PRINTER INTERFACE
TYPE 200

SERVICE MANUAL

May 10th, 1996

Subject to change.

PRINTER INTERFACE MODULE
FAX770 / 790

SERVICE MANUAL

May 10th, 1996

Subject to change.

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1. OVERALL INFORMATION

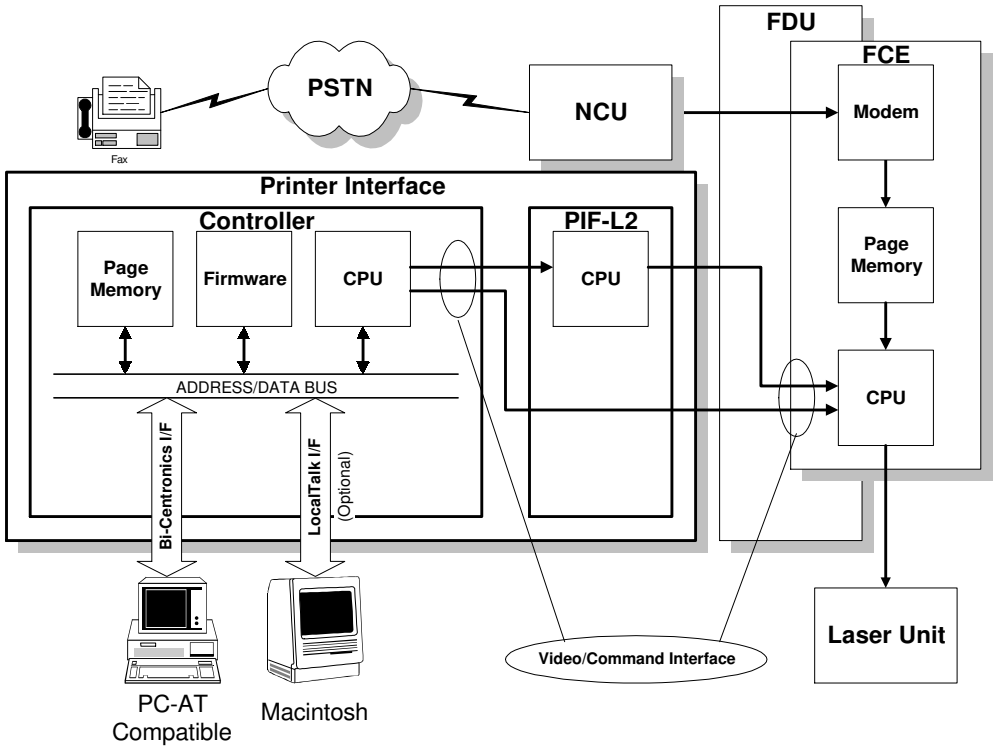
1.1. CONTROLLER SPECIFICATIONS

Item	Specifications
Resolution	300 x 300 dpi
RAM Capacity	1.0 MB (Standard) Upgradable to 2, 4, 8, 16, or 32 MB
Emulation	**Standard:** HP LaserJet 4 emulation (LJ4 mode) HP GL/2 emulation (EPSON GL/2 mode) **Optional:** PostScript Level 2
Resident Fonts	22 scalable fonts and 1 bitmap fonts (Refer to the operator's manual for more details.)
Paper Size **Note:** All the acceptable sizes must be in portrait orientation.	A4 A5 B5 LT (Letter) HLT (Half letter) LGL (Legal) GLT (Government letter) GLG (Government legal) EXE (Executive) F4 MON (Monarch) C10 (Commercial 10) DL C5 IB5 (International B5) C6
Host Interface	**Standard:** Bi-Centronics parallel interface x 1 **Optional:** LocalTalk Interface x 1

1.2. ENGINE SPECIFICATIONS

Item	Specifications
Resolution	300 x 300 dpi
Print Speed (Engine Speed)	Up to 10 ppm (Letter or A4)
Warm-up Time	20 seconds or less at normal temperature
Paper Size	The available paper sizes are not the same as those available with the controller. They depend on the machine's hardware specifications. Refer to the operator's manual for details.

1.3. BLOCK DIAGRAM AND DATA PATH



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The printer interface unit consists of a controller board and an interface board (PIF-L2).

The controller has a CPU, a ROM for the firmware, a page memory, and up to two host interfaces (a standard Bi-Centronics ™ interface and an optional LocalTalk ™ interface). Refer to the controller specifications for details.

The PIF-L2 also has a cpu to emulate the controller commands and display text on the fax machine's hardware. For example, if the fax machine is not capable of using Legal size paper, the PIF-L2 modifies the display text so that the user cannot choose the Legal size paper for printing.

Data Path

The controller's CPU interprets the print data from the host computer and writes an imaginary page in the page memory. After a page of data has been stored in the memory, the controller transfers the data to the fax machine's CPU. Then, the fax machine's CPU passes the data directly to the laser unit for printing.

The interface between the controller and the fax machine is known as the "video interface". This interface specifies the data transfer timing and handshaking procedure.

Dual Access

Since the printer resources are shared for printing fax messages and computer printouts, the machine is designed to do multiple tasks at the same time.

If a fax massage is coming in while the machine's printer is busy for printing from the controller, the machine will receive the fax message into SAF memory. After printing from the controller has finished, the machine will print the fax message from the SAF memory.

If a print request is made from the host computer while the fax machine's printer is busy for fax messages or reports, the print data will be held in the page memory on the controller. After printing has finished, the machine will switch the printer resources to the controller for printing. In this case, if the print data size exceeds the controller's memory size, the print data is spooled in the host computer (if the computer's operating system or the application has a print spooler function).

1.4. POWER DISTRIBUTION

+24V and +5V are supplied to the printer interface unit from the fax machine. The PIF-L then generates an another +5V supply for its CPU and the controller.

2. DETAILED SECTION DESCRIPTIONS

2.1. CONTROLLER

2.1.1. Bi-Centronics ™ Interface

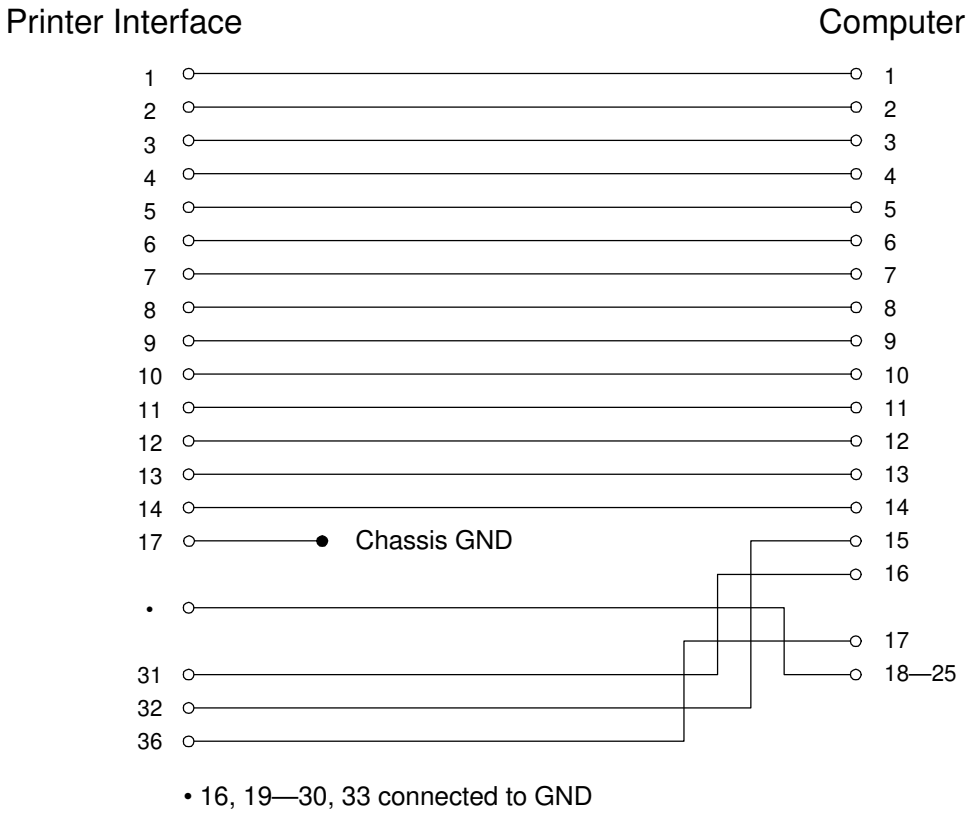
The parallel interface connector pin assignments and a description of the interface signals are shown in the table below.

Signal Pin	Return Pin	Signal	Direction	Description
1	19	$\overline{\text{STROBE}}$	IN	The $\overline{\text{STROBE}}$ pulse for reading data. The pulse width must be at least 0.5 µs at the receiving terminal.
2 3 4 5 6 7 8 9	20 21 22 23 24 25 26 27	DATA1 DATA2 DATA3 DATA4 DATA5 DATA6 DATA7 DATA8	IN IN IN IN IN IN IN IN	These signals represent parallel data bits 1 to 8. Each signal is at the HIGH level when the data is a logical 1 and LOW when it is a logical 0.
10	28	$\overline{\text{ACKNLG}}$	OUT	About a 10 µs pulse width. LOW indicates that data has been received and the printer is ready to accept more data.
11	29	BUSY	OUT	A HIGH signal indicates that the printer cannot receive data. The signal goes HIGH in the following cases: 1. During printing 2. When off line 3. During a printer-error state
12	30	PE	OUT	A HIGH signal indicates that the printer is out of paper.
13	—	SLCT	OUT	Available only for bidirectional use.
14	—	$\overline{\text{AUTO}}$	IN	Available only for bidirectional use. A LOW signal enables automatic line feed upon receiving a CR signal. This signal is detected only when the machine has just been turned on, or when the printer interface is initialized. In ESC/P ® mode, this signal effects a CR operation in accordance with the SelecType ™ setting. In HP ™ mode, this signal is always ignored.
15	—	NC	—	Not used
16	—	GND	—	Logic ground level

Signal Pin	Return Pin	Signal	Direction	Description
17	—	CHASSIS GND	—	Chassis ground, which is connected to the signal ground.
18	—	NC	—	Not used
19~30	—	GND	—	Twisted-pair return signal ground level.
31	—	INIT	IN	When this signal goes LOW, the printer controller ignores the STROBE signal.
32	—	ERROR	OUT	This signal goes LOW when the printer is: 1. Out of paper 2. In an error state 3. Off line
33	—	GND	—	Same as for Pins 19~30
34	—	NC	—	Not used
35	—	+5V	—	Pulled up to +5V through a 1KΩ resistor.
36	—	SLCTIN	IN	Available only for bidirectional use.

Note:
- All interface conditions are based on TTL levels. Both the rise and fall times of each signal must be less than 0.2 microseconds.
- Data transfer must be carried out by observing the ACKNLG or BUSY signal.
  (Data transfer to this printer can be carried out only after receipt of the ACKNLG signal or when the level of the BUSY signal is LOW.)
- The "Direction" column refers to the direction of signal flow as viewed from the printer.
- Return denotes the twisted-pair return to be connected at signal ground level.
  For the interface wiring, be sure to use a twisted-pair cable for each signal and to complete the connection on the return side.
- The ACKNLG pulse width varies.

To enable bidirectional parallel interface communications between the printer and computer, set the connector pin assignments as follows:



• 16, 19—30, 33 connected to GND

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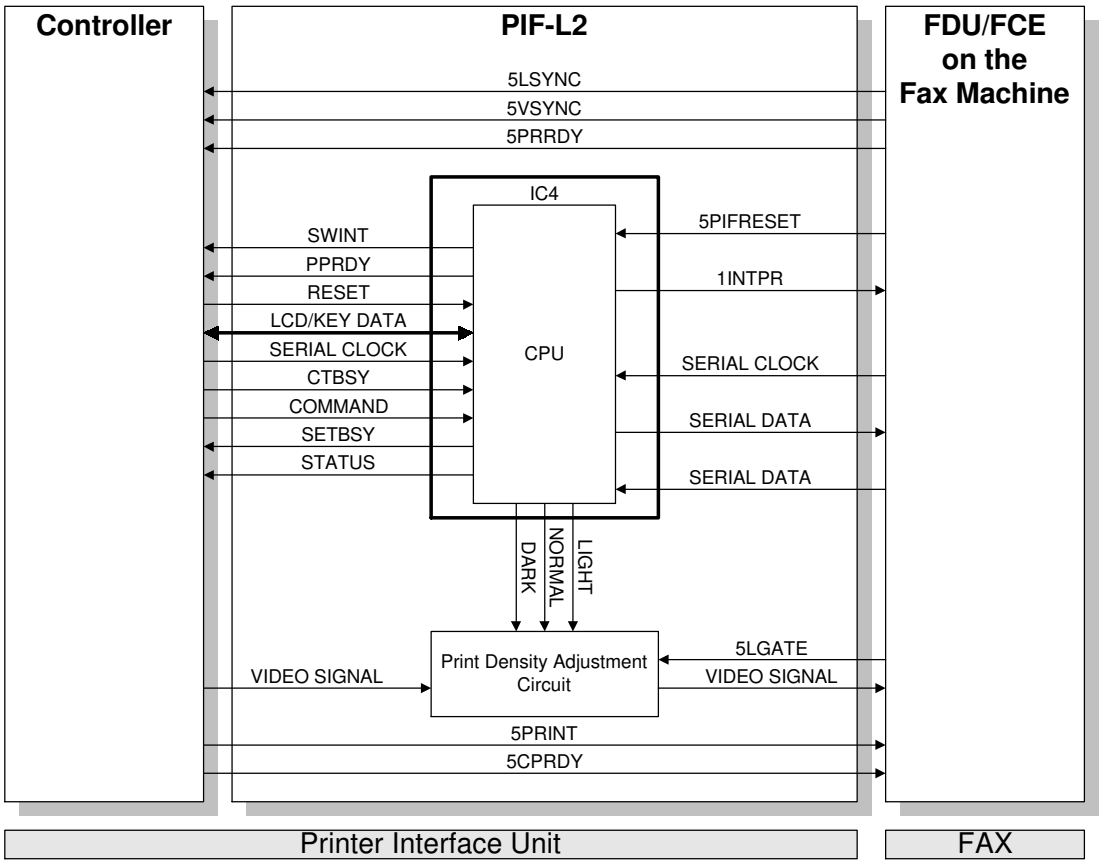
2.1.2. LocalTalk ™ Interface (Optional)

Specifications

Compatibility	Phase 1 and phase 2
Baud rate	230.4 kbps
Topology	Parallel bus, low-resistance transformer isolated, floating ground.
Signaling standard	EIA standard RS422, balanced voltage
Signal encoding	FMO (bi-phase) space
Frame format	SDLC (Synchronous Data Link Control)
Node identification	AppleTalk ™ logical address is self-configuring; no user action required.
Cabling	AppleTalk ™ 8-pin mini DIN

2.2. PIF



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The CPU on the PIF-L2 works as a interpreter (emulator) between the printer controller and the fax machine.

2.2.1. Command and Status Signals

The controller sends various commands to the fax machine through the CPU on the PIF-L2 for requesting hardware status (e.g., cassette paper size, jam, toner end) and for specifying a cassette for printing. The fax machine responds with a status signal.

The CPU on the PIF-L2 emulates the commands for fax machine's hardware specifications (e.g, some models can only have one cassette).

2.2.2. Key/Display Emulation

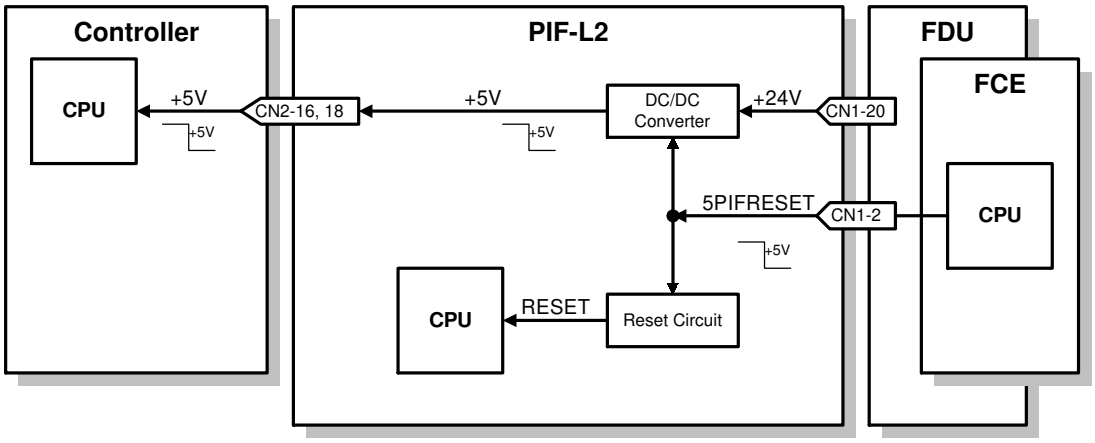
While the user is using the printer function from the fax machine, the fax machine's keys and LCD are connected to the printer controller through the CPU on the PIF-L2.

Because the capabilities of the controller and the fax machine are not the same (for example, Monarch paper is available with the controller, but not with the fax machine), the PIF-L2 emulates the user key operations for the controller and the display texts to the fax machine, so that the user cannot select settings that the fax machine is not capable of.

2.2.3. Print Density Control

The controller is capable of print density adjustment using the Level 2 menu. Depending on the density setting sent from the controller, the PIF-L adjusts the pulse width for each pixel.

2.2.4. Printer Interface Reset



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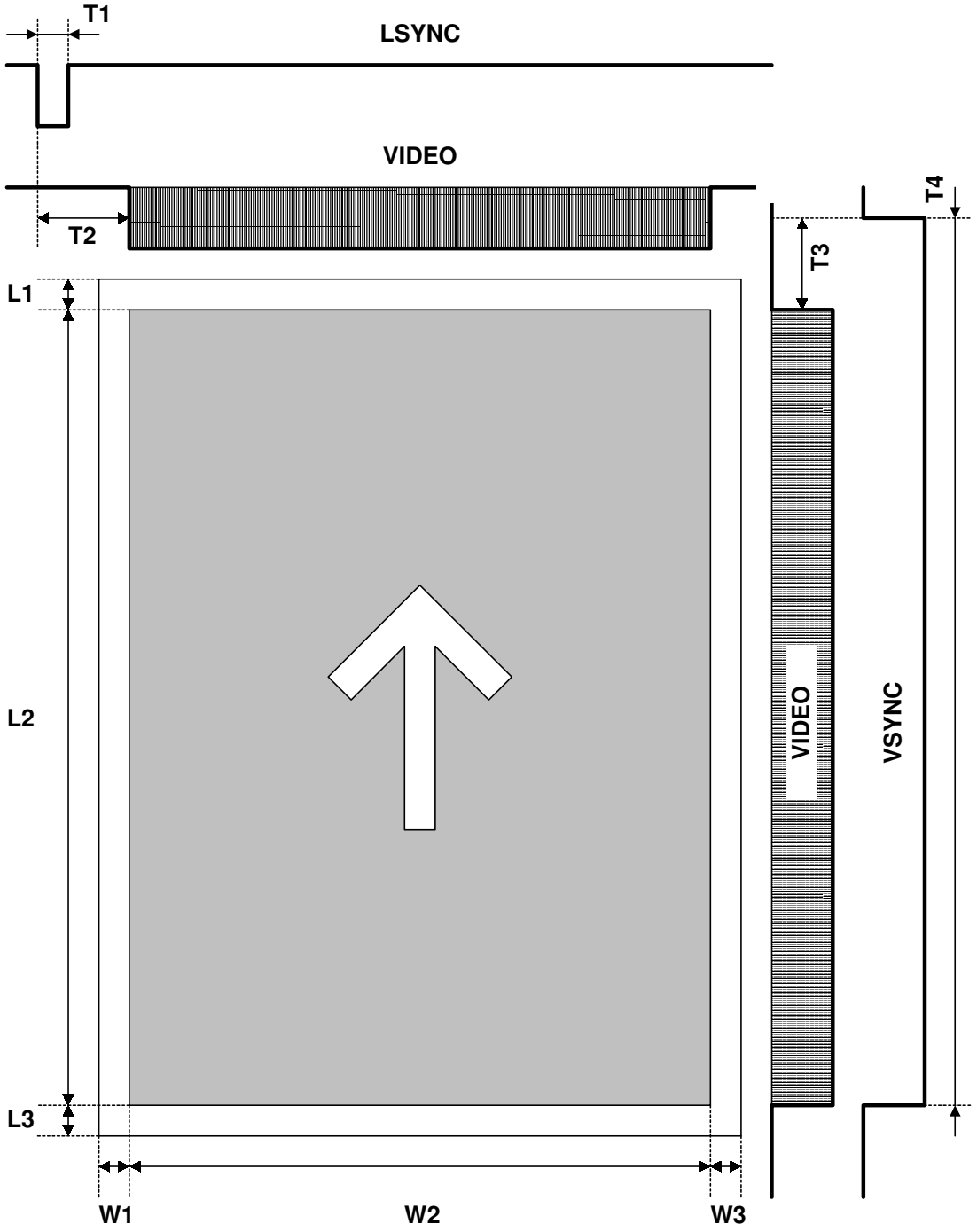
If the fax machine's CPU activates the 5PIFRESET signal, the reset circuit on the PIF-L2 resets the CPU on the PIF-L2, and the DC/DC converter on the PIF-L2 shuts down the +5V supply to the Controller board.

The procedure for totally resetting the printer interface is described in chapter 4.

2.3. VIDEO INTERFACE

2.3.1. Overview

The video interface specified between the printer interface and the fax machine controls print timing.



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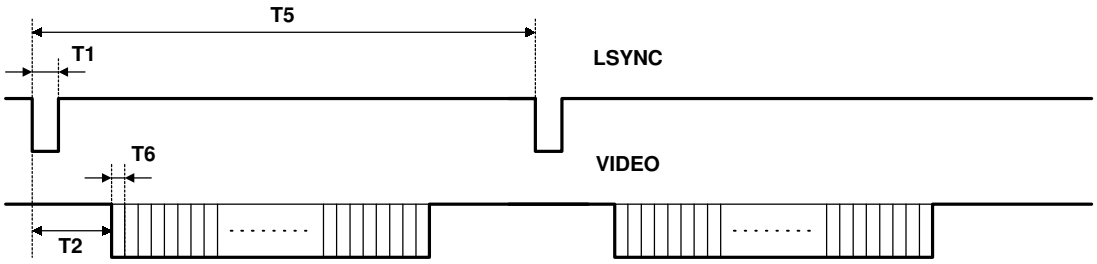
2.3.2. Main Scan Direction



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The LSYNC signal goes low for T1 before the printer interface sends each line of print data. Then, the printer interface sends video data T2 after the falling edge of LSYNC was detected.

Parameter	Setting
T1	2.36 µs
T2	9.44 µs
T5	1.253 ms
T6	295 ns

The left margin (W1) and the right margin (W3) are both 4 mm.

2.3.3. Sub Scan Direction

The VSYNC signal goes low for T3 before the printer interface sends each page of print data. Then, the printer interface sends video data T4 after the falling edge of VSYNC was detected.

Parameter	Setting
T3	22.55 ms
T4	depends on paper length

The top margin (L1) and the bottom margin (L3) are both 4 mm.

2.3.4. LEDs

The LEDs on the control panel indicates status within the PIF.
Please note that the On Line LED is always on when the PIF is installed.

❑ ● ❍
Button LED (Red) LED (Green)

LEDs on the Operation Panel	LEDs on the Control Panel	Condition
On Line LED		On Line LED is always on when the PIF is installed.
Data LED	Fast flashing of the green LED	Print data is being received to the controller. Data is being printed.
	Slow flashing of the green LED	Print data has been received to the controller.
Check Display LED and "Check Printer" on the LCD	Lighting of the red LED	Paper jam, cover open, no paper, or no toner.
	Fast flashing of the red LED	The manual feed mode is on.
	Slow flashing of the red LED	Software error.

3. INSTALLATION

⚠ CAUTION

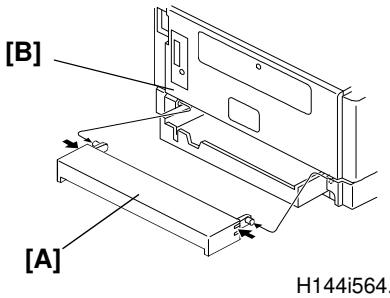
Before installing the printer interface unit and its options, do the following:

1. **Print out all the messages stored in the memory.**
2. **Print out the list of user-programmed items and the system parameter list.**
3. **Turn off the main switch and disconnect the power plug.**

3.1. PRINTER INTERFACE UNIT

3.1.1. Models: H516, H526 and H527

1. Remove the cassette cover [A] from the rear cover [B].
   Note: The cassette cover is not installed in some models.
2. Remove the rear cover [B] (2 screws) with the grounding plate, and two small covers [C] (1 screw) and [D].
   Note: The grounding plate is not installed in the models for the USA.
3. Install the grounding plate [J].
   Note: This step is not required for the USA models. (A different grounding plate is used for H516 and H526 models. The plate with the square opening is used for H516.)
4. Put the rear cover [B] back on the machine (1 screw at the lower left corner), and install two brackets [E] (2 screws, 1 grounding wire) and [F] (2 screws - one of these screws also secoures the ground plate and the rear cover).
   Note: The grounding wire and the grounding plate are not installed in the models for the USA.



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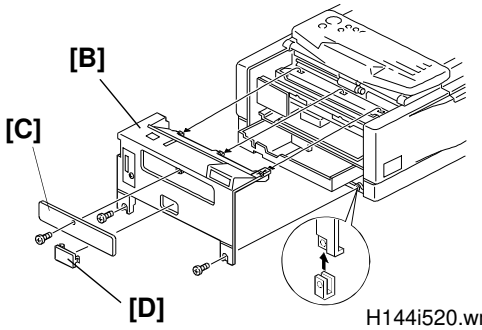

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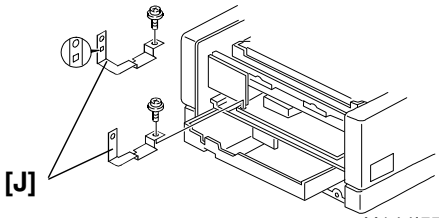

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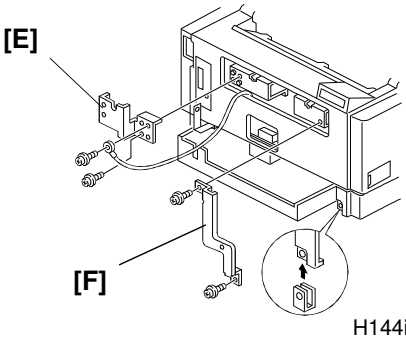
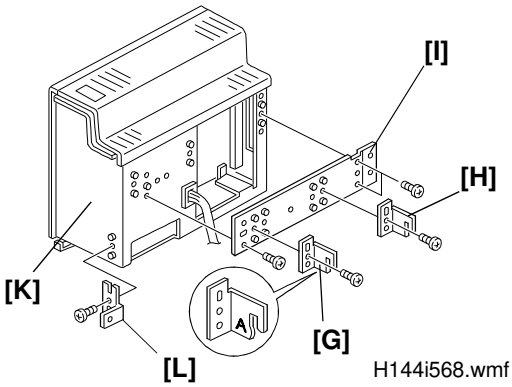


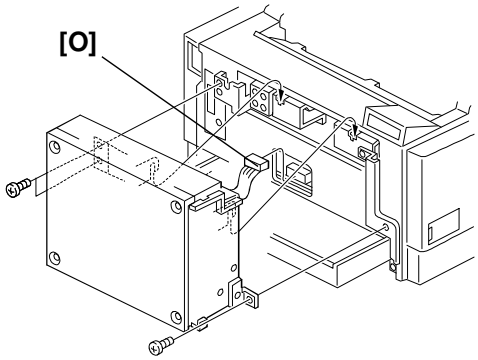
H144i521.wmf

5. Attach the brackets [G] and [H] onto the bracket plate [I] (2 screws).
   Note: For the brackets [G] and [H], used the ones which have"A" marked on them.
6. Attach the bracket plate [I] (4 screws) and the side bracket [L] (1 screw) to the Printer InterfaceUnit [K].
7. Remove the side covers [M] and [N].



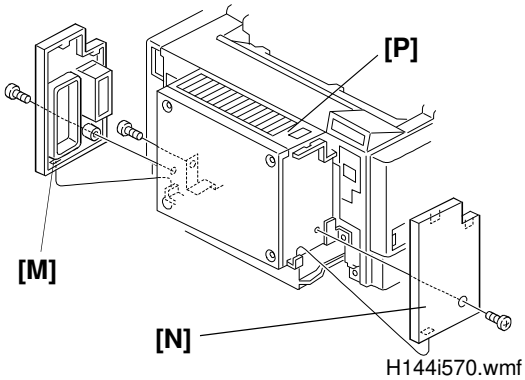
H144i568.wmf

8. Connect the harness [O] to the FDU through the lower window in the rear cover, Hook the Printer Interface Unit onto the machine by the brackets [G] and [H], then secure the unit (3 screws).



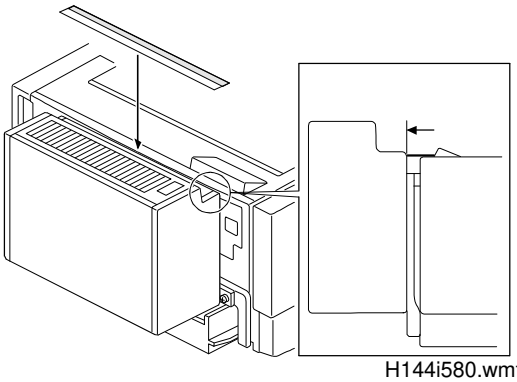
H144i569.wmf

9. Put back the side covers [M] and [N].
10. Connect a parallel printer cable to the Printer Interface Unit.
11. Plug in the machine and turn on the main switch.
12. Check if the On Line indicator on the operation panel is lit. If not, check the harness connection from the Printer Interface Unit to the FDU.



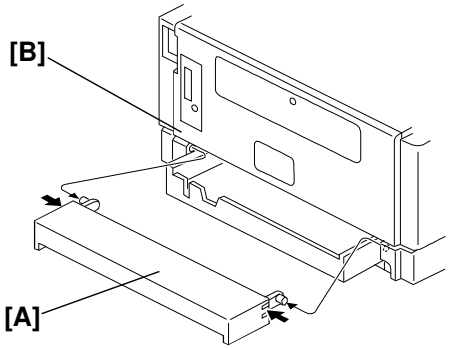
H144i570.wmf

13. Print a status sheet by pressing the button [P] at the top of the printer interface unit.
14. Place the mylar as shown in the diagram


H144i580.wmf

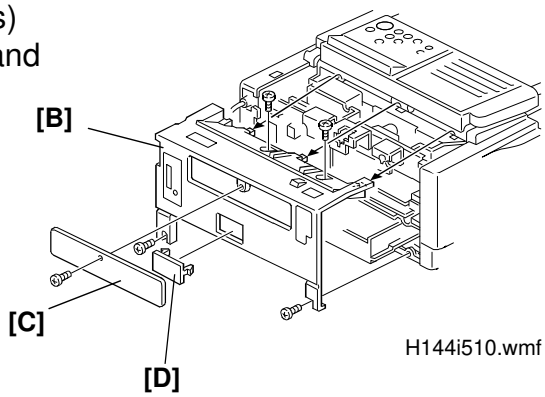
3.1.2. Model: H515

1. Remove the cassette cover [A] from the rear cover [B].
   Note: The cassette cover is not installed in some models.



H144i564.wmf

2. Remove the rear cover [B] (2 screws) and two small covers [C] (1 screw) and [D].



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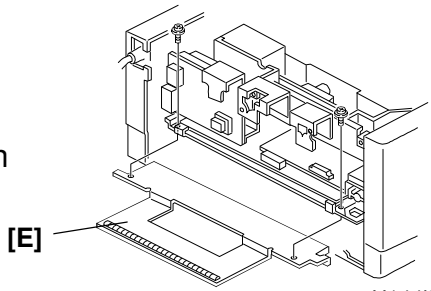
3. **This step is necessary only for the Europe model.**
   Attach the grounding plate [E] which is included in the accessories to the main frame of the machine (2 screws).



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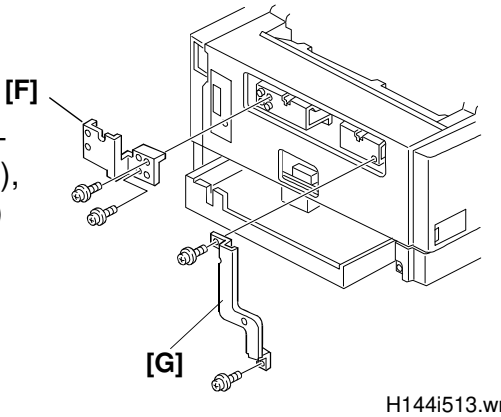
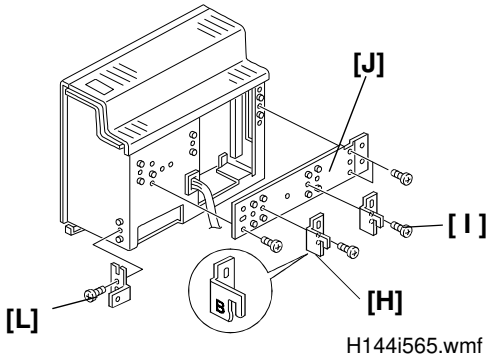
4. Put the rear cover [B] back on the machine (1 screw at the lower left corner), and install two brackets [F] (2 screws) and [G] (2 screws - one of these screws also secures the rear cover).



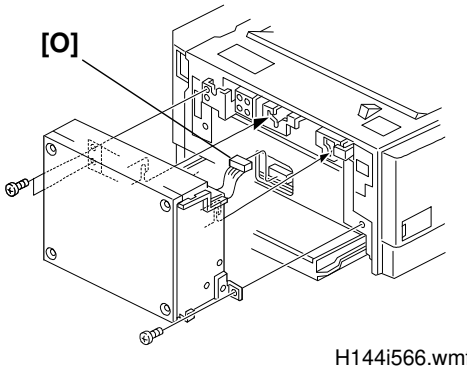
H144i513.wmf

5. Attach the brackets [H] and [I] onto the bracket plate [J] (2 screws).
   Note: For the brackets [H] and [I], used the ones which have "B" marked.
6. Attach the bracket plate [J] (4 screws) and the side bracket [L] (1 screw) to the Printer Interface Unit.



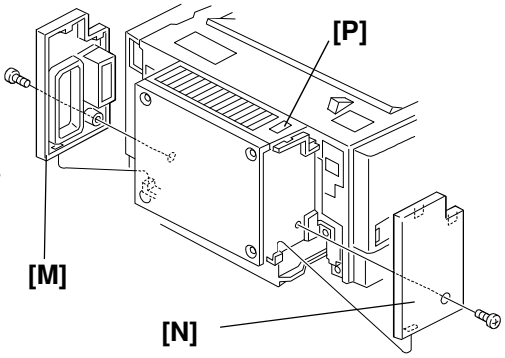
H144i565.wmf

7. Remove the side covers [M] and [N].
8. Connect the harness [O] to the FDU through the lower window in the rear cover. Hook the Printer Interface Unit onto the machine by the brackets [G] and [H], then secure the unit (3 screws).
9. Put back the side covers [M] and [N].
10. Connect a parallel printer cable to the Printer Interface Unit.



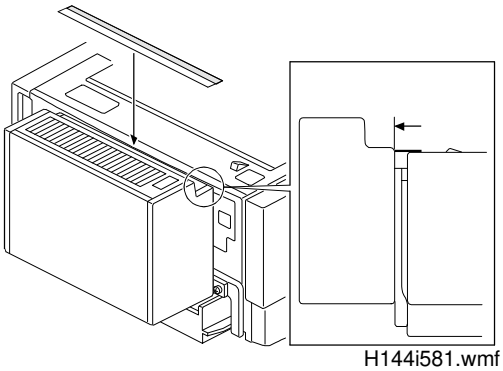
H144i566.wmf

11. Plug in the machine and turn on the main switch.
12. Check if the On Line indicator on the operation panel is lit. If not, check the harness connection from the Printer Interface Unit to the FDU.
13. Print a status sheet by pressing the button [P] at the top of the printer interface unit.



H144i567.wmf

14. Place the mylar as shown in the diagram.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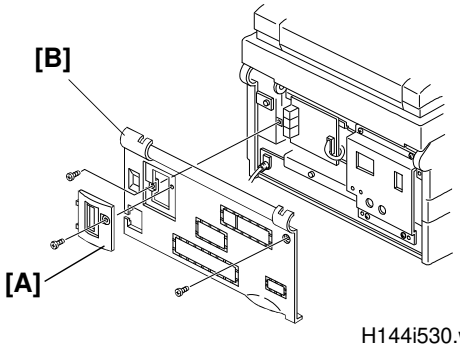
3.1.3. Model: H521

1. Remove the NCU cover [A] (1 screw) and the left cover [B] (2 screws).



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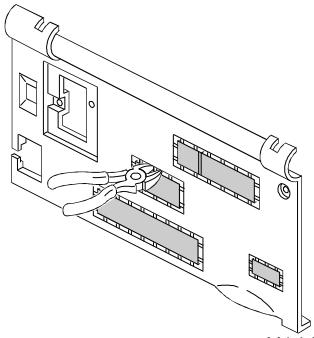
2. Cut the shaded parts off the left cover.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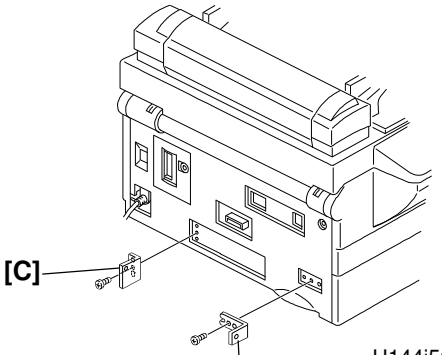
3. Put back the left cover [B] (2 screws) and the NCU cover [A] (1 screw).

4. Install two brackets [C] and [D] (1 screw each).



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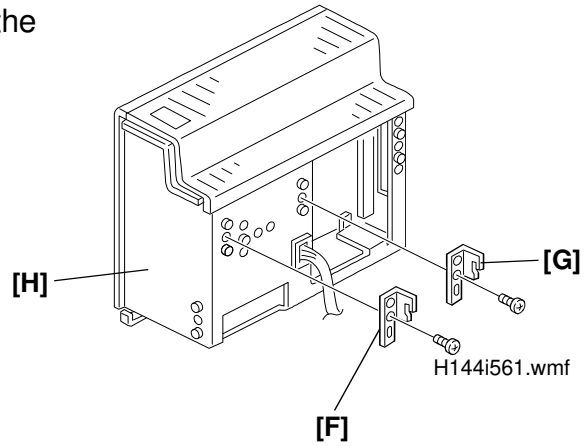
5. Attach the brackets [F] and [G] to the Printer Interface Unit [H].



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6 Remove the side covers [I] and [J]. Then, connect the harness [K] to the FDU, and hook up the Printer Interface Unit to the machine.

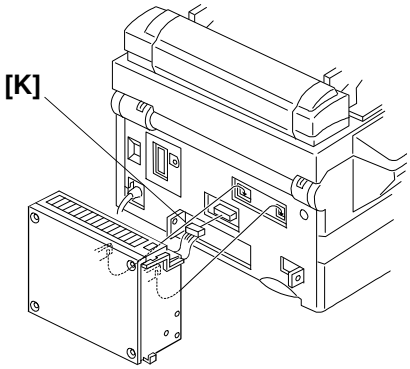
7. Secure the unit (2 screws) and put back the side covers.

8. Connect a parallel printer cable to the Printer
Interface Unit.

9. Plug in the machine and turn on the main switch.

10. Check if the On Line indicator on the operation panel is lit. If not, check the harness connection from the Printer Interface Unit to the FDU.

11. Print a status sheet by pressing the button [P] at the top of the printer interface unit.



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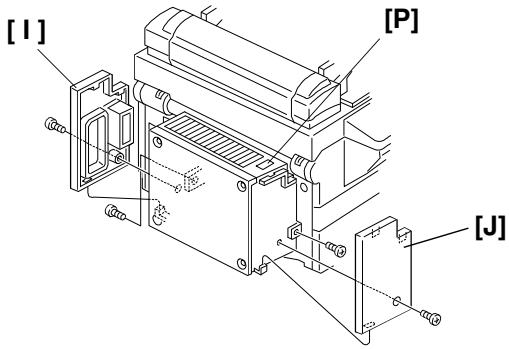
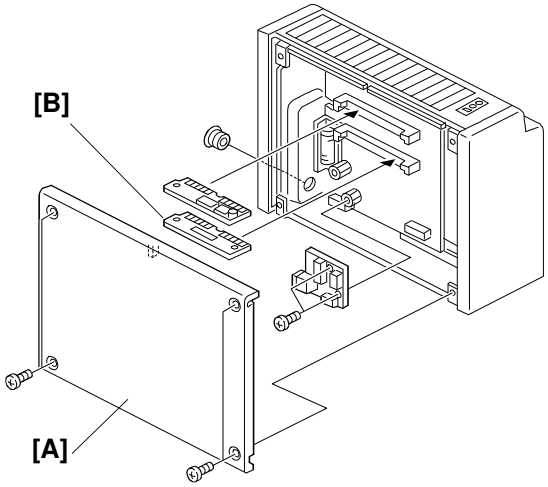


H144i563.wmf

3.2. OPTIONS

3.2.1. SIMM MEMORY

1. Remove the cover [A] (4 screws).
2. Install a SIMM memory [B] to the RAM SLOT (lower slot).
3. Put back the cover [A] (4 screws).
4. Turn on the machine, and print the status sheet to check if the the amount of memory is shown on the status sheet is correct or not.



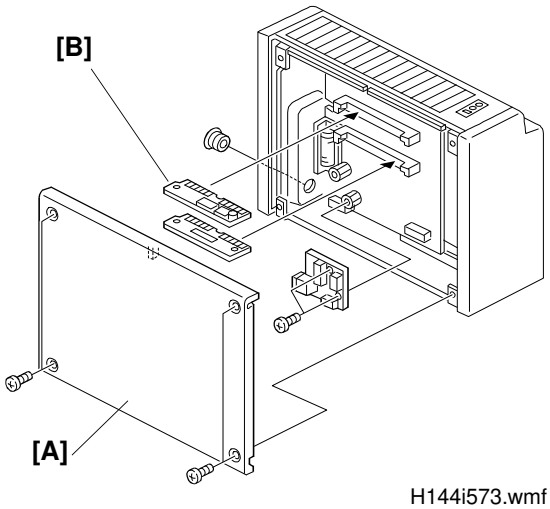
H144i573.wmf

SIMM RAM Requirements

1. Type	PC-AT
2. Number of pins	72
3. Access speed	70 ns or faster
4. Capacity	1, 2, 4, 8, 16 or 32 MB
5. Parity	Don't care
6. Dimensions	Size within 108 mm x 26 mm (4.25" x 1.02") Thickness within 10 mm (0.4 ")

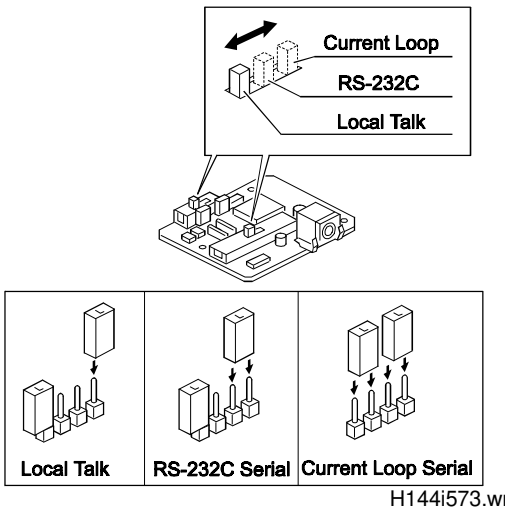
3.2.2. PostScript ™ SIMM

1. Remove the cover [A] (4 screws).
2. Install a PostScript SIMM [B] to the ROM SLOT (upper slot).
3. Put back the cover [A] (4 screws).
4. Turn on the machine, and print the status sheet to check if the Post-Script SIMM is correctly installed or not.

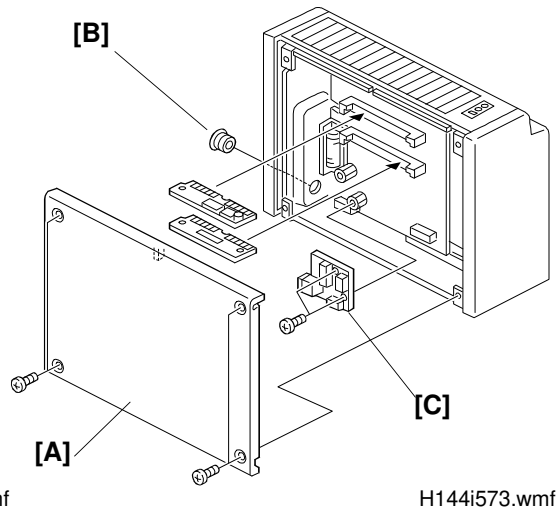


H144i573.wmf

3.2.3. LocalTalk ™ /Serial Interface



H144i573.wmf



H144i573.wmf

1. Change the slide switches and jumper settings for the required type of interface as shown in the diagram on the left.
   The default setting is “LocalTalk”

   Note: The “Current Loop” is a special type of serial interface, which transfers binary data by closing and opening the current loop.
2. Remove the cover [A] (4 screws), and the rubber cap [B].
3. Install the interface board [C] as shown in the diagram (2 screws), then put back the rear cover [A].
4. Turn on the machine, and print the status sheet to check if the interface board is correctly installed or not.

3.3. CONNECTING UP THE PRINTER INTERFACE UNIT

3.3.1. Parallel Interface

A Bi-Centronics parallel cable is required to connect the unit to a host PC. Refer to section 2.1 for the interface specifications and cable pin assignments.

3.3.2. LocalTalk ™ Interface

Connect a LocalTalk cable from a Macintosh PC to the LocalTalk port on the interface board.

Notes:
- The optional PostScript board is required to print from a Macintosh PC.
- 2 MB or more of memory is required to use the LocalTalk ™ interface and the PostScript board.

3.4. TESTING THE CONNECTIONS

3.4.1. Printer Interface to Fax Connection

1. Turn on the machine. All LEDs dedicated for the printer interface option should light at power on.
2. Print the status sheet by pressing the button on the control panel of the printer interface. If the status sheet is not printed, check the harness connection between the printer interface and the fax mechine.

3.4.2. DOS ® Based Computers

Important
It is not recommended for service technicians to operate the customer's computer, to avoid any damage to the customer's data files.
The following procedures are explained only for testing purpose.

1. Checking the Printer Cable Connection

1. Make sure that the printer cable is properly connected.
2. Turn on the machine, then turn on the computer.
3. Make sure that the printer interface is on line.
4. After DOS has started, type the following at the C:\> prompt:
   ```
   PRINT CONFIG.SYS
   ```
   The computer displays the following:
   ```
   NAME OF LIST DEVICE (PRN);
   ```
   Then, type the following:
   ```
   LPT1
   ```
   The config.sys file will be printed from the fax machine.

If nothing is printed, make sure that the proper printer cable is used and connected securely to both the computer and the printer interface.

2. Printer Driver for DOS ® Applications

Because printer drivers for DOS applications do not come with the printer interface unit, select one of the following printers in the order of preference listed below.

- EPL-5500
- EPL-3000
- EPL-5200/5200+
- HP LaserJet III/IIIP/IIID
- HP LaserJet IIISi
- HP Laser Jet 4L
- EPL-5600
- EPL-9000
- HP LaserJet 4

If an emulation other than HP PCL5 is required, select EPSON GL/2 emulation mode. The emulation setting of the printer interface should be changed from the default (HP LaserJet 4), if this is selected.

3. Printer Driver for Microsoft Windows ®

1. Insert the Windows driver disk in the A-drive (or B-drive).
2. Choose “Run” in the “File” menu of the Program Manager, then type the following:
   `A:\INSTALL (OR B:\INSTALL)`
3. Follow the instructions which appear on the computer screen.
4. After the driver installation is finished, set up the driver referring to the Operator’s Manual.

3.4.3. Apple Macintosh ™ Computers

Important
It is not recommended for servise technicians to operate the customer’s computer, to avoid any damage to the customer’s data files.
The following procedures are explained only for testing purpose.

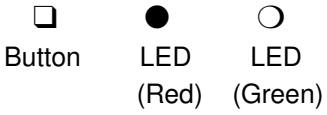
1. Install the printer driver as explained in PS option operator’s manual.
2. Make sure that the “LocalTalk" is selected in the control panel.
3. Choose “Printer I/F” as an active printer in the Chooser.
4. Open an document for a test print. Choose a paper size, orientation (and options if necessary) in the PageSetup.
5. Choose Print from the file menu.

4. SERVICE TABLES AND PROCEDURES

4.1. USER LEVEL FUNCTIONS

4.1.1. Controller Reset

Press and hold the button on the control panel for a few seconds until both LEDs are flashing alternately on and off.
This resets the conttroller to the previously saved settings, cancels the current print job, and clears all the received data in the controller's memory.



Controll Panel

4.1.2. Controller Initialize

Press and hold the button on the controll panel for about 8 seconds until both LEDs are flashing together.
This resets the controller to the power-on default settings. Any received data will be cleared.

4.2. SERVICE LEVEL FUNCTIONS

4.2.1. Dump Mode

To enter the PIF service mode, turn the main switch off, hold down the button on the control panel, then turn the main switch back on. The flahisng of the LEDs on the control panel changes as follows.

Button	LED (Red)	LED (Green)	
❑	●	●	: Start up
❑	❍	❍	: Pattern 0
❑	❍	●	: Pattern 1
❑	●	❍	: Pattern 2
❑	●	●	: Pattern 3

1. Make sure that the paper is loaded and the machine is turned off.
2. Hold down the button on the control panel and turn the main switch back on. Release the button when the LEDs flash as pattern 1.
3. Start the application on the host computer and print a document. All the print data will be printed in hexadecimal dump.
4. Turn off the dump mode either by turning off the machine or by initializing the printer controller.

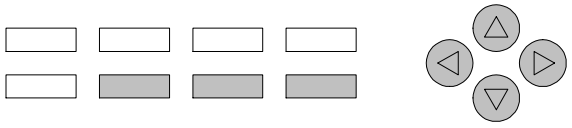
4.2.2. Factory Reset

1. Make sure that the the paper is loaded and the machine is turned off.
2. Hold down the button on the control panel and turn the main switch back on. Release the button when the LEDs flash as pattern 3. Press the button again within 2 seconds.

4.2.3. Printer Interface Reset

The controller and the PIF can be reset using the following procedure, without turning off the machine.

1. Enter the printer function. (Refer to the operator's manual for the function number. This number is different for each model.)
2. Press the following keys at the same time.
   - All the arrow keys
   - The last Quick Dial Key
   - The second Quick dial key from the bottom right
   - The third Quick dial key from the bottom right



h144m510.wmf

4.2.4. Counter Reset

The controller has its own print counter, which is independent from the fax machine's print counter. The counter value can be checked by printing out the status sheet. (Described as the "PAGE COUNT" in the CONFIG column.)

To reset this counter to zero, do the following.

1. Make sure that the paper is loaded and the machine is turned off.
2. Hold down the button on the control panel and turn the main switch back on. Release the button when the LEDs flash as pattern 2. Press the button again within 2 seconds.
3. Print out the status sheet and confirm that the counter has been reset to zero.

Note that this procedure does not reset the printer interface output counter (PRN) of the fax machine. Reset this counter manually by rewriting the RAM addresses for this counter.

4.3. BIT SWITCHES

This bit switch is dedicated to printer interface operations.

System Switch 14		
No	**FUNCTION**	**COMMENTS**
0 to 7	Wait time between pages in printer mode (with an optional printer interface unit)	05 to 64 (H) (5 to 100s) - This setting determines the machine's wait time between pages in printer mode. A longer setting forces the fax machine to wait until the end of printer interface output before printing any incoming fax message. A shorter setting allows the fax machine to print incoming fax messages while printing from a computer. If the controller takes more than the specfied time to process a page of data from the host computer, the fax machine releases the printer resources for fax output.

4.4. RAM ADDRESSES

Printer interface output counter (PRN)

Model	Millions and ten thousands digits	Thousands and hundreds digits	Unit and tens digits
H516	800166 (H)	800165 (H)	800164 (H)
H521	800166 (H)	800165 (H)	800164 (H)
H515	4801D2 (H)	4801D1 (H)	4801D0 (H)
H526	800166 (H)	800165 (H)	800164 (H)
H527	800166 (H)	800165 (H)	800164 (H)

5. TROUBLESHOOTING

5.1. HARDWARE ERRORS

Symptom: The machine does not go into the printer mode.

Action:

1. Check if the On Line and Data LEDs light at power up. If not, replace the fax machine's FCE or FDU.
2. Check if the On Line LED is on. If not, check the connection between the printer interface and the fax machine's FDU. If the problem still remains, replace the cable.

Symptom: The green LED and the red LED on the control panel repeatedly flash alternately and then simultaneously (this indicates an error).

Action:

1. There is a hardware error inside the machine. Follow the troubleshooting procedure as described in the fax machine's service manual.
2. Reset the printer interface unit as explained in section 4.2. If the problem still remains, replace the controller.
3. If the error is indicated after installing an optional SIMM memory board, check if the SIMM board is correctly installed. If the problem still remains, reinstall or replace the SIMM memory board.

5.2. SETUP MISTAKES

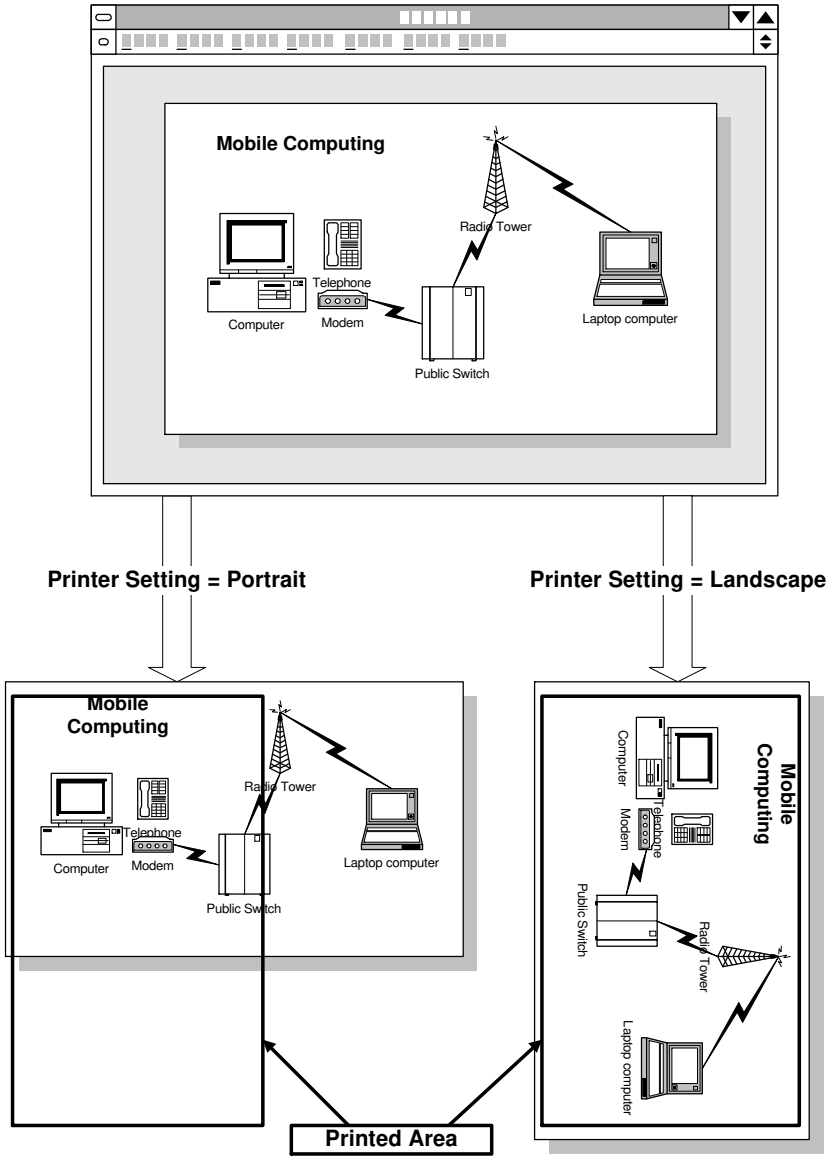
Symptom: Nothing is printed after the controller receives the data.

Action:

1. Check if the red LED on the PIF is blinking. If so, the controller is set for bypass feed mode. Press the button on the control panel to print each page. If not, pull out the cassette and put it back.
2. Check if the paper size requested matches the paper size in the cassette. Replace the paper with the correct size, or change the paper size setting using the printer driver or the Remote Control Panel.
   Refer to the printer interface operation manual for how to use the Remote Control Panel utilities.

3. Reset the printer interface by one of the following methods, and print the document again.
   - Pull out the cassette and put it back.
   - Reset the controller as explained in section 4.1.
   - Reset the printer interface as explained in section 4.2.
   - Turn off the machine and turn it back on.

Symptom: The printed image does not fit on the paper		
Check	**Action if Yes**	**Action if No**
1. Do the paper size and orientation settings of the application, printer driver, and printer controller agree ?	Adjust the paper position in the cassette or in the bypass feed slot. If the problem remains, adjust the fax machine's print registration settings.	Change any incorrect settings as shown in the example below.



H144T501.wmf

Example: Print orientation error.

Symptom: Printed data appears as strange characters		
Check	**Action if All**	**Action if Partial**
1. Do all the data appear as strange characters ? Do some of the symbols appear strange ?	The controller's emulation setting does not match the printer driver. Change the emulation setting or the printer driver to match each other.	The wrong symbol set is selected. Choose an appropriate symbol set in the Level 1 menu.

5.3. PRINT QUALITY

Check if the Toner Save Mode is selected in the printer driver's setup, and/or if Print Image Density is set at Dark or Light. Change any unsuitable settings or refer to the Troubleshooting section in the fax machine's service manual.