Network Multi-PDL Printer kit-B1

SERVICE MANUAL

REVISION 0

Canon

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 CANON NW Multi-PDL P. kit-C1 REV.0 MAR. 2001 PRINTED IN JAPAN (IMPRIME AU JAPON)

Application

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CHAPTER 1

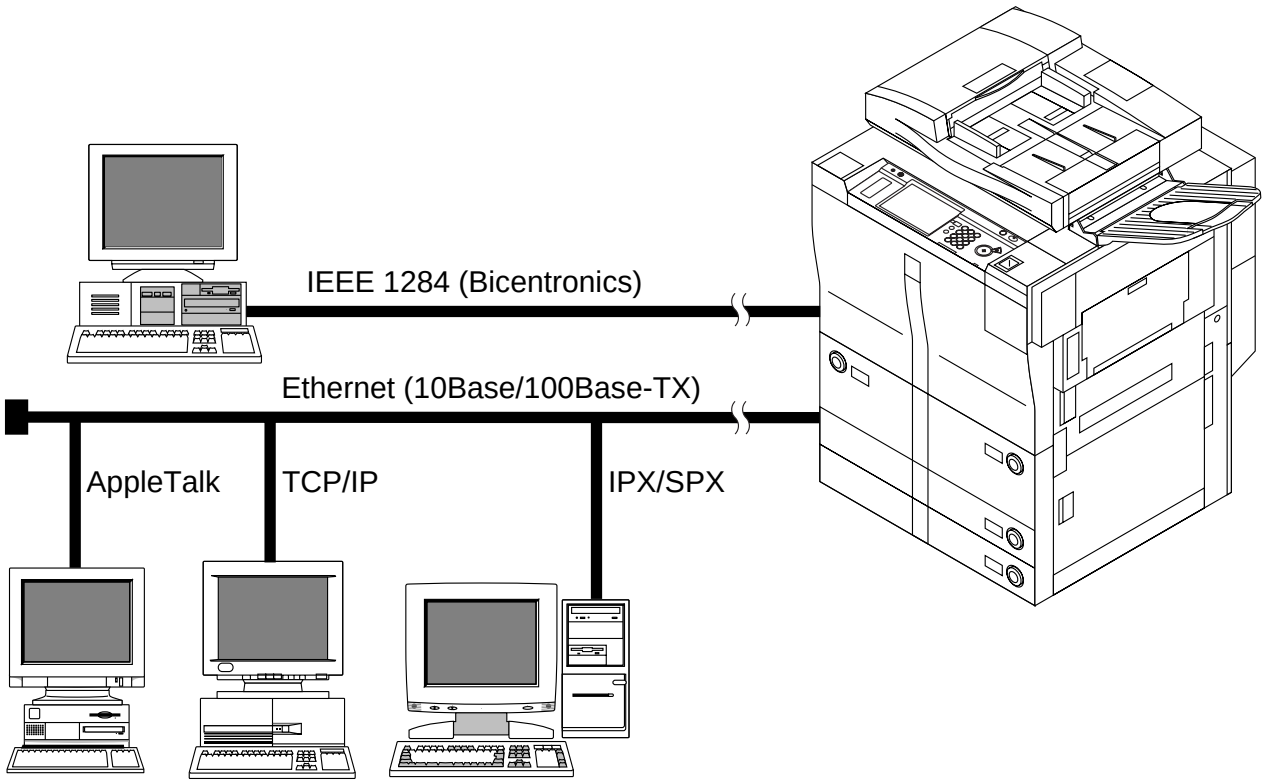
GENERAL DESCRIPTION

1 Outline of the Product

The Kit is designed for installation inside an iR5000/iR6000, enabling the host machine to function as a printer. The Kit comes standard with an Ethernet interface for connection to a PC, and it does not require any additional kit for connection to a network. It supports 100Base-TX as well as widely used 10Base-T.

The network protocols it supports include TCP/IP, IPX/SPX, and AppleTalk, and it is capable of receiving and executing print jobs that use these protocols, thus supporting the presence of different protocols on the same network.

The installation of the Kit enables the use of the parallel port (IEEE1284, i.e., bi-Centronics) of the host machine as a printer interface, supporting such page description languages as PCL5e, PCL6, and PostScript 3. It also comes with 80 PCL fonts and 136 PostScript fonts as standard.



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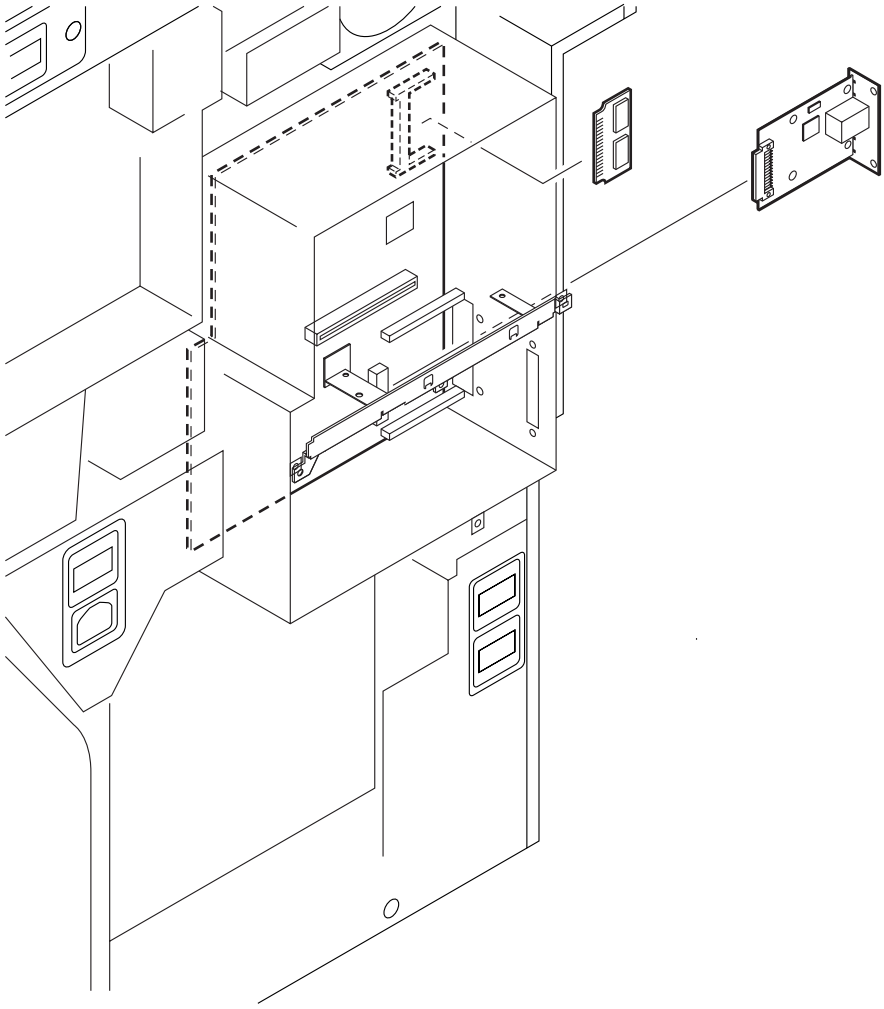
2 System Configuration

The installation of the Kit inside its host machine enables the host machine to function as a printer.



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3 Features

- High-Volume High-Speed Printing

The newly developed engine is capable of turning out 50 (iR5000)/60 (iR6000) prints per minute, fully meeting the needs of offices requiring high-volume, high-speed printing.

- High Resolution at 2400 (equivalent) x 600 dpi

The Kit enables its host machine to print at 2400 (equivalent) x 600 dpi.

- Variety of Page Description Languages (PCL5e, PCL6, PostScript 3)

The Kit comes standard with a PCL5e, PCL6, and PostScript3.

- Canon Windows 95/98 LPR Port Utility

The Kit provides an LPR port utility for Windows 95/98, thus enabling its host machine to be used as a network printer in a Windows 95/98 network environment.

- Port 9100/IPP Printing

In addition to LPR printing, the Kit supports 9100 and IPP printing, supported by Windows 2000 and later.

- Secured Printing

The Kit allows setting a password to each print job by way of providing a confidential printing function.

- Remote UI

The use of the Kit enables access to the host machine by the Web browser of a PC over the network, as when checking the state of the host machine or when making various settings.

- Network scan (Windows only)

The use of the Kit enables the iR8500 to function as a network scanner.

4 Specifications

Interface	Parallel (on host machine) (IEE1284)	Type-B,Compatible/Nibble/ ECP
	Ethernet RJ45 (auto identification of transfer speed) (10/100BaseT)	
Printer resolution	2400 (equivalent) x 600 dpi	
Page description language	Postscript3, PCL5e, PCL6	
Protocols	TCP/IP, IPX/SPX, AppleTalk	
Application programs	Bindery Pserver, NDS Pserver, LPD, PAP, Port9100, IPP	
Operating systems	Windows 2000/NT4.0/98/95, Mac OS (8.5/8.6 or later)	
Fonts	80 PCL fonts, 136 PS fonts (built-in)	
User software	Drivers	Postscript3, PCL5e, PCL6
	Utilities	NetSpot JBIG viewer
Paper handling		Side paper deck Finisher
New functions		Secured printing Remote UI Port 9100 printing IPP printing SMB printing LPD banner printing Network scanning

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5 Operation

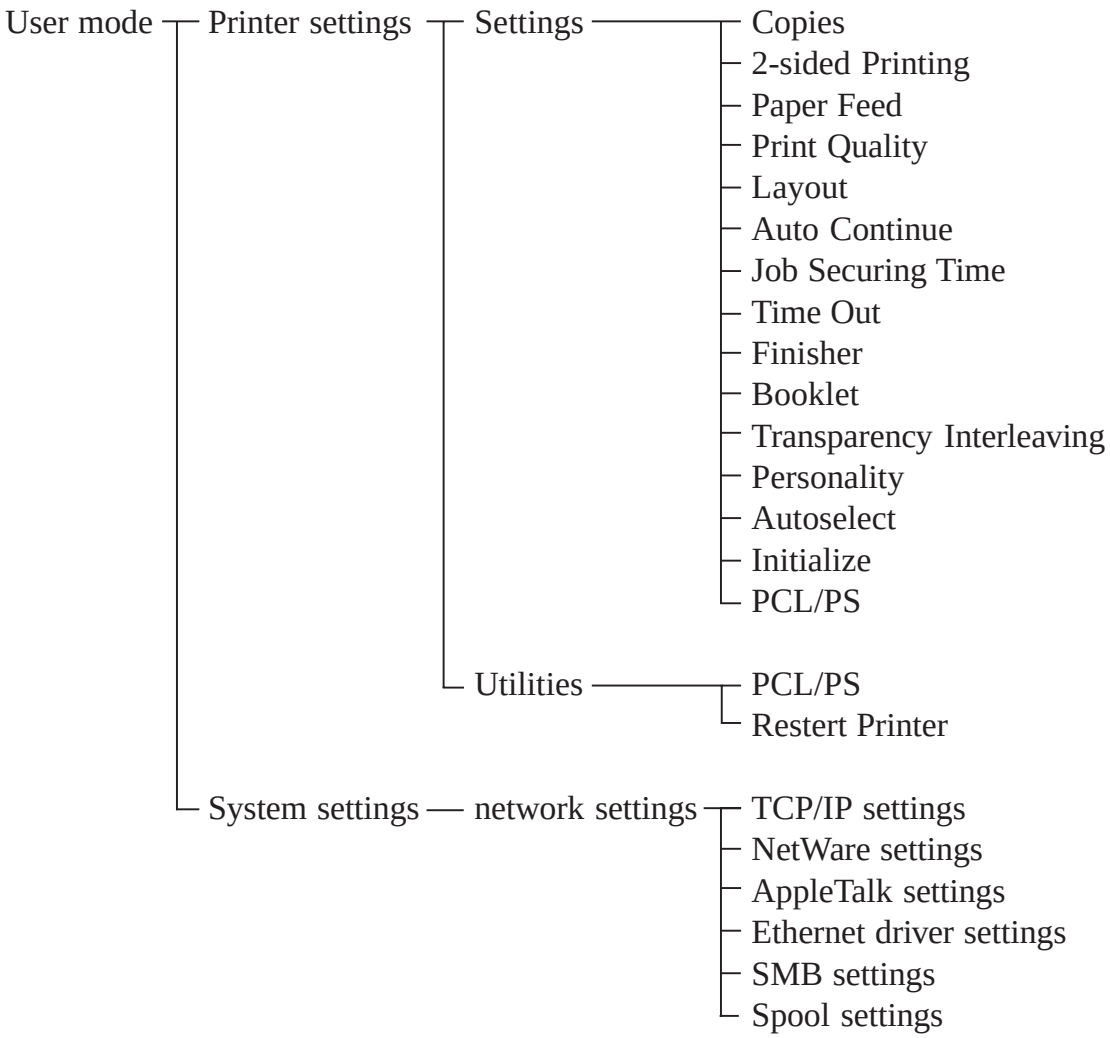
5.1 Outline

You can check the progress of a print job by selecting the system status indicator found in the right bottom of the screen and then selecting the print tag on the pop-up screen.

The network settings and various print settings are made in user mode.

5.2 Settings

The network settings and the print settings are made in user mode; see the following for how each setting item is positioned. For details of settings, refer to the following documentation: for network-related information, see the Network Guide; for printer-related information, see the PS/PCL Reference Guide.



5.3 Test Printing

The Kit is equipped with a function to generate test prints which may be used to check opertions or to keep a record of settings information.

- User Data List

  This test print shows settings information related to networks (e.g., IP address).

- Status Print

  This test print shows settings information related to printers (e.g., the number of prints made by the host machines).

- Font List

  This test print shows a list of fonts stored in the HDD.

CHAPTER 2

OPERATIONS

1 Construction

1.1 Outline

The Kit consists of the following three PCBs:

- Network PCB

  Used to connect the host machine to a network.
- BOOT ROM

1.2 Main Controller PCB Function

The functions used at time of PDL printing at the main controller PCB.

Main controller PCB
• Receiving jobs from the network PCB or the parallel interface • PDL identification Identifies an incoming print job as being in PCL or in PostScript, and selects the appropriate interpreter to use. • RIP Processing Develops PDL data into image data using the interpreter selected at time of PDL identification. • Smoothing/Thickening

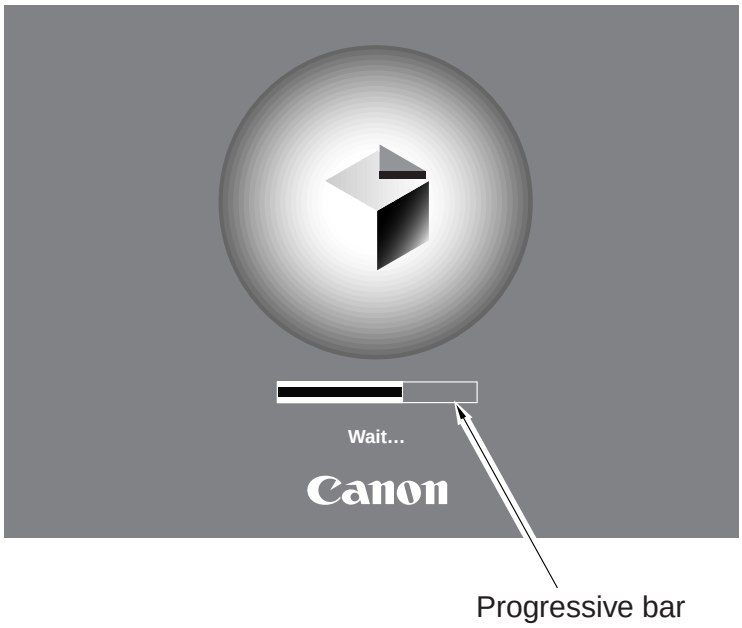
2 Basic Operation

2.1 Start-Up Sequence (host machine)

2.1.1 Outline

The system program used to control the host machine is stored on the hard disk drive. The CPU on the system controller PCB calls the system program from the hard disk drive to the main memory fitted to the DIMM socket of the system controller PCB for use. This is why it takes a while before the control panel becomes ready after the control panel power software switch of the host machine is turned on, during which time the following screen appears in the control panel.

The progress of the start-up sequence is indicated by the progress bar on the screen.



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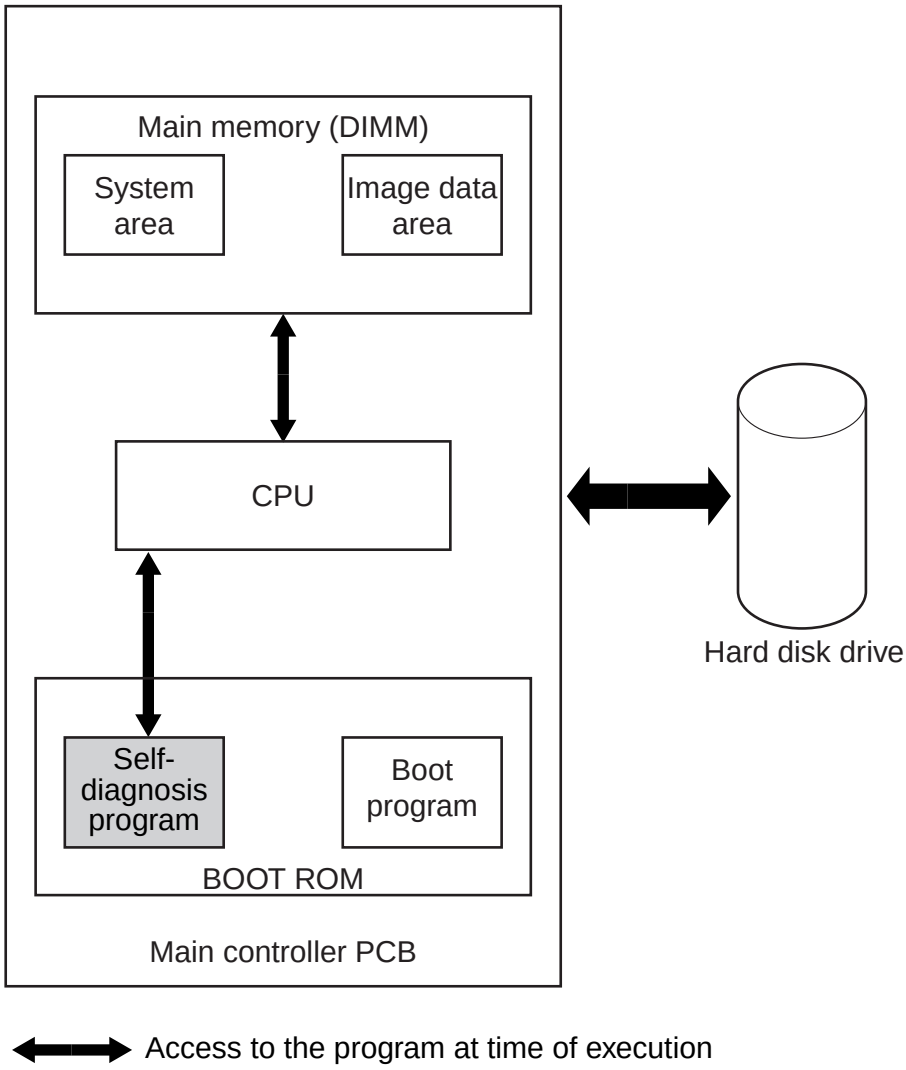
When the control panel power soft switch is turned on, the CPU on the system controller PCB executes the self diagnosis program stored in the ROM.

The self-diagnosis program checks the condition of the main memory and the hard disk drive, and any presence of a fault is indicated by means of an error code in the control panel.



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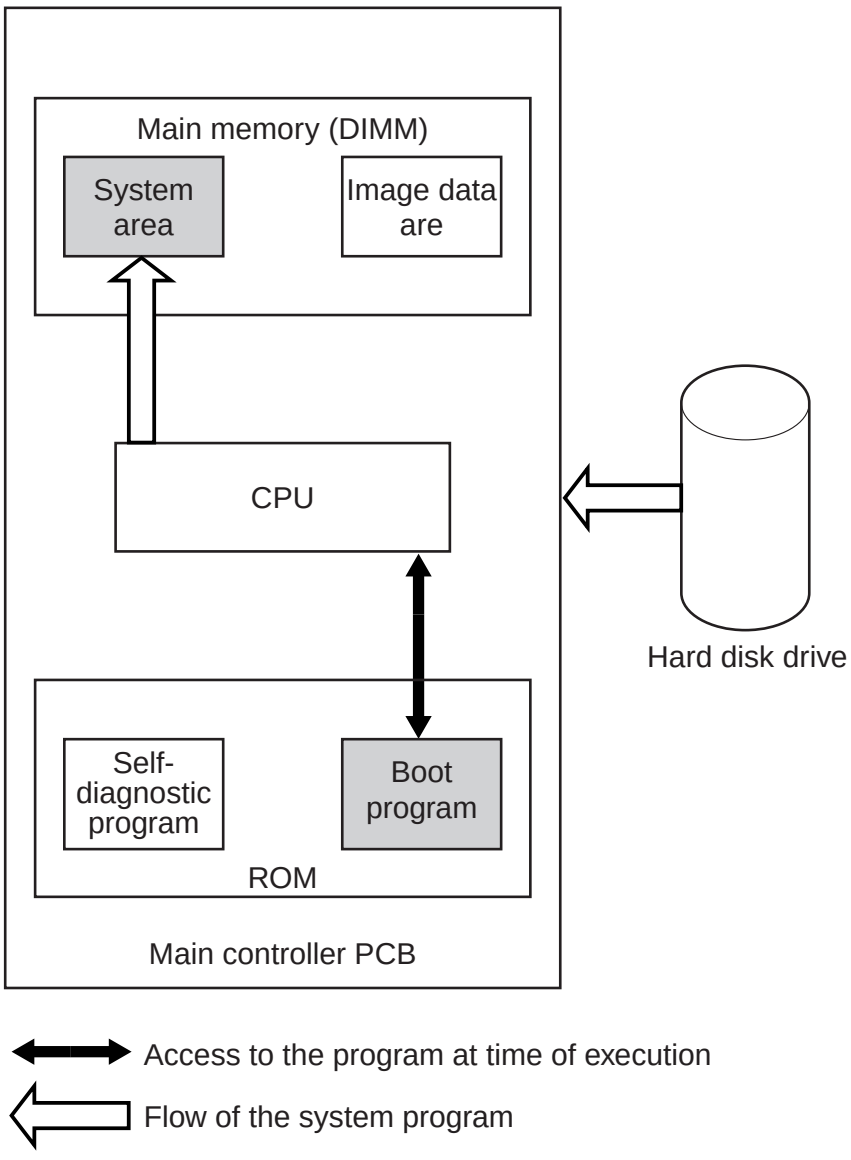
When the self-diagnosis program ends normally, the boot program stored in the ROM starts up, reading the system program from the hard disk to write it in the system area of the SRAM.

When writing is done, the system program in the main memory starts up to initialize each part, at the end of which the control panel shows the Control screen and the Start key changes from red to green, indicating that the host machine is ready to accept a job.

The system program of the host machine consists of multiple modules, and those needed for particular processing are called into the system area of the main memory for use.



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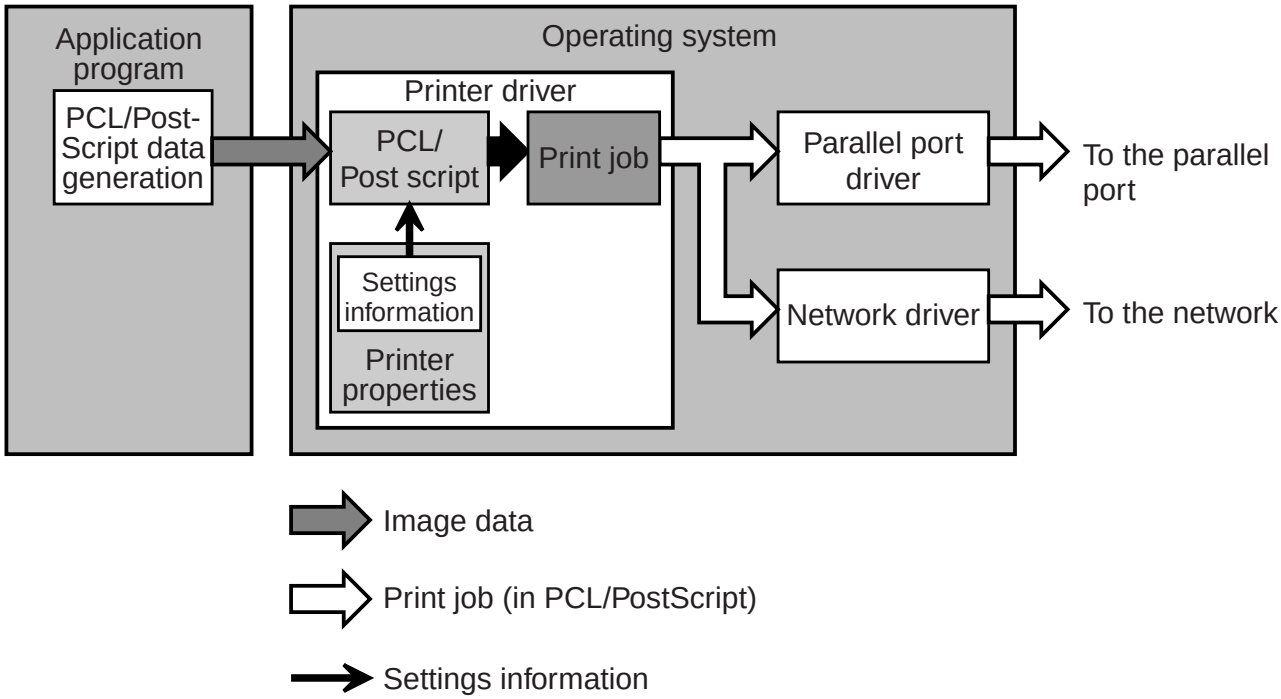
2.2 Printing

2.2.1 Processing by the PC

When the user sends a print command to the application program, the application program in turn sends image data to the printer driver with the help of the operating system.

In response, the printer driver translates the image data and the printer settings information into PCL/PostScript commands (page description language). Thereafter, the print job is sent to the host machine through the network port.

The printer driver for the PS/PCL is contained in the User Software CD-ROM that comes with the Kit.



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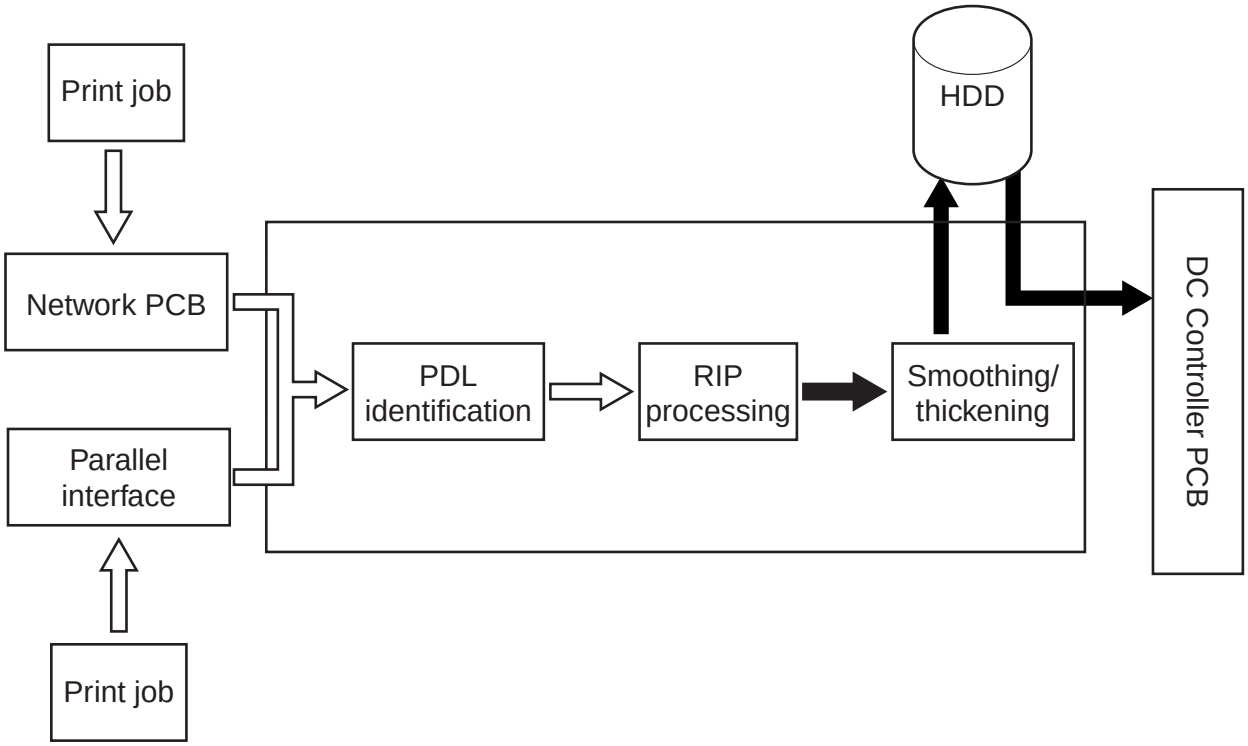
2.2.2 Processing by the Printer

A print job coming from the parallel interface of the main controller PCB or the network PCB is first checked by the main controller PCB to find out if it is in PCL or in PostScript (PDL identification).

Then, the print job is sent to the RIP processing block for RIP processing by the main controller PCB.

After smoothing and thickening processes on the main controller PCB, the print job is once stored on the hard disk drive.

The system controller PCB reads the image data stored on the hard disk drive, and transfers it to the DC controller PCB; the data is then used for laser exposure, development, transfer, and fixing for the generation of a print.



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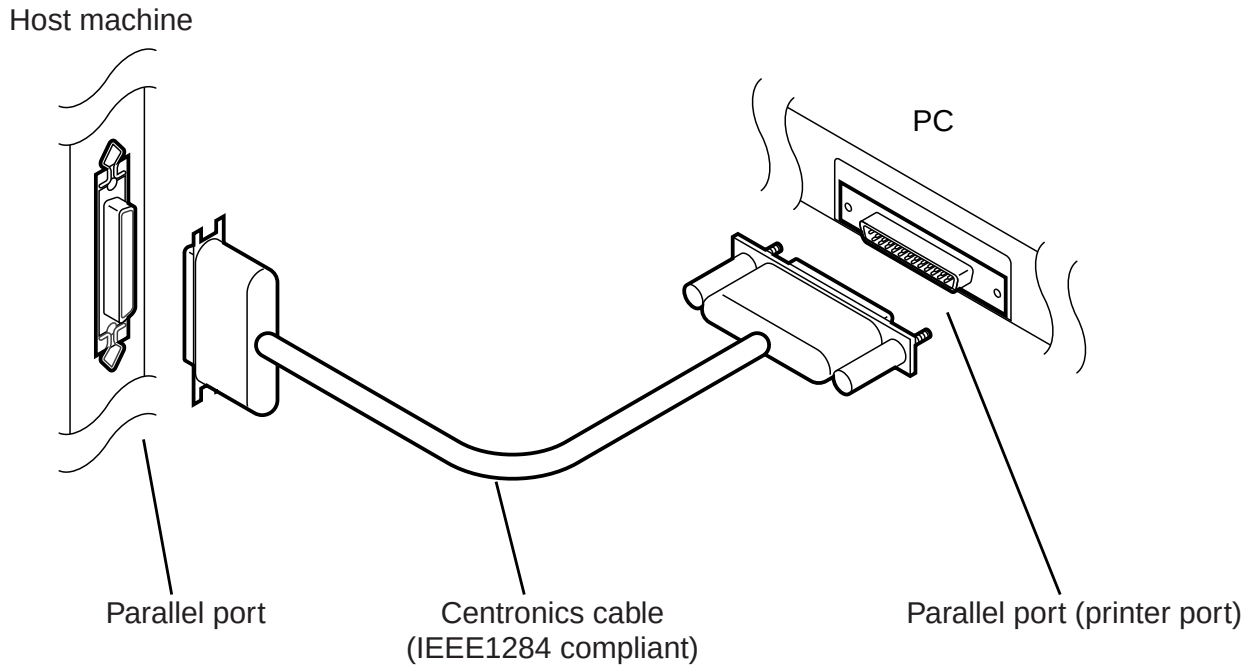
2.3 Transferring Print Data

2.3.1 Connecting the Parallel Port

The installation of the Kit enables the parallel port of an iR8500 to function as a printer interface.

The parallel port is designed to the IEEE1284 standards (commonly known as bi-Centronics), and it supports the following operation modes: compatible mode (supporting the existing Centronics interfaces), nibble mode (transmitting data from the printer to the PC in 4-bit units), and ECP (Enhanced Capability Port; supporting 8-bit bi-directional communication at high speed).



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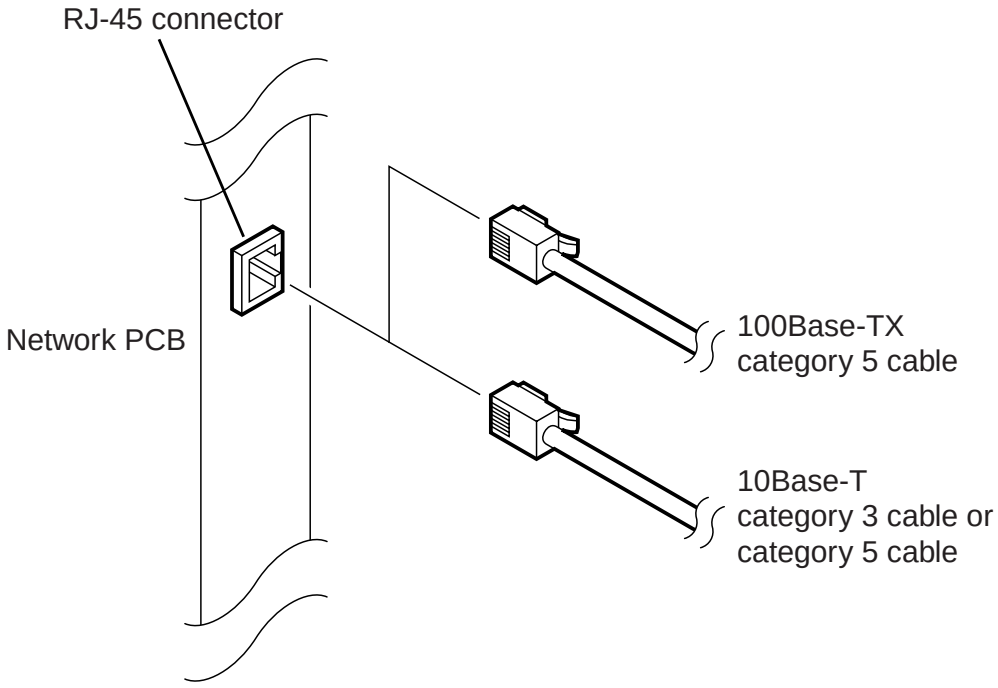
2.3.2 Connecting to the Network

a. Outline

The network PCB of the Kit comes with an RJ-45 connector for 10/100Base-T, serving an interface for Ethernet.

The network PCB has a function to automatically switch between 10Base-T and 100Base-TX based on the result of detection (provided that [auto detect] is selected under [Ethernet driver] as part of network settings.

If the auto detection mechanism fails to operate for a 10Base/100Base auto switch hub, ask the network administrator to select a fixed speed.



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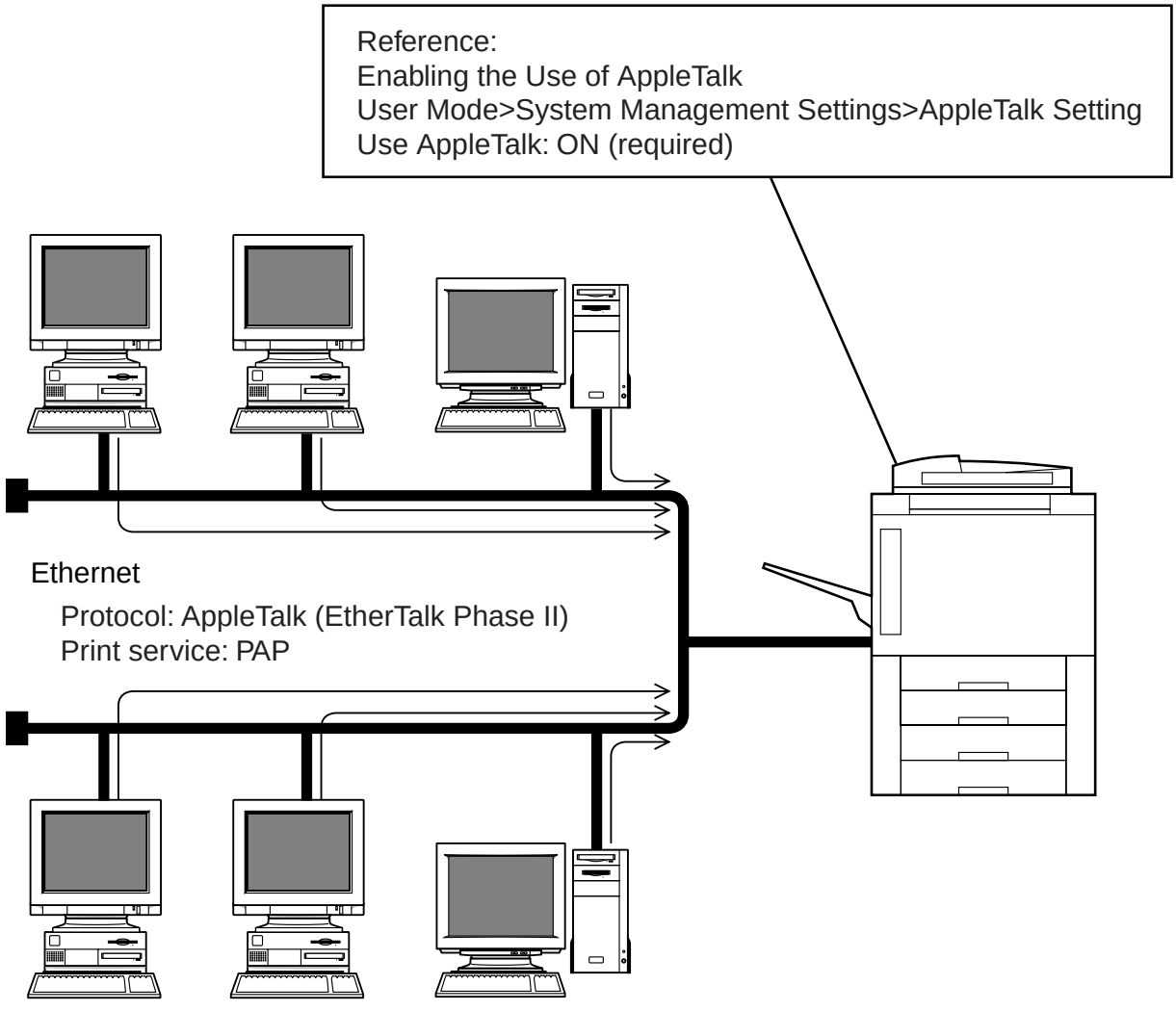
b. AppleTalk

For a Macintosh network environment, the Kit uses AppleTalk as its standard protocol. Depending on the type of network, AppleTalk may be any of the following three: LocalTalk, EtherTalk, and TokenTalk, and the board supports EtherTalk.

The print service of AppleTalk uses PAP (Printer Access Protocol), and enabling AppleTalk for the board automatically enables its PAP service.

The Board supports EtherTalk Phase II, allowing the selection of the zone to which the Board belongs if the network is set up with AppleTalk zones.

When printing in AppleTalk, each machine is allowed to directly send a print job to the printer.



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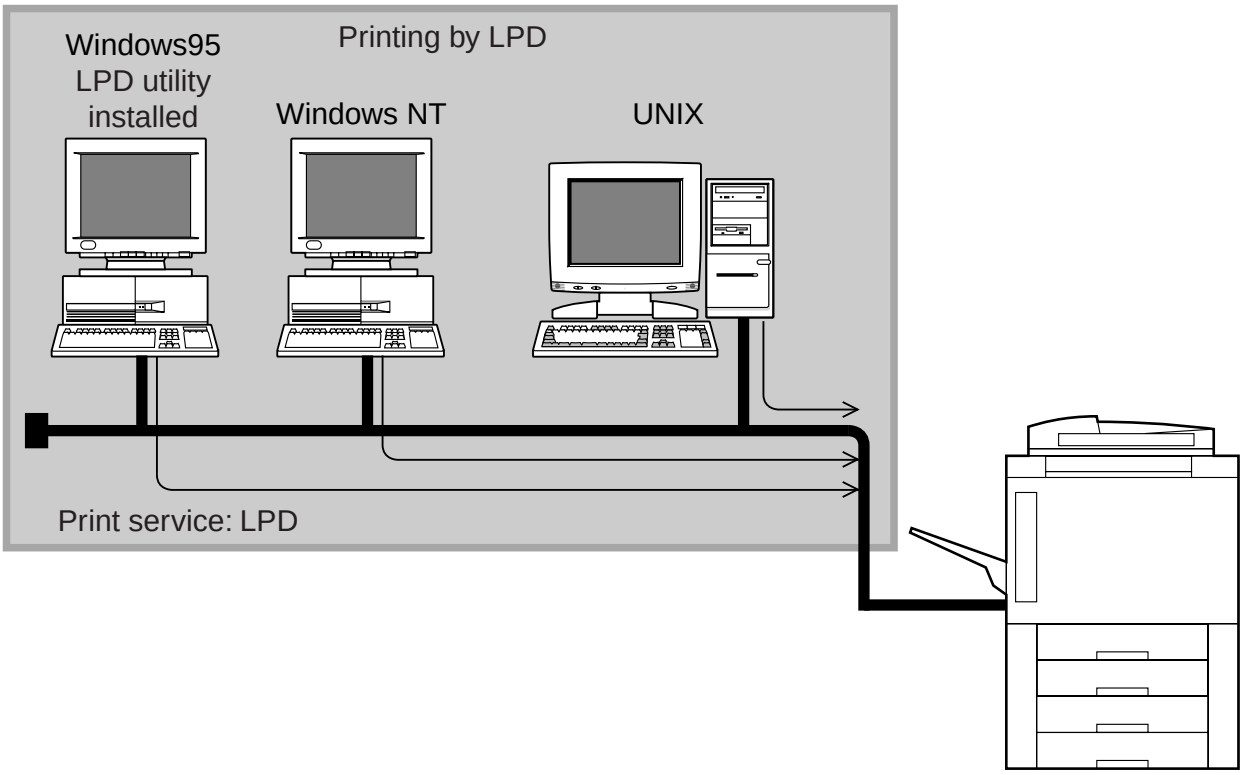
c. TCP/IP

For an Ethernet, intranet, or UNIX network, TCP/IP is used as the network protocol. The protocol is also used commonly for Windows NT networks.

The Kit supports LPD (Line Printer Daemon), which is the standard print service for TCP/IP.

- Using TCP/IP,



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- Using TCP/IP

To use TCP/IP, you must set the IP address of the Kit and the subnet mask of the network to which the board is connected.

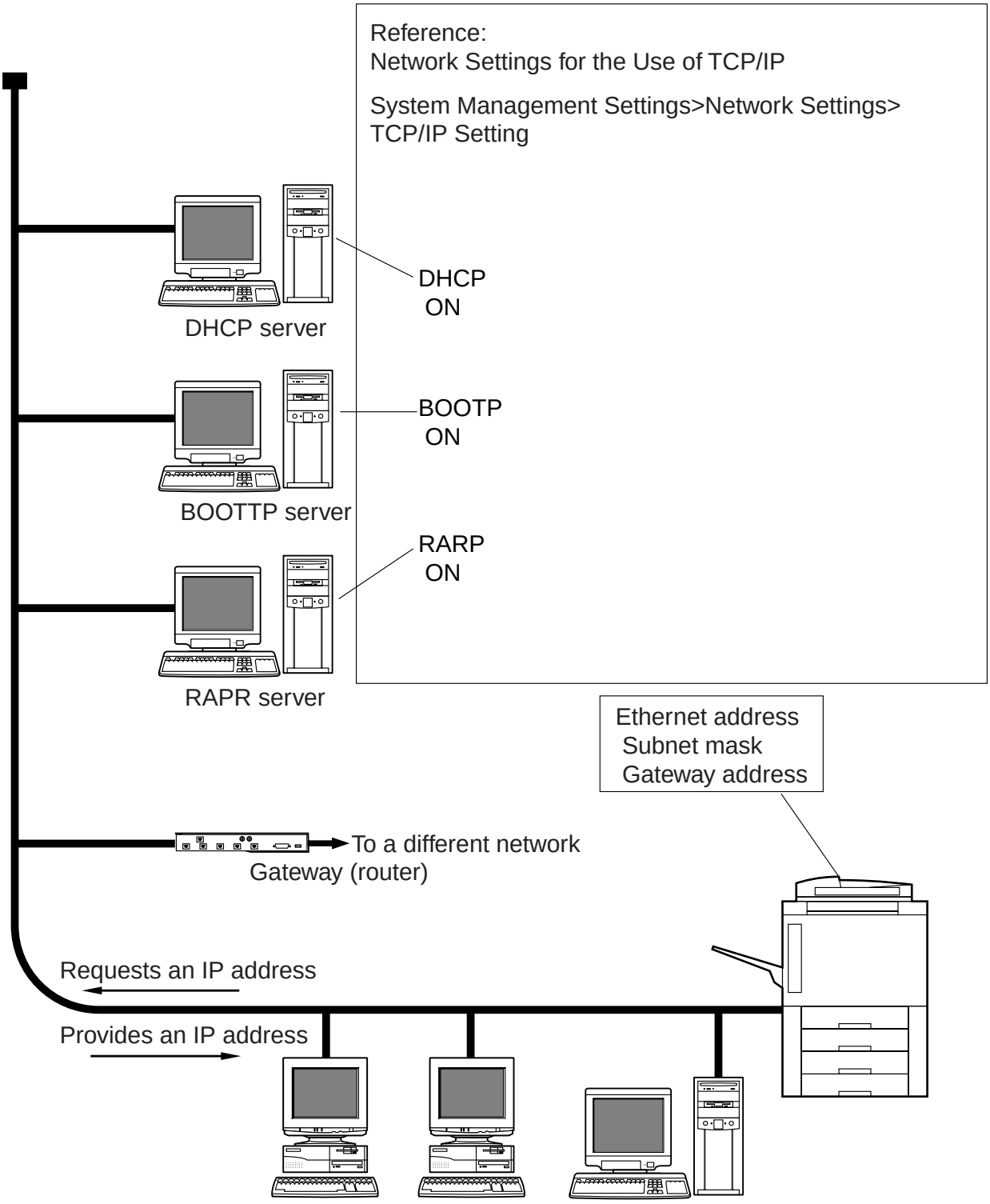
An IP address may be set either automatically or manually, and the Board supports the following three protocols for automatic acquisition of IP addresses: DHCP (Dynamic Host Configuration Protocol), BOOTP (BOOT Protocol), and RARP (Reverses Address Resolution Protocol).

For this function to be available, there must be a DHCP server, BOOTP server, or RARP server on the network, each with correct settings. With the function, you can centrally control the IP addresses of the devices connected o the network.

When [auto] is selected, the Kit will request the server for an IP address when the Kit turns on and logs onto the network; in response, the server sends the IP address assigned to the Kit. In addition to IP addresses, subnet masks may also be obtained automatically. (In the case of RARP, however, only IP addresses may be obtained, requiring manual operation for subnet masks.)

An IP address or a subnet mask may manually be set from the printer control panel.

If external users (belonging to a sub network different from the one to which the Kit is connected) are expected to use the Board, you must set up a gateway address.



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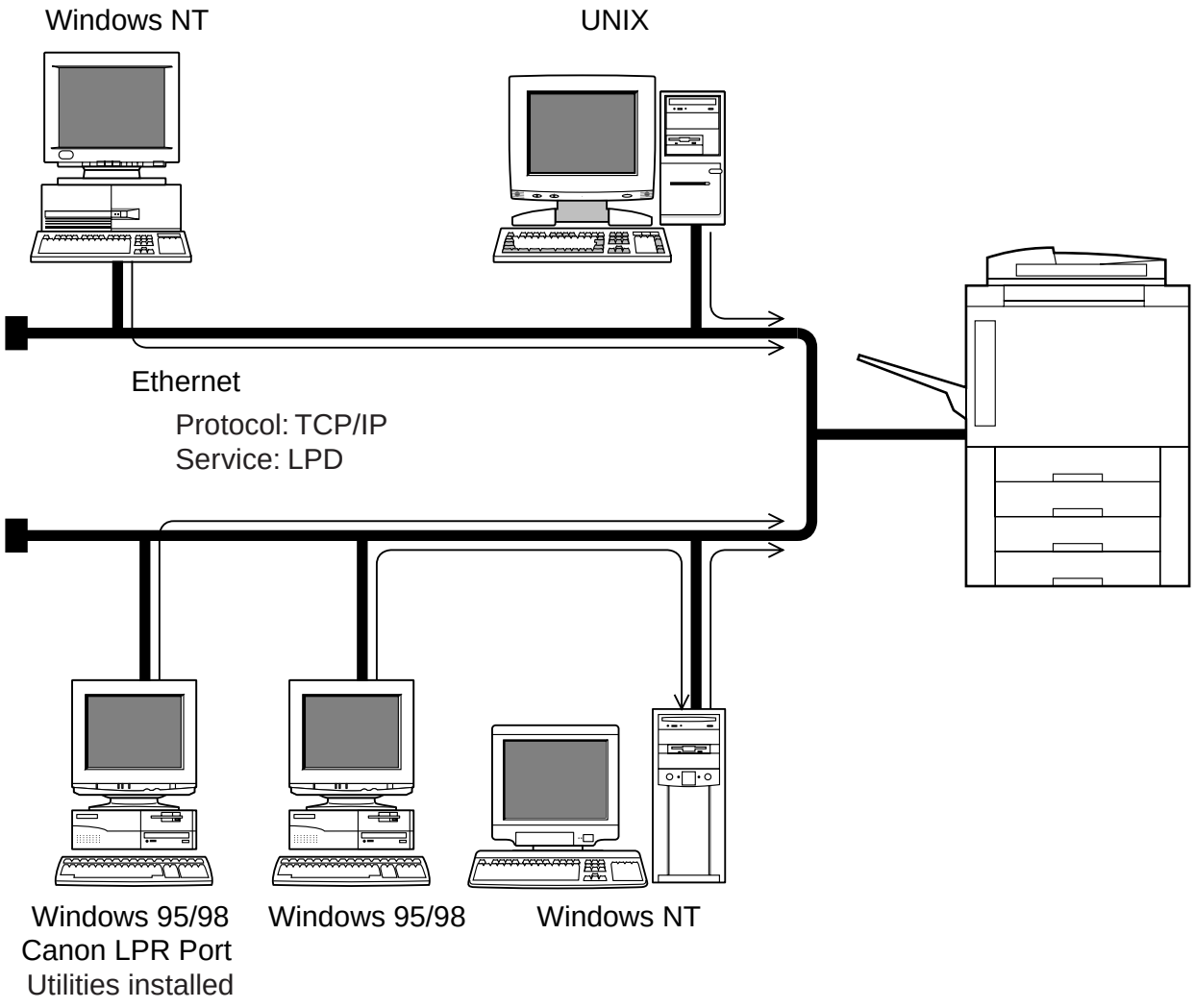
• Using LPD Service

UNIX and Windows NT are equipped with an LPR port for the use of LPD services so that a work station can directly send print data to the printer board without routing it through a server.

Windows NT comes with LPR, but you must install it from the control panel (i.e., it is not part of the basic software designed for automatic installation).

Windows 95 is not equipped with an LPR port, requiring the use of a server equipped with an LPR port or the installation of Canon LPR Port Utility 95/98 that comes with the Kit for printing by taking advantage of LPD services.



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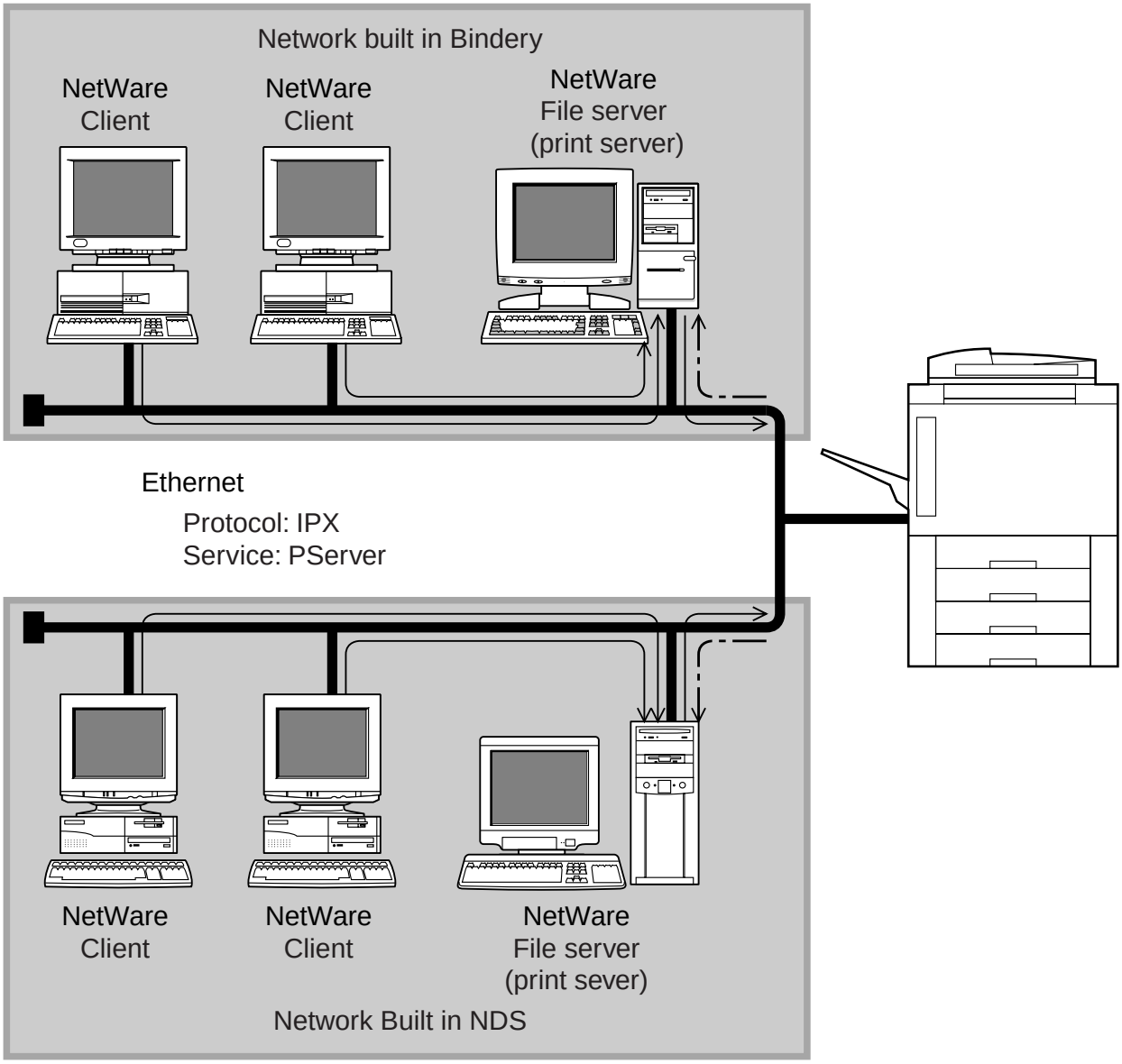
d. IPX

A NetWare network form Novell uses IPX as its protocol for print jobs. The Kit supports two types of network architectures: the bindery mode used in NetWare 3.12 (including the bindery emulation mode of NetWare 4.X) and NDS (Novell Directory Service) used in NetWare 4.X.

In the case of IPX, all print jobs are sent to the host machine by way of the print queue built on the print server (Novell file server); the host machine, on the other hand, checks the presence of a job in the print queue of the connected print server at specific time intervals. When it finds a print job, it requests the print server to transfer the print job so that it can start printing upon arrival.

For IPX settings, see the Settings Management Guide that comes with the Kit. Keep in mind that NDS settings will overwrite the bindery mode settings. If the host machine is to be connected to an environment in which both network architectures are used, advise the user to make NDS settings first.


Network built in Bindery
NetWare
Client
NetWare
Client
NetWare
File server
(print server)
Ethernet
Protocol: IPX
Service: PServer
NetWare
Client
NetWare
Client
NetWare
File server
(print sever)
Network Built in NDS

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2.4 Processing Print Jobs

2.4.1 Image Data Output Block

When a print job has been processed by the Main Controller PCB and the host machine becomes ready for printing, the CPU on the Main Controller PCB sends information needed for printing (e.g., source of paper), and instruct the host machine to start picking up paper.

2.4.2 Processing by the Host Machine

The image data uses the image memory of the main controller PCB as a line buffer. After smoothing and thickening, the image data is once stored on the hard disk drive as in the case of normal copying operation; after adjustments are made for registration (main and sub scanning directions), the DC controller PCB starts to use the image data to generate images.

2.5 New Functions

2.5.1 Secured Printing

In secured printing, the printer driver assigns a password to each print job and printing is held back until an input of the password is entered on the touch-panel display in the control panel of the host machine, thus ensuring the security of information.

In secured printing, the print job is held in wait on the hard disk drive until its password is entered.

As many as 16 jobs are accepted for secured printing. If 16 jobs are held in wait without entering a password, the 17th job will not be accepted; it may, however, be printed as an ordinary print job.
If the user forgets the password and the job remains in the queue, the job must be deleted by turning off and then on the power. At this time, all other jobs and the job log information will also be lost; be sure to consult with the network administrator before doing so.

2.5.2 Messege Board

The network administrator can make use of the remote UI (or making appropriate settings in user mode) to indicate any message on the touch-panel display in the control panel of the host machine. Some of the messages that are exchanged in the form of e-mail messages or by means of groupware may be communicated between the PC of the administrator and the control panel of the host machine.

The system administrator may select any strings of characters, and execute the function so that the touch-panel of the control panel will indicate the message. The touch-panel may be set so that the message may be a status area message (1 line) or a pop-up message (4 lines).

The message is indicated on the Copier screen, Box screen, or Extension screen (in the case of the printer model, on the Extension screen only), and the message may be in any of the following three formats:

Status are message		23 characters
Pop-up message	Indicated at all times	23 characters x 4 lines
	Indicated in response to all-clear	23 characters x 4 lines

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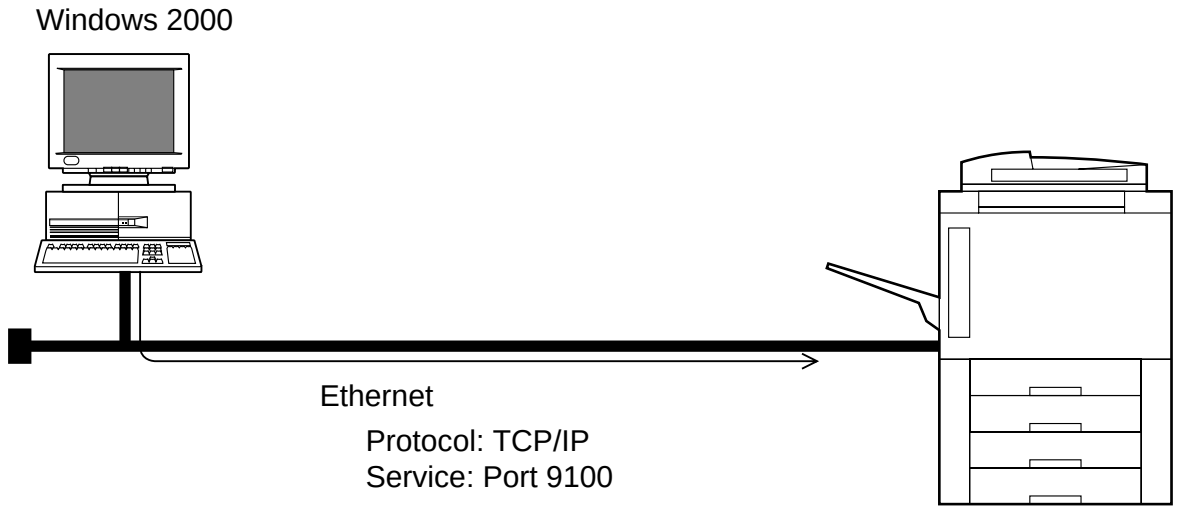
2.5.3 Port 9100 printing

Port 9100 printing is a print service the host machine supports for Windows 2000. Basically, it is identical to printing in LPD/LPR using TCP/IP, and it prints using TCP communication port numbers 9100, 9101, 9102, and 9103.



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2.5.4 ID Management by Group

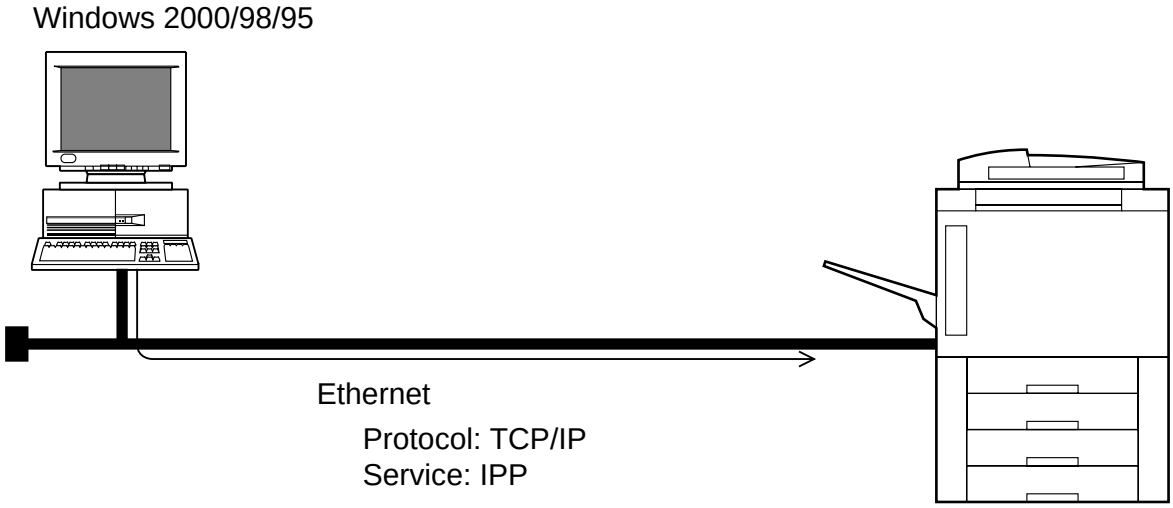
Each group may be assigned a 7-digit group ID and its own ID number so that the host machine may be used only when these numbers are entered (ID management by group). This function can take care of as many as 1000 groups, and the print counts may be checked according to group.

The settings needed for ID management by group may be set up from the touch-panel in the control panel of the host machine or by using the remote UI (user mode>system settings> group ID managed).

2.5.5 IPP

IPP (Internet Print Protocol) is used for printing using a notation beginning with 'http' after selecting the URL of the printer in question (in the case of the host machine, its IP address).

Windows 2000 comes with the IPP client function as standard; to use IPP with Windows 95/98, however, you need to install the IPP client function designed for Windows 95/98.



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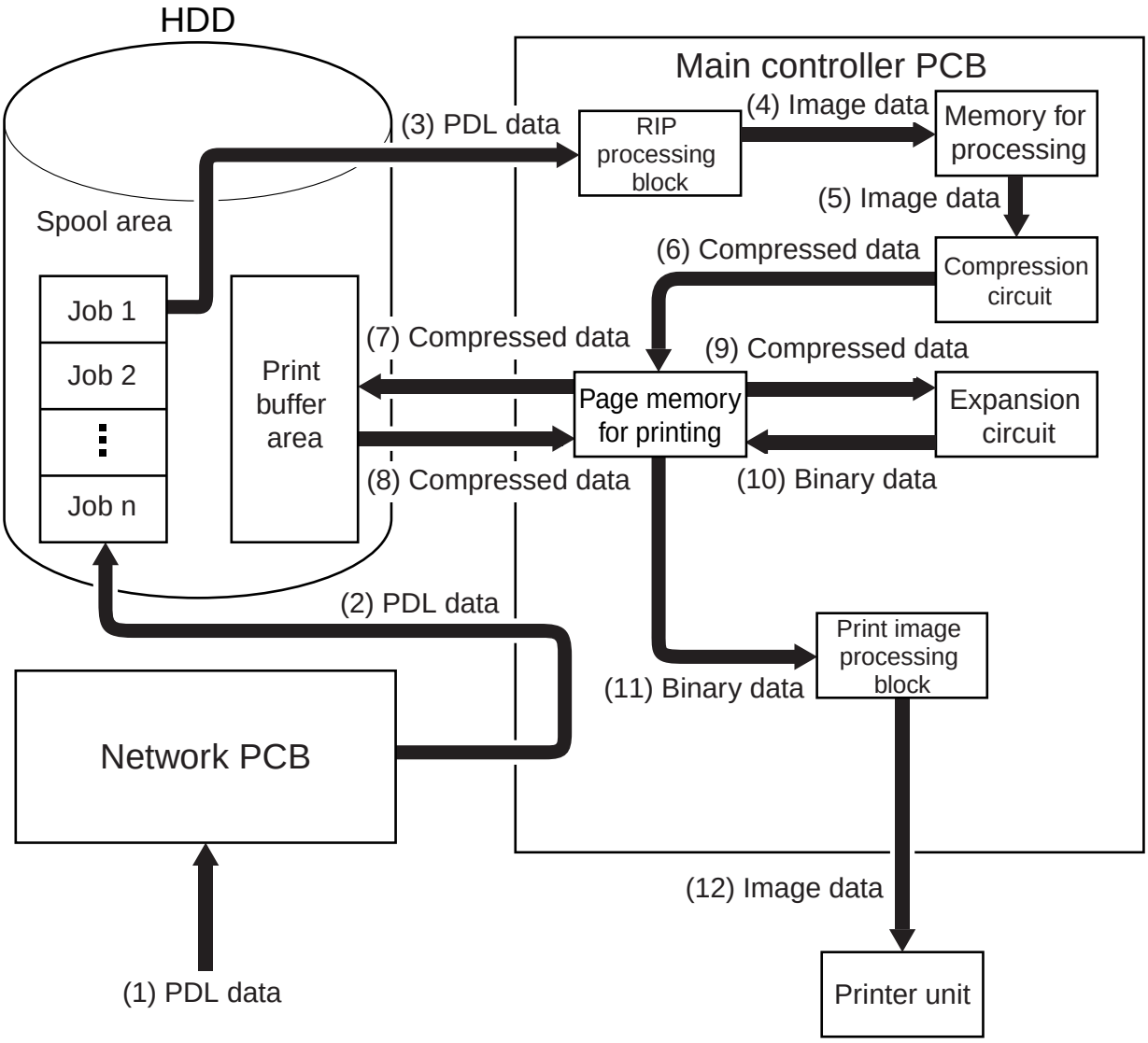
2.5.6 Hard Disk Spool

When the hard disk spool function is used, the print job from the PC is stored once in the spool area of the hard disk. (The spool area is about 300 MB in size.)

The temporarily stored print jobs are sent to the RIP processing block in sequence; the jobs are eliminated from the spool area as soon as they are printed.

As many as 100 jobs may be spooled at a time.

The following shows the flow of data when the hard disk spool function is used:



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2.5.7 SMB Printing

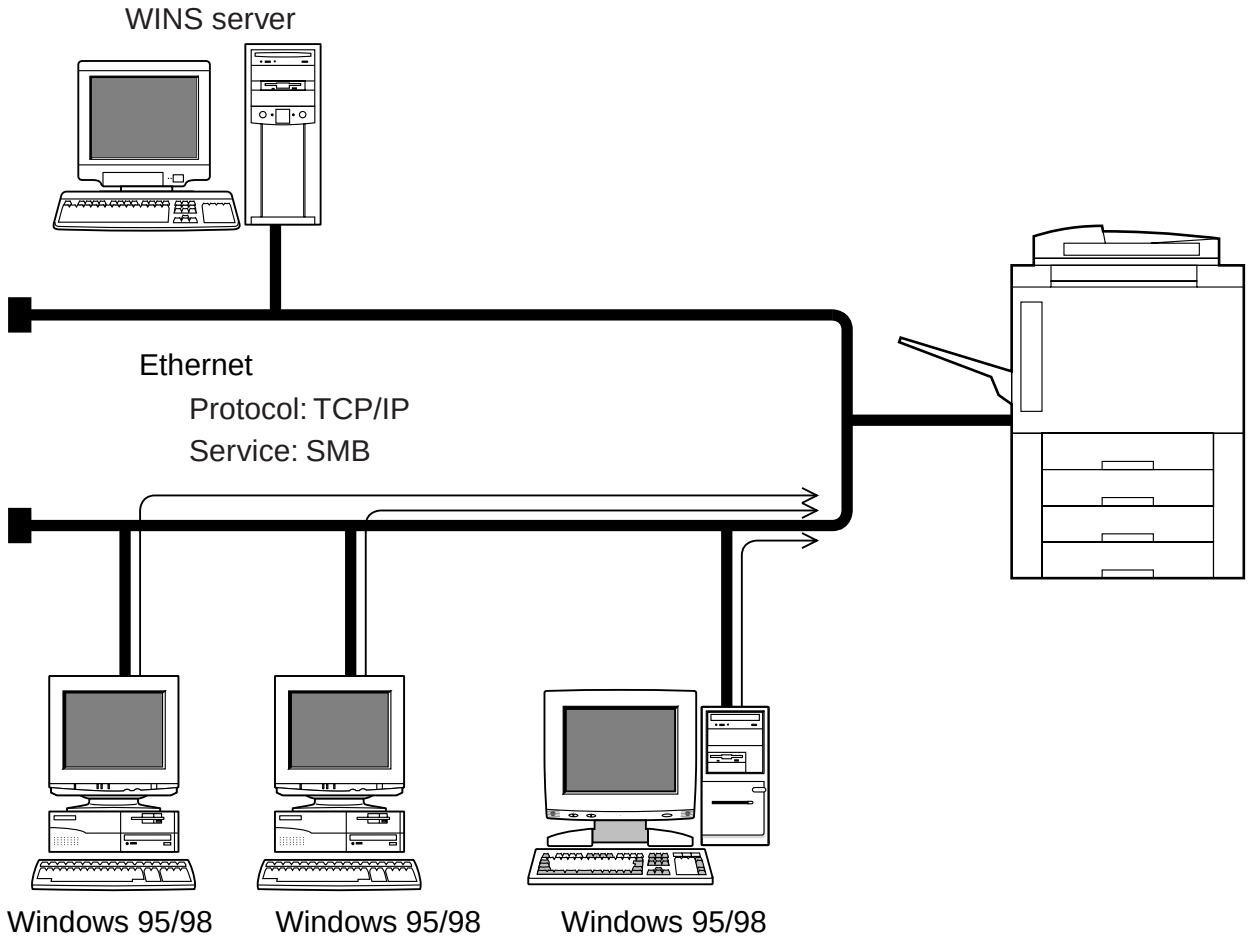
SMB has been developed for a network running on NetBIOS as its protocol (the destination is specified in reference to the name of the computer). SMB over TCP/IP is designed to enable the use of SMB in combination with a TCP/IP protocol.

On a TCP/IP network, the destination must be specified using an IP address, not the name of the computer, requiring conversion of an computer name into an IP address.

If the machine is connected to a network equipped with WINS (Windows Internet Name Service) for such conversion, the machine can take advantage of the service.

If the WINS sever cannot be used or is not to be used, the computer will demand the IP address of the machine, directing to the entire network before sending a print job to the machine.

The machine's SMB printing function cannot take part in the domain, requiring a separate work group if the SMB printing function must be used on a network made up of an NT domain.



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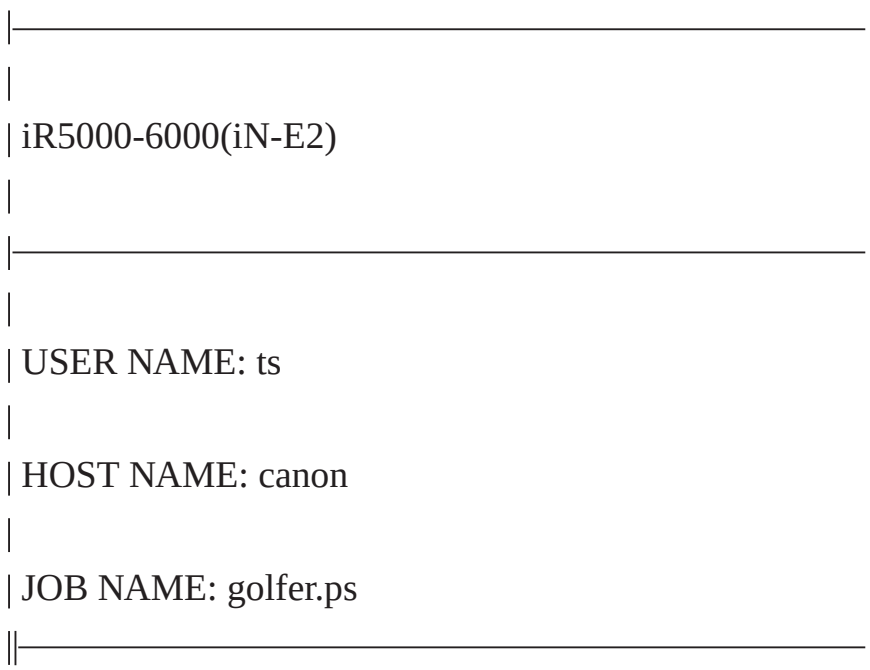
2.5.8 LPD Banner

When LPD printing is executed, job information as shown below will be printed:

LPD Banner Sample



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CHAPTER 3

USER SOFTWARE

1 Outline

The Kit comes with the User Software CD-ROM, which contains printer drivers and utility programs.

For how to install the printer drivers and the user software or for descriptions on functions and operations, see the PCL Driver Guide, PS Driver Guide, and Network Guide that come with the Kit.

2 Printer Drivers

When a print command is executed from an application program, the printer driver starts to convert print images it receives from the application program into commands written in its page description language. In addition, it also converts settings made on the printer's Properties screen into commands, and send the result to the printer board.

In general, a different operating system uses a different protocol for the transmission of image data, requiring a specific printer driver. The User Software CD-ROM of the Kit provides PCL5e, PCL6, and PostScript 3 printer drivers to support the following operating systems:

Windows 95/98
Windows NT4.0
Windows 2000
Mac OS 8.3/8.6

3 Utilities

3.1 NetSpot

NetSpot is a utility program used to manage printers on a TCP/IP or an IPX network, showing the state of printers and progress of print jobs on PC screens.

A printer that supports NetSpot has a built-in database called an MIB (Management Information Base), and NetSpot installed to the PC of the system administrator accesses the database to obtain control information and to make settings.

A PC to which NetSpot has been installed is capable of accessing all printers supporting NetSpot, thus enabling the system administrator to manage all printers connect to the network.

The PC used by the system administrator must be able to sue TCP/IP or IPX.

3.2 JBIG Viewer

JBIG Viewer is used to view images stored in the Boxes by means of the PC browser of a PC connected to the network.

3.3 Network ScanGear (Windows only)

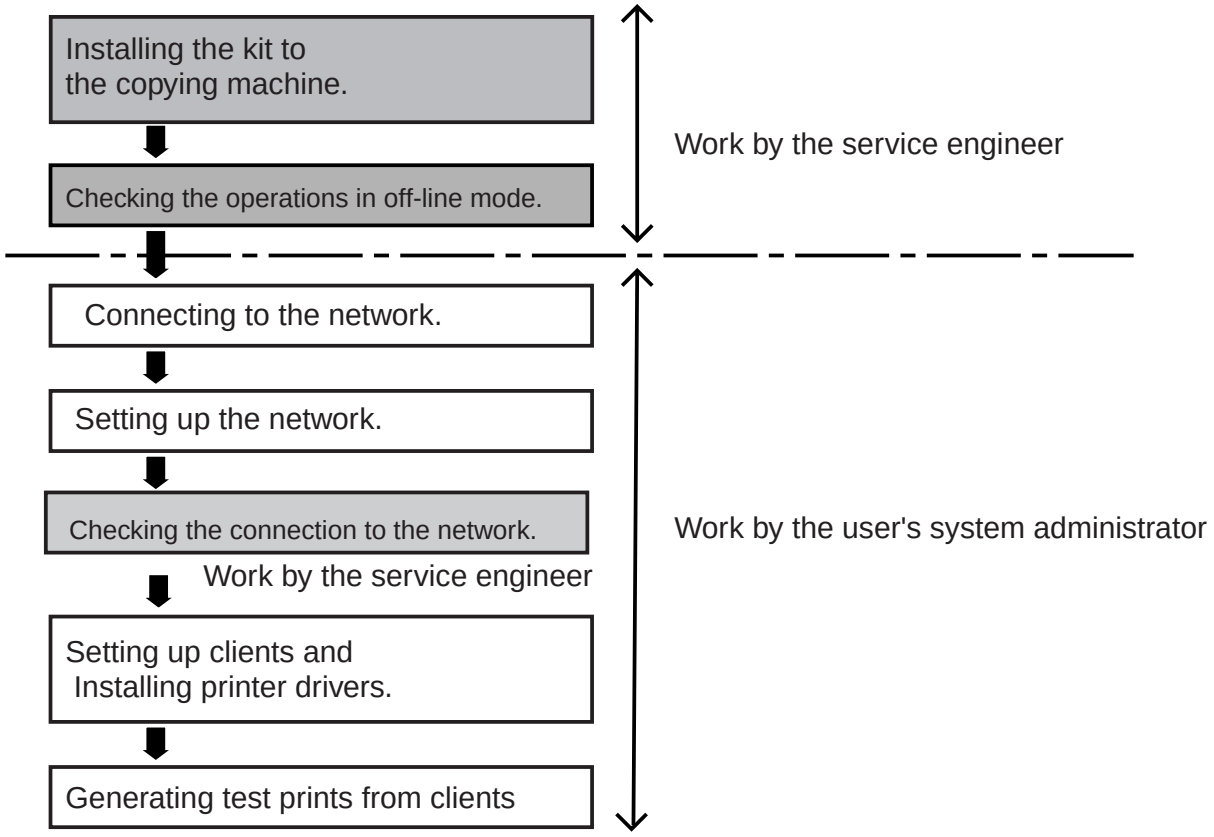
Network ScanGear is a TWAIN driver for iR8500 network scan function.

CHAPTER 4

INSTALLATION

1 Outline

The following is the flow of work used when installing the Board:



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In the absence of the user's system administrator, the service engineer may at times be asked to take on the work of the system administrator at the user's request.

It is important to be able to deal with the required work from "setting up the network" to "generating test prints from clients" by referring to the user documentation.

Be sure also to offer the settings information to the user to avoid problems while the system is in use.

2 Points to Note for Installation

2.1 Installation Procedure

For instructions to follow when installing the Board, see the Installation Procedure that comes with the board. (For an outline, see 3. "Installation Procedure.")

2.2 User Software CD-ROM

The User Software CD-ROM contains the following pieces of software:

- PS/PCL printer drivers
- Utilities

The User Software CD-ROM is prepared in a hybrid format, a single disk containing software for both Windows and Macintosh operating systems. You must use a Macintosh machine to access the Macintosh software. You will find the Windows print drivers inside the Prntdrvr folder, which contains separate folders for different printer drivers.

You must agree to the terms of the contract to use the user software. A document indicating the terms comes with the Media Pack. Tell the user to refer to the document for details. Be sure also to tell the user that opening the User Software CD-ROM indicates his/her consent to the terms of the agreement.

3 Preparation

Prepare the following since it is necessary to download the system for PS/PCL after attaching the kit.

3.1 Computer

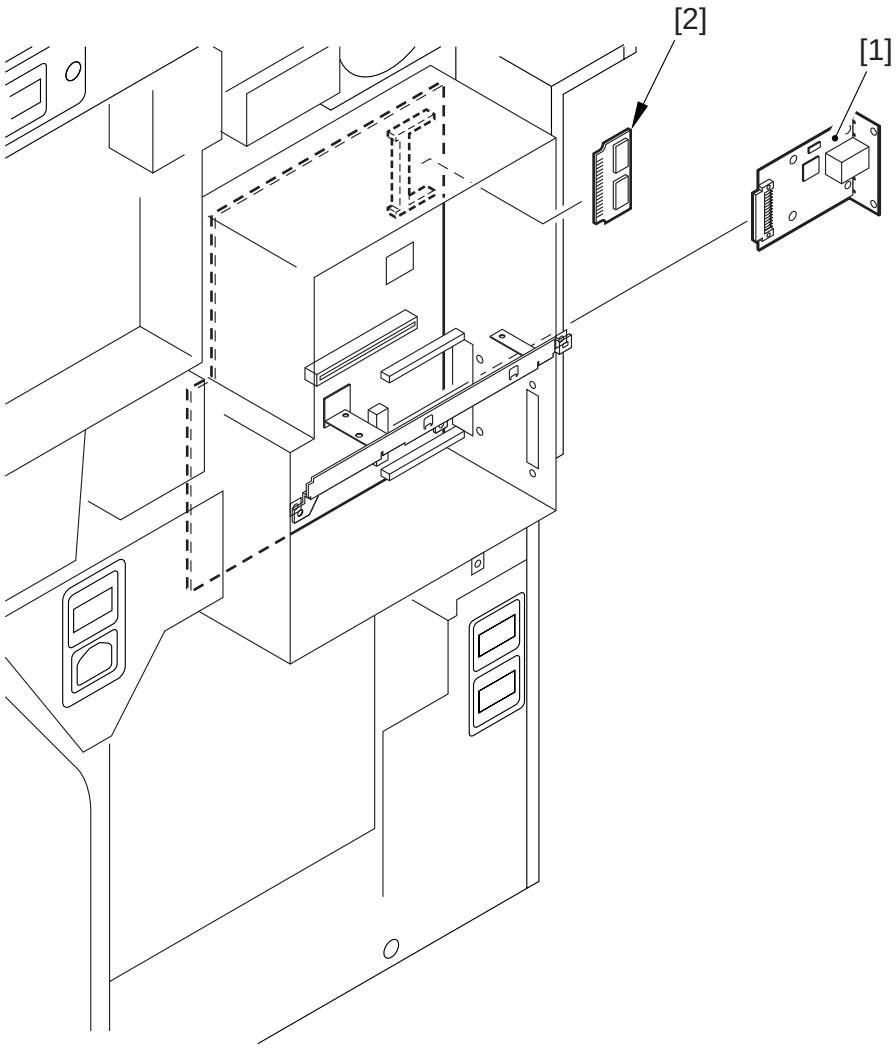
Computer with the service support tool Ver.1.24 and after installed and the iR8500N system regested.

3.2 Interface cable

When downloading via parallel port
Parallel cable

When downloading via network
Cross Ethernet cable 1
Or
Straight Ethernet cable 2
HUB 1

P2
Unpacking/check on packed articles

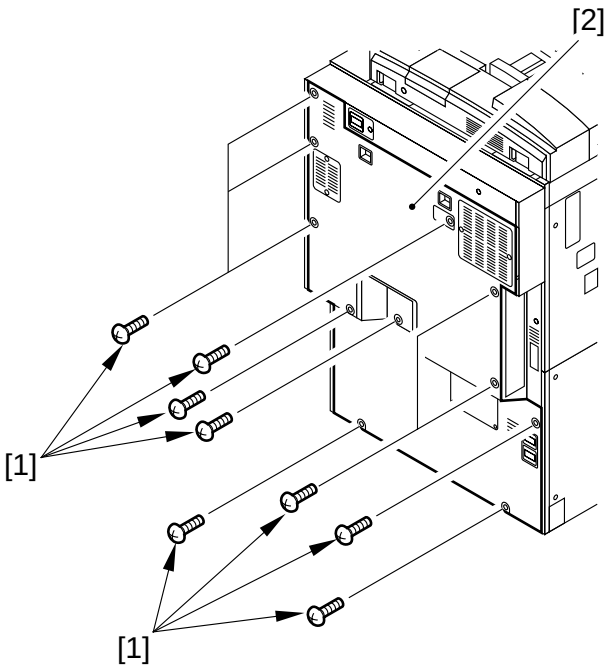


[2] Network PCB
[3] BOOT ROM for PDL

F04-302-01

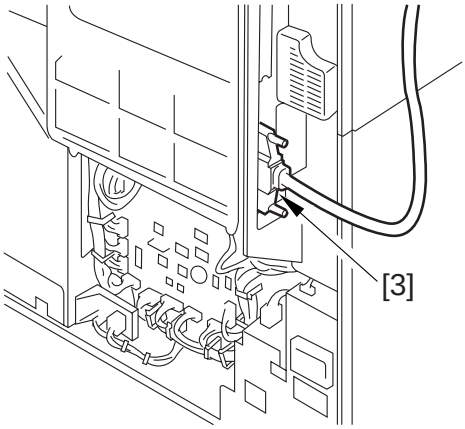
4 Procedure for attachment

1) Remove the screws [1] (11), and remove the rear cover [2].



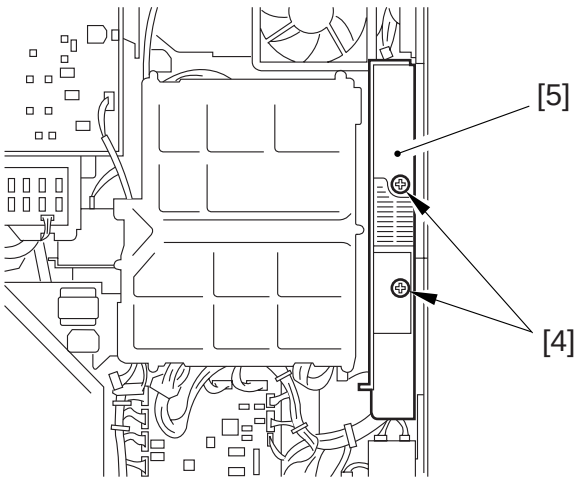
F04-400-01

2) Remove the interface cable [3].



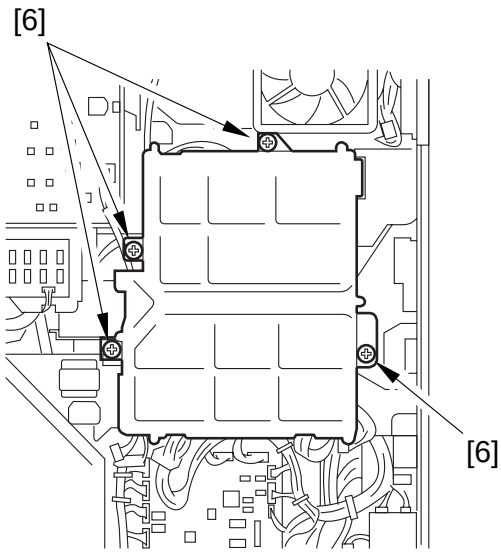
F04-400-02

3) Remove the screws [4] (2), and remove the rear right cover [5].

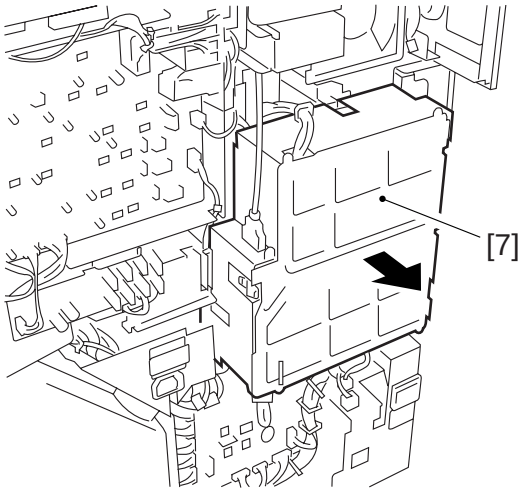


F04-400-03

4) Remove the screws [6] (4), and pull the main controller box [7] out.

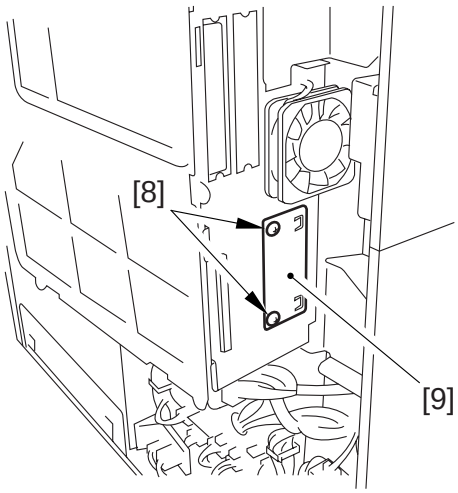


F04-400-04



F04-400-05

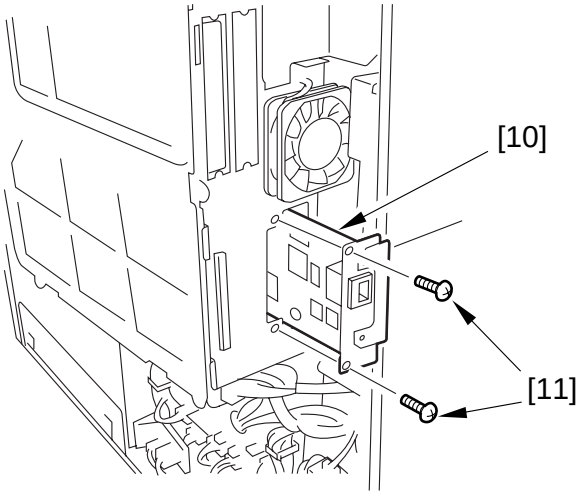
5) Remove the screws [8] (2), and remove the blanking plate 1 [9].



F04-400-06

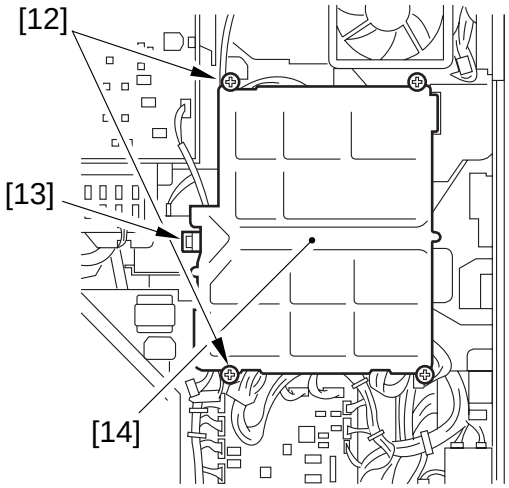
6) Fix the network PCB [10] with the screws for attaching the blanking plate 1 [11] (2).

Note: Make sure that the connector is inserted properly.



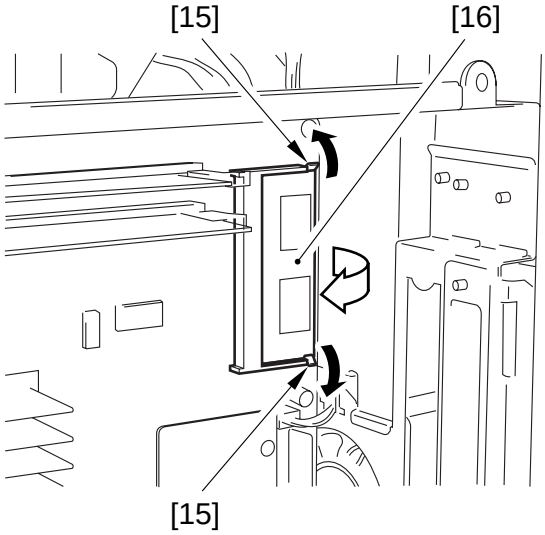
F04-400-07

7) Push the main controller box (pulled out in Procedure 5) in, and fix it with screws (4).
8) Remove the screws [12] (2), release the hook [13] and remove the main controller cover [14].



F04-400-08

9) Release the claws [15] (2) and remove the BOOT ROM [16].
10) Attach the BOOT ROM for PDL packed together in the kit to the socket (J1010) to which the BOOT ROM (removed in Procedure 10) was attached.
11) Attach the main controller cover removed in Procedure 8.
12) Attach the rear right cover removed in Procedure 3.
13) Attach the interface cable removed in Procedure 2.
14) Attach the rear cover removed in Procedure 1.



F04-400-09

5 System download

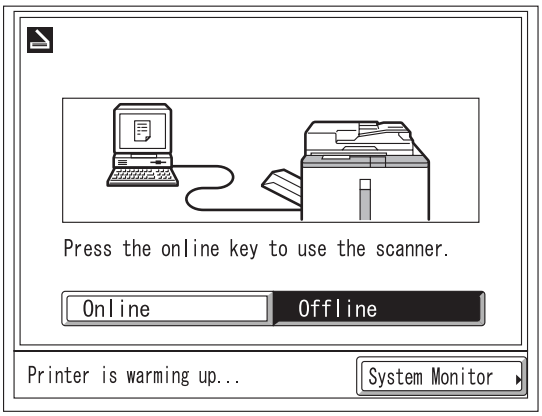
After completing the attachment of the kit, download the iR8500N system.

At this time, when downloading in service mode, E677 is displayed. It is not abnormal. This is because the BOOT ROM is for PDL though the system is for copy. After downloading the iR8500N system, E677 is eliminated.

Refer to the iR8500 Service Manual for the procedure for downloading.

6 Check on network scanner

1) Switch on the copier.
2) Press the OPTION key, and confirm that the following is displayed.



F04-600-01

7 Connecting to the Network

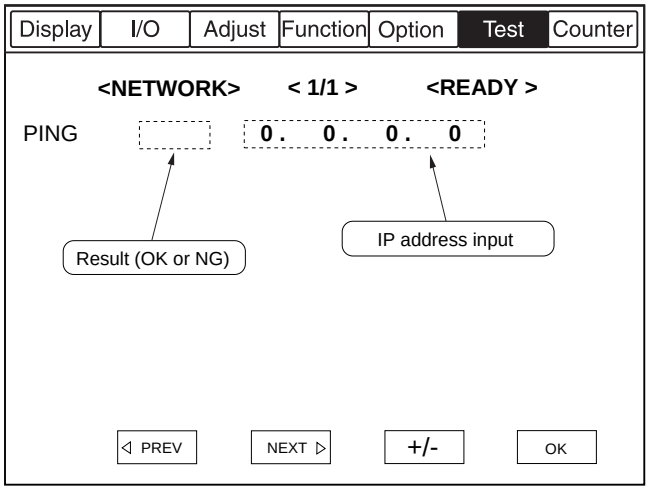
1) Turn off the host machine.
2) Connect the network cable to the host mahine, and turn on the power.
3) Tell the user’s system administrator that the installation work is over, and ask him/her to set up the network.

8 Checking the Connection

If the user's network is a CP/IP environment, check to make sure that the network PCB has correctly been installed and the network has correctly been set up using the PING function. (You need not perform this if the user's network is an IPX/SPX or AppleTalk environment.)

8.1 Using PING

1) Select PING in service mode: Copier>Test>NETWORK>PING.
2) Enter the IP address form the keypad on the control panel, and press [OK].
3) Press [START].
4) See that 'OK' has appeared to indicate that the PING operation was successful. (Failure is indicated by 'NO'.)



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8.2 Making a Check Using a Remote Host Address

You can find out whether the connection to the network is correct or not by executing PING using a remote host address. (The remote host address is the IP address of a PC terminal which is operating on the TCP/IP network to which the host machine is connected.)

1) Inform the system administrator that you are going to check the network using PING.
2) Obtain a remote host address from the system administrator.
3) Enter the remote host address to PING.
4) See that 'OK' has appeared, indicating that the connection to the network is correct.
5) If 'NO' has appeared to indicate that the connection is not successful, go through the troubleshooting work that follows:

9 Troubleshooting

If the connection to the network is not correct, you may suspect the following causes; perform the steps given under 9.1 and later to correct the problem:

1. The connection between the network and the Network PCB is not correct.
2. The TCP/IP settings are not correct.
3. The Network PCB or a PCB is not correctly mounted.
4. The user's network is not faulty.

9.1 Checking the Connection of the Network Cable

Check to make sure that the network cable is correctly connected to the Network PCB.

1) If the connection is correct, go to 9.2.
2) If the connection is not correct, make a check once again using a remote host address.

9.2 Making a Check with a Loop-Back Address

A loop-back address is returned before reaching the Network PCB, enabling you to check the TCP/IP settings by executing PING using the address.

1) Enter the loop-back address (127.0.0.1) for PING.
2) If 'NG' has appeared, check the TCP/IP settings once again, and execute PING once again.
3) If 'OK' is indicated, go to 9.3.

9.3 Making a Check Using a Local Host Address

A local host address in question is the IP address of the host machine, and it will be returned after reaching the Network PCB when you execute PING using the address, enabling you to check the Network PCB.

1) Enter the IP address of the host machine to PING.
2) If 'NG' has appeared, perform the following, and execute PING once again:
   a. If the IP address is faulty, check the IP address by contacting the system administrator.
   b. If the Network PCB is not correctly connected, check the connector of the Network PCB.
   c. If the Network PCB is faulty, replace the Network PCB.
3) If 'OK' has appeared, suspect a problem on the user's network; contact the user's system administrator for appropriate action.

CHAPTER 5

TROUBLESHOOTING

1 Outline of Troubleshooting

Start troubleshooting work by checking the simplest causes first (e.g., wrong settings, loose connectors), moving on to causes that call for complicated solutions. Go through the following for an idea of how you may troubleshoot the system:

1.1 Checking the Host Machine

Before starting to troubleshoot the Kit, check to make sure that the host machine operates normally by generating copies and test prints.

If the host machine fails to operate normally, troubleshoot it by referring to its Service Manual.

1.2 Checking the Connections

Before starting full-scale troubleshooting work, check the connections for loose or missing connectors of cables and the print PCB. Each symptom calls for a check on a particular point, which is likely to be any of the following:

- Network cable
- Connector between RIP1 PCB and relay PCB
- Connector between relay PCB and main controller PCB
- Parallel port connector

1.3 Checking the Hardware

Turn off and then on the host machine to make sure that it starts up normally; then, generate test prints. If the machine fails to generate test prints, suspect a fault in its hardware: see 2. "Basic Procedure for Checking Network Connections," 3. "Troubleshooting by Error Code," and 4. "Disassembly/Assembly."

2 Basic Procedure for Checking Network Connections

2.1 Basic Procedure for Checking the Network in a TCP/IP Environment

If the user's network is in a TCP/IP environment, check to see that the network PCB is correctly mounted and the network is correctly set up using PING in service mode.

2.1.1 Using PING

1) Select PING in service mode: Copier>Test>Network>PING.
2) Enter the IP address using the keypad on the control panel, and press [OK].
3) Press [START].
4) See that 'OK' has appeared to indicate that PING has been successful. ('NG' indicates the failure of PING.)

2.1.2 Making a Check Using a Remote Host Address

By executing PING using a remote address, you can find out whether the connection to the network is correct or not.

1) Inform the user's system administrator that you are going to check the connection to the network using PING.
2) Obtain the remote host address from the system administrator.
3) Start service mode, and enter the remote host address you obtained in step 2) to 'PING'.
4) See that 'OK' has appeared to indicate that the connection to the network is correct.
5) If 'NG' has appeared to indicate that the connection to the network is not correct, perform the following troubleshooting work:

2.2 Troubleshooting

If the connection to the network is not correct, you can suspect any of the following causes; go to 2.2.1 for appropriate action:

1. The connection between the network and the Network PCB is faulty.
2. The TCP/IP settings are wrong.
3. The auto identification mechanism for the Ethernet driver is faulty.
4. The Network PCB or any of the PCBs is not mounted correctly.
5. The user network is faulty.

2.2.1 Checking the Connection of the Network Cable

Check to find out whether the network cable is connected correctly to the Network PCB.

1) If the connection is correct, go to 2.2.2
2) If the connection is wrong, make the needed corrections, and make a check using a remote host address.

2.2.2 Making a Check Using a Loop-Back Address

A loop-back address is returned before it reaches the Network PCB; for this reason, you can find out whether the TCP/IP settings are correct or not by execution PING with the address.

1) Start service mode, and enter the loop-back address (127.0.0.1): Copier>Test>Network>PING.
2) If 'NG' has appeared, check the TCP/IP settings once again, and execute PING.
3) If 'OK" has appeared, go to 2.2.3.

2.2.3 Checking the Ethernet Driver Settings

Some network environments prevent the Ethernet driver auto identification mechanism of the host machine from operating normally. In such a case, make the Ethernet driver settings manually.

1) Find out the type of communication and the type of Ethernet from the system administrator.
2) Make the following selections in user mode: System Management Settings>Network Settings>Ethernet Driver Setting. Then, change the setting to 'no', and set it to the type of communication and type of Ethernet you found out in step 1).
3) Turn off and then on the power.
4) Make a check once again using the remote host address.
5) See that 'OK' has appeared.
6) If 'NG' has appeared, go to 2.2.4.

2.2.4 Making a Check Using a Local Host Address

A local host address is an IP address, and executing PING using the address causes it to be retuned only after it has reached the Network PCB, enabling you to find out whether the network PCB is normal or not.

1) Start service mode, and make the following selections: Copier>Test>Network>PING; then, enter the IP address of the host machine.
2) If 'NG' has appeared, check the following and take the appropriate actions; then, execute PING:
   - If the IP address is faulty, check with the system administrator to make sure that the settings of the IP address are correct and the IP address is valid.
   - If the connection of the network PCB is faulty, check the connection of the Network PCB.
   - If the Network PCB is faulty, replace the network PCB.
   - If the main controller PCB is faulty, replace the main controller PCB.
3) If 'OK' has appeared, suspect a problem in the user's network environment. Report to the system administrator for appropriate action.

3 Troubleshooting by Error Code

When the main power is turned on, the host machine checks the communication functions used between the printer unit and the Network PCB; if it finds a fault, it will indicate an error code in the touch panel display.

Take the actions given for each error code; for details of error codes, see the Printer Unit Manual.

3.1 E740

Wrong operation

1) Turn off and then on the power switch. Is the problem corrected?

YES: Check the operation once again. If no fault is noted, end the work.

General condition

2) Is the detail code 0002?

YES: Go to step 4.

Connector

3) Are the connectors of the Network PCB and the main connector PCB normal? Further, is the cable normal?

NO: Correct the connection/cable.

MAC address

4) Check with the network administrator about the MAC address. Try setting it once again. Is the problem corrected?

YES: End.

Network PCB

5) Try replacing the Network PCB. Is the problem corrected?

YES: End.

NO: Replace the main controller PCB.

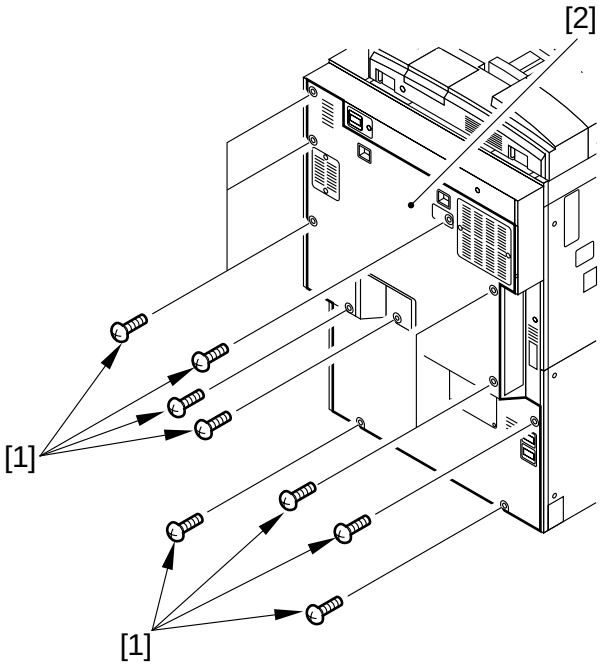
4 DISASSEMBLY/ASSEMBLY

4.1 Points to Note in General

- ⚠Be sure to disconnect the power plug for safety before starting disassembly/ assembly work.
- Onless otherwise noted, assemble parts by reversing steps used to disassemble them.
- Identify the screws by type (length, diameter) and location.
- Some screws are equipped with a toothed washer to ensure electric continuity. Be sure to use the same screws and washers.

4.2 Remove the Network PCB

1) Remove the screws [1] (11), and remove the rear cover [2].



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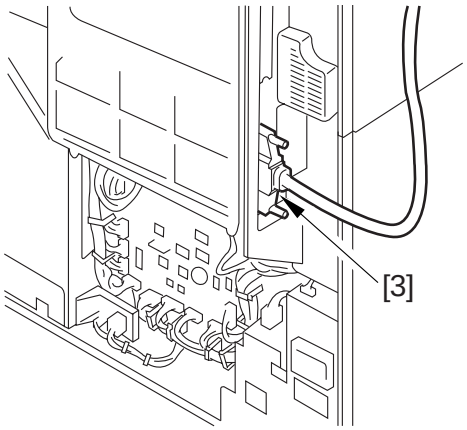
2) Remove the interface cable [3].



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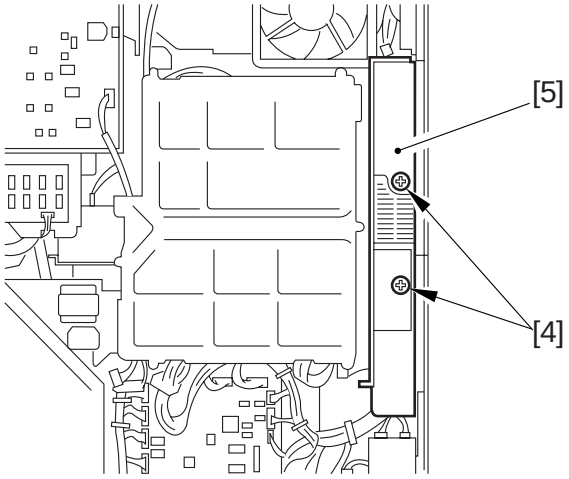
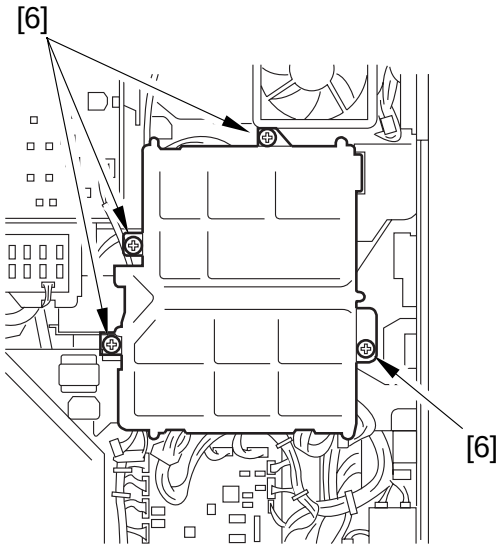
3) Remove the screws [4] (2), and remove the rear right cover [5].



F05-402-03

4) Remove the screws [6] (4), and pull the main controller box [7] out.



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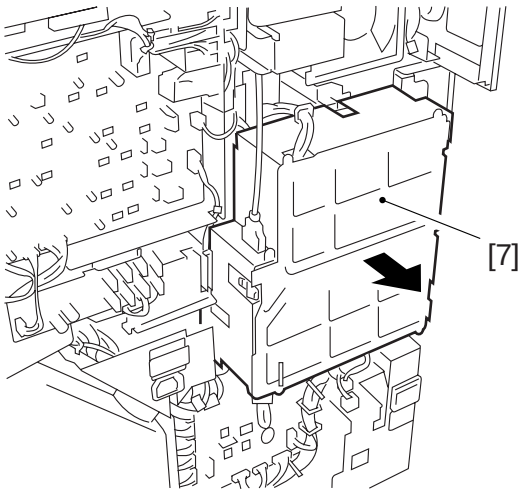

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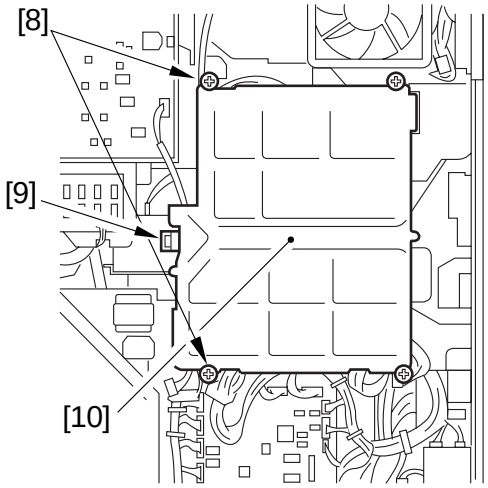
5) Remove the screws [8] (2), release the hook [9] and remove the main controller cover [10].



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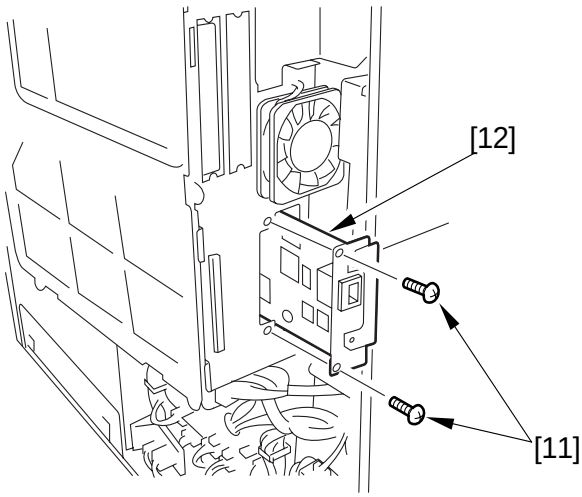
6) Remove the screws [11] (2), and remove the Network PCB [12].



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