Because your printer processes data page-by-page, each page must be printed on a separate sheet of paper, so exact LQ or FX emulation cannot be provided. Problems will occur when the page length set with the ESC C or ESC C0 command differs from the actual page length.

DEL

The printer handles the DEL command as a BS command. Print position return is the same as for an FX or LQ printer, although your printer does not clear previous characters.

CAN

FX and LQ printers clear the data in their print buffer with this command; your printer prints the data.

ESC EM

Your printer supports 1, 2, and R for n.

Printer commands arranged by topic

The following section lists and describes all FX and LQ commands by topic.

Printer operation

ESC @	Initialize printer
DC 1	Select printer
DC 3	Deselect printer
ESC EM	Control paper loading/ejecting
BEL	Beeper

Data control

CR	Carriage return
CAN	Cancel line
DEL	Delete character
ESC =	Set MSB to 0
ESC >	Set MSB to 1
ESC #	Cancel MSB control

Vertical motion

FF	Form feed
ESC C	Set page length in lines
ESC C0	Set page length in inches
ESC EM	Control cut-sheet feeder
ESC N	Set skip-over-perforation
ESC O	Cancel skip-over-perforation
LF	Line feed
ESC 0	Select 1/8-inch line spacing
ESC 1	Select 7/72-inch line spacing (FX only)
ESC 2	Select 1/6-inch line spacing
ESC 3	Select n/180-inch line spacing (LQ), Select n/216-inch line spacing (FX)
ESC A	Select n/60-inch line spacing (LQ), Select n/72-inch line spacing (FX)
ESC J	Perform n/180-inch line spacing (LQ), Perform n/216-inch line spacing (FX)
ESC j	Perform n/180-inch reverse feed (LQ only)
VT	Tab vertically
ESC B	Set vertical tabs
ESC b	Set vertical tabs in channels
ESC /	Select vertical tab channel

Horizontal motion

Margins

ESC l	Set left margin
ESC Q	Set right margin
HT	Tab horizontally
ESC D	Set horizontal tabs

Print position

CR	Carriage return
BS	Backspace
ESC \	Set relative position
ESC $	Set absolute print position

Overall printing style

ESC x	Select LQ or draft
ESC k	Select typeface family
ESC !	Master select

Print size and character width

ESC g	Select 15 cpi
ESC P	Select 10 cpi
ESC M	Select 12 cpi
ESC p	Turn proportional mode on/off
SI	Select condensed mode
ESC SI	Select condensed mode
DC 2	Cancel condensed mode
SO	Select double-width mode (one line)
ESC SO	Select double-width mode (one line)
ESC W	Turn double-width mode on/off
DC 4	Cancel double-width mode (one line)
ESC w	Turn double-height printing on/off

Printer enhancement

ESC E	Select emphasized mode
ESC F	Cancel emphasized mode
ESC G	Select double-strike mode
ESC H	Cancel double-strike mode
ESC S	Select superscript/subscript mode
ESC T	Cancel superscript/subscript mode
ESC -	Turn underline mode on/off

Word processing

ESC a	Select justification
ESC SP	Set intercharacter space

Character tables

ESC t	Select character table
ESC 4	Select italic mode
ESC 5	Cancel italic mode
ESC R	Select an international character set
ESC I	Printable code area expansion (FX mode only)

User-defined characters

ESC &	Define user-defined characters
ESC :	Copy ROM to RAM
ESC 6	Printable code area expansion
ESC 7	Enable upper control codes

Graphics

ESC K	Select single-density graphics mode
ESC L	Select double-density graphics mode
ESC Y	Select high-speed double-density graphics mode
ESC Z	Select quadruple-density graphics mode
ESC *	Select graphics mode
ESC ?	Reassign graphics mode
ESC ^	Select 9-pin graphics mode (FX mode only)

FONT CARDS AND EMULATION MODE CARDS

The printer interface has one slot for an optional card; this can be either a font card or an emulation mode card.

Font Cards

You can use the following font cards with your printer.

Description	Notes
Bit map font card	Usable in Epson emulation mode
HP bit map font card	Usable in HP emulation mode
OCR/BAR-CODE font card	Usable in HP emulation mode
22 scalable fonts card	Usable in Epson emulation mode

You will be able to use any of those cards with your printer. The documentation supplied with each font card will explain which fonts and symbol sets the font card provides.

Note:
- ❒ Some of the fonts on the cards may be duplicated by the resident fonts in the printer. See Appendix B and C for lists of the resident fonts.
- ❒ Each font card can only be used with a certain emulation mode. The font card manual will tell you which emulation mode you need to use. To change emulation mode, use the MODE ASSIGN routine on page 18.

Emulation Mode Cards

This printer can use the Epson GL Identity card and a PostScript card.

- ❒ The Epson GL card adds the Epson GL mode to your list of possible emulation modes. Epson GL mode emulates the HP7475A/7440A plotter.
- ❒ The PostScript card adds Adobe PostScript (PS) mode to your list of possible emulation modes, and allows you to use your printer as a PostScript printer when you are using an IBM PC or compatible computer. Contact the dealer who sold you this printer to make sure that you get the correct PostScript card.

Caring for Cards

Observe the following precautions.

- ❒ Do not drop, crush, or bend cards. The card's natural curvature does not affect its operation, so do not try to straighten a card by bending it.
- ❒ Avoid touching the small gold contacts on the card's edge.
- ❒ If the card gets dirty, clean the connectors by wiping the edge with a clean tissue. Do not use water, alcohol, or other solvents.
- ❒ Keep the cards in their cases and anti-static bags when you are not using them.
- ❒ Do not store cards in direct sunlight or near a source of heat. Font cards can withstand temperatures ranging from -30 to 65 °C (-20 to 150 °F), and can tolerate up to 90% humidity.
- ❒ Be careful when you insert and remove a card. You can damage it by attempting to insert it the wrong way or by using too much force. Follow the procedures on page 11 when inserting or removing a card.

Using Font Cards

- Selecting a font with your application software -

When the printer is in 3/P/Si (HP LaserJet) mode, you can use your application software to select the fonts you wish to use. First, be sure to select HP LaserJet IIIP or a similar printer from the program's installation or printer selection menu. For a list of the printer types that you can specify with your software, see pages 17 and 18. After you set up your application software, you can specify the fonts you need to use from within the program.

If your program does not provide commands that allow you to select the font you need, you can use the FONT feature (see pages B-5 and C-2) or you can use printer command sequences (see pages B-21 and C-8).

- Selecting a font with the Selectype FONT procedure -

Using Selectype, you can only select one font for the entire document, whereas application packages often allow you to select more than one font within the same document.

Only those fonts designed for the currently selected orientation (portrait or landscape) will appear on the display.

You can use the SAVE MACRO routine to store the font setting if you wish to have a font from a font card as the default font.

When the printer is in 3/P/Si mode:

- ❒ The FONT procedure displays the currently selected font source (RD [resident], A [card slot], C [cartridge slot], or DL [downloaded]). To select the font card slot, select font source A. Then select the required font number.
- ❒ The font that you want may not be available if it does not contain the currently selected symbol set. For best results, select the appropriate symbol set with the SYMSET routine (see page B-7), then choose the font.

When the printer is in LQ or FX mode:

- ❒ You do not need to specify the font source. The fonts on the card that are available will appear on the display along with the resident fonts.

- Using a font card and a font cartridge at the same time -

This will give you a wider range of fonts in 3/P/Si mode. The printer adjusts the font numbers in the cartridge by adding them to the total number of fonts on the card in the card slot. Then you can select from the full range of fonts as if you had a single font card, with the fonts numbered from 0 up to the total number of fonts contained on both the card and the cartridge.

For example, if the fonts on the font card are numbered from 0 to 4 and the fonts in the font cartridge are also numbered from 0 to 4, the fonts on the card will be numbered from 0 to 4, and the numbers of fonts on the cartridge will start from 5. All these fonts will appear on the A source in the FONT procedure. The FONT procedure for 3/P/Si mode is on page B-5.

Using Emulation Mode Cards

- PostScript Card -

The PostScript card adds Adobe PostScript (PS) mode to your list of possible emulation modes, and allows you to use your printer as a PostScript printer. Observe the following guidelines when using the PostScript card.

- ❒ You must allocate at least 1.5 megabytes (MB) of RAM for the channel that will use PostScript mode. This means that you will have to add at least 0.5 MB of RAM to your printer before you can use PostScript mode.
- ❒ You can only select PostScript for one channel at a time (either the serial or the parallel channel).
- ❒ When you are using Legal-sized paper, the printable area may be smaller than you expect. To overcome this problem, decrease the RX-BUFFER SIZE setting, or increase the available RAM.
- ❒ If you set MODE ASSIGN to one of the IES settings (see the separate manual for the PostScript card), be sure to turn off the start page printing feature in PostScript. If both the automatic emulation switching feature and the start page printing feature are on, the printer prints the start page each time it switches from 3/P/Si mode to PostScript mode.

- Epson GL Card -

The Epson GL card adds the Epson GL mode to your list of possible emulation modes. Epson GL mode emulates the HP7475A/7440A plotter.

Observe the following guidelines when using the optional Epson GL card:

- ❒ You must allocate at least 1.5 megabytes (MB) of RAM for the channel that will use Epson GL mode. This means that you will have to add at least 0.5 MB of RAM to your printer before you can use GL mode.
- ❒ If you are using GL mode on the serial (S) channel with the CH feature set to AUTO-SENSE: a) The power-on default channel becomes the serial channel, b) The serial channel cannot receive any data while another channel is receiving data, c) You can only select the serial channel when the ◇ indicator is off.

Recovering from a Card Error

When the display shows one of the following error messages, a card error has occurred: REINSERT CARD, ILLEGAL CARD #x, REMOVE CARD, CARDMEMORY OVERFLOW, INSUFF.MEMORY

This type of error occurs if you insert or remove a font card when the printer is on line or when the printer's memory contains data. You cannot use the font card or print anything until you correct the error. See the Error Message section starting on page 45 for how to deal with these errors.

FONT CARTRIDGES

The printer interface has one slot for an optional cartridge.

Available Font Cartridges

While the printer is in 3/P/Si (HP LaserJet) emulation mode, a wide range of font cartridges can be used to supplement the printer's resident fonts. The manual for each cartridge contains samples of the fonts and symbol sets provided.

Each cartridge contains several fonts. Some of the fonts on these cartridges may be duplicates of resident fonts in the printer.

You can use the font cartridges shown in the table on the following page.

Maker	Cartridge Number	Cartridge
Hewlett Packard	92286A	Courier 1
	92286B	Tms Proportional 1
	92286C	International 1
	92286D	Prestige Elite
	92286E	Letter Gothic
	92286F	Tms Proportional 2
	92286G	Legal Elite
	92286H	Legal Courier
	92286J	Math Elite
	92286K	Math TmsRmn
	92286L	Courier P&L
	92286M	Prestige Elite P&L
	92286N	Letter Gothic P&L
	92286P	TmsRmn P&L
	92286Q	Memo1
	92286R	Presentations 1
	92286T	Tax 1
	92286U	Forms Portrait
	92286V	Forms Landscape
	92286W	Bar Code 3-of-9/OCR-A
	92286X	EAN/UPC/OCR-B
	92286Y	PC Courier 1
	92286Z	Microsoft 1A
	92290S1	Courier Document 1
	92290S2	TmsRmn/Helv Report 1
	92286PC	ProCollection
	C2055A	#C01 Great Start
	C2053A	#C01 WordPerfect
	C2053A	#C02 Microsoft
	C2053A	#C03 Polished Worksheets
	C2053A	#C04 Persuasive Presentations
	C2053A	#C05 Forms Etc
	C2053A	#C06 Bar Codes & More
	C2053A	#C07 TextEquations
	C2053A	#C08 Global Text
Anacom General Corporation		Alfajet MX-1-"MAXI-ONE"
		Alfajet PC-"MAXI-RPO"
Computer Peripherals, Inc.		JetFont SuperSet
		JetFont 12/30
		JetFont 4-in-1
		JetFont SuperSet International

Maker	Cartridge Number	Cartridge
Everex Systems, Inc.		HardFont B Cartridge
		HardFont F Cartridge
		HardFont T Cartridge
		HardFont Z Cartridge
		HardFont LGL Cartridge
		HardFont SST Cartridge SST
		HardFont BST Cartridge
		HardFont All-in-1 Cartridge
		HardFont A-TO-Z Cartridge
IQ Engineering		Super Cartridge 1
		Super Cartridge 2
		Super Cartridge 2L
		Super Cartridge LC
		Super Cartridge 2WP
Pacific Data Products, Inc.		25 in One! Original Version
		25 in One! 172
		Headlines in a Cartridge
UDP Data Products, Inc.		DP1-TmsRmn
		DP2-Helv
		65-in-One!
Intercon Associates, Inc.		PHont+
		ProllP

To install or remove a font cartridge, see page 12.

Selecting a font from a cartridge with your application program

When the printer is in HP emulation mode, you can use your application software to select fonts from the cartridge. First, be sure that you have selected HP LaserJet III or a similar printer from the program's installation or printer selection menu. For a list of the printer types that you can specify with your software, see page 17. After you set up your application software, you can specify the fonts you need to use from within the program.

If your program does not provide commands that allow you to select the font you need, you can use the FONT feature (see pages B-5 and C-2) or you can use printer command sequences (see pages B-21 and C-8).

Recovering from a cartridge error

When the display shows one of the following error messages, a cartridge error has occurred: REINSERT CARD, ILLEGAL CARD #x, REMOVE CARD

See the Error Message section starting on page 45 for how to deal with these errors.

APPENDIX E. LIST OF FEATURES

The following tables show the features available in Level 1 and Level 2 of printer setup mode (Selectype mode). The possible settings, and the factory settings are also shown.

Level 1

Feature			Factory Setting
INPUT	AUTO STD		AUTO
PAGE SIZE	A4 LT LG GLG		LT
COPIES	1 to 999		1 copy
ORIENT	Depends on the emulation mode; see the tables at the end of the Appendix.		
FONT			
STATUS SHEET			
FONT SAMPLE			
SUB CONFIG	Depends on the emulation mode; see the tables at the end of the Appendix.		
SYSTEM CONFIG	FULL PRINT	0 to 62, depending on the amount of memory installed	0
	T-OFFSET	-64 to +63	0
	L-OFFSET	-64 to +63	0
	MEMORY LEFT		
	LOAD MACRO	0 to 4	0
	SAVE MACRO	1 to 4	1
	DELETE MACRO	1 to 4	1
	POWER ON MACRO	0 to 4	0

Level 2

Feature			Factory Setting
TEST PRINT	PATTERN 1 PATTERN 2		1
MODE ASSIGN	3/P/Si LQ FX (Epson GL)		3/P/Si
I/F CONFIG	PARALLEL	SLCTIN (Off/On)	Off
		AUTOFEED (Off/On)	Off
		BUSY DELAY (0, ±5, MIN)	0
	SERIAL	WORD LENGTH	8
		BAUD RATE	9600
		PARITY	None
		STOP BIT	2
		DTR	On
		XON/XOFF	On
		ENQ/ACK	Off
		DSR	Off
		CTS	Off
RX-BUFFER SIZE	Depends on your printer memory capacity.		5 K
CH	AUTOSENSE P AUTOSENSE S INDIVIDUAL		AUTOSENSE P
CH TIMEOUT			60
AUTO CONT.			Off
P-CONFIG. SAVE			
FACTORY RESET			
VERSION	C-ROM FONT		
PAGE COUNTER	PAGE COUNTER PCU COUNTER		

3/P/Si Emulation Mode

Feature			Factory Setting
ORIENT	PORT LAND R-PORT R-LAND		PORT
FONT	RD (Resident) A (Card) C (Cartridge) DL (Downloaded)		RD; 0
SUB CONFIG	FORM	0 to 128	64
	SYMSET	Roman-8 IBM US IBM DN ECM94-1 IRV French UK Chinese ANSI AS Norweg1 Swedish Norweg2 Swedis2 French2 JIS ASC IBM Por Italian IBM Spa Portugu HP Germ Spanish HP Span German Roman E Legal PcMulti VeInter PsText Ve US Windows MsPubli VeMath DeskTop Math-8 PiFont VeZapfD PsZapfD Zd100 Zd200 Zd300 PsMath	Roman-8

Epson LQ or FX Emulation Mode

Feature			Factory Setting
ORIENT	PORT LAND		PORT
FONT	Courier Prestige (OCR-B) (OCR-A) DL (Downloaded)		Courier
SUB CONFIG	PITCH	10 12 15 PROP	10 cpi
	CONDENSED	On/Off	Off
	L-MARGIN	From 0 upwards	0
	R-MARGIN	From 1 upwards	80
	FORM TOP	0.5 to 1.5	0.5
	TEXT	From 1 upwards	66
	SKIP BOTTOM	On/Off	Off
	CGTABLE	Italic PcUSA PcMult PcPort PcCanF PcNord DLoad	PcUSA
	COUNTRY	USA France German UK Denmark Sweden Italy Spain1 Japan Norway Demk2 Spain2 LatinA	USA
	J-REPRINT	On/Off	Off
	AUTO CR	On/Off	On
	ZERO CHAR	Slashed/Unslashed	Unslashed
	WIDE PAGE	On/Off	On
	B-IMAGE	DARK LIGHT BCODE	DARK

APPENDIX F. CONNECTOR PIN CONFIGURATION

The following tables show the signal names that are present at the parallel and serial sockets on your printer.

If you are having trouble selecting a cable that will work with your computer:

- ❒ Show these tables to your computer hardware dealer.
- ❒ Check the pin assignments of your computer's printer port (parallel or serial, depending which one you are having problems with), and show that to your hardware dealer as well.

In most circumstances, a normal cable will work.

Parallel Interface

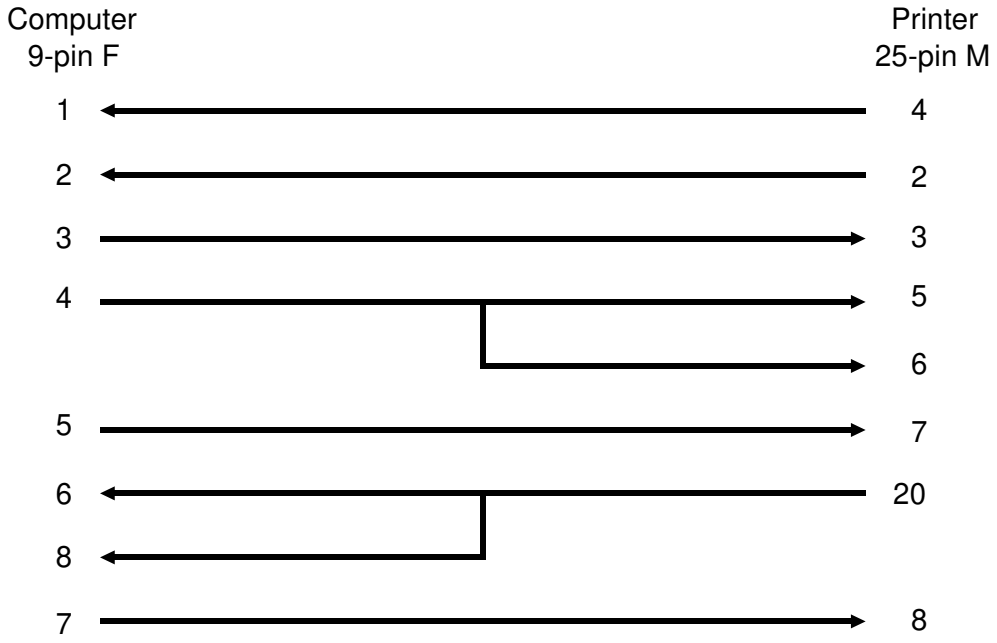
Pin Number	Signal Name	Pin Number	Signal Name
1	STROBE	19	GND
2	DATA1	20	
3	DATA2	21	
4	DATA3	22	
5	DATA4	23	
6	DATA5	24	
7	DATA6	25	
8	DATA7	26	
9	DATA8	27	
10	ACKNLG	28	
11	BUSY	29	
12	PE	30	
13	SLCTOUT	31	INIT
14	AUTOFEED	32	ERROR
15	--	33	GND
16	GND	34	--
17	CHASSIS GND	35	+5V
18	--	36	SLCTIN

Serial Interface

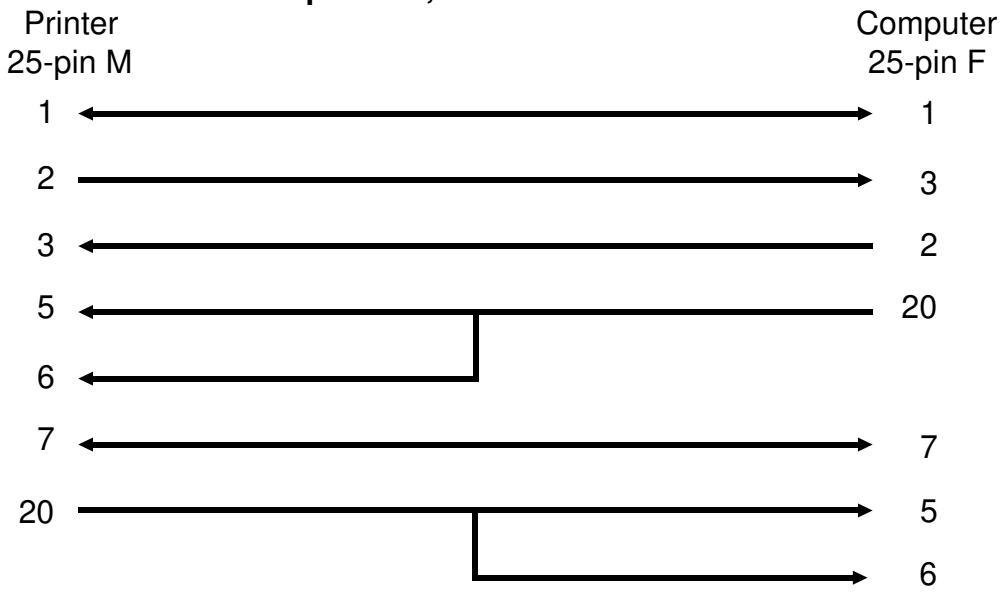
Pin Number	Signal Name	Pin Number	Signal Name
1	FG	5	CTS
2	TXD	6	DSR
3	RXD	7	SG
4	RTS	20	DTR

The following page contains diagrams of the serial interface cable pin assignments for two types of computer.

Pin assignments for typical ATs and compatibles



Pin assignments for typical PC/XTs and compatibles, and PS/2 machines



APPENDIX G. STATUS SHEET

The following is an example of a status sheet printout.

STATUS SHEET

Printer Configuration

Installed Memory	: **1.0 Mbytes**	Controller Version	: **26.22**
CH Mode	: **AUTOSENSE**	Font Version	: **06.03**
CH Time Out	: **60**	Auto Continue	: **OFF**
Mode Assign P	: **3/P/Si**	Standby	: **DISABLE**
S	: **3/P/Si**		
O	: **3/P/Si**		
		Total Printed Count	: **328**
		PCU Printed Count	: **295**

I/F : **PARALLEL**

PARALLEL (CH P)

SLCTIN	: **OFF**	AUTOFEED	: **OFF**	BUSY Delay (µs)	: **0**

SERIAL (CH S) : **RS232C**

Word Length(bit)	: **8**	Baudrate (bps)	: **9600**	Parity	: **NONE**
Stop Bit	: **2**	DTR	: **ON**	XON/XOFF	: **ON**
DSR	: **OFF**	CTS	: **OFF**	ENQ/ACK	: **OFF**

Receive Buffer : **5 Kbytes**

Mode Configuration

CH	: **P**				
Mode	: **3/P/Si**			Version	: **22.45**
Input Tray	: **AUTO**	Font	: **RD-0**	Page Size	: **A4**
Copies	: **1**	Orientation	: **PORT**		

Sub Configuration

Form Length	: **64**	Symbol Set	: **Roman-8**

System Configuration

Top Offset	: **0**	Left Offset	: **0**
Full Print	: **0**	Memory Left	: **805Kbytes**
Load Macro	: **0**	Power On Macro	: **0**

GLOSSARY

application program
Any software designed to carry out a particular job. For example, desktop publishing packages and word processors are application programs.

ASCII
American Standard Code for Information Exchange. A standardized way of assigning numerical codes to characters and control codes. The system is widely used by makers of computers, printers, and software.

auto line feed
When this feature is enabled, each carriage return code (CR) is automatically accompanied by a line feed (LF) code.

baud rate
A measure of the speed of data transmission over the serial channel between the computer and the printer.

binary
See "number systems".

bit
A binary digit (0 or 1), which is the smallest unit of information used by a printer or computer. Also see "number systems".

bit image graphics
Graphics made up of patterns of dots. Also called dot image graphics or raster graphics.

bitmap font
A font whose attributes (such as size and weight) cannot be changed. Compare with "outline font".

bold
A print enhancement that produces darker than normal characters and is typically used to add emphasis to a document. Bold is also available as an optional font attribute for many fonts. Also see "weight".

buffer
See "memory".

byte
A unit of information consisting of 8 bits. A byte usually corresponds to one character or code.

cache
The area of memory that stores internally generated fonts.

channel
The connection between the printer and the computer. A parallel channel transmits data one character code at a time, and a serial channel transmits data one bit at a time. A channel may sometimes be referred to as an "interface".

character set
A collection of letters, numbers, and symbols that provides you with the characters used in a particular language.

characters per inch (cpi)
A measure of the size of fixed-pitch text characters.

control codes
Special codes used to control printer functions such as sounding the beeper or performing a carriage return or line feed.

cpi
See "characters per inch".

data dump mode
See "hex dump mode".

decimal
See "number systems".

default
A value or setting that takes effect when the printer is turned on, reset, or initialized.

dot graphics
See "bit image graphics".

download
A way of transferring information from the computer to the printer.

download font
A font that is loaded into the printer’s memory from an outside source such as a computer.

dpi
Dots per inch. This is a measure of printer resolution.

driver
The part of an application program that converts commands from the program into commands that can be used by the printer. Also known as the printer driver.

EEPROM
Electrically Erasable Programmable Read Only Memory. The portion of the printer’s memory holding Selectype’s default settings while the power is switched off. It may be erased and reprogrammed, enabling you to change the default settings.

emulation mode
A set of operating commands that determines how data sent from the computer is interpreted by the printer. Emulation modes allow printers to behave in the same way as well known families of printers such as HP LaserJet or Epson LQ/FX laser printers.

Epson Extended Graphics
A symbol set containing international accented characters, Greek characters, and character graphics for printing lines, corners, and shaded areas.

ESC (escape) code
A special control code used to begin most printer commands.

fixed pitch
Refers to the character spacing of a font in which the width is the same for all characters, as distinguished from proportional spacing. For fixed pitch fonts, narrow characters such as lower case "i" take up as much space as wider characters such as upper case W.

font
The complete character set of a given design and size. A font is specified by the following parameters: orientation, symbol set, spacing, pitch, point size, typeface, style, and weight.

font caching
A feature which keeps the most frequently used characters in the printer's memory.

graphics driver
A part of an applications program that allows a computer to produce graphic images on a particular type of printer.

hexadecimal (hex)
See "number systems".

hex dump mode
A printing mode that can be used to print out the exact codes that reach the printer from your computer. This mode can be used by experienced users as a troubleshooting tool.

initialization
Returns the printer to its default settings.

input buffer
A portion of RAM used as a temporary holding area for data received from the computer until it is printed. Also known as the printer memory.

international characters
Accented letters, symbols, and other characters that are used in a particular country.

italic
A typestyle in which the characters are slanted. This sentence is in italics. This is also sometimes called "oblique".

landscape
Printing that is oriented sideways on the page. This orientation gives you a page that is wider than it is high. This style is useful for printing spreadsheets.

LCD
Liquid Crystal Display. The screen on the operation panel that displays the printer's current status or available options or settings.

line space
The distance between lines of text.

memory
The part of the printer's electronics that is used to store information. Some information is fixed in the memory, and is used to control how the printer operates. Information that is sent to the printer from the computer (such as data, download fonts, and graphics) is stored temporarily until it is printed out. See also "EEPROM", "RAM", and "ROM".

nonvolatile memory
The portion of the printer's memory that is not lost when you turn off the printer. The ROM portion of nonvolatile memory is permanent. The EEPROM portion is permanent until you reprogram it (for example, using Selectype).

number systems
Three number systems are commonly used.

- **decimal** is base 10 and uses the familiar digits 0 to 9.
- **hexadecimal (hex)** is base 16, and uses characters 0 to 9 and letters A to F. Hex is frequently used by programmers. Any decimal number between 0 and 255 can be expressed by a two-digit hexadecimal number.
- **binary** is base 2, and uses only the digits 0 and 1. The components of computer systems converse with each other in binary form using electrical signals that are either on or off. A binary digit is often called a bit; any decimal number between 0 and 255 can be expressed by an eight-digit binary number.

oblique
Refers to a type style in which upright characters have been slanted. This is often called "italic".

off line
When the printer is off line, it cannot communicate with the computer.

on line
When the printer is on line, it can communicate with the computer.

orientation
Refers to the direction in which characters are printed on a page. This direction is either portrait (text printed across the width of the page) or landscape (text printed along the length of a page).

outline font
A font defined by mathematical formulas. Outline fonts allow certain attributes, such as size and orientation, to be changed. This is also called a "scalable font".

parallel channel
See "channel".

parity
A method of checking the reliability of data transmission between the computer and the printer.

pitch
A measure of character width. Characters can be fixed pitch (the width is the same for all characters) or proportionally spaced (varying width). Pitch is a measure of the number of characters per inch (cpi) for fixed pitch fonts.

point size
The height of a particular font as measured from the top of the tallest character to the bottom of the lowest. A point is a typographic unit of measure equivalent to 1/72 inch.

portrait
Printing that is oriented upright on the page. This is the normal way to print letters or documents. Compare with "landscape".

printer driver
See "driver".

proportional spacing
Printing in which character width varies from character to character. For example, a capital "W" takes up more space than a small "i". The result looks more like a typeset book than a typewritten draft.

RAM
Random Access Memory. The portion of the printer’s memory that is used as an input buffer and for storing user-defined characters, downloaded fonts, and graphic images. Information stored in RAM is volatile, and is lost if the power supply is interrupted.

reset
This returns a printer to its default settings. The printer is reset if it is switched off and on.

resident fonts
These fonts are programmed into the printer's software and are available immediately when the printer is switched on. Each emulation mode has a different set of resident fonts.

ROM
Read Only Memory. The portion of the printer's memory that is permanent. Information stored in ROM is used to control how the printer operates. Resident fonts are also stored in ROM.

serial channel
See "channel".

style
Refers to whether or not a character is slanted. The two styles are upright and italic (oblique).

symbol set
A collection of symbols (letters, numbers, and special characters) used by a font. Symbols are assigned to specific codes in a character table.

typeface
A set of characters of a single design in which the characters share common features such as body shape. The typeface is given a name such as Courier. A typeface can have many different fonts (such as 10 point regular, 10 point bold, and so on).

weight
The boldness or thickness of a character. Weight is one of the defining characteristics of a font.

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