

Network Printer Board - F1

SERVICE MANUAL

REVISION 0

Canon

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INTRODUCTION

This Service Manual provides facts and figures needed to service the Network Printer Board-F1 in the field, and consists of the following chapters:

Chapter 1 *General Description* provides an outline of the printer board, introduces its features, specifications, and external views, and shows how it may be operated.

Chapter 2 *Basic Operations* describes the construction of the printer board, its operations, transfer of print data, processing of print data, and how data is dealt with by the host copier.

Chapter 3 *User Software* provides an outline of user software, printer driver, and utilities (including Webtools and NetSpot).

Chapter 4 *Disassembly/Assembly* shows how the printer board may be disassembled/assembled with points to note during the work.

Chapter 5 *Installation* provides an outline of installation work with points to note during the work.

Chapter 6 *Service Mode* describes how information about the printer board (version number) may be obtained and how self diagnosis may be used, and shows how system software may be installed.

Appendix provides a special tools table.

This Service Manual briefly describes network-related work usually performed by the user's network supervisor and topics related to software. You may obtain a media package, also available as a service part (consisting of the document package and the user software CD-ROM). If detailed information is needed, refer to the appropriate item of the package.

The descriptions in this Service Manual are subject to change without notice for product improvement or other purposes, and major changes will be communicated in the form of *Service Information* bulletins.

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I. OUTLINE OF THE PRODUCT

This printer board is designed for installation inside a copier of the GP605/605V Series to enable the copier to function as a printer.

The printer board comes standard with an IEEE1284-compatible parallel port (bi-Centronics) and an Ethernet interface for connection to a computer, not requiring any other board for connection to a network.

In addition to the generally used 10Base-T network interface, the printer board also supports 100Base-TX, developed for high-speed networks.

The printer board supports such network protocols as TCCP/IP, IPX/SPX, and AppleTalk so that it is capable of printing print data from a network on which these protocols exist concurrently.

The printer board uses PostScript 3 (page description language), and comes standard with 136 different Alphanumeric fonts.

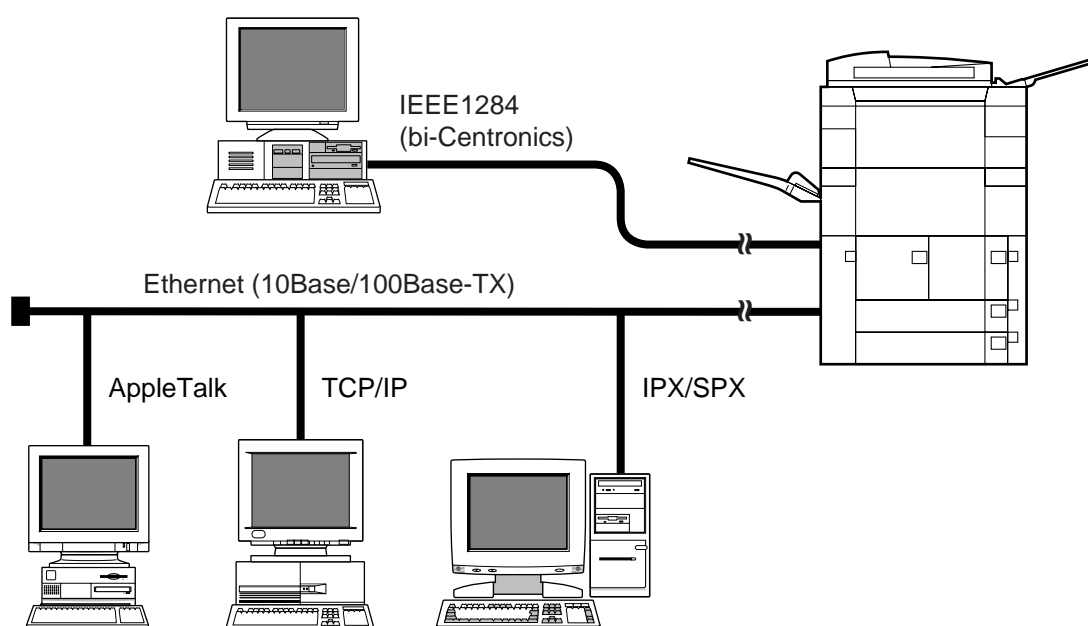


Figure 1-101

II . SYSTEM CONFIGURATION

Installation of the printer board enables a copier to function as a printer.

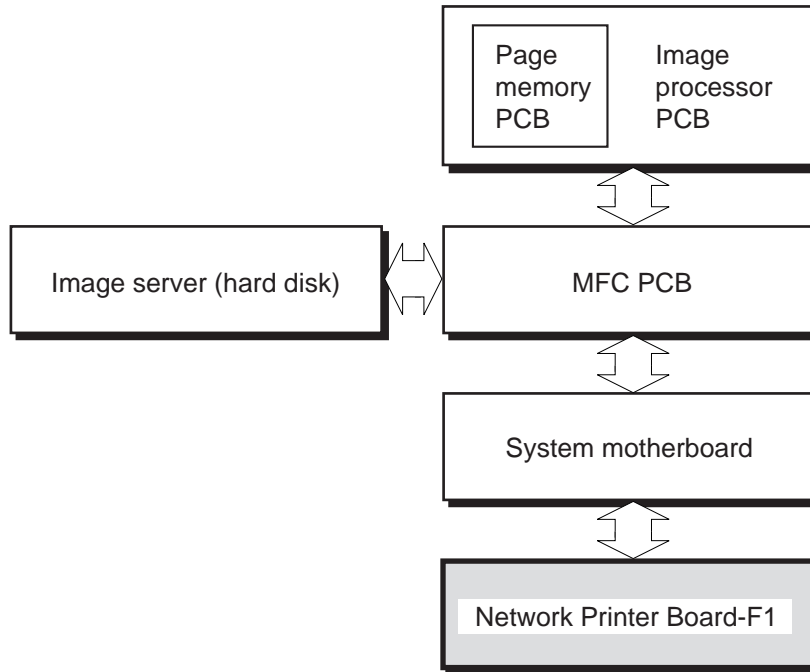


Figure 1-201

III . FEATURES

1. The printer board is equipped with a RISC-type MIPS R5000 CPU (operating frequency of 200 MHz) for high processing capabilities and a 32-MB memory (DIMM), enabling high-speed processing of print data.
2. The printer board possesses a PostScript 3 interpreter, and comes standard with 136 alphanumeric fonts.
3. The printer board supports not only 10Base-T (Ethernet) but also 100Base-TX (high-speed Ethernet). With its AUI connector, it may be connected directly to a 10Base5 port (for 10Base2, it may be connected by way of an external transceiver).
4. The printer board comes standard with a hard disk drive (2.1 GB) for spooling print jobs and downloading external fonts.
5. On a TCP/IP network, print jobs may be controlled using a browser (Netscape Navigator, Internet Explorer).
6. The printer board supports "SMB over TCP/IP," in which an SMB (Server Message Block, a common protocol for Windows files/printer) is used in a TCP/IP environment, enabling its host copier to function as a network printer in a network operating solely on Windows 95/98.

IV . SPECIFICATIONS

Item		Description
CPU		MIPS, R5000, 200MHz
RAM	Configuration	168-pin DIMM, 2 slots
	Type	SDRAM
	Access time	10 nsec
	Memory size	32-MB DIMM × 1 (standard) 32-MB DIMM × 1 (option)
Hard disk drive	Memory size	2.1 GB
	Interface	E-IDE
Parallel interface	Standards	IEEE1284 (bi-Centronics)
	Connector	IEEE 1284B receptacle (36-pin connector)
Network interface	Standards	Ethernet
	Connector	RJ-45 (10Base-T/100Base-TX) AUI (10Base5)
Operating system		Windows NT 4.0 Windows 95/98 Mac OS 7.6.1 or later
Protocol		TCP/IP (LPD, SMB over TCP/IP) IPX/SPX (PServer, NDS) AppleTalk (PAP)
Page description language		PostScript 3, PS
Font		136 alphanumeric fonts Multiple Master Font (2 types)
Print paper size		A3, A4, A5, B4, B5 STMT, LTR, LGL, 279.4 × 431.8 mm (11" × 17"), Executive
Non-image width		5 ±0.5 mm (on all sides)

V . EXTERNAL VIEW

Figure 1-501 is an external view of the printer board.

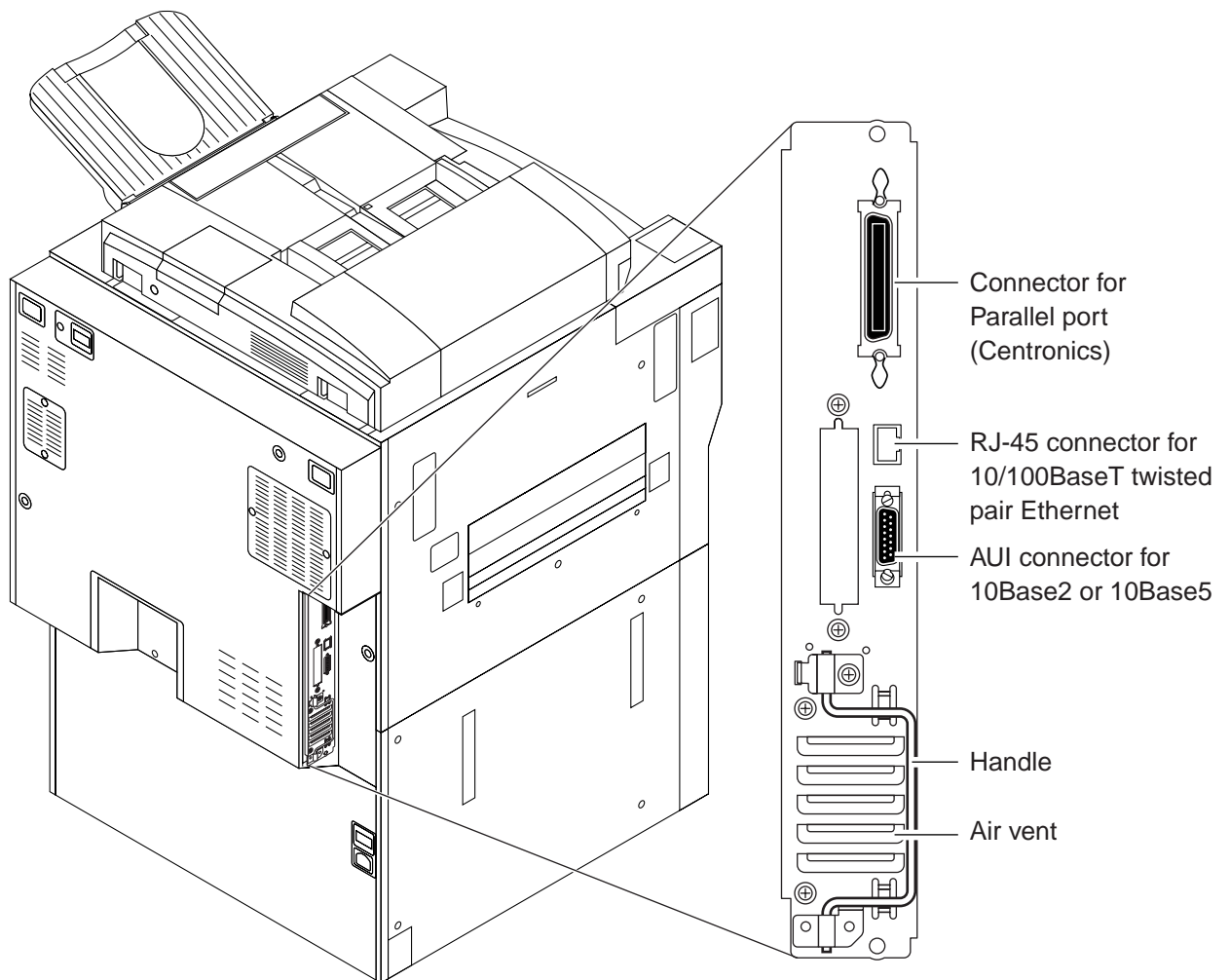


Figure 1-501

VI . OPERATION

A. Outline

To bring up the Printer screen on the copier's touch panel display, press the OPTIONS key on the copier's control panel.

The printer board may be used in normal mode (for normal printing jobs) or in settings mode (for making various settings). When the printer board starts up, press the Run Setup key (shown on the copier's touch panel display) to start settings mode. The printer board will automatically start in normal mode if the key is not pressed. (The Run Setup key is shown only for a few seconds after the power has been turned on so that the user will not start settings mode inadvertently.)

B. Settings Mode

The settings items consist of the following, each divided into sub items:

1. Server Setup
2. Network Setup
3. Printer Setup
4. PS Setup
5. Copier Setup
6. Job Log Setup
7. Change Password
8. Clear Serve

For detailed information on settings, see the Administrator Guide.

C. Normal Mode

Normal mode offers the following four screens:

1. Info screen
2. RIP screen
3. Print screen
4. Functions screen

At time of start-up, the Info screen appears. (The screen remains while no print job is being processed.) When a print job arrives and processing starts, the RIP screen appears. The Print screen appears at the end of processing (i.e., when transfer of image data to the host copier starts), and the Info screen appears once again when printing ends.

Figure 1-601 shows the Info screen.

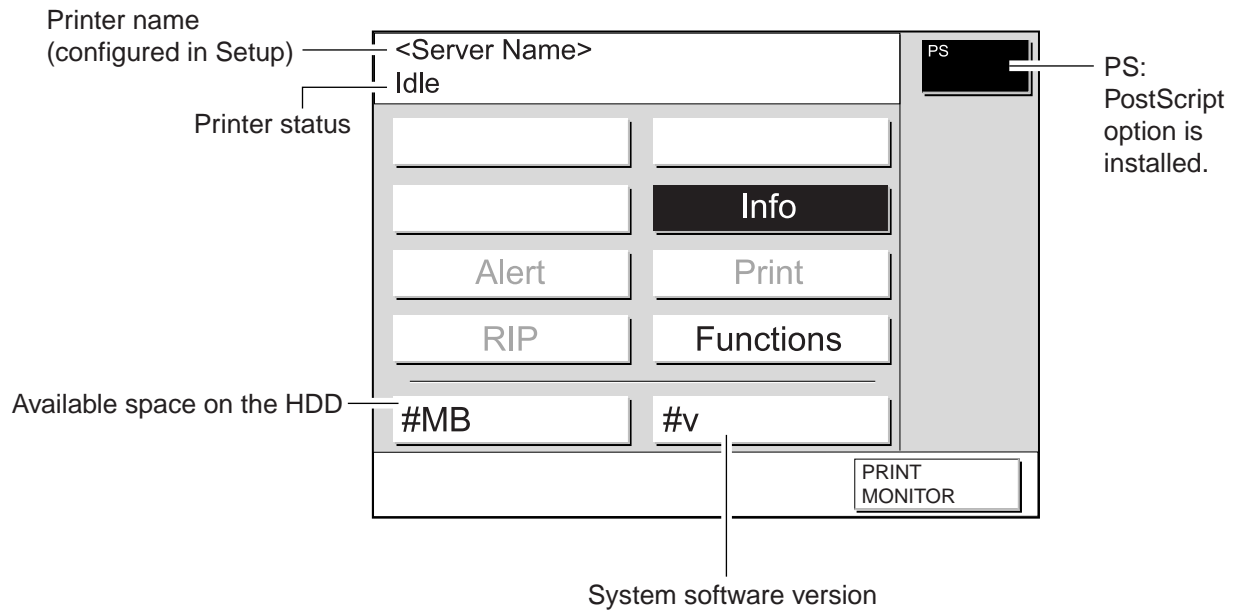


Figure 1-601

D. Test Print

The printer board is equipped with a function capable of generating the following test prints used to check operations and various settings:

- Test Page
Shows some of the settings of the printer board. It may be used to check the connection between the printer board and the host copier.
- Configuration
Shows settings of the printer board.
- Job Log
Provides a log of the most recent 55 jobs (file names, user names, and other control information).
- Font List
Provides a list of fonts stored on the built-in hard disk of the printer board.

A test print may be generated by performing the following:

- 1) Press the OPTIONs key on the copier's control panel so that the Printer screen appears on the touch panel display.
- 2) Select 'Functions'.
- 3) Select 'Print Pages'.
- 4) Select 'Test Page'.

CHAPTER 2

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I. CONSTRUCTION

A. Printer Board Unit

The printer board contains the printer board and the hard disk drive (HDD).

The CPU, RAM (DIMM), flash ROM, and interface circuit are all mounted on the printer board.

The hard disk contains system software and user software distributed through a network by means of WebTools. It also stores print data (in a queue), records print jobs, and contains fonts installed additionally.

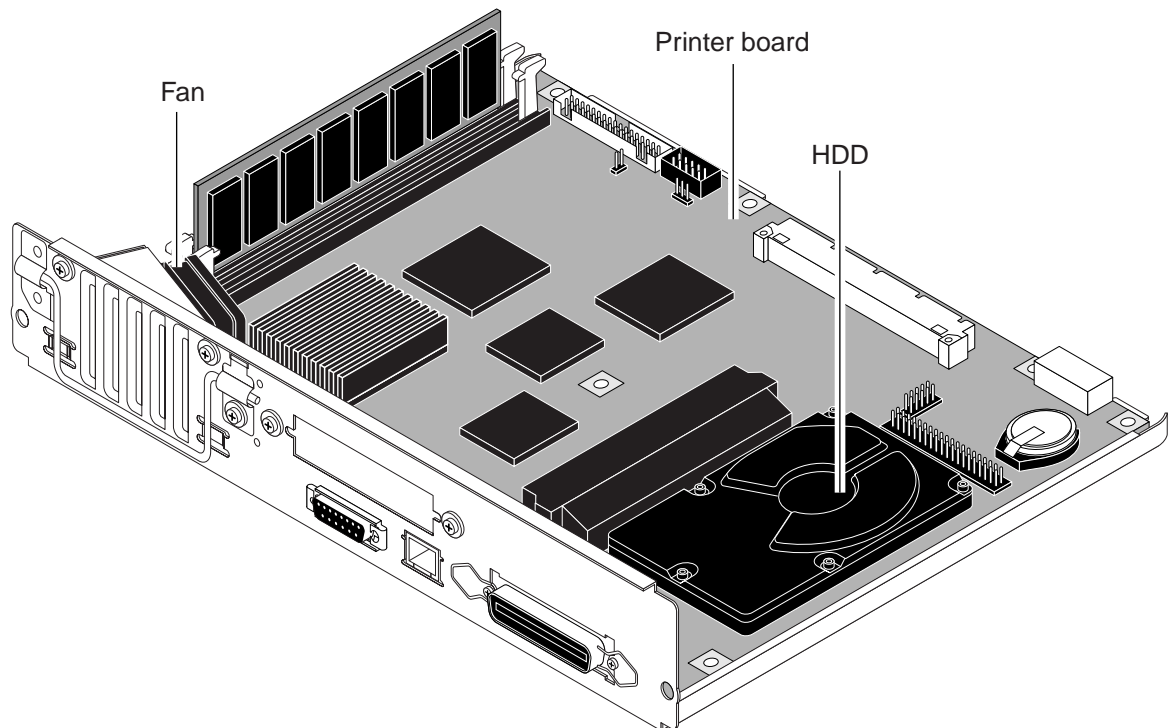


Figure 2-101

B. Parts of the Printer Board by Function

The printer board has the following parts, each with its own function:

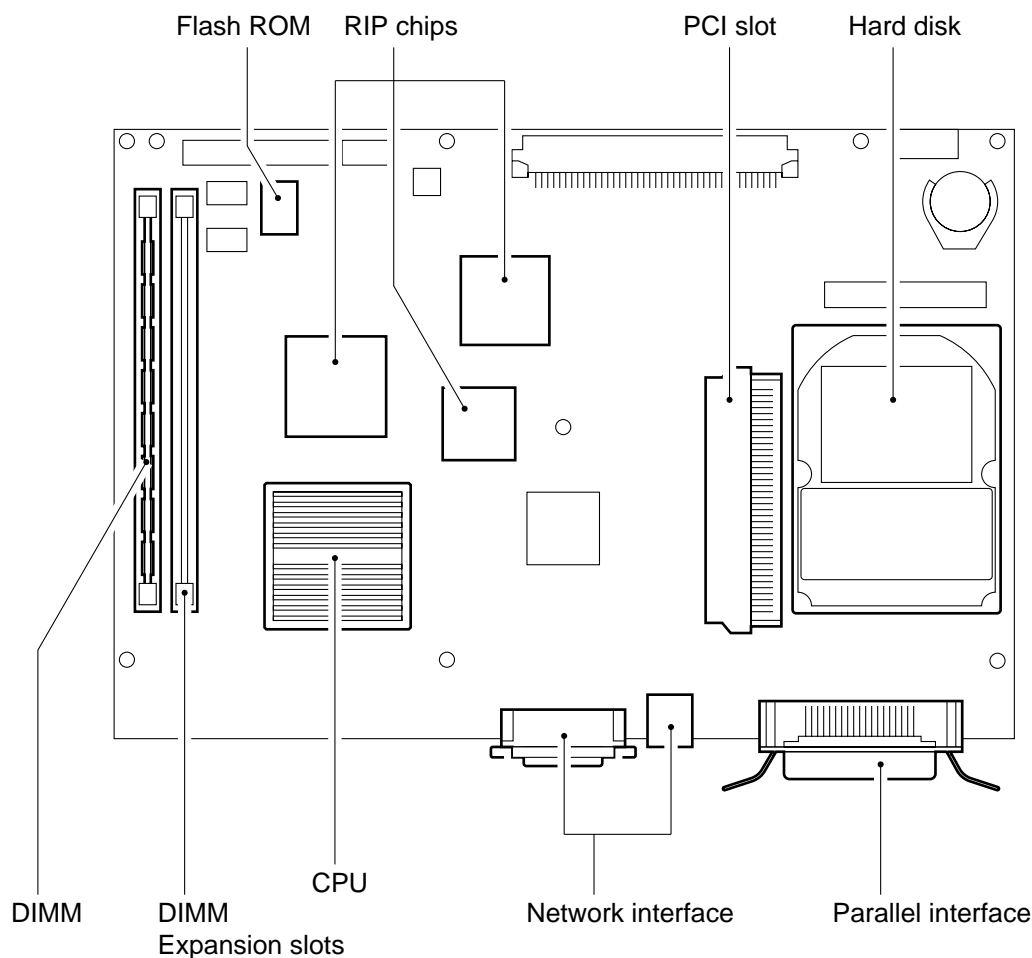


Figure 2-102 (top view)

CPU

It is a RISC type CPU (MIPS R5000) capable of high processing speed. It processes data according to the instructions of the programs in memory.

DIMM

The DIMM area is roughly divided into a system area and an image data area: in the system area are found the program used to control the overall operation of the printer board and the program called a "PostScript interpreter," which interprets PostScript commands to generate image data; the image data area is used to store image data generated from PostScript files.

Flash ROM

The flash ROM contains the programs for running self diagnosis (driven at start-up), for booting the system program, for formatting the hard disk and writing the system program.

RIP Chip

The RIP chip is used to transfer data between memories and control the interface, thereby ensuring that the CPU processes print data efficiently.

Network Interface

It is used for connection to a network, and supports 10Base and 100Base-TX Ethernet systems.

Parallel Interface

It is used for connection to a computer, and is compatible with IEEE1284 standards.

PCI Slot

It is a 32-bit PCI (Peripheral Component Interconnect) connector for future expansion.

II . BASIC OPERATIONS

A. Start-Up Sequence

When the copier's main power switch is turned on, the system power supply is provided with power, ultimately supplying the EX board and the printer board unit with power.

When the printer board is supplied with power, its CPU runs the self diagnosis program stored in its flash ROM, showing the result on the copier's control panel.

When a check on each part ends normally, the boot program stored also in the flash ROM starts to read the system program from the hard disk drive for writing to the main memory.

When the write operation ends, the system program starts and shows the Idle message on the touch display as soon as all parts have been properly prepared.

The system program of the printer board consists of a number of modules, of which the ones needed for the processing in question are called into the system area of the main memory (RAM).

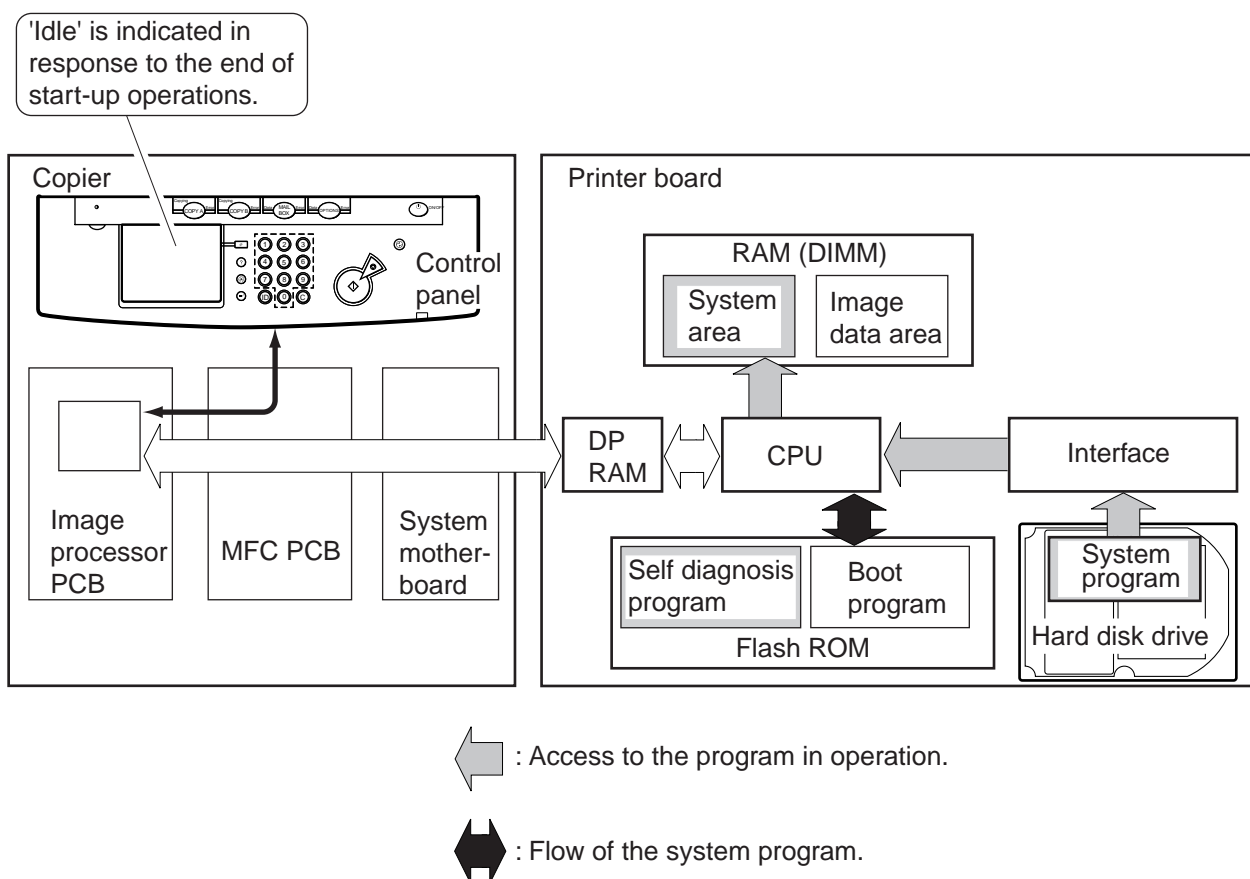


Figure 2-201

The CPU on the copier's IP board and the CPU of the printer board writes test data to the DPRAM mounted on the printer board (for CPU communication) to check the printer board. If a fault is detected, the copier's touch display will indicate an error code (E677).

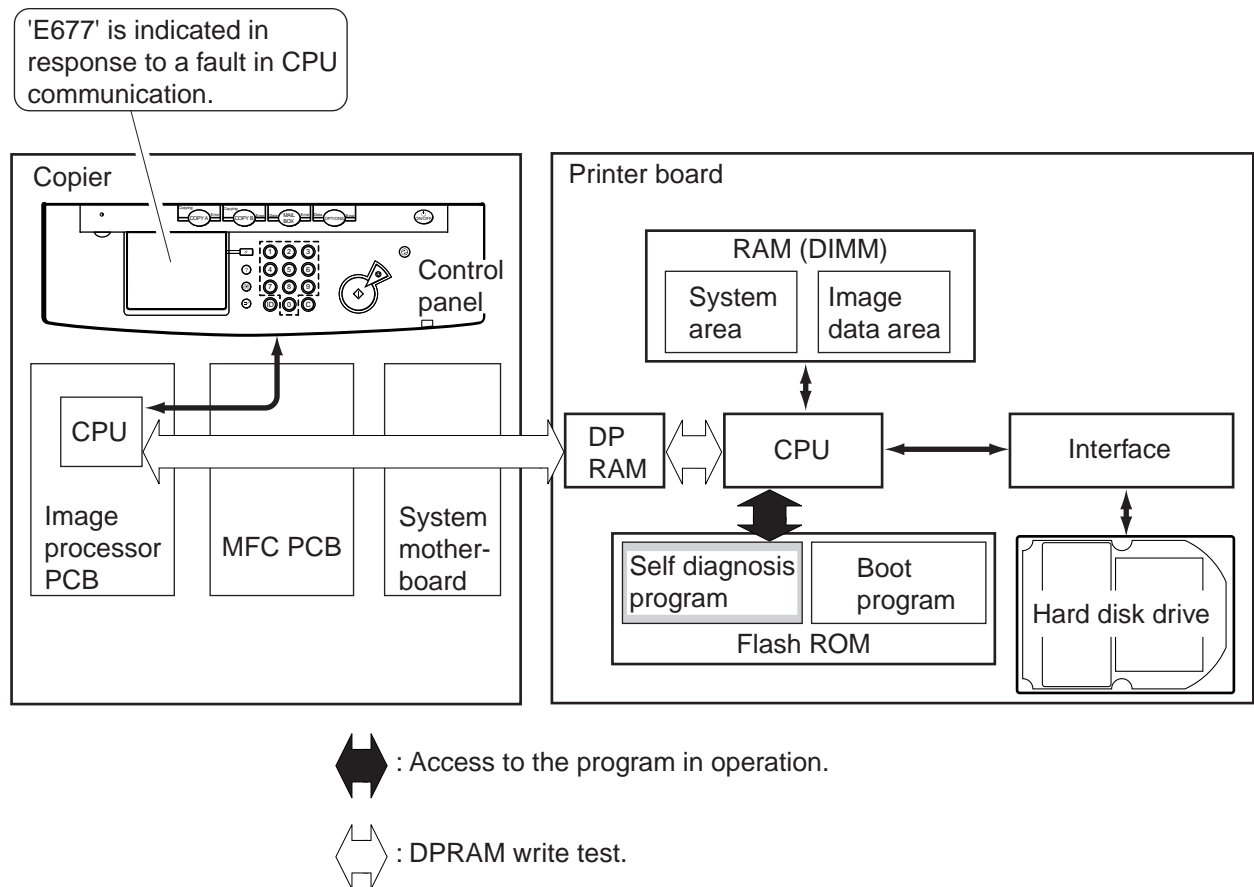


Figure 2-202

B. Printing

1. Processing on the Computer Side

In response to a print command from the user, the application program sends image data to the printer drive with the help of the operating system.

The printer driver then translates the image data and the printer settings information into PostScript commands. The print data described in the page description language (i.e., PostScript) is sent to the printer board through the parallel port or the network port depending on the type of connection used between the printer board and the computer.

The printer driver for the printer board is stored on the CD-ROM that comes with the board.

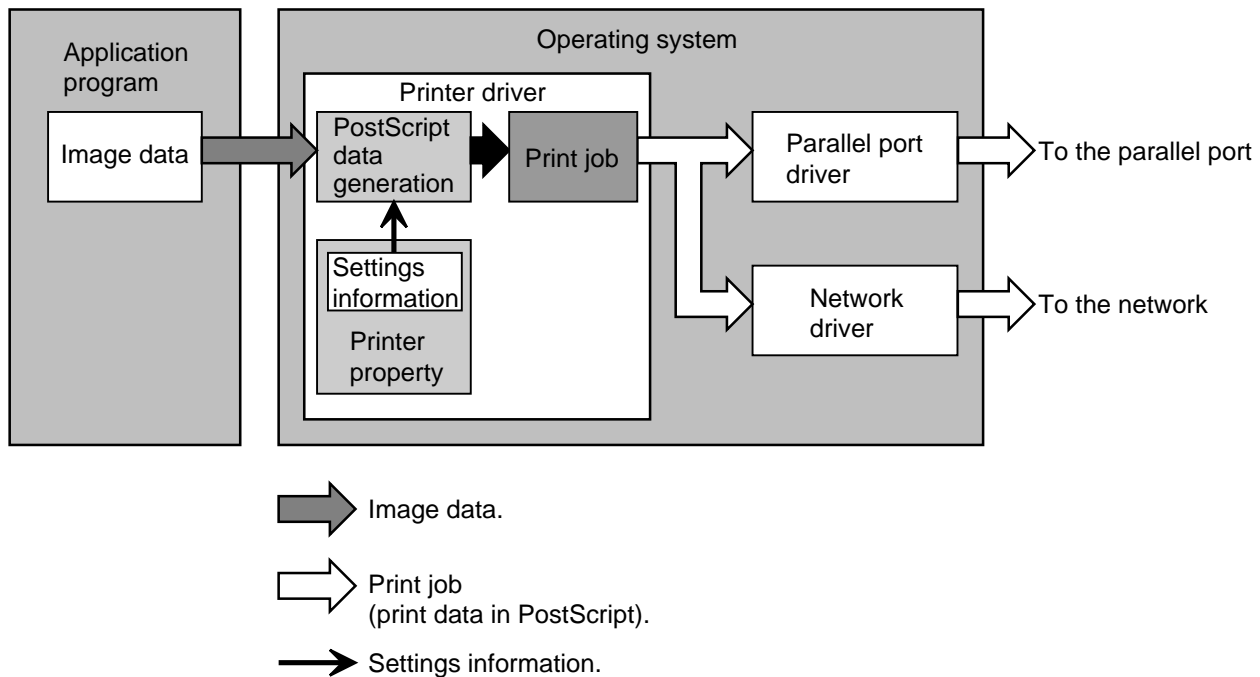


Figure 2-203

2. Processing on the Printer Board Side

The print data input block of the printer board serves to send print data from the computer to the print data processing block using the selected type of connection. In response, the print data processing block generates image data from PostScript print data so that the copier can print it.

When data is ready for transmission to the copier, the image data output block sends it to the copier on a page-by-page basis.

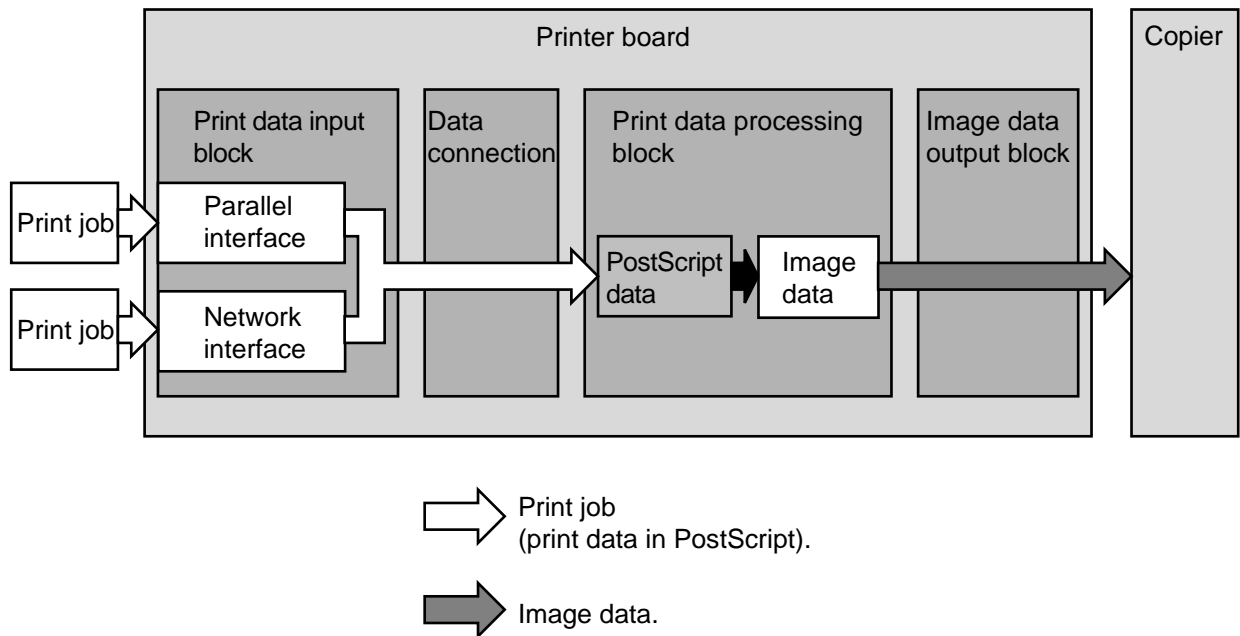


Figure 2-204

The copier exposes its photosensitive drum according to the data it has received and turns out print images by means of development, transfer, and fixing.

III . TRANSFERRING PRINT DATA

The printer board provides a parallel interface on a network interface for connection to a computer. Both these interfaces may be used concurrently.

A. Connecting to the Parallel Port

The parallel port is designed to comply with IEEE1284 (commonly known as "bi-Centronics" standards). It supports an existing Centronics interface, a nibble interface (in which data is sent to the computer in 4-bit units), and an ECP (Enhanced Capability Port) interface (in which data is exchanged in both directions in 8-bit units at a high speed).

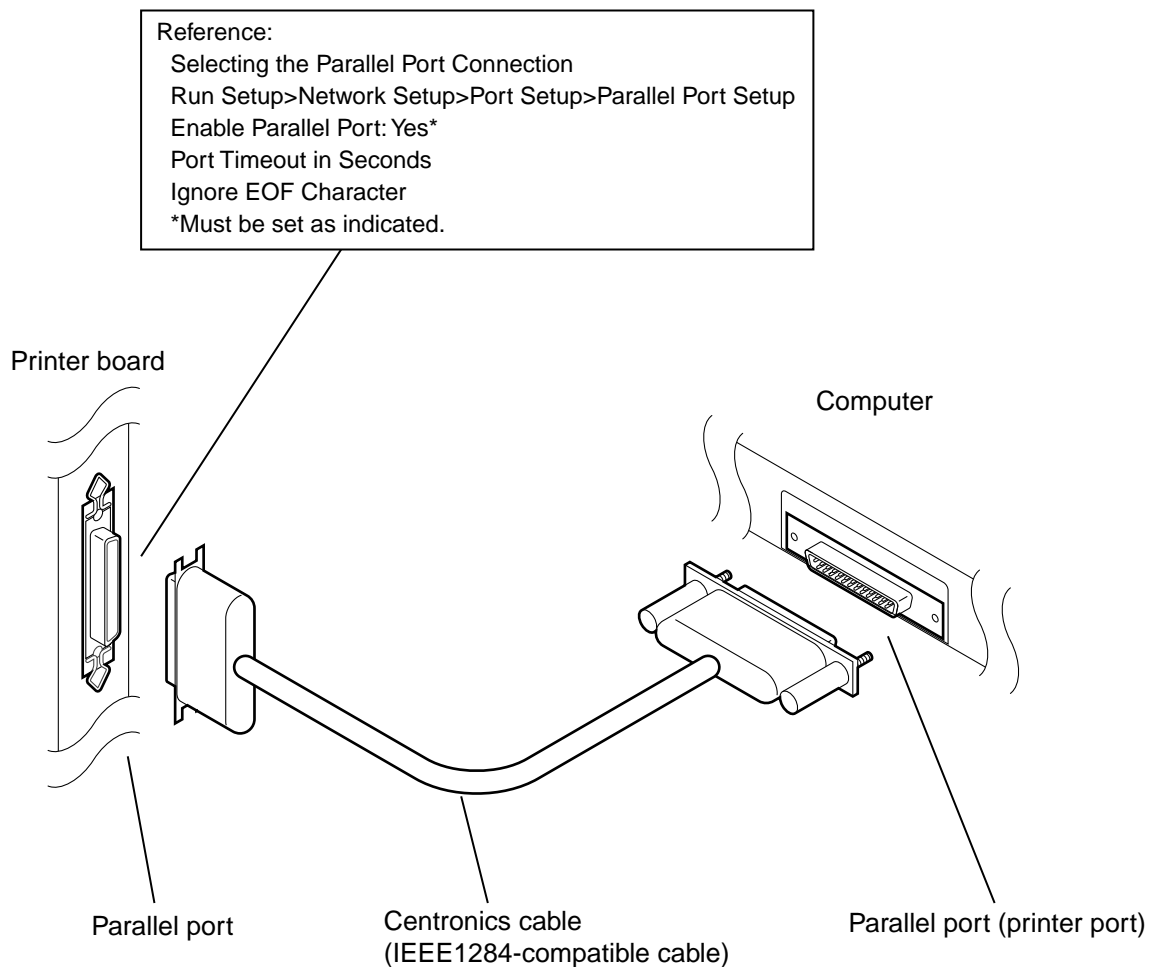


Figure 2-301

B. Connecting to a Network

1. Outline

The printer board comes standard with an interface for an Ethernet network; i.e., it provides an AUI connector for 10Base5, and an RJ-45 connector for 10/100Base-T.

In the case of 10Base5, connect an AUI cable to the AUI connector. The AUI connector and the RJ-45 connector are connected as a network port and, therefore, cannot be used concurrently. (Do not connect cables to both connectors at any time.)

The 100Base standards supported by the printer board are 100Base-TX. The printer board is equipped with a function that automatically switches between 10Base-T and 100Base-TX, capable of operation on a network on which both speeds are used. (Select 'Auto Detect' under 'Ethernet Speed'.) If auto detection fails to operate on a HUB equipped with a 10Base/100Base auto switch, advise the network supervisor to select a fixed speed.

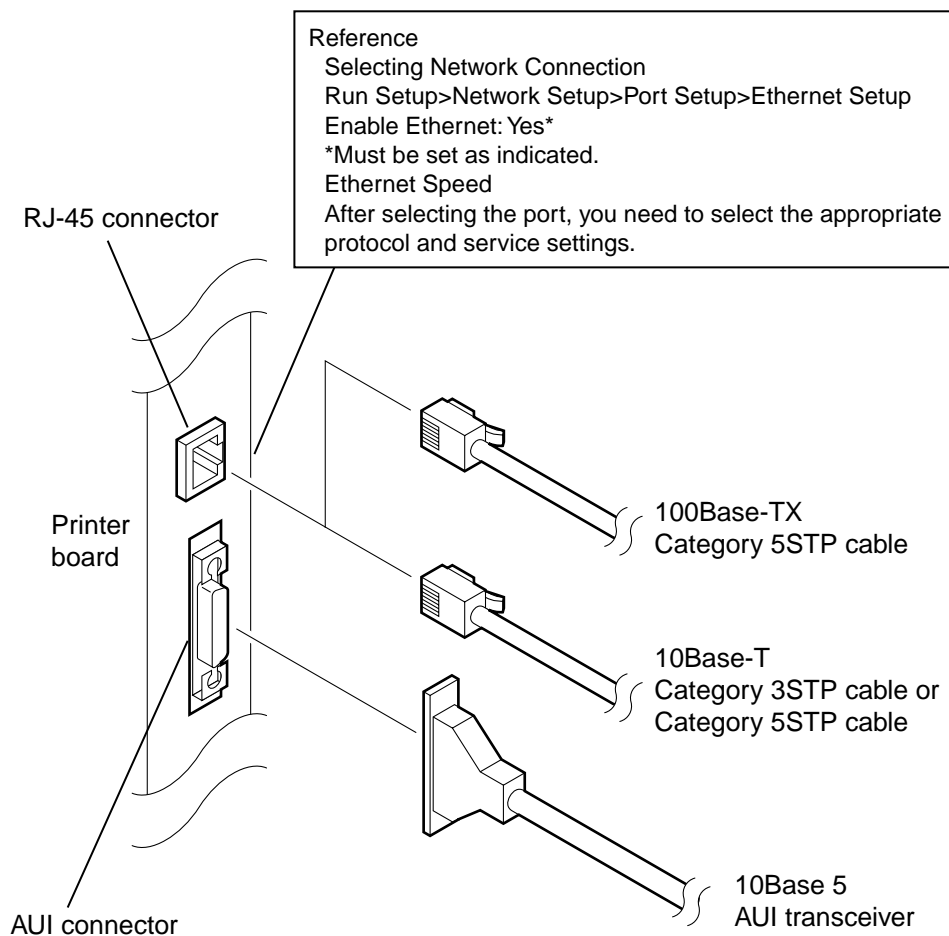


Figure 2-302

2. AppleTalk

A Macintosh network environment uses AppleTalk as the standard protocol. AppleTalk may be either of three types depending on the type of network used: LocalTalk, EtherTalk, or TokenTalk. (The printer board complies with EtherTalk.)

AppleTalk uses PAP (Printer Access Protocol) as its print service, and the print board will automatically select the PAP service upon selection of AppleTalk.

The printer board supports EtherTalk Phase II, and the zone to which the printer board belongs may be selected on a network for which AppleTalk zones have been set up.

In an AppleTalk environment, a print job may be sent to the printer directly from any computer on the network.

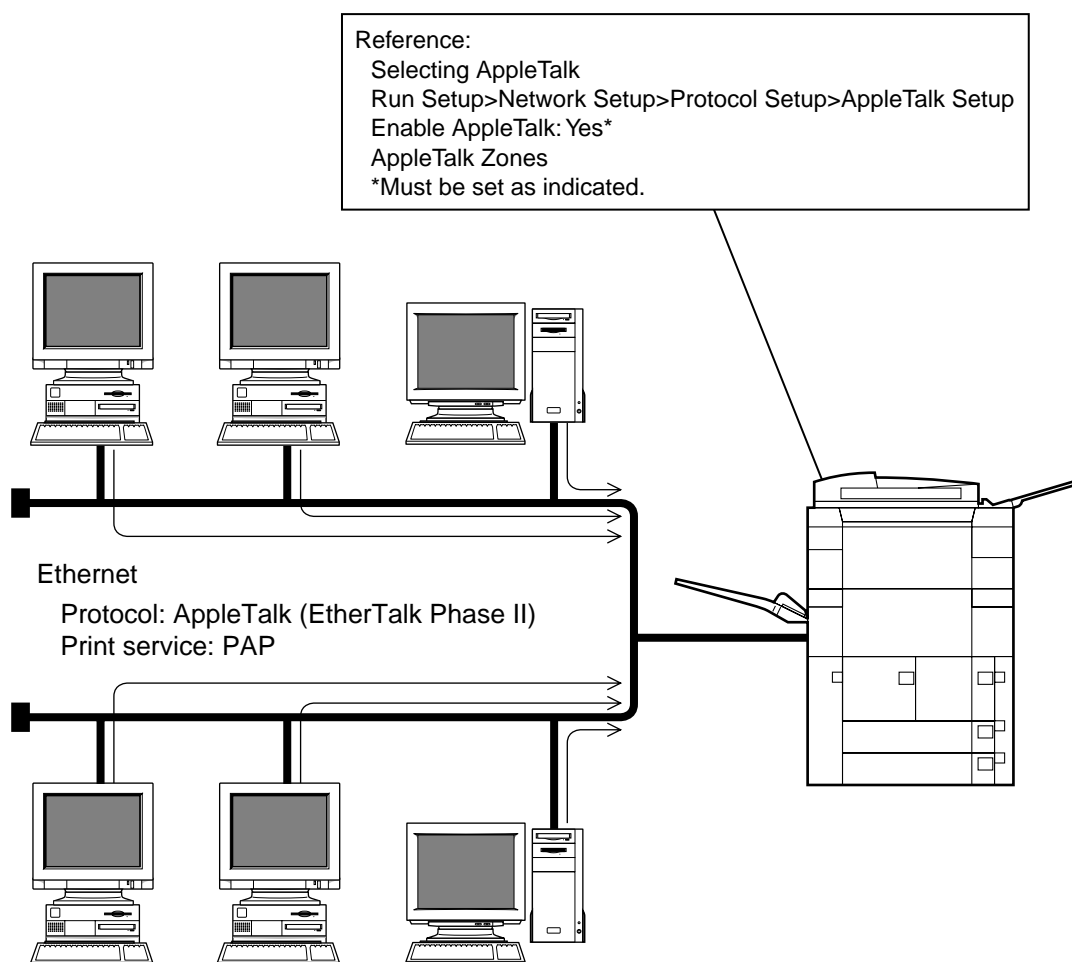


Figure 2-303

3. TCP/IP

TCP/IP is the protocol used in an internet or intranet environment, or on a UNIX network. It is also often used on a Windows NT network.

The printer board supports LPD (Line Printer Daemon), which is the standard print service of TCP/IP. It also supports "SMB over TCP/IP," in which SMB (Server Message Block) is used in a TCP/IP environment, so that print data may be sent directly to the printer board from a computer running on Windows 95/98.

a. Using TCP/IP

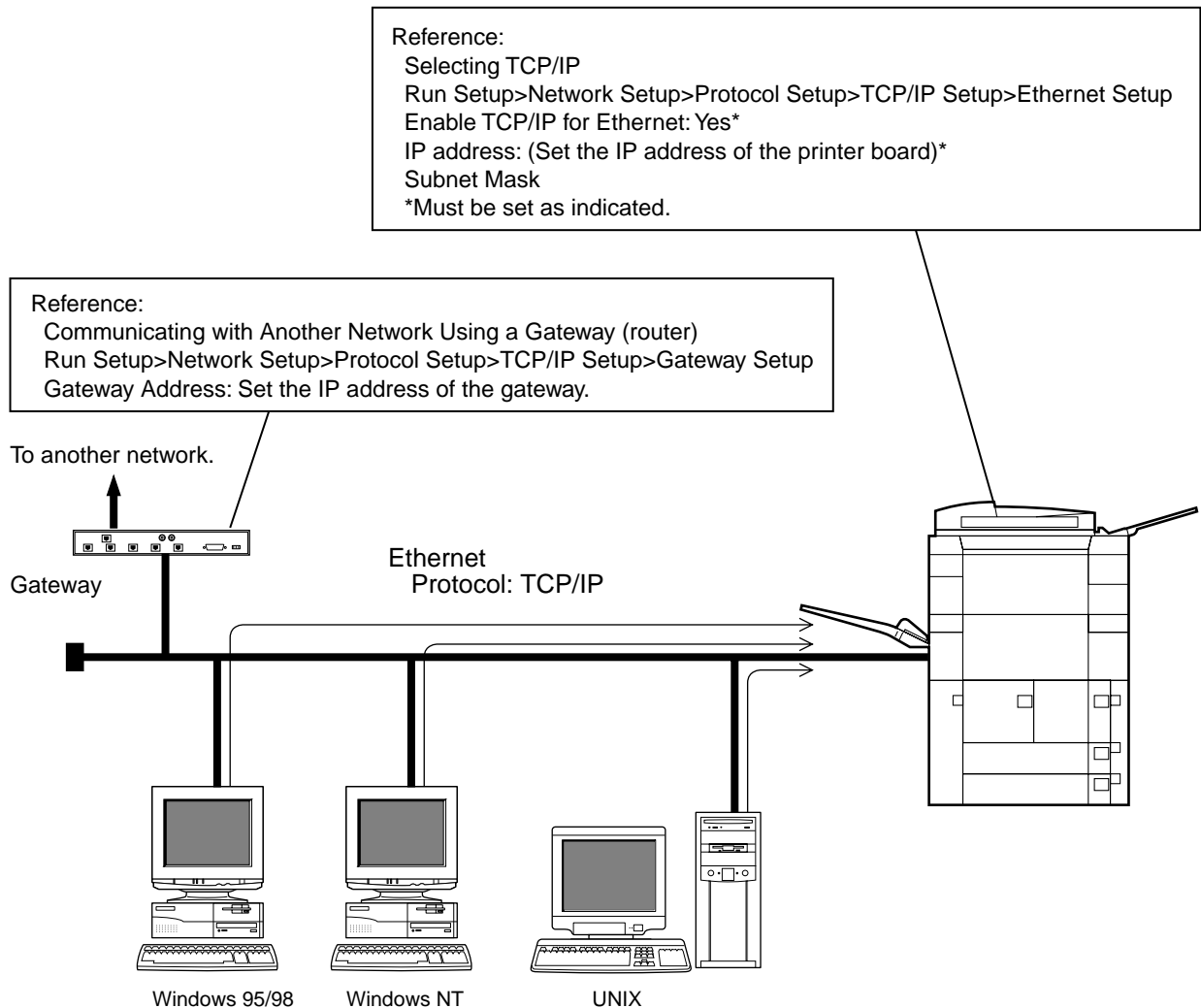


Figure 2-304

b. Using the LPD Service

A UNIX or Windows NT machine is equipped with an LPR port to allow the use of the LPD service, capable of serving as a print server or enabling transmission of print data directly to the printer board.

Windows NT provides the LPR service as part of system software, but it is not installed unless a network is used.

Windows 95 does not provide an LPR port. To print using the LPD service, data must be sent by way of a server equipped with an LPR port, or an LPR utility (not available with the print board) must be installed.

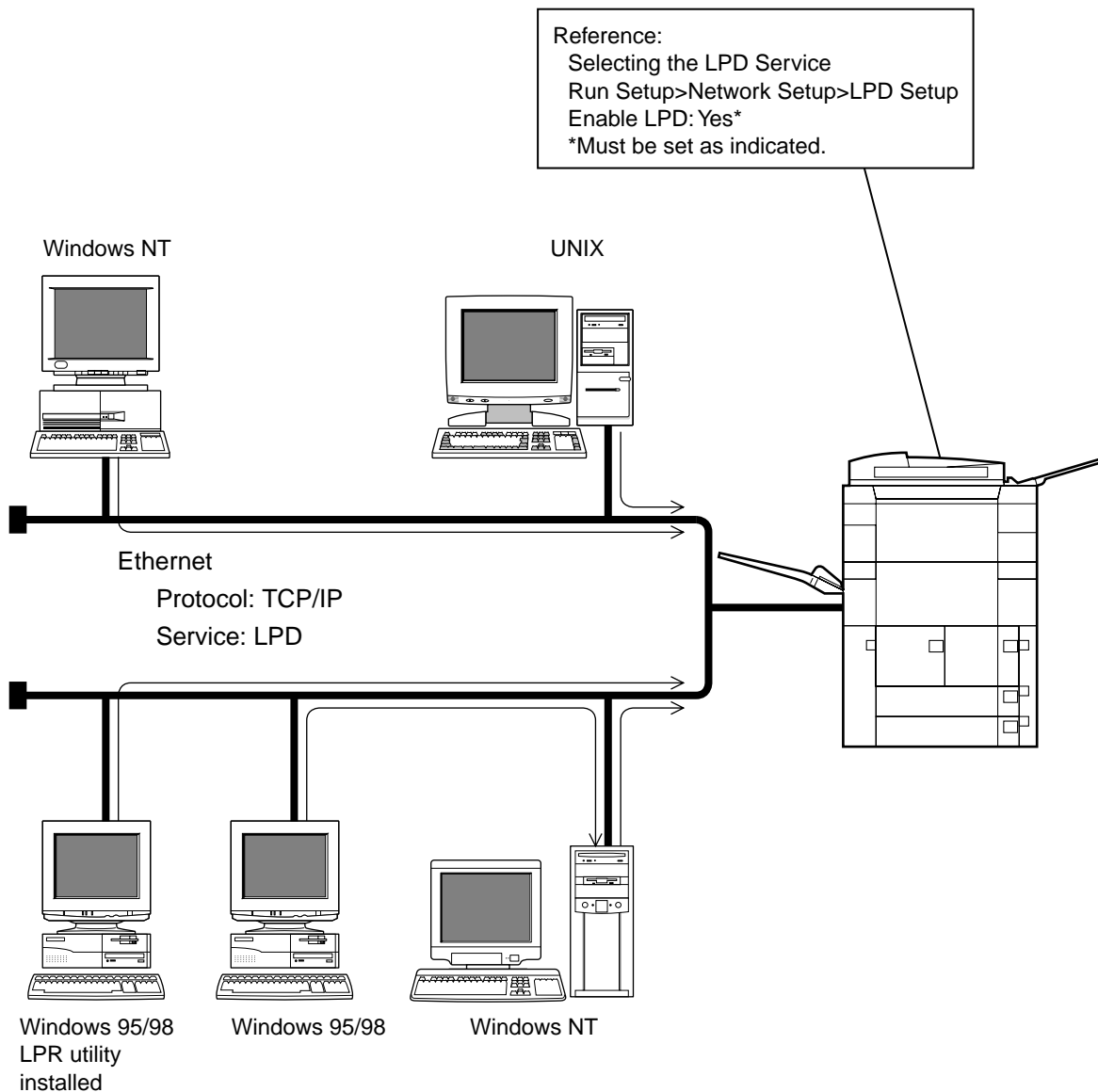


Figure 2-305

c. Using the "SMB over TCP/IP" Service

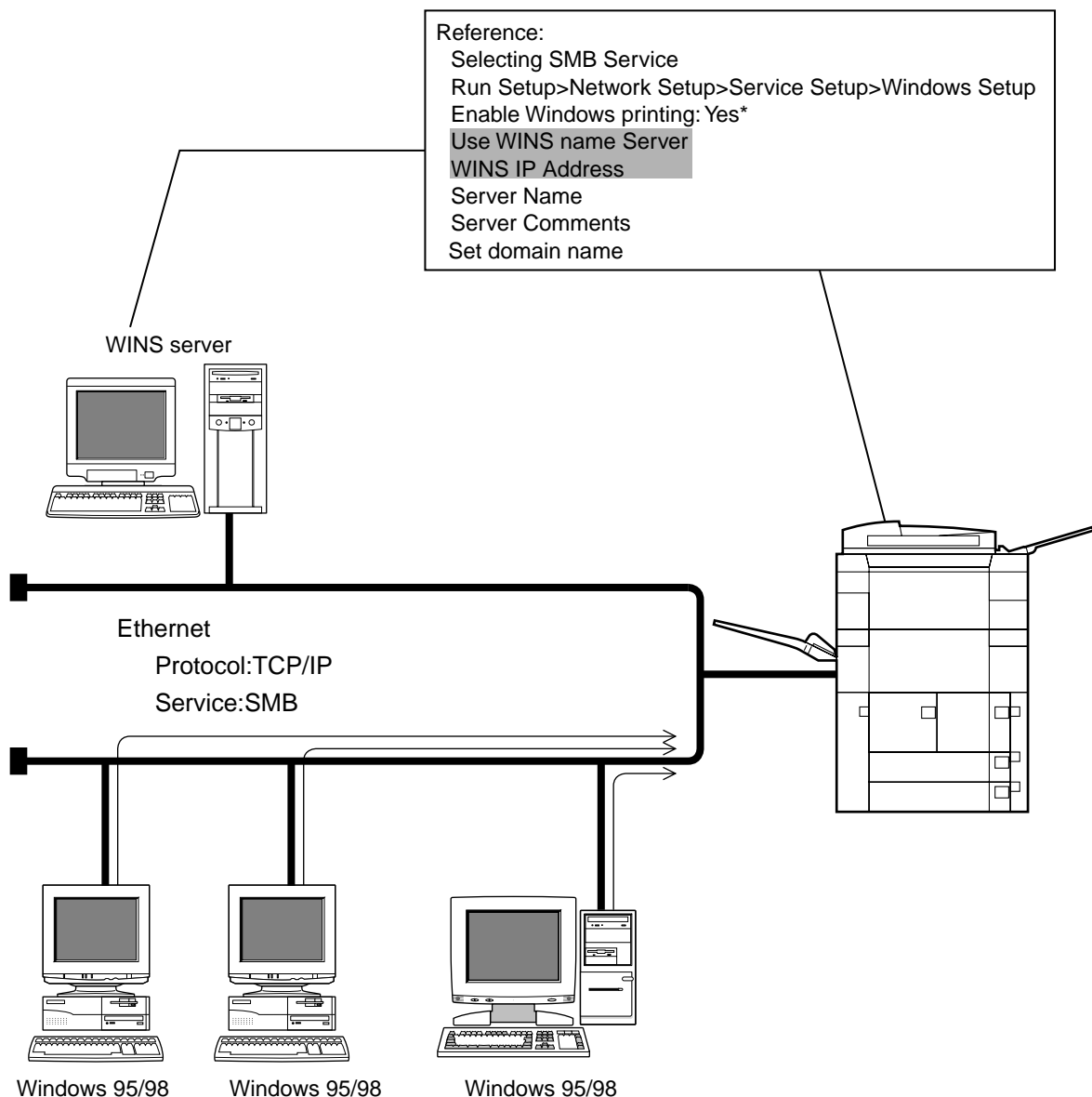


Figure 2-306

4. IPX

A network running on Novell NetWare uses IPX as the protocol for print data. The print board supports network configuration operating in bindery mode (including bindery emulation mode of NetWare 4.X) used in NetWare 3.12 or NDS (NetWare Directory Service) used in NetWare 4.X.

When printing by IPX, all print jobs are queued on the print server within the Novell file server, and are then sent to the printer board.

The printer board checks the presence/absence of a job in the print job queue of the print server at specific time intervals. If a print job exists, it requests the print server to send it; upon arrival, the printer board starts to print the print job.

For IPX settings, see the Administrator's Guide. NDS settings write over the bindery mode settings. If the print board is to be connected to an environment in which both network configurations exist, advise the user's supervisor to make NDS settings first.

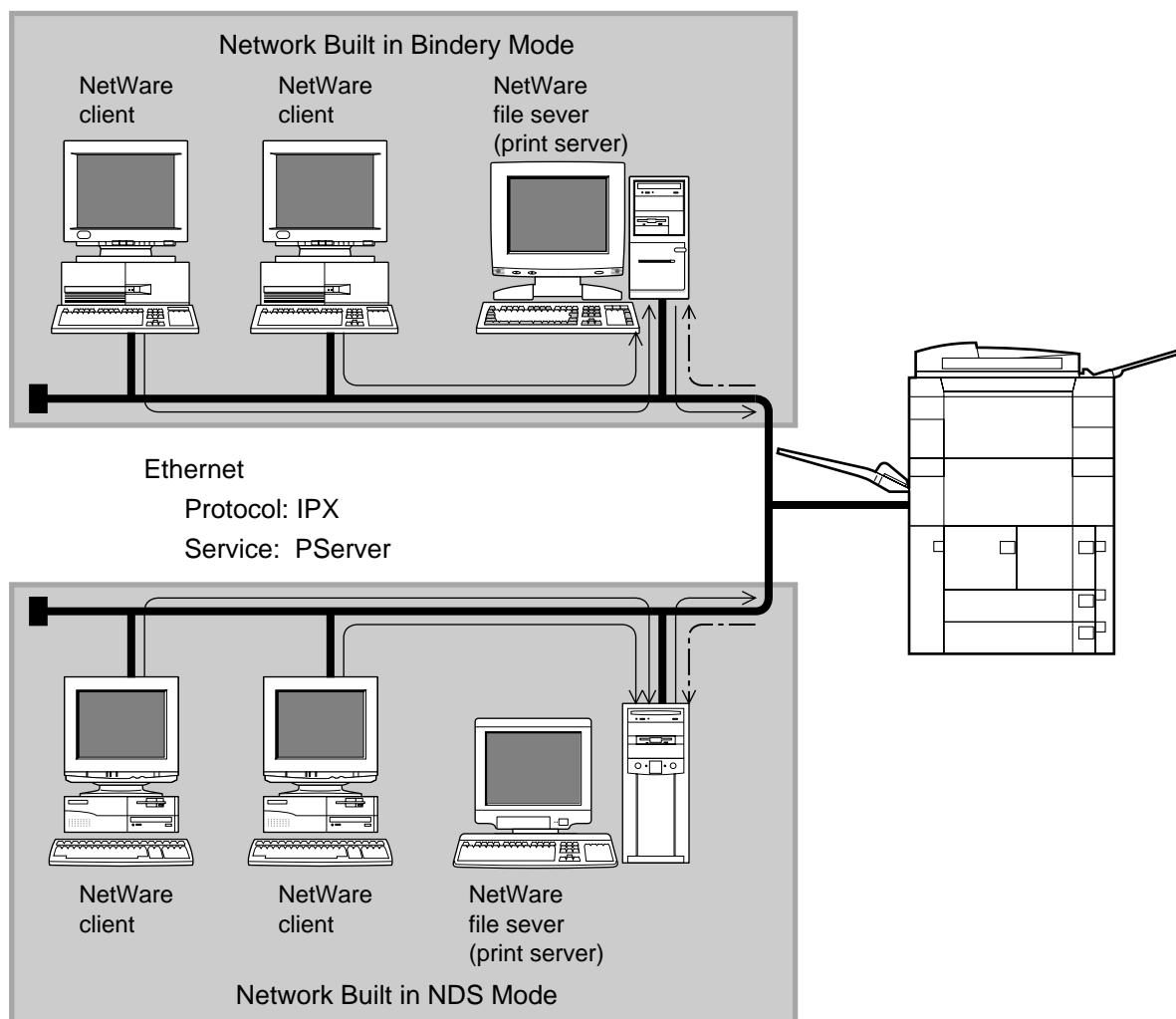


Figure 2-307

IV . PROCESSING PRINT DATA

The print data processes print data as follows:

A. Making a Connection

1. Making a Connection for a Print Job

A print job received through the print data input block is sent to the print data processing block according to the method of connection selected on the computer: the connection method may be direct, through print job queue, or through wait queue.

1. Direct Connection

A print job sent through a direct connection has the highest priority, and is processed before any jobs waiting in the print job queue (if a job is being processed by the print data processing block, immediately after that job).

2. Print Job Queue

In the case of the print job queue, a print job temporarily held in memory is sent to the print data processing block in order of arrival. Each job is removed from the print job queue as soon as it is printed.

3. Wait Queue

A print job sent to the wait queue is stored in memory as it is (without being printed). To print it, you need to move it to the print job queue with the help of Fiery Spooler or WebSpooler (user software).

Both print job queue and wait queue are stored on the hard disk.

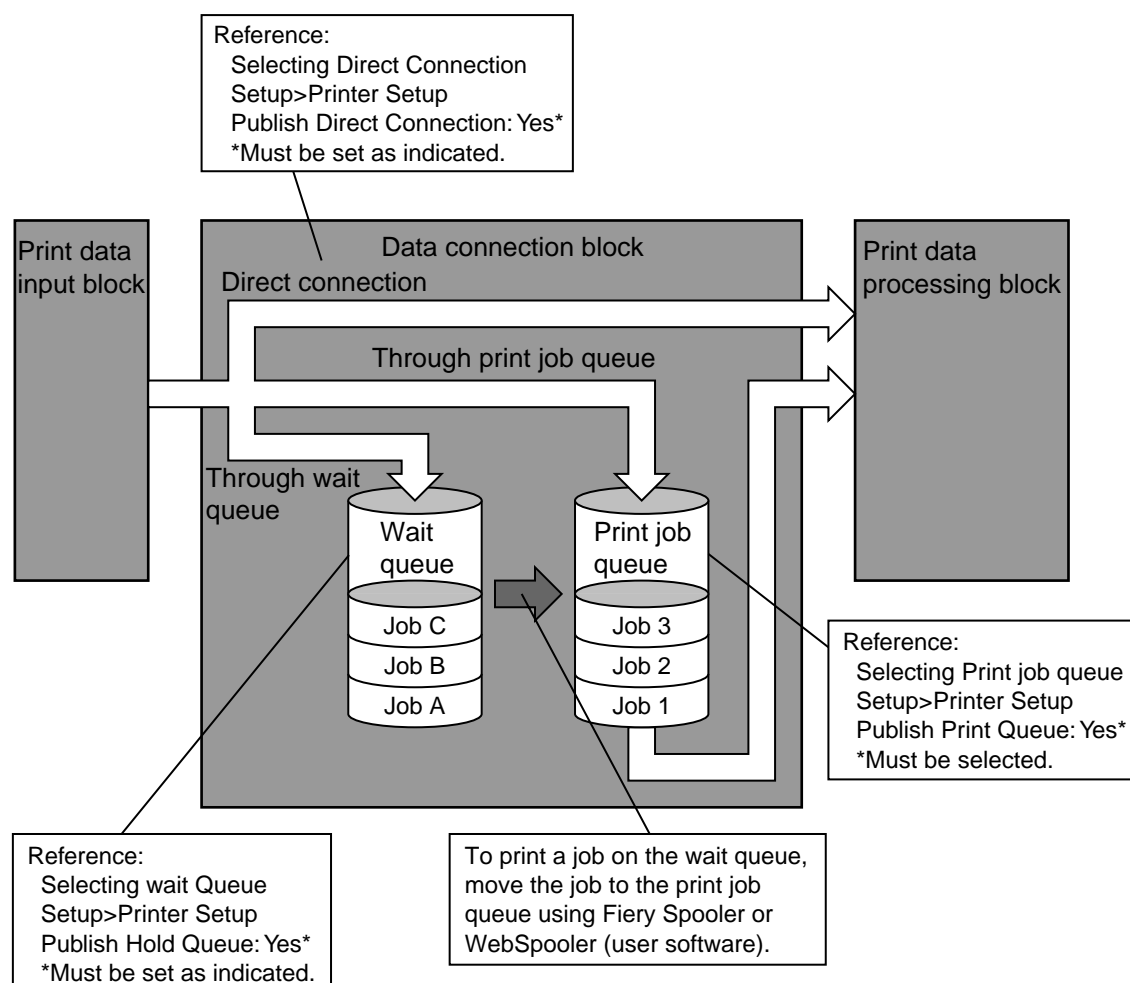


Figure 2-401

2. Printed Job Queue

If the printed job queue is selected, the jobs printed from the print job queue are stored on the printed job queue. When a job is moved from the printed job queue to the print job queue, it may be printed without starting up the application software used to prepare the print data.

As many jobs as specified (in number) in advance may be stored on the printed job queue set on the server. Any excess jobs are removed starting with the oldest job. Jobs printed by direct connection or downloading are not stored in the printed job queue.

To print a job held in the printed job queue, move it to the print queue using Fiery Spooler or WebSpooler (user software).

As in the case of other queues, the printed job queue is also found on the hard disk drive.

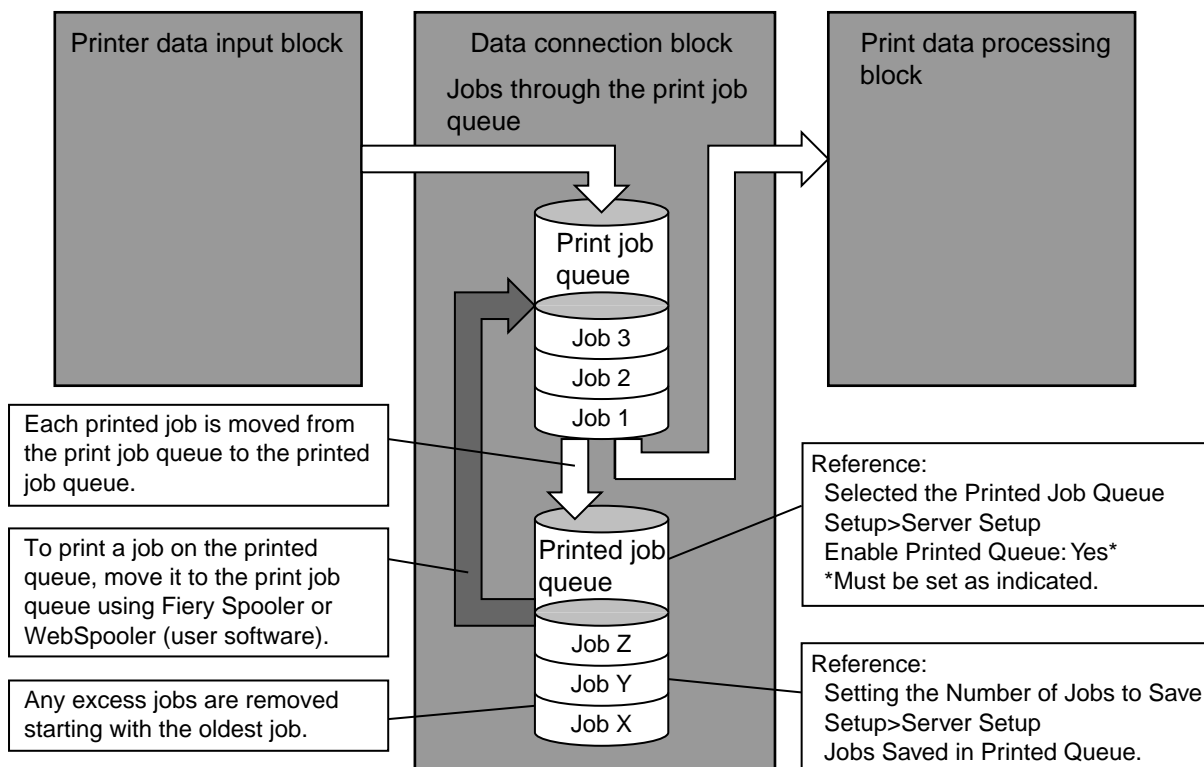


Figure 2-402

B. Print Data Processing Block

In the print data processing block, print data expressed in a page description language is processed into image data (raster image or bitmap data) that may be printed on the host copier. This processing is called "RIP" (Raster Image Processing). The program which interprets commands for processing is called an "interpreter," and the printer board is equipped with a PostScript 3 interpreter.

The interpreter uses 117 Adobe Type-1 fonts, 19 TrueType fonts and two types of Multiple Master Font; a total of 138 fonts come standard on the hard disk. Using Fiery Downloader that comes with the printer board, the user may install additional fonts as needed.

Image data generated in the print data processing block is compressed and stored on the hard disk.

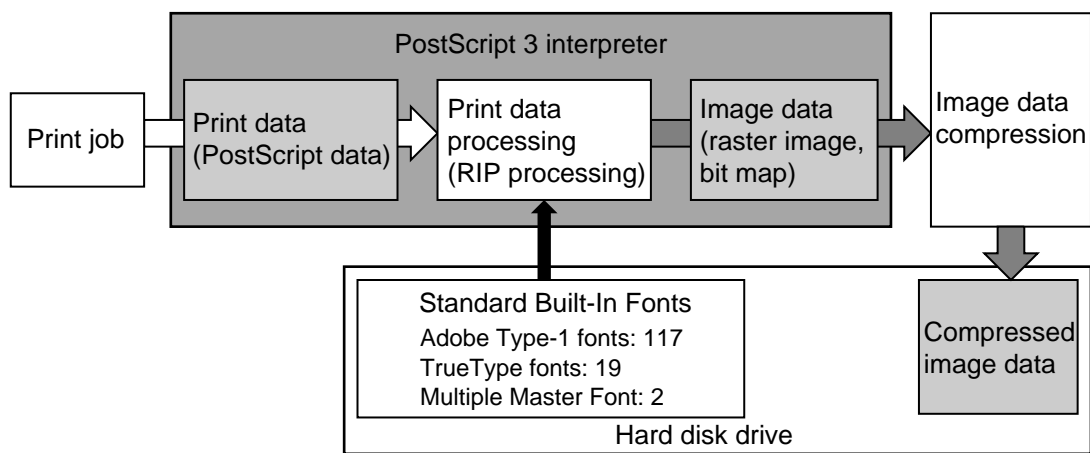


Figure 2-403

C. Image Data Output Block

When print data has been processed on the printer board and preparations for printing are done, the CPU on the printer board communicates such data as on paper source to the host copier to start pickup operation.

When the copier is ready, the image data stored on the hard disk in a compressed form is decompressed and sent to the copier through the video interface.

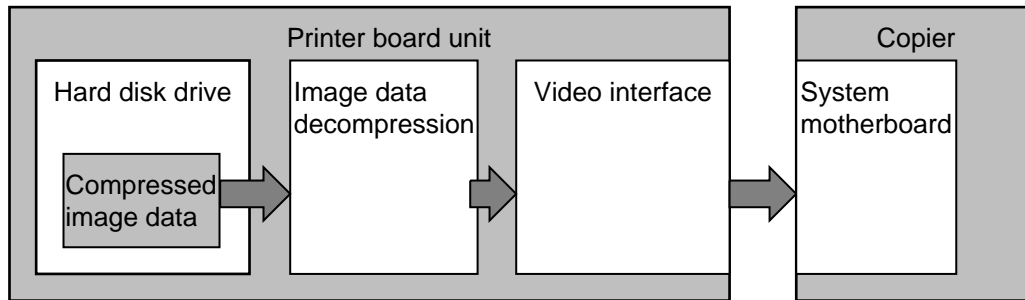


Figure 2-404

V . PROCESSING ON THE COPIER

A. Printing Image Data

Image data generated on the printer board are compressed on the image processor PCB and stored on the hard disk temporarily.

The data on the hard disk is decompressed on the image processor PCB, and developed on the memory board on a page-by-page basis. The resulting data is sent to the laser driver PCB to form images.

■ Storing Temporarily on the Hard Disk

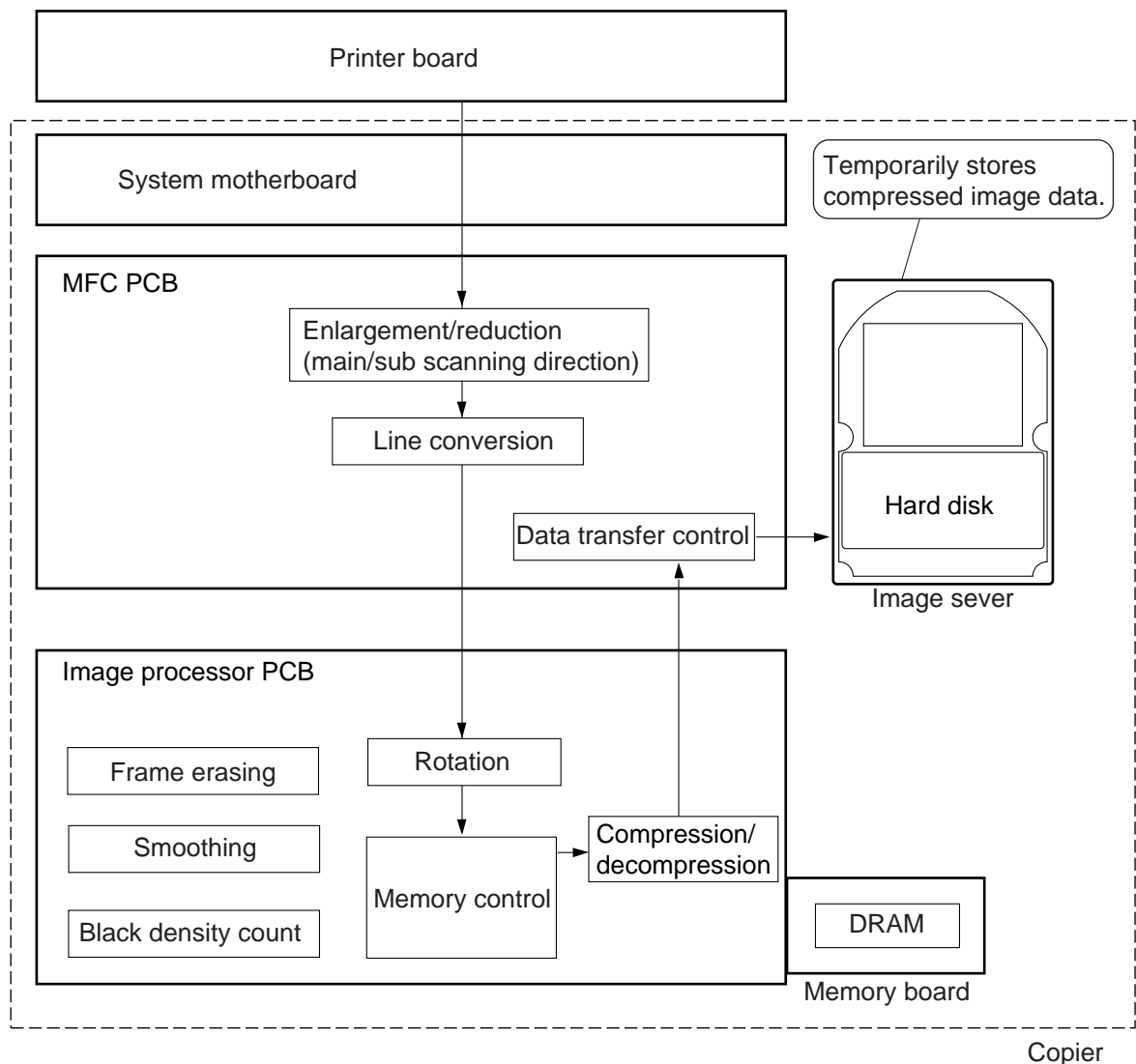


Figure 2-501-1

■ Developing Data on the Hard Disk

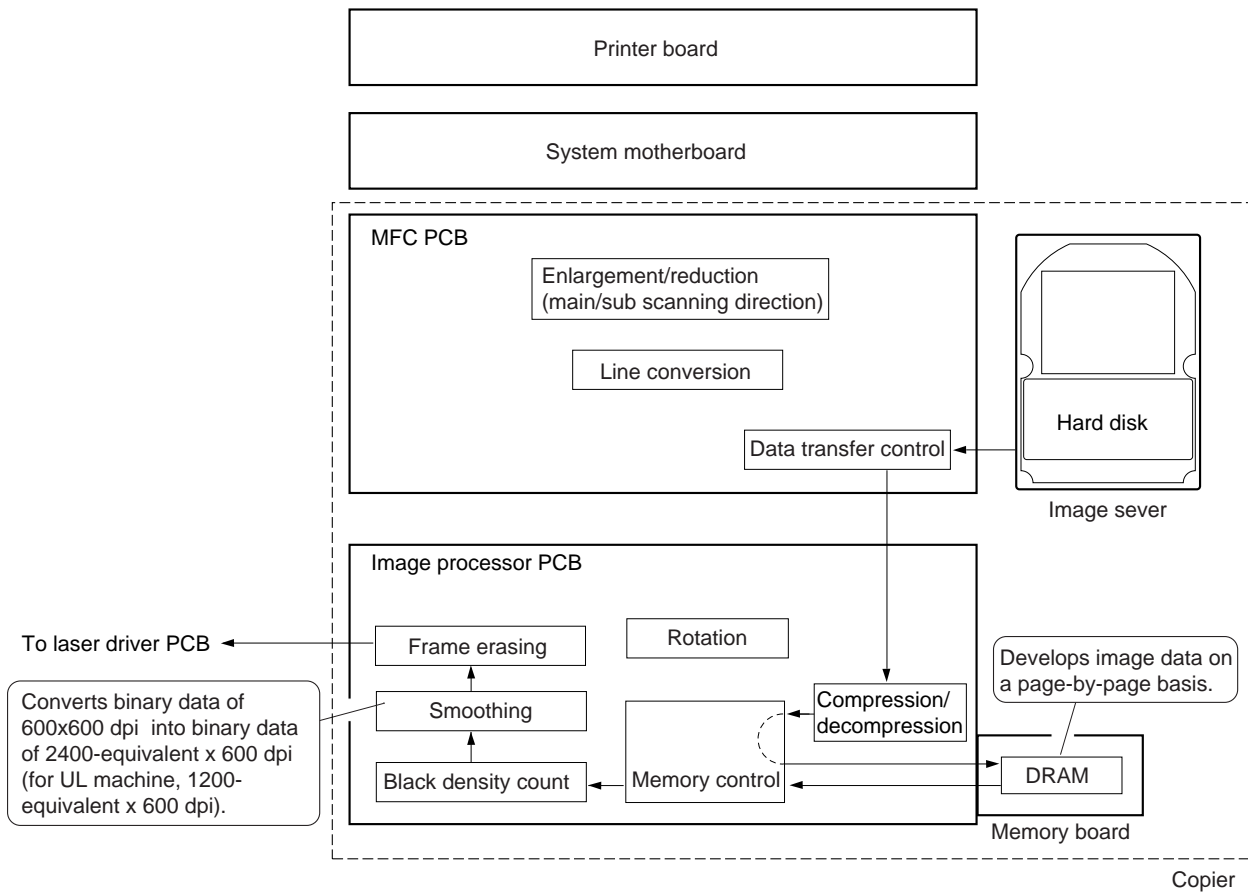


Figure 2-501-2

VI . FAN

A. Outline

The board is equipped with one fan used to cool the inside of its host copier. The fan starts to rotate when the copier's main power switch is turned on. Figure 2-601 shows the location of the fan and the direction of air current.

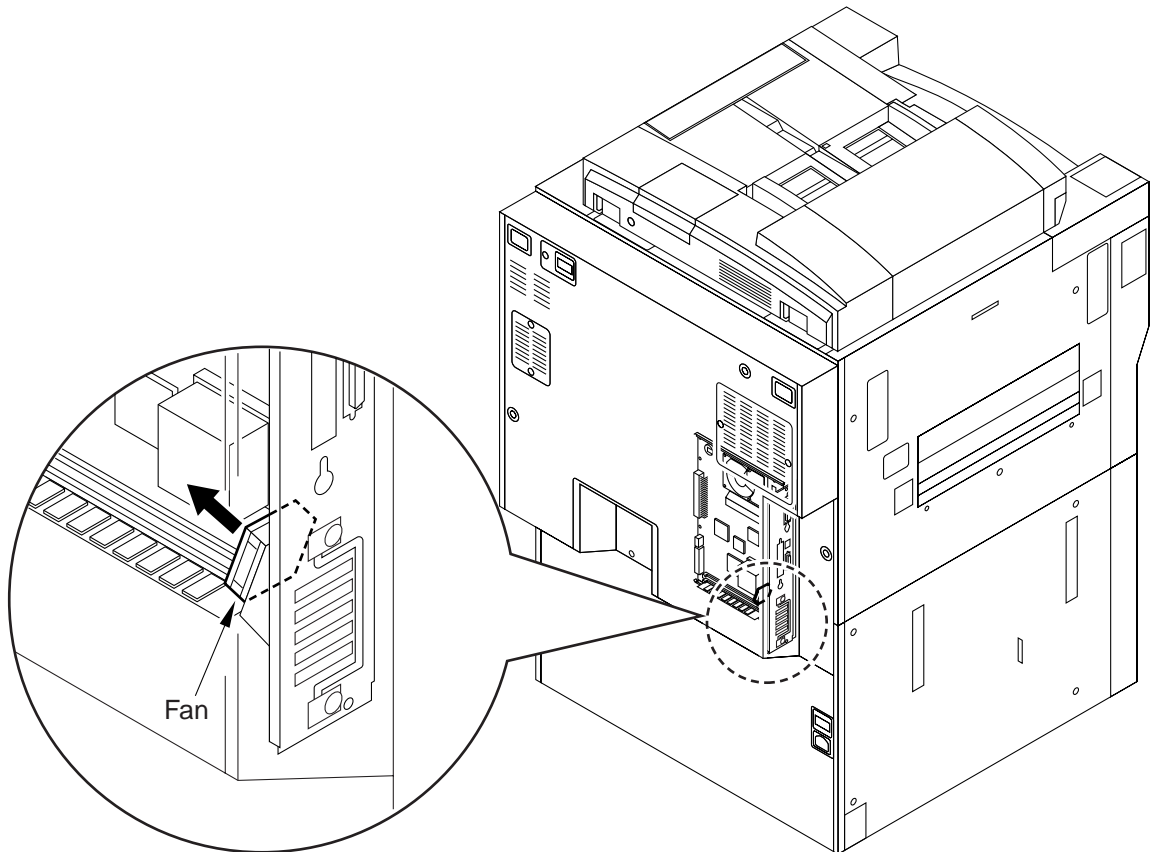


Figure 2-601

VII . POWER SUPPLY

A. Outline

The printer board is supplied with power by the copier. Figure 2-701 is a block diagram of the power supply system of the printer board.

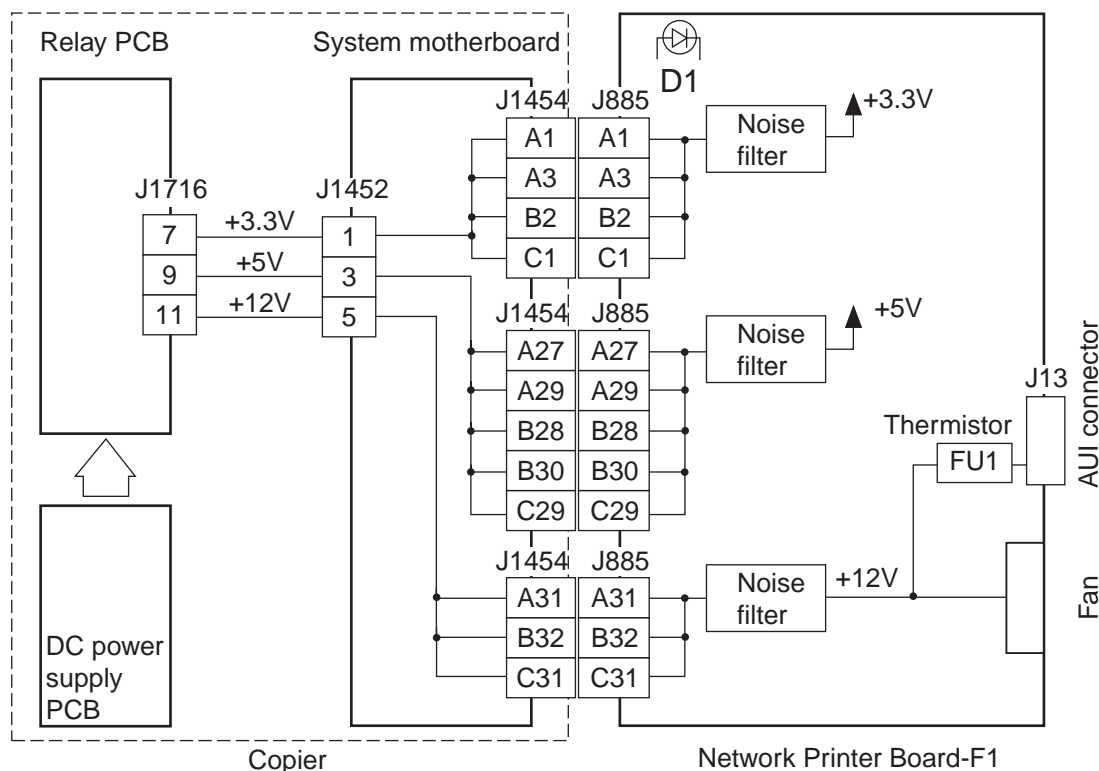


Figure 2-701 Power Supply System

As many as three types of power are supplied by the host copier: 3.3 V, 5 V, and 12 V. Each power system starts when the copier is turned on through a noise filter.

The 12-V power from the AUI connector to an external destination is protected against overcurrent by means of a thermistor (FU1). If an overcurrent occurs in the thermistor, the temperature of the thermistor rises to increase the resistance of the thermistor, keeping the overcurrent in check.

The LED (D1, orange) remains on when 5 V is supplied normally.

Power	Destinations
3.3V	CPU, memory, DRAM
5V	Hard disk drive, Centronics circuit
12V	Fan, AUI connect (for externally connected transceiver)

Table 2-701

B. Backup Battery

The board is equipped with a lithium battery as a backup power supply for such cases as when the copier's main power switch is turned off or power plug is disconnected.

Note, however, that the backup battery serves to drive the clock on the board only.

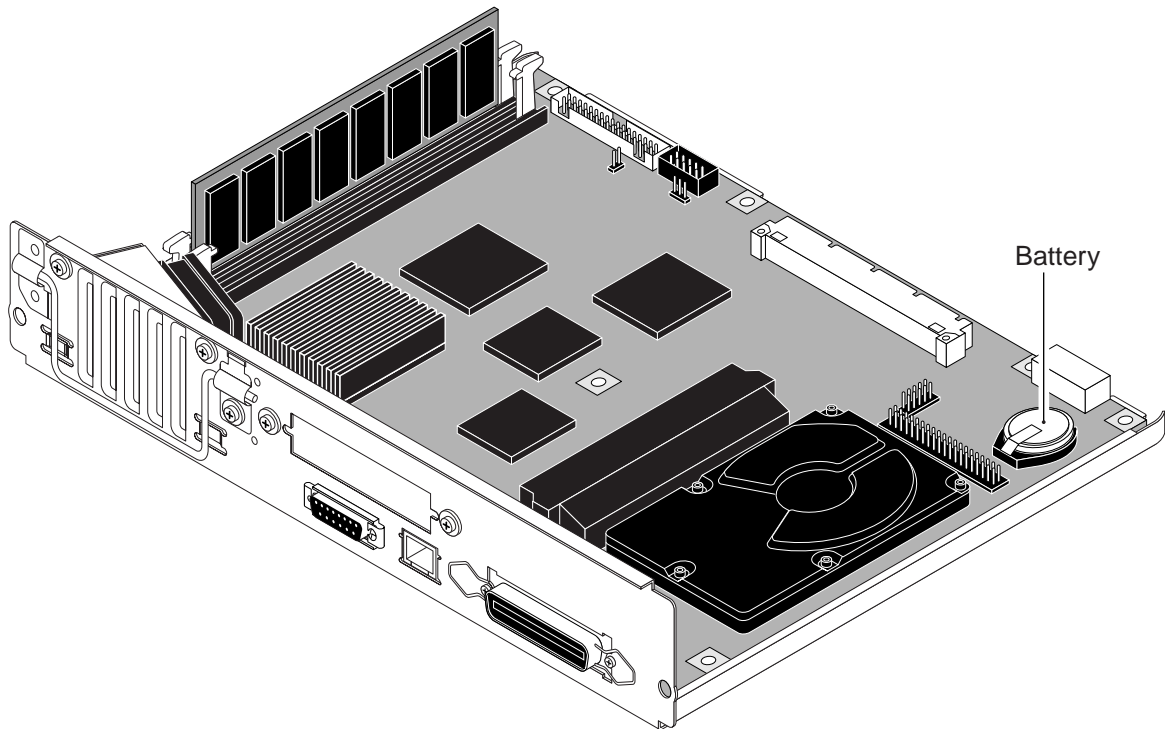


Figure 2-702

Note:

Replace the lithium battery only with the one listed in the Parts Catalog. Use of different battery may present a risk of fire or explosion.

The battery may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, or dispose of it in fire.

Keep the battery out of reach of children and discard any used battery promptly.

CHAPTER 3

USER SOFTWARE

I. OUTLINE	3-1	B. Fiery Downloader	3-5
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III. UTILITIES	3-4	D. WebTools	3-9
A. Outline	3-4	E. NetSpot	3-12

I . OUTLINE

The printer board comes with a user software CD-ROM containing printer drivers and utility programs.

For detailed information on how to install user software, descriptions on functions, and how to use the functions, see the Start-Up Guide or the User's Guide.

II . PRINTER DRIVER

When a print command is executed using an application program, the printer driver converts the print image data received by the operating system from the application program into commands written in a page description language. At the same time, settings selected on the Property screen of the printer are sent to the printer board after conversion into commands.

A printer driver appropriate to the type of page description language used is needed. In general, different operating systems use different protocols to exchange data with printer drivers, requiring that there be a printer driver for each operation system. The user software CD-ROM that comes with the printer board includes the following printer drivers suited to various types of PostScript languages used by individual operating systems:

- Mac OS (7.6.1 or later)
- Windows 3.1
- Windows 95/98
- Windows NT 4.0

To provide the application program and the printer driver with such information as specific to each printer (e.g., number of internal fonts, number of paper cassettes, presence/absence of a duplexing function), there need to be printer data files. The one for PostScript is called a PPD (PostScript Printer Description) file, and is found on the user software CD-ROM.

The versions of the PostScript printer drivers contained on the user software CD-ROM are as follows:

Operating system	PostScript driver
Mac OS	Adobe PostScript Printer Driver version 8.5.2
Windows 95/98	Adobe PostScript Printer Driver for Windows version 4.2.4
Windows NT 4.0	Microsoft Pscript Diver (PostScript printer driver that comes with the Windows system software)

The printer drivers for Windows NT 4.0 do not support PostScript 3, imposing constraints on available functions.

Figure 3-201 shows part of the screen appearing when the Properties item of the Windows 95 printer driver has been selected.

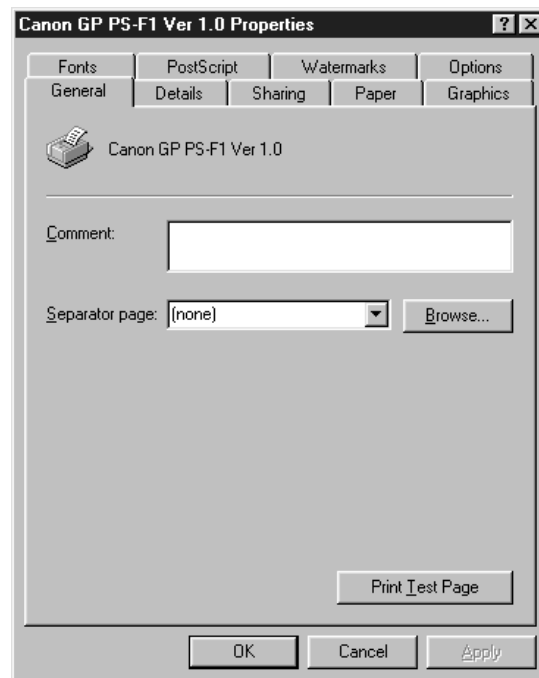


Figure 3-201

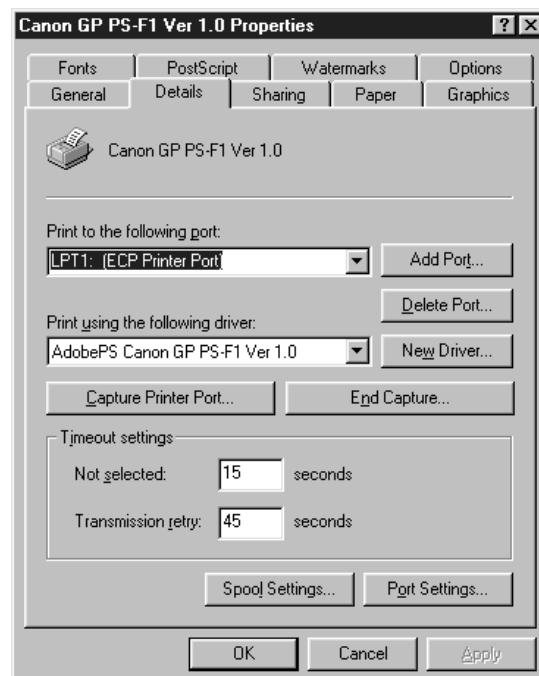


Figure 3-202

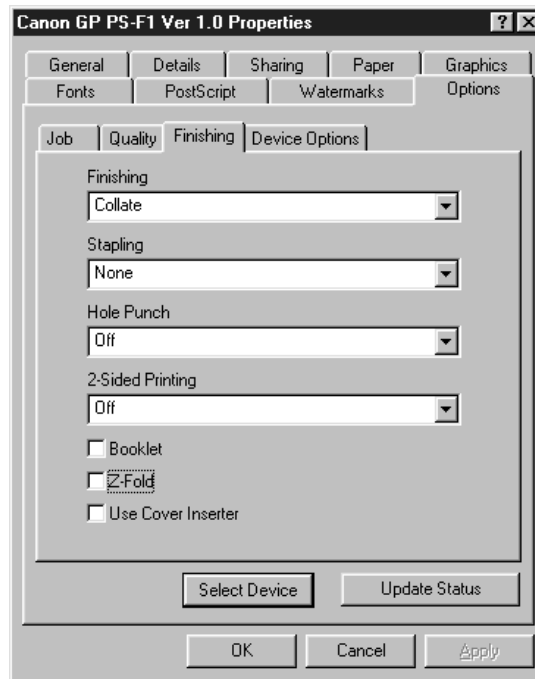


Figure 3-203

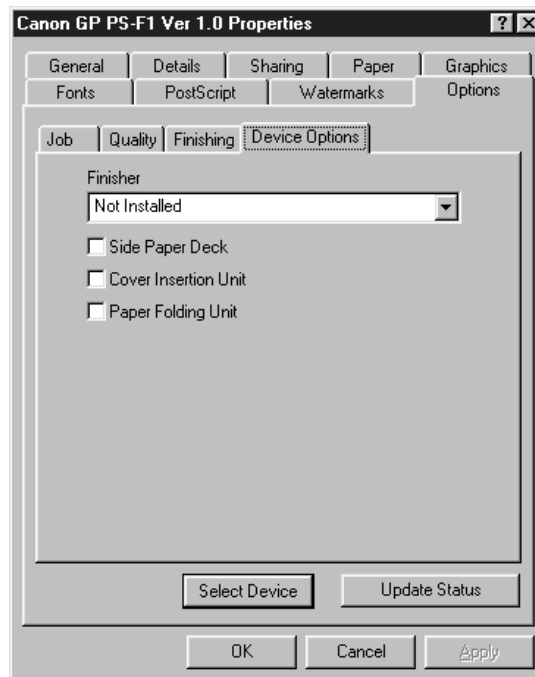


Figure 3-204

III . UTILITIES

A. Outline

Programs providing various useful functions for the printer board are stored on the user software CD-ROM as utilities. (Fiery Downloader and Fiery Spooler are part of the printer board package.)

To use utilities, the host copier must be connected to a network so that the printer board may communicate with computers.

Table 3-301 shows possible combinations of utilities and operating systems. Fiery Spooler is available in versions compatible with Mac OS. For Windows 95/98 and Windows NT 4.0, WebSpooler is made available as part of WebTools with equivalent functions.

	Mac OS	Win 95/98	Win NT 4.0
Fiery Downloader	Compatible	Compatible	Compatible
Fiery Spooler	Compatible	Not compatible	Not compatible
WebTools	Compatible	Compatible	Compatible

Table 3-301

B. Fiery Downloader

Fiery Downloader provides the following functions:

- Downloading PostScript files or EPS (Encapsulated PostScript) files to the printer board for printing.
- Checking the fonts stored on the hard disk drive and installing/un-installing fonts.
- Indicating print job status of the printer board.

To make use of the font management function, 'wait queue' (hold queue) must be selected when making printer settings for the printer board.



Figure 3-301 Main Menu Screen

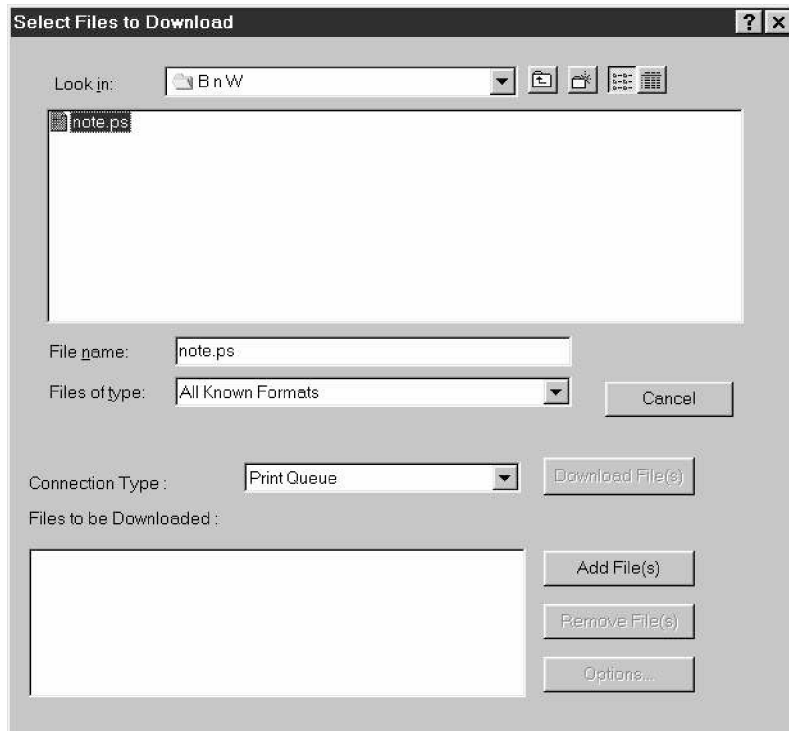


Figure 3-302 File Selection Screen

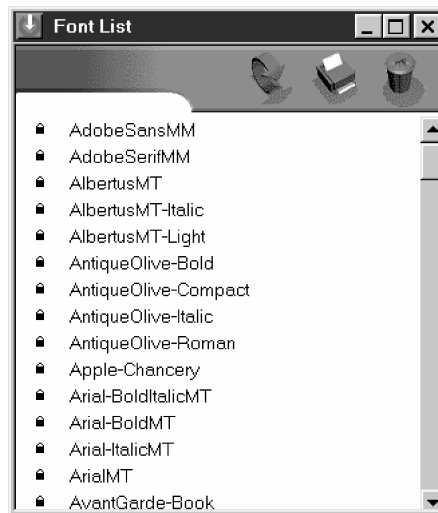
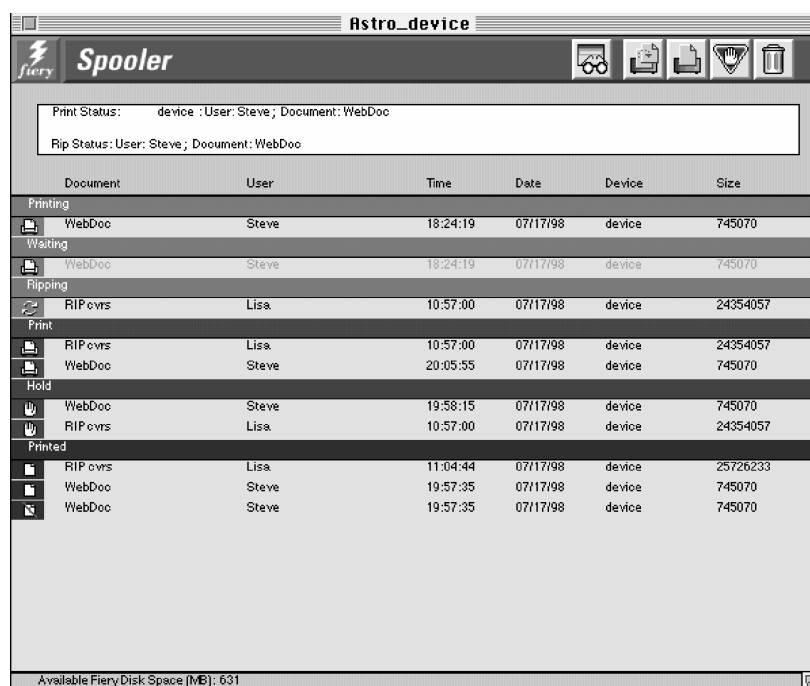


Figure 3-303 Font List Screen

C. Fiery Spooler

Fiery Spooler is a program used to control print jobs arriving at the printer board, and the Main screen offers the following functions:

- Checking the print job status.
- Changing the order of printing.
- Moving print jobs between queues; e.g., printing a job held in the wait queue, or printing jobs held in the printed job queue.
- Canceling jobs.



The screenshot shows the 'Fiery Spooler' window with a title bar 'Astro_device'. It contains a status area at the top, a table of print jobs, and a footer with disk space information.

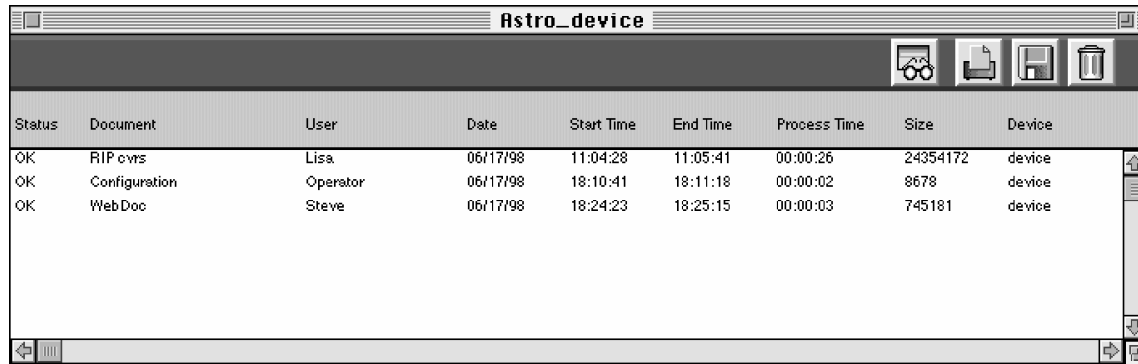
	Document	User	Time	Date	Device	Size
Print Status:	device : User: Steve ; Document: WebDoc					
Rip Status:	User: Steve ; Document: WebDoc					
Printing	WebDoc	Steve	18:24:19	07/17/98	device	745070
Waiting	WebDoc	Steve	18:24:19	07/17/98	device	745070
Ripping	RIPcvrs	Lisa	10:57:00	07/17/98	device	24354057
Print	RIPcvrs	Lisa	10:57:00	07/17/98	device	24354057
	WebDoc	Steve	20:05:55	07/17/98	device	745070
Hold	WebDoc	Steve	19:58:15	07/17/98	device	745070
	RIPcvrs	Lisa	10:57:00	07/17/98	device	24354057
Printed	RIPcvrs	Lisa	11:04:44	07/17/98	device	25726233
	WebDoc	Steve	19:57:35	07/17/98	device	745070
	WebDoc	Steve	19:57:35	07/17/98	device	745070
Available Fiery Disk Space (MB): 631						

Figure 3-304 Main Screen

The Job Log screen offers the following functions related to control of print jobs:

- Checking control information.
- Printing control information.
- Generating files of control information for use by other programs.

A job log consists of control information only, and will not allow printing of jobs.



Status	Document	User	Date	Start Time	End Time	Process Time	Size	Device
OK	RIP cvms	Lisa	06/17/98	11:04:28	11:05:41	00:00:26	24354172	device
OK	Configuration	Operator	06/17/98	18:10:41	18:11:18	00:00:02	8678	device
OK	WebDoc	Steve	06/17/98	18:24:23	18:25:15	00:00:03	745181	device

Figure 3-305 Job Log Screen

D. WebTools

1. Outline

The printer board is equipped with WWW server functions, and the user may control the printer board remotely when working in a network environment. These functions are called "WebTools," and allow checking job processing status and controlling jobs; specifically, the functions include the following:

- Status function
- WebSpooler
- WebLink

To access the printer board for these functions, the user must rely on a browser (Netscape Navigator or Internet Explorer; the JAVA function must be turned on).



Figure 3-306 Main Menu Screen

2. Status Function

The status function allows the user to check RIP status or printing status, and the information is updated every 30 sec.



Figure 3-307 Status Screen

3. WebSpooler

WebSpooler possesses functions equivalent to those of Spooler, and is used to manage print jobs arriving at the printer board. It also may be used to check the job log or to print the log. At default, the information is updated every 20 sec.



Figure 3-308 Main Screen



The screenshot shows the 'WebSpooler' application window. It has a menu bar with 'File', 'Job', 'Window', and 'Help'. Below the menu bar is a toolbar with three icons: a printer, a document, and a trash can. The main area is a table with the following data:

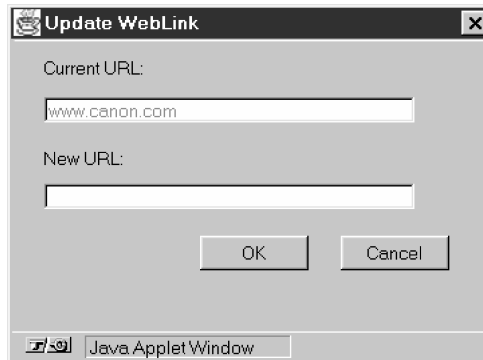
Status	Document	User	Note1	Note2	Date	Start Time	End Time
OK	RIPcvs	Lisa			06/17/98	13:22:35	13:23:00
OK	WebDoc	Steve			06/17/98	13:23:05	13:23:19
OK	Configuration	Operator			06/17/98	13:24:18	13:24:29

At the bottom of the window, there is a status bar with a 'Java Applet Window' button.

Figure 3-309 Job Log Screen

4. WebLink

If the network to which the host copier is connected is connected to the Internet, WebLink enables a jump to an external home page (previously selected). At default, a link is made to Canon's home page. (The destination of the link may be changed as desired.)



The screenshot shows the 'Update WebLink' dialog box. It has a title bar with a close button. The dialog contains two text input fields: 'Current URL:' with the value 'www.canon.com' and 'New URL:' which is empty. Below the fields are 'OK' and 'Cancel' buttons. At the bottom, there is a status bar with a 'Java Applet Window' button.

Figure 3-310 Link Change Screen

E. NetSpot

NetSpot is a printer management utility program which may be used on a TCP/IP or IPX network.

A printer supporting NetSpot possesses a built-in data base for information management called "MIB" (Management Information Base), and NetSpot installed to the supervisor's computer access the database to obtain or set control information.

The communication protocol used by NetSpot is SNMP (Simple Network Management Protocol). Since all printer supporting NetSpot and existing on the network may be accessed from any computer possessing NetSpot, all such printers may be managed by a single supervising individual.

The computer used for management must be able to use the TCP/IP protocol or the IPX protocol. If the AppleTalk protocol is used in combination with the Macintosh version of NetSpot, the presence of the printer board will not be indicated on the device list.

CHAPTER 4

DISASSEMBLY/ASSEMBLY

I.	POINTS TO NOTE	4-1	B.	Removing the Printer Board ..	4-3
A.	General Cautions	4-1	C.	Removing the DIMM	4-4
B.	Turning Off the Copier's Main Power Switch	4-1	D.	Removing the Hard Disk Drive	4-5
C.	Handling the Parts	4-1	E.	Removing the Fan	4-6
II.	DISASSEMBLY/ASSEMBLY	4-2			
A.	Removing the Printer Board Unit	4-2			

I . POINTS TO NOTE

A. General Cautions

- Disconnect the power plug for safety before starting disassembly/assembly work.
- Unless otherwise noted, assemble the parts by reversing the steps used to disassemble them.
- Identify the screws by type (length, diameter) and location.
- Do not forget to attach a washer to any screws that had a washer before removal. Be sure to use the same screws for any particular location.

B. Turning Off the Copier's Main Power Switch

If the printer board is connected to a network, turning off the copier's main power switch abruptly can disrupt the function of the network. Be sure to obtain the consent of the network supervisor before turning it off.

Make sure that the Printer screen shows the message "Ready for Use" before turning off the copier's main power switch.

If the communication memory lamp on the copier's control panel is on, be sure to print out the contents of the memory before turning off the copier's main power switch.

C. Handling the Parts

The components of the printer board unit are susceptible to static electricity. Be sure to wear a wrist strap designed for discharging static electricity when handling the components.

A hard disk drive, highly sensitive to magnetic force, is mounted on the printer board unit. Do not use a magnet screwdriver during work around it.

The hard disk drive, further, is susceptible to impact. Do not subject it to shocks.

II . DISASSEMBLY/ ASSEMBLY

A. Removing the Printer Board Unit

- 1) Turn off the copier's main power switch, and disconnect the power plug from the wall outlet.
- 2) Remove the interface cable from the printer board unit.
- 3) Remove the two screws [1].

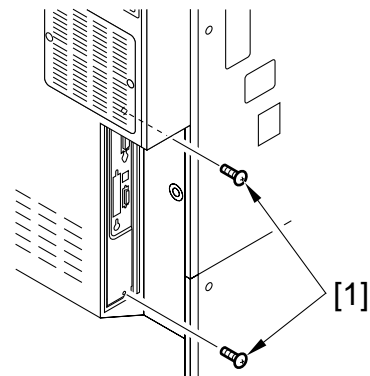


Figure 4-201

- 4) Remove the printer board [2].

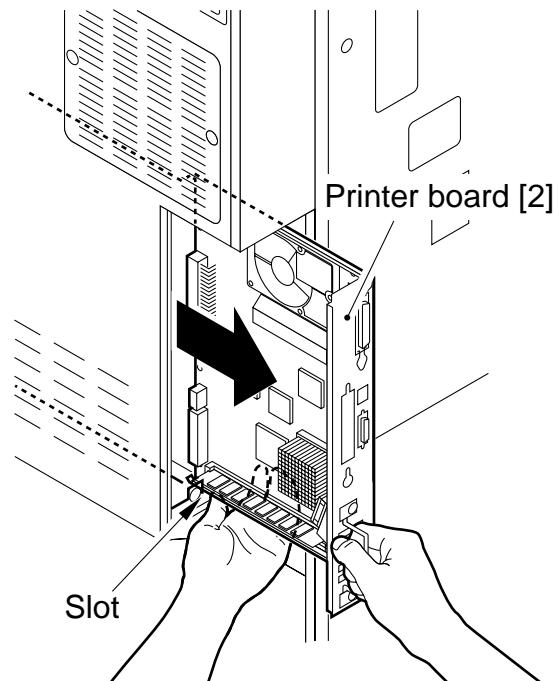


Figure 4-202

B. Removing the Printer Board

- 1) Remove the printer board from the copier.
- 2) Disconnect the connector (J14) [1], and remove the two screws [2]; then, detach the fan unit [3].

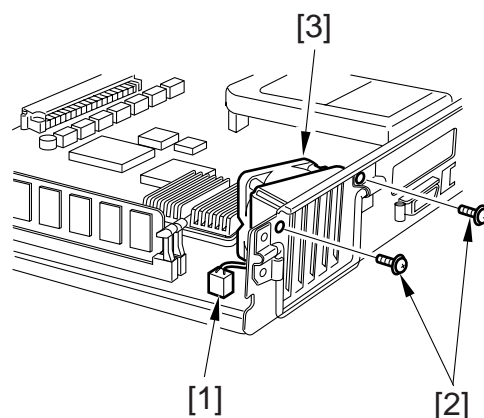


Figure 4-203

- 3) Remove the 12 screws [4].

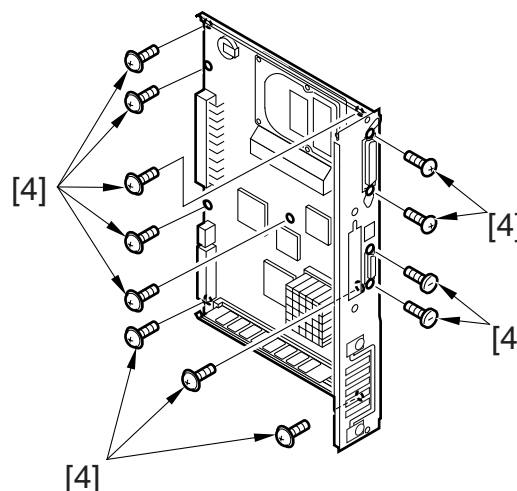


Figure 4-204

- 4) Detach the printer board [5] from the board base [6].

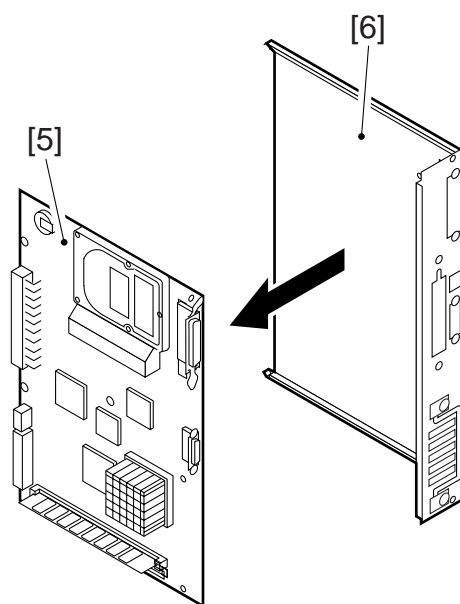


Figure 4-205

C. Removing the DIMM

- 1) Remove the printer board unit from the copier.
- 2) Shift open the levers [1] on both ends of the connector, and detach the DIMM [2] from the connector.

Caution:

Do not touch the terminal (plated) of the DIMM end to avoid causing poor contact.

When mounting the DIMM, pay attention to the direction of the DIMM cut-off.

When connecting the DIMM to the connector, do not hook your finger on the metal portion of the connector to avoid deformation. Instead, hook your finger on the plastic portions on both ends of the connector.

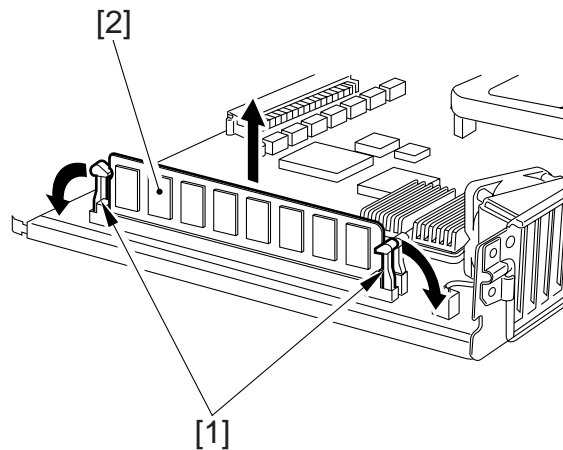


Figure 4-206

D. Removing the Hard Disk Drive

- 1) Remove the printer board unit from the copier.
- 2) Remove the four screws [1].
- 3) Slide the hard disk drive [2] in the direction of the arrow to remove.

Caution:

The hard disk drive is susceptible to impact. Do not subject it to shocks when handling it.

The hard disk drive is susceptible to magnetic force. Do not bring a magnet screwdriver or the like near it.

Do not touch the print PCB on the back of the hard disk drive.

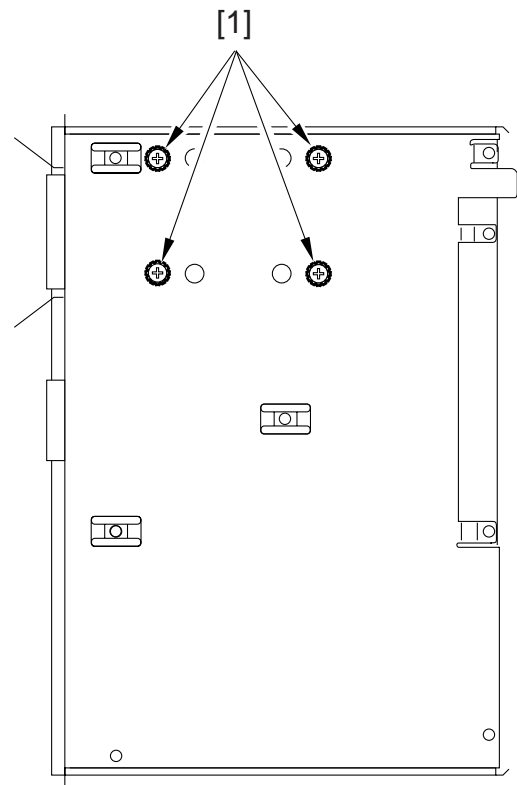


Figure 4-207

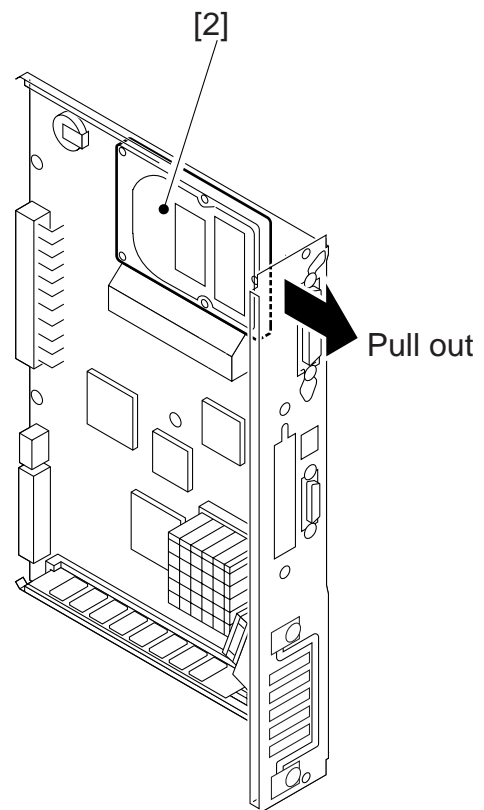


Figure 4-208

E. Removing the Fan

- 1) Remove the printer board unit from the copier.
- 2) Disconnect the connector J14 [1] from the printer PCB, and remove the two screws [2]; then, detach the fan unit [3].

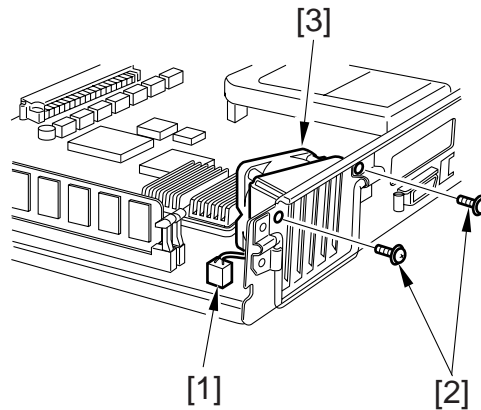


Figure 4-209

- 3) Remove the four screws [4], and detach the fan [5] from the base.

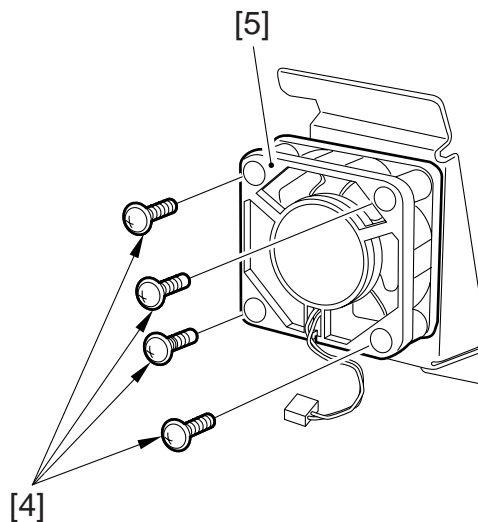


Figure 4-210

Caution:

Make sure that the fan is mounted in the correct orientation.

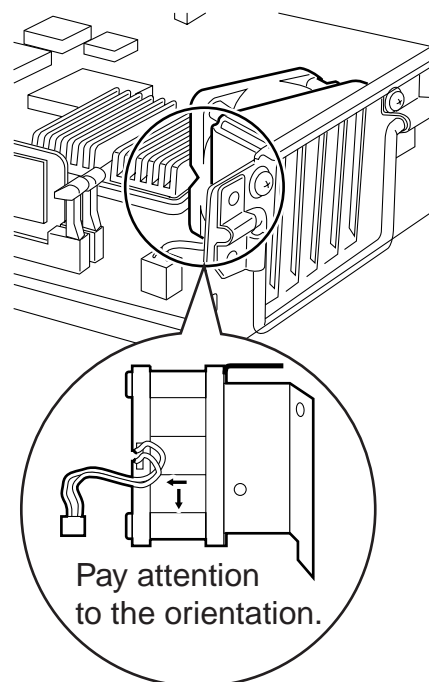


Figure 4-211

CHAPTER 5

INSTALLATION

I. OUTLINE	5-1	B. Installing	5-2
II. POINTS TO NOTE	5-2	C. Media Package	5-2
A. ROM Version of the Copier ...	5-2	D. Generating the Setup Page ...	5-3

I. OUTLINE

Figure 5-101 shows the flow of work for installing the printer board.

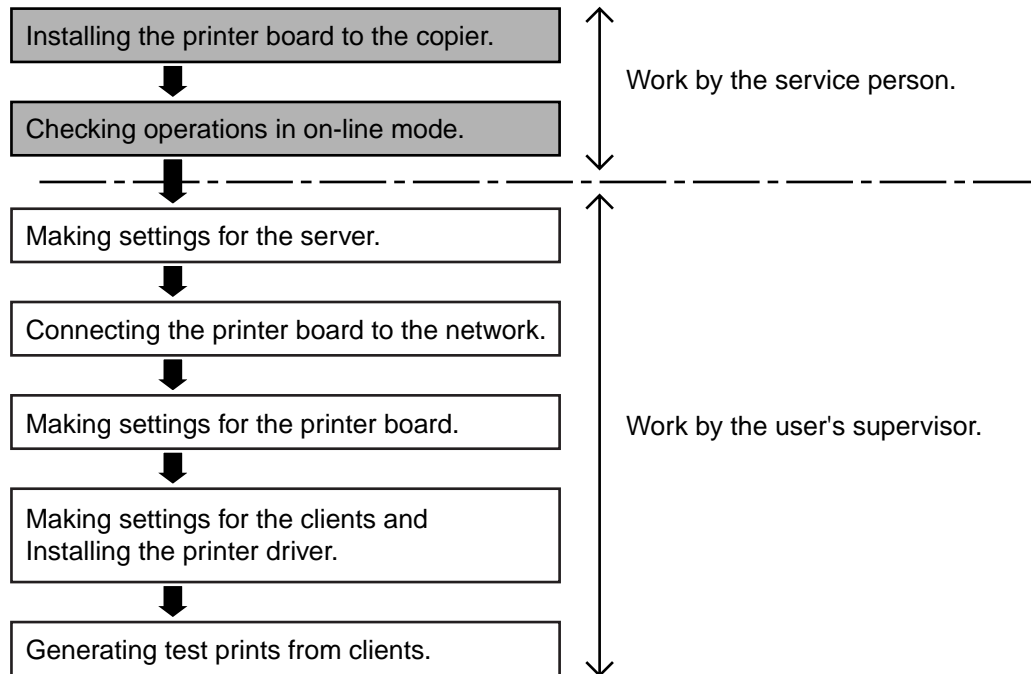


Figure 5-101

II . POINTS TO NOTE

A. ROM Version of the Copier

When installing the printer board, check to make sure that the ROM version of the copier is as follows:

Image processor PCB 04 or later

MFC PCB 05 or later

To upgrade the version of the image processor PCB to the MFC PCB, replace the DIMM or perform downloading.

B. Installing

Install the printer board according to the Installation Procedure that comes with the printer board.

C. Media Package

The printer board comes with a media package that includes user software and documentation. When you have installed the printer board and checked operations, advise the user's supervisor to perform setup work (e.g., making settings for the printer board, installing the appropriate printer driver).

1. User Software CD-ROM

The user software CD-ROM contains the following:

- PostScript printer driver
- Utilities

The contents of the user software CD-ROM are prepared in hybrid format, and Windows-specific software and Macintosh-specific software are stored on a single disk. (Note, however, that Windows software is accessible only from a Windows computer, while the Macintosh software is accessible only from a Macintosh computer.)

The Windows PostScript printer drivers are found inside the PS_DRV folder, and each type of driver (according to operating system) is held inside its own folder.

You must agree to the terms of a license agreement to use user software. Advise the user to read the software license agreement that comes with the media package for details. Make sure that the user knows that opening the user software CD package indicates his/her agreement to the terms of the license contract.

2. User Documentation

- Getting Started

It is intended for the user's supervisor and end users to describe how to make settings when installing the printer driver and utilities or when printing from a Macintosh or Windows-compatible computer.

- Administrator's Guide

It is intended for the user's supervisor to describe how to make settings when using the printer board by connecting it to a computer and a network and how to manage the resulting system according to the type of computer and network environment.

- User's Guide

It is intended for the user's supervisor and end users to describe how to set print options and how to print from a Macintosh or Windows computer as well as how to make use of the utilities and software available with the printer board.

D. Generating the Setup Page

After making settings for the printer board, advise the user's supervisor to generate the setup page as follows and store it away as a record of settings:

- 1) Press the OPTIONS key on the copier's control panel to bring up the Printer Basic screen on the touch display.
- 2) Select 'Function'.
- 3) Select 'Print Pages'.
- 4) Select 'Configuration'.
 - When the setup page has been generated (printed), store it away.

Configuration	
Server: GP PS-F1	Generated: 22/12/98 13:05:57
Server Info Password Enabled: No Memory (MB): 32 System installed by: EFI Version: mxebwB12 Disk Size (MB): 2067 Free Disk Space (MB): 1968	
Server Setup Server Name: GP PS-F1 Print Start Page: No Use Character Set: Windows Enable Printed Queue: Yes Jobs saved in Printed Queue: 10	
Network Setup Port Setup Ethernet Setup Enable Ethernet: Yes Ethernet Address: 00-C0-85-27-23-88 Ethernet Speed: Auto Detect Token Ring Setup Enable Token Ring: No Parallel Port Setup Enable Parallel Port: Yes Port Timeout in Seconds: 10 Ignore EOF Character: Yes Protocol Setup Enable AppleTalk: Yes AppleTalk Zone: * Enable TCP/IP: Yes (Ethernet) Ethernet Setup Enable auto IP configuration: No IP Address: 127.0.0.1 Subnet Mask: 255.255.255.0 Get gateway address automatically?: No Gateway Address: 127.0.0.1 Enable IPX/SPX: Yes Ethernet Setup Frame Type: Ethernet 802.2 Ethernet IPX Address : 00-00-00-00-00-C0-85-27-23-88 Service Setup Enable LPD: Yes Enable PServer: No Enable Windows Printing: Yes Server Name: GP PS-F1 Server Comments: Workgroup or Domain: TRAINIG-E Use automatic configuration: No Use WINS Name Server: No Enable Web Services: Yes	
Printer Setup 600-605 Setup Publish Direct Connection: Yes Publish Print Queue: Yes Publish Hold Queue: Yes Parallel Connection: Print Queue	
PS Setup	
Default Paper Sizes: Metric Convert Paper Sizes: Ltr/11x17 A4/A3 Allow Courier Substitution: Yes Print up to PostScript Error: No	
Copier Setup Copies: 1 Paper source: Auto Select Sort mode: Off 2 Sided Printing: Off Refine: On Density: 5 Booklet: Off Toner reduction: Off	
Job Log Setup Auto Print Job Log Every 55 Jobs: No Auto Clear Job Log Every 55 Jobs: No Job Log Page Size: Tabloid/A3	

Figure 5-201

CHAPTER 6

SERVICE MODE

I. VERSION INDICATION	6-1	C. Error Code (E677)	6-4
II. POINTS TO NOTE WHEN REPLACING PARTS	6-2	IV. INSTALLING THE SYSTEM SOFTWARE	6-5
III. SELF DIAGNOSIS	6-3	A. Downloading Tool	6-5
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B. LED Indication	6-3		

I . VERSION INDICATION

The version of the system software of the printer board may be checked on the Printer screen appearing on the touch display in response to a press on the OPTIONS key on the copier's control panel.

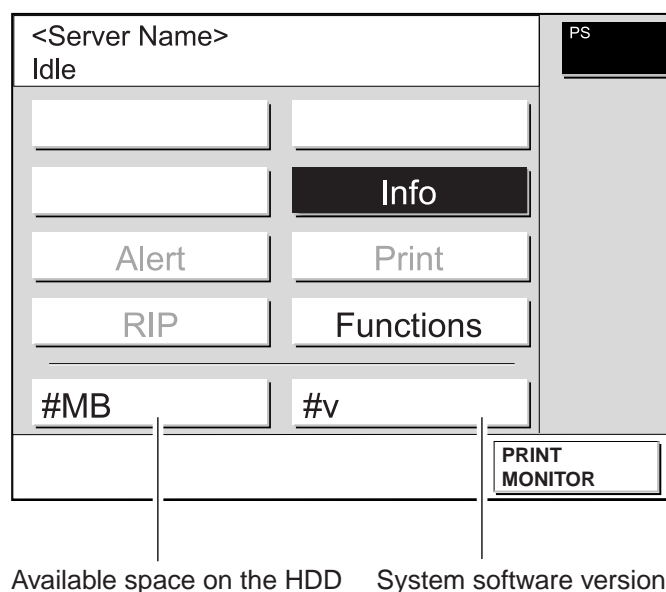


Figure 6-101

When the printer board is installed, the indication under 'PRCNT' will be '0110.00.00' and that of 'PS/PCL' will be '0100.20.00' (version indication of display mode in service mode).

II . POINTS TO NOTE WHEN REPLACING PARTS

Replacing any of the following parts will initialize the settings. Be sure to make settings once again.

- Printer board
- Hard disk drive

Replacing the printer board or the printer board unit, moreover, will change the IPX address. If Fiery Downloader or Fiery Spooler is used in combination with the IPX/SPX protocol, advise the user's supervisor to update the selector list using a client computer after replacement.

III . SELF DIAGNOSIS

A. Outline

The printer board is equipped with a self diagnosis function which checks each part of the printer board when the main power is turned on and indicates an error code (E677) on the copier's touch display if a fault is found.

B. LED Indication

As many as two LEDs (D4, D5) are used to indicate the result of self diagnosis run by the printer board when the copier's main power switch is turned on. Table 6-301 shows the various LED indications according to the state of the printer board.

	During initialization	If result of diagnosis at power-on is good	If result of diagnosis at power-on is not good	During normal operation	In response to an error
D4 (green)	Flashing	On	Off	On	On
D5 (red)	Off	Off	On	Off	Off

Table 6-301

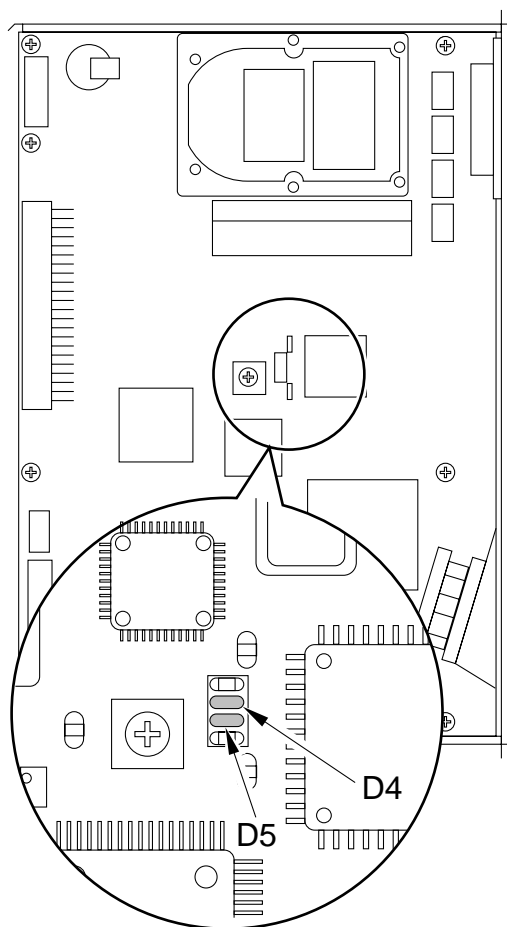


Figure 6-301

C. Error Code (E677)

When the main power is turned on, a check is made of the communication between the printer board and its host copier, and an error code (E677) will be indicated if a fault is found.

If a fault is found in communication between the printer board and its host computer during printing, the same error code (E677) will be indicated.

Code	Cause	Description
E677	<ul style="list-style-type: none"> Any of the printer boards (accessories) is faulty. The MFC PCB is faulty. The system motherboard is faulty. 	<ul style="list-style-type: none"> An error has occurred in the communication between any of the printer boards and the MFC PCB.

Table 6-302

- If a fault occurs when the main power is turned on,
A hardware-related fault is highly likely.

Turning off and then on the power switch rapidly can cause the indication of E677, caused by a discrepancy between when the host copier is initialized and when the printer board is initialized. To avoid the problem, be sure not to turn on the main power switch without waiting for 5 sec after turning it off.

- If a fault occurs during normal operation,

If a fault occurs during printing but the operation is normal after canceling the print job and turning off and then on the power switch, an excess load on the CPU is highly likely.

On rare occasions, E677 is indicated if the CPU is subjected to excess loads continuously as when processing a large volume of print data while receiving a large volume of data from the network.

If such is the case, advise the user to cancel all print jobs once, and turn off and then on the copier's main power switch; recommend the user to send print data on a single-unit basis.

IV . INSTALLING THE SYSTEM SOFTWARE

A. Downloading Tool

1. Outline

The system software of the printer board is stored on the hard disk. It is important to copy the system software to the hard disk from an external source when replacing the hard disk and installing or upgrading the system software.

To do this, a program called a "download tool" is used for copying the system software from a computer. The program used to write the system software received from the computer through the parallel port to the hard disk is stored in the flash ROM on the printer board.

2. Installing the System Software

The download tool is offered as a self-decompressing file.

- 1) Double-click the download tool file (pdldl 115eng....) using Explorer or My Computer (Windows 95) so that the files needed for installing the download tool will be decompressed and the setup program will be started automatically.

If you are using a floppy disk, be sure that no other file exists on the floppy disk. After decompression, the files will remain on the floppy disk and, the presence of other files can lead to a shortage of memory, preventing decompression of important files and, ultimately, causing installation of the download tool to fail.

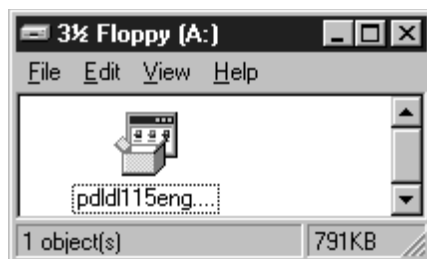


Figure 6-401

- 2) When a prompt appears asking you to confirm the folder to which the download tool will be installed, click the Next button (keeping the default setting).

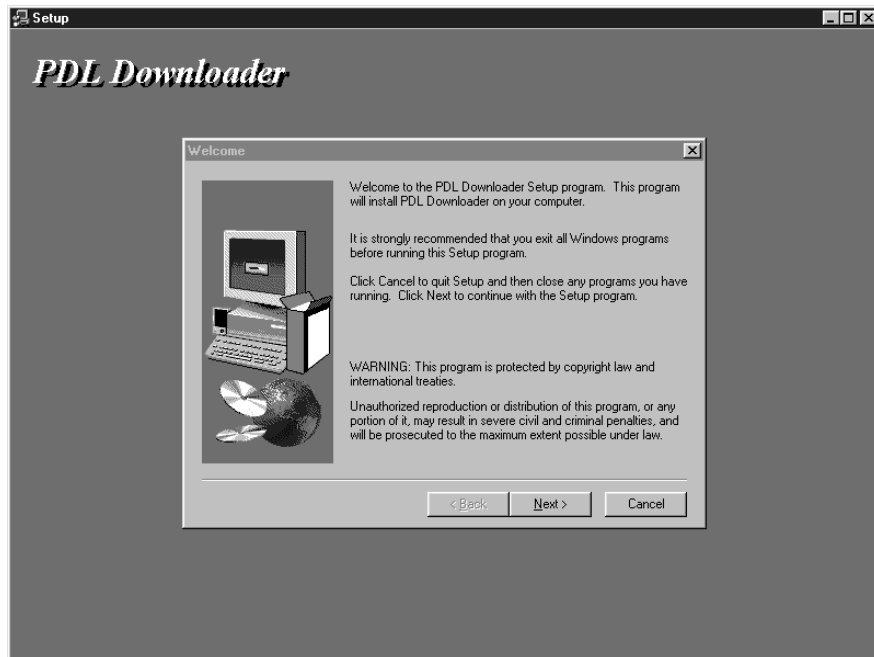


Figure 6-402

- The download tool will automatically be installed to the GP Downloader folder inside the Program Files folder on drive C.

When the download tool has been installed, you may remove the Gpdl103.exe file for installation and the GPDL103 folder resulting from installation together with all associated files.

To un-install the download tool, select and execute 'GP Downloader' under 'Add/Remove Application Program' on the control panel.

When you select ECP mode (operation mode of the computer printer port), data transfer speed will be higher when compared against non-specific mode. If possible, it is a good idea to select ECP mode for printer port operation mode. (It is still possible to use the download tool in non-specific mode.) You will have to make settings for printer port operation mode according to the type of computer being used. Refer to the appropriate documentation.

B. Installing the System Software

1. Points to Note

When the system software is re-installed, the files and additional fonts downloaded to the hard disk and the job log will all be erased. Advise the user's supervisor to take appropriate measures in advance.

2. Items to Prepare

Prepare the following before installing the system software.

- Computer on which the download tool has been installed.
- Centronics cable complying with IEEE 1284 (cable with the notation "IEE 1284 Std Compliant")
- System software CD-ROM

3. Preparing the Copier

Installation of the system software will erase the existing settings. Be sure to print out the setup page in advance:

- 1) Press the Functions button on the copier's control panel so that the Printer Basic screen will appear on the touch display.
 - 2) Select 'Function'.
 - 3) Select 'Print Pages'.
 - 4) Select 'Configuration'.
- When the setup page showing the printer board settings has been generated, store it away.

4. Preparing the Computer

Install the download tool.

The system software is provided by means of a CD-ROM. If you are using a computer without a CD-ROM, obtain an external CD-ROM driver. Or, copy the following file to the hard disk of the computer from the system software CD-ROM by connecting an external CD-ROM drive at the service station or using a network.

Mediops.kum

5. Connecting the Printer Board and the Computer

- 1) Obtain the consent of the user's supervisor. Then, turn off the copier's main power switch, and remove the network cable and Centronics interface cable.
- 2) Connect the copier's parallel port and the printer port of the computer on which the download tool has been installed with a Centronics cable.
- 3) Turn on the computer, and start Windows 95.

6. Operating the Copier

- 1) Perform steps 1) through 3) under 7. "Operating the Computer."
- 2) Turn on the copier's main power switch and control panel switch, and press the OPTIONS key on the control panel without delay.
- 3) When the message "Do you want to go to setup?" appears on the touch display, press 'Yes' without delay.

Caution:

The message "Do you want to go to setup?" remains only for several seconds. If the copier has started in normal mode, turn its main power switch and control panel switch off and then on, and start over.

- 4) Select 'Format Disk' on the Startup screen.
- 5) When the message "Format internal drive?" has appeared, select 'Yes', and press 'OK'.
- 6) On the Select Level screen, select 'Standard', and press 'OK'.
- 7) When the message "Format OK" has appeared, indicating that the hard disk drive has been formatted, press 'OK'.
- 8) Press 'Install Software'.
- 9) Select 'Yes', and press 'OK'.
- 10) When the message "Please copy installation software to the parallel port. " has appeared, perform step 7.4).

Caution:

If you left the copier alone in the condition it assumed in step 10), the error message "Time-Out" would appear. If this is the case, go back to step 7) and start over.

7. Operating the Computer

- 1) Double-click the short cut icon of GP Downloader of Windows 95 or select GP Downloader from the Start menu to start the download tool.



Figure 6-403

- 2) Click the Select button.

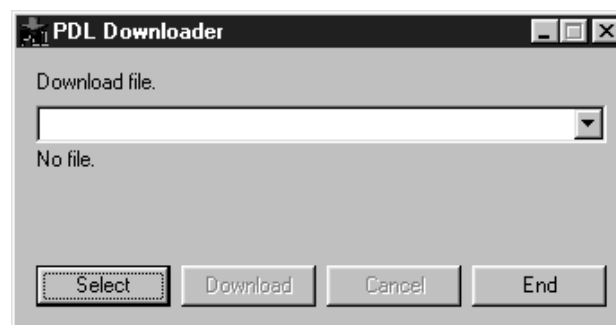


Figure 6-404

- 3) Select the Whitney_1 [E:]>System>Gpx60_10. um film (Note), and press the Open button.

Note:

Keep in mind that the name "Whitney" may be changed to accommodate system upgrading.

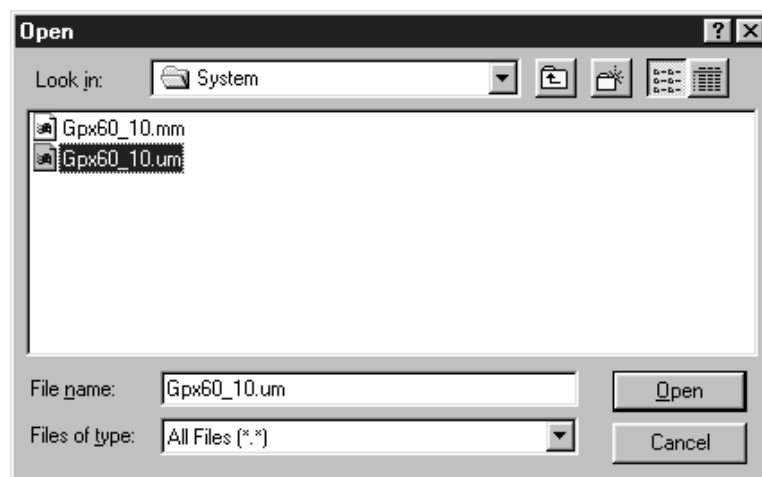


Figure 6-405

- 4) Click the Download button.

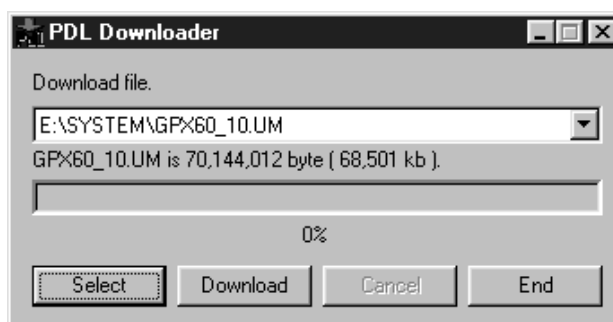


Figure 6-406

If downloading operation is normal, the message "Receiving ..." and the percentage of the data volume being received are indicated.

Caution:

When downloading starts in response to a click on the Download button, the Stop button will become effective. If you pressed the Stop button to stop downloading operation, clicking the Download button once again will not transfer the files normally, causing the operation to fail with the message "Corrupt file," "Wrong file size," or "Bad file type." To avoid this, be sure not to stop downloading operation until installation ends successfully. If you must stop downloading operation, be sure to perform the following; the printer board will not function as expected until the system software has been downloaded.

■ Resuming Downloading

Copier: Start with formatting the hard disk drive.

Computer: When the copier is ready, click the Download button, and start with transfer of files.

8. Operating the Copier

- The download files are in compressed form, decompressing automatically when they have been transferred successfully.
- 1) When decompression has ended, the message "Software installation completed." will appear on the copier's touch display. Press 'OK'.
- 2) When the Setup screen has returned, select 'Start System' and press 'OK'.
- 3) When the message "Reboot is required after installation." has appeared, press 'OK'.
 - The copier will restart automatically.

9. After Downloading

- 1) Click the End button of the download tool to end the download tool.
- 2) Remove the Centronics cable used to connect the copier and computer.
- 3) Connect the network cable and the Centronics cable as they were.
- 4) Turn on the copier's main power switch.
- 5) Make the settings for the printer board by referring to the setup page. (You must at least make settings for 'Server Setup', 'Network Setup', and 'Printer Setup' and store the changes; otherwise, settings will not become effective. The new settings will be read the next time the power is turned on.)
- 6) Turn off the copier's main power switch.

10. Checking the Operations

- 1) Turn on the copier's main power switch and control panel power switch.
- 2) Press the OPTIONS key on the copier's control panel so that the Printer Basic screen will appear on the touch display.
- 3) Select 'Function'.
- 4) Select 'Print Pages'.
- 5) Select 'Test Page'.
- 6) Check to make sure that the test page has been generated normally.

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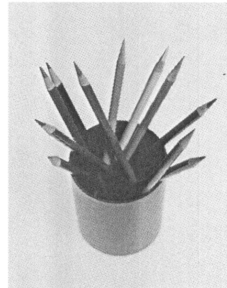
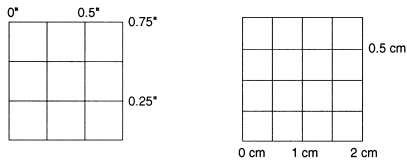
600-605

PS Test Page

Server: GP PS-F1

Version: mxebwB12

Date: 22/12/98 13:04:25



abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890
 abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890
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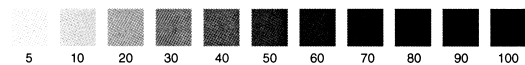
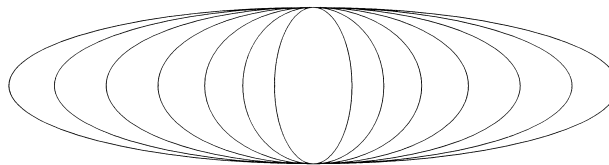
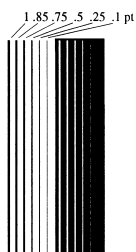
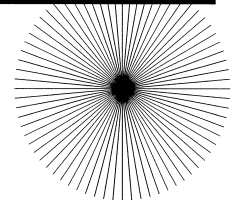


Figure 6-407

APPENDIX

I.	SPECIAL TOOLS	A-1
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I . SPECIAL TOOLS

You will need the following tool in addition to the special tools set.

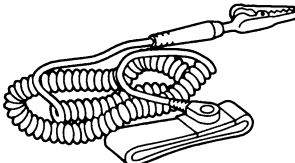
No.	Special tool	Tool No.	Shape	Rank*	Remarks
1	Wrist strap	CK-0534-000		A	

Table A-1

*See Note.

Note:

- A: Each service person is expected to carry one.
- B: Each group of five service persons is expected to carry one.
- C: Each workshop is expected to carry one.

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