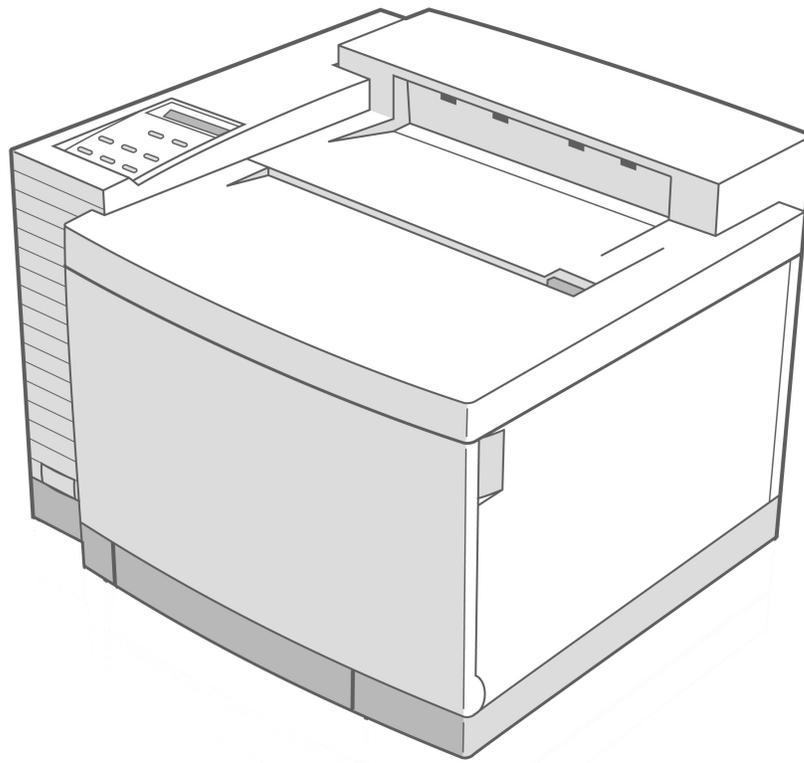


# **NEC SuperScript 4400/4400N**

## **Maintenance Guide**



**18 September 1998**  
Part Number 703-A0240-001

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# CHAPTER 1

## INTRODUCTION AND SETUP

### OVERVIEW

The innovative NEC SuperScript™ 4400 color laser printer is the best value today for fast color and monochrome printing. The 4400 delivers high resolution, laser color output for business presentations and reports and is adaptable to changing business needs. The SuperScript 4400N network printer introduces the first web-based printing capability. This allows you to print jobs to remote locations—across the building or across the country! This section reviews the features and options of each printer that will make it the busiest machine in your office.

### SuperScript 4400 Series Highlights

- Prints from 4 to 8 color pages per minute and up to 16 monochrome pages.
- With PostScript 3 or PCL5e printing languages, you can print almost anything. The printer automatically selects the appropriate printer language for incoming jobs.  
**note:** For color printing, you must use the PostScript 3 printer driver for your system. The PCL 5e printer driver is for monochrome printing only.
- 600 x 600 dpi printing is standard
- 1200x1200 dpi printing is available when a total of 80 MB of RAM is installed (96 MB for legal size paper).
- 32 MB of RAM standard, extendable to 128 MB
- 2.1 GB internal hard disk for storing fonts and forms.
- Year-2000 compliant

### SuperScript 4400N Enhancements

With the network printer, you can take advantage of the latest printing technology.

- Printer Home Page provides access to web-based printing software, online Help, and other features.
- Using NEC's PrintAgent™ software, configuration and monitoring can be done from your workstation.
- Supports traditional network printing over NetWare, TCP/IP, EtherTalk, Windows 3.x and above, Windows NT 4.0, and NetBEUI/NetBIOS
- 96 MB of RAM standard, extendable to 128 MB

### Printer Options

You can add these features to increase productivity.

- 250-sheet standard size Paper Tray 2
- 250-sheet Legal Tray
- Network Upgrade Kitxxx with Network Interface Card (NIC)

## System Requirements

Your SuperScript 4400 printer and software can operate using the following minimum system configurations.

### Windows Operating System

- Microsoft Windows 3.x, Windows 95/98, or Windows NT 4.0
- 486 or higher CPU
- CD-ROM drive
- 5 MB of free hard disk space
- 8 MB or more of RAM
- Parallel Port
- Ethernet connection (for the 4400N)

### MacOS

- Mac OS 7.1 or higher
- 68040 or higher CPU
- CD-ROM drive
- 5 MB of free hard disk space
- 8 MB or more of RAM
- Ethernet connection on the 4400N

### Web-Based Printing Requirements

To use the web-based Pull Printing and NEC PrintAgent features, you need to have Microsoft's Internet Explorer 4.01 SP1 web browser.

### Network Printing Requirements

#### Supported Printing Environments

The SuperScript 4400 comes with software for using the printer on several operating systems and networks, including

- Microsoft® Windows® 3.x, Windows 95/98, and Windows NT® 4.0
- NetWare® versions 3.x and 4.x
- Mac™ OS 7.1 and higher using EtherTalk®
- Peer to peer printing for Windows 95/98
- UNIX®

For network setup, your workstation and network operating system should be configured and operating correctly, and your SuperScript 4400 printer drivers should already be properly installed.

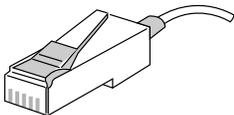
## Hardware Requirements

You need to provide the following additional hardware to setup and connect your printer.

- For standard connection, a IEEE 1284 compliant parallel cable.



- For network connection, Category 5 twisted pair cable with RJ-45 connectors for 10/100Base-T Ethernet®, shown here.



**note:** The NIC automatically detects whether you have a 10 Mbps or 100 Mbps Ethernet connection. For better performance, NEC recommends that you use shielded cable and connectors when connecting to 100 Mbps Ethernet.

## Energy Saving



The SuperScript 4400 and 4400N printers meet the requirements of the Environmental Protection Agency's Energy Star Computers program for printers. The purpose of this program is to promote the manufacturing and marketing of energy-efficient office automation equipment, thereby potentially reducing combustion-related pollution. (The Energy Star emblem does not represent EPA endorsement of any product or service.)

## SUPERSCRIPT 4400 SERIES CD

The *SuperScript 4400 Series CD* that comes with your printer provides three options for installing printer drivers and printing utilities in Windows.

- Easy/Local Setup
- Custom/Network Client Setup
- Administrator Setup

Choose the one that best suits your needs.

### Printing Software for Windows

#### Easy/Local Setup

Use this option to quickly install the basic printing tools for your operating system. This is appropriate if you are connected to a SuperScript 4400 from the parallel port. Using this option, you can install

- PostScript 3 and PCL 5e printer drivers
- Adobe Acrobat Reader 3.01
- Onlinedoc.pdf—A *User's Guide* you can view online, or print out

**note:** For color printing, you must use the PostScript 3 printer driver. Also, the advanced setting, Image Color Matching (ICM), is not available with this setup.

#### Custom/Network Client Setup

If you are a network client with access to a SuperScript 4400N printer, you can use this setup to access web-based printing tools and network utilities. Using this option, you can install

- PostScript 3 printer driver with Image Color Matching
- PostScript 3 printer driver without Image Color Matching
- PCL 5e printer driver
- NEC PrintAgent for Remote Printing
- Utilities for peer to peer printing
- Internet Explorer 4.01 SP1
- Adobe Acrobat Reader 3.01
- Onlinedoc.pdf—A *User's Guide* you can view online, or print out

#### Administrator Setup

This setup should only be used by system administrators who are familiar with the procedures for installing server software and network configuration. Use it to install and use network utilities, and set up servers for NEC PrintAgent Pull Printing.

In addition to all the items available in the Custom/Network Client Setup, the following tools are provided.

- PrintAgent Pull Printing Server software
  - PrintAgent Secondary File Server software
- note:** To use the NEC PrintAgent Server software, you must also install Microsoft's Personal Web Server. You can download this from Microsoft's web site at this URL  
<http://www.microsoft.com/ie/pws>
- SuperScript MAP utility for Windows 95/98, and Windows NT 4.0
  - BOOTP 32 for Windows 95/98 and Windows NT 4.0

### Printing Software for Mac OS

The *SuperScript 4400 Series CD* that comes with your printer provides the following software for Mac OS users.

- The AdobePS printer driver
- The SuperScript 4400 printer description file
- ICC files for Color Sync
- 
-

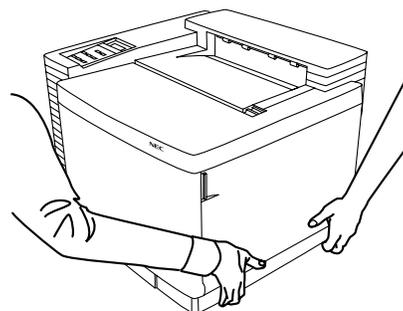
## SAFETY INSTRUCTIONS

To protect yourself and your equipment from possible damage, always follow these precautions.

- Keep liquids away from the printer and protect the printer from dampness or spills.
- Save the printer box and all packing materials that came with your printer in case you need to ship it later.
- Lifting or moving the printer requires two adults!
- Keep the printer level at all times, especially when the Fuser Oil Bottle is installed. Do not tilt more than 1.5°!
- The fuser area, under the Top and Back Covers is very hot. Let the printer cool at least 15 minutes before touching these areas.
- Read the installation instructions carefully before you plug in your printer, and follow all warnings.

### Safety Precautions

The printer and packaging weighs approximately 100lbs. Moving and unpacking the printer requires two adults.

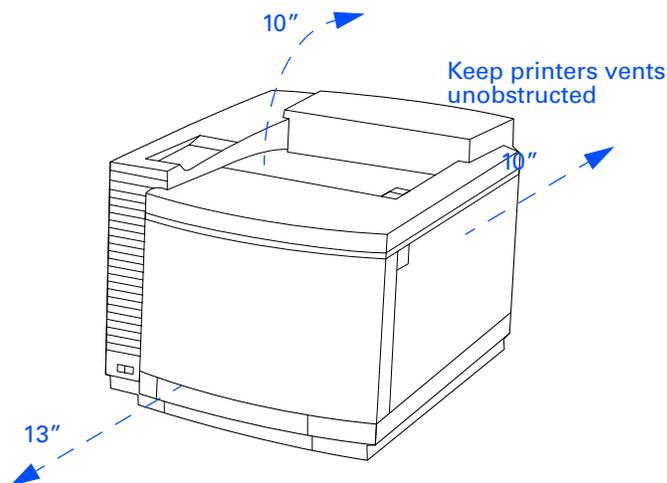


**WARNING!** This printer is intended to be electrically grounded. It comes with a three-wire grounding plug. This plug will only fit a grounded AC outlet or power strip. This is a safety feature. If you are unable to insert the plug into the outlet, contact a licensed electrician to replace the outlet with a properly grounded outlet. Do not defeat the purpose of the grounding plug by removing the third pin!

## SELECTING A LOCATION

Select a level, stable place with adequate space for air circulation and opening covers and trays. The area should be well ventilated and away from direct sunlight or sources of heat, cold, and humidity.

**note:** For more details on printer dimensions and space requirements see Appendix A, Printer Specifications.

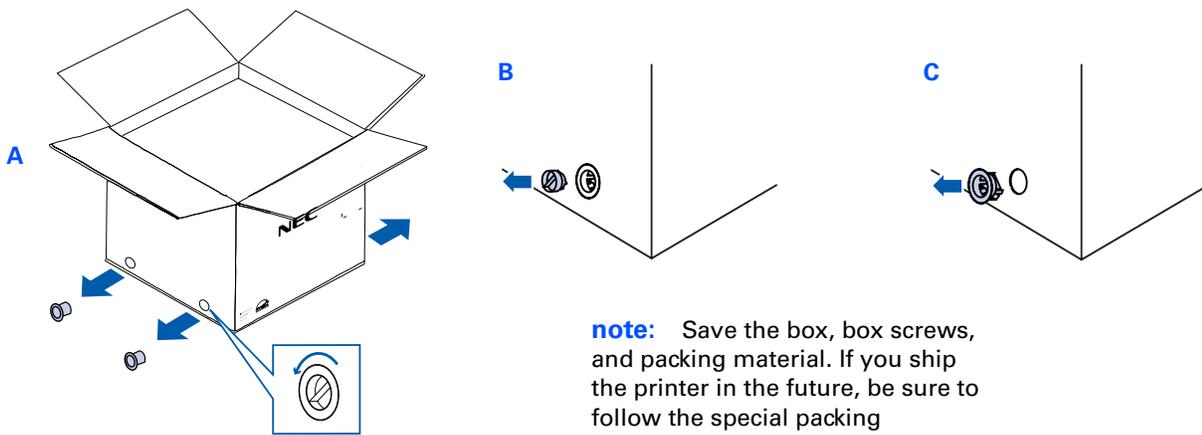


## UNPACKING

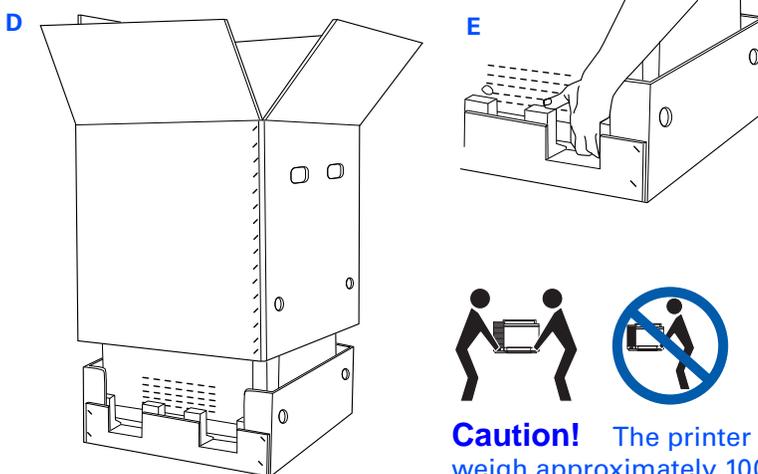
Follow these steps to safely unpack the printer.

1. Open the top cover of the packing box and remove the QuickStart poster.
2. Remove the Accessory kit and Starter kit from the top of the printer.
3. Turn the large plastic box screws at the bottom of the box to the left (A) and pull out to remove (B).
4. Using your thumb and finger, remove the plastic screw sleeves from the box (C).
5. Lift off the outer box (D).
6. Open the plastic bag that contains the printer and slide it down.
7. With one person on each side of the printer, grasp the printer at the hand grips where they are exposed by notches in the foam padding (E).
8. Lift the printer and place it on a sturdy, level surface.

### Unpacking the Printer Box



**note:** Save the box, box screws, and packing material. If you ship the printer in the future, be sure to follow the special packing instructions in Appendix D to safeguard internal components.



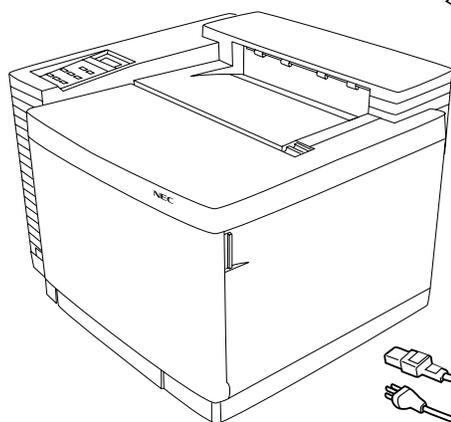
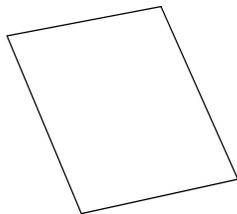
**Caution!** The printer and packaging weigh approximately 100lbs. To set up the printer and move it requires two adults.

## CHECKING PRINTER CONTENTS

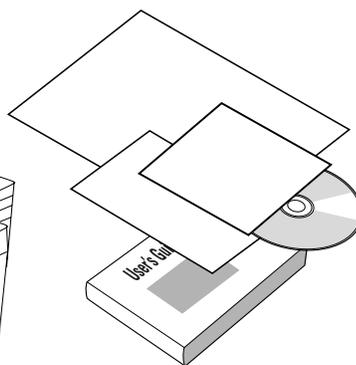
Take a moment to verify that the following items were included in your printer box.

- SuperScript 4400 printer with 250-Sheet Paper Tray 1
- QuickStart Poster
- Accessory Kit (see contents below)
- Starter Kit (see contents below)
- SuperScript 4400 software in a license envelope
- Power Cord
- Toner Collector (installed next to the Toner Modules inside Front Cover of printer)

### QuickStart Poster



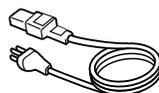
Printer with Standard 250-sheet Paper Tray 1



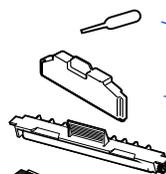
### Starter Kit

NEC Paper Sample Pack  
Software Envelope

- SuperScript 4400 User's Guide
- SuperScript 4400 Series CD
- Adobe® Photo Deluxe CD



Power Cord



### Accessory Kit

Fuser Oil Syringe  
(Save for future use)

Fuser Oil Bottle

Cleaning Roller

Photoconductor Belt Module



1 Black Toner Module

1 Cyan Toner Module

1 Magenta Toner Module

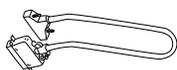
1 Yellow Toner Module



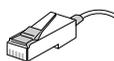
Toner Collector—installed inside printer

### Not Included ...

To connect your printer, you need to provide the proper parallel and/or network cable.



IEEE 1284 compliant Parallel Cable



Category 5 Twisted Pair Cable with RJ-45 Connectors for 10/100Base-T Ethernet.

## IDENTIFYING PRINTER PARTS

Use the illustrations on the facing page to identify standard parts for the SuperScript 4400.

### Front View

- Operator Panel—for displaying messages and configuring the printer
- Power button—for turning on and off the printer
- Top Cover—provides access to the Fuser Unit and inside of the printer (also serves as the Output Tray)
- Output Tray—holds up to 250 printed sheets
- Top Cover Release button—unlocks and opens the Top Cover
- Front Cover—provides access to Toner Modules and Toner Collector
- Front Cover Latch—unlocks and opens the Front Cover
- Paper Tray 1—standard input tray, holds 250 sheets of paper

### Front Internal View

- Toner Module Racks—holds Toner Modules
- Toner Collector—collects used toner
- Paper Transfer Rollers—moves the paper from the inside of the printer to the Output Tray

### Back View

- Serial Number—necessary for warranty registration
- Back Cover—provides access to clear paper jams
- Back Cover Latch—lift to open back of printer
- Filter Cover—contains the Ozone Filter
- Bidirectional parallel interface—for attaching bidirectional parallel cable from your computer
- Ethernet interface—for attaching the Ethernet 10/100 Base-T connectors from your network
- Interface Panel—contains the controller board, hard drive and network interface card (if installed)
- Power Cord Connector—for attaching the power cord
- Back Vent—allows ventilation

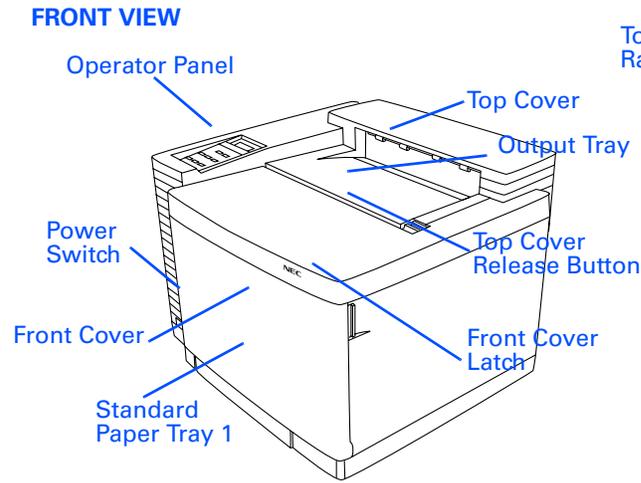
### Back Internal View

- Transfer Drum—transfers image to paper
- Registration Rollers—keeps the paper straight
- Transfer Roller—works with the Transfer Drum to transfer the image to the paper
- Paper Discharger—removes the static electricity from the paper
- Transfer Unit—consists of the above four parts

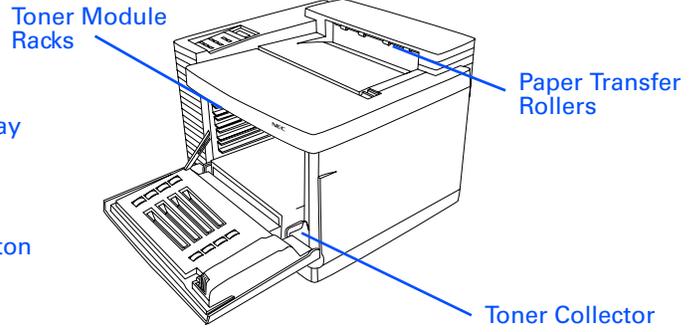
### Top Internal View

- Fuser Unit—uses heat and pressure to adhere the toner image to the paper. Contains two Fuser Rollers.
- Fuser Oil Bottle—holds the oil that helps adhere the toner image to the paper
- Fuser Cleaning Rollers—helps keep the Fuser Rollers clean
- Belt Cartridge—also known as the Photoconductor Belt Module or OPC Unit.

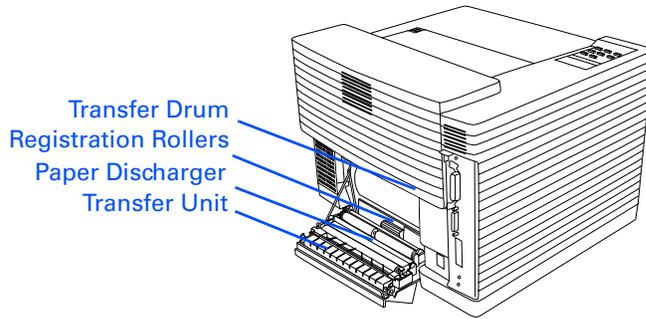
**Important Printer Parts**



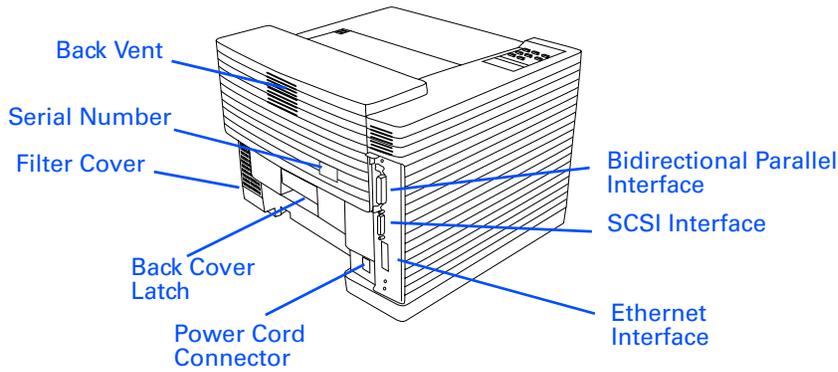
**FRONT INTERNAL VIEW**



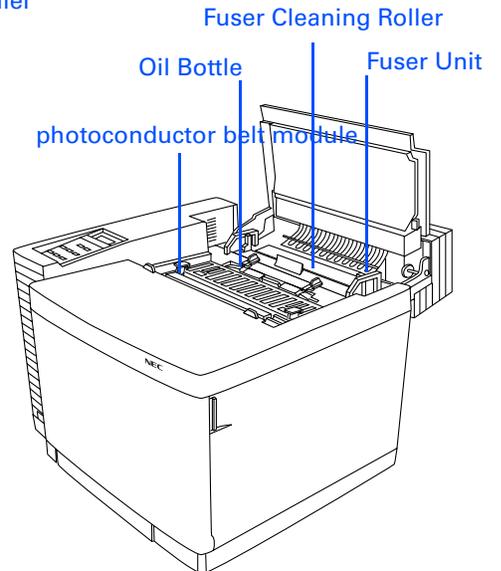
**BACK INTERNAL VIEW**



**BACK VIEW**



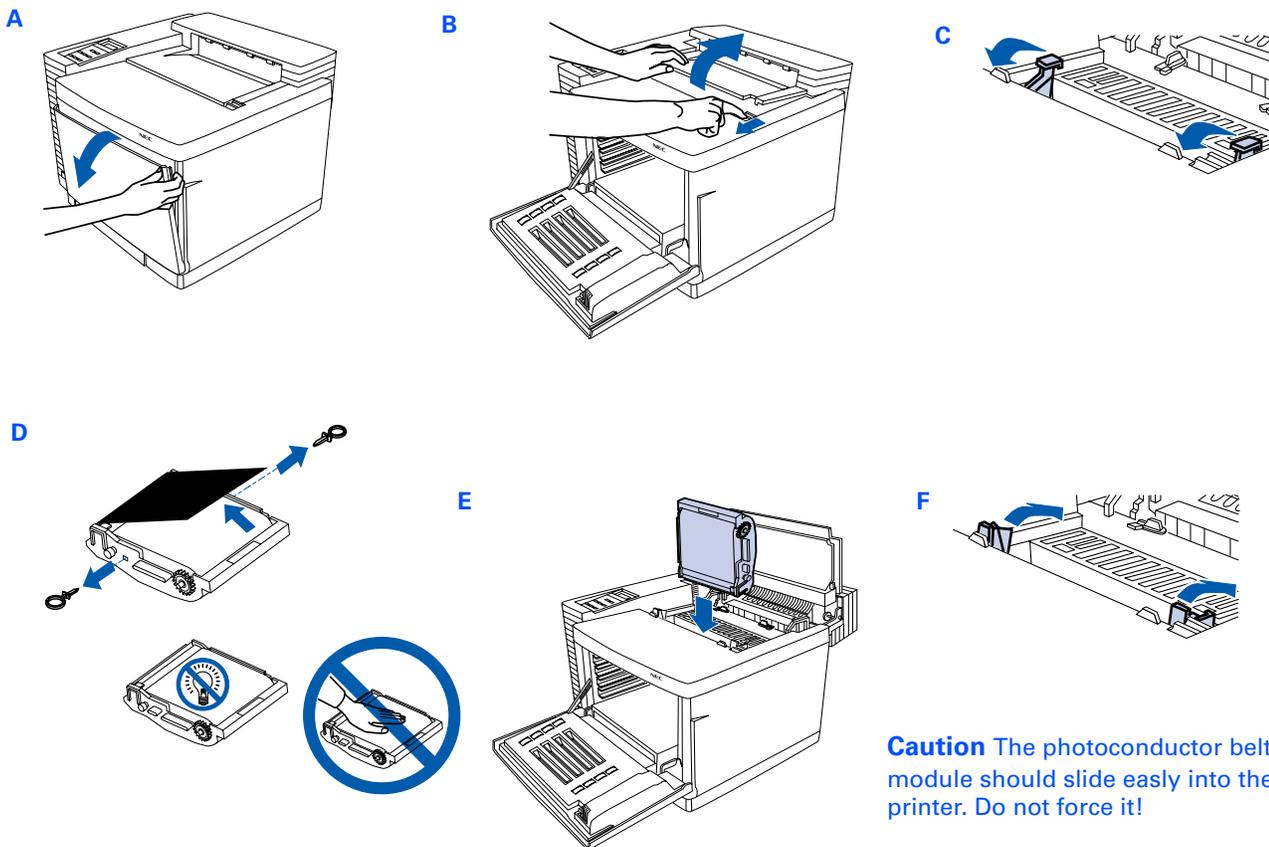
**TOP INTERNAL VIEW**



## INSTALLING THE PHOTOCONDUCTOR BELT MODULE

1. Make sure all packing materials and tape are removed from the printer.
2. Open the Front Cover of the printer by grasping in the Front Cover Release latch (A).
3. Open the Top Cover of the printer by sliding the Top Cover Release button forward (B).
4. Flip up the photoconductor belt module Locking Levers inside the printer (C).
5. Remove the Tension Release Pins from both sides of the photoconductor belt module (D).
6. Remove the black protective sheet from around the photoconductor belt module.
7. Slide the photoconductor belt module into the guides, as shown (E). (The flat side of the module should face the front of the printer.)
8. Snap the photoconductor belt module Locking Levers into place (F).
9. Close the Top Cover and then the Front Cover of the printer.

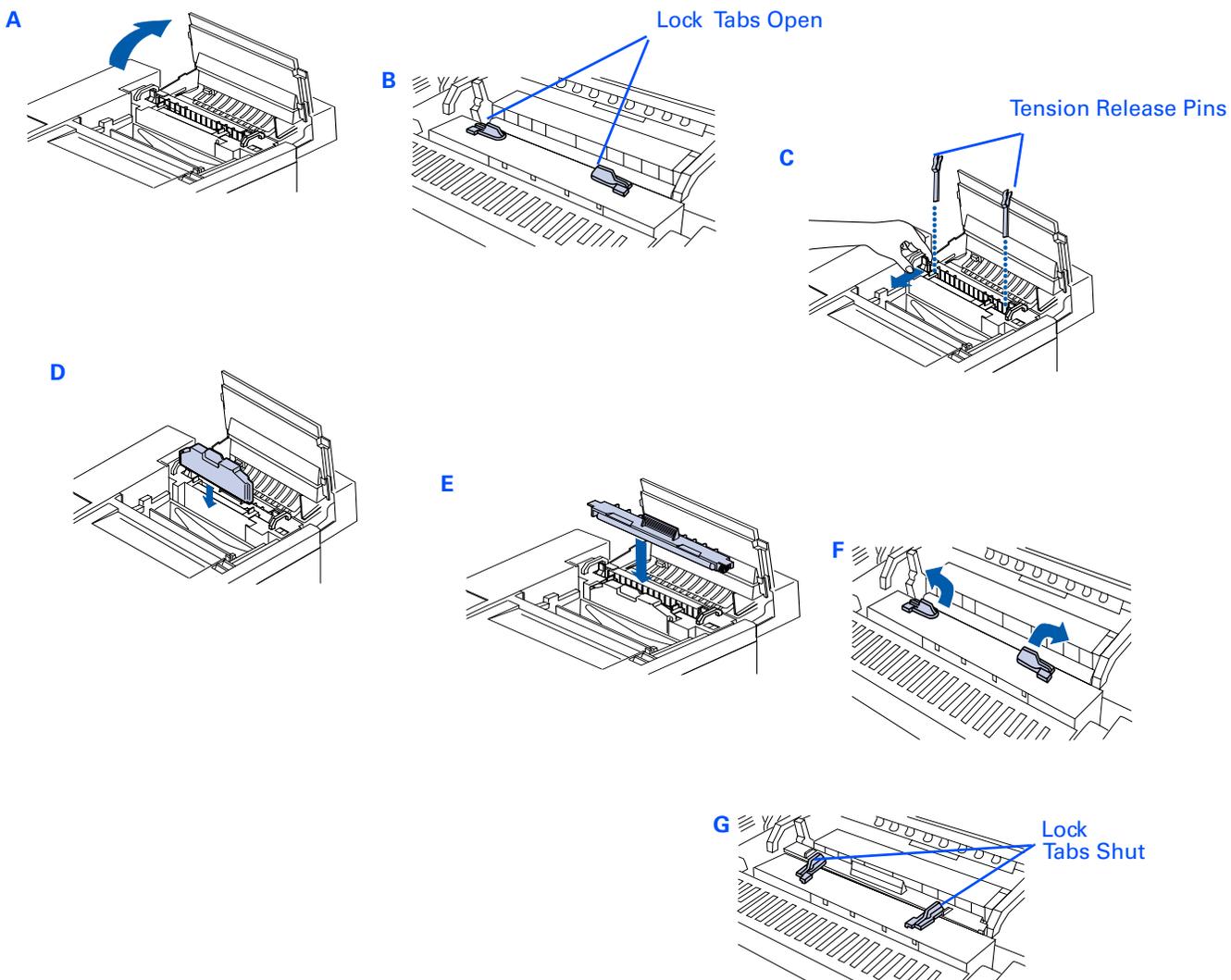
**note:** The photoconductor belt module is sometimes called the Photoconductor photoconductor belt module or OPC Unit.



## INSTALLING THE FUSER OIL BOTTLE AND FUSER CLEANING ROLLER

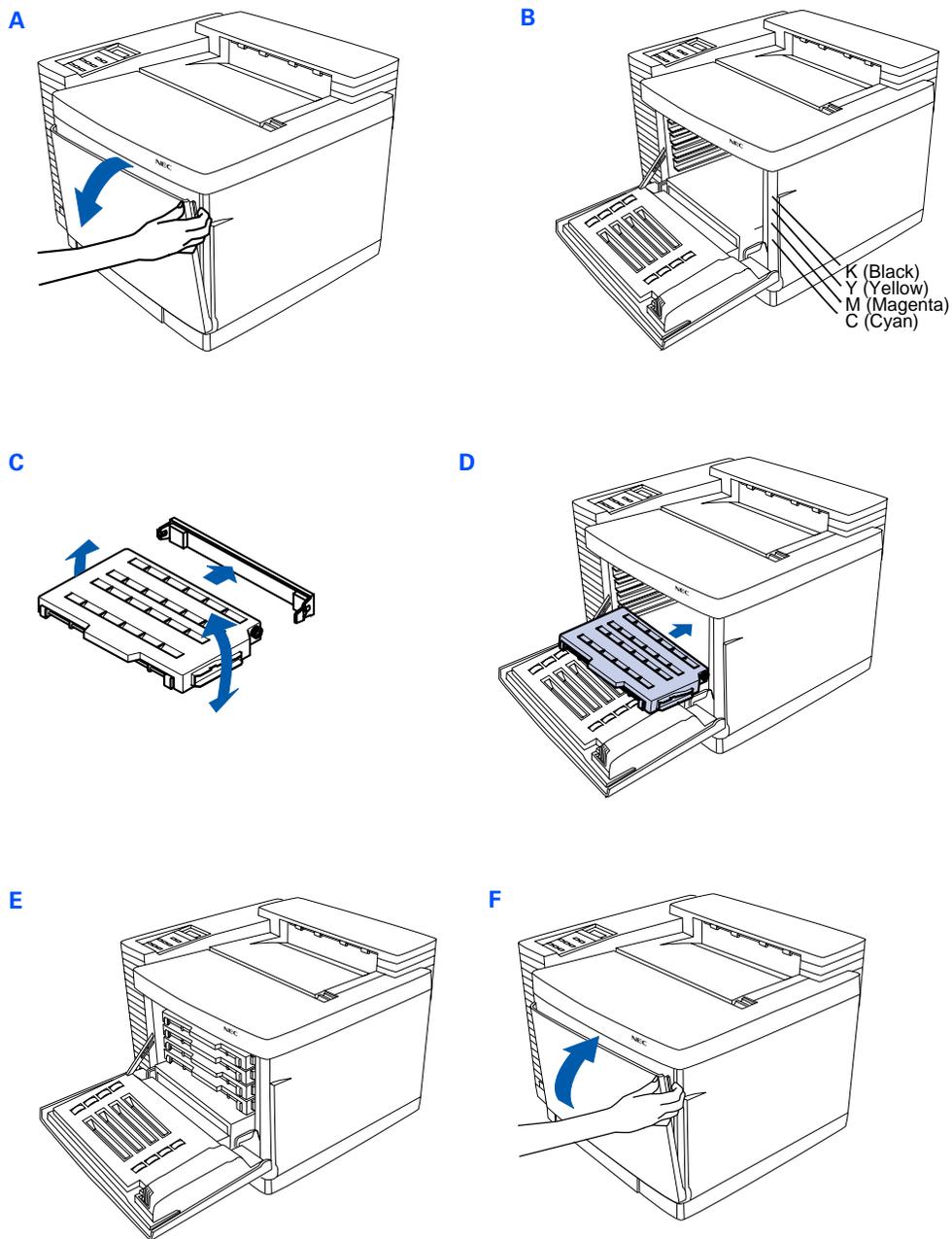
1. Open the Top Cover of the printer (A).
2. Make sure the Lock Tabs are in the open position (B).
3. Remove the orange Tension Release Pins, by pulling them up and out (C).
 

**note:** You may have to pull hard to remove these. .
4. Remove the Fuser Oil Bottle from its plastic bag and set into place with the shunt valve down and the labeled side facing the front of the printer (D). The tab on the bottle should face right when viewed from the printer's front.
5. Remove the Fuser Cleaning Roller from its plastic bag and set into place with the exposed part of the roller facing the front of the printer (E). The extra tab should be on the left.
6. Turn the Lock Tabs to the locked position holding the Fuser Oil Bottle and Fuser Cleaning Roller in place (F).
7. Close the Top Cover of the printer.



## INSTALLING THE TONER MODULES

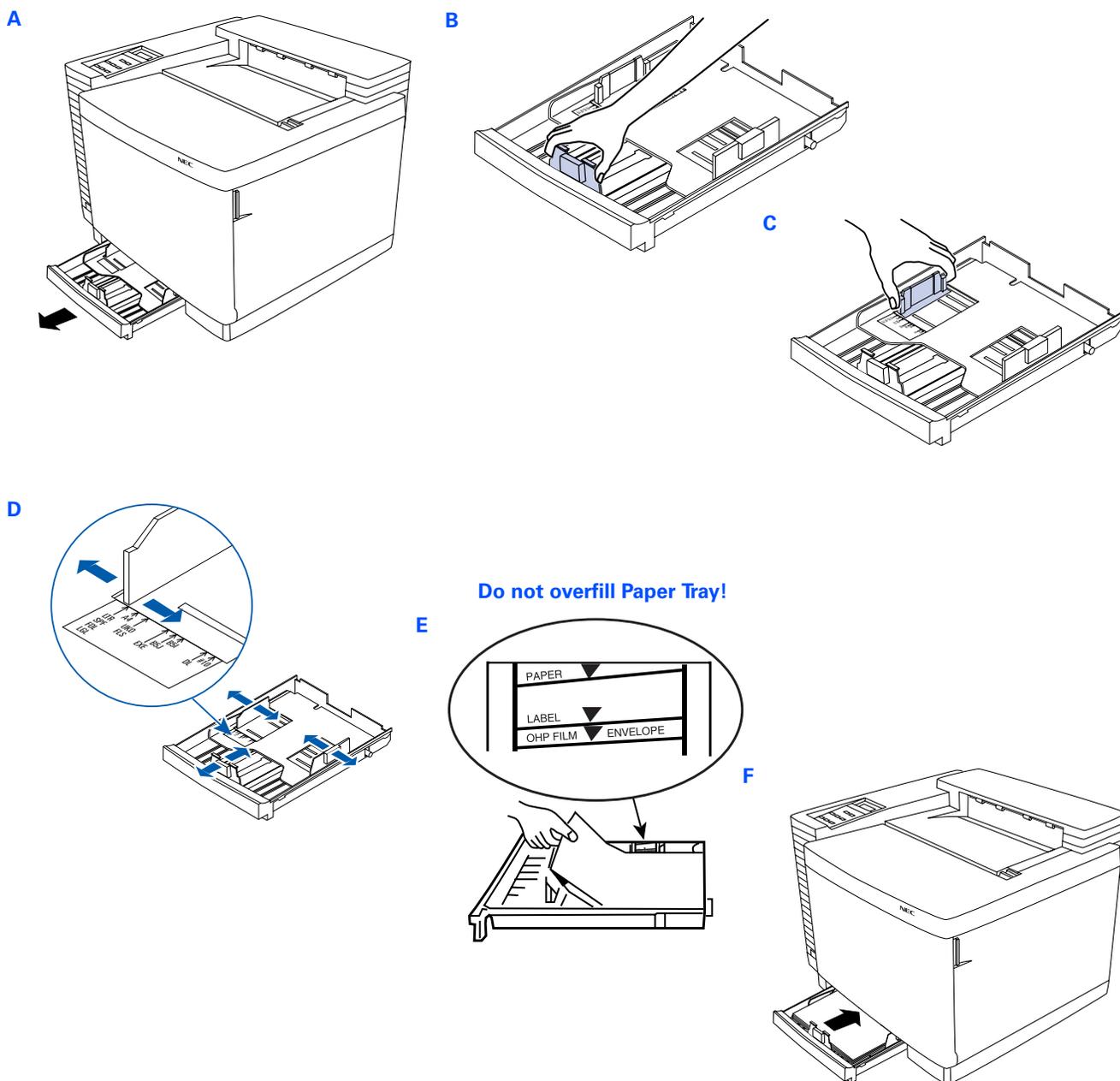
1. Open the Front Cover of the printer (**A**).
2. Note the color labels inside indicating where to place the different color Toner Modules (**B**) (C=Cyan, M=Magenta, Y=Yellow, and K=Black).
3. Begin with Cyan. Remove the Toner Module from its plastic bag and rock it gently three or four times (**C**).
4. Remove the protective tape from the module.
5. Remove (and save) the orange protective cover.
6. Hold the module level and slide into place along the guides in the printer (**D**).
7. Repeat steps 3 through 6 for the remaining color Toner Modules (**E**).
8. Close the Front Cover, making sure it clicks into place (**F**).



## LOADING THE PAPER TRAY

Paper Tray 1 can hold up to 250 sheets of medium weight paper—U.S. letter size, executive, UK quarto, folio, or A4. It also holds envelopes, transparencies, and sheets of labels. See Appendix X for a complete list of media that can be used. The exact number of sheets Paper Tray 1 can hold depends on the weight of the paper. You can also use Paper Tray 1 for manual feed jobs.

1. Remove Paper Tray 1(A).
2. Squeeze on both sides of the length tab and slide it into place. The outside of the tab should match the desired size marked on the inside of the tray (B).
3. Squeeze the left side guide and slide it to match your paper's width (C). The inside of the tab should match the desired size on the tray (D).
4. Insert the paper into Paper Tray 1(E).
5. Reinsert Paper Tray 1 into the printer (F).



## PRINTING A TEST PAGE

Follow these steps to connect your printer to AC Power and print a test page.

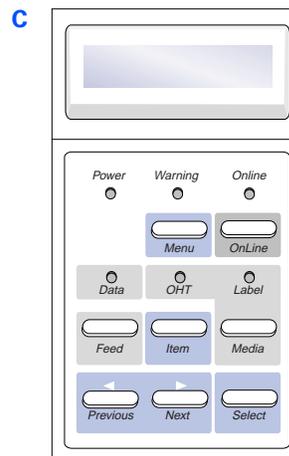
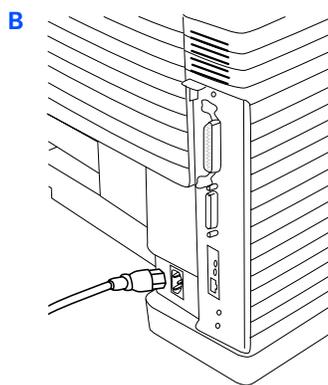
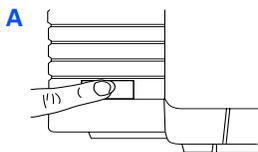
1. Make sure the power switch is turned off (button is out).
2. Connect the Power Cord to the rear of the printer.
3. Plug the other end of the Power Cord into a properly grounded outlet.

**WARNING!** This printer is intended to be electrically grounded. It comes with a three-wire grounding plug. This plug will only fit a grounded AC outlet or power strip. This is a safety feature. If you are unable to insert the plug into the outlet, contact a licensed electrician to replace the outlet with a properly grounded outlet. Do not defeat the purpose of the grounding plug by removing the third pin!

4. Turn on the printer power.
5. Indicator lights cycle and the following messages appear on the Operator Panel display in sequence.

Self Test  
SuperScript 4400 booting...  
INITIALIZING  
WARMING UP  
PRINTING

6. The printer issues the test page and the following message appears on the Operator Panel display.  
READY



## CONNECTING THE PRINTER TO YOUR COMPUTER OR NETWORK

This section shows you how to connect your SuperScript 4400 Series printer to your computer or network.

**note:** You can be connected to and receive data at the parallel port and Ethernet port at the same time.

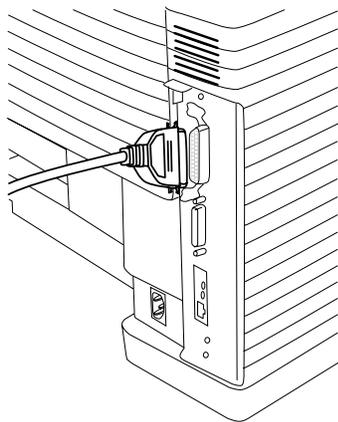
### Connecting the 4400 Printer



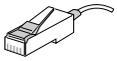
If you have a SuperScript 4400, you can connect to an IBM<sup>®</sup>-compatible computer using the bidirectional parallel interface. We recommend an IEEE 1284 bidirectional parallel cable that is no more than 6 feet in length. If you use a cable that is longer than 6 feet, it should be certified as bidirectional. Use the wire clips to fasten the cable to the printer.

Follow these basic steps

1. Make sure your computer and printer are turned off.
2. Plug the parallel cable into the parallel port on your computer and printer.
3. Turn on your printer, wait until it displays the **READY** message, then turn on your computer..}



## Connecting the 4400N Network Printer

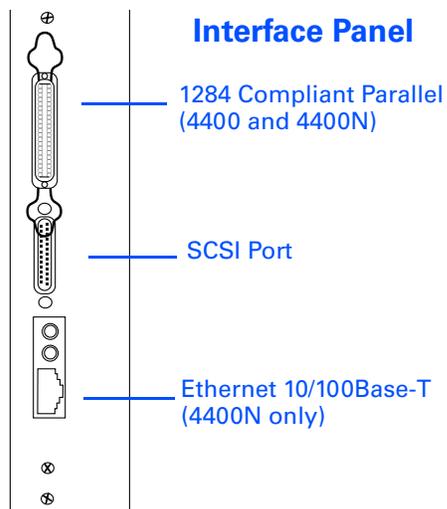


If you have a SuperScript 4400N, you can connect to an Ethernet network. Use a Category 5 twisted pair cable with RJ-45 connectors for 10/100Base-T Ethernet.

Follow these basic steps to connect the printer and verify that the NIC is installed and operating properly.

1. Make sure your computer and printer are turned off.
1. Connect the network's twisted pair cable with RJ-45 connectors to the new network port on your printer. Reattach the power cord to the printer, plug in the printer.
2. Turn on the printer. It may take up to 90 seconds to warm up, and then it prints a Network Settings page with NIC status information (shown on page xxx).

**note:** Keep the Network Settings page. You will need this information when configuring the NIC for your network.



## PAPER HANDLING AND SPECIAL MEDIA

You can use the 4400 to print on a wide variety of media and sizes. SuperScript 4400 paper handling features let you manage print jobs and office tasks efficiently.

### Supported Media

Use any light or medium weight copier paper to print out draft copies of your documents. Then, for the best results on final documents, you should consider using NEC's Premium papers.

**Premium Color Laser Paper - 24 lb. Bond:** A bright paper with a super smooth finish for brilliant color reproduction. Use this for correspondence, proposals, charts, graphs, and illustrations.

**Premium Color Laser Paper - 60 lb. Cover:** A heavier stock that is ideal for report covers, mailers, greeting cards and invitations.

**Ultra Glossy Color Laser Paper - 100 lb. Text:** Has a double-sided glossy finish that is preferred for professional printing and photographic art. Use this for data sheets, brochures, and client presentations.

**Premium Overhead Transparencies:** Use this for brilliant projected images.

Your starter kit includes a sampler of NEC Premium papers. See page xxx for information about ordering NEC premium papers and other printer supplies. If you do not have the NEC Premium papers, try to match them as closely as possible for the best printing results. Appendix Bxxx has more information about choosing media.

When printing special media, be sure to load the paper tray only to the mark indicated for that media.

### Supported Paper Sizes

You can print on a variety of paper sizes including

Paper Size	Inches	Millimeters
Letter	8.5 x 11	216 x 279
Legal	8.5 x 14	216 x 356
A4	8.3 x 11.7	210 x 297
Executive	7.25 x 10.5	184 x 267
UK Quarto	8 x 10	203 x 254
Folio	8.5 x 13	216 x 330
Commercial #10 Env.	4.13 x 9.5	105 x 241

**note:** To print Legal size paper, you must install the optional Legal Paper Tray into Paper Tray 1 or Paper Tray 2.

### Paper Source Selections

In your printer driver, you can specify which paper tray the printer should use for your print job: **Tray 1**, **Tray 2** (option), or **AutoSelect**. When you specify AutoSelect, the printer automatically selects the right tray based on the media type in the trays. The printer can detect paper sizes based on how the trays are adjusted. Therefore, it is important to adjust the paper trays properly.

### Orientation

Orientation describes the position of images on a page with respect to the long and short edges of the paper. You can print three ways.



**Portrait** means the page has a vertical orientation (the default).



**Landscape** means the page has a horizontal orientation.



**Rotated Landscape** means the page has a horizontal orientation and is flipped.

### Number of Copies

You can set the number of copies to be printed up to 9999.

## SUPERSCRIPT 4400 SETTINGS

### Printer Settings

SuperScript 4400 printer settings give you many ways to customize your print job. There is often more than one place to change the same printer setting. These include

- The SuperScript PostScript 3 and PCL 5e printer drivers
- The operator panel on your printer

### Using the Printer Operator Panel

You can use the printer Operator Panel to cancel a print job or change settings that are not available in your printer driver. You can view messages on the Operator Panel to help diagnose printing problems. In addition, the printer operator panel allows you to print out font lists and test pages and view the total page count. You can also set the printer's TCP/IP address or reconfigure network settings. Chapter 4xx provides instructions for using the printer operator panel.

### Using Printer Drivers

Your printer software includes the PostScript 3 printer drivers for Windows 3.1x, Windows 95/98, Windows NT 4.0/5.0, and MacOS and the PCL 5e printer driver for Windows 3.1x, Windows 95/98, and Windows NT 4.0/5.0. They offer a wide range of features for setting up your print job and printer settings.

Most of these features and settings are described in this chapter. A particular feature may be implemented slightly differently, depending on which driver you are using.

**note:** If you are unsure about a setting in your printer driver, be sure to use the driver's Online Help feature. Chapter xxx provides complete information about using your printer driver software.

### When to Use the PostScript 3 or PCL 5e Printer Driver

Use the **PostScript 3** driver for color documents and documents that contain many complex graphic images or extensive page layout formatting. The PostScript driver has more options and delivers better graphic processing.

Use the **PCL 5e** driver for monochrome documents that contain mostly text and limited formatting. The PCL5e driver processes this type of document quickly.

**note:** For color printing, you must use the PostScript 3 printer driver for your system. The PCL 5e printer driver is for monochrome printing only.

## POSTSCRIPT 3 FEATURES

These are general descriptions of settings available in the PostScript 3 printer drivers. The interface of the printer driver depends on the operating system you use. Not all settings are available for all drivers, or they may appear on different tabs in the printer driver. All printer drivers have Online Help available at the click of a button, with more information about specific settings. Chapter 3xxx shows the PostScript printer drivers and explains how to use them.

### Color Processing

#### Color Control

Use these settings to define color in your print job.

**Color Photo:** Produces smooth color images, for the best reproduction of photographic images.

**Business Graphics:** Produces bright, solid colors, suitable for presentation graphics, charts, and posters.

**Gray scale:** Converts all colors in the document to black and shades of gray for monochrome printing.

**Unadjusted:** Does not use any of the SuperScript 4400 special color control features. xxxx

#### Image Color Matching

This feature is available for advanced users. You must install it from the xxxx CD using the Custom Install feature. It will not appear on the printer driver until you install it.xxxx

### Watermarks

A watermark is text that appears on pages in your print job, such as DRAFT or CONFIDENTIAL. Use these settings to apply watermarks to your print job, create new watermarks, or modify existing watermarks. A preview area shows how the watermark will appear.

You can also specify whether the watermark appears in the foreground or background, and on which pages it appears.

### Paper Handling

#### Layout

Use this feature to print multiple page images on the printed page, including 1, 2, 4, 6, 9, and 16. This gives you the ability to print pamphlets, storyboards, or thumbnail layouts. You can also print a border around the each page image.

### Graphics

#### Resolution

Print resolution is measured by the number of dots per inch (dpi) in an image. The higher the number is, the finer the resolution. Resolution can be set to **600 dpi** (the default) or **1200 dpi**.

**note:** 1200 dpi is only available in when 96 MB of RAM are installed in the printer.

#### Sharp Edge Technology

Specifies whether or not NEC's Sharp Edge Technology (SET) should be used. SET is only available with 600dpi. It refines the print quality of characters and line art by smoothing the fine gradations along the edge of the printed image. When SET is off, print is draft quality, but faster.

#### Halftoning

If graphic images in your document do not print correctly, use these settings to adjust screen frequency and angle. For example, use this when screened images show a moiré pattern.

#### Negative Image

If you select this, black and white values are reversed and RGB colors print as their complements.

#### Mirror Image

If you select this, pages are "mirrored" on the horizontal axis.

#### Scaling

You can enlarge or reduce the page image. A value of 100% (the default) means no enlargement or reduction. A value of 50% reduces the page image to half its normal size. A value of 200% doubles the size of the page image.

## PostScript Options

There are several settings you can use to customize the way the driver processes print jobs

### PostScript Output Format

These settings control the way the driver creates the PostScript language descriptions for page images.

**Optimize for Speed:** Check this for faster printing. This option may cause a problem for some print jobs if the printer does not have enough memory.

**Optimize for Portability-ADSC:** Check this to ensure that the document can be printed on any PostScript printer. Documents may take longer to print when this option is selected. This option is useful if the printer has limited memory, because it creates smaller documents.

**Encapsulated PostScript (EPS):** Use this to print your document as a single-page image that will be incorporated into another file. You must also select **Output to File**.

**Archive Format:** Use this to create a PostScript data stream that gets stored in a file to be used later.

### PostScript Header

You can control whether the driver sends a PostScript header with each document. If the printer is shared on a network, this option should be used. However, if you are on a local printer, you can save time by sending the header just once to the printer, where it is retained and printed with each job.

### Error Handling

You can send an error handler with each print job. Then, if an error occurs, the printer prints a page with a message describing the nature of the error. You or a technician can use this information to diagnose the problem.

### PostScript Timeout Values

These settings define timeout periods allowed when the driver communicates with the printer. Enter a value from 0 to 999 seconds. When zero is entered, the printer will wait indefinitely. If your printer is shared, do not specify a value of zero.

**Job Timeout:** This is the maximum number of seconds the printer can take to print a single job. If the print job takes more time to print than the timeout value, the printer may stop printing and prepare to receive a new document.

**Wait Timeout:** This is the maximum number of seconds the printer will wait for data from the computer. While receiving a print job, the printer driver may pause to build a PostScript language description of each page. For complicated pages, which take longer to build, you may need to set a higher wait time.

### Advanced Options

Advanced options allow you to optimize printer performance, but generally should not be changed unless you have specific reasons to do so. Use the driver Online Help feature for more information on these settings.

## Device Options

You can use settings on the Device Options to match the attached printer configuration so that the printer driver can generate optimized PostScript code.

### Available printer memory

Set this to match the amount of memory you have installed in the printer. [functional??]

### Available font cache

The driver automatically adjusts the font cache size based on installed memory. Increase this amount for better performance of Type 32 bitmap fonts.

### Installable options

Use this area to change the settings when you add options, including Tray 2, or more RAM memory.

## PCL 5E FEATURES

These are general descriptions of settings available in the PCL 5e printer drivers. The interface of the printer driver depends on the operating system you use. Not all settings are available for all drivers, or they may appear on different tabs in the printer driver. All printer drivers have Online Help available at the click of a button, with more information about specific settings. Chapter 3xxx shows the PCL 5e printer drivers and explains how to use them.

### Resolution

Print resolution is measured by the number of dots per inch (dpi) in an image. The higher the number is, the finer the resolution. Resolution can be set to **600** (the default), **300**, **150**, and **75 dpi**. Lower resolutions require less memory and processing time.

### Dithering

Select a dithering pattern for converting images from one format to another, for example, for printing color documents in black and white. Dithering, along with the intensity and resolution settings, effect the overall appearance of graphics in printed documents.

### Halftone Color Adjustment

In the Windows NT driver xxx [is this the same as dithering--what is the color feature for?? xxx?

### Intensity

Adjust this setting to control the darkness of graphics in the printed document.

### Sharp Edge Technology

Specifies whether or not NEC's Sharp Edge Technology (SET) should be used. SET is only available with 600dpi. It refines the print quality of characters and line art by smoothing the fine gradations along the edge of the printed image. When SET is off, print is draft quality, but faster.

### Reserved printer memory

Specify how much memory to reserve for special printer functions, such as macros, front panel settings, etc. The reserved memory is not used for printing.

### Printer memory tracking

Before printing a document, the printer driver calculates how much memory is required to print. If the document requires more memory than is available in the printer, the document is rejected. Use this setting to define how this calculation is made. A conservative calculation ensures that printer memory is never over committed. A more aggressive calculation allows the printer to attempt printing a complex document, but memory may be over-exceeded and the print job may not be completed.

### Printer Memory

This feature appears on the driver, but does not apply to the SuperScript 4400 printer and does not need to be adjusted.

### Cartridges

This feature appears on the driver, but does not apply to the SuperScript 4400 printer and does not need to be adjusted.

## WORKING WITH FONTS IN WINDOWS

Under most conditions your documents will print out well without any adjustment to font settings in your printer drivers. The Windows printer drivers have settings for specifying how TrueType fonts in your document how TrueType fonts in your document are matched to PostScript fonts in the printer. You may want to adjust these if your documents take a long time to print or the quality of the font is not satisfactory. Font settings vary slightly on the Windows 3.x, Windows 95/98, and Windows NT printer drivers.

### PostScript 3 Font Settings

**Send TrueType fonts to printer according to the font Substitution Table:** Instead of downloading all TrueType fonts to the printer, this selection substitutes PostScript fonts resident in the printer for the TrueType fonts used in the document according to a table you define.

**Using the Substitution Table:** The substitution utility allows you to view or edit which fonts in the printer should be substituted for the TrueType fonts in your document. Using resident printer fonts speeds printing.

**Always use built-in printer fonts instead of TrueType fonts:** Select this and the printer substitutes its closest matching resident fonts. This speeds printing, but the document may not print out exactly as it appears on the screen

**Always use TrueType fonts:** Downloads bitmap TrueType fonts to the printer to print the document. This ensures the printed document will look the same as it does on the screen, but it may take longer to print.

The **Update Soft Fonts** feature updates the driver to recognize new fonts. Use this if you have added new fonts to your system after you installed the driver.

### PCL 5e Font Settings

**Download TrueType fonts as outline fonts:** TrueType fonts used in your document are processed by the driver and downloaded to the printer as outline fonts. This provides the quickest printing time, but lowest quality for text output.

**Download TrueType fonts as bitmap fonts:** TrueType fonts used in your document are processed by the driver and downloaded to the printer as bitmapped fonts. Formatting is very accurate at small point sizes. Printing is faster, but not portable if printing to a file.

**Print TrueType Text as graphics:** TrueType fonts used in your document are processed by the driver and downloaded to the printer as graphics. This produces the best text quality, but can slow printing. This is best for documents with several graphics and little or no repeating text.

**Install Printer Fonts:** Use this to download soft fonts to the printer.

# CHAPTER 2

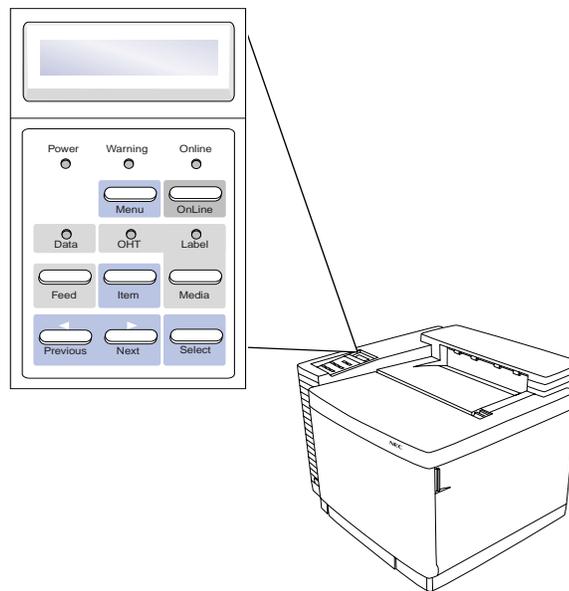
## OPERATOR PANEL

### OVERVIEW

The printer Operator Panel allows you to read printer messages and change printer settings directly at the printer. The diagram below identifies the different areas of the operator panel.

This chapter describes

- Operator Panel features, including indicator lights, the message display, and buttons
- Operator Panel tasks
- Changing settings using the Operator Panel menu tree



## OPERATOR PANEL FEATURES

### Indicator Lights

The indicator lights on the Operator Panel communicate the operating status of the printer

Light	Mode	Status
Power (Green)	On	Printer power is on or in POWER SAVE mode.
	Off	Printer power is off.
Warning (Red)	On	Call for service (see page115).
	Off	Normal state, no action is required.
	Blinking	The printer has a problem. See the message display. If there is no message, call for service (see page115).
Online (Green)	On	Printer is online and ready to print.
	Off	Printer is offline or in menu mode.
	Blinking	Printer is warming up.
Data (Orange)	On	Print buffer contains data.
	Off	Print job has ended or print buffer has been cleared by pressing the Feed button.
	Blinking	Data is being sent to the printer.
OHT (Green)	On	Media type is set to Over Head Transparency (OHT).
	Off	Media type is not set to OHT.
Label (Green)	On	Media type is set to Label.
	Off	Media type is not set to Label.

## The Message Display

The Operator Panel status display is an LCD panel that shows status messages, alert messages, media types, and menu selections. When the printer is performing a job, the display indicates a printer status message, such as **PROCESSING**, **PRINTING**, etc. The standard display is **READY**, meaning the printer is ready for use.

Status Message	Explanation
INITIALIZING	Indicates that the printer is initializing.
RESETTING	Indicates that the printer settings are being restored to their factory defaults.
WARMING UP	Printer is not yet ready to operate. It is performing an initial power up check or the fuser unit is warming up to operating temperature.
READY	Printer is online and ready to print under Auto Emulation Switching mode.
PRINTING	Printer is printing a page.
PROCESSING	Printer is processing a job.
WAITING	Printer is waiting for additional input to complete the print job.
POWER SAVE MODE	Printer is in Power Saving mode. When the printer receives data or you press any button, the display restores ordinary printer messages.
MEDIA TYPE <type>	Shows the current paper type <PAPER OR THICK STOCK> when user presses Media button.
SELECTED	Appears when a setting is selected.
TEST PRINT	Printer is printing a test page.
FIRST JOB	Start page is printing (if enabled).
RESETTING JOB	Printer is resetting a job.
OFFLINE	Printer is offline.
PRESS SELECT TO CANCEL JOB	This appears if you press the <b>Online</b> button while the printer is processing a job or waiting for additional input to complete the print job. Then press the <b>Select</b> button to cancel the job.

## Operator Panel Buttons

Operator panel buttons have different functions depending on whether the printer is online, offline, or in menu mode. The table below summarizes Operator Panel buttons. The operator panel menu tree and procedures for changing printer settings are discussed beginning on xxx.

Button	Mode	Function
Online	Offline	Press to bring printer online.
	Online	Press to take printer offline.
	Menu	Button is not active.
Feed	Offline	In PCL emulation or Automatic Emulation Switching (AES) mode, pressing this button with the DATA indicator light on allows data stored in the print buffer to be printed out. This button is not active in PostScript emulation mode. [If a paper mismatch occurs, press this to print using the paper in the tray.
	Online	Button is not active.
	Menu	Button is not active.
Menu	Offline	Press to enter the menu mode. The menu item, Printer Menu, appears on the status display.
	Online	Button is not active.
	Menu	Press to exit menu mode.
Media	Offline	Press once to change media to Label (Thick stock) Green LED light turns on. Press again to return to plain paper. When the printer detects overhead transparencies in the paper tray, the button is not active.
	Online	Button is not active.
	Menu	Button is not active.
Item	Offline	Button is not active.
	Online	Button is not active.
	Menu	Press to go back one menu level.
Previous	Offline	Button is not active.
	Online	Button is not active.
	Menu	Press to display previous item in a menu.
Next	Offline	Button is not active.
	Online	Button is not active.
	Menu	Press to display next item in a menu.
Select	Offline	Button is not active.
	Online	Button is not active.
	Menu	Enables changes made to settings in the menu tree.

## OPERATOR PANEL TASKS

This section describes some of the basic tasks you perform using the operator panel. More options are available in the Operator Panel Menu Tree described on page xxx.

### Taking the Printer Offline and Online

Press the **Online** button to switch between the online and offline states.

**note:** The printer must be offline before you can change any printer settings. It must be online (indicator light on) to print.

While the printer is offline, it continues to receive data until its input buffer is full. If you press the **Online** button while the printer is printing, it finishes the current page, and then waits for you to bring it online again.

### Setting Media Type

When you load a new paper type into the tray, you should set the Media type. If you do not specify the correct media type, print quality may be poor, because the printer will move the paper at the wrong speed. To change the Media type, on the operator panel press the **Online** button to take the printer offline. Then, press the **Media** button to display **Label**, or **Paper**. **THICK STOCK???** When the correct type is displayed, press the **Online** button to select it and bring the printer online again.

### Stopping a Job

If you wish to stop a print job before it is complete

1. Press the **Online** button to take the printer offline.
2. **PRESS SELECT TO CANCEL JOB** appears on the message display.
3. Press the **Select** button to cancel the job.????

### Clearing the Print Buffer

The print buffer is an electronic memory in the printer where data is kept before processing. When the Data light is blinking, this indicates there is still data in the printer buffer. To print out any data that is in the print buffer, press the **Online** button to take the printer offline; then press the **Feed** button to eject the page. (Not available in PostScript emulation.)

### Resetting the Printer

You can reset the printer to its previous settings. Follow these steps.

1. Press **Online**. **OFFLINE** appears on the display.
2. Press **Menu**. **MENU - CONTROL** appears on the display.
3. Press **Next** until **RESET PRINTER** appears on the display.
4. Press **Select**, and when the panel displays **CONFIRM**, press **Select** again. [???

### Resetting the NIC

You can reset the printer to its previous settings. Follow these steps.

1. Press **Online**. **OFFLINE** appears on the display.
2. Press **Menu**. **MENU - CONTROL** appears on the display.
3. Press **Next** until **RESET NIC** appears on the display.
4. Press **Select**, and when the panel displays **PARAMETERS**, press **Select** again. [???

### Restoring Factory Defaults

To restore factory default settings to the printer

1. Turn off the printer.
2. While pressing the **Online** and **Media** buttons, turn on the printer. When the display changes to **INITIALIZE NVRAM**, release the button.

Or follow these steps.

1. Press **Online**. **OFFLINE** appears on the display.
2. Press **Menu**. **MENU - CONTROL** appears on the display.
3. Press **Next** until **SETUP** appears on the display, and press the **Select** button.
4. Press **Next** until **RESTORE DEFAULTS** appears on the display, and press the **Select** button.
5. When the panel displays **CONFIRM**, press **Select** again.

## Printing 4400 Information Pages

You can print a number of different pages of useful information about your printer. Follow these steps.

1. Press **Online**. **OFFLINE** appears on the display.
2. Press **Menu**. **MENU - CONTROL** appears on the display.
3. Press **Next** until **PRINT FORM** appears on the display.
4. Press **Select**.
5. Press **Next** until you see the page you want to print. Your choices are, **DEMO PAGE**, **PS START PAGE**, **PS FONT PAGE**, and **SUPPLY ORDER**.
6. Press **Select**, and when the panel displays **CONFIRM**, press **Select** again.

## Resetting Usage Reports

You should reset the Usage Status any time you replace the Belt Cartridge, Fuser Cleaning Roller, or Fuser Unit. Follow these steps. The example below shows how to reset the Usage Report when you replace the Fuser Unit.

1. Press **Online**. **OFFLINE** appears on the display.
2. Press **Menu**. **MENU - CONTROL** appears on the display.
3. Press **Next** until **USAGE STATUS** appears on the display.
4. Press **Select**.
5. Press **Next** until **REPLACE FUSER** appears on the display.
6. Press **Select**, and when the panel displays **CONFIRM**, press **Select** again.

## SERVICE MODE OPERATIONS

This mode is to be used by a service technician to perform maintenance procedures. To enter the service mode During power-up press and hold th Online and Menu buttons until at least 6 seconds after the "SUPERSCRIPT 4400 BOOTING..." message is displayed.

**note:** To perform any download functions the host computer must be connected via the parallel port.

1. Download Code - Prepares the printer to receive new firmware code from the host computer via the parallel port. When the printer is ready for download from a DOS window Enter Copy/b "filename" LPT1:
2. Run Disk File - Execute a program file that has been downloaded to the printer's hard disk.
3. Burn Flash - Prepares the printer to receive new flash code from the host computer via the parallel port.

**note:** To perform this function the Online and Select buttons need to be pressed during power-up.

4. Show Version - Displays the current firmware version.
5. Perform Self-test - Enters into the self test mode.
6. Format Disk - Formats the hard disk.

## FACTORY SERVICE MODE

This mode allows the service technician to perform diagnostic tests, and maintenance procedures on the printer engine. The button functions for this mode are different from the labels used for normal operations. See the table and diagram below for the new layout. To enter this mode perform the following procedure:

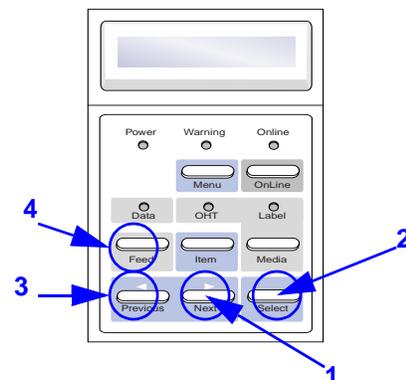
1. Power the printer off.
2. Slide the Controller out so that the controller is disconnected from the printer.
3. Press and hold the Feed, Next, and Select buttons during power on until the printer boots.

**note:** To exit this mode power the printer off and on.

**note:** See "Chapter 8" for Factory Service Mode diagnostic procedures.

**Table 0-1: Factory Service Mode**

Number	Button Name	Function
1	NEXT	Navigate to previous selection.
2	SELECT	Navigate to next selection.
3	PREVIOUS	Select a menu item
4	ITEM	Clear a test



## TCP/IP Setup

You can use the operator panel to enable and set up the TCP/IP networking parameters for the printer. This is particularly useful for setting the network IP address so you can use it as the printer's URL in web-based printing. Follow these steps.

1. Press the **Online** button of the Operator Panel. **OFFLINE** appears on the display.
2. Press the **Menu** button to enter menu mode. **CONTROL** appears on the display.
3. Press the **Next** button until **COMMUNICATIONS** appears on the display, and press the **Select** button.
4. Press the **Next** button until **NETWORK** appears on the display, and press the **Select** button.
5. Press the **Next** button until **TCP/IP** appears on the display, and press the **Select** button.
6. Press the **Next** button until **NET ADDRESS** appears on the display, and press the **Select** button.
7. Use the Operator Panel buttons to set values for each of the 12 digits in this manner.

First press **Next** to set the cursor to the first digit.

For the first digit, press **Select** to increment to the correct value. Then press **Next** to move to the next digit and press **Select** to increment to its correct value. Continue until all twelve digits are set. When the final digit is set, press **Next** to confirm the Net Address you set and then press **Select**.

8. Press **Menu** to exit menu mode and press **Online** to bring the printer online.

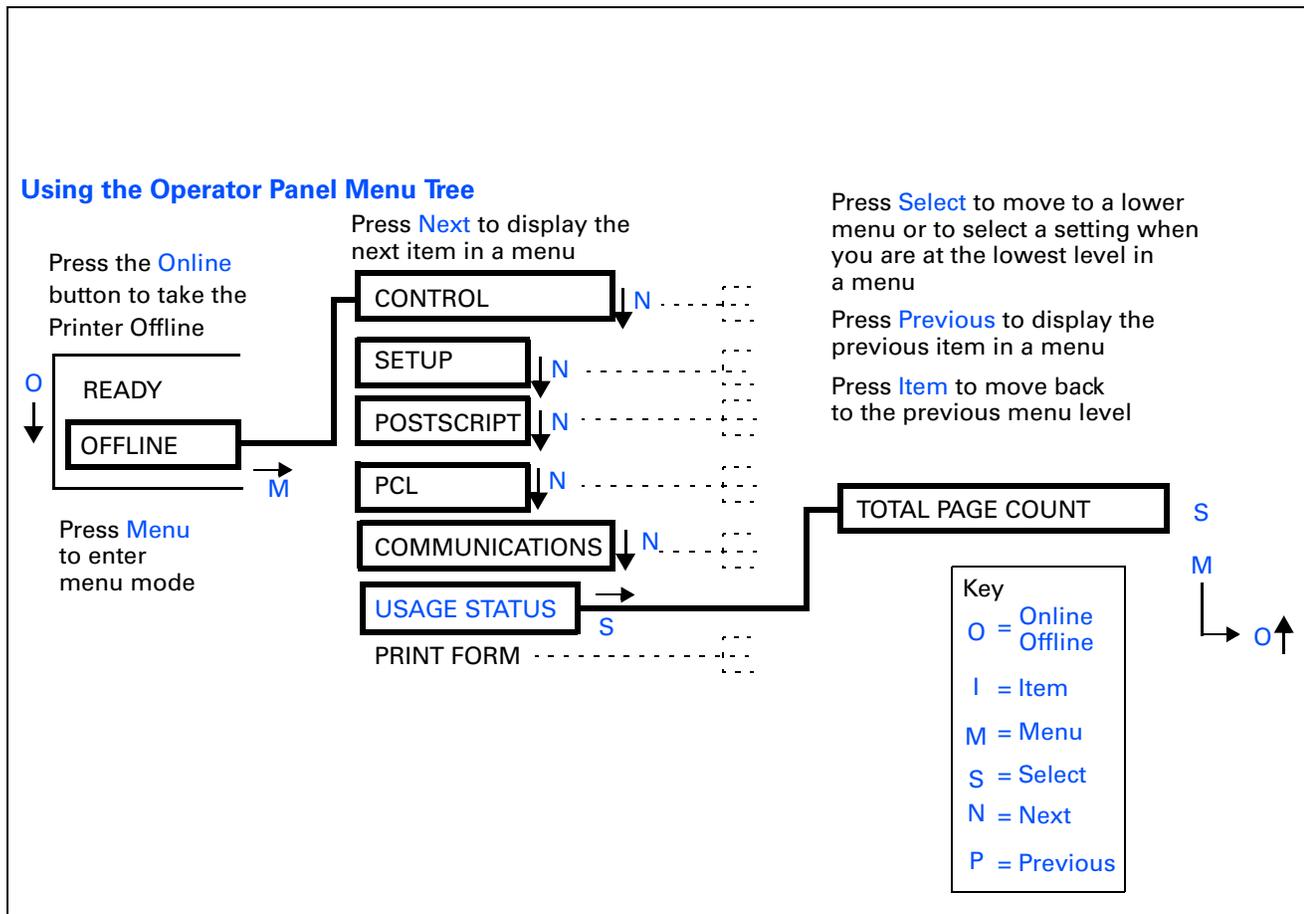
**SUBNET MASK**, and **GATEWAY** are set in the same way. If you select **ENABLE**, the TCP/IP protocol is enabled.

To validate any changes to network settings, you must turn the printer off, and then on again.

## USING THE MENU TREE

You can use the Operator Panel to set communications channels, print forms or pages, view usage reports, use special features, or change printer settings. (However, in most cases, you will use your printer drivers to change printer settings.) Follow these three basic steps to enter menu mode and navigate through the menu tree

1. Turn on the printer, if necessary.
2. Press **Online** to turn the indicator light off and take the printer offline. The display changes from **READY** to **OFFLINE**.
3. Press **Menu**. The display changes to **MENU CONTROL**.
4. You navigate through the menu tree by pressing the menu selection buttons on the operator panel.
  - Press **Next** to go to the next item in a menu.
  - Press **Previous** to go to the previous item in a menu.
  - Press **Select** to go to the next menu level or to choose the displayed setting if you are at the lowest menu level.
  - Press **Item** to move back to the previous menu level.
  - Press **Menu** to exit menu mode. If you changed any network settings, you must restart the printer to validate the new settings
  - An Example of Using the Menu Tree



The Operator Panel menu tree has seven top-level menu categories. Each category contains items you can select, and some of these items contain even more options. These form a menu tree, but as you navigate through the menu tree, only the currently selected item is shown on the status display.

### Checking Total Page Count

This example illustrated below shows the steps you take to view the total page count. Follow these steps

1. Press **Online**. **OFFLINE** appears on the display.
2. Press **Menu**. **MENU - CONTROL** appears on the display.
3. Press **Next**. **MENU - SETUP** appears on the display.
4. Press **Next**. **MENU - POSTSCRIPT** appears on the display.
5. Press **Next**. **MENU - PCL** appears on the display.
6. Press **Next**. **MENU - COMMUNICATIONS** appears on the display.
7. Press **Next**. **MENU - USAGE STATUS** appears on the display.
8. Press **Select**. Press **Next** until **TOTAL PAGE COUNT** appears on the display.
9. Press **Select** and the number of pages printed appears on the display.

## Operator Panel Menus

The Operator Panel has the seven main menus, described below (Default selections for each setting are marked with an asterisk (\*)).

### Control Menu

Use this menu to cancel the current print job or reset the printer when the printer is in an error state. Selecting **RESET PRINTER** restarts the printer and causes it to reinitialize and perform a self-test. **RESET NIC** allows you to reset the network interface parameters without rebooting.

#### CONTROL

RESET PRINTER — CONFIRM  
RESET NIC — PARAMETERS\*

### Setup Menu

Use this menu to configure the default settings for jobs that are not sent using printer driver software, or restore the factory default settings. The **JOB DEFAULTS** submenu allows you to set the appearance of print jobs. The **MISCELLANEOUS** menu allows you to set printer operation settings. Select **RESTORE DEFAULTS** to return printer settings to their factory defaults (except communications parameters).

#### SETUP

##### JOB DEFAULTS

RESOLUTION\*\* — 600 x 600\* / 1200 x 1200  
EDGE SMOOTHING — ENABLE\* / DISABLE  
COPIES — 1\* to 999

##### MISCELLANEOUS

POWER SAVE — NEVER, 30 MIN., 1 HOUR\*,  
1.5 HOURS, 2 HOURS, 3 HOURS  
JAM RECOVERY — NO / YES\*  
MEMORY — 32MB, 40MB, 48MB, 64MB,  
72MB, 80MB, 96MB, 128MB

##### RESTORE DEFAULTS

## PostScript Menu

Use this menu to configure the printer's settings for the PostScript interpreter.

### POSTSCRIPT

STARTUP PAGE        \_\_\_\_\_ YES\* / NO  
PRINT PS ERRORS    \_\_\_\_\_ YES\* / NO  
JOB TIMEOUT \_\_\_\_\_ NEVER\*, 20, 40, 60, 80, ... 280, 300  
WAIT TIMEOUT— \_\_\_\_\_ NEVER, 20, 40, 60, 80, ... 240\*,280, 300

## PCL Menu

Use this menu to configure the printer's settings for the PostScript interpreter.

### PCL

SET FONT  
: SOURCE        \_\_\_\_\_ INTERNAL / DOWNLOAD  
: NUMBER        \_\_\_\_\_ 0\*, 1, 2, 3, ... 50  
: PITCH † \_\_\_\_\_ 0, 0.44,10\*, ... 999.99  
: HEIGHT † \_\_\_\_\_ 2.00,4.25, ... 12.00\*, ... 999.75  
: SYMBOL SET \_\_\_\_\_ Roman-8\*, etc.  
:  
TIMEOUT \_\_\_\_\_ 0, 5, 10, 15, 60\*... 300

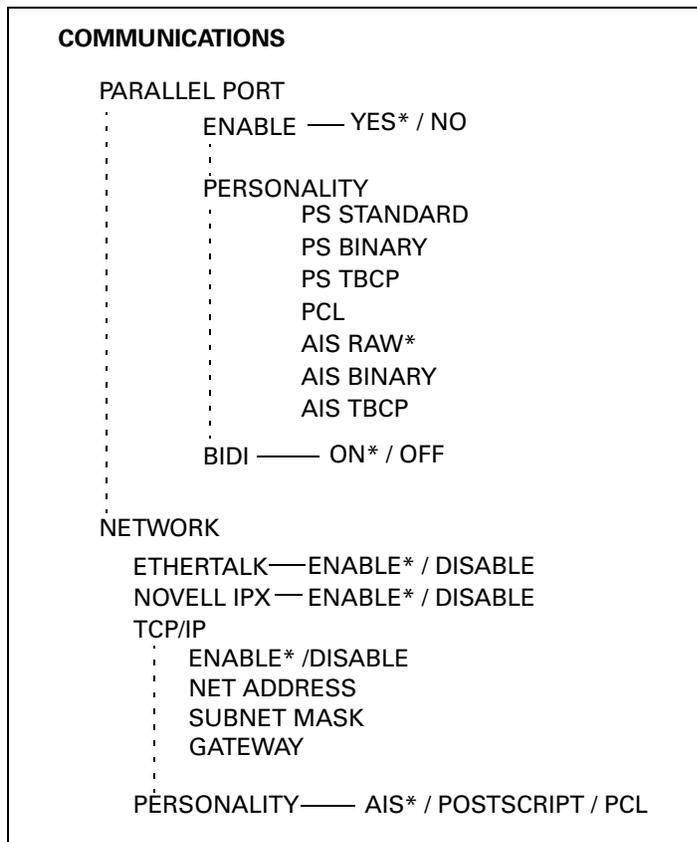
\*Default selection for the setting.

\*\* 1200 x 1200 resolution will be available when 80MB or more memory is installed.

† Either PITCH or HEIGHT will be displayed depending on the default font selected by the ID number.

## Communications Menu

This menu has settings that enable the printer to receive print job from Parallel port or NIC, and to configure emulations and networking protocols. See page 29 for instructions on configuring TCP/IP parameters such as the network IP address.



### Usage Status Menu

Use the Usage Status menu to view the total number of pages printed. The printer resets the count whenever a Fuser Unit, or Belt Module is installed and you reset its status in the Operator Panel.

#### **USAGE STATUS**

TOTAL PAGE COUNT  
ROLLER REPLACE?  
BELT REPLACE?  
FUSER REPLACE?

### Print Form Menu

Use the Print Form menu to select and print documents stored in the printer.

#### **PRINT FORM**

DEMO PAGE  
PS START PAGE  
PS FONT PAGE  
SUPPLY ORDER

\*Default selection for the setting.

# CHAPTER 3

## PRINTER DRIVERS

### OVERVIEW

A printer driver is software that translates your computer data into a format that the printer can read and print out. You can access the printer driver software to change printer and document settings and manage fonts. First, you need to install the right printer driver for your system.

The *SuperScript 4400 Series CD* provides the following printer drivers.

- PostScript 3 for Window 3.x
- PCL 5e for Window 3.x
- PostScript 3 for Windows 95/98
- PCL 5e for Windows 95/98
- PostScript 3 for Windows NT 4.0
- PCL 5e for Windows NT 4.0
- PostScript 3 for Mac OS (on EtherTalk networks)

In this chapter, you learn how to install, access, and use these printer drivers to control printer settings. For definitions of the different settings available on printer drivers, see Chapter 1, “Features.” You can also use the online Help feature on any printer driver.

The *SuperScript 4400 Series CD* also provides software for configuring and using the printer on NetWare, TCP/IP, and EtherTalk networks. Network setup is described in Chapter 7. Network printing, in most cases, requires the installation and use of printer drivers.

### When to Use the PostScript 3 or PCL 5e Printer Driver

Use the **PostScript 3** driver for color documents and documents that contain many complex graphic images or extensive page layout formatting. The PostScript driver has more options and delivers better graphic processing.

Use the **PCL 5e** driver for monochrome documents that contain mostly text and limited formatting. The PCL5e driver handles this type of document well and delivers faster printing than the PostScript3 driver.

For color printing, you must use the PostScript 3 printer driver for your system. The PCL 5e printer driver is for monochrome printing only.

## WINDOWS 95/98

### Installing Printing Software

Follow these steps to use the SuperScript Installer in Windows 95/98.

1. Insert the *SuperScript 4400 Series CD* into the CD-ROM drive.
2. The Installer will launch automatically.
3. When prompted, select the **Easy/Local** installation option and click **Next**.
4. Continue responding to the selections displayed in the installation dialog boxes.
5. When installation is complete, restart Windows.

### Printing a Document

You can do this using the print command of the application used to create your document.

1. Open a document you wish to print.
2. Select **Print** from the File menu. The Print dialog box appears.
3. Select the options you want in the Print dialog box, including the number of copies and page range.
4. When the options are selected, click **OK** to print the document.

### Accessing a Printer Driver

You can access the printer driver from your application, or the Windows Printer folder.

#### From your application

Different applications have different methods for accessing the Printer Setup. Below is one common example. If it does not work with your application, consult your software manual.

1. Select **Print** from the File menu of your application.
2. In the Print dialog box that appears, click the **Name** pull-down menu and select a printer from the list.
3. Then click the **Properties** button in the Print dialog box to display the printer driver.

#### From the Printers folder

1. Press the **Start** button and point to **Settings** in the Start pop-up menu. In the menu that appears, click **Printers**.
2. In the Printers folder, select the printer driver you wish to view.
3. From the File menu, select **Properties**.

### Changing Settings in the Printer Driver

In the Properties folder, you simply point and click to change printer settings.

1. Select a category of settings that you want to change by clicking its name tab.
2. Click to select new settings in the property sheet.
3. Click **OK** to save the changes you made in all property sheets and close the printer driver.  
Click **Apply** to save the changes you made in a property sheet. The printer driver remains open.  
Click **Cancel** to close the printer driver. Your changes will not be implemented.

### Setting Another Printer Driver as Default

You can change printer drivers using the Printers folder.

1. Press the **Start** button and point to **Settings** in the Start pop-up menu. In the menu that appears, click **Printers**.
2. In the Printers folder, double-click a new printer driver.
3. In the folder that appears, select **Set As Default** from the Printer menu.

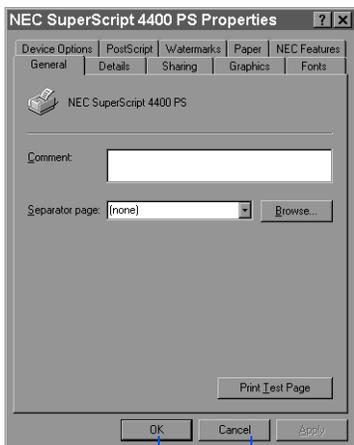
## Using the Windows 95/98 Printer Drivers

### Windows 95/98 Printer Driver - System Tabs

The **General**, **Details**, and **Sharing** tabs provide access to Windows features for setting up you printer. A brief description is provided here. For more information about settings on these tabs, see the Windows manual.

#### General Tab

This tab provides general information about the printer. Use the Comment area to add comments about the printer. You can specify a separator page to be sent between jobs, and print a test page to troubleshoot problems.



Click **OK** to save changes and close the driver.

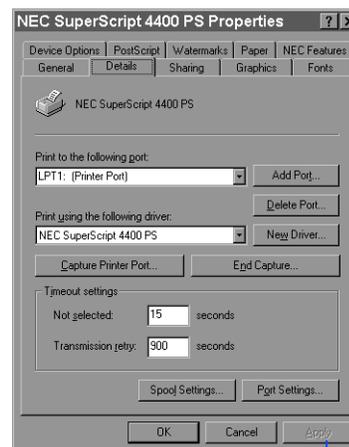
Click **Cancel** to discard changes and close the driver.

Click the **Help** button to view the complete Help file.

Click any tab to view more printer settings.

#### Details Tab

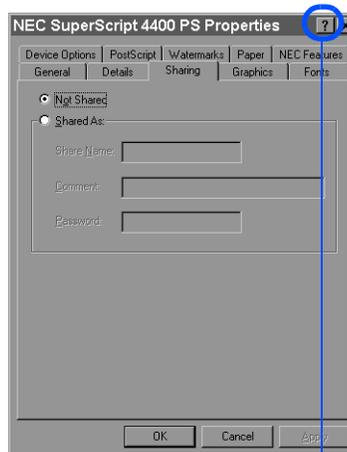
Use this tab to customize the local and network port connections to the printer and specify print spooling settings.



Click **Apply** to save changes and leave the driver open.

#### Sharing Tab

Use this tab to customize the local and network port connections.

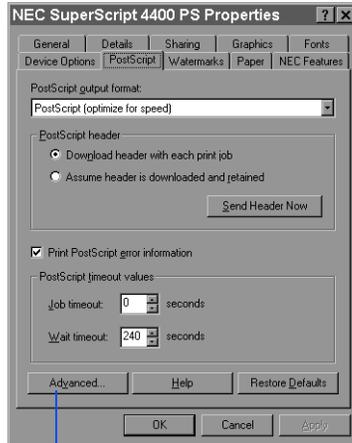


Click the **?** Help icon and click a setting on the driver to view more information about it.

## Windows 95/98 Printer Driver - PostScript 3 Tabs (I)

### PostScript Tab

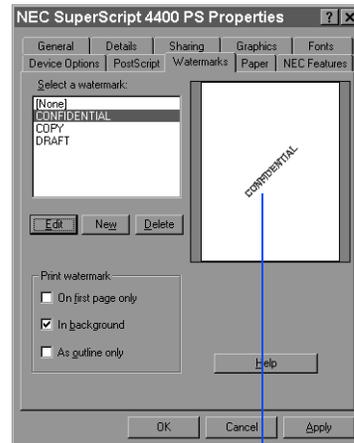
Use these settings to configure options for the PostScript printing language.



Click here to customize advanced features.

### Watermarks Tab

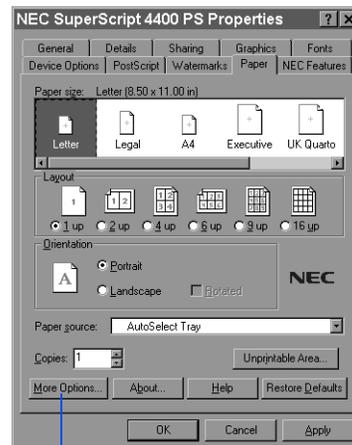
A watermark is text that appears on pages in your print job, such as DRAFT or CONFIDENTIAL. Use these settings to customize watermarks for your print job.



the effect of your selections. This preview area shows

### Paper Tab

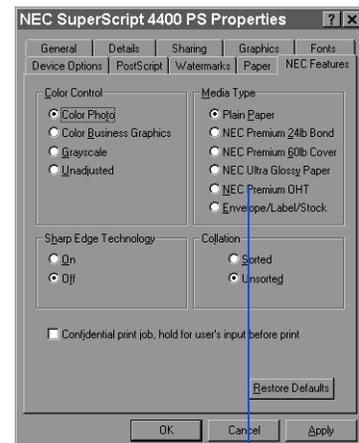
Use the Paper tab to customize paper handling for the print job.



Click here to print page borders on your job.

### NEC Features Tab

This tab allows you to control the special features of the SuperScript 4400 printer.



To order NEC Premium papers call 800-632-2326

Click the **Help** button to view the complete Help file.

Click the ? Help icon and click a setting on the driver to view more information about it.

Click any tab to view more printer settings.

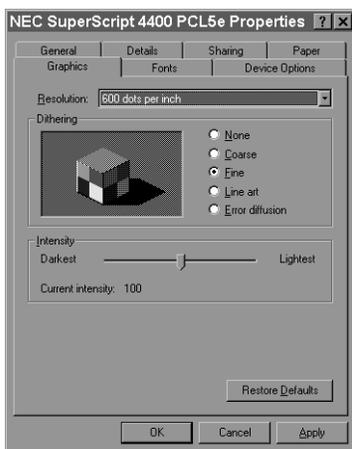
Click the **Restore Defaults** button to replace settings on the tab with factory defaults.

## Windows 95/98 Printer Driver - PostScript 3 Tabs (II)

Click the **Help** button to view the complete Help file.  
 Click the ? Help icon and click a setting on the driver to view more information about it.  
 Click any tab to view more printer settings.  
 Click the **Restore Defaults** button to replace current settings on the tab with factory defaults.

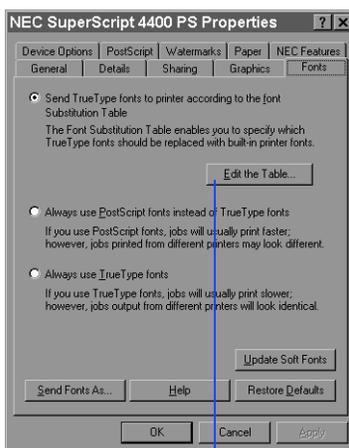
### Graphics Tab

Use the Graphics tab settings to define print quality.



### Fonts Tab

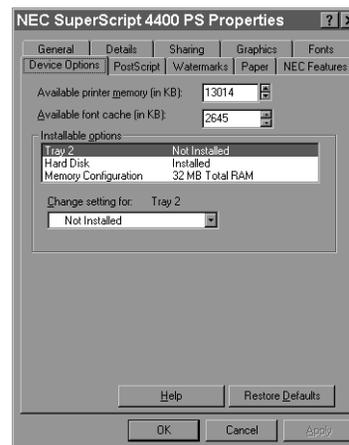
You can use the Fonts tab to specify how TrueType fonts in your document will be processed by the printer.



Click here to display the Font Substitution Table.

### Device Options Tab

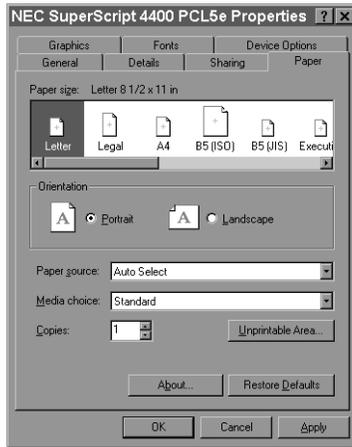
You can use settings on the Device Options to match the attached printer configuration so that the printer driver can generate optimized PostScript code.



## Windows 95/98 Printer Driver - PCL 5e Tabs

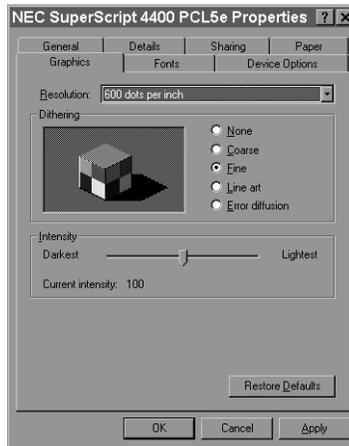
### Paper Tab

Use the Paper tab to customize paper handling for the print job.



### Graphics Tab

Use the Graphics tab settings to define print quality.



Click the **Help** button to view the complete Help file.

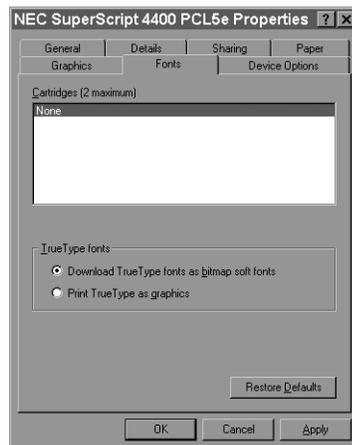
Click the ? Help icon and click a setting on the driver to view more information about it.

Click any tab to view more printer settings.

Click the **Restore Defaults** button to replace current settings on the tab with factory defaults.

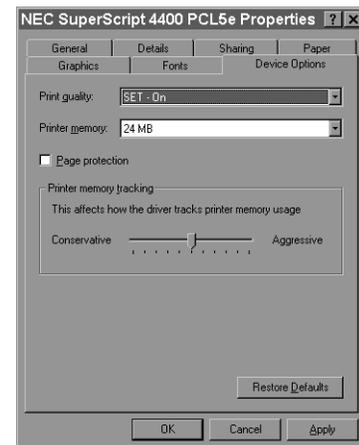
### Fonts Tab

You can use the Fonts tab to specify how TrueType fonts in your document will be processed by the printer.



### Device Options Tab

You can use settings on the Device Options to match the attached printer configuration so that the printer driver can generate optimized PostScript code.



## WINDOWS NT 4.0

### Installing Printing Software

Follow these steps to use the SuperScript Installerxxx (SETUP . EXE) in Windows NT 4.0.

1. Insert the *SuperScript 4400 Series CD* into the appropriate drive (in this example we use drive E:).
2. Press the **Start** button and select **Run** from the Start pop-up menu. Windows displays the Run dialog box.
3. Type E:\SETUP [Folder??] in the Command Line field.
4. Click the **OK** button. This launches the Installer.
5. Respond to the selections displayed in the installation dialog boxes. The Installer provides interactive instructions for installing the complete software, a custom version, or the network version.
6. When installation is complete, restart Windows.[Not Required??]

### Printing a Document

You can do this using the print command of the application used to create your document.

1. Open a document you wish to print.
2. Select **Print** from the File menu. The Print dialog box appears.
3. Select the options you want in the Print dialog box, including the number of copies and page range.
4. When the options are selected, click **OK** to print the document.

### Accessing Printer Properties

You can access the Printer Properties page from the Windows Start menu.

1. Press the **Start** button and point to **Settings** in the Start pop-up menu. In the menu that appears, click **Printers**.
2. In the Printers folder, select the printer driver you wish to view.
3. From the File menu, select **Properties**.

### Accessing Document Properties

You can access the Document Properties page from an application, such as Word or Excel.

1. Select **Print** or **Print Setup** from the File menu of your application.
2. In the Print dialog box that appears, click the **Name** pull-down menu and select a printer from the list.
3. Then click the **Properties** button in the Print dialog box to display the printer driver.

### Changing Settings in the Printer Driver

In the Document Properties page, you simply point and click to change printer settings.

1. Select the **Page Setup** or **Advanced** tab to find the setting you want to change.
2. Click to select new settings. In the Advanced tab, when you click a setting in the scrolling menu, more specific options are shown in the lower portion of the window.
3. Click **OK** to save the changes you made in all property sheets and close the printer driver.  
Click **Cancel** to close the printer driver. Your changes will not be implemented.

### Setting Another Printer Driver as Default

You can change printer drivers using the Printers folder.

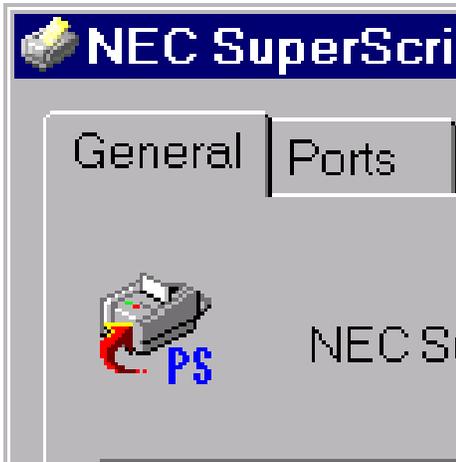
1. Press the **Start** button and point to **Settings** in the Start pop-up menu. In the menu that appears, click **Printers**.
2. In the Printers folder, double-click a new printer driver.
3. In the folder that appears, select **Set As Default** from the Printer menu.

## Using the Windows NT 4.0 Printer Driver

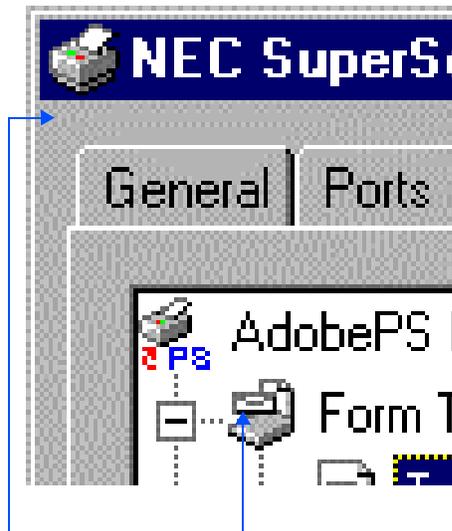
### Windows NT 4.0 Printer Properties

The **General**, **Ports**, **Scheduling**, **Sharing**, and **Security** tabs provide access to Windows features for setting up your printer. For information about settings on these tabs, see the Windows manual.

The **Device Options** tab lets you change printer properties specific to the SuperScript 4400. (More settings are available when you select Print or Print Setup from your application's File menu.) The Device Options tabs are different for the PostScript 3 and PCL 5e printer drivers, and are shown below.



PostScript 3 Device Options



Click any setting in the scrolling menu and the lower portion of the tab displays more options for that setting.

Click the ? Help icon and click a setting on the driver to view more information about it.

Click the **Help** button to view the complete Help file.

Click any tab to view more settings.

PCL 5e Device Options



Click **OK** to save changes and close the driver.

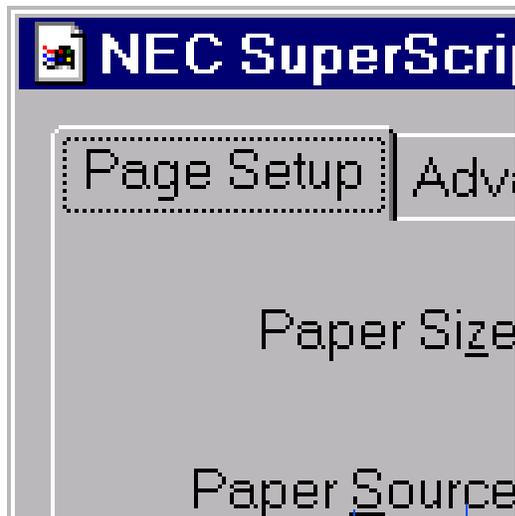
Click **Cancel** to discard changes and close the driver.

## Windows NT 4.0 Document Properties - PostScript 3

You can change document settings using the Document Properties pages. To access these, select Print or Print Setup from your application's File menu

### Page Setup Tab

Use this tab for general page setup options.

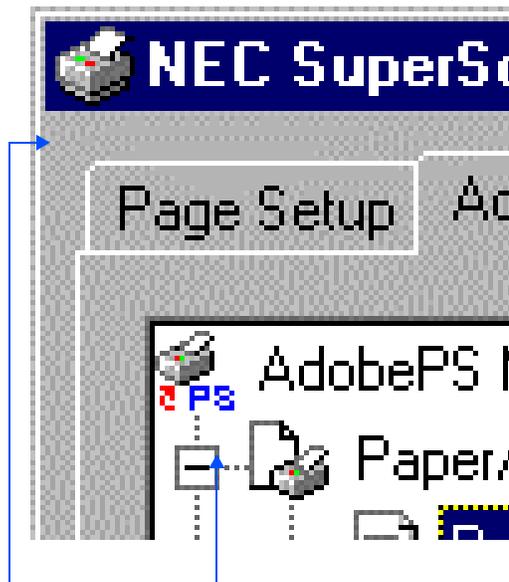


Click **OK** to save changes and close the driver.

Click **Cancel** to discard changes and close the driver.

### Advanced Tab

Use this tab to access all Windows NT 4.0 printer driver settings. PostScript settings are described in Chapter 1xxx.



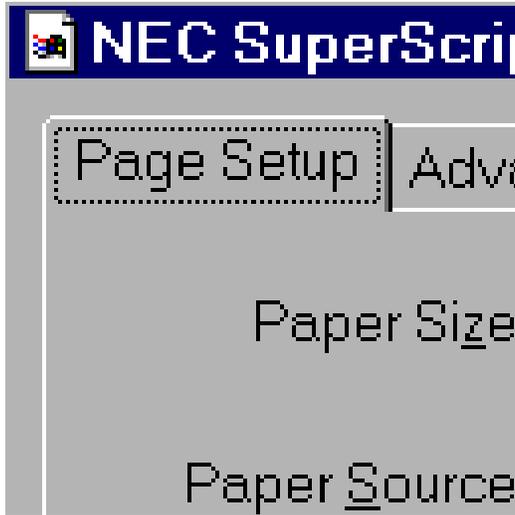
Click any setting in the scrolling menu and the lower portion of the tab displays more options for that setting.

## Windows NT 4.0 Document Properties - PCL 5e

You can change document settings using the Document Properties pages. To access these, select Print or Print Setup from your application's File menu

### Page Setup Tab

Use this tab for general page setup options.



Click **OK** to save changes and close the driver.

Click **Cancel** to discard changes and close the driver.

### Advanced Tab

Use this tab to access all Windows NT 4.0 printer driver settings. PCL 5e settings are described in Chapter 1xxx.



Click any setting in the scrolling menu and the lower portion of the tab displays more options for that setting.

## WINDOWS 3.x

### Installation for Windows 3.x

Follow these steps to install the printer drivers in Windows 3.x.

1. Boot your system and start Windows.
2. Insert the *SuperScript 4400 Series CD* into the appropriate drive (in this example we use drive E:).
3. In the Windows Program Manager, select **Run** from the File menu. Windows displays the Run dialog box.
4. Type E:\SETUP.EXE in the Command Line field.
5. Click the **OK** button. This launches the Installer.
6. Respond to the selections displayed in the installation dialog boxes. When prompted, select the **Easy/Local** installation option and click **Next**.
7. Continue responding to the selections displayed in the installation dialog boxes.
8. When installation is complete, restart Windows.

### Printing a Document

You can do this using the print command of the Windows application used to create your document.

1. Open a document you wish to print.
2. Select **Print** from the File menu. The Print dialog box appears.
3. Select the options you want in the Print dialog box, including the number of copies and page range.
4. When the options are selected, click **OK** to print the document.

### Accessing the Printer Driver

You can access the printer driver from your application and the Windows Control Panel.

#### From your application

Different applications have different methods for accessing a printer driver. Below is one common example. If it does not work with your application, consult your software manual.

1. Select **Print** from the File menu of your application.
2. In the Print dialog box that appears, click the **Setup** button.
3. In the Print Setup dialog box that appears, select the appropriate SuperScript printer driver in the Printers list and then click the **Setup** button.

#### From the Windows Control Panel

1. In the Windows Control Panel double-click the **Printers** icon.
2. In the Printers dialog box that appears, select the driver you wish to view from the Installed Printers list. Then click the **Setup** button.

### Changing Settings in the Printer Driver

In the printer driver, you simply point and click to change printer settings.

1. In the **PostScript 3** driver, select a category of settings that you want to change by clicking its name tab. In the **PCL 5e** driver, press the **Options** button to display more settings.
2. Click on any setting to select it.
3. Click **OK** to save the changes you made in all property sheets and close the printer driver.  
Click **Apply** (PostScript driver only) to save the changes you made in a property sheet. The printer driver remains open.  
Click **Cancel** to close the printer driver. Your changes will not be implemented.

### Setting Another Printer Driver as Default

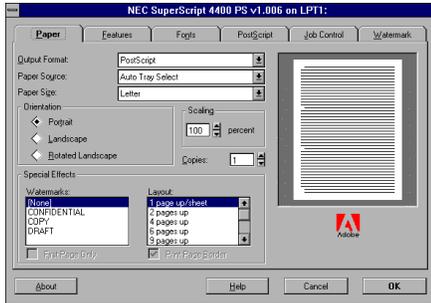
You can change printer drivers using the Windows Control Panel.

1. In the Windows Control Panel double-click the **Printers** icon.
2. In the Printers dialog box that appears, select the driver you wish to use in the Installed Printers list.
3. Click the **Set As Default** Printer button.
4. Click on the **Close** button to close the Printers dialog box.
- 5.

# The Windows 3.x PostScript 3 Printer Driver

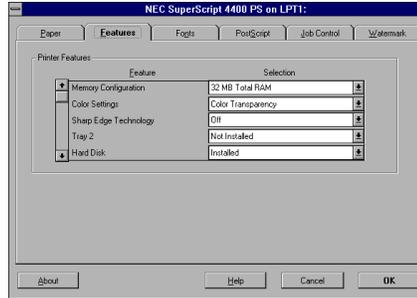
## Paper Tab

Use the Paper tab to customize paper handling for the print job.



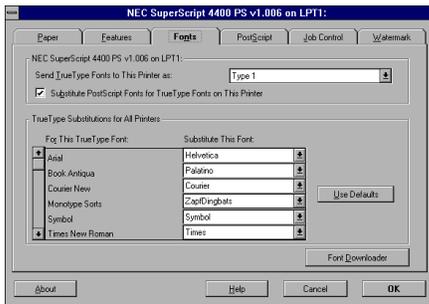
## Features Tab

This tab allows you to control the special printer features.



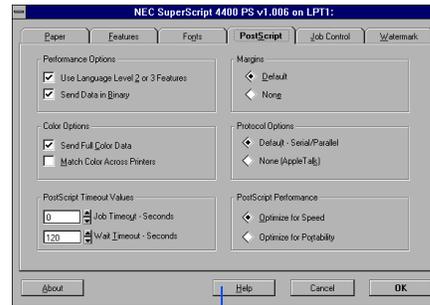
## Fonts Tab

You can use the Fonts tab to specify how TrueType fonts in your document will be processed by the printer.



## PostScript Tab

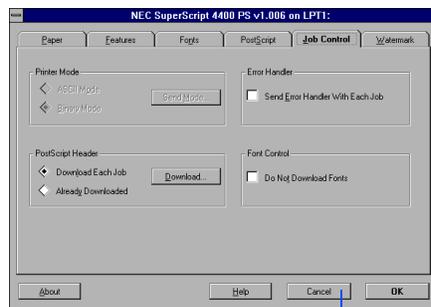
Use these settings to configure options for the PostScript printing language.



Click the **Help** button to view the complete Help file.

## Job Control

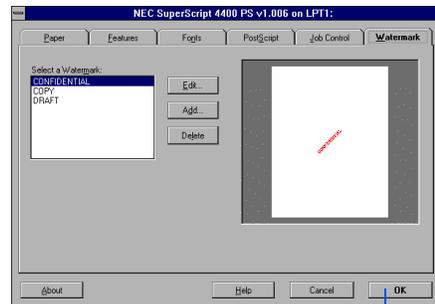
Use these settings to configure more options for PostScript printing.



Click **Cancel** to discard changes and close the driver.

## Watermarks Tab

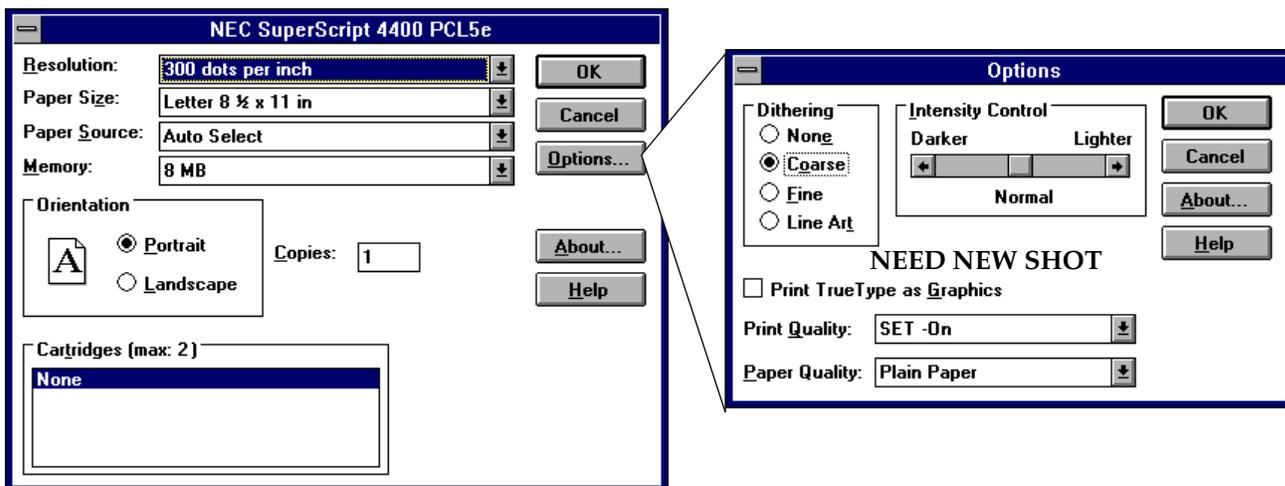
A watermark is text that appears on pages in your print job, such as DRAFT or CONFIDENTIAL. Use these settings to customize watermarks for your print job



Click **OK** to save changes and close the driver.

## Windows 3.x - PCL 5e Printer Driver

The PCL 5e printer driver window has general document settings. Press the **Options** button to display more settings for adjusting graphic output.



- Click the **Help** button to view the complete Help file.
- Click **Cancel** to discard changes and close the driver.
- Click **OK** to save changes and close the driver.
- Click **About** to view version and copyright information.

## MAC OS

You can print from Mac OS version 7.1 and higher, to the SuperScript 4400N network printer over EtherTalk.

### Installing Printing Software

1. Insert the *SuperScript 4400 Series CD* in your drive and double-click the **SuperScript 4400 Installer** icon.
2. The installer prompts you to select installation preferences and creates the SuperScript 4400 Folder on your hard drive.

### Choosing the Printer

1. Select **Chooser** from the Apple menu and make sure the AppleTalk **Active** button is selected.
2. In the Chooser, select the **AdobePS** printer icon, select the AppleTalk zone your printer is on, then select the printer's name, **SuperScript 4400**, in the printer list.

### Configuring the PPD

1. Click the Setup button in the Chooser.
2. In the Setup dialog box, click Auto Setup. The driver will attempt to determine the correct PPD (PostScript Printer Description) file to associate with the printer.
3. In the Printer Descriptions dialog box, select **SuperScript 4400** and click **Select**.
4. When the Setup dialog box reappears, click the Configure button.
5. In the Configure dialog box, use the pull-down menus to specify options currently installed in your printer.

### Renaming Your Printer

If you have more than one SuperScript 4400 printer on your network, you should rename your printer. In order to do this, you need a copy of Apple Printer Utility. This can be obtained online from Apple Computer at this URL:

[http://http.info.apple.com/ftp/Apple\\_Support\\_Area/Apple\\_Software\\_Updates/US/Macintosh/Printing/LaserWriter/Apple\\_Printer\\_Utility\\_2.2.img.bin](http://http.info.apple.com/ftp/Apple_Support_Area/Apple_Software_Updates/US/Macintosh/Printing/LaserWriter/Apple_Printer_Utility_2.2.img.bin)

...or by requesting the Apple LaserWriter 8.5.1 driver installer disk set from Apple by calling 800-SOS-APPL.

Then perform a custom install of the Apple Printer Utility.

1. Launch the Apple Printer Utility.
2. Select the zone in which your SuperScript 4400 printer resides.
3. Select the printer you wish to rename and click **Open Printer**.
4. Select the **Name** section of the window by clicking the arrow.
5. Type your desired name into the field labeled **AppleTalk Name**.
6. Click the **Send** button.

### Printing

To print a document from your Mac OS computer

1. Select **Print** from the File menu.
2. A Print dialog box appears that allows you to select the settings you want. Change the center "Panel" of settings by selecting categories from the **Settings** pull-down menu.
3. Select one of the following options from the **Destination** pull-down menu.
  - Printer:** Your document is printed out on your printer (the default).
  - File:** The document can be saved as either a PostScript Job or an Encapsulated PostScript file.
4. When all settings are specified, click the **Print** button to print the document.

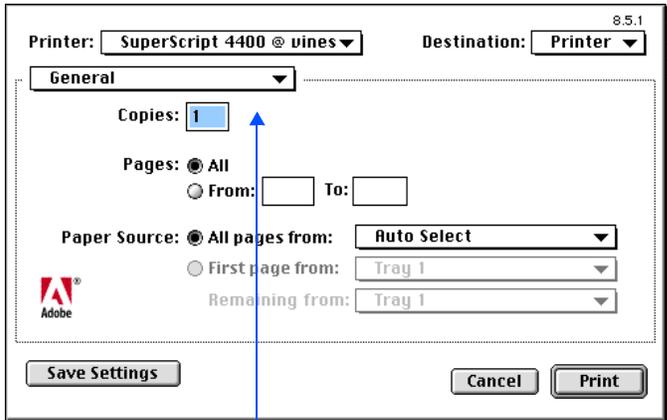
The Print dialog box is shown on page 53.

### Page Setup

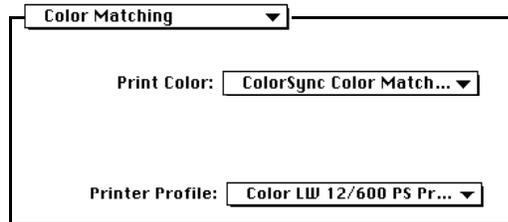
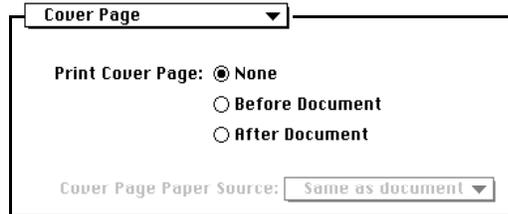
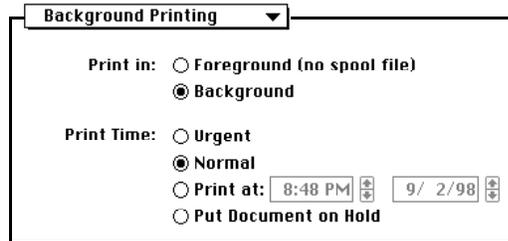
To view and change Page Setup settings

1. Select **Page Setup** from the File menu.
2. A dialog box appears that allows you to select the settings you want. Change the center "Panel" of settings by selecting **Page Attributes** or **PostScript Options** from the pull-down menu.
3. Select options and click **OK** to return to the document.

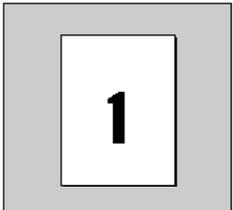
## Mac OS -Print Dialog Box



Pull down the Settings menu to view more categories in the center panel.



Layout



Pages per sheet: 1

Layout Direction:  

Border: none

Error Handling

If there is a PostScript™ error:

- No special reporting
- Summarize on screen
- Print detailed report

Save as File

Format: PostScript Job

PostScript Level:  Level 1, 2 and 3 Compatible

- Level 2 Only
- Level 3 Only

Data Format:  ASCII

- Binary

Font inclusion: None

NEC Features

Color Control:

- Color Photo
- Color Business Graphics
- Color Transparency
- Grayscale
- Unadjusted

Resolution:

- 600 dpi
- 1200 dpi

Sharp Edge Technology:

- On
- Off

Restore Defaults

# CHAPTER 4

## PRINTER OPTIONS

### OVERVIEW

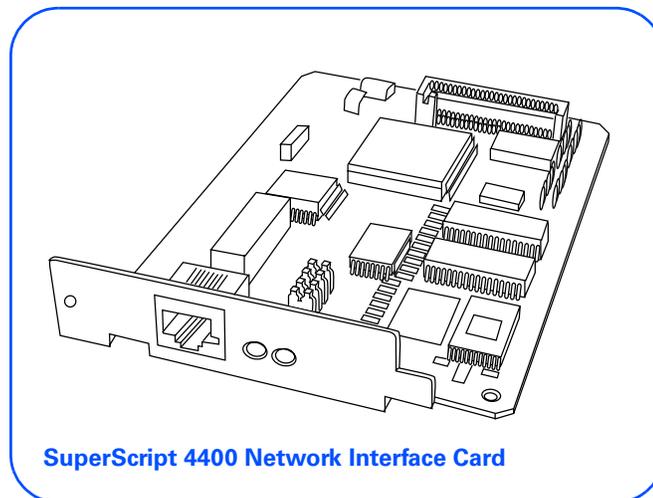
This chapter provides instructions for installing and using printer options, including

- Installing the Network Interface Card (NIC)
- Installing the Legal Paper Tray
- Adding the Paper Tray 2 Unit
- Adding Memory (SIMM)

### INSTALLING THE NETWORK INTERFACE CARD (NIC)

Part # 4010

If you have the SuperScript 4400N printer it is already equipped with a Network Interface Card (NIC). If you purchased the NEC SuperScript 4400, you can upgrade it by installing a network interface card (NIC). Use the directions in this section for installation

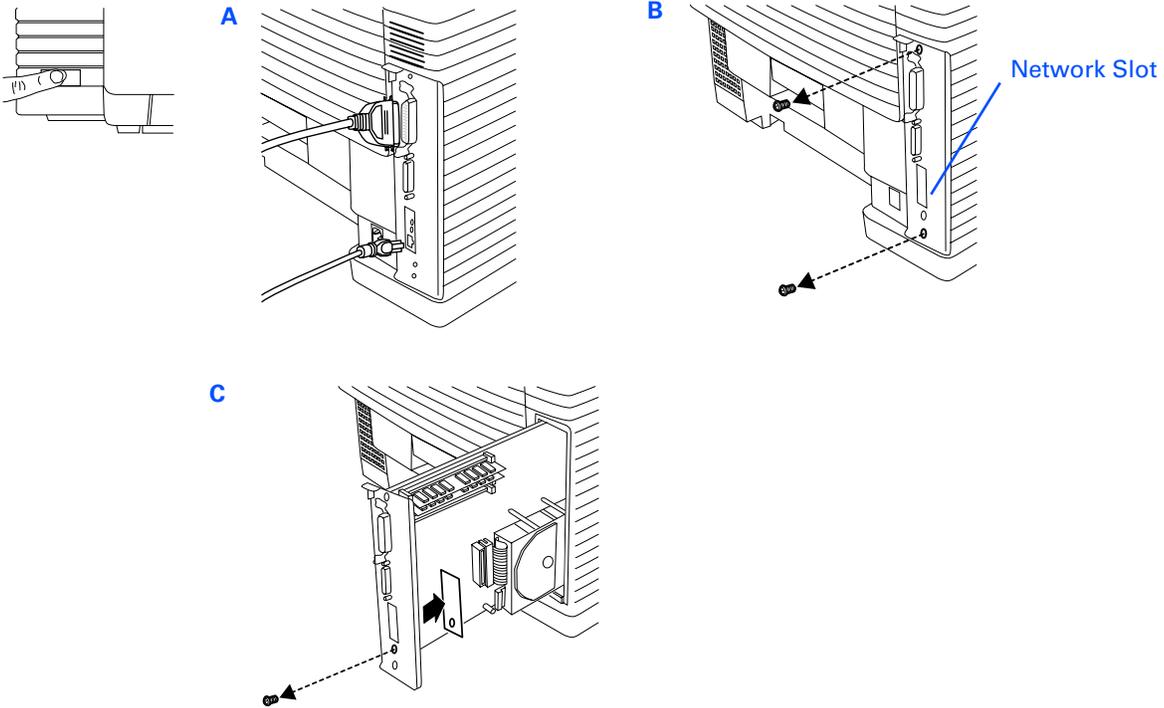


#### First, Prepare the Printer

1. Turn off the printer, remove the power cord from the rear panel of the printer, and disconnect the printer cable from the port (A). Position the printer so you are facing the side and back corner where the cable port is located. Make sure that you have enough room to work.
2. Using a small phillips-head screw driver remove the two screws from the expansion slot on the rear of the printer (B), and pull out the Controller Board.

3. Remove the screw that holds the small 1.5" x 3.75" plate over the Network slot. Keep the screw (C).

## Preparing the Printer

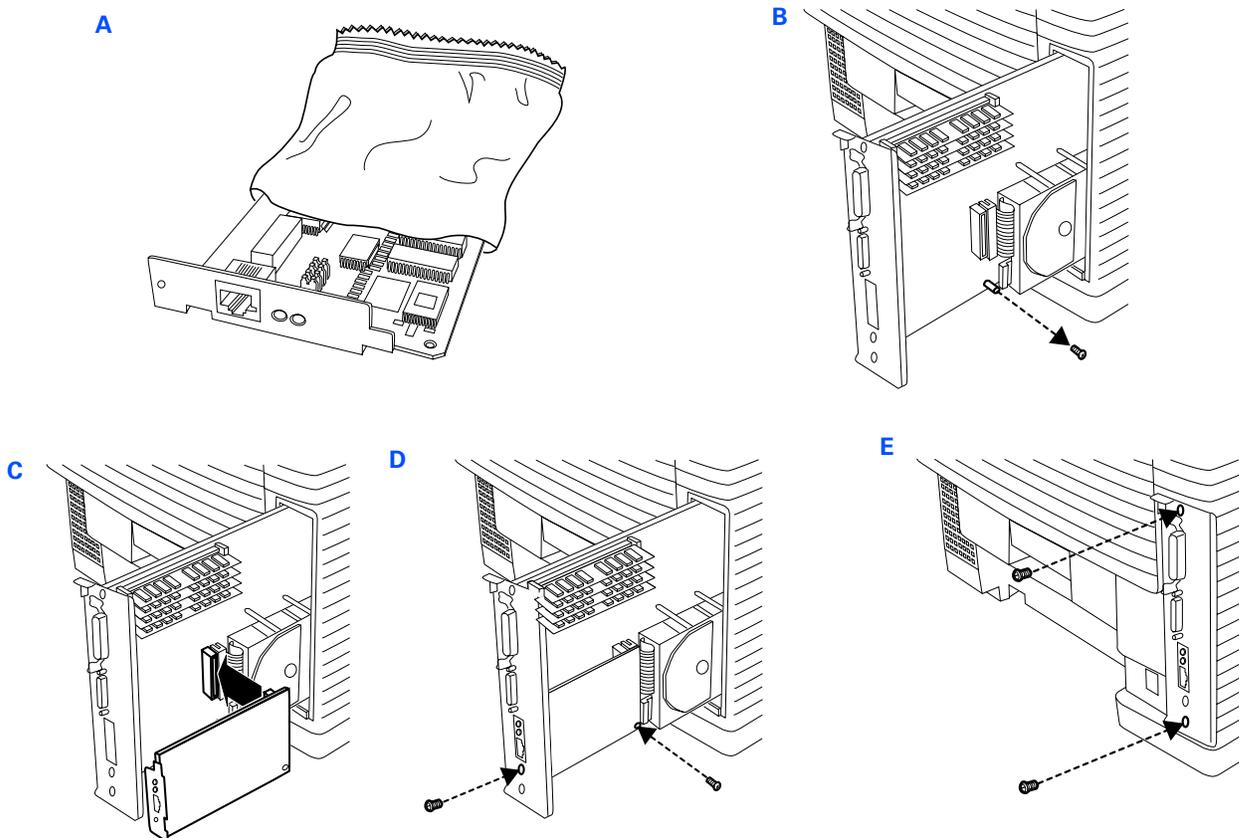


## Second, Install the NIC

These steps are illustrated on the opposite page.

1. Remove the NIC from its protective bag (A).
2. Remove the mounting screw from the end of the standoff pin on the controller board (B).
3. Hold the NIC so that its circuitry faces inside the printer and its LED's face the back of the printer. Carefully align the standoff pin with the lower right corner of the NIC.
4. Plug the NIC's connector to the Controller Board as shown (C).
5. Use the mounting screw removed in step 5 to fasten the lower right corner of the NIC to the standoff pin. Attach the screw removed from the front in step 3 (D).
6. Slide the Controller Board back in the expansion slot. Reinstall and tighten the screws (E).

### Installing the NIC



### Third, Test the NIC

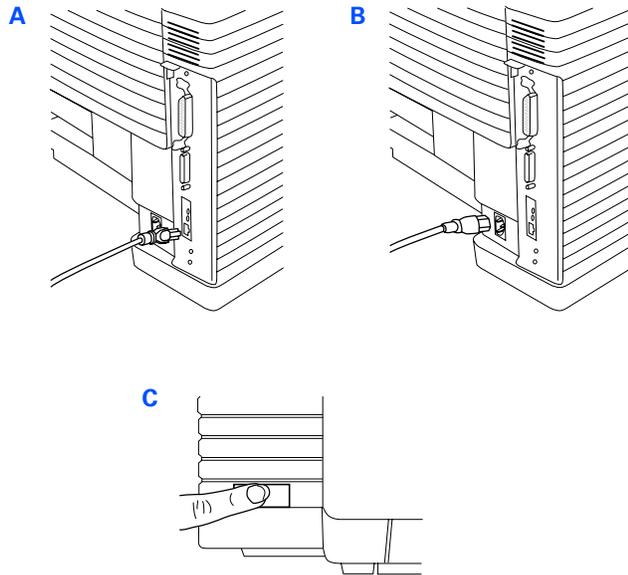
Follow these steps to verify that the NIC is installed and operating properly.

1. Connect the network's twisted pair cable with RJ-45 connectors to the new network port on your printer (**A**). Reattach the power cord to the printer (**B**), plug in the printer.
2. Turn on the printer (**C**). It may take up to 90 seconds to warm up, and then it prints a Network Settings page with NIC status information (shown on page 32).

**note:** Keep the Network Settings page. You will need this information when configuring the NIC for your network.

Your 4400 Printer is now a network printer. See Chapter 7, "Network Setup," for configuring your systems to use the network printer.

### Testing the NIC

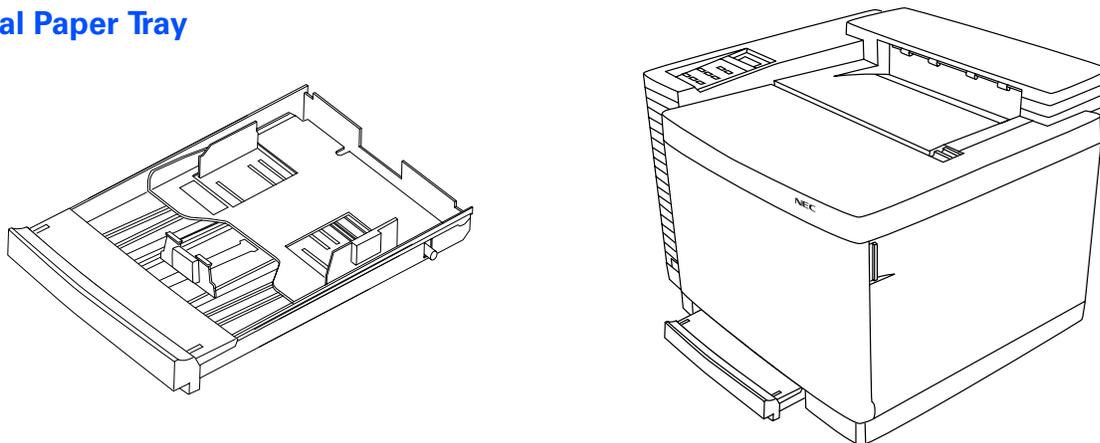


### INSTALLING THE LEGAL PAPER TRAY

Part #4004

Installation of the optional Legal Paper Tray is simple. Remove the standard paper tray from the main feeder or the optional Paper Tray 2 unit. Fill your new Legal Paper Tray and install as you would the standard tray (see page 9).

#### Legal Paper Tray

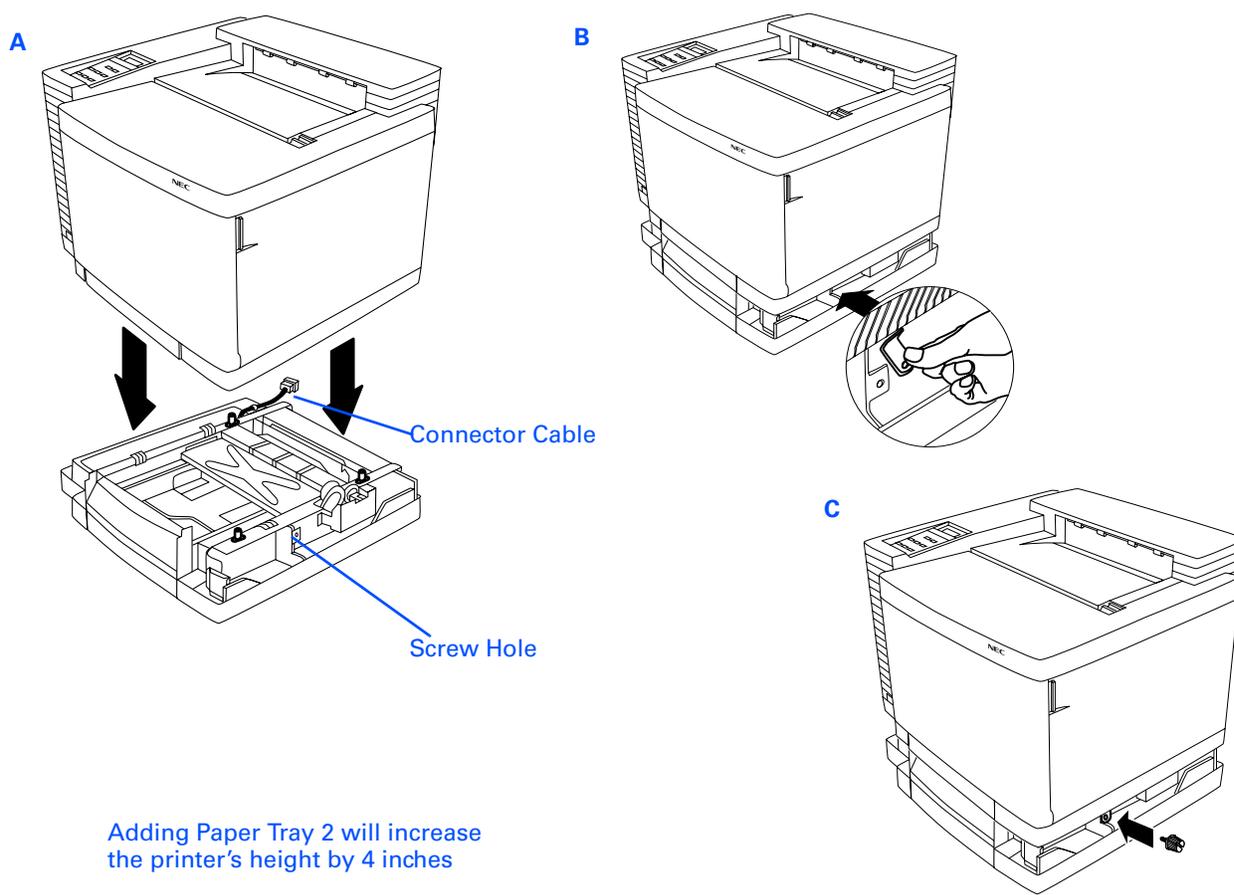


## ADDING THE PAPER TRAY 2 UNIT

Part #4005

1. Make sure the printer is turned off and disconnected.
2. Make sure there is plenty of room around and above the printer to work. Find the packet of brackets and thumb screws and set aside.
3. Remove the optional Paper Tray 2 unit from its packaging. Remove the .75" x 2" connector cable cover from the unit. Extend the Connector Cable away from the unit.
4. Set the Paper Tray 2 unit next to the printer. Carefully align the Paper Tray 2 unit to the printer. Keeping the printer level, lift the printer up and onto the Paper Tray 2 Unit as shown (A).

### Adding Paper Tray 2 Unit

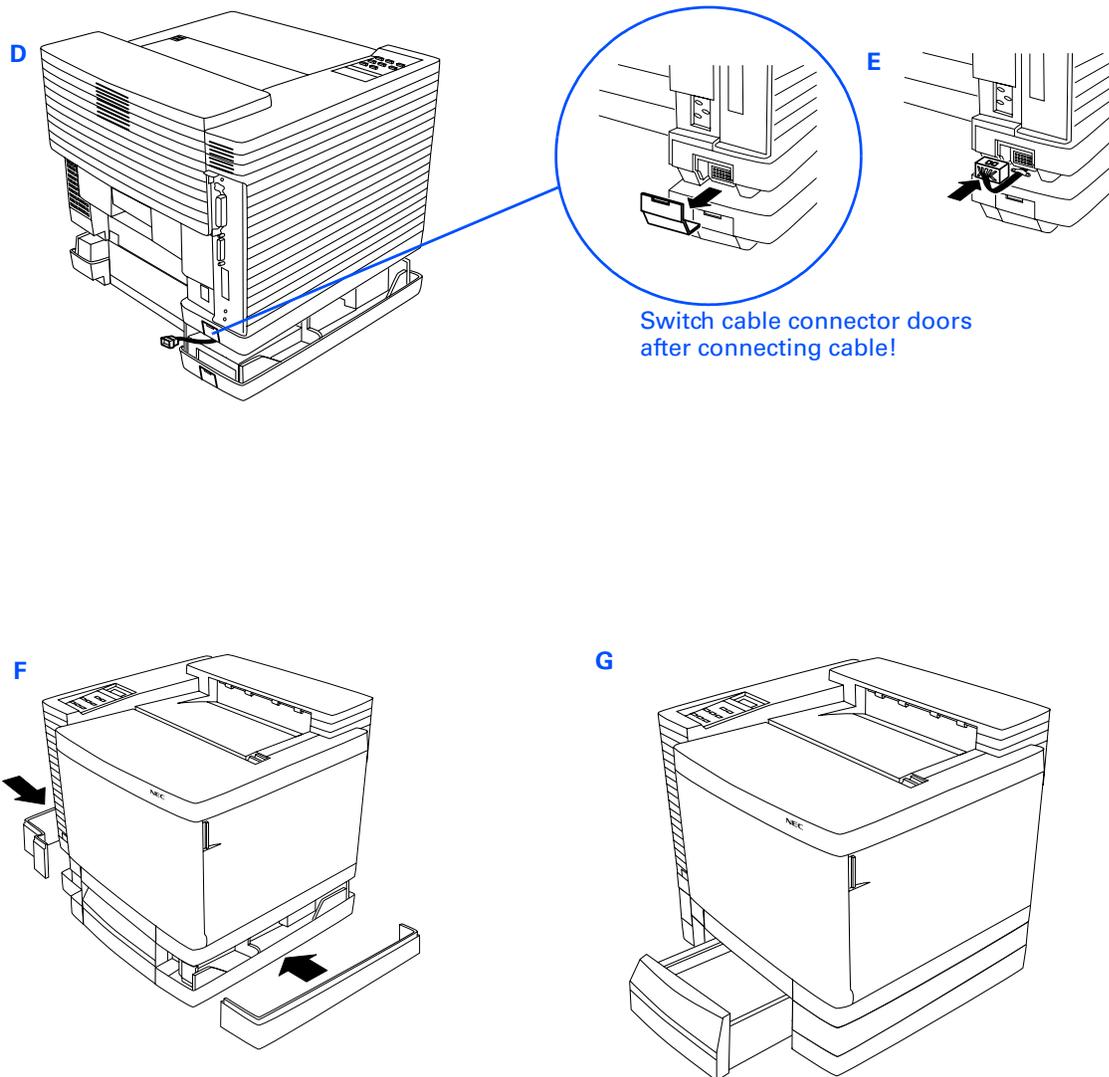


Adding Paper Tray 2 will increase the printer's height by 4 inches

**WARNING!** It takes two adults to lift the printer and assure that it is level. If the printer is tipped more than 1.5 degrees, oil will spill inside and cause damage.

5. Locate the metal tab with screw hole on each side of the Paper Tray 2 unit.
6. Take a metal bracket from the packet and hold it at a slight angle away from you. Slide the bracket up into the hole underneath the printer (B).
7. Making sure the hole in each metal bracket is lined up with the corresponding screw hole on the Paper Tray 2 unit, insert and tighten the thumb screws (C).
8. Facing the back of the printer, locate the Connector Cable at the rear of the Paper Tray 2 unit.
9. Remove the cable connector door at the rear of the printer (D) and connect the cable to the printer socket (E).
10. Place the cable connector door that you removed from the printer on the Paper Tray 2 unit. Place the cable connector door that you removed in step 3 over the cable opening on the back of the printer.
11. Snap on the left and right Paper Tray 2 unit covers.
12. Reconnect the power and interface cables to your printer.
13. Load paper into your new Paper Tray 2, turn your printer on and send a print job to the printer using paper from both trays.

## Adding Paper Tray 2 Unit

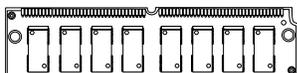


## ADDING MEMORY (SIMM)

The SuperScript 4400 and 4400N have four Single Inline Memory Module (SIMM) slots. The 4400 comes with 32MB RAM. The 4400N comes with 96MB RAM. However, you can upgrade either model to a maximum of 128MB of RAM through the installation of additional SIMMs.

**note:** You may need additional memory to print on legal size paper or at higher resolutions. See the following table.

See your local computer reseller to purchase expansion SIMMs. Use 72 pin, 60ns high-quality SIMMs. You can use both parity and non-parity DRAM SIMMs.

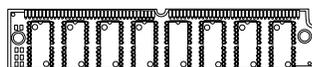


Adding additional memory will help ensure that your printer has enough memory to print the most complex graphic print jobs without sacrificing resolution. Added memory will also increase print speed.

If you install the optional SuperScript 4400 NIC, you should also upgrade your memory from 32MB to 96MB. The easiest way to do this is to first remove the two 16MB SIMMs that came with your printer. Then install two 32MB SIMMs in the first two memory sockets. Reinstall the first two 16MB SIMMs (that you removed) under these. Your printer now has 96MB of RAM.

Remove SIMMs from the bottom memory sockets first. Install SIMMs to the top memory sockets first.

The instructions that follow explain how to install memory in your printer yourself. You can also contact an NEC-authorized dealer and have more memory installed for a service fee. Call 800-632-4650.



The following table lists the memory requirements, SIMM specifications, and advantages of added memory.

<b>Desired Memory</b>	<b>SIMMs to Use</b>	<b>Advantages</b>
40MB	Two 16MB and Two 4MB SIMMs	Improved print speed and performance
48MB	Two 16MB and Two 8MB SIMMs	Improved print speed and performance
64MB	Four 16MB or Two 32MB SIMMs	Improved print speed and performance
80MB	Two 32MB and Two 8MB SIMMs	Can print full color letter size at 1200 x 1200 dpi
96MB	Two 32MB and Two 16MB SIMMs	Can print full color legal size at 1200 x 1200 dpi
128MB	Four 32MB SIMMs	Improved print speed and performance

**note:** If you are installing SIMMs of different capacities you need to use the top two memory sockets marked "A" for the larger capacity SIMMs.

When you turn on your printer it will automatically recognize the added memory and show up on the Start Up page.

## Installing SIMM

1. Turn the printer off and disconnect it.
2. Using a small phillips-head screw driver remove the two screws from the expansion slot on the rear of the printer (A), and pull out the Controller Board part way (B).
3. To remove any un-needed SIMMs:  
Open the metal release brackets on each side of the memory socket at the same time (C).  
The SIMM will be released from the memory socket(D).

4. To add SIMMs:

Make sure the metal brackets on both sides of the memory socket are open.

**note:** SIMMs of different values must be installed in pairs.

Hold the SIMM so that the metal edge faces toward the memory socket and the notched side of the SIMM faces the right.

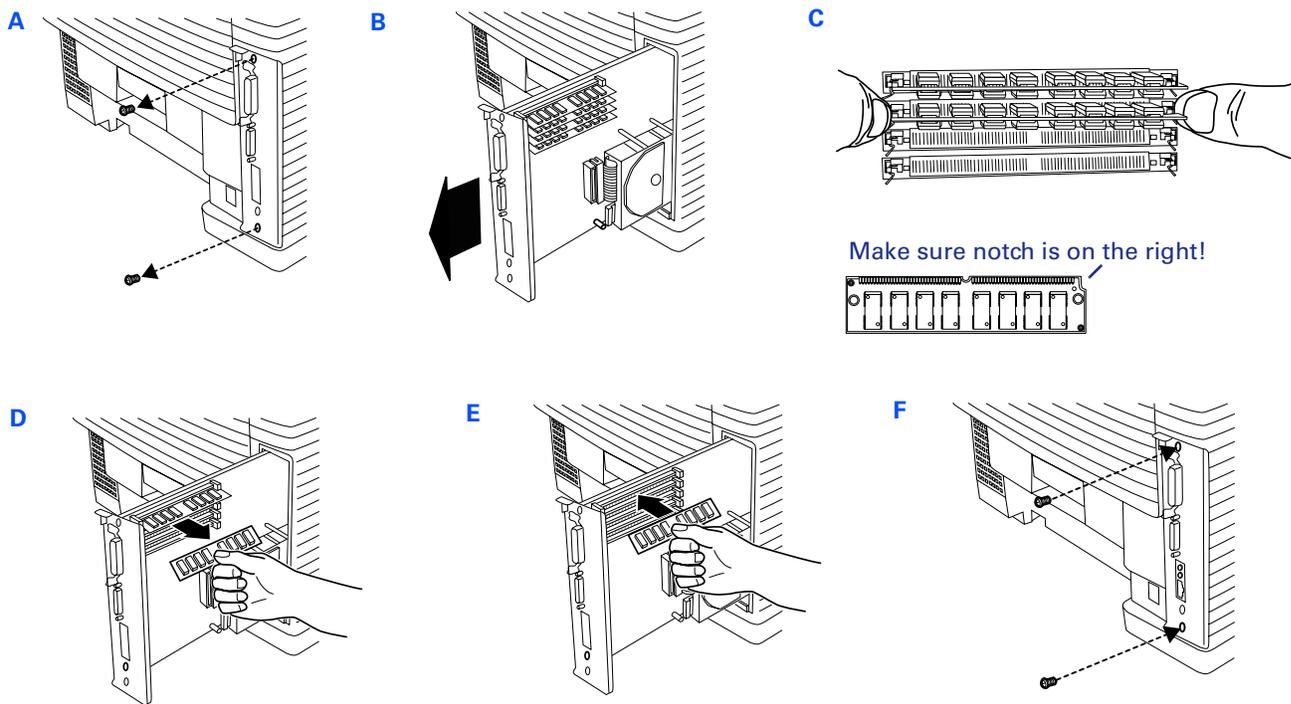
Hold the SIMM at a slight upward angle, being careful not to touch the connection points along the edge of the SIMM.

Insert the SIMM in the memory socket (E).

Press the SIMM in and up until it clicks into place.

Make sure the SIMM is seated securely and that the metal brackets are closed.

5. Slide the controller board back into the printer and reinstall the screws (F).
6. Connect the interface cable and power cord.





# CHAPTER 5

## NETWORK PRINTING

### *NETWORK SETUP*

To begin using the SuperScript 4400 Printer as a network printer, you must do the following setup tasks.

1. Connect the 4400N to your network (see page 23).  
**note:** The 4400N printer already has a network interface card (NIC) installed. If you have a 4400 printer, you can purchase a Network Interface Upgrade Kit and install a NIC yourself. See page 27 for installation instructions.
2. Assign an IP address to the 4400N printer. (This step is not necessary for Mac OS users.)
3. Configure your network and workstations to use the 4400 network printer.

This Chapter contains the following sections

- Network Printer Features
- Network Administration Page
- Using MAP
- Windows TCP/IP Setup
- Windows Peer to Peer Printing
- lpr Printing Setup in Windows NT
- Windows 95/98 Shared Printing Setup
- DHCP
- NetWare 4.x Setup
- NetWare 3.x Setup
- Web JetAdmin
- UNIX Setup

## Setup Options

The *SuperScript 4400 Series CD* contains network printing tools to support the following configurations.

### Windows

TCP/IP is required if you want to access and use the Network Administration Page to monitor and manage network printers. TCP/IP is also required to operate the printer in an IP protocol network (such as for peer to peer printing). See the instructions on page 79 for setting up TCP/IP for **Windows 95/98**, and **Windows NT 4.0**.

### NetWare

See the instructions beginning on page 84 for configuring **NetWare 4.x** or **3.x** and the **4400N** to work with **Windows 95/98** and **Windows NT 4.0**.

### Peer to Peer Printing

If you do not have a network server, you can use peer to peer printing to print directly to a networked printer from **Windows 95/98**. You must have the SuperScript 4400 printer driver installed. For IP peer to peer printing, the Microsoft TCP/IP protocol stack must be installed and properly configured on your workstation. See the instructions on page 80 for peer to peer printing.

### lpr Printing in Windows NT Networks

In **Windows NT** networks, you can use lpr printing. See page 81 for setup instructions.

### Mac OS

Mac OS information is provided in Chapter 4. See the instructions on page 48 to set up and print from Mac OS computers over EtherTalk.

## NETWORK PRINTER FEATURES

### Network Settings Page

Each time you turn on the printer, the 4400N prints a Network Settings page. Another way to print a Network Settings page is:

1. Go to the URL Configuration Page, the URL is **http://<IP address>/configure.html**.
2. Click on the **Network Administration** link. This displays the Network Administration Page.
3. Click **Configure Status Page**, then click **Generate Now**. (The Network Administration Page is described beginning on page 75.)

The Network Settings page provides information about the network printer settings and network connections. You should review this page immediately after NIC installation and any time you change the configuration to verify that the procedure was done properly.

In the illustration at the right, important features are circled. The **Unit Serial No.** (which is also on the back of the NIC), is used for printer identification in peer to peer and NetWare protocols. The **Network Address** is the hardware address or MAC address. The **Protocol Address** is the IP address you assign the 4400N printer. You can set a new **AppleTalk Printer Name** using the Apple Printer Utility.

```

The Network Settings Page
-----
Unit Serial No: 992048          Version: 05.20
Network Address: 00:40:af:79:19:80
Network Topology: Ethernet      Connector:RJ45
Network Speed: 10 Megabits
Novell Network Information      enabled
  Print Server Name: NEC_992048
  Password Defined: No
  Preferred Server Name not defined
  Directory Services Context not defined
  Frame Type: Novell 802.3
Peer-to-Peer Information      enabled
  Frame Type: 802.3
  Network ID: 32803
TCP/IP Network Information    enabled
  Frame Type: Ethernet II       Protocol Address: 131.241.45.84
  Subnet Mask: 255.255.255.0    Default Gateway: 131.241.45.254
  DNS Address: 0.0.0.0
AppleTalk Network Information enabled
  Frame Type: 802.2 SNAP On 802.3
  Preferred Appletalk Zone:*     San Jose EtherNet
-----
Novell Connection Information
  Printer Name: NEC_992048_P

  File Server: LABNW312
  Queue: NEC_992048_Q          Priority: 1  Attached: Yes
  No Notify Defined

Peer-to-Peer Connection Information
  Printer Name: NEC_992048

AppleTalk Connection Information
  AppleTalk Printer Name: SuperScript 4400 4

TCP/IP Connection Information
  Port Number: 10001
-----

```

## Setting The Printer IP Address

To take advantage of many of the network printer features, you must assign an IP address to the printer network interface card. There are several ways to do this.

### Using the Operator Panel to set the IP Address

You can use the operator panel to enable and set up the TCP/IP networking parameters for the printer. This is particularly useful for setting the network IP address so you can use it as the printer's URL in web-based printing. Follow these steps.

1. Press the **Online** button of the Operator Panel. **OFFLINE** appears on the display.
2. Press the **Menu** button to enter menu mode. **CONTROL** appears on the display.
3. Press the **Next** button until **COMMUNICATIONS** appears on the display, and press the **Select** button.
4. Press the **Next** button until **NETWORK** appears on the display, and press the **Select** button.
5. Press the **Next** button until **TCP/IP** appears on the display, and press the **Select** button.
6. Press the **Next** button until **NET ADDRESS** appears on the display, and press the **Select** button.
7. Use the Operator Panel buttons to set values for each of the 12 digits in this manner.

First press **Next** to set the cursor to the first digit.

For the first digit, press **Select** to increment to the correct value. Then press **Next** to move to the next digit and press **Select** to increment to its correct value. Continue until all twelve digits are set. When the final digit is set, press **Next** to confirm the Net Address you set and then press **Select**.

8. Press **Menu** to exit menu mode and press **Online** to bring the printer online.

To validate any changes to network settings, you must turn the printer off, and then on again.

### Using MAP to set the IP Address

The Management Access Program (MAP), runs only under Windows 95/98 and Windows NT 4.0. You can use MAP to locate and list SuperScript 4400 network printers connected to your network. Then you select one to go to its Network Administration Page and configure TCP/IP Setup. See page 75 for more information.

### Using Software Tools to set the IP Address

A number of software tools allow you to set the printer IP address from your workstation.

See page 79 for information on using BOOTP 32 to set TCP/IP Parameters in Windows 95/98 or Windows NT 4.0.

See page 83 for information about DHCP.

### Using ARP to set the IP Address

You can use the following procedure to set the IP address on the 4400N printer. Then, you can set the other IP parameters from the Network Administration Page. The network printer must be on the same network segment as the workstation that you are using to configure it. The TCP/IP stack must be installed and operating.

1. From Windows, start an MS DOS session.
2. At the command prompt enter: **arp -s**  
[IP address] [Hardware Address]  
(for the hardware address, use hyphens as separators, instead of colons.)  
Then enter **ping** [IP address]  
(request should time out)
3. Turn the printer off and on, and use the **ping** command again to verify that the 4400N printer has its IP address. If it has the address, the result is a confirmation message: [IP address] is alive
4. Remove the entry from the ARP cache using this command: **arp -d** [IP address]

## Resetting the NIC

If you change network settings, you may need to reset the printer NIC for the new settings to take effect. To reset

1. Go to the URL Configuration Page, the URL is **http://<IP address>/configure.html**.
2. Click on the **Network Administration** link. This displays the Network Administration Page.
3. Click **Reset** in the System column,  
or
  - Turn the printer off and then on again.

## Restoring Factory Default Settings

You can reset the NIC to its factory default settings. This means that the NIC clears data such as names and IP addresses. It does not lose its serial number or Network Address. If you have changed the printer's name, it will revert to its default name.

**note:** You should restore factory defaults when the printer is moved to a different network.

To reset the NIC to factory default settings

- Go to the Network Administration Page and click **Factory Defaults** in the System column. You will need to enter a password (the default is *sysadm*). Then turn the printer off and on again.

## NIC Status Lights

When the NIC is installed, its two status lights, amber and green, are located on the interface panel on the back of the printer. Light patterns for normal operation are

**Green light is on solid:** This shows normal operation while the printer is awaiting print jobs.

**Amber light blinks continuously:** This shows that the NIC is receiving a print job.

**Green light blinks 3 times and stays on:** This occurs when the printer has performed a successful self-test. It then prints a Network Settings page.

## NETWORK ADMINISTRATION PAGE

Your NIC has a built-in web that allows you to perform network administration tasks.

### Going to the Network Administration Page

You must assign an IP address to your printer. Then you can use a web browser, such as Navigator or Internet Explorer, to access the Network Administration Page.

**note:** See page xxx for instructions on assigning the printer IP address. The printer IP address then appears on the Network Settings page under TCP/IP Network Information/Protocol Address.

To access the Network Administration Page, open your browser by double-clicking on its icon. Using the printer IP address, enter this URL,

**http://<IP address>/configure.html.**

For example,

http://155.100.100.2/configure.html.

(The IP address is shown as the "Protocol Address" on the Network Settings page.)

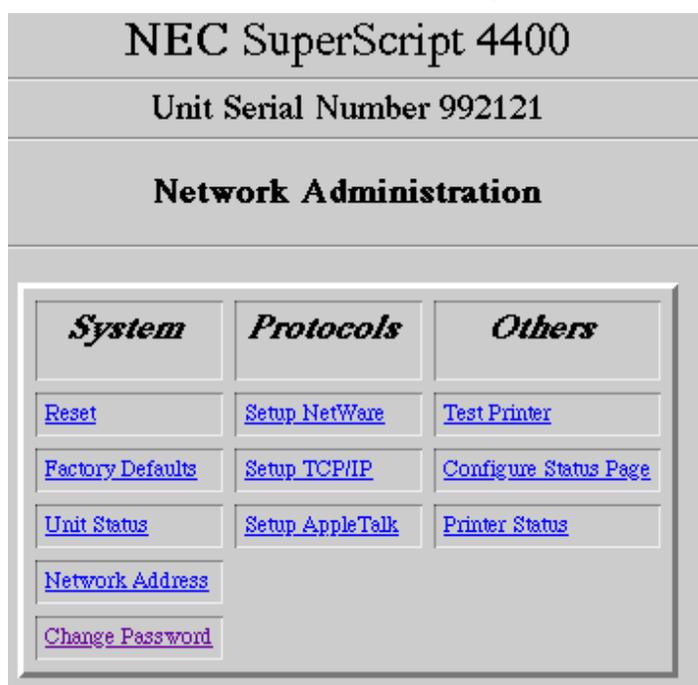
The Network Administration Page has the following features.

### System Functions

**Reset:** Click here to reset the NIC and allow new settings to take effect. The NIC's connection with the network is fully reinitialized, but its connection with the printer controller is not. To reset the connection with the printer controller, turn the printer off and on.

**Factory Defaults:** Click here to restore factory default values on all NIC parameters. You should restore factory defaults if you move the NIC to a new network or if the NIC was set up improperly the first time. Remember that this option clears all settings you have defined for the NIC. You must **Reset** the printer for the factory default settings to take effect.

### The Network Administration Page



You can view the Network Administration Page from Windows, MacOS, or UNIX. Use a web browser, such as Netscape Navigator or Internet Explorer. The URL is the IP address you assign to the NIC, for example, <http://131.241.45.65/configure.html>.

**Unit Status:** Click here to view the current state for each protocol and NIC port available on your NIC. For each supported protocol (Novell NetWare, TCP/IP, or AppleTalk), the top line displays the protocols supported and if the protocol is enabled or disabled.

**Network Address:** Click here to view the serial number and the Ethernet MAC (Media Access Control) address for the NIC.

**Change Password:** Changing any NIC parameters using the NIC Configuration Menu requires a password. Click here to change your password. The default password is *sysadm*. Your password can contain letters, numbers, and punctuation, and is case sensitive.

**note:** If you forget your password, you can restore factory defaults manually. See page xx.

### Protocol Functions

The **Protocols** feature is for setting up network options and parameters. It provides extensive access to NIC parameters, and allows you to setup IP parameters (IP address, subnet mask, and default gateway). You can enable/disable AppleTalk and NetWare, but not TCP/IP. (We recommend that you disable any protocol that you are not using.)

### Other Functions

**Test Printer:** Click here, and then click on the **Start Test** button in the dialog box that appears, to send a test document to the printer.

**Configure Status Page:** Click here to configure Network Settings page options. In the dialog box that appears, select the checkbox by **Print Status Page on Startup** to generate a status page (the Network Settings page) each time you turn on the printer or reset the NIC.

**note:** We recommend that you leave this setting checked to print at power-on.

To print out a Network Settings page immediately, click **Generate Now**.

**Printer Status:** Click here to display status information for the printer and NIC, as well as errors and messages.

## USING MAP

The Management Access Program (MAP), runs only under Windows 95/98 and Windows NT 4.0. You use MAP to list SuperScript 4400 network printers connected to your network. Then you select one to go to its Network Administration Page for network administration options.

### MAP Operating Requirements

To use MAP, you must have installed on your PC

- Netscape Navigator or Internet Explorer
- The Microsoft TCP/IP protocol stack, if printer is going to support TCP/IP.

**For IPX Search Functions:** The IPX protocol must be installed and enabled on your PC. Both Microsoft and the NetWare 32-bit stacks are supported. You must log in to the Novell Server.

**For IP Peer to Peer Printing:** Both your workstation and printer must have an IP address and subnet mask entered. If communicating across subnets, the default gateway must also be identified.

**For IPX Peer to Peer Printing:** Your PC must have the IPX/SPX compatible protocol installed and enabled.

### Installing MAP

MAP is available on the *SuperScript 4400 Series CD* that comes with your printer. MAP must be installed from Windows 95/98 or Windows NT 4.0. It cannot be installed from the MS-DOS® command prompt.

- a. Insert the *SuperScript 4400 Series CD*.
- b. Use the **Administrator** installation option to install the MAP utility.

## Running MAP and Selecting a 4400N

- a. In Windows 95/98 or Windows NT 4.0, press the **Start** button. Select **MAP** from the program group you specified during installation.

When MAP starts, a list of all available units on the network is displayed by unit IP address or serial number. The unit listing will be divided by TCP/IP units and IPX/SPX units. See the illustration below.

**note:** If a unit is enabled for both IP and IPX, it will appear in both lists.

- b. Click on a unit in the list to display its Network Administration Page.

The Network Administration Page options are explained beginning on page 75.

An example using MAP and the Network Administration Page to configure the printer for NetWare 4.x is shown on page 85.

**Management Access Program 3.20**  
[Refresh] [Help]

**Units supporting TCP/IP**

http://131.241.45.61/NEC\_991142 NEC SuperScript 4400 Ethernet Card  
http://131.241.45.203/NEC\_991149 NEC SuperScript 4400 Ethernet Card  
http://131.241.45.64/NEC\_991151 NEC SuperScript 4400 Ethernet Card  
http://131.241.45.83/NEC\_991650 Print Server Card  
http://131.241.45.191/NEC\_991653 Print Server Card  
http://131.241.45.189/NEC\_991655 NEC SuperScript 4400 Ethernet Card  
http://131.241.45.127/NEC\_999999 Print Server Card

**Units supporting IPX/SPX**

[NEC 991142](#) NEC SS 4400  
[NEC 991149](#) NEC SS 4400  
[NEC 991151](#) NEC SS 4400  
[NEC 991650](#) NEC SS 4400  
[NEC 991653](#) NEC SS 4400  
[NEC 991655](#) NEC SS 4400  
[NEC 999999](#) NEC SS 4400

The MAP lists the 4400N printers on your network. Select one to display its Network Administration Page.

## WINDOWS SETUP

There are several ways you can configure your Windows workstation to access the 4400 network printer, depending on which version of Windows you are using and your system configuration. Below, under “Network Configuration Options,” are possible scenarios.

### Installing SuperScript 4400 Printer Drivers

As you configure your network operating system, you will need to install a copy of the SuperScript 4400 printer driver onto each workstation that will be accessing the network printer.

### TCP/IP Requirements for Windows Configuration

TCP/IP is required for Windows 95/98, Windows NT 4.0 and Windows for Workgroups, if you want to access and use the NIC Configuration Menu to view printer status and manage network printers. TCP/IP is also required to operate the printer in an IP protocol network (such as for peer to peer printing). TCP/IP setup for Windows 95/98 and Windows NT 4.0 is explained on page xx. TCP/IP setup for Windows for Workgroups is explained on page xx.

## Network Configuration Options

### Windows 95/98

- If you have a NetWare network, see page 84 for NetWare 4.x setup, or page 86 for Netware 3.x setup.
- If you have no network server, you can print directly to the network printer using the peer to peer software provided on the *SuperScript 4400 Series CD*. See page 80.
- You can also set up shared printing (see page 82).

### Windows NT 4.0

- If you have a NetWare network, see page 84 for NetWare 4.x setup, or page 86 for Netware 3.x setup.
- In a Windows NT network you can use lpr printing. See page 81.

### Windows for Workgroups

If you have a NetWare network, see page 84 for NetWare 4.x setup, or page 86 for Netware 3.x setup. You can also use shared printing.

## TCP/IP Setup in Windows 95/98 and Windows NT 4.0

### First, Install the TCP/IP Protocol

1. In Windows, open the **Network** control panel.
2. If **TCP/IP Protocol** is not installed, add it, and configure the workstation's TCP/IP settings.
3. **Restart.** The new protocols and services will not be available until the system is restarted.

### Second, Assign the IP Address and Other TCP/IP Parameters to the NIC

If you have a DHCP server, the NIC will retrieve an IP address automatically from the network server when you turn on the printer. Here we provide instructions for using BOOTP Lite to set the IP address manually. You can also use ARP/ping commands if you prefer.

**note:** For information about using the ARP command or DHCP to set the IP address, see the *More Windows Information* section, beginning on page xx.

1. Launch BOOTP Lite.
  - a. Insert the 4400 XXXX CD.
  - b. Press the Windows **Start** button and select **Run**.
  - c. Type `<Drive>:\BOOTP\BOOTPL32.EXE` and click **OK** to launch the utility.
2. Select Configure from the Admin menu.
  - a. Enter the IP address to assign to the NIC.
  - b. Enter the subnet mask. If you are unsure of the correct subnet mask, and the first number in the NIC's address is from 192 to 254, then use 255 . 255 . 255 . 0 as the subnet mask.
  - c. Enter the default gateway address (if applicable) or leave blank.
  - d. Enter the hardware address of the NIC. This address is listed on the Network Settings page under Network Address, for example, 00:40:af:c9:f0:d8. Enter it exactly as it appears on the Network Settings page.
3. Click on Go to send the new settings to the NIC.

After a few minutes (usually between 1 and 2 minutes, but possibly up to 5 minutes on very large or busy networks), the NIC will reset and print its Network Settings page. The new IP settings will be listed in the TCP/IP Network Information section of the Network Settings page.

If the new IP address does not appear on the Network Settings page under "Protocol Address," you may have entered the hardware address incorrectly in BOOTP Lite. Repeat Steps 2 and 3, and check the IP address on the new Network Settings page.

The new IP address can also be verified in BootP Lite by turning the printer off and on, and selecting **Verify** from the Admin menu. It should report that the **Unit is Active**.

## TCP/IP Setup in Windows for Workgroups

Accessing the 4400 network printer from Windows for Workgroups is supported in Microsoft Shared printing or over a NetWare network.

### First, Install the TCP/IP Protocol

You must obtain from Microsoft a special TCP/IP protocol stack that is compatible with Windows for Workgroups. Follow the instructions provided with that utility to install it.

### Second, Assign the IP Address and Other TCP/IP Parameters to the NIC **DELETE XXX???**

Here we provide instructions for using BOOTP Lite to set the IP address manually. You can also use ARP/ping commands if you prefer.

**note:** For information about using the ARP command to set the IP address, see page xx.

1. Launch BOOTP Lite.
  - a. Insert the 4400 *Network Options CD*.
  - b. In the Windows **Program Manager** window, select **Run** from the File menu.
  - c. Type **<Drive>:\BOOTP\BOOTPL16.EXE** and click **OK** to launch the utility.

**note:** The **BOOTPL16.EXE** program will work with a 16 Bit TCP/IP Stack only.
2. Select Configure from the Admin menu.
  - a. Enter the IP address to assign to the NIC.
  - b. Enter the subnet mask. If you are unsure of the correct subnet mask, and the first number in the NIC's address is from 192 to 254, then use 255 . 255 . 255 . 0 as the subnet mask.
  - c. Enter the default gateway address (if applicable) or leave blank.
  - d. Enter the hardware address of the NIC. This address is listed on the Network Settings page under Network Address, for example, 00:40:af:c9:f0:d8. Enter it exactly as it appears on the Network Settings page.
3. Click on Go to send the new settings to the NIC.

You will get a message that the program is verifying, and then it will tell you whether the printer is active or not. Wait for about two minutes for the printer and NIC to reset. The Network Settings page should report the newly entered IP information.
4. Verify Operation

Start an MS-DOS session. At the command prompt enter: **ping** <IP address of NIC> (continue until you get a reply). If you are getting a timeout, verify that TCP/IP is enabled on the Network Settings page. If the Network Settings page does not show the IP information, then repeat the above procedures.

## Windows Peer to Peer Printing Setup

Peer to peer printing allows Windows 95/98 computers to print directly to a networked printer without an intervening file server. Below are the main features of peer to peer printing.

- Runs on Windows 95/98 and workstations or servers “out of the box.”
- Runs on networks with or without a NetWare file server.
- Implements peer to peer direct printing between Windows computers and networked printers.
- You can configure network printers the same way you configure printers directly attached to a computer.

**note:** In isolated, serverless networks, the NIC should be used with its factory default settings.

### IP vs. IPX Peer to Peer Printing

Your network configuration will dictate whether IP or IPX is more appropriate. However, we recommend you use IP peer to peer printing if possible.

**For IP Peer to Peer Printing:** You must install *P2P-IP*. This protocol allows you to access the network printer over an IP network. The Microsoft TCP/IP protocol stack must also be installed and properly configured on your workstation. The network and the network print servers must support IP.

**For IPX Peer to Peer Printing:** You must install *PeerToPeer-IPX*. It is not necessary to have a NetWare file server on the network to use this IPX protocol.

### First, Install Peer to Peer Software

Follow these steps to install the correct software.

1. Insert the 4400 *xxxx CD* into the drive.
2. In Windows 95/98, press the **Start** button and select **Run**.
3. At Run, type: `xxxx???`  
`<drive>:\IP-P2P\SETUP.EXE` (for IP), or,  
`<drive>:\IPX-P2P\SETUP.EXE` (for IPX)
4. Then click **OK**. Follow the Install wizard prompts. When installation is complete, click **OK**.

### Second, Add the Peer to Peer Printer in Windows

1. In Windows 95/98, press the **Start** button, select **Settings**, then select **Printers**.
2. In the Printers window, double-click **Add Printer**. This launches the Add Printer wizard which prompts you to make selections.

**note:** SuperScript 4400 printer drivers are provided on the *Solutions CD* that comes with the 4400 printer.

When the Add Printer wizard asks how the printer is attached, select **Local printer**.

Specify **NEC** as the Manufacturer and **NEC SuperScript 4400** as the Printer.

3. Your peer to peer network printer will be listed under local printer ports and identified using the NIC serial number. For example, `NEC_911499`.  
Select your new peer to peer printer.
4. Continue responding to the Add Printer wizard until the process is complete.

### Moving a Peer to Peer Printer

If you move your printer to a new network, you must restore the NIC to its factory defaults (see page xx). If you have changed your printer's name, it will revert to its original factory name.

## Removing Peer to Peer Software

You should delete all printers which have been installed to use peer to peer printing before you delete the peer to peer software. Follow these steps.

1. Press the Windows **Start** button, select **Settings**, then select **Printers**.
2. In the Printers window, select a printer to delete.
3. Select **Delete** from the **File** menu.

### Removing P2P-IP

To remove the IP peer to peer software from your computer, use the **Add/Remove Programs** control panel.

1. Press the Windows **Start** button, select **Settings**, then select **Control Panel**.
2. Open **Add/Remove Programs**. Select **P2P-IP** in the list and click **Remove**.

### Removing PeerToPeer-IPX

To remove the IPX peer to peer software from your computer, use the *PeerToPeer-IPX* Uninstall program. Follow these steps.

1. Insert the 4400 *xxxxx CD* into the drive.
2. Press the Windows **Start** button and select **Run**.
3. At Run, type: `xxx???`

```
<drive>:\IPX-P2P\UNINSTAL.EXE
```

Then click **OK**.

Follow the Uninstall wizard prompts. When removal is complete, click **OK**.

## Setting lpr Printing on an NT Network

The following procedure can be used to set up the lpr spooler for a Windows NT 4.0 workstation/server.

1. In the Windows **Network** control panel, install the **Microsoft TCP/IP Printing** service.
2. Use the Windows **Add Printer** wizard to install the SuperScript 4400 printer driver for Windows NT 4.0.  
**note:** SuperScript 4400 printer drivers are provided on the *Solutions CD* that comes with the 4400 printer.
3. In Windows NT 4.0, click the **Start** button, select **Settings**, then select **Printers**.
4. Select the **NEC SuperScript 4400** printer icon, and then select **Properties** from the File menu.
5. Click on the **Ports** tab (the SuperScript 4400 driver installs to LPT1 by default).
6. Then select **Add Port**.
7. Under **Available Printer Port** select **LPR Port** and click the **New Port** button.
8. In the **Name or address of server providing lpd** field, enter the IP (Protocol) address of the printer, for example, 128.191.184.50. Then click **OK**.
9. In the **Name of printer or print queue on that server** field, enter **PORT1** (the word "PORT" must be in uppercase). Click **OK**, then click **Close** to assign that newly created port to the SuperScript 4400.
10. Click on the **Sharing** tab in the **NEC SuperScript 4400 Properties** window.
11. Click on the radio button **Shared** and enter a name for your SuperScript 4400 printer.
12. Click **OK** to apply these settings to your printer.

## SDynamic Host Configuration Protocol

Dynamic Host Configuration Protocol (DHCP) allows automatic assignment of IP address and other IP parameters for attached devices. The NIC works with DHCP in the following way.

At power-up, the NIC broadcasts a DHCP request for an IP address. If a DHCP server is present, the request will be processed, and an IP address will be returned to the NIC. Upon receipt of the IP address, the NIC resets, and prints a Network Settings page. This shows the new IP address (and subnet mask, and default gateway, if any). *Under factory default settings, once an IP address has been assigned to it, the NIC will no longer broadcast DHCP requests. Therefore, NIC IP address assignment with DHCP will only work when the NIC does not have an existing IP address.*

The DHCP server may grant a temporary IP address, called a temporary lease or temporary reservation, which expires later, or may grant a permanent or unlimited lease or reservation which does not expire.

Devices that are granted a temporary lease will be notified before the lease expires and asked if they would like to extend the lease. The NIC will continue extending its lease indefinitely (unless prohibited by your DHCP server configuration), and thus maintain a consistent IP address.

**Important:** *If the NIC is not turned on or is not connected to the network when the DHCP server is sending requests to extend the lease, the lease will not be extended. The DHCP server will cancel the lease and may assign the IP address to another device. Therefore, it is highly recommended to explicitly specify the NIC lease as permanent or unlimited in your DHCP server configuration.*

### DHCP Settings in the NIC Configuration Menu

You can control the way the NIC handles DHCP from the Network Administration Page. To go there,

1. Enter this URL  
**http://<IP address>/configure.html.**  
For example,  
http://155.100.100.2/configure.html.
2. Under Protocols, click **Setup TCP/IP**. The two DHCP Settings are shown here.

DHCP Settings	
Enable DHCP	<input checked="" type="checkbox"/>
IP Address in NVRAM:	<input checked="" type="checkbox"/>

The factory default is that both settings are **checked**.

If there is not an IP address already stored in NVRAM, the NIC will make a DHCP request. If there is an IP address, it will not.

When **Enable DHCP** is **not checked**, the NIC will not make DHCP requests.

When **IP Address in NVRAM** is **not checked**, the NIC will always make a new DHCP address request at startup, regardless of whether or not it has an IP address stored in NVRAM.

# NETWARE 4.X

## Using NWADMIN

### First, Attach the Printer

1. Log in to NetWare 4.x with administrator rights and open the NetWare Administrator window.
2. Create Printer Object.
  - a. Highlight the Organizational Unit or Organization where you want to create the print service in the Directory Tree. From the Object menu, select **Create**.
  - b. In the New Object window that appears, scroll down the **Class of New Object** list, select the **Printer** icon and click the **OK** button.
  - c. When the **Create Printer** window appears, type a name in the **Printer Name** field and click on the **Create** button.
3. Create Print Server Object.
  - a. Highlight the Organizational Unit. From the Object menu, select **Create**.
  - b. In the New Object window appears, scroll down the **Class of New Object** list, select the **Print Server** icon, and click the **OK** button.
  - c. At the Create Print Server window, type a name in the **Print Server Name** field and click the **Create** button.

**note:** The Print Server name you enter should match the name shown on the Network Settings page under Novell Network Information.
4. Create Print Queue Object.
  - a. Highlight the Organizational Unit. From the Object menu, select **Create**.
  - b. In the New Object window that appears, scroll down the **Class of New Object** list, select the **Print Queue** icon, and click the **OK** button.
  - c. At the **Create Print Queue** window, click the **Directory Service Queue** button, then type in a name for **Print Queue Name**.
  - d. Click the icon to the right of **Print Queue Volume** field to display the browser, and select a specific **Print Queue Volume** (or type the name in the field).
  - e. Click the **Create** button.
5. Assign Printer Object
  - a. In the Directory Tree, double click on the printer object just created to open its Printer window. Click on the **Assignments** button on the right-side of the window and click on the **Add** button.
  - b. In the Select Object window that appears, find the print queue object just created among the choices listed in the Objects box and select it by clicking on it.
  - c. Click on the **OK** button and the print queue is added to the **Print Queues:** box in the **Printer:** window. Click on the **OK** button again.
6. Assign Print Server Object
  - a. In the Directory Tree, double-click on the print server object you just created to open its **Print Server** window.
  - b. In the **Print Server** window that appears, click on the **Assignments** button and **Add** button to bring up the **Select Object** window. Select the printer object just created from the **Objects** box and click on the **OK** button. Now the printer (with its context) appears in the **Printers:** box of the **Print Server** window. Click on the **OK** button.
7. Check Assignments
  - a. At the **Directory Tree**, double click on the **Print Queue** object you just created. At the **Print Queue** window, click on the **Assignments** button.
  - b. If you configured the print queue and printer correctly they will appear in the proper boxes on the **Print Queue** window. Press the **Cancel** button.

## Second, Install the Printer Driver

In Windows, use the **Add Printer** feature to install and configure a SuperScript 4400 printer driver in each workstation that will access the network printer.

**note:** SuperScript 4400 printer drivers are on the *Solutions CD* that comes with the printer.

Specify that the printer will be attached as a **Network Printer**, and set the **Port** to the printer queue you just created. (The Windows NT 4.0 driver installs automatically to **LPT1:**. After installation, you can manually reset the port to your NetWare queue.)

## Third, use MAP and the NIC Configuration Menu to Configure the NIC

Now you must specify the **Print Server Name**, **Preferred NDS Context**, and **Preferred NDS Tree** using the NIC Configuration Menu network administration options. Continue with the instructions below, to do this.

1. Run MAP.
  - a. If you have not yet installed MAP, follow the instructions on page xx.
  - b. In Windows 95/98 or Windows NT 4.0, click the **Start** button. Select **MAP** from the program group you specified during installation. When MAP starts, a list of all available units on the network is displayed by unit serial number.
2. Select the NIC to configure.
  - a. Click on a NIC in the list to display its NIC Configuration Menu.
 

**note:** You can also use a web browser such as Netscape Navigator or Internet Explorer, to access the NIC Configuration Menu. Enter the NIC's IP address as the URL, for example, `http://131.241.54.16`. The IP address is listed as "Protocol Address" on the Network Settings page.
3. NetWare 4.x (NDS) Configuration
  - a. On the NIC Configuration Menu, click the **Network Administration** button to display options for configuring the NIC.
  - b. Click on **NetWare Setup** in the Protocols column.
  - c. In the NetWare Configuration dialog box that appears, enter a name in the **Print Server Name** field, enter a name in the **Preferred NDS Context** field, and enter a name in the **Preferred NDS Tree** field. (Leave the Preferred File Server field blank.)
  - d. Enter the **password** and click on the **Accept Settings** button. (The default password is *sysadm*.)
4. Confirm Successful Configuration.
  - a. In the Systems column, click on **Reset**.  
After the Reset, the program advises waiting 2 minutes before reconnecting, but the NIC may be available sooner.
  - b. Go back to the NIC Configuration Menu, click the **Network Administration** button. Then, in the System column, click on **Unit Status**.
  - c. In the dialog box that appears, scroll down to display the NetWare Status. The Queue Status should be **Attached**.
  - d. If the Queue Status is not shown as **Attached**, please verify that the entries for Print Server Name, Preferred NDS Context, and Print Server Password match those defined in NWADMIN.

## NETWARE 3.X

Complete these basic tasks to configure NetWare 3.x bindery-based services for your printer.

1. Log in to NetWare 3.x with Administrator rights and start PCONSOLE.
2. Define the Print Queue.
  - a. Select **Print Queue Information** from the Available Options menu and press ENTER.
  - b. Press INSERT, type a name for the new queue to be serviced by the NIC and press ENTER. Press ESCAPE to return to the Available Options Menu.
3. Define the Print Server.
  - a. Select **Print Server Information** from the Available Options menu and press ENTER.
  - b. Press INSERT, type the NIC Print Server Name and press ENTER.

**note:** The Print Server Name you enter should match the name shown on the Network Settings page under Novell Network Information.
4. Define the Printer.
  - a. Press ENTER with the new Print Server Highlighted, select **Print Server Configuration** and press ENTER, then select **Printer Configuration** and press ENTER.
  - b. In the Configured Printers list, select an unused printer number and press ENTER. In the Printer <#> Configuration screen, define a new name for the printer if desired. (The printer name is displayed in various NetWare printing messages.)
  - c. Press ESCAPE to exit and select **Yes** to save the changes. Press ESCAPE again to return to the Printer Server Configuration menu.

5. Assign the Print Queue.
  - a. Select **Queues Serviced By Printer** and press ENTER. Highlight the desired printer on the Defined Printers list and press ENTER.
  - b. Press INSERT to display the Available Queues list. Select the desired queue and press ENTER. Assign a Priority level (recommended choice is 1) and press ENTER.
  - c. Press Alt-F10 to exit PCONSOLE.
6. Confirm Successful Configuration.
  - a. Turn the printer off and on and wait for a Network Settings page to print. If the network is large, this may take several minutes.
  - b. The Novell Connection Information area on the Network Settings page displays the printer name, file server, queue, etc. If it displays **Attached: Yes**, this confirms that the NIC Print Server is ready to accept print jobs. If not, verify that the Print Server name matches exactly the Print Server name that was entered in PCONSOLE.

#### 7. Install and Configure Your Printer Driver

In Windows, use the **Add Printer** feature to install and configure a SuperScript 4400 printer driver in each workstation that will access the network printer.

**note:** SuperScript 4400 printer drivers are on the *Solutions CD* that comes with the printer.

Specify that the printer will be attached as a **Network Printer**, and set the **Port** to the printer queue you just created. (The Windows NT 4.0 driver installs automatically to **LPT1:**. After installation, you can manually reset the port to your NetWare queue.)

## MAC OS

### Installing SuperScript 4400 MacOS Software

1. Insert the 4400 *xxx* CD in your drive and double-click the **SuperScript 4400 Installer** icon.
2. The installer prompts you to select installation preferences and creates the SuperScript 4400 Folder on your hard drive.

### Choosing the Printer

1. Select **Chooser** from the Apple menu and make sure the AppleTalk **Active** button is selected.
2. In the Chooser, select the *xxx* printer icon, select the AppleTalk zone your printer is on, then select the printer's name *xxx* in the printer list.

### Configuring the PPD

1. Click the Setup button in the Chooser.
2. In the Setup dialog box, click Auto Setup. The driver will attempt to determine the correct PPD (PostScript Printer Description) file to associate with the printer.
3. In the Printer Descriptions dialog box, select NCSS4400.PPD *xxx*? and click **Select**.
4. When the Setup dialog box reappears, click the Configure button.
5. In the Configure dialog box, use the pull down menus to specify options currently installed in your printer.

## UNIX

Here we provide basic instructions for installing the printer on your UNIX system in Solaris 2.x and SCO. For additional information, refer to your operating system administration manuals.

### First, Configure the IP Address on the NIC

The printer NIC must be assigned an IP address and routing parameters. We suggest you use the instructions on page xx for using the printer Operator Panel to set the Net (IP) Address.

### Second, Set Up Your Printing Mode

Use these instructions to set up printer-based lpd for SCO UNIX remote printers and Solaris 2.x.

#### Installing the Printer in Your System

lpd is an implementation of the standard UNIX line printer daemon which lets you print across a TCP/IP network, without the need to install software on your workstation, and with all filtering and banners done by the NIC. Remote printing uses the same commands (lpr, lpq, lpc) as local printing.

The process begins when the lpr call finds a printer on a remote system by looking at the remote (rm) entry in the /etc/printcap file for that printer. lpr handles a print job for a remote printer by opening a connection with the lpd process on the remote system and sending the data file (followed by the control file containing control information for this job) to the remote system. The printer-based lpd then filters the data and prints the job according to information contained in the control file and its own printcap file.

The following sections give specific lpd setup instructions for various systems. You must log in as a *superuser* in order to execute the commands.

#### Adding a SuperScript 4400N to Solaris 2.x

Log into your system as root. Add the printer's IP address you already assigned into the /etc/hosts file. Using lpsystem: follow these steps to open a terminal and enter the printer's IP address from the command line.

1. **lpsystem -t bsd** <IP address of printer> [ENTER]  
Enter the NIC print server host name from the /etc/hosts file. Your system may want its IP address instead of the remote host name.
2. **lpadmin -p** <printername> **-s** <remote host name or IP address> **!PORT1** [ENTER]  
**note:** There is no space after the remote host name.
3. **Enable**<printername> [ENTER]
4. **Accept**<printername> [ENTER]

Then, make sure that the printer content type is set to PS" by typing lpstat -p -l to display the current printer settings. If it is not set to PS, type the following on the command line to change the printer settings.

5. **lpadmin -p** <printername> **-I ps** [ENTER]
6. **lpadmin -p** <printername> **-T PS** [ENTER]

To test that the printer was installed into the system, send a print job using any application in your operating system. Make sure that the printer you choose is the SuperScript 4400N that you installed earlier.

## Adding a SuperScript 4400N to SCO

Log into your system as root. Add the printer's IP address you already assigned into the `/etc/hosts` file. Using `lpsystem`: follow these steps to open a terminal and enter the printer's IP address from the command line.

1. Set up the SuperScript 4400 printer with the NIC as a remote printer on a host that sends jobs to a Print Server using `lpd`. Use the following procedures to do this:

At the prompt, type: **`mkdev rlp`**

**note:** You cannot run `mkdev rlp` twice. If you have additional printers to be configured, use the `rlpconf` command.

2. You will now be asked a series of questions. Respond as follows. Do you want to install or remove a remote printer? Type: **`I`**
3. Do you want to change printer description file `/etc/printcap`? Type: **`Y`**
4. Write a printer name. For example, type: **`lprprinter1`**
5. Is `lprprinter1` a remote printer or a local printer? Type: **`R`**
6. Enter remote host name: type host name entered in `printcap` for the NIC. For example, type: **`lprprinter`**
7. Confirm the information you have entered. Type: **`Y`**
8. Confirm the preceding connection as your system default. Type: **`Y`**
9. Enter another printer name or quit setup. Type: **`Q`**
10. Do you want to start the remote daemon now? Type: **`Y`**
11. Using a line editor of your choice, verify the following on your `/etc/printcap` file.

```
lprprinter1:\
:lp=\
:rm=lprprinter:\
:rp=PORT1:\
:sd=/usr/spool/lpd/lprprinter1:
```

12. Change the `:rp=lprprinter:` entry to `:rp=PORT1`.
13. Set this printer as the default printer and print a page, for example, from a browser, to verify that the installation was successful.

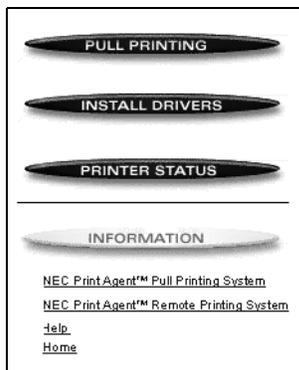
**note:** This information was based on the sample input in the earlier steps. Actual parameters may vary depending on prior setup.

## WEB-BASED PRINTING

### OVERVIEW

The NEC PrintAgent is innovative software that allows you to print over the web in two ways, Remote Printing and Pull Printing. The NEC PrintAgent is powered by Redips® Core software, and available just by browsing to your Printer Home Page.

#### Printer Home Page Features



The URL is the IP address or host name you assign to the Printer, for example, <http://131.241.45.65>

## NEC PrintAgent Remote Printing

Remote Printing is the easiest way for Windows 95/98 users to print over the web and get instant printer status at your desktop. You can print to any SuperScript 4400N printer anywhere, as long as you have its URL.

All you do is browse to the printer's Home Page and download/install the NEC PrintAgent software to your system. When you print with that special driver, the job goes over the web to the printer, and printer status comes back to your desktop on the PrintAgent window. The first part of this chapter covers the following topics about Remote Printing.

- System Requirements
- Easy Remote Printing Setup
- Remote Printing From Your Desktop
- Getting Printer Status
- PrintAgent Features

## NEC PrintAgent Pull Printing

Pull Printing is an ideal solution for busy offices that print long, complex, or color rich documents. With Pull Printing, your job is sent to a Pull Printing server to be processed. Then the Pull Printing server delivers the job to the printer. This frees your computer faster, and reduces network traffic. You can also set up a secondary server to deliver printer Help files and drivers to users, making the printer more efficient.

Pull Printing is also called "driverless" printing because you don't need a SuperScript 4400 printer driver on your system. You can pull print any Microsoft Office 97, .PDF file, or web page without opening it— just by sending its location to the Pull Printing server. The server does all the work and leaves your computer free for other tasks. The second part of this chapter covers the following topics about Pull Printing.

- System Requirements
- Server Installation
- Configuring URLs
- Changing PWS settings
- Starting the Pull Printing Server
- Pull Printing from Your Desktop

## System Requirements

You must have on your computer

- Microsoft Internet Explorer 4.01 SP1.
- A Windows 95/98 operating system.

## Easy Remote Printing Setup

First, you or the system administrator must set the IP Address on the printer. For instructions, see page 73.

Once the IP address is assigned to the printer, you can go to the Printer Home Page to download and install the NEC PrintAgent software and driver.

1. Launch your web browser.
2. Enter Printer's IP Address as the URL to reach the Printer Home Page.
3. Click on the **Install Drivers** button to download PrintAgent software.
4. In the File Download dialog box that appears, check **Run this program from its current location.** and then click **OK** to begin downloading and installing.
5. During installation, you will be prompted to enter the URL (IP Address) of your printer so it can be added to your system as the default printer. When installation is finished, you can see the special NEC PrintAgent

driver by selecting **Settings** and then **Printers** from the Windows Start menu.

### The Printers Window



- Restart for the new Driver to take effect.

**note:** You can also install Remote Printing software from the *SuperScript 4400 Series CD*.

## Remote Printing From Your Desktop

Now you can print as usual from your applications—just select **Print** from the File menu. The jobs will be sent to the printer using browser technology, and you can receive instant Printer Status reports.

### Getting Printer Status

When you send a print job, the PrintAgent window opens automatically with status information. The animated printer image shows the printer status.

**Eyebrows Moving:** The Status Monitor and the printer are successfully communicating.

**Eyebrows Stop, Printer Looks Sad:** Check the power to the printer.

**Pages Printing Out:** The printer is printing.

**Printer Sleeping:** The printer is warming up.

Critical messages, such as PAPER TRAY EMPTY, OUT OF TONER, or TOP COVER OPEN, will interrupt a print job. These are shown with a descriptive image and an error message in the text field. Non-critical messages, such as LOW TONER and some service errors, will appear only in the text field.

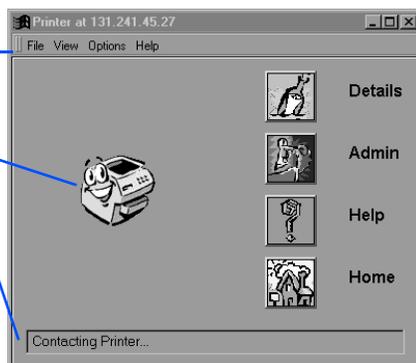
### Getting Help

When a message is present in the PrintAgent window, press the **Help** button for more details or instructions. When no messages are present, clicking on the Help button displays the Help Index.

### The PrintAgent Window

Window Menus

Printer Status Reports Here



## PRINTAGENT FEATURES

In addition to providing printer status and Help, PrintAgent buttons and menus provide access to the features described below.

### Details Button

Click this to view more information about the printer. Tray information, emulations, pages per minute, and printer IP address are available. Service messages are described in more detail.

### Home Button

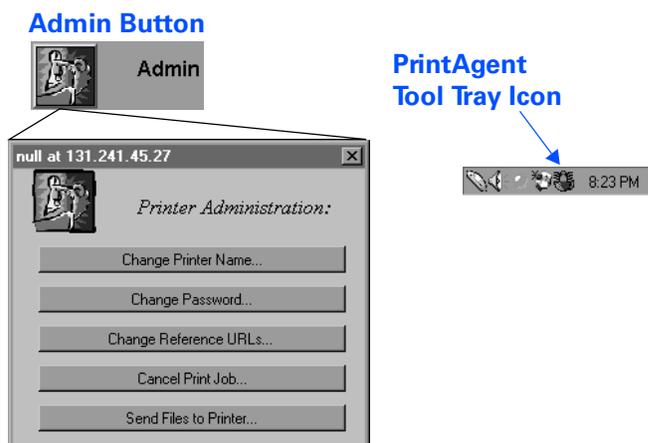
Click this to display a web page specified by your administrator—possibly the manufacturer's home page or the printer's home page.

### Admin Button

Click this to perform administrative functions, including, changing the printer name, password, changing the reference URLs, cancelling a print job, or sending files to the printer. You must enter the Administration Password. The default password is **Seattle**.

### Help Button

When a message is present in the PrintAgent window, press the **Help** button for more details or instructions. When no messages are present, clicking on the Help button displays the Help Index



## PrintAgent Program Menus

PrintAgent program menus are available two ways.

- In Windows 95/98, press the **Start** button, select **Programs**, and select **NEC PrintAgent System** to display PrintAgent commands.
- Once you have started the PrintAgent, you can click on the PrintAgent icon (the green spider in the coffee cup) in the Tool Tray at the bottom right corner of your Windows 95/98 desktop.

Menu commands are described below.

### Start

PrintAgent starts automatically when you try to print or use the property pages. Keeping it running speeds print time because you won't have to wait for PrintAgent to start up every time you print. To monitor the printer status, PrintAgent must be running. To start PrintAgent, press the Windows **Start** button, select **Programs**, and select **NEC PrintAgent System** to display PrintAgent commands. Choose **Start**. A red spider in a coffee cup appears in the Windows Tool Tray in the lower right-hand corner of the screen. If the spider doesn't turn green after five seconds, PrintAgent did not launch properly. Restart your computer and try again.

### Stop

To stop PrintAgent, select **Stop** from the Tool Tray menu or Program menu.

### Monitor a Printer

Select this from the Tool Tray menu to monitor any 4400N PrintAgent printer on your network.

### Add Printers

Once the PrintAgent software is installed, you can add any 4400N printer to your system. Select **Add Printer**, enter the **URL** of the 4400N printer and click **Install**.

If you get a message box indicating that the PrintAgent could not access the printer, first verify that the URL you typed is correct. An easy way to verify a correct URL is to try adding the printer again.

If the URL was correct and PrintAgent still cannot establish communication, click on the **Network Properties** button in the Add Printer dialog box and check your proxy settings. If you are trying to reach a printer using a proxy server, you must check the **Default Proxy host and port** box, then enter your proxy host and port. To reach a printer without using a proxy, you must either de-select the **Default Proxy host and port** checkbox, or enter the URL or domain name in the **No Proxy For** text area.

If PrintAgent is still unable to establish communication with the printer, go to the Printer's Home Page using your Web browser. If the proxy settings are correct in the browser and the Web page is not found, the problem is with the printer, and you should contact the network administrator.

### Remove Printers

To remove a PrintAgent printer, select **Remove Printer**. In the Printer Selection dialog box that appears, select the printer you wish to remove and press **OK**. Reset the PrintAgent for the removal to take effect.

### Reset

If there are any communications or animation problems and the printer has power, select **Reset** and see if that resolves the problem.

### About

Select this to view copyright and version information.

### uninstall

To uninstall the NEC PrintAgent System, including all PrintAgent printers and the NEC PrintAgent System, press the Windows **Start** button, select **Programs**, and select **NEC PrintAgent System** to display PrintAgent commands. Choose **Uninstall**. Respond **Yes** to the confirmation dialog boxes, and PrintAgent will be removed from your computer.

## PrintAgent Window Menus

The menu bar at the top of the PrintAgent window provides several options for configuring the PrintAgent and managing print jobs.

### File Menu

Select **Cancel Print Job** to cancel the job currently being monitored.

Select **Print PostScript File** to display a browser for selecting a PostScript file to transfer to the printer.

Select **Print Queue** to display the Print Queue window to view and delete jobs.

Select **Exit** to quit the PrintAgent program.

### View Menu

Select options from this menu to view **Text Only**, **Text and Animation**, or **Full View** of the PrintAgent window.

### Options Menu

Select **General** to display a dialog box for setting preferences about version updates, Status Monitor frequency and display, and the web browser path.

Select **Network** to display a dialog box for setting preferences about proxy host, port, domain, and host name.

### Help Menu

Select **Index** to display a list of online Help topics.

Select **About** to view information about copyright, manufacturer model number, and software version.

## PULL PRINTING

This section shows system administrators how to configure a Pull Printing Server to support clients.

### Server System Requirements

Prior to server installation, the Pull Printing Server must **already** have installed

- A Windows 95 operating system.
- Microsoft Office 97
- Microsoft's Personal Web Server, which you can obtain from Microsoft at this URL:  
<http://www.microsoft.com/ie/pws>
- Internet Explorer 4.01 (this is available on the *SuperScript 4400 Series CD*)

Then, to use Pull Printing, you must

1. Set the IP Address on the printer. For instructions, see page 73.
2. Install the NEC PrintAgent core software, Pull Printing Server and/or Secondary File Server software.
3. Configure URLs.
4. Configure Personal Web Server (PWS) settings.

This section also provides instructions for

- Setting Local User's Web Browser Preferences (optional).
- Pull Printing from Your Desktop

### PrintAgent Core and Server Installation

You must install the NEC PrintAgent core software, and the Pull Printing Server software. You can also install the Secondary File Server software. You can install all three at once using the Administrator Setup option. Follow these steps.

1. Insert the *SuperScript 4400 Series CD* into the CD-ROM drive. The Installer will launch automatically.
2. When prompted, select the **Administrator** setup option and click **Next**.
3. When the Components list is displayed, select **PrintAgent** and click the **Change** button.
4. In the sub-components list, make sure that **PrintAgent**, **Pull Printing Server**, and optionally, **Secondary File Server** are selected. Then click **Continue**.
5. Continue responding to the selections displayed in the installation dialog boxes.
6. When installation is complete, restart Windows.

**note:** You can also install the PrintAgent Pull Printing Server, and Secondary File Server software from links on the URL Configuration Page.

### About the Secondary File Server

The NEC PrintAgent Driver, Help files, and the PrintAgent Core software reside on the printer. However, you have the option of putting these files on a secondary server and then changing the URLs to point to that server. This frees the printer to process print jobs.

When Secondary File Server installation is complete, the PrintAgent core files have been copied into the **htdocs** directory, so the Secondary File Server is ready to respond to file transfer requests. However, if you want the Secondary File Server to deliver the Online Help, you must manually copy the Help files from

**E:\nec-disk\ncss44rn\help**, to  
**inetpub\htdocs\ncss44rn\help**, (keeping the directory structures intact).

**note:** You can also install the Secondary Server Software from a link on the URL Configuration Page.

### Starting the Pull Printing Server

When a client opens the Pull Printing Page, the associated Pull Printing Server is automatically activated. You can also launch it by pressing the Windows **Start** button, selecting **Programs**, selecting **Pull Printing Server**, and then selecting **Start**.

## Configuring URLs

Once the IP address is assigned to the printer, you can go to the printer URL Configuration Page to set URLs for the server(s).

1. Launch your web browser and enter this URL  
<http://<Printer IP Address>/configure.html>  
 This displays the printer's URL Configuration Page.
2. In the Pull Print Server text field, enter the IP Address of the Pull Printing Server as its URL.  
 Pull Printing will NOT work unless the Pull Print Server URL has been entered. The Driver, Help files, and the PrintAgent core software reside on the printer, which is identified as **localhost**. However, you have the option of putting these files on a Secondary File Server and then changing the URLs to point to that server.

### URL Configuration Page

Install Pull Printing Server and Secondary File Server software from the SuperScript 4400 Series CD. You can also download them by clicking these links.

You must enter a URL for the Pull Printing Server [REDO SCREENSHOT]

Address <http://131.241.45.27/configure.html> Links

# NEC

## Configure Printer

*NEC Print Agent URL's  
Network Interface Card*

### Server Installs

[Print Agent Secondary File Server](#)  
[Print Agent Driverless Printing Server](#)

### Information

SuperScript 4400  
Pull Printing Info  
Help  
Home

**Enter WWW Server URL's in the fields below**

**Driver URL:** Print Agent printer driver installation file

**Home URL:** Manufactures home page

**Help URL:** Root of Printer's help files

**RedipS Core URL:** Print Agent core install program

**Pull Print Server:** Driverless printing server

Submit values to printer

**note:** To specify the printer as the file source, you must enter **localhost** in the text field, (not the printer's IP address).

3. If you have a Secondary File Server, enter its IP Address as URL for the Driver, Help files, and PrintAgent software.
4. You can also specify any URL as the Home page for clients.
5. Click on the **Submit Values to Printer** button.

**note:** Printer URLs can use either the printer's IP Address, or the printer's Domain Server Name (DSN), if one has been assigned. For example:  
<http://4400NSecondFloor/configure.html>.

## Changing PWS Settings

This section describes changes you must make to Microsoft's Personal Web Server for it to work as a Pull Printing Server. You will need to

- Set the home directory
- Add two virtual directories.

### Setting the Home directory

1. If there is a Personal Web Server icon in the tool tray (lower right-hand corner of your screen), double-click the icon to bring up the Personal Web Manager. Otherwise, press the Windows **Start** button, select **Programs**, select **Microsoft Personal Web Server**, and select the **Personal Web Manager**.
2. Click on the **Advanced** button located on the left-hand side of the screen.
3. In the Virtual Directories groupbox, highlight **Home** and click the **Edit Properties** button.
4. You need to select the `htdocs` directory as your home directory. If you already have an `htdocs` directory, specify it as your home directory. If not, the Installation Program for the Pull Printing Server added one for you under your Personal Web Server's root directory (i.e. `C:\Inetpub\`). Enter that as the path to the `htdocs` directory, i.e.,  
`C:\Inetpub\htdocs`  
**note:** If you were previously using the Personal Web Server as a web server, you must move any files you need from your original home directory to the `htdocs` directory.
5. In the Access groupbox, select **Read** and **Scripts** and de-select **Execute**.

## Adding Virtual Directories

If you already have a cgi-bin directory at the same level as the htdocs directory, and a virtual directory called cgi-bin which points to the cgi-bin directory, you can skip the first five steps below.

If the Pull Printing Server Installation Program did not detect a cgi-bin directory on the same level as the htdocs directory, a cgi-bin directory was added for you.

Follow the steps below create a virtual directory which points to the cgi-bin directory.

1. Click the **Add** button in Advanced Options.
2. Enter the fully qualified path of your cgi-bin directory (e.g. C:\Inetpub\cgi-bin).
3. Enter cgi-bin as the Alias.
4. In the Access groupbox, select **Read** and **Execute** and de-select **Scripts**.
5. Click **OK**.

You will now add a wwwprnt virtual directory.

1. Click the **Add** button in Advanced Options.
2. Enter the path to your wwwprnt directory. This is located in your \windows\system directory.
3. Enter wwwprnt as the Alias.
4. In the Access groupbox, select **Read** and de-select **Scripts** and **Execute**.
5. Click **OK**.
6. Exit the Personal Web Manager.

### Modifying the Registry Entry

If Pull Printing clients are experiencing problems getting status information, and there is a Proxy server between the Pull Printing Server and those clients, you should make the following registry changes in the Personal Web Server.

1. Press the Windows **Start** button, select **Run**, and enter **regedit** to run the Registry Editor.
2. Go to **HKEY\_LOCAL\_MACHINE\System**  
**\CurrentControlSet\Services**  
**\W3SVC\Parameters**.
3. On the right side of the Registry Editor, if you find a registry named **ReplyWithHTTP1.1**,
  - a. Right-click on the registry name and choose **Modify**.
  - b. Change the Data Value to **0**, and click **OK** to save the change.
4. If you cannot find the registry named **ReplyWithHTTP1.1**, add the registry, using these steps
  - a. On the left side of the Registry Editor, right-click on the **Parameters** folder and select **New\DWORD Value**.
  - b. Set the registry name to **ReplyWithHTTP1** and the Data Value to **0**.
5. Close the Registry Editor and restart the Personal Web Server.

If you do modify the registry, those users accessing the Pull Printing Server without going through the proxy must turn off HTTP1.1. Follow these steps.

1. In Internet Explorer 4.01, select **Internet Options** from the View menu.
2. Click on the **Advanced** Tab.
3. Deselect **HTTP1.1**.

### Plug Ins

If you have Microsoft Office 97 installed on the Pull Printing Server, clients can print Word, Excel, and PowerPoint documents from the Pull Printing Page. For clients to print .PDF files, Adobe Acrobat Reader must be installed on the Pull Printing Server. Acrobat Reader is provided on the *SuperScript 4400 Series CD*.

You can find out what file types are currently supported by the Pull Printing Server by reviewing the `kickIE.ini` file located in the `cgi-bin` directory on the Pull Printing Server. If you find other plug-ins for Internet Explorer 4.01, you can add the file types supported by the plug-ins to the `inetpub\cgi-bin\kickIE.ini` file, under the **Support Type** tag. Please remember to increase the value of the **NumberOfTypes** variable.

## Pull Printing from Your Desktop

Once the Pull Printing Server is running, any local user can Pull Print just by browsing to the Pull Printing Page. To pull print from your desktop, you must have

- Microsoft's Internet Explorer 4.01 SP1 and above (preferred) with Java 1.1 support.
- You can print the following types of documents using the Pull Printing Page.
- Word, Excel, and PowerPoint files\*
- .PDF files\*
- Any web page on the Internet.
- .gif, .jpg, .jpeg, .txt, .c, .cpp, .h, .java, .bak, .html, and .htm files can also be printed.

\*Microsoft Office 97 and PDF file types can be printed if your system administrator installed the corresponding applications or plug-ins on the Pull Printing Server. Otherwise, a message will appear, notifying you that you cannot print that file type.

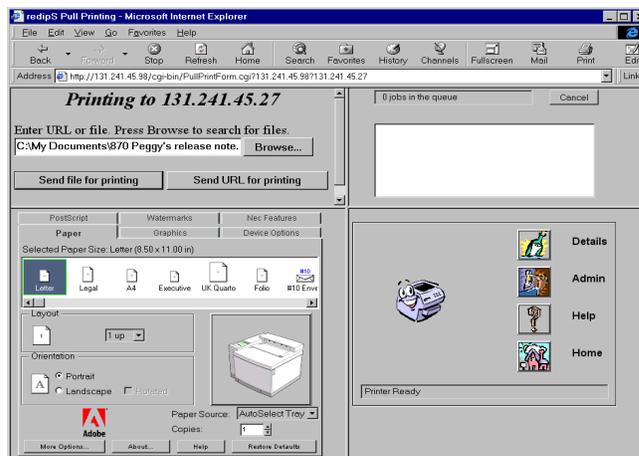
### Pull Printing Page

Go to your printer's Home Page and select **Pull Printing**.

Use the **Browser** frame to enter a file location or the URL of a web page.



The **Properties** frame lets you change document and printer settings.



The **Print Queue** frame lists jobs waiting to be printed.



The **PrintAgent** frame gives real-time reports on your print job and printer and access to network settings and Help.



### Sending a Job

1. Launch the Web Browser.
2. Enter Printer's URL to reach the Printer Home Page.
3. Click on Pull Printing.
4. Enter a File Location or URL in the Browser frame.  
 To print a web page, type the URL in the text entry field. Typing "http://" in front of the URL is not required.  
 To print a local file, type the drive, path and name of the file in the text entry field, or use the **Browse** button to select a file. The drive and full path must be specified. If the plug-in for that particular type of file has been installed on the secondary server, the file is rendered and sent to the printer. If the plug-in is not installed, you will be notified.
5. Make any settings changes in the Properties frame.
6. Click Send File for Printing or Send URL for Printing. The job will be rendered by the Pull Printing server and sent to the printer.

### Changing Properties and Saving Settings

The **Properties** frame functions in the same way as the local printer drivers described in Chapter 4. You simply point and click to change settings for your print job. Click on any tab to view more settings.

With Pull Printing, you can save different preferences for each printer you use. If you are accepting cookies, the property settings, along with any watermarks you may have created, will be saved upon sending the print job. The next time you pull print to that particular printer, the property pages will preset to match your previous preferences.

### Viewing the Print Queue

The **Print Queue** frame lists jobs that are either waiting to be rendered by the secondary server or waiting in the status monitor to be sent to the printer. A job disappearing from the print queue does not signify that your job is done printing. If the print job is large, there may be a significant delay from the time a job is sent to the printer to when it is printed.

You can distinguish your print job from others if you accept the PrintAgent cookies. Your print job will display the name of the file or URL you sent, while other print jobs will show only the URL of the printer to which the job will be sent. To see which printer your jobs will be sent to, place the mouse over the icon next to your print job. The name of the printer will be displayed, along with the name of the file or URL of the web page. It will also signify whether your job is waiting to be rasterized or has already been sent to the status monitor.

### Canceling a Job

You can cancel a print job before it is rendered as long as you are accepting cookies. To cancel, click on the print job in the Print Queue frame. You will see a yellow highlight around the text. Click the **Cancel** button. After it is sent to the secondary server, the job can only be canceled using the the Admin dialog box from the NEC PrintAgent window.

### Getting Printer Status

The lower right frame of the Pull Printing Page shows the NEC PrintAgent window. The animated printer image shows the printer status.

**Eyebrows Moving:** The Status Monitor and the printer are successfully communicating.

**Eyebrows Stop, Printer Looks Sad:** Check the power to the printer.

**Pages Printing Out:** The printer is printing.

**Printer Sleeping:** The printer is warming up.

### Getting Help

When a message is present in the PrintAgent window, press the **Help** button for more details or instructions. When no messages are present, clicking on the Help button displays the Help Index.

For more information about the NEC PrintAgent window, see page 91.

## Pull Printing User Settings

You can customize your web browser settings to enhance your Pull Printing capabilities.

### Cookies

If you would like the ability to save your printer settings and any watermarks you make, you must accept any cookies we set. This also gives you the ability to cancel any print jobs you send that are still in the print queue. A cookie is a small piece of data that the browser stores on your hard drive. Each cookie has a maximum limit of 4 kilobytes. Although driverless printing will work if cookies are not accepted, it will not be customized for your needs. You can choose to always accept a cookie, which will allow all web pages to set cookies. You can choose to have a message box appear each time a cookie is set and you will then have the option of accepting or rejecting the cookie.

**Accepting Cookies in Internet Explorer 4.01:** Click on the view menu item and select Internet Options. Click on the Advanced tab. In the Security section, there are three cookie options.

# CHAPTER 6

## USER MAINTENANCE

### OVERVIEW

This printer is designed for easy use and maintenance. Be sure to review the maintenance and service schedules on page xx. These show when parts should be cleaned or replaced. Your Operator Panel will also remind you when replacement of parts or consumables is due.

This chapter explains basic maintenance and cleaning procedures you must follow to maintain the high print quality and efficient operation of your NEC SuperScript 4400 printer. Included are instructions for the following maintenance tasks

- Replacing the Toner Modules
- Replacing the Fuser Oil Bottle, Fuser Cleaning Roller, and Fuser Unit
- Cleaning and Replacing the photoconductor belt module
- Cleaning inside the Back Cover
- Cleaning the Laser Lens
- Replacing the Ozone Filter
- Replacing the Waste Toner Bottle
- Cleaning the Paper Exit Roller
- Cleaning the outside of the printer

The life expectancy of each replaceable part is based on printing under specific operating conditions, such as media type, number of colors used, humidity, page size, and page coverage (usually 5% coverage as in an average business letter).

### PRECAUTIONS

Please take the following precautions when performing maintenance tasks

- Do not use ammonia-based cleaners. They may react with the toner in the cartridge.
- Do not use alcohol-based cleaners on the printer exterior. They may damage the plastic case.
- Do not expose the photoconductor belt module or drum to direct sunlight or bright room light.
- Do not spill any liquid inside the printer or in the power cord receptacle.

### Maintenance Schedule

Follow this schedule to keep your printer in good operating condition.

#### Ongoing—As Needed

- Clean the outside of the printer with a soft cloth and mild solvent when dusty or soiled.
- When printed output becomes too light or REPLACE CARTRIDGE message appears on Operator Panel display, take out the **Toner Module** and gently rock it from side to side to redistribute the toner (about every 6,000 pages for color toner and every 10,000 pages for black toner).
- Clean the **Registration Rollers** using the procedure on page xx.
- Clean the **Paper Exit Roller** using the procedure on page xx.
- Clean the **photoconductor belt module** when charge wire gets stained or printouts show vertical streaks. Clean the **Laser Lens** using the procedure on page xx if printouts show vertical streaks.

#### Every 12,000 Pages

- Replace the **Fuser Oil Bottle** when shipping the printer, after 12,000 pages, or when indicated on the Operator Panel display.
- Replace the **Waste Toner Bottle** after 12,000 pages.
- Replace the **Fuser Cleaning Roller** after 12,000 pages.

### Every 12 Months or By Page Count

- Clean inside the printer, after 20,000 prints or every 12 months, using the instructions on page xxx.
- Wipe down the **Paper Guides** in the paper trays with a soft cloth and mild solvent (after 20,000 prints or sooner if needed).
- Replace the **Registration Rollers** after 20,000 prints or every 12 months, using the procedure on page xx.
- Replace the **Paper Exit Roller** after 20,000 prints or every 12 months, using the procedure on page xx.
- Replace the **photoconductor belt module** after 50,000 color prints or every 12 months, using the procedure on page xx
- Replace the **Ozone Filter** using the procedure on page xx.
- Replace the **Fusing Unit** after 60,000 pages using the procedure on page xx

### Service Visit Schedule

Certain parts must be maintained or replaced by an authorized NEC field service engineer. When this is necessary call NEC Technical Support at 800-632-4650. They will put you in touch with an engineer in your area who can service your printer.

**Every 120,000 pages:** Paper Discharger, Drum Cleaner, and Transfer Roller must be replaced by a field service engineer.

**Every 300,000 pages:** Transfer Drum must be replaced by a field service engineer.

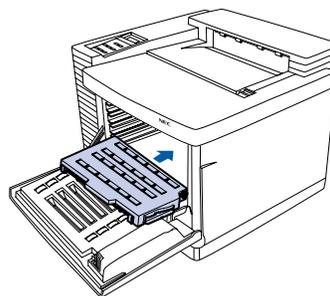
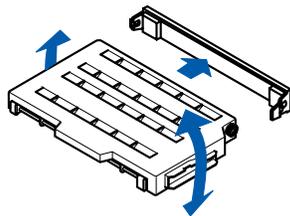
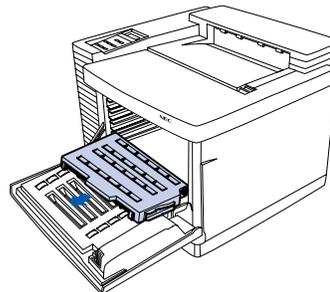
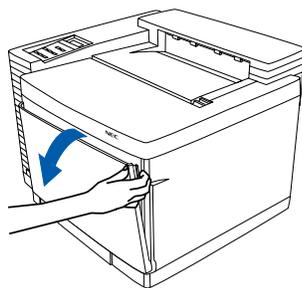
## REPLACING THE TONER MODULES

Replace each Toner Module when you start seeing print quality problems such as light images or white streaks across the page. The Operator Panel will display an alert message when the toner level is getting low.

To order an NEC SuperScript 4400 Toner Module contact your NEC printer dealer or call 1-800-NEC-INFO. The black replacement modules print approximately 10,000 pages. The yellow, magenta, and cyan replacement modules print approximately 6,000 pages each.

Follow these directions to replace the Toner Modules;

1. Open the Front Cover
2. Pull out the Toner Module(s) that needs replacing
3. Hold the Toner Module horizontally and rock it left to right three or four times. Then remove the protective orange cover and tape.
4. Insert the Toner Modules into its corresponding slot and close the printer.
5. Reset the Operator Panel to make sure the consumables usage information is current.



## REPLACING THE FUSER OIL BOTTLE

Part number 20-212

1. Turn the printer off and allow it to cool (A).

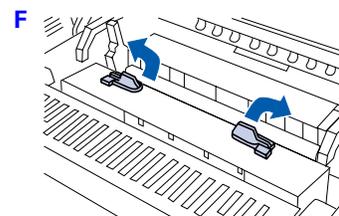
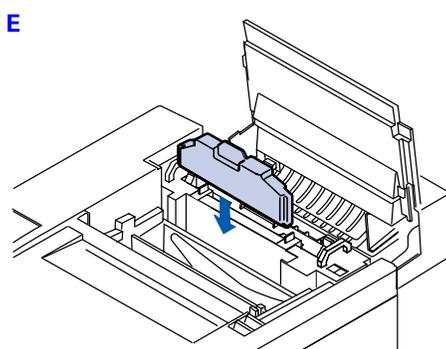
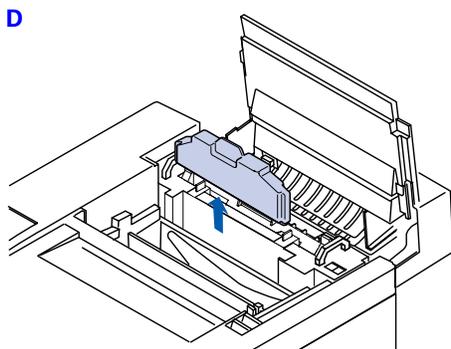
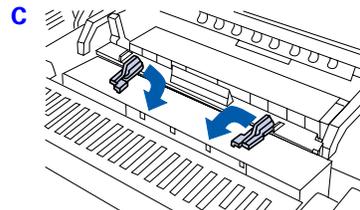
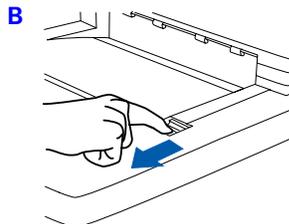
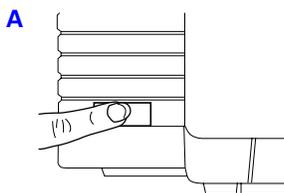
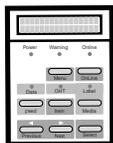
**WARNING!** The Fuser unit area may be very hot.

2. Open the Top Cover (B).
3. Open the Lock Tabs (C).
4. Remove the used Fuser Oil bottle and discard it (D).

**note:** Hold a piece of paper under the used Fuser Oil Bottle while removing it to avoid drips in the printer.

5. Insert the new Fuser Oil bottle, cap side down. Make sure the tab of the bottle is on the right (E).
6. Close the Lock Tabs and the Top Cover (F).

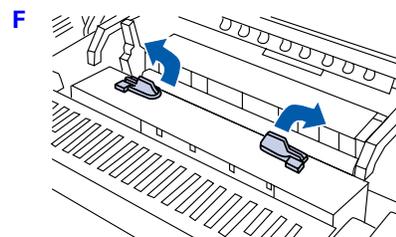
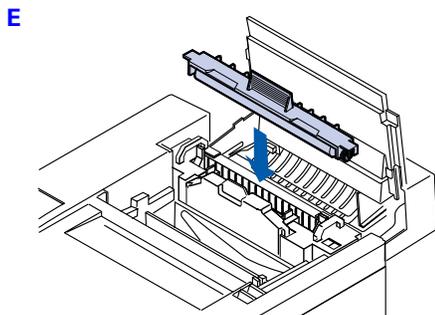
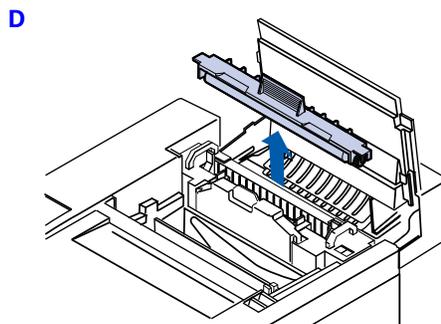
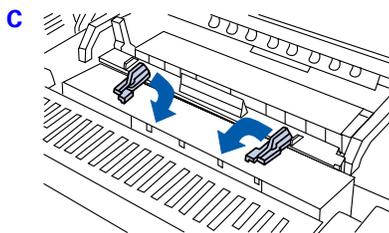
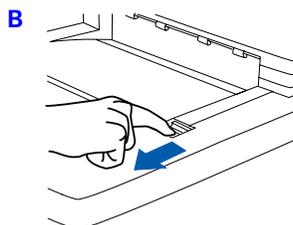
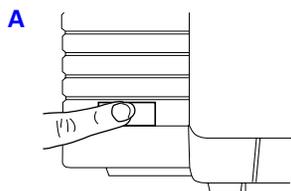
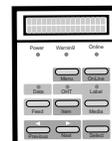
7. Reset the Operator Panel to make sure the consumables usage information is current. See page xx



## REPLACING THE FUSER CLEANING ROLLER

Part number 20-211

1. Turn off the printer and allow it to cool **(A)**.
2. Open the Top Cover **(B)**.
3. Open the Lock Tab **(C)**.
4. Remove the used Fuser Cleaning Roller **(D)**.
5. Install the replacement Fuser Cleaning Roller **(E)**.
6. Close the Lock Tabs and the Top Cover of the printer **(F)**.
7. Reset the Operator Panel to make sure the consumables usage information is current.

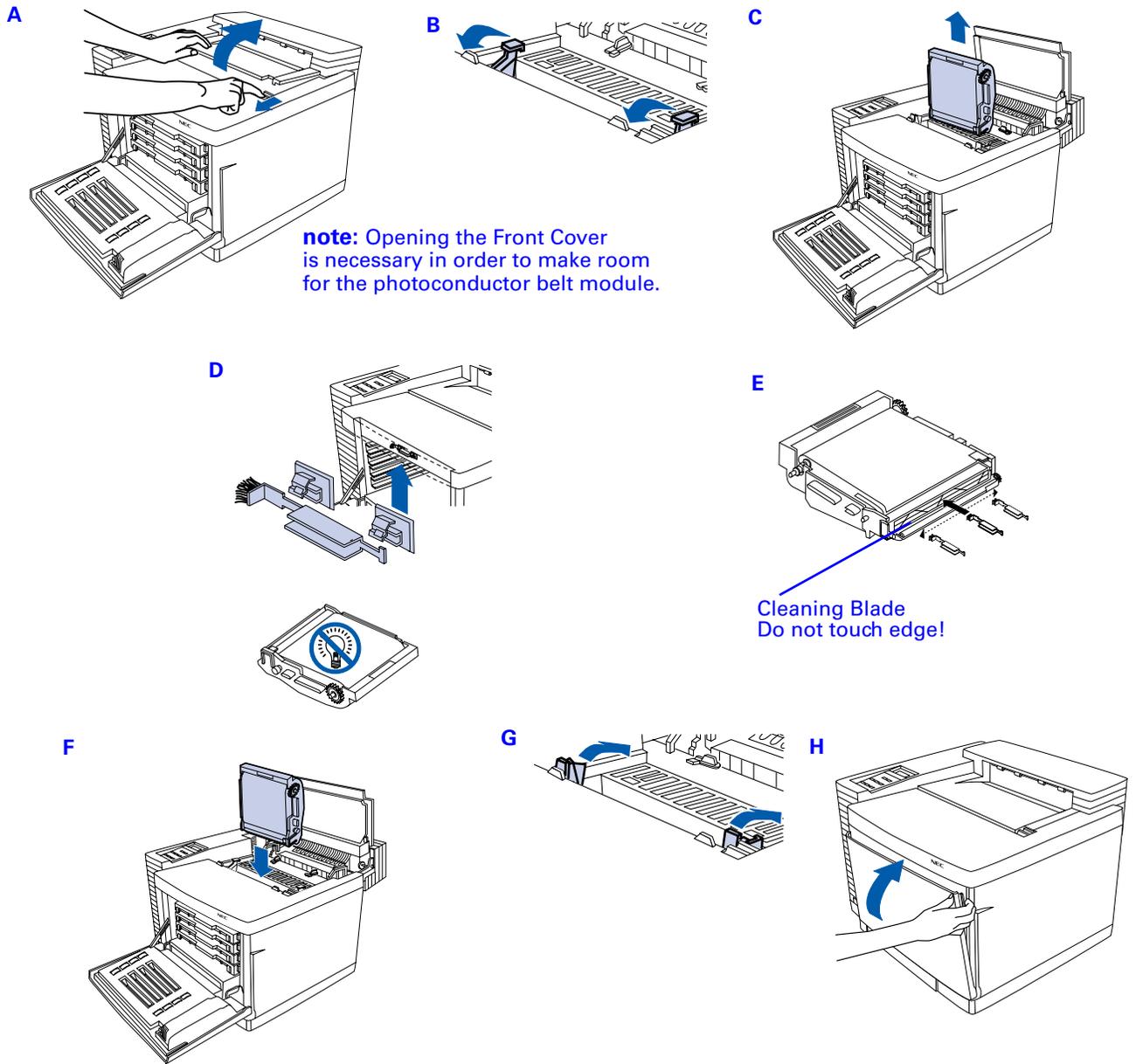


## **CLEANING THE PHOTOCONDUCTOR BELT MODULE**

The photoconductor belt module is sensitive to bright light and touch. Always wrap it in a soft dark cloth until you are ready to clean or install it. A dry cotton cleaning cloth is needed for this procedure

1. Turn off and unplug the printer.
2. Open the Front and Top covers of the printer **(A)**.
3. Release the Lock Levers **(B)** and carefully remove the photoconductor belt module **(C)**.
4. Using a dry cloth, clean any toner buildup from around the cleaning blade.
5. Clean any toner or paper dust photoconductor belt module itself.
6. Remove the small cleaning brush from inside the front of the printer **(D)**.
7. Turn the photoconductor belt module so that the handle is facing away from you.
8. Use the brush to gently clean the wire inside the end of the photoconductor belt module. Do not press hard on the wire **(E)**.
9. Reinstall the photoconductor belt module **(F)** and secure the Lock Levers **(G)**.
10. Return the cleaning brush to its holder and close the printer's covers **(H)**

11. Reset the Operator Panel usage information.



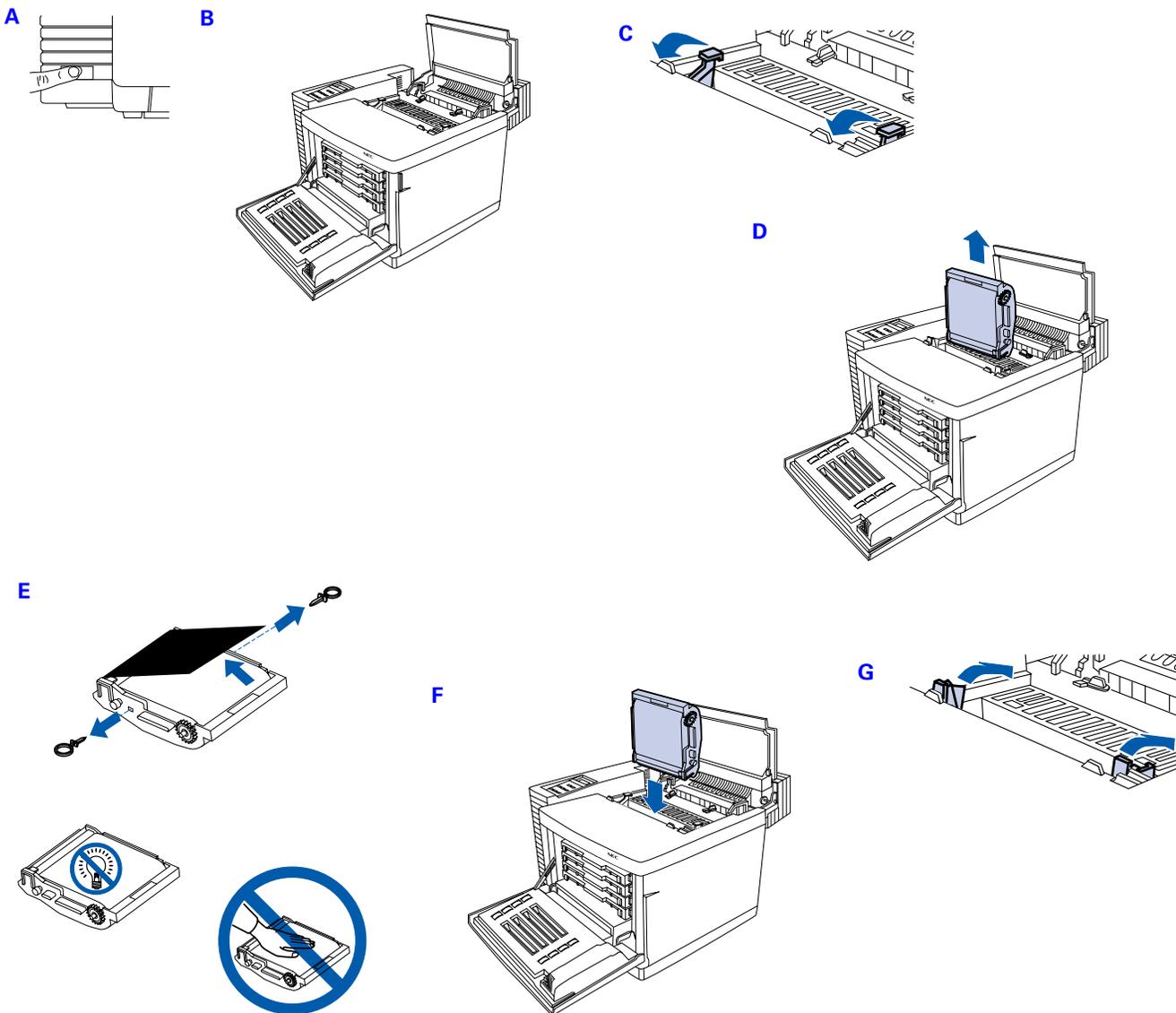
## REPLACING THE PHOTOCONDUCTOR BELT MODULE

Part number 20--205

1. Turn off the printer (A).
2. Open the Front and Top Cover (B).
3. Flip up the Lock Levers to release the photoconductor belt module (C).
4. Pull the old photoconductor belt module straight up and discard it (D).
5. Remove the black wrapper from the new photoconductor belt module and pull out the two tension release pins as shown (E).

**WARNING!** Do not touch the green material on the photoconductor belt module. It is easily scratched.

6. With the flat side of the photoconductor belt module facing the front, insert it straight into the guide slots in the lock levers. The white gear on the cartridge goes to the right. Do not use force (F).
7. Flip down the Lock Levers (G).
8. Close the Front and Top Covers.
9. Reset the Operator Panel to make sure the consumable usage information is current.



## CLEANING INSIDE THE BACK COVER

Allow several minute for the printer to cool down and use only dry, lint-free cotton cloths or swabs for this procedure.

1. Turn off and unplug the printer.
2. Open the Back Cover **(A)** and following the directions below, clean the various parts of the Transfer Unit **(B)**.
3. Using a dry cotton cloth, clean any paper dust or toner buildup from the Registration Rollers. Rotate the rollers with the white gear while cleaning.
4. Clean the Transfer Roller unit by lifting the lock lever on the right end until the unit is released. Lift the unit out **(C)**.
5. Wipe and rotate the Transfer Roller with the cloth.
6. Reinstall the Transfer Roller in the Transfer Unit.
7. Remove the Paper Discharger by pushing the left side to the right, as shown, and lifting it out **(D)**.
8. Clean any dust or toner with the cotton cloth.
9. Using a dry cotton swab, clean any extra buildup from the interior of the Paper Discharger holder.
10. Carefully clean the Paper Discharger wire with the cotton swab **(E)**.
11. Reinstall the Paper Discharger in the Transfer Unit. Push it into the left part of the holder, then down until it locks in place **(F)**.
12. Clean any paper dust or toner from the Transfer Unit itself.
13. Close the Back Cover.

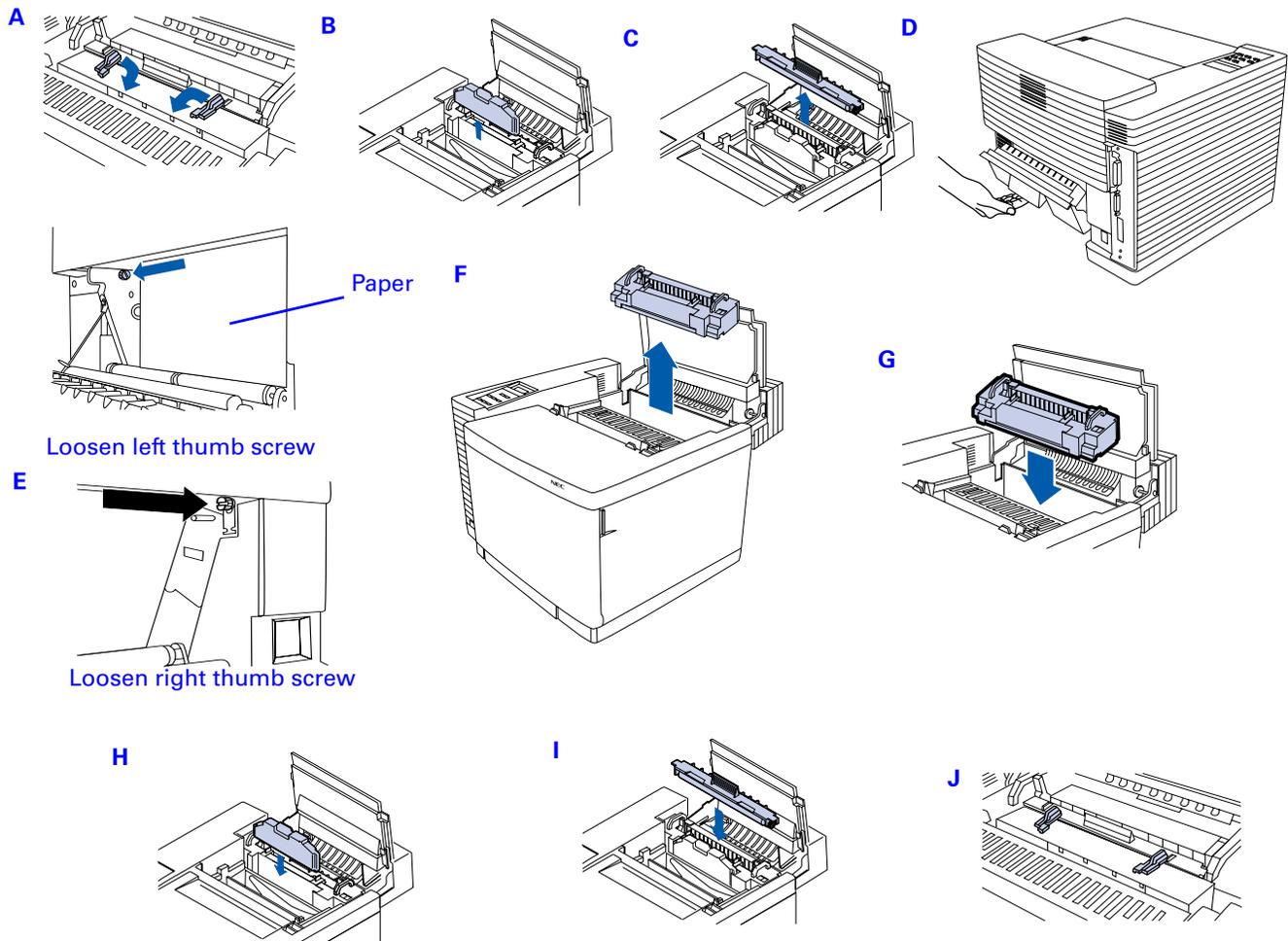
# REPLACING THE FUSER UNIT

Part number 20-219

1. Turn the printer off and allow it to cool.

**WARNING!** The Fuser Unit area may be very hot.

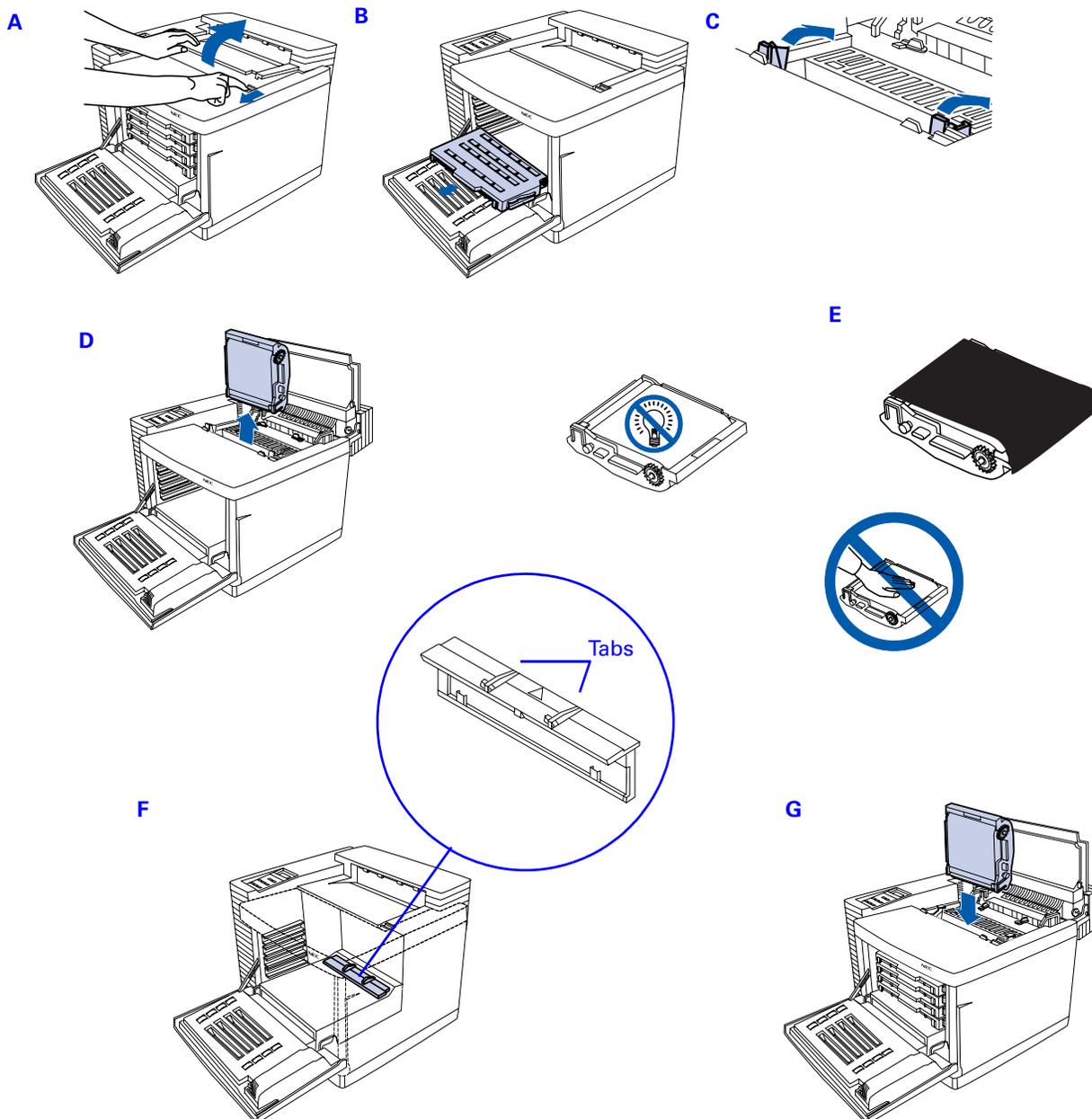
2. Open the Top Cover.
3. Open the Lock Tabs (A).
4. Remove the Fuser Oil bottle and put in plastic bag temporarily or discard if replacing with a new one (B).
5. Remove the Fuser Cleaning Roller (C).
6. Open the Back Cover (D).
7. Place a clean piece of paper against the Transfer Drum to protect it.
8. Loosen (but do not remove) the finger screws and brackets that hold the Fuser Unit in place (E).
9. Lift out and discard the used Fuser Unit (F).
10. Remove the new Fuser Unit from its packaging and pull out the orange roller release pins on each side.
11. Carefully lower the new Fuser Unit into the slot (G).
12. Tighten the thumb screws inside the back of the printer.
13. Gently lift up on the Fuser Unit's handles to make sure that it is secured.
14. Close the Back Cover
15. Reinstall the Fuser Oil Bottle (H) and Fuser Cleaning Roller (I).
16. Close the Locking Tabs (J) and the Top Cover.
17. Reset the Operator panel to make sure the consumable usage information is current



## CLEANING THE LASER LENS

Cleaning the Laser Lens is only necessary when you find vertical white or light-color streaking in the colors.

1. Open the Front Cover and Top Cover (A).
2. Remove the four Toner Modules (B). Keep them level!
3. Flip up the photoconductor belt module Lock Levers (C).
4. Remove the photoconductor belt module (D) and loosely wrap it in a soft cloth or paper (E).
5. Use both hands to remove the Laser Lens. Pinch the Laser Lens tabs located on the bottom of the Toner Module area and lift it out (E).
6. Using a dry cotton cloth, wipe the lens.
7. Reinstall the Laser Lens by sliding it in at a 45° angle (F).
8. Reinstall the photoconductor belt module and the Toner Modules (G).
9. Close the Front and Top Covers.

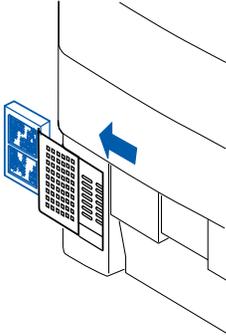


## REPLACING THE OZONE FILTER

Part number xxx

The Ozone filter needs to be replaced about every 12 months. A message on the Operator Panel will remind you of this. Follow these instructions to change the Ozone Filter.

1. Slide open the Filter Cover located in back of the printer.



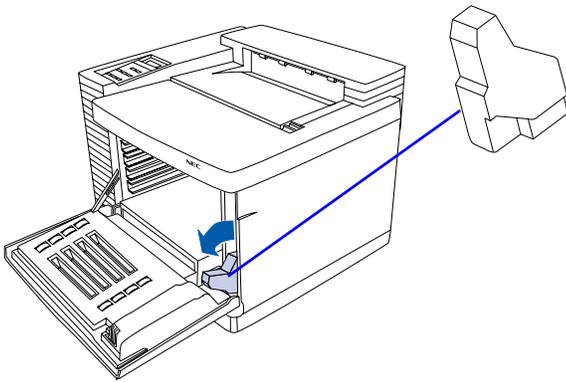
2. Take the used Ozone Filter from inside the Filter Cover and discard it.
3. Fit the new Ozone Filter inside the Filter Cover and slide it shut.

## REPLACING THE TONER COLLECTOR

Part number 20-213

The Toner Collector is a replaceable plastic bottle that collects used toner. Follow these directions to change it:

1. Open the Front Cover of the printer.
2. Remove the used Toner Collector.



3. Note the label attached to the used Toner Collector. Remove this label and use it to seal shut the opening.
4. Discard the used Toner Collector.
5. Install the new Toner Collector.

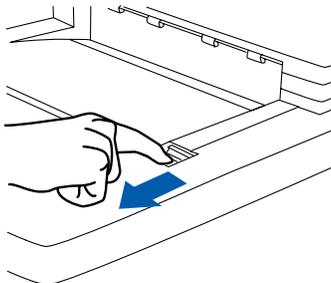
## CLEANING THE OUTSIDE OF THE PRINTER

Use a clean cotton cloth and mild cleaner to clean the outside of the printer.

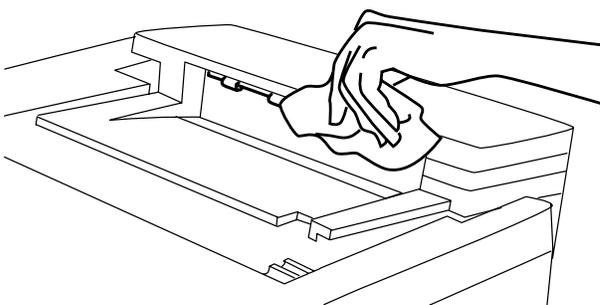
**note:** Do not use strong solvents or abrasive cleansers on plastic parts of the printer.

To clean the Paper Exit Rollers follow the instructions below:

1. Turn off and unplug the printer
2. Open the Top Cover slightly.



3. Using a dry cotton cloth, clean the Paper Exit rollers. Manually rotate each roller.
4. Close the Top Cover.





## CHAPTER 7: **PRINTER MAINTENANCE**

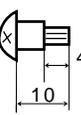
### *REPLACEMENT PROCEDURES FOR MAINTENANCE PARTS*

Follow the procedures and cautions described below for the maintenance task.

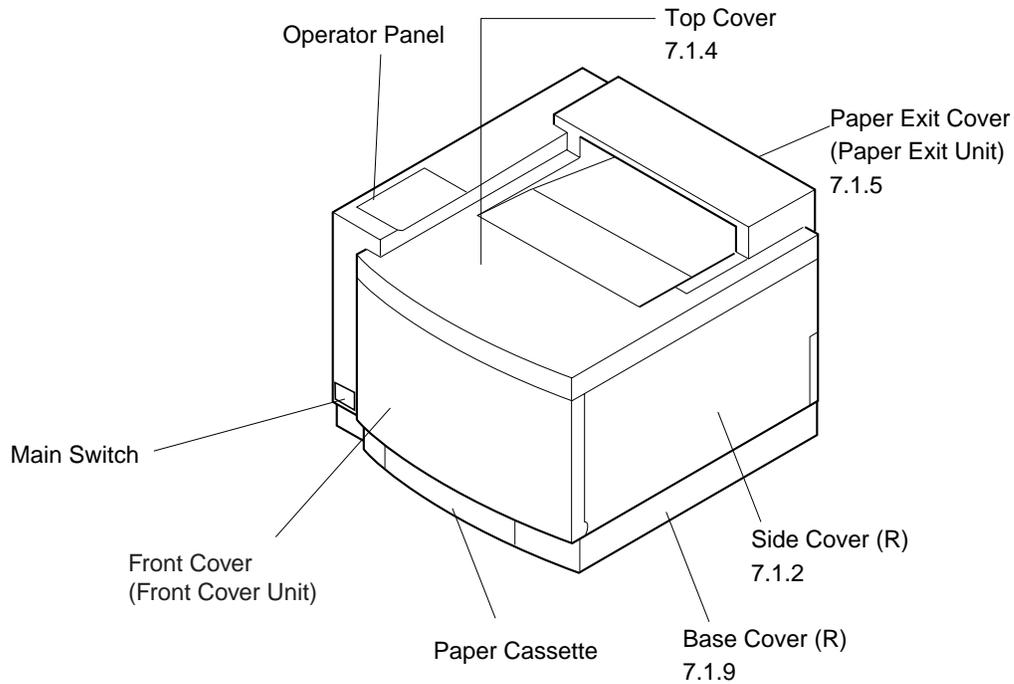
1. Do not perform any operation, disassembly, and modifications etc., that are not outlined in this Manual.
2. Turn the power OFF and unplug the power cable from the outlet prior to starting disassembly.
3. Prior to starting any work on this printer, read warnings related to "High Temperature", "High Voltage", and "Laser Radiation". make sure to read and understand the warnings and cautions in this Manual.
4. Properly recycle or dispose of the waste toner or toner modules. Never dump them together with flammable materials or throw them into the fire.
5. Disconnect the grounding wire when replacing or removing DC power supply unit. After completing the replacement work, confirm the grounding wire is properly installed.
6. Confirm the direction of parts and length of screws in replacement work of the maintenance parts. (See Table 7-1.)
7. Do not use any solvent such as alcohol for the maintenance of this printer.
8. Confirm all the parts and covers installed or assembled properly prior to starting the test run after replacement of the maintenance parts.

See Chapter 8 "Troubleshooting" and 9 "List of Maintenance Parts" for reference.

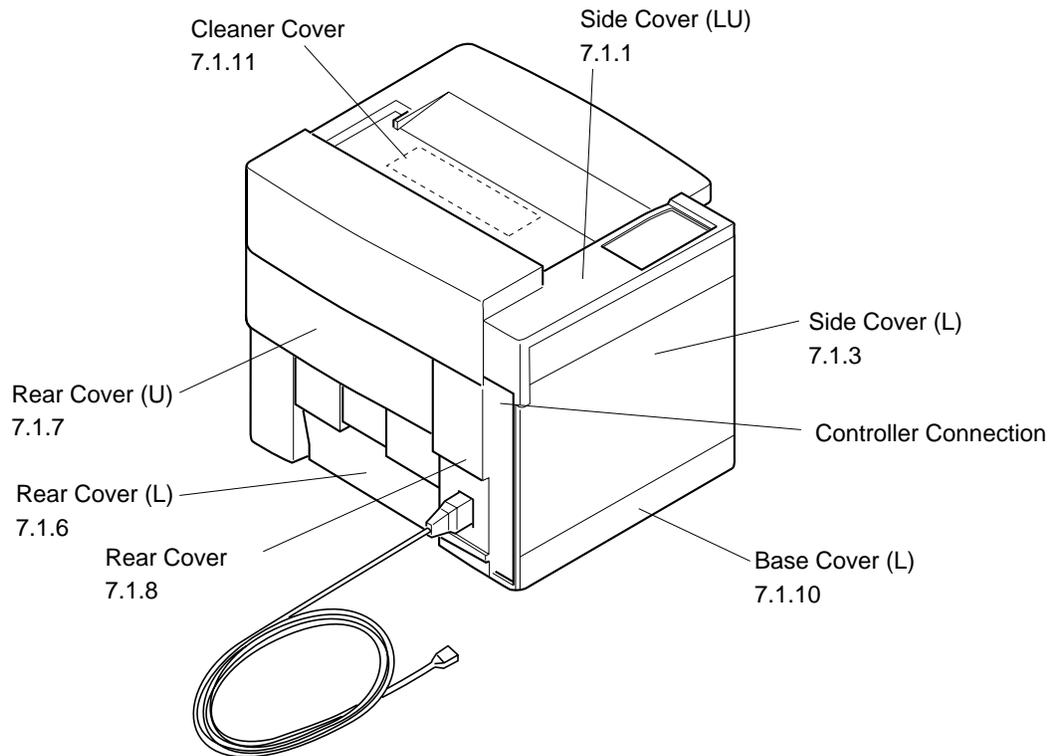
**Table 0-1:**

Class Code	Name of Screw	Size and Shape of Screw			Remarks
		M-Thread TS	Length	Sharp	
BT3X8	Cross recessed head tapping screw	T3	8mm	 	Used for installation of plastic parts
BT3X12		T3	10mm		
		T4	6mm		
BT4X8		T4	8mm		
BT4X10		T4	10mm		
ST3X6	sS tight screw	ST	6mm	 	Used for installation of parts to steel plate.
M4X6	Cross recessed head tapping screw (pan Head)	M4	6mm	 	Used for flame and GND.
SP3	Unique screw for heater connector	M3	10mm	 	For fuser connector.
F4X6	Cross recessed head screw with flange	F4	6mm	 	For fuser unit.
FST3X10	Cross recessed head S tight screw with flange	FST	10mm	 	For fuser unit.
M2X10	Cross recessed head screw (Pan Head)	M2	10mm	 	For fuser unit.

## 7.1 Replacement of Covers



[Front View]



[Rear View]

## 7.1.1 Upper Side Cover (LU)

### Tools

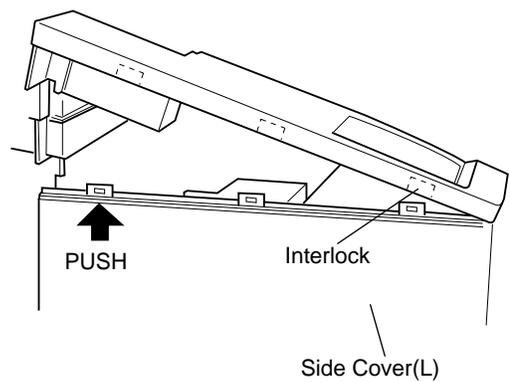
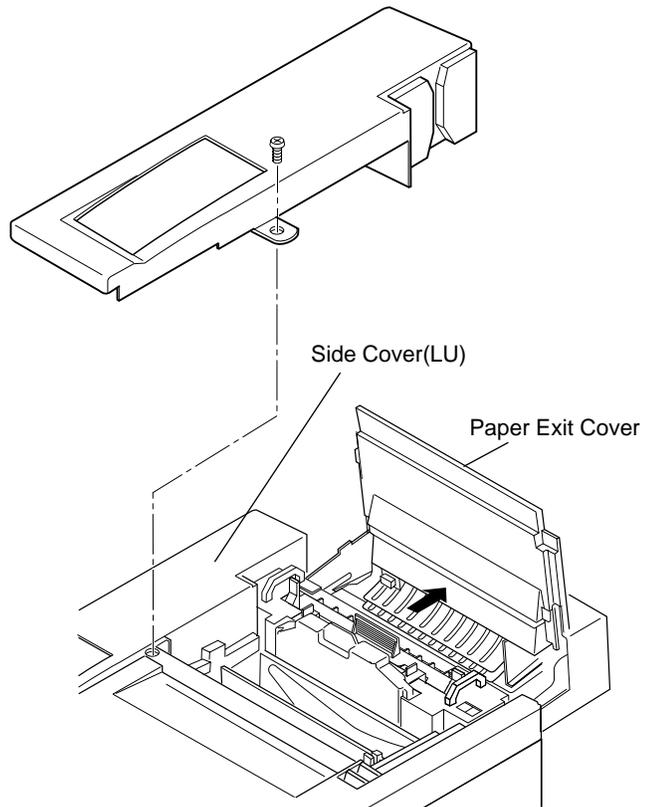
Phillips Screwdriver #2

### Disassembly Procedures

9. Open the paper exit unit.
10. Remove the set screw BT4 8 of side cover (LU).
11. Pressing the exterior of the side cover (L), unlock the interlock (three locations) with the side cover (LU).

### Assembly Procedures

1. Prepare a new side cover (LU).
2. Assemble the side cover (LU) according to the reverse order of disassembling.



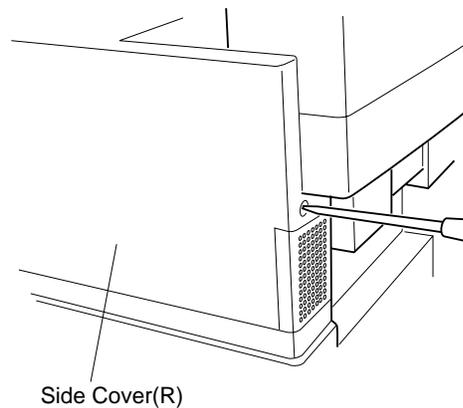
## 7.1.2 Side Cover (R)

### Tools

Phillips Screwdriver #2

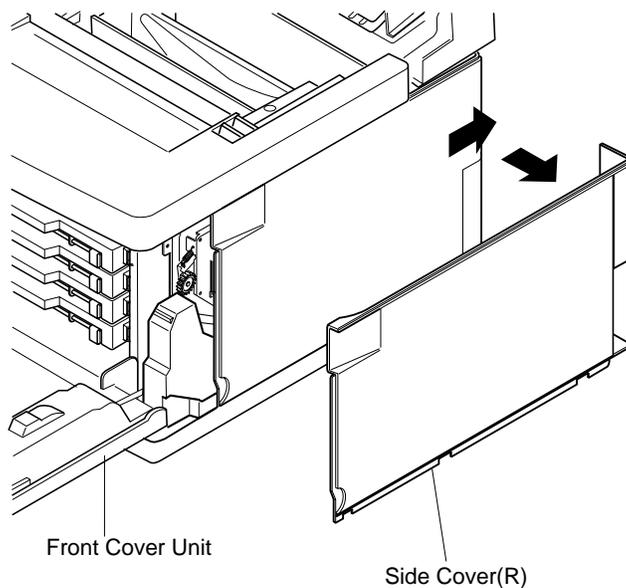
### Disassembly Procedures

1. Open the front cover unit.
2. Remove the set screw BT4 X8 (1 pc.) of side cover (R) at the rear side. (Fig.7-3)
3. Slide the side cover (R) to the arrow direction. (Fig.7-4)
4. Remove the side cover (R).



### Assembly Procedures

1. Prepare a new side cover (R).
2. Assemble the side cover (R) according to the reverse order of disassembling.



## 7.1.3 Side Cover (L)

### Tools

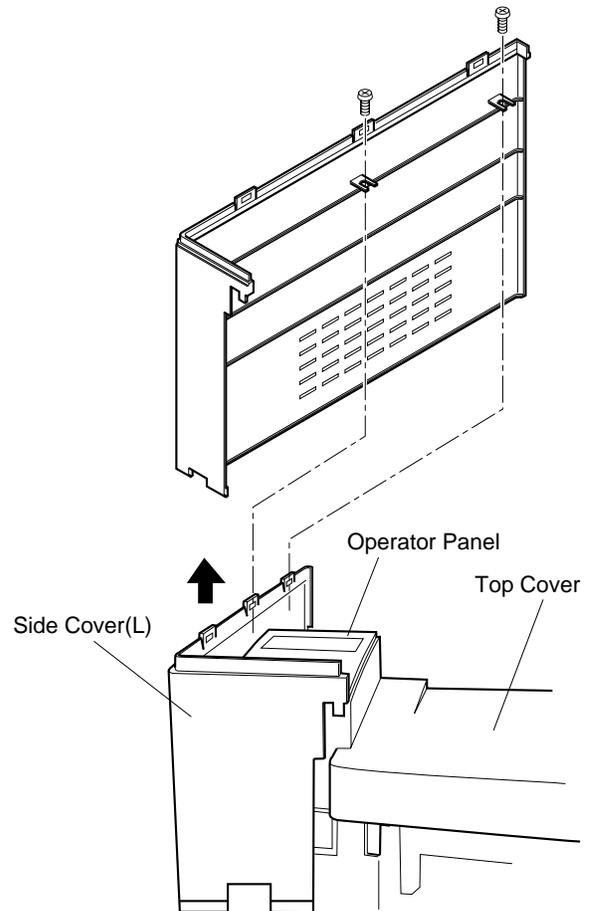
Phillips Screwdriver #2

### Disassembly Procedures

1. Open the paper exit unit.
2. Remove the side cover (LU). (See the item 7.1.1.)
3. Remove the set screw BT4 8 (2 pcs.) of side cover (L).
4. Remove the side cover (L). (Slowly pull up the side cover (L), and unhook the hook from the top cover.)

### Assembly Procedures

1. Prepare a new side cover (L).
2. Assemble the side cover (L) according to the reverse order of disassembling.



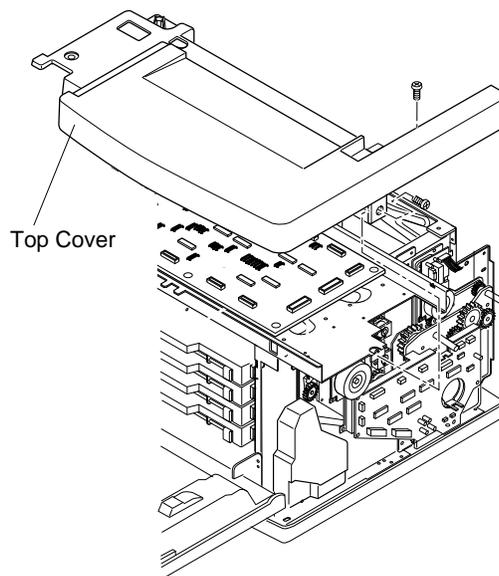
## 7.1.4 Top Cover

### Tools

Phillips Screwdriver #2

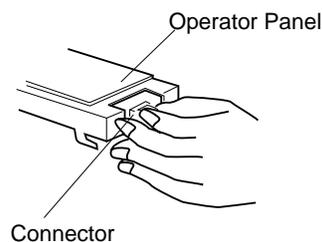
### Disassembly Procedures

1. Open the paper exit unit and the front cover Unit.
2. Remove the side cover (LU). (See the item 7.1.1)
3. Remove the side cover (L) and side cover (R). (See the item 7.1.2 and 7.1.3.)
4. Remove the operator panel assembly. (One BT4 8 screw and one connector to be removed.)
5. Remove the set screw BT4 8 (3 pcs.) of top cover. (Top side 2 and Right side 1)
6. Slightly lift up the upper side of top cover.
7. Pull the top cover toward you, and unhook the hook from the frame.



### Assembly Procedures

1. Prepare a new top cover.
2. Assemble the top cover according to the reverse order of disassembling.



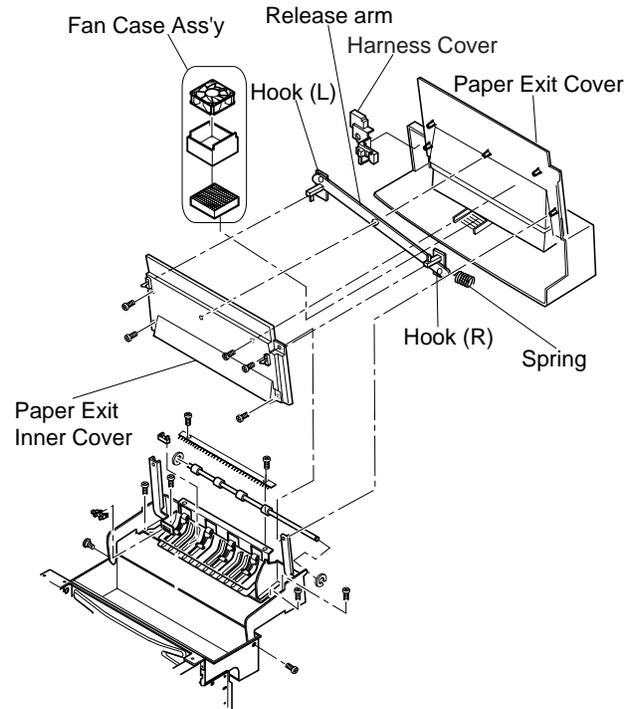
## 7.1.5 Paper Exit Cover

### Tools

Phillips Screwdriver #1, #2

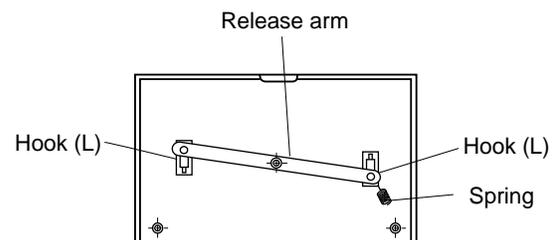
### Disassembly Procedures

1. Remove the side cover (LU). (See the item 7.1.1)
2. Remove the side cover (L). (See the item 7.1.2)
3. Remove the side cover (R). (See the item 7.1.3)
4. Remove the top cover. (See the item 7.1.4)
5. Remove the Shield Cover A assembly. (See the item 7.2.1)
6. Remove the set screw (2 pcs.) of paper exit unit's shaft.
7. Remove the paper exit inner cover by removing the set screws BT3 8 (4 pcs.), release arm, hook (R) & (L) and spring.
8. Unscrew the set screw (ST3X6), and then, remove the harness cover.
9. Remove the fan case assembly.
10. Remove the set screws BT3 8 (4 pcs.) of paper exit guide unit.
11. Remove the paper exit guide unit from the cover.



### Assembly Procedures

1. Prepare a new paper exit cover.
2. Assemble the release arm, hook (R) & (L), and spring as shown in Fig.7-5-b.
3. Assemble according to the reverse order of disassembling.



## 7.1.6 Rear Cover (L) (Transfer Unit Cover)

### Tools

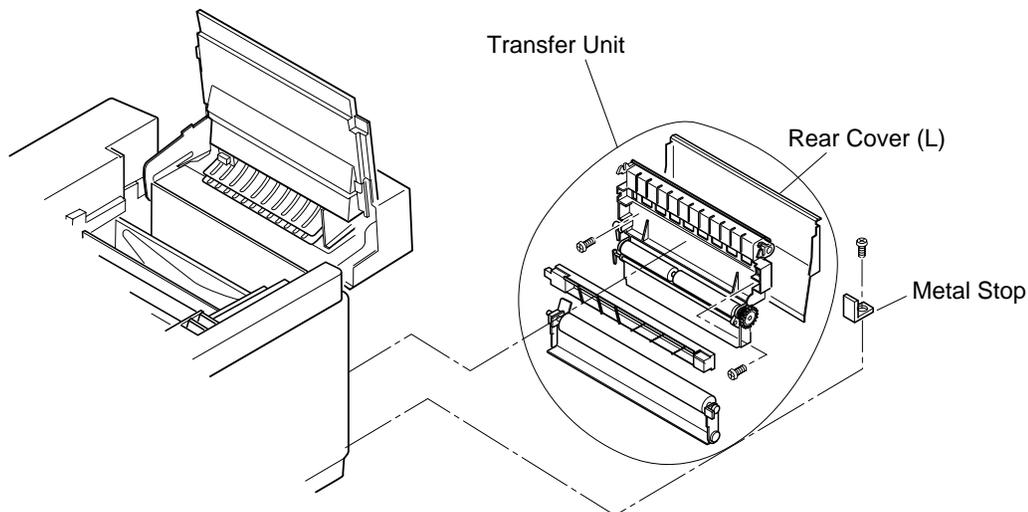
Phillips Screwdriver #1, #2

### Disassembly Procedures

1. Open the transfer unit.
2. Remove the screw ST3 6 (1 pc.) from the stop holding the transfer unit to the frame.
3. Remove the transfer unit.
4. Remove the set screw BT3 10 (4 pcs.) of rear cover.
5. Remove the rear cover (L) from the transfer unit.

### Assembly Procedures

1. Prepare a new rear cover (L).
2. Install the rear cover to the transfer unit.
3. Assemble according to the reverse order of disassembling.



## 7.1.7 Rear Cover (U)

### Tools

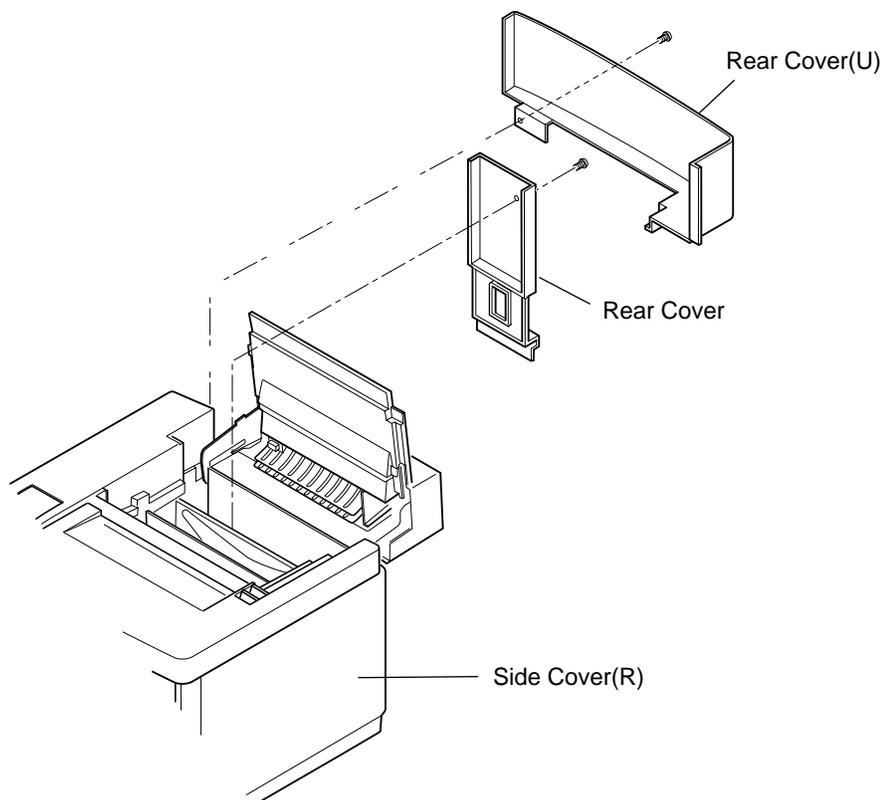
Phillips Screwdriver #2

### Disassembly Procedures

1. Open the Transfer Unit.
2. Unplug the power supply cable from the inlet.
3. Remove the Rear cover. (See the item 7.1.8)
4. Remove the set screw BT4 6 (1 pc.) of rear cover (U).
5. Remove the rear cover (U).

### Assembly Procedures

1. Assemble the rear cover (U) according to the reverse sequence of disassembling.



## 7.1.8 Rear Cover

### Tools

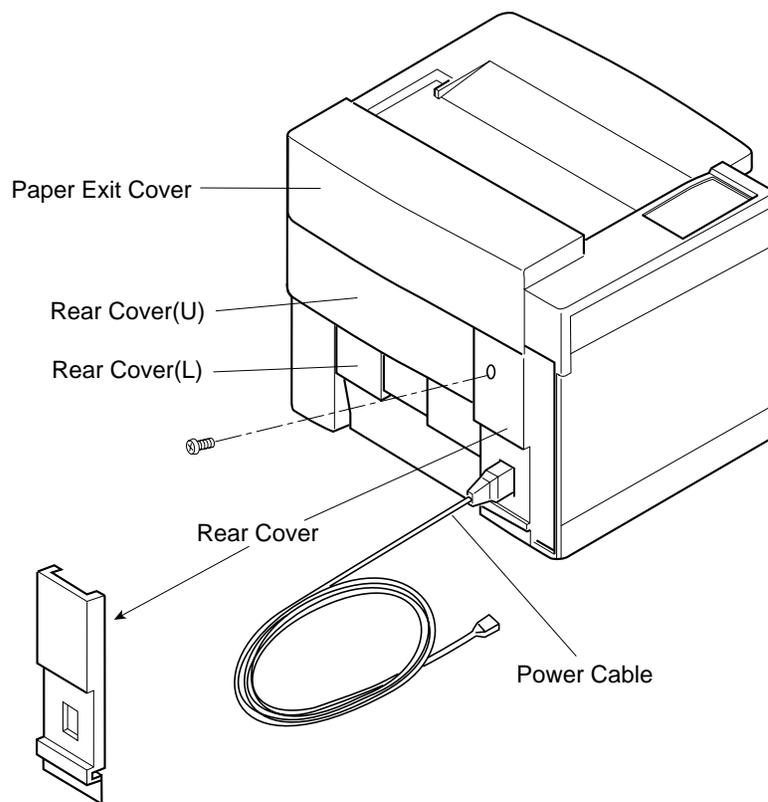
Phillips Screwdriver #2

### Disassembly Procedures

1. Unplug the power cable from the printer.
2. Remove the set screw BT4 8 (1 pc.) of rear cover.
3. Remove the rear cover.

### Assembly Procedures

1. Install a new rear cover.
2. Plug the power cable into the printer.



## 7.1.9 Base Cover (R)

### Tools

Phillips Screwdriver #2

### Disassembly Procedures

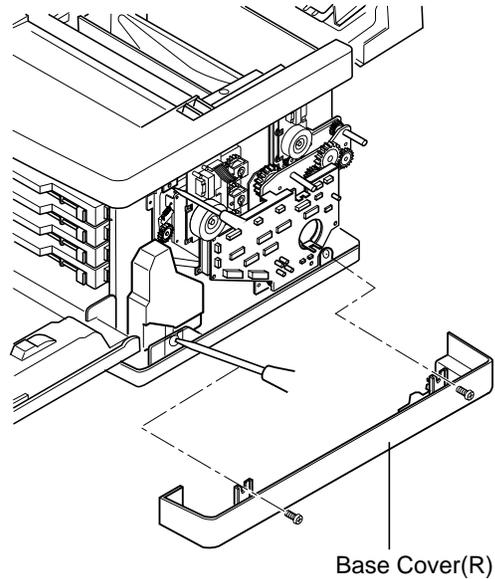
1. Remove the side cover (R). (See the item 7.1.3)
2. Remove the set screw BT4 8 (2 pcs.) of base cover (R).
3. Remove the base cover (R) from the base.

### Assembly Procedures

1. Prepare a new base cover (R).
2. Assemble the base cover (R) according to the reverse order of disassembling.

**Caution!** When assembling the base cover, insert the leading edge of base cover (R) into the hook provided at the bottom (left and right) of the base plate.

Have the projecting part of base cover (R) meet the hole of base plate bottom.



## 7.1.10 Base Cover (L)

### Tools

Phillips Screwdriver #2

### Disassembly Procedures

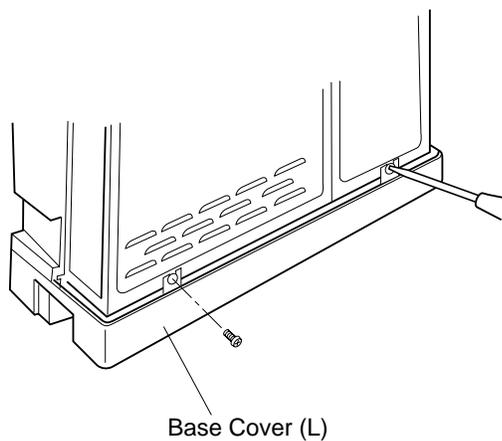
1. Remove the side cover (L). (See the item 7.1.2)
2. Remove the set screw TS4 8 (2 pcs.) of base cover (L).
3. Remove the base cover (L) from the base.

### Assembly Procedures

1. Prepare a new base cover (L).
2. Assemble the base cover (L) according to the reverse order of disassembling.

**Caution!** When assembling the base cover, insert the leading edge of base cover (L) into the hook provided at the bottom (left and right) of the base plate.

Have the projecting part of base cover (L) meet the hole of base plate bottom.



## 7.1.11 Cleaner Cover

### Tools

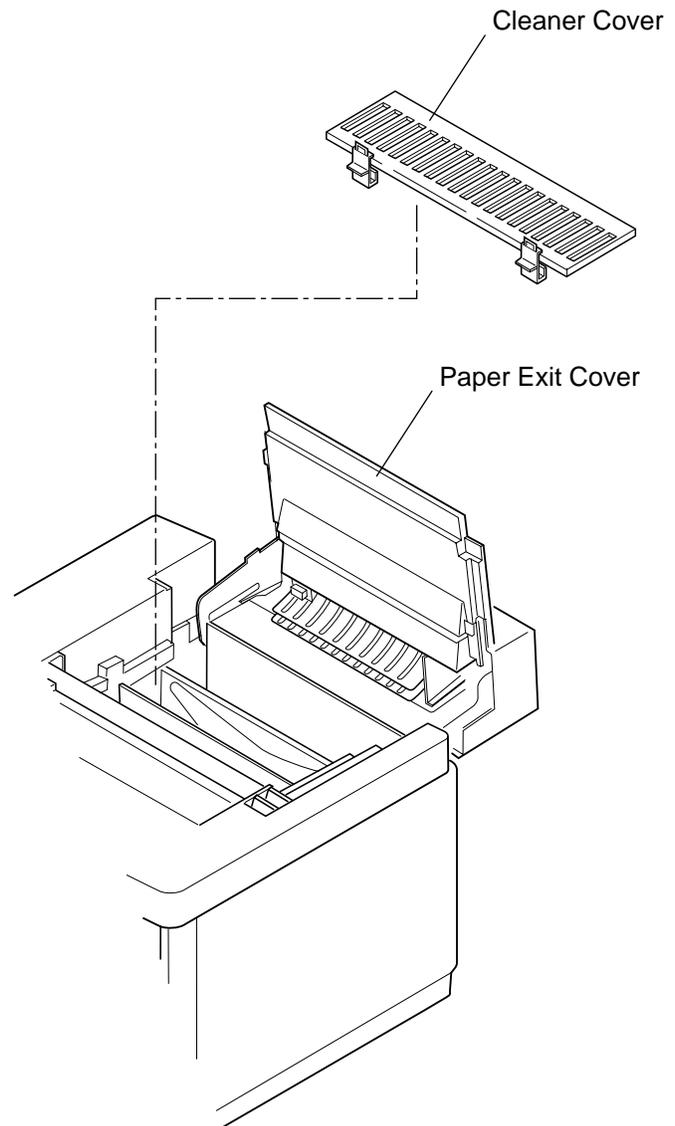
No tools are required.

### Disassembly Procedures

1. Open the paper exit cover.
2. Holding the ears, remove the cleaner cover.

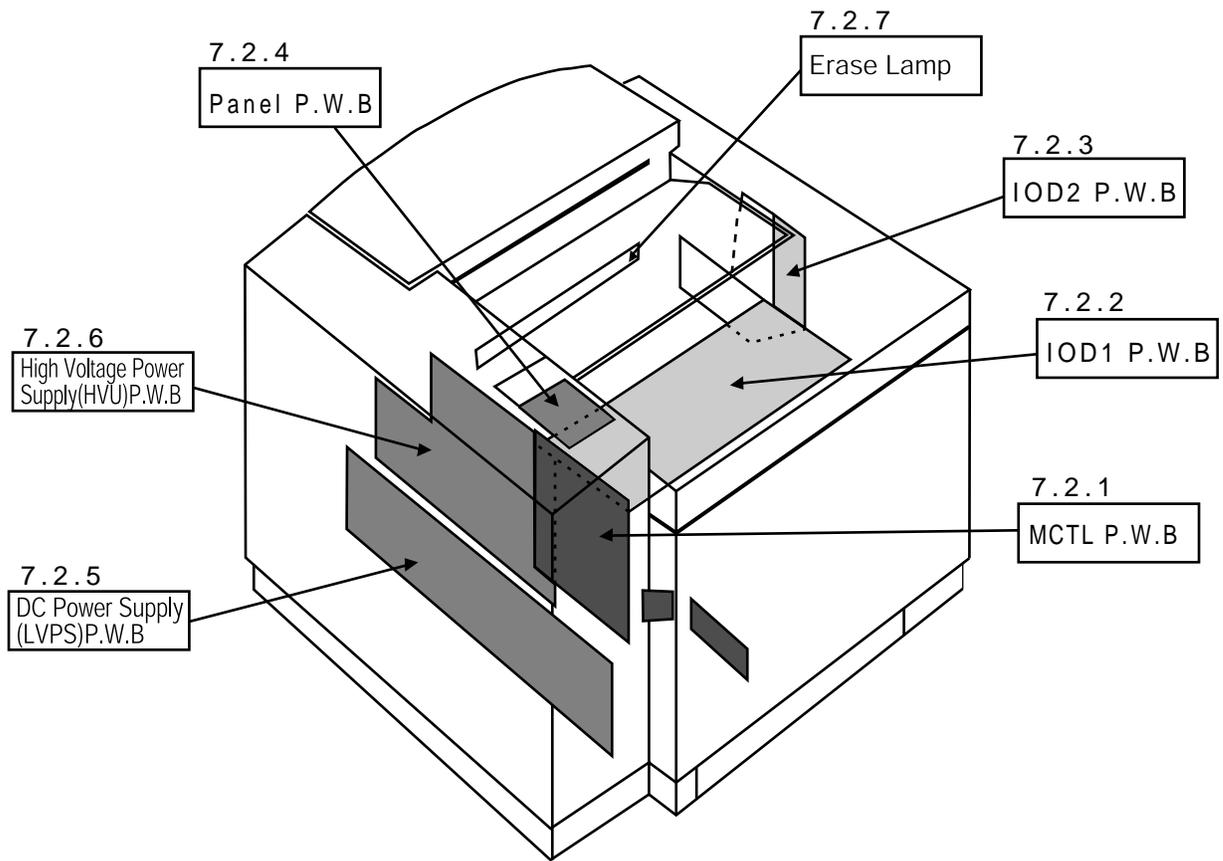
### Assembly Procedures

1. Install a new cleaner cover.
2. Close the paper exit cover.



## 7.2 Replacement of Circuit Cards

[ Layout of Circuit Cards ]



## 7.2.1 MCTL Circuit Card.

### Tools

Phillips Screwdriver #1, #2

### Disassembly Procedures

1. Remove the side cover (L). (See the item 7.1.2)
2. Remove the top cover. (See the item 7.1.4)
3. Remove the set screw ST3 6 (3 pcs.) of shield cover 'A'.
4. Remove the shield cover 'A'.
5. Remove the set screw ST3 6 (3 pcs.) of shield (upper).
6. Remove the shield (upper).
7. Remove the set screw ST3 6 (1 pc.) of shield cover 'B'.
8. Disconnect all the harness connectors (5 pcs.) connected with the MCTL.
9. Remove the set screw ST3 6 (4 pcs.) of MCTL.
10. Remove the MCTL.

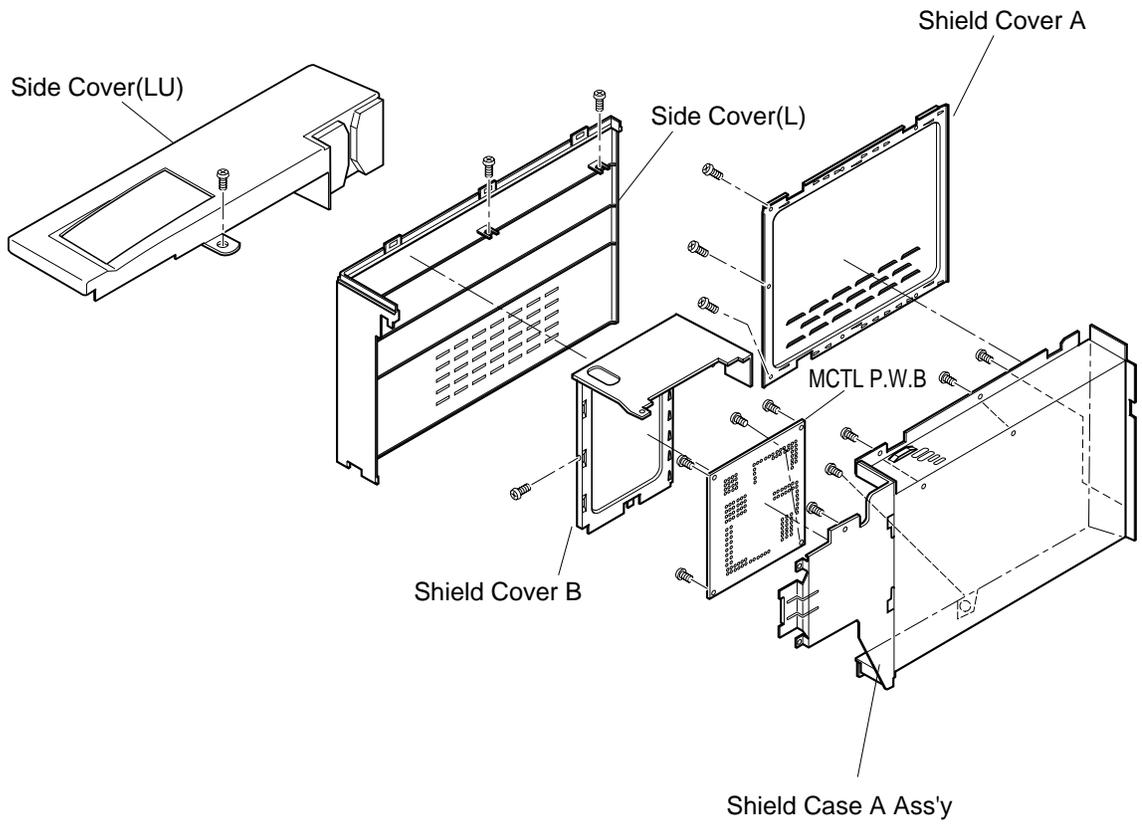
### Assembly Procedures

1. Assemble a new MCTL Circuit Card.
2. After above assembling, follow the reverse order of above disassembling for set-up.
3. Upon completion of above set-up, connect the power supply cable.
4. Turn on the power switch of the printer.
5. Execute the RAM clear in Service Mode.
6. Input content of RAM before replacement in Service Mode. (See the item 6.5.2.)
7. Confirm the operation and print quality by implementing the test print.

**Caution!** Read the information of internal counter prior to replacing the MCTL Circuit Card.

Use proper grounding procedures to prevent electrostatic discharge when removing or installing the MCTL circuit board.

Ensure that the firmware revision number on the new card is current if not ensure that you flash update the firmware for proper operation of the printer.



## 7.2.2 IOD1 Circuit Card.

### Tools

Phillips Screwdriver #1, #2

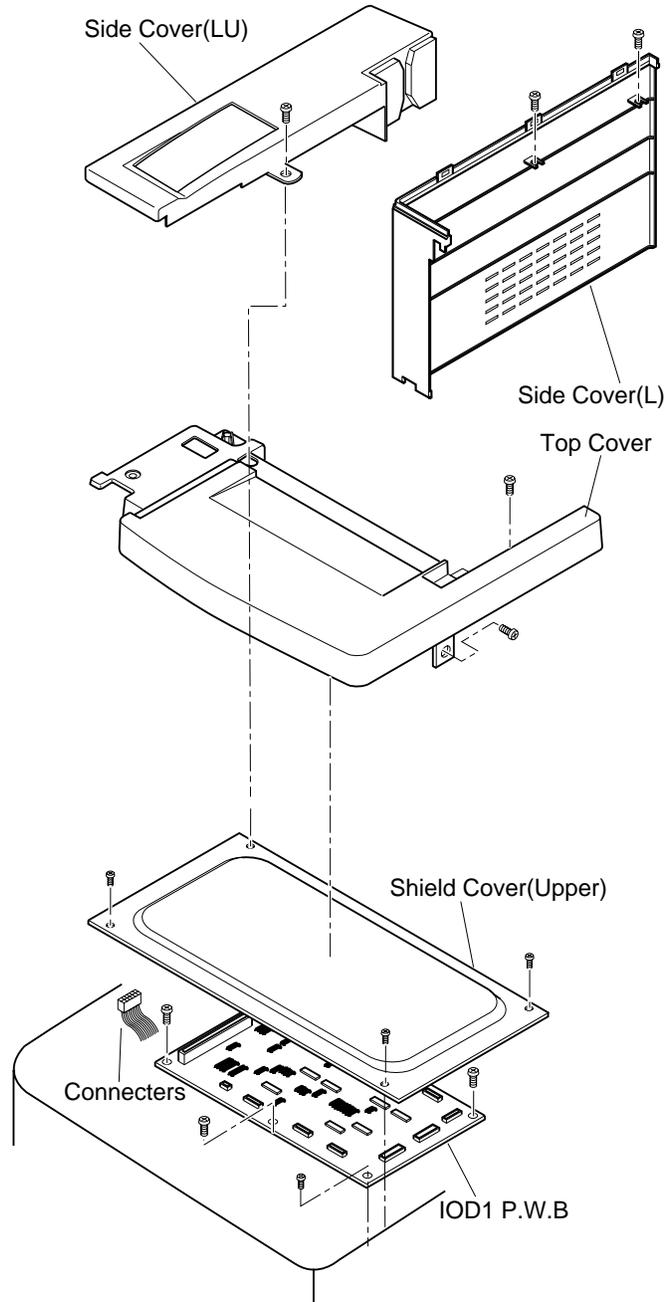
### Disassembly Procedures

1. Remove the side cover (LU). (See the item 7.1.1.)
2. Remove the top cover. (See the item 7.1.4.)
3. Remove the set screw ST3 6 (3 pcs.) of shield (upper).
4. Remove the shield (upper).
5. Disconnect all the harness connectors (4 pcs.) connected with the IOD1 Circuit Card.
6. Remove the set screw ST3 6 (6 pcs.) of IOD1 Circuit Card.
7. Remove the IOD1 Circuit Card.

### Assembly Procedures

1. Assemble a new IOD1 Circuit Card.
2. After above assembling, follow the reverse order of above disassembling for set-up.
3. Upon completion of above set-up, connect the power supply cable.
4. Turn on the power switch of the printer.
5. Execute the test print in Service Mode.
6. Confirm the operation and print quality of printer.

**Caution!** Use proper grounding procedures to prevent electrostatic discharge when removing or installing the IOD1 circuit board.



### 7.2.3 IOD2 Circuit Card. (with the base)

#### Tools

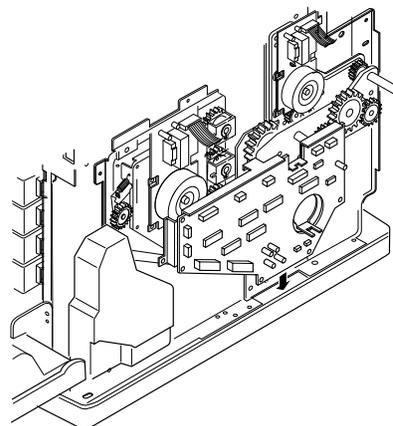
Phillips Screwdriver #1, #2  
Slotted Screwdriver #1

#### Disassembly Procedures

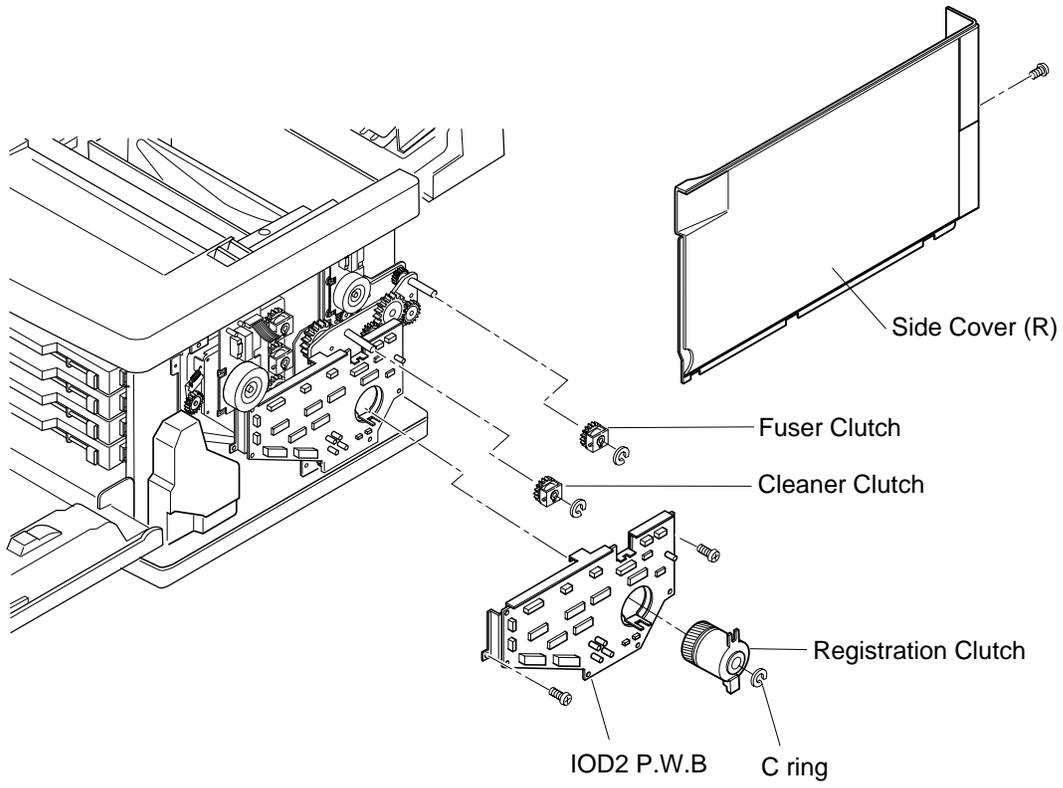
1. Remove the side cover (R). (See the item 7.1.3.)
2. Disconnect all the harness connectors (15 pcs.) connected with the IOD2 Circuit Card.
3. Remove the C ring of registration clutch, cleaner clutch, and fuser clutch.
4. Remove all the clutches from the shaft.
5. Remove the set screw ST3 6 (2 pcs.) of IOD2 Circuit Card base.
6. Remove the IOD2 Circuit Card (with the base) from the main body.

#### Assembly Procedures

1. Assemble a new IOD2 Circuit Card.
2. Having the recess of Circuit Card. base meet the stopper of paper feeding clutch, install IOD2 Circuit Card.
3. After above assembling, follow the reverse order of above disassembling for set-up.
4. Upon completion of above set-up, connect the power supply cable.
5. Turn on the power switch of the printer.
6. Execute the test print in Service Mode.
7. Confirm the operation and print quality of printer.



**Caution!** When replacing the IOD1 Circuit Card, pay a good attention so that no damage is caused due to electrostatic discharge.



## 7.2.4 Panel Circuit Card. (LCD inclusive)

### Tools

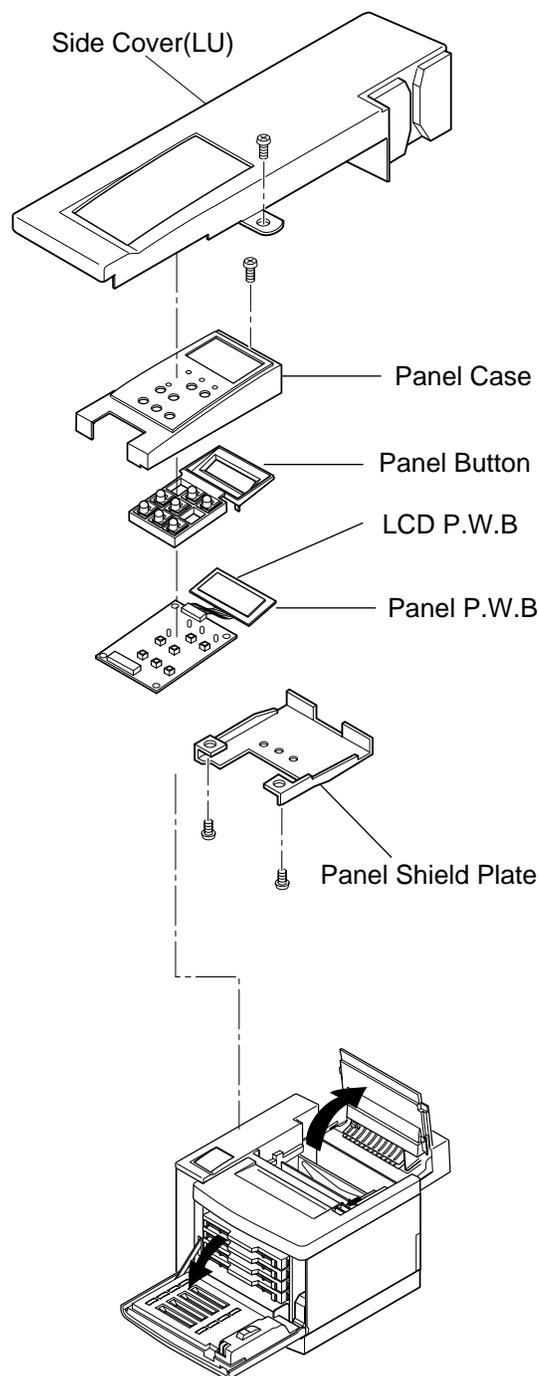
Phillips Screwdriver #1, #2

### Disassembly Procedures

1. Remove the side cover (LU). (See the item 7.1.1.)
2. Remove the set screw BT4 10 (1 pc.) of the panel case assembly.
3. Remove the set screw BT3 8 (4 pcs.) of panel Circuit Card and LCD from the panel case assembly.

### Assembly Procedures

1. Assemble a new panel Circuit Card. (LCD inclusive) to the panel case.
2. Install the panel case to the top cover and connect the connector.
3. Upon completion of above installation, connect the power supply cable.
4. Turn on the power switch of the printer.
5. Execute the test print in Service Mode.
6. Confirm the panel switch and indicator.



## 7.2.5 Power Supply Unit

### Tools

Phillips Screwdriver

Slotted Screwdriver

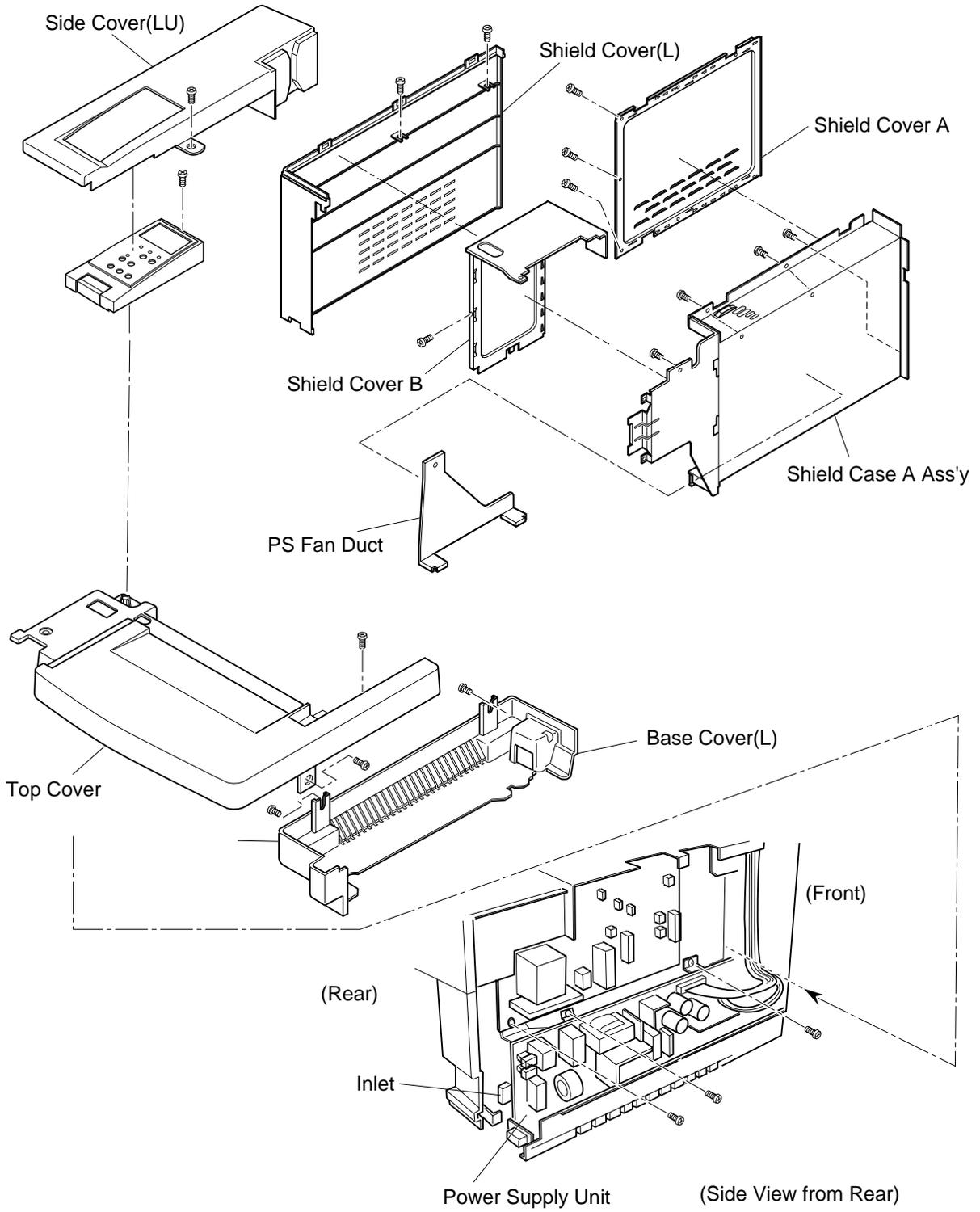
### Disassembly Procedures

1. Remove the side cover (LU). (See the item 7.1.1.)
2. Remove the side cover (L). (See the item 7.1.2.)
3. Remove the shield cover (upper). (See the item 7.2.1.)
4. Remove the shield cover A.(See the item 7.2.1.)
5. Remove the shield cover B.(See the item 7.2.1.)
6. Disconnect all the harness connectors (5 pcs.) connected to the MCTL Circuit Card.
7. Remove the set screw ST3 6 (2 pcs.) of control fan assembly. (See the item 7.3.4.)
8. Remove I/F Circuit Card guide rail (upper).
9. Remove the set screw ST3 6 (5 pcs.) of shield case 'A' assembly.
10. Remove the set screw BT4 10 (2 pcs.) of base cover (R).
11. Remove the base cover (R).
12. Remove the fan duct of power supply.
13. Disconnect all the harness connectors connected to the power supply unit.
14. Remove the set screw ST3 6 (2 pcs.) of power supply switch from the switch base.
15. Remove the metal fixture for switch.
16. Remove the set screw ST3 6 (2 pcs.) of power supply switch from the switch base.
17. Remove the rear cover. (See the item 7.1.8.)
18. Remove the inlet from the frame.
19. Remove the set screw M4 6 (1 pc.) with spring washer of grounding harness.
20. Remove the set screw ST3 6 (3 pcs.) of power supply unit.
21. Remove the power supply unit.

### Assembly Procedures

1. Install a new power supply unit. When installing, have a lower hole of the power supply unit meet a projection of the base.
2. After installing the new power supply unit, follow exactly the reverse order of disassembly procedures.
3. Upon completion of the installation, reconfirm the earthing wires are provided to the frame.
4. Connect the power supply cable.
5. Turn the power supply switch ON.
6. Execute the test print in Service Mode to confirm the operation and print quality.

**WARNING!** Grounding wire is very important to the safety of users. Upon removal of the power supply unit, confirm that the grounding wires (green and yellow color) is securely connected.



## 7.2.6 High Voltage Unit

### Tools

Phillips Screwdriver #1, #2

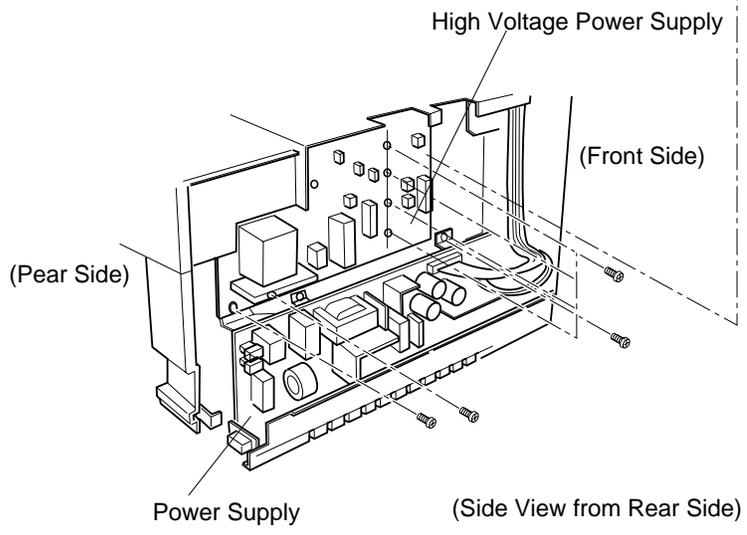
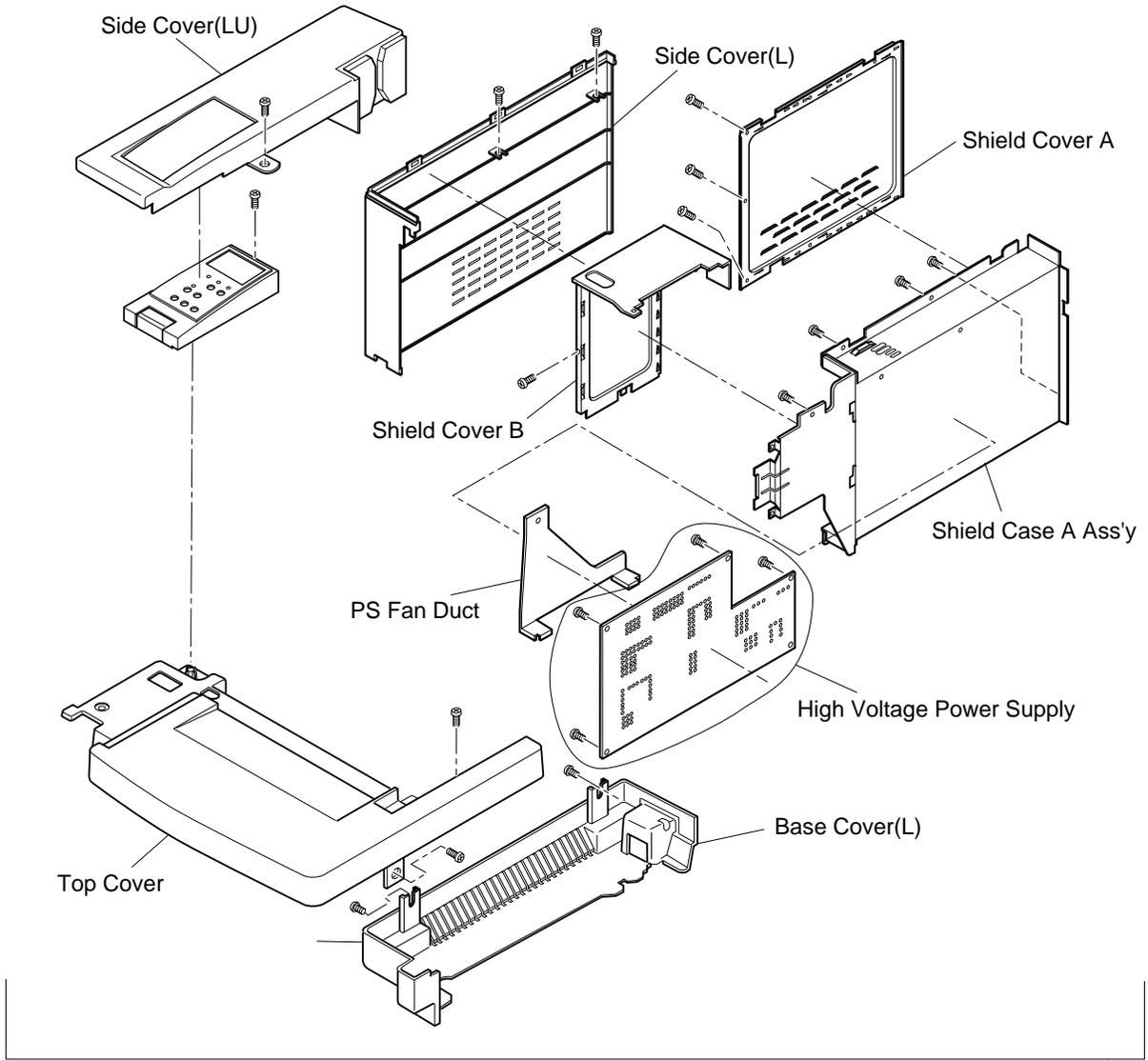
### Disassembly Procedures

1. Remove the side cover (LU). (See the item 7.1.1.)
2. Remove the side cover (L). (See the item 7.1.2.)
3. Remove the shield cover (upper). (See the item 7.2.1.)
4. Remove the shield cover A.(See the item 7.2.1.)
5. Remove the shield cover B.(See the item 7.2.1.)
6. Disconnect all the harness connectors (5 pcs.) connected to the MCTL Circuit Card.
7. Remove the set screw ST3 6 (2 pcs.) of fun assembly. (See the item 7.3.4.)
8. Remove I/F Circuit Card guide rail (upper).
9. Remove the set screw ST3 6 (5pcs.) of shield case 'A' assembly.
10. Remove the set screw ST4 10 (2 pcs.) of base cover (R).
11. Remove the base cover (R).
12. Remove the fan duct of power supply.
13. Disconnect all the harness connectors (5 pcs.) connected to the high voltage unit.
14. Remove the set screw ST3 6 (1 pc.) and BT3 8 (6 pcs.) of high voltage unit.
15. Remove the high voltage unit.

### Assembly Procedures

1. Install a new high voltage unit. When installing, have a lower hole of the high voltage Circuit Card meet a projection of the base.
2. ( i) When installing, put each electrode terminal through the holes of Circuit Card. from the back.
3. (ii) Having the set holes for the electrode meet the installation hole of Circuit Card, fix the both by screwing.
4. After the above , follow exactly the reverse order of disassembling procedures.
5. Upon completion of the installation, connect the power supply cable.
6. Turn the power supply switch ON.
7. Execute the test print in Service Mode.
8. Confirm the operation and print quality.

**WARNING!** High Voltage Unit generates high voltage (5KV). You may get electric shock if you touch the unit while it is powered on. Therefore, turn on the unit only after having installed the side cover (L).



## 7.2.7 Erase Lamp

### Tools

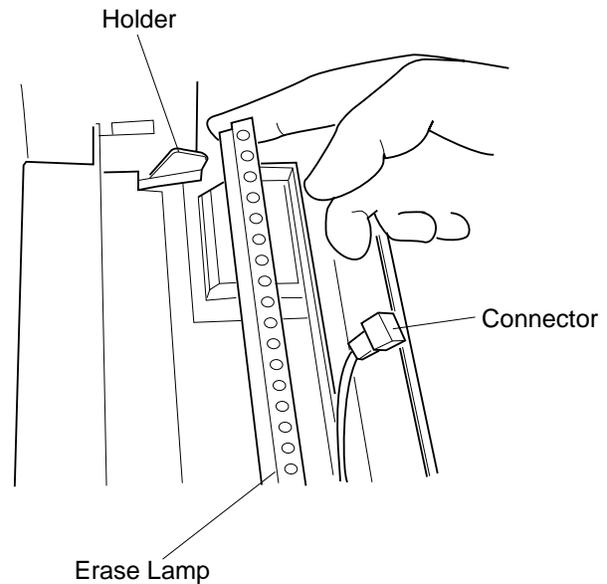
Phillips Screwdriver #1, #2

### Disassembly Procedures

1. Remove the drum cleaner assembly. (See the item 7.6.3.)
2. Disconnect the harness connectors connected to the erase lamp.
3. Remove the erase lamp from the holder.

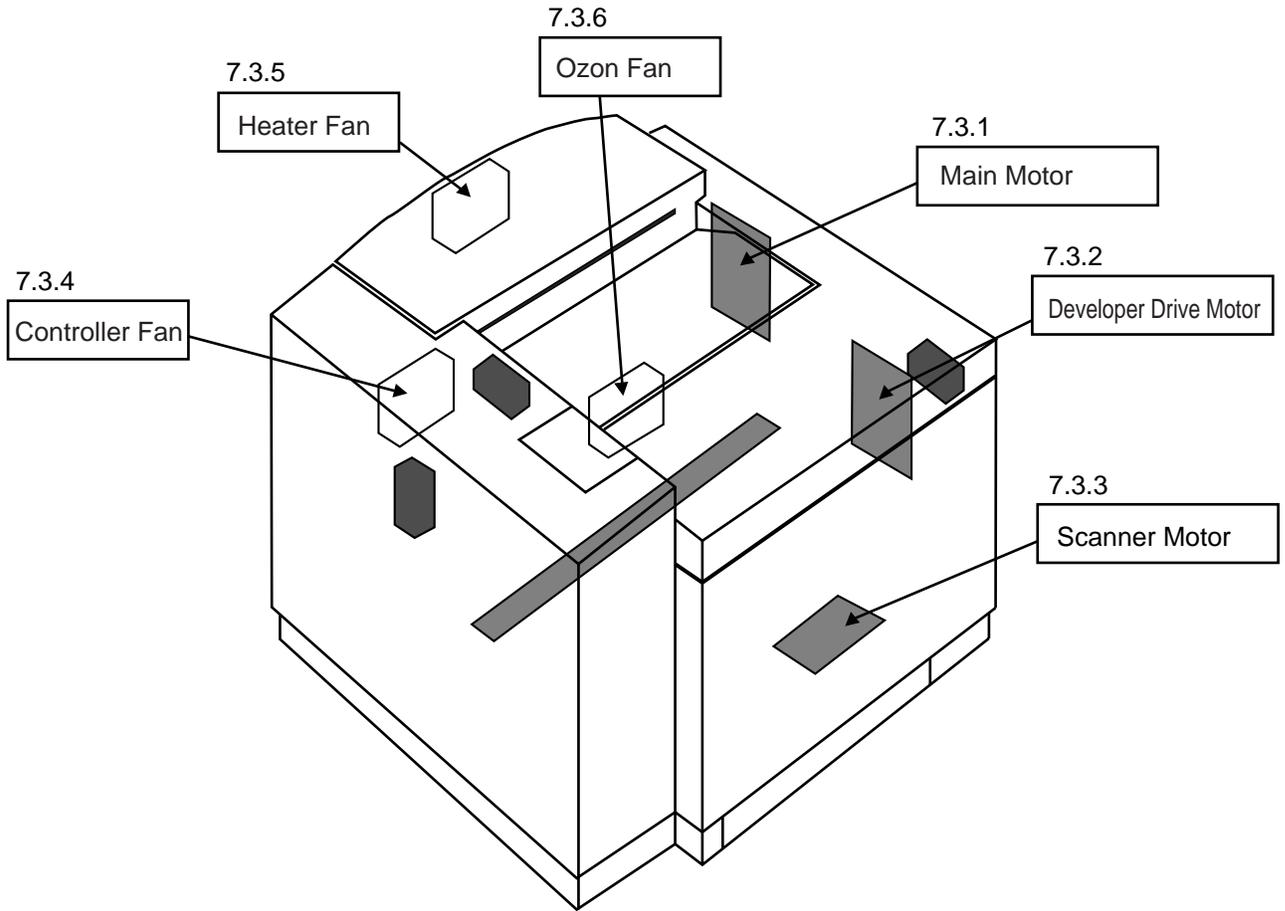
### Assembly Procedures

1. Install a new erase lamp.
2. Install the erase lamp to the base frame.
3. After the above, follow exactly the reverse order of disassembling procedures.
4. Upon completion of the installation, connect the power supply cable.
5. Turn the power supply switch ON.
6. Execute the test print in Service Mode.
7. Confirm the operation and print quality.



### 7.3 Replacement of Motor and Fan Units

[ Layout of Motors and Fans]



### 7.3.1 Main Motor (MM)/Main Gear Unit

#### Tools

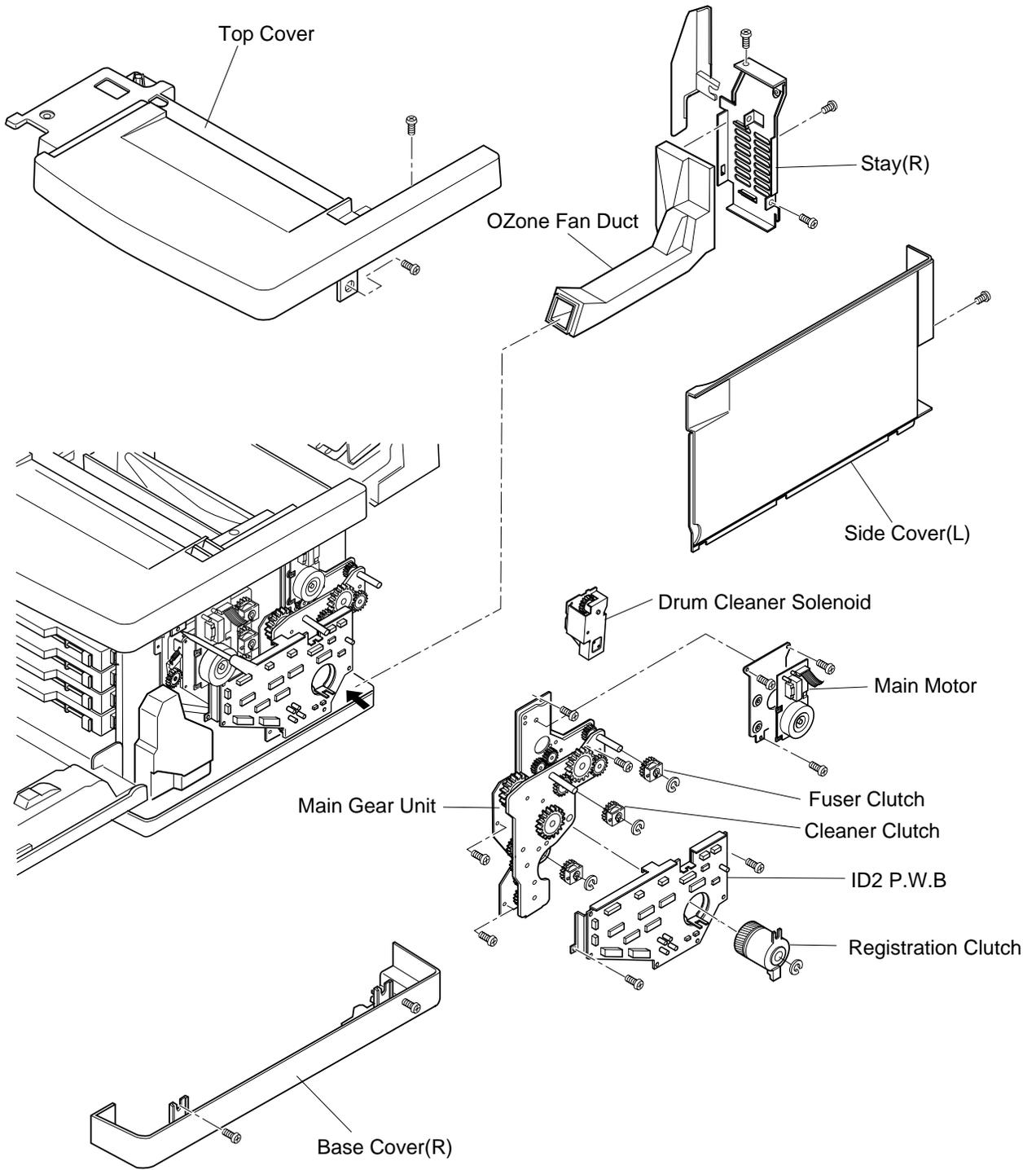
Phillips Screwdriver #1, #2

#### Disassembly Procedures

1. Remove the photoconductor belt module.
2. Remove the side cover (R). (See the item 7.1.3.)
3. Remove the IOD2 Circuit Card base. (See the item 7.2.3.)
4. Disconnect all the harness connector connected with the main motor.
5. Remove ST3 6 (3 pcs.), and the stay (R).
6. Remove the set screw ST3 6 (1 pc.) of fan case. (Ozone fan)
7. Remove the ozone fan duct.
8. Remove the paper feeder clutch. (See the item 7.4.1.)
9. Remove the set screw ST3 6 (4 pcs.) of main gear unit.
10. Pull out the main gear unit from the frame.
11. Remove the set screw ST3 6 (4 pcs.) of main motor from the main gear unit.

#### Assembly Procedures

1. Install a new main motor to the main gear unit.
2. Install the main gear unit to the main body.
3. After the above , follow exactly the reverse



## 7.3.2 Developer Drive Motor (DM)/Developer Drive Unit

### Tools

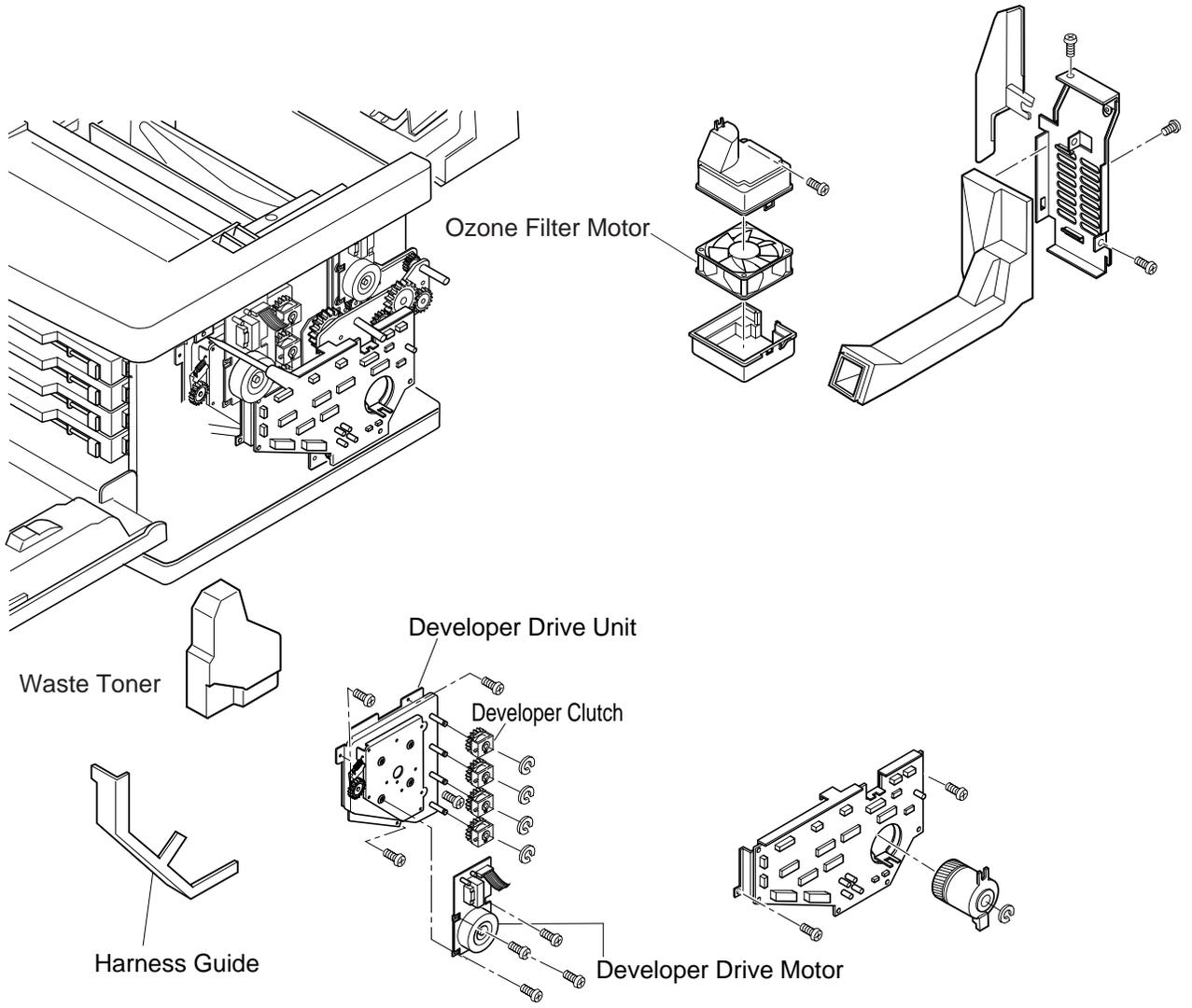
Phillips Screwdriver #1, #2

### Disassembly Procedures

1. Remove the toner module.
2. Remove the side cover (R). (See the item 7.1.3.)
3. Remove the IOD2 Circuit Card. (See the item 7.2.3.)
4. Remove the harness guide.
5. Remove the connector to be connected to the developer drive motor.
6. Remove the set screw ST3 6 (4 pcs.) of developer gear unit.
7. Remove the developer drive unit.
8. Remove the set screw ST3 6 (4 pcs.) of developer drive motor from the developer drive unit.
9. Remove the developer drive motor.

### Assembly Procedures

1. Install a new developer drive motor to the developer drive unit.
2. Install the developer drive unit to the main body.
3. After the above , follow exactly the reverse order of disassembling procedures.



### 7.3.3 Optical Unit (Scanner Motor inclusive)

#### Tools

Phillips Screwdriver #1, #2

#### Disassembly Procedures

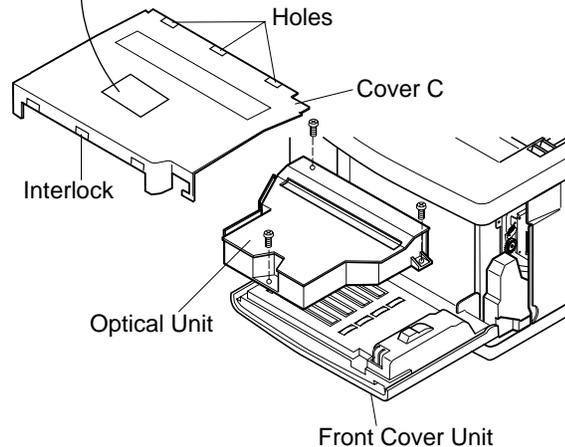
1. Remove the toner modules.
2. Remove the photoconductor belt module.
3. Remove the cover 'C'. Cover 'C' is secured by the plastic nubs and hole at three locations in the front side and rear.
  - a. Release the fixing of three locations (three holes at the rear side).
  - b. Pulling the cover C toward you, release the fixing of front side lock.
4. Remove the cover 'C' from the printer.
5. Remove the set screw ST3 6 (3 pcs.) of optical unit.
6. Disconnect all the harness connector connected with the optical unit.
7. Remove the optical unit from the printer.

#### Assembly Procedures

1. Having a new optical unit align the locating boss, install the optical unit into the printer base.
2. After the above, follow exactly the reverse order of disassembling procedures.

**WARNING!** There is a class b laser within the optical unit. Do not attempt to disassemble the laser. Optical unit is replaced as a whole unit. No adjustment is required to the replaced optical unit. Confirm all the covers have been installed prior to any test run or operation in order to prevent any laser radiation from occurring.

Laser WARNING Label



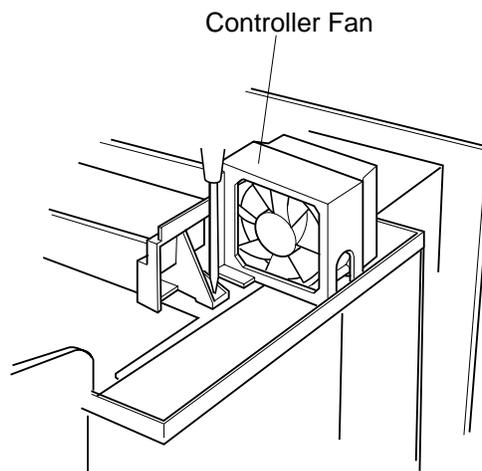
### 7.3.4 Control Fan (CTFAN)

#### Tools

Phillips Screwdriver #1, #2

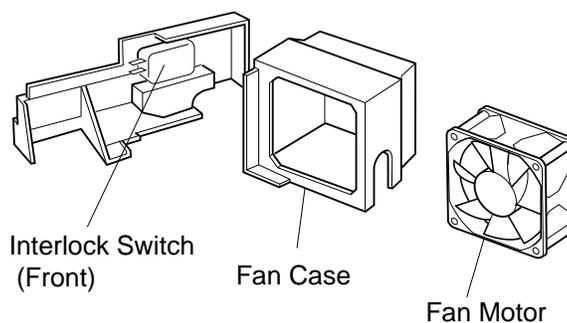
#### Disassembly Procedures

1. Remove the side cover (LU). (See the item 7.1.1.)
2. Remove the side cover (L). (See the item 7.1.2.)
3. Remove the top cover. (See the item 7.1.4.)
4. Remove the set screw ST3 6 (3 pcs.), and shield cover (upper).
5. Disconnect all the fan motor harness connectors.
6. Remove the set screw ST3 6 (2 pcs.) of fan case assembly.
7. Remove the fan motor from the fan case assembly.



#### Assembly Procedures

1. Install a new fan motor to the fan case.
2. Install the fan duct assembly to the main body.
3. After the above , follow exactly the reverse order of disassembling procedures.
4. Upon completion of the installation, connect the power supply cable.
5. Turn the power supply switch ON.
6. Execute the test print in Service Mode.
7. Confirm the operation and print quality.



## 7.3.5 Fuser Fan (FUFAN)

### Tools

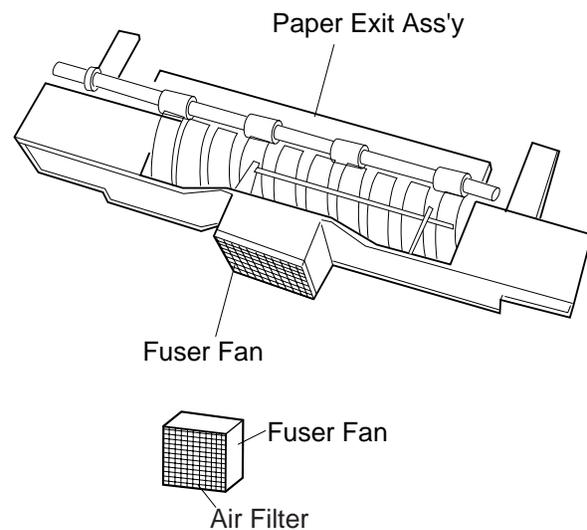
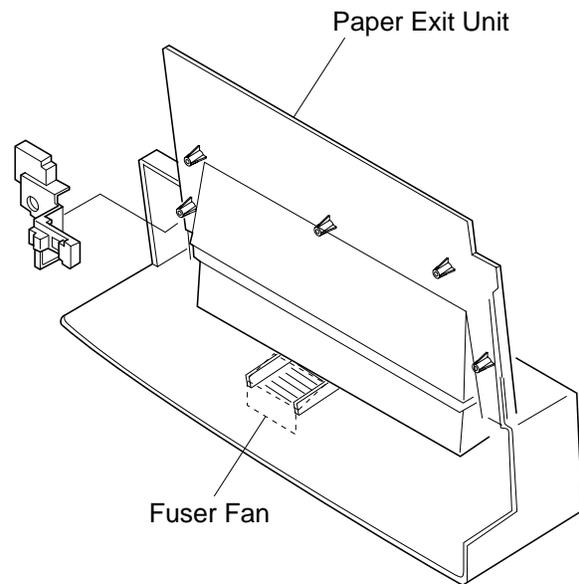
Phillips Screwdriver #1, #2

### Disassembly Procedures

1. Remove the side cover (LU). (See the item 7.1.1.)
2. Remove the side cover (L). (See the item 7.1.2.)
3. Remove the shield cover 'A'.
4. Remove the paper exit unit. (See the item 7.1.5.)
5. Remove the paper exit cover. (See the item 7.1.5.)
6. Remove the fan case assembly from the paper exit guide assembly.
7. Remove the fan motor from the fan case assembly.

### Assembly Procedures

1. Install a new fan motor to the paper exit guide assembly.
2. Install the paper exit cover to the paper exit guide assembly.
3. Install the paper exit unit.
4. After the above , follow exactly the reverse order of disassembling procedures.



### 7.3.6 Ozone Fan (OZFAN)

#### Tools

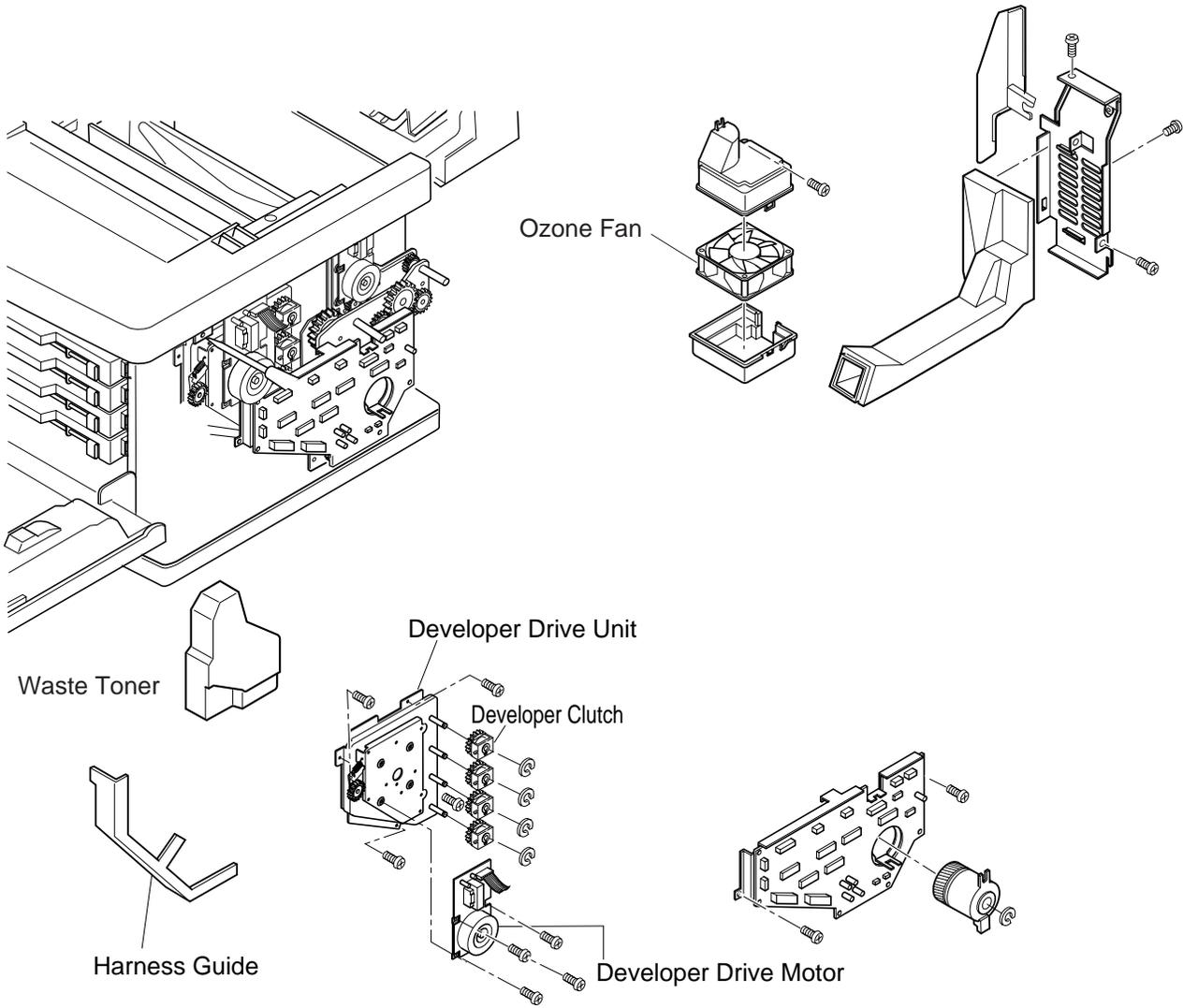
Phillips Screwdriver #1, #2

#### Disassembly Procedures

1. Remove the toner module.
2. Remove the side cover (R). (See the item 7.1.3.)
3. Remove the IOD2 Circuit Card. (See the item 7.2.3.)
4. Remove the harness guide.
5. Remove the connector to be connected to the developer drive motor.
6. Remove the set screw ST3 6 (2 pcs.) of developer gear unit.
7. Remove the developer drive unit.
8. Set the waste toner feeder to be nearly up right position.
9. Remove the set screw ST3 6 (1 pc.) of fan case.
10. Remove the fan case.
11. Remove the fan motor from the fan case.

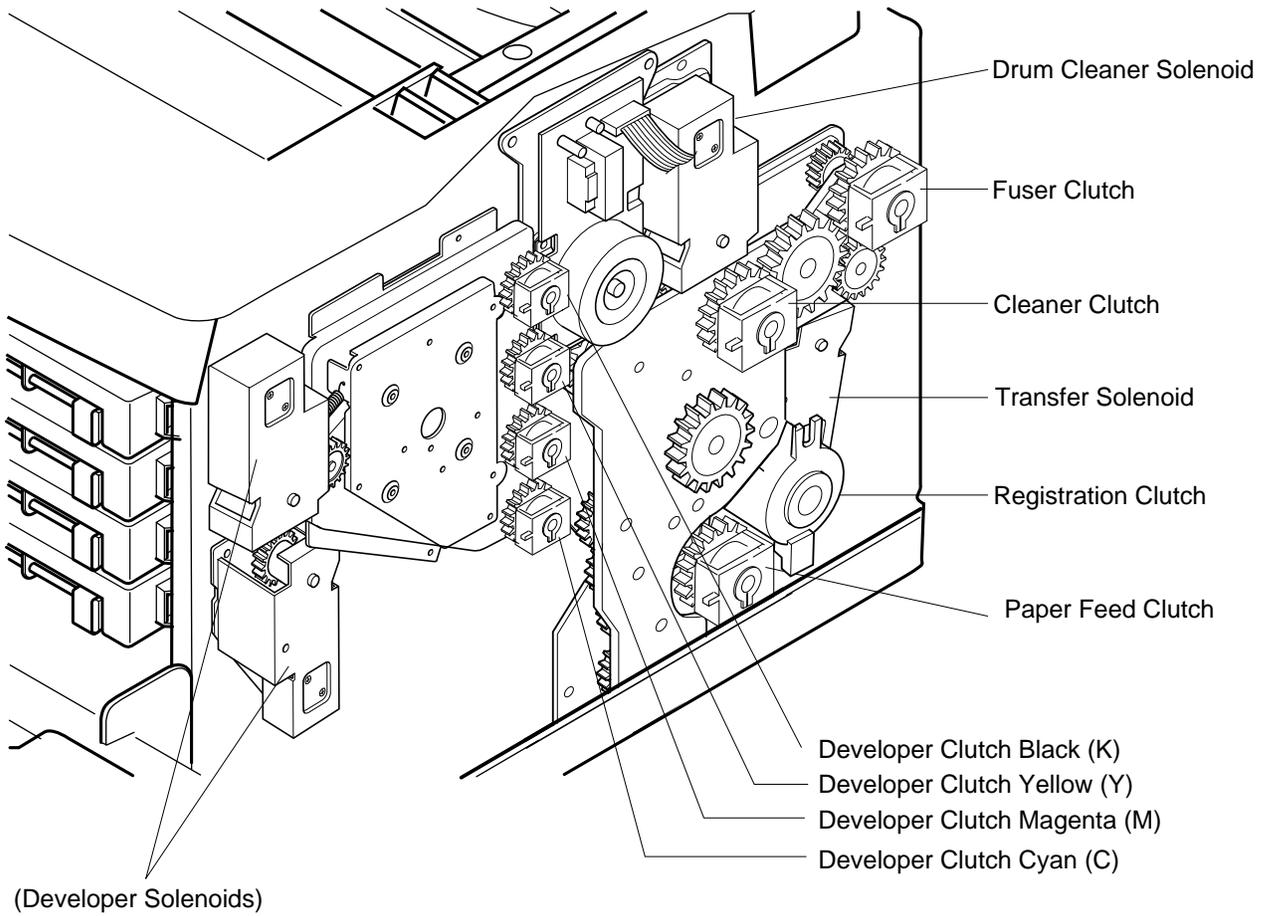
#### Assembly Procedures

1. Install a new fan motor to the fan case.
2. After the above , follow exactly the reverse order of disassembling procedures.



## 7.4 Replacement of Clutches and Solenoids

[ Layout of Clutches and Solenoids ]



## 7.4.1 Paper Feeding Clutch (PCLU)

### Tools

Phillips Screwdriver #1, #2

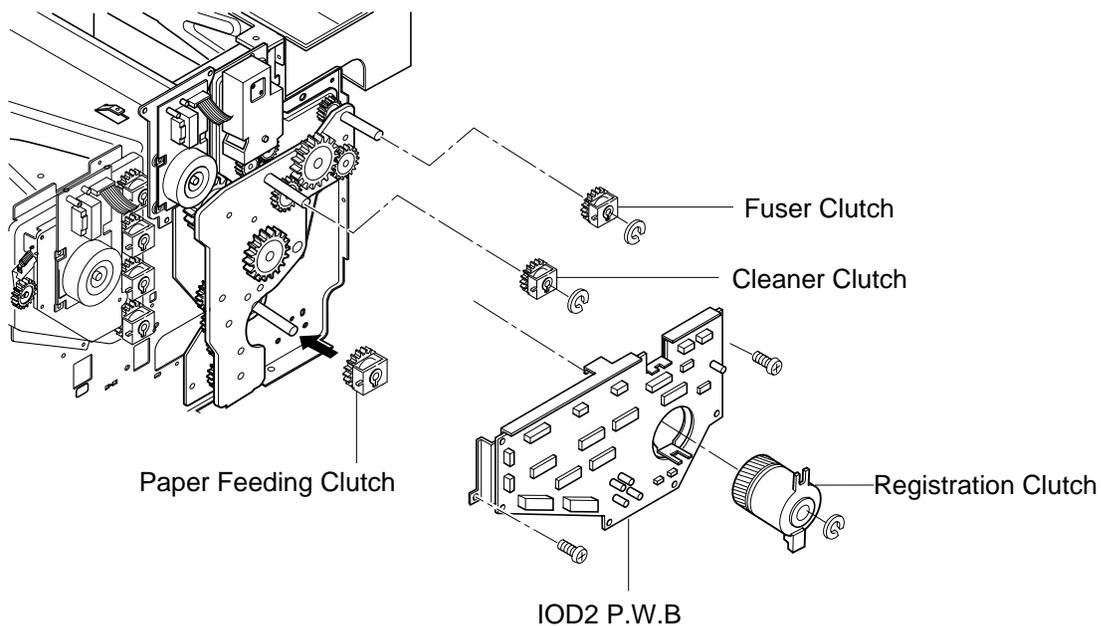
Slotted Screwdriver #1

### Disassembly Procedures

1. Remove the side cover (R). (See the item 7.1.3)
2. Remove the IOD2 Circuit Card base. (See the item 7.2.3)
3. Remove the C ring fixing the paper feeding clutch.
4. Remove the paper feeding clutch from the shaft.

### Assembly Procedures

1. Install a new paper feeding clutch to the shaft. Having the recess of Circuit Card. base meet the stopper of paper feeding clutch, install IOD2 Circuit Card.
2. Install the C ring to the shaft's groove, and fix the paper feeding clutch.
3. After the above, follow exactly the reverse order of disassembling procedures.



## 7.4.2 Registration Clutch (RECL)

### Tools

Phillips Screwdriver #1, #2

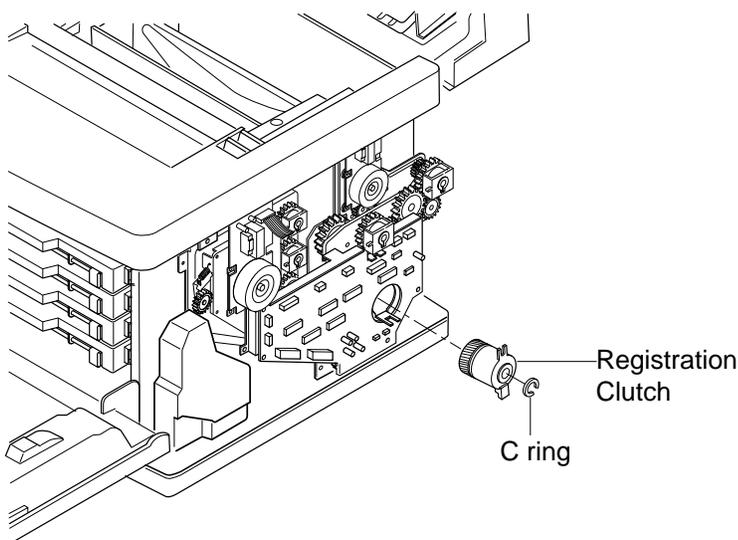
Slotted Screwdriver #1

### Disassembly Procedures

1. Remove the side cover (R). (See the item 7.1.3.)
2. Remove all the connector of registration clutch connected with IOD2 Circuit Card.
3. Remove the C ring from the shaft.
4. Pull out the registration clutch from the shaft.

### Assembly Procedures

1. Install a new registration clutch to the shaft.
2. Install the C ring to the shaft's groove, and fix the registration clutch.
3. Connect the connector with the IOD2 Circuit Card.
4. After the above , follow exactly the reverse order of disassembling procedures.



## 7.4.3 Fuser Clutch (FUCL)

### Tools

Phillips Screwdriver #1, #2

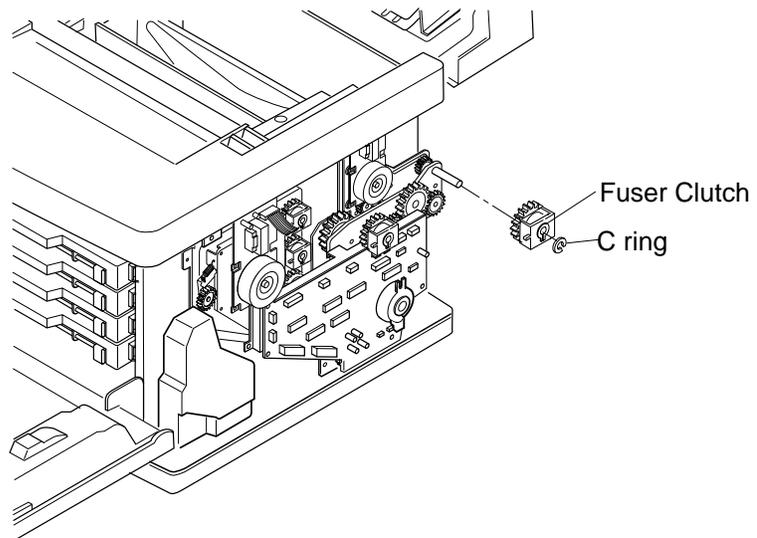
Slotted Screwdriver #1

### Disassembly Procedures

1. Remove the side cover (R). (See the item 7.1.3.)
2. Remove the connector connected with IOD2 Circuit Card.
3. Remove the C ring from the shaft.
4. Pull out the fuser clutch from the shaft.

### Assembly Procedures

1. Install a new fuser clutch to the shaft.
2. Install the C ring to the shaft's groove, and secure the fuser clutch.
3. Connect the connector with the IOD2 Circuit Card.
4. After the above, follow exactly the reverse order of disassembling procedures.



## 7.4.4 Cleaner Clutch (FBCL)

### Tools

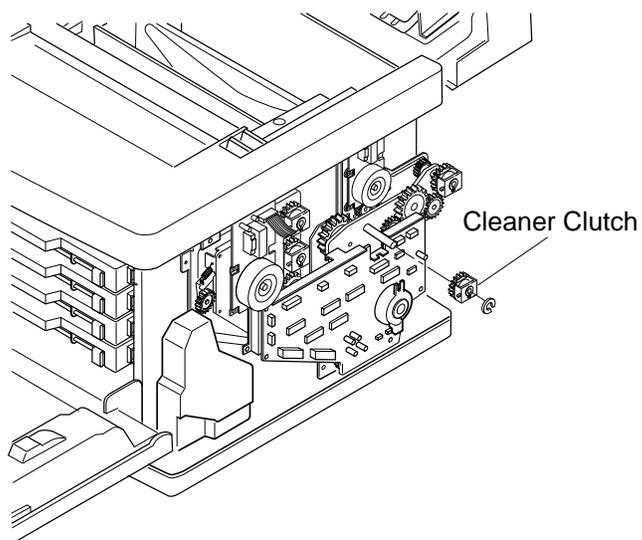
Phillips Screwdriver #1, #2  
Slotted Screwdriver #1

### Disassembly Procedures

1. Remove the side cover (R). (See the item 7.1.3 .)
2. Remove the connector of cleaner clutch from IOD2 Circuit Card.
3. Remove the C ring from the shaft.
4. Pull out the cleaner clutch from the shaft.

### Assembly Procedures

1. Install a new cleaner clutch to the shaft.
2. Install the C ring to the shaft's groove, and secure the cleaner clutch.
3. After the above, follow exactly the reverse order of disassembling procedures.



## 7.4.5 Developer Clutch (K, Y, M, C)

### Tools

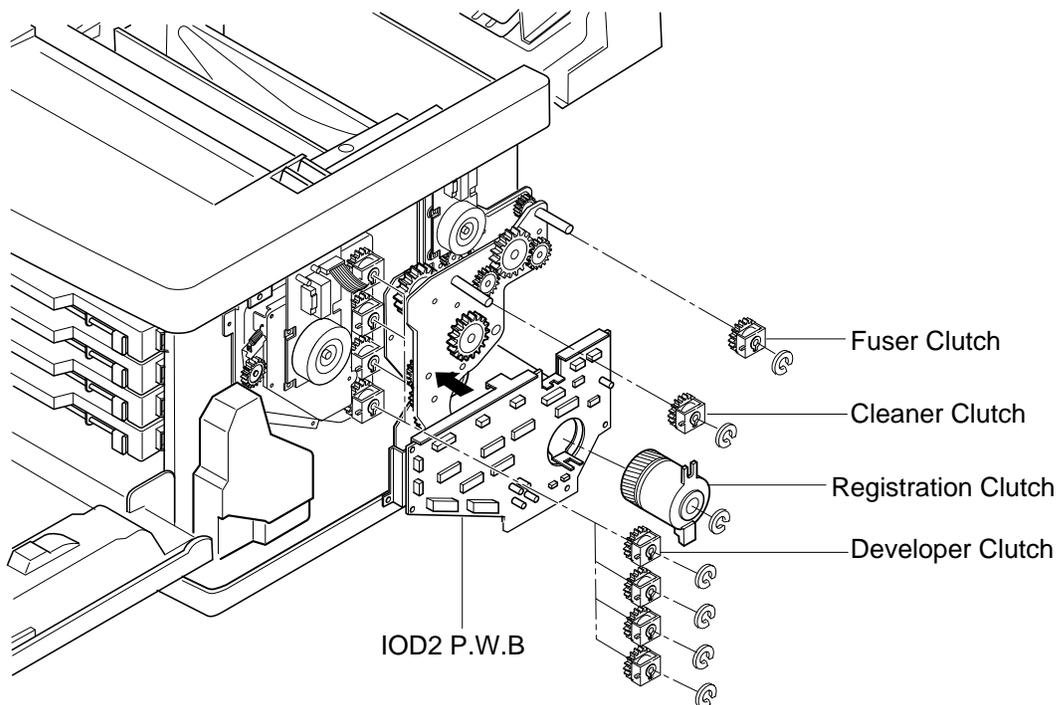
Phillips Screwdriver #1, #2 Slotted Screwdriver #1

### Disassembly Procedures

1. Remove the side cover (R). (See the item 7.1.3.)
2. Remove IOD2 Circuit Card. base. (See the item 7.2.3.)
3. Remove the C ring of the suspect developer clutch (K,Y,M, or C) from the shaft.
4. Pull out the subject developer clutch from the shaft.

### Assembly Procedures

1. Install a new developer clutch to the shaft.
2. Install the C ring to the shaft's groove, and fix the developer clutch.
3. After the above , follow exactly the reverse order of disassembling procedures.
4. Upon completion of the installation, connect the power supply cable.



## 74.6 Transfer Solenoid (TRSOL)

### Tools

Phillips Screwdriver #1, #2

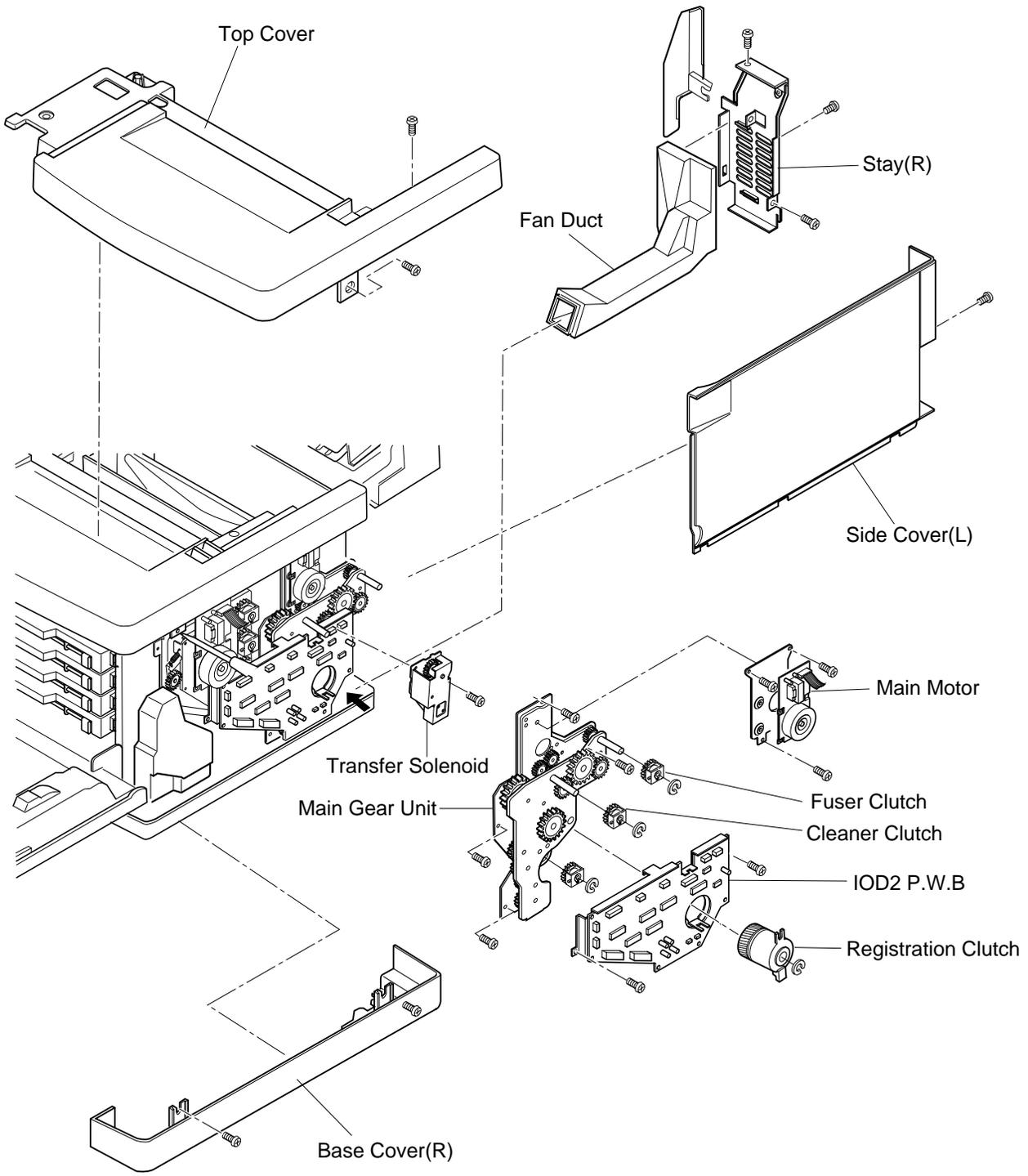
Slotted Screwdriver #1

### Disassembly Procedures

1. Remove the side cover (R). (See the item 7.1.3.)
2. Remove the IOD2 Circuit Card. (See the item 7.2.3.)
3. Remove the main gear unit. (See the item 7.3.1.)
4. Remove the set screw ST3 6 (2 pcs.) of tension solenoid.
5. Remove the tension solenoid.

### Assembly Procedures

1. Install a new tension solenoid.
2. After the above , follow exactly the reverse order of disassembling procedures.



## 7.4.7 Drum Cleaner Solenoid (FBSOL)

### Tools

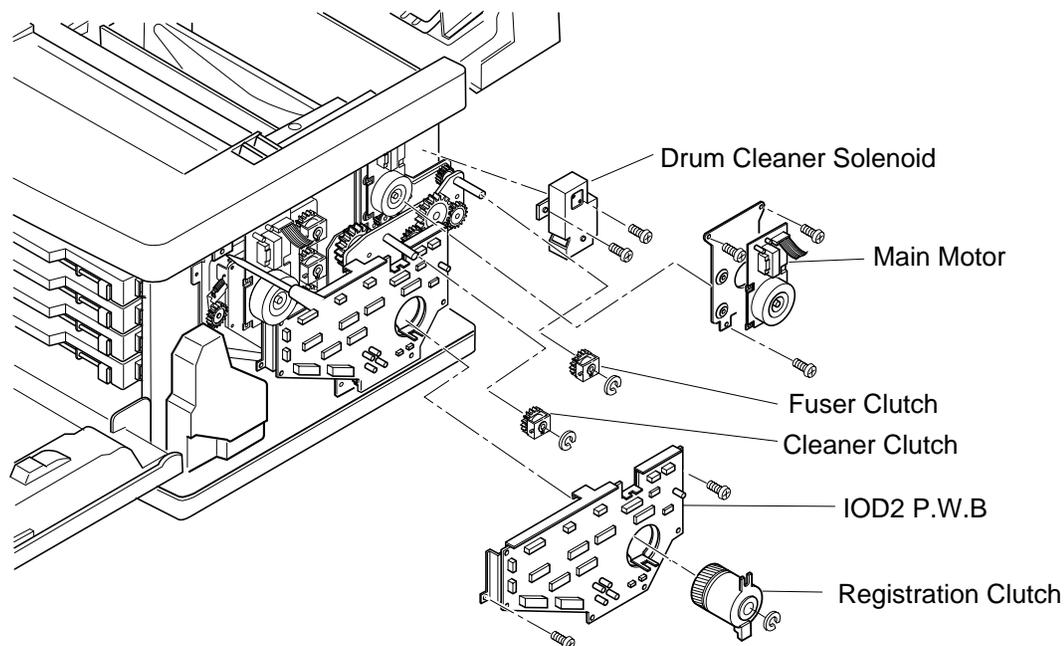
Phillips Screwdriver #1, #2, Slotted Screwdriver #1

### Disassembly Procedures

1. Remove the side cover (R). (See the item 7.1.3.)
2. Remove IOD2 Circuit Card base. (See the item 7.2.3.)
3. Remove the main motor/gear unit. (See the item 7.3.1.)
4. Remove the set screw ST3 6 (2 pcs.) of drum cleaner solenoid.
5. Remove the drum cleaner solenoid.

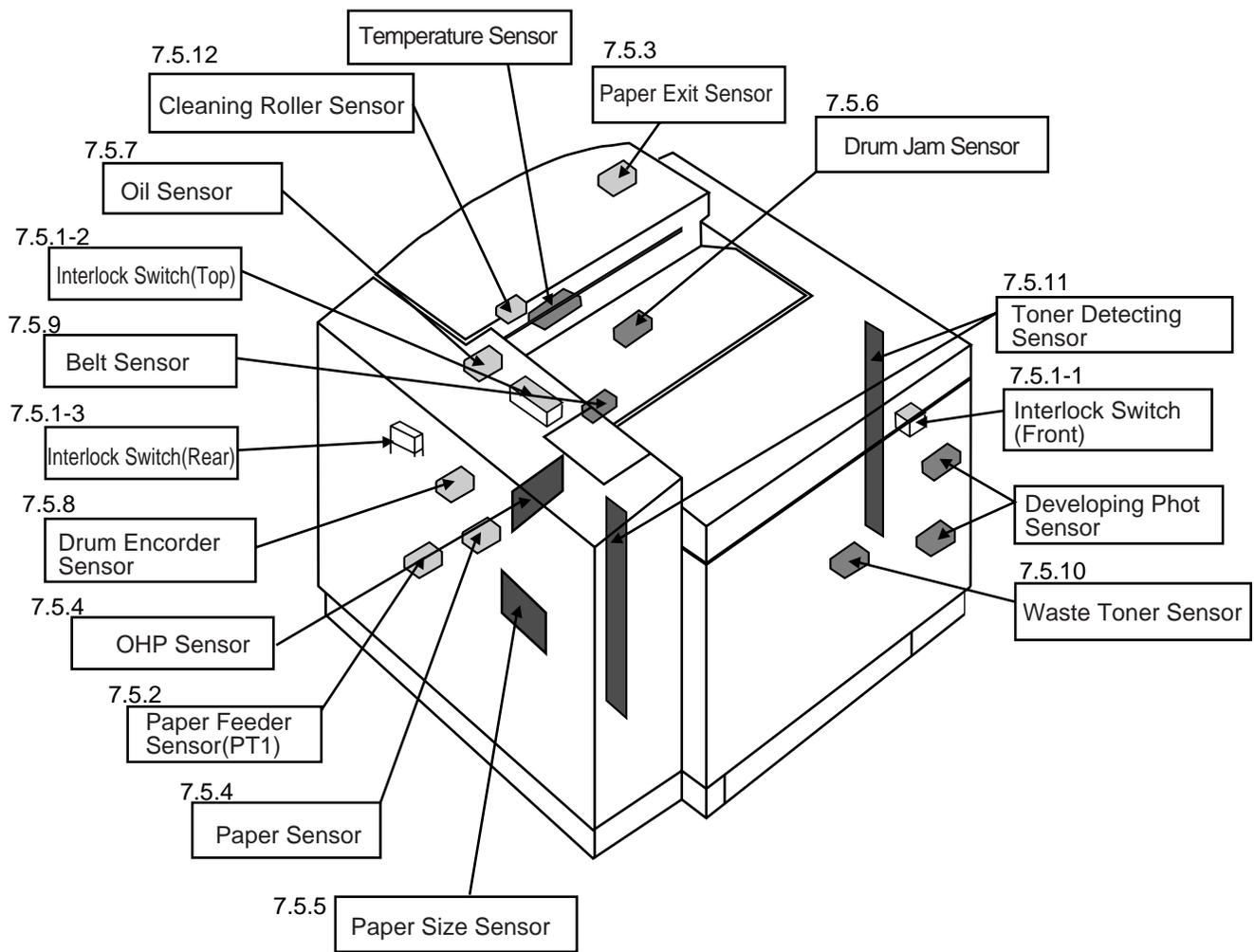
### Assembly Procedures

1. Install a new drum cleaner solenoid.
2. After the above , follow exactly the reverse order of disassembling procedures.
3. Upon completion of the installation, connect the power supply cable.
4. Turn the power supply switch ON.
5. Execute the test print in Service Mode.
6. Confirm the operation and print quality.



## 7.5 Replacement of Sensors

[ Layout of Sensors ]



### 75.1-1 Interlock Switch (Front)

#### Tools

Phillips Screwdriver #1

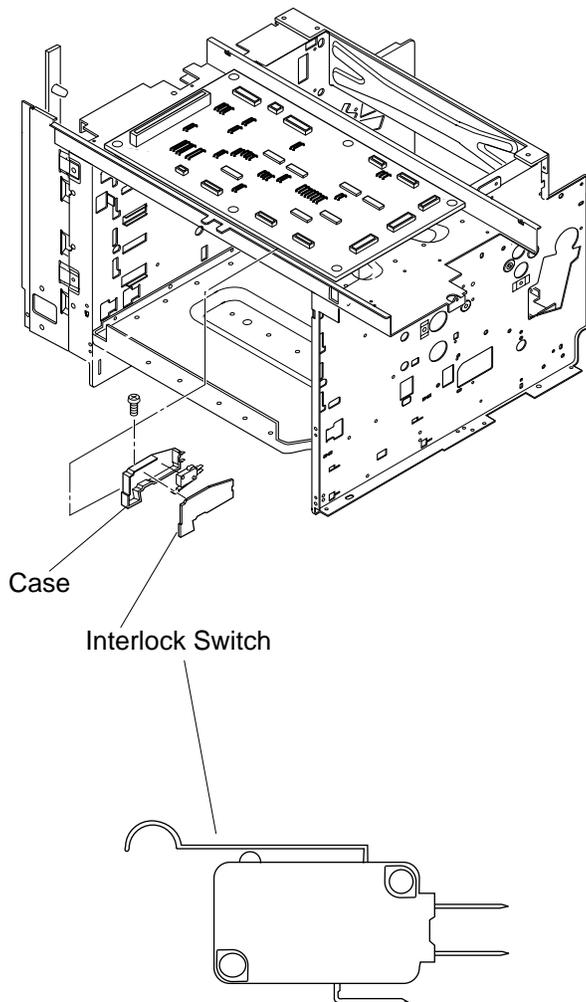
#### Disassembly Procedures

1. Remove the top cover. (See the item 7.1.4.)
2. Remove the shield cover (upper).
3. Remove the switch from the stay U.
4. Remove the connector.
5. Remove the switch from the switch case.

#### Assembly Procedures

1. Install a new switch to the switch base.
2. Connect the connector.
3. Install the switch case to the stay U.

**Caution!** Since the interlock switch is an important part for the safety, confirm after installation that the switch operates normally.



## 7.5.1-2 Interlock Switch (Top) (for Paper Exit Unit)

### Tools

Phillips Screwdriver #1, #2

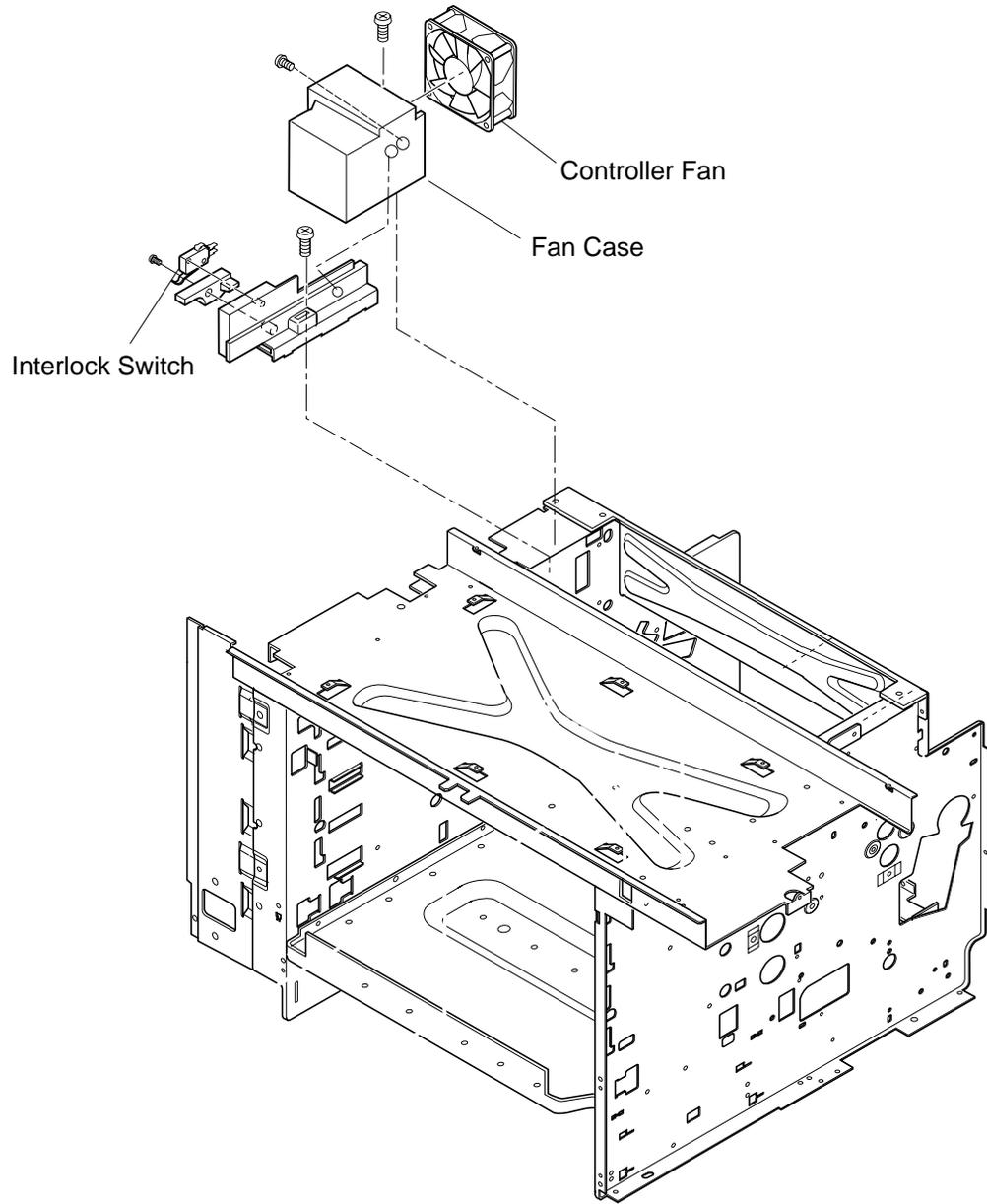
### Disassembly Procedures

1. Remove the side cover (LU). (See the item 7.1.1.)
2. Remove the top cover. (See the item 7.1.4.)
3. Remove the set screw ST3 6 (2 pcs.), and the control fan assembly.
4. Remove the set screw BT3 8 (1 pc.), and switch base from the control fan assembly.
5. Remove the connector.
6. Remove the switch from the switch base.

### Assembly Procedures

1. Install a new switch to the switch base.
2. After the above, follow exactly the reverse order of disassembling procedures.

**Caution!** Since the interlock switch is an important part for the safety, confirm after installation that the switch operates normally.



### 7.5.1-3 Interlock Switch (Rear)

#### Tools

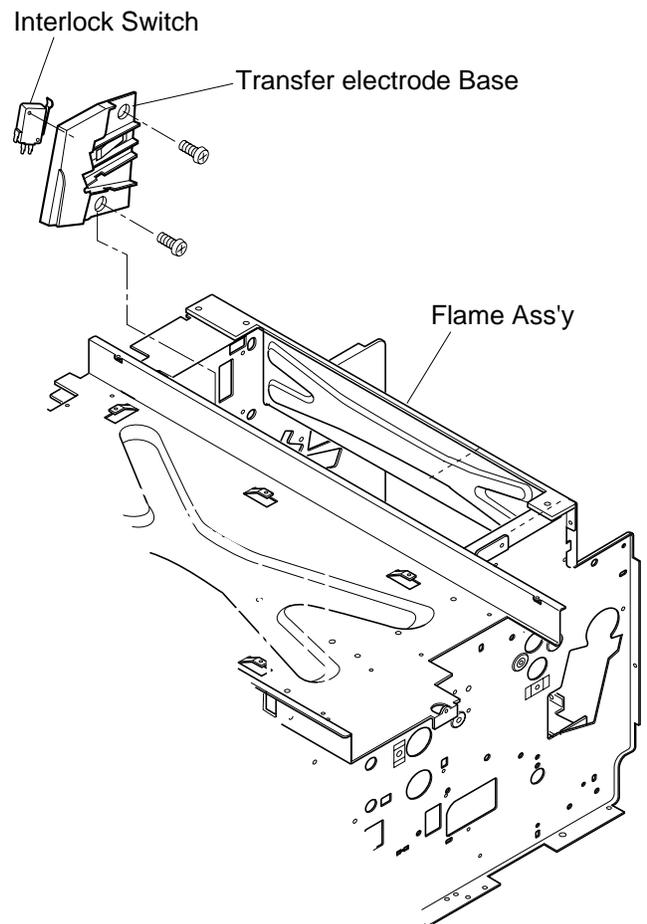
Phillips Screwdriver #1

#### Disassembly Procedures

1. Remove the side cover (L). (See the item 7.1.2.)
2. Remove the transfer drum. (See the item 7.6.3.)
3. Remove the set screw ST3 6 (2 pcs.) of transfer electrode base.
4. Remove the transfer electrode base from the frame.
5. Disconnect all the harness connectors connected with the interlock switch.
6. Remove the micro switch from the transfer electrode base.

#### Assembly Procedures

1. Install a new interlock switch to the transfer electrode base.
2. After the above , follow exactly the reverse order of disassembling procedures.



## 7.5.2 Paper Sensor (Paper Feeding Sensor PT1)

### Tools

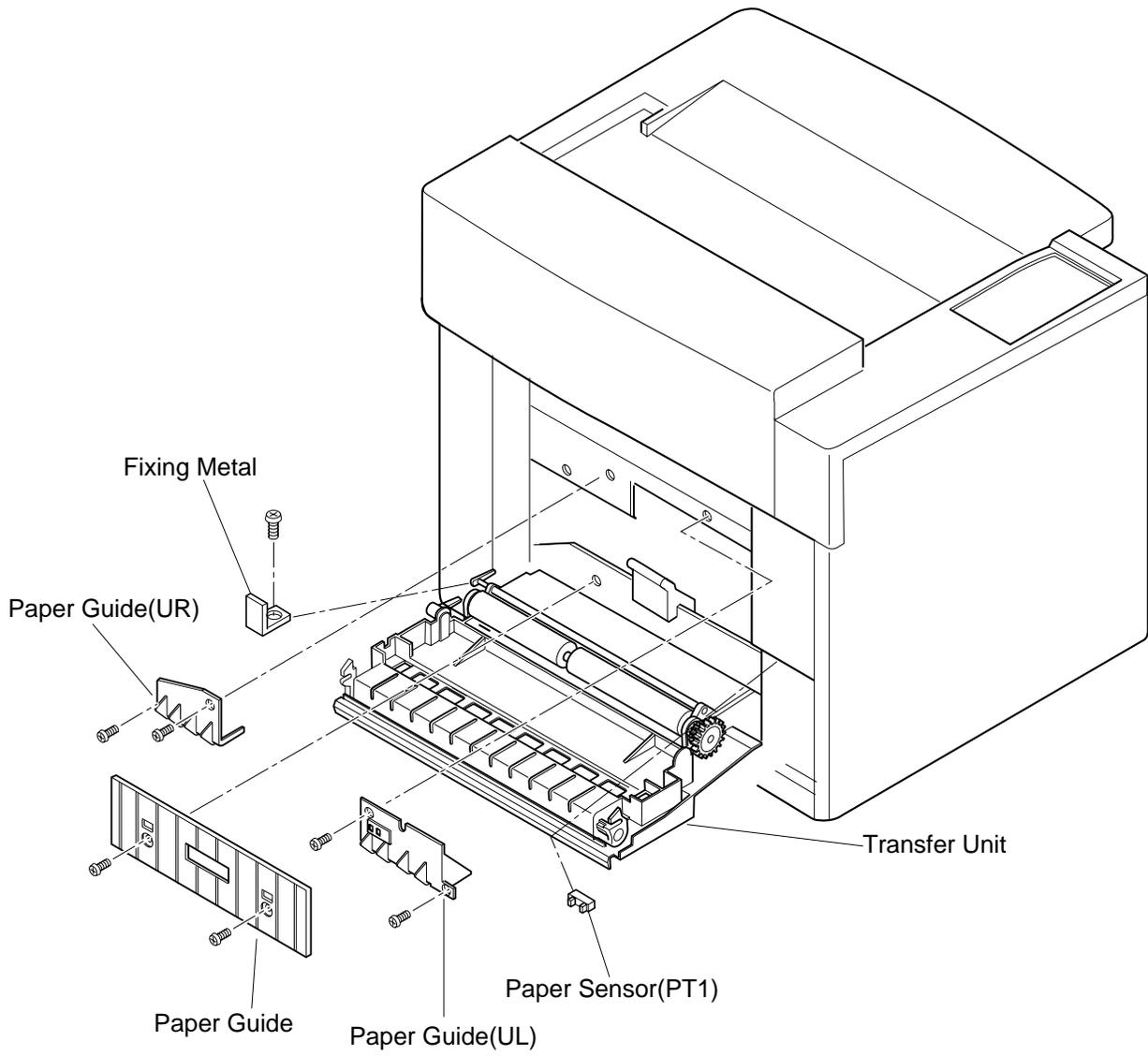
Phillips Screwdriver #1

### Disassembly Procedures

1. Remove the transfer drum. (See the item 7.6.1.)
2. Remove the set screw ST3 6 (2 pcs.), and the paper guide (UR) assembly.
3. Unlock the paper feeding sensor from the rear side of the hole where the paper guide (UR) has been removed.
4. Remove the paper feeding sensor from the stay feeder.
5. Disconnect the all the connectors connected with the paper feeding sensor.

### Assembly Procedures

1. Install a new paper feeding sensor to the stay feeder.
2. Connect the harness connectors with the paper feeding sensor.
3. After the above , follow exactly the reverse order of disassembling procedures.



### 7.5.3 Paper Sensor (Paper Exit Sensor PT2)

#### Tools

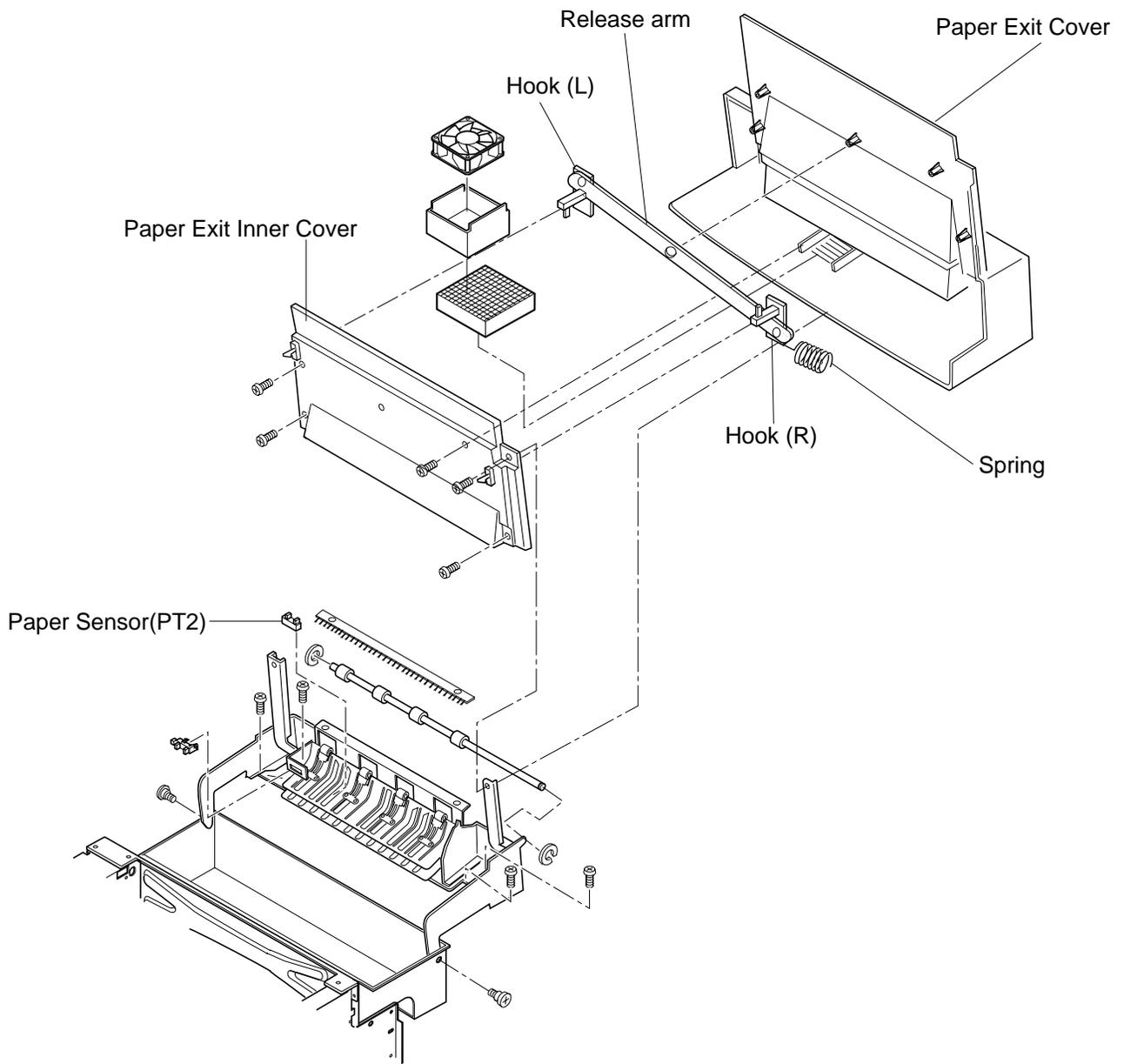
Phillips Screwdriver #2

#### Disassembly Procedures

1. Remove the paper exit cover. (See the item 7.1.5.)
2. Disconnect the harness connector connected to the the paper exit sensor (PT2).
3. Remove the paper exit sensor from the paper exit guide (paper exit stay).

#### Assembly Procedures

1. Install a new paper exit sensor to the paper guide.
2. Connect the harness connectors with the paper exit sensor.
3. After the above , follow exactly the reverse order of disassembling procedures.



## 7.5.4 Paper Empty Sensor (PE)/OHP Sensor (OHP)

### Tools

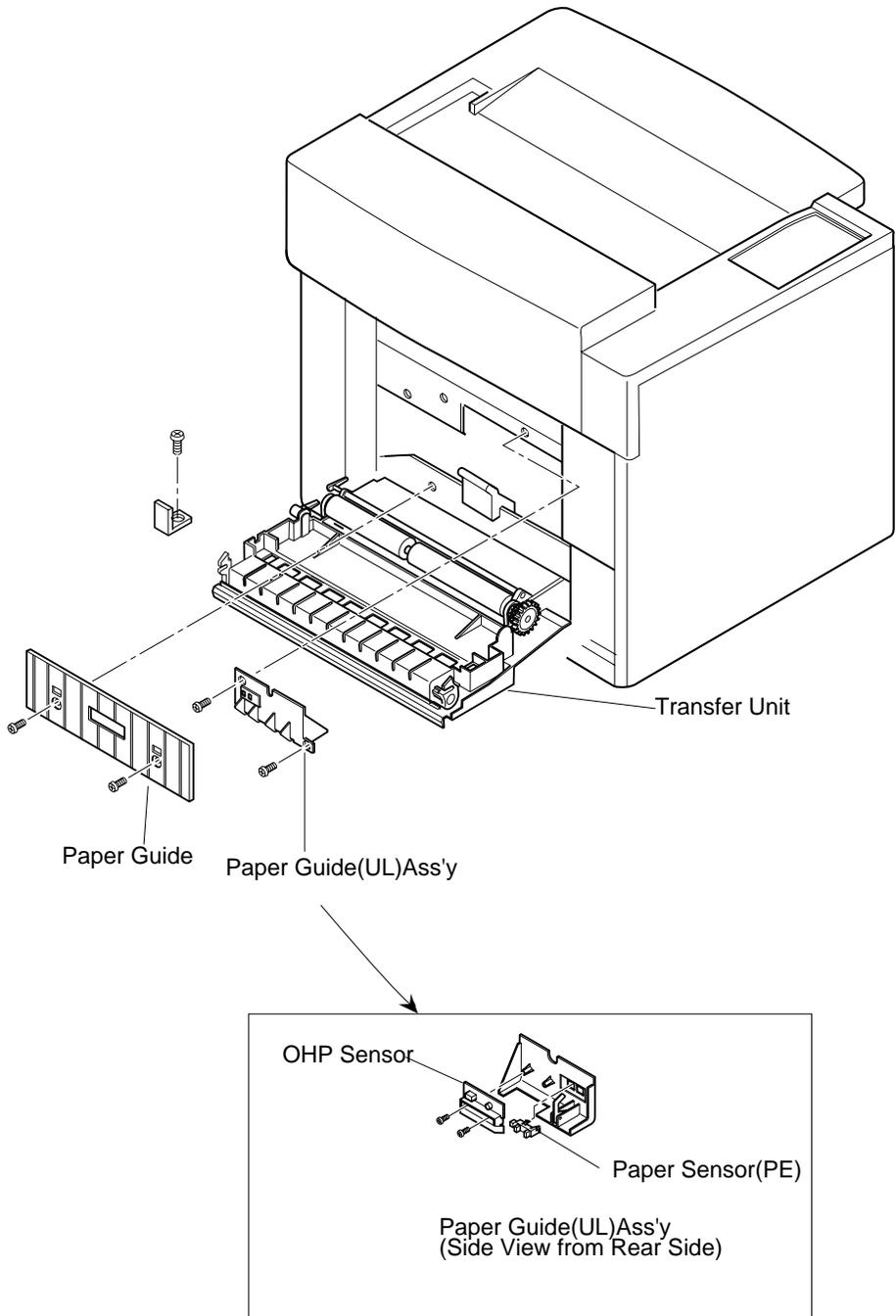
Phillips Screwdriver #1

### Disassembly Procedures

1. Remove the transfer unit. (See the item 7.6.1.)
2. Remove the set screw ST3 6 (2 pcs.) of paper guide (L).
3. Remove the paper guide (L).
4. Remove the set screw ST3 6 (2 pcs.) of paper guide assembly (UR).
5. Remove the connector connected with the sensor.
6. Remove the paper guide assembly (UR).
7. Remove the paper empty sensor (PE) from the paper guide assembly (UR), or remove the set screw BT3 8 (2 pc.) of OHP sensor (OHP) from the paper guide assembly (UR).
8. Remove the OHP sensor (OHP).

### Assembly Procedures

1. Install a new paper empty sensor (PE) or a new OHP sensor (OHP) to the paper guide assembly (UR).
2. After the above , follow exactly the reverse order of disassembling procedures.



## 7.5.5 Paper Size Sensor (PSU)

### Tools

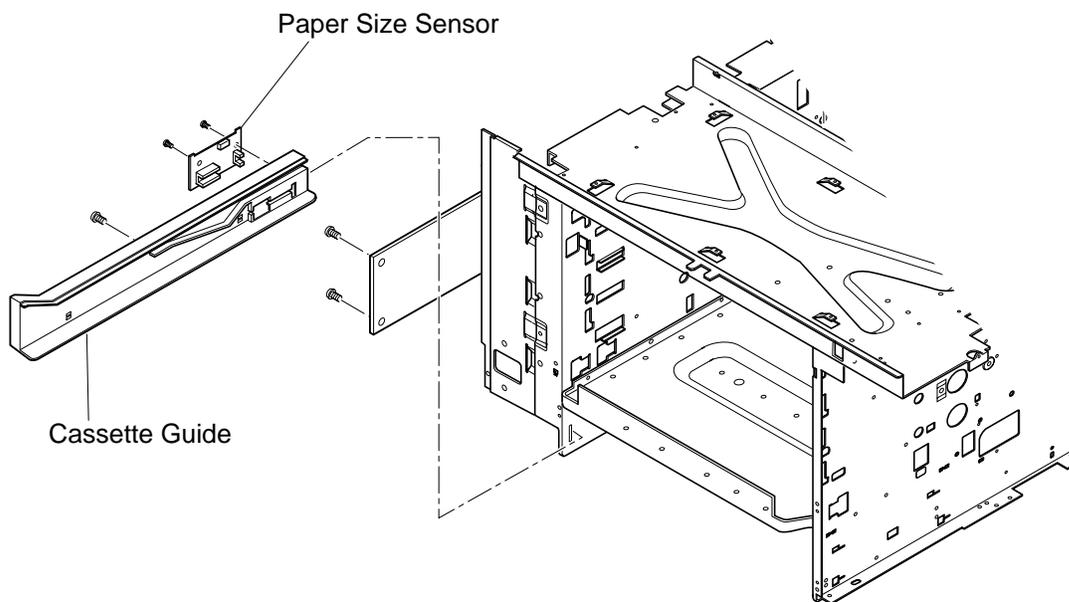
Phillips Screwdriver

### Disassembly Procedures

1. Remove the side cover (L). (See the item 7.1.2. )
2. Remove the power supply unit. (See the item 7.2.5.)
3. Remove the set screw ST3 6 (2 pcs.) of the paper cassette guide (L) assembly.
4. Pull the paper cassette guide toward you.
5. Remove the connector for the paper size sensor.
6. Remove the paper cassette guide (L) assembly from the frame.
7. Remove the set screw BT3 8 (2 pcs.) of paper size sensor from the cassette guide (L).

### Assembly Procedures

1. Install a new paper size sensor (PSU) to the paper cassette guide (R).
2. After the above, follow exactly the reverse order of disassembling procedures.



## 7.5.6 Drum Jam Sensor (DPJ)

### Tools

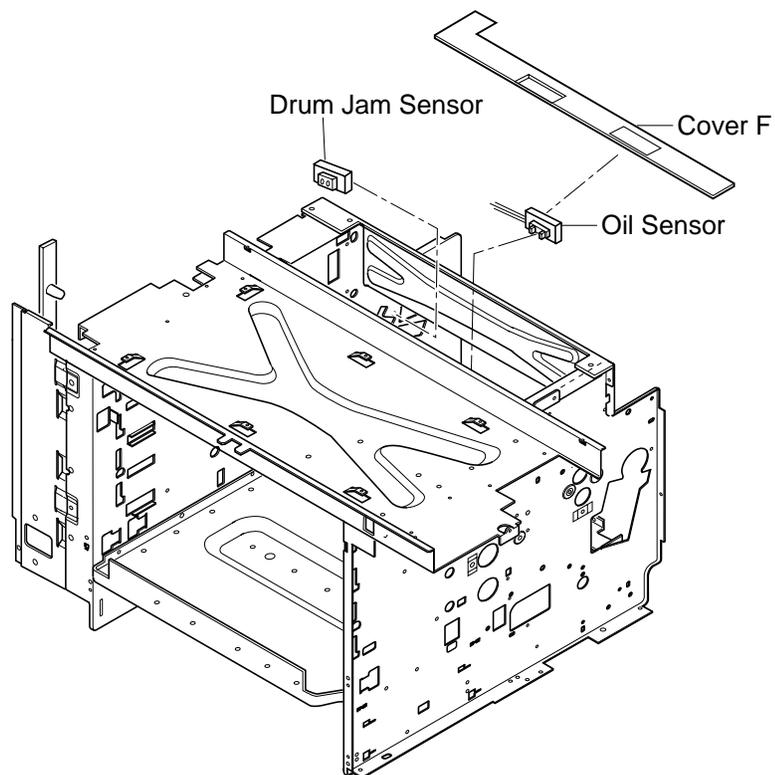
Phillips Screwdriver #1, #2

### Disassembly Procedures

1. Remove the fuser unit.
2. Remove the photoconductor belt module.
3. Remove the drum cleaner.
4. Remove the transfer drum. (See the item 7.6.3.)
5. Remove the sensor cover.
6. Disconnect all the connectors connected with the drum jam sensor.
7. Remove the drum jam sensor from the stay B.

### Assembly Procedures

1. Install a new drum jam sensor (DPJ) to the stay B.
2. After the above, follow exactly the reverse order of disassembling procedures.



## 7.5.7 Oil Sensor (OIL)

### Tools

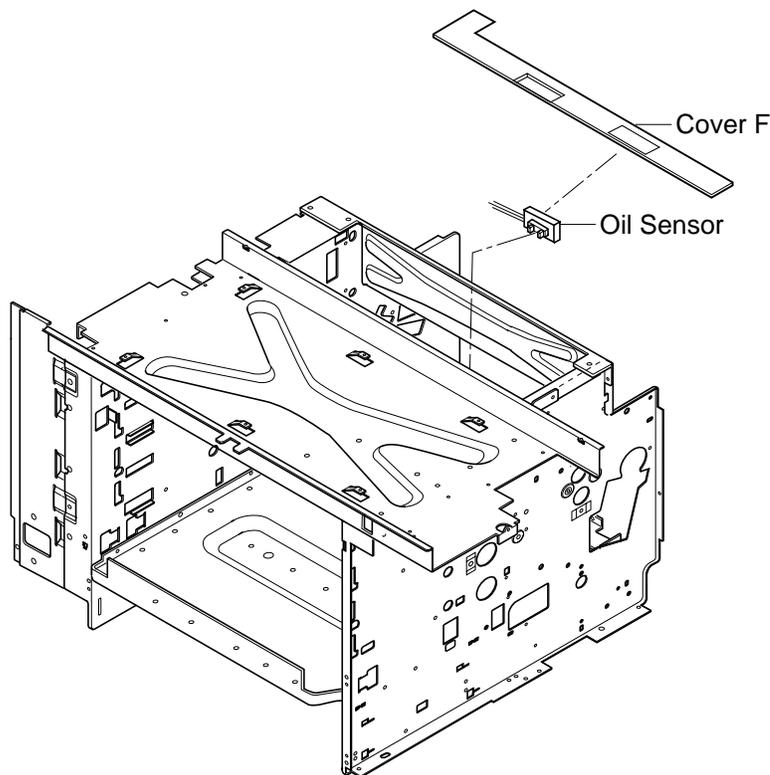
Phillips Screwdriver #1, #2

### Disassembly Procedures

1. Remove the fuser unit.
2. Remove the side cover (LU). (See the item 7.1.1.)
3. Remove the side cover (L). (See the item 7.1.2.)
4. Remove the top cover. (See the item 7.1.4.)
5. Remove the controller case 'A' assembly. (See the item 7.2.5.)
6. Disconnect the oil sensor connector.
7. Remove the sensor cover.
8. Remove the set screw ST3 6 (2 pcs.) of oil sensor.
9. Remove the oil sensor.

### Assembly Procedures

1. Install a new oil sensor.
2. After the above , follow exactly the reverse order of disassembling procedures.



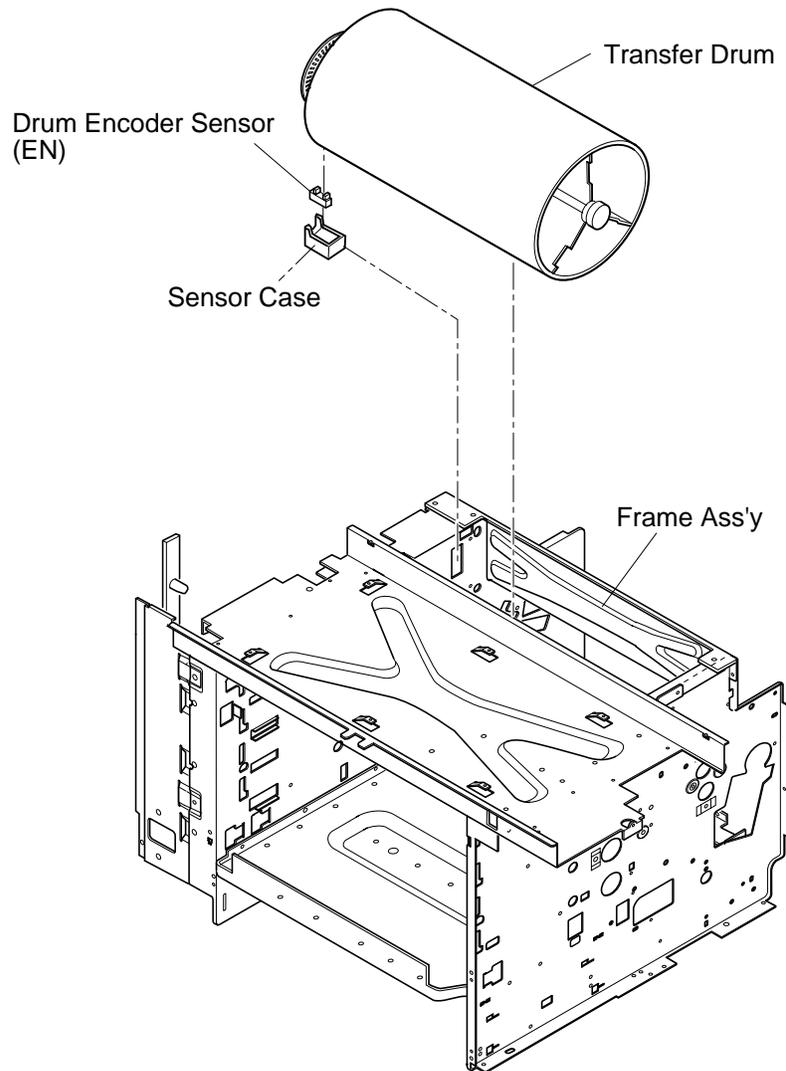
## 75.8 Drum Encoder Sensor (EN)

### Tools

Phillips Screwdriver #1, #2

### Disassembly Procedures

1. Remove the toner module.
2. Remove the photoconductor belt module.
3. Remove the drum cleaner.
4. Remove the fuser unit.
5. Remove the side cover (L). (See the item 7.1.2.)
6. Remove the top cover. (See the item 7.1.4.)
7. Remove the transfer drum. (See the item 7.6.3.)
8. Remove the high voltage unit. (See the item 7.2.6.)
9. Remove the sensor holder assembly from the frame (L).
10. Disconnect the connectors connected with the encoder sensor.
11. Remove the encoder sensor from the sensor holder.



### Assembly Procedures

1. Install a new drum encoder sensor to the sensor holder.
2. Connect the connectors with the encoder sensor.
3. Install the sensor holder assembly to the frame (L).
4. After the above, follow exactly the reverse order of disassembling procedures.

## 7.5.9 Belt Sensor (PBS)

### Tools

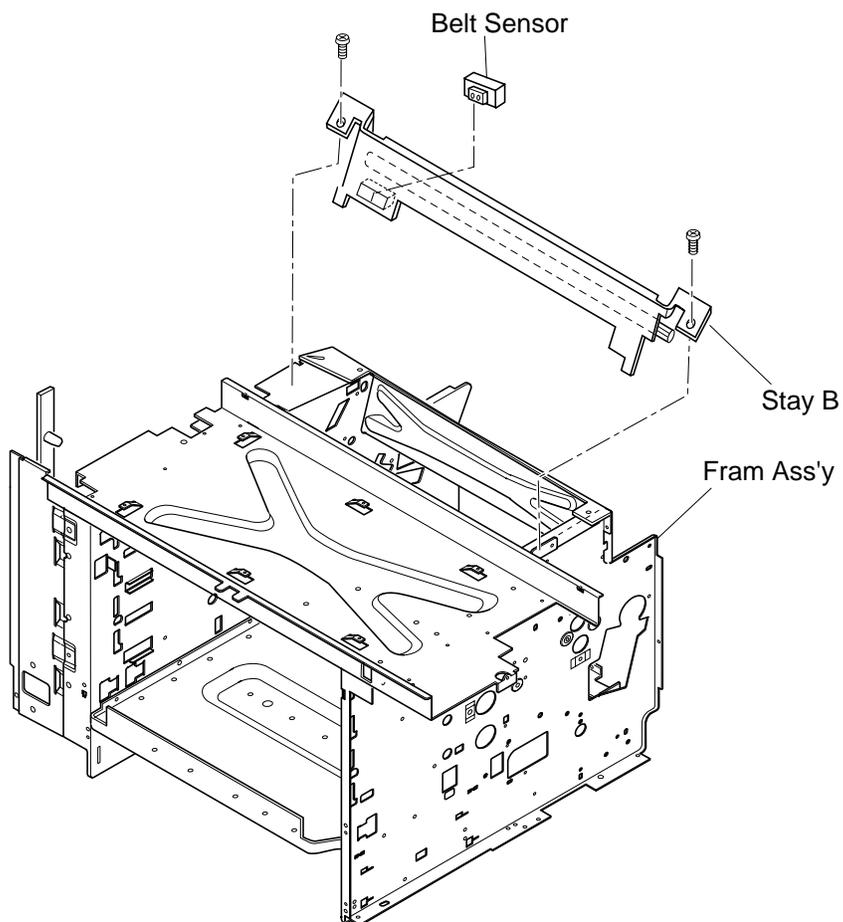
Phillips Screwdriver #1, #2

### Disassembly Procedures

1. Remove the toner module.
2. Remove the photoconductor belt module.
3. Remove the drum cleaner.
4. Remove the top cover. (See the item 7.1.4.)
5. Remove the control fan assembly. (See the item 7.3.4.)
6. Remove the set screw ST3 6 (2 pcs.) of the stay 'A'.
7. Pull up the stay 'A'.
8. Disconnect all the connectors connected with the belt sensor.
9. Remove the belt sensor from the stay 'A'.

### Assembly Procedures

1. Install a new belt sensor to the stay 'A'.
2. Connect the connectors with the belt sensor.
3. After the above , follow exactly the reverse order of disassembling procedures.



## 7.5.10 Waste Toner Sensor (WTS)

### Tools

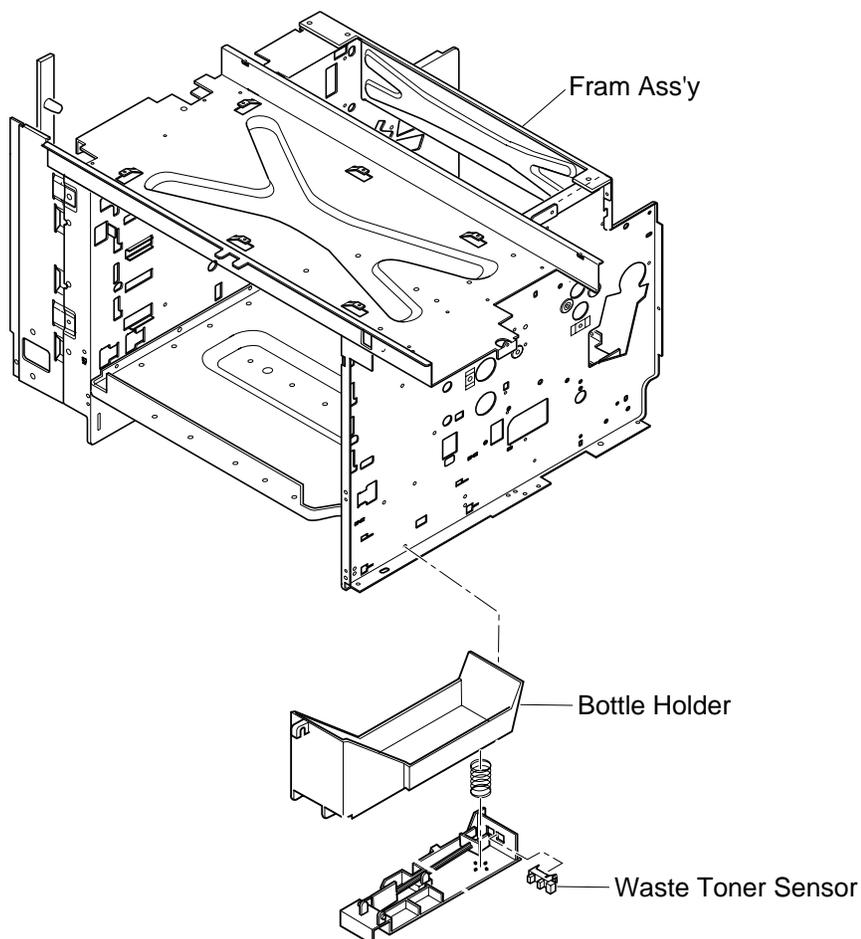
Phillips Screwdriver #1, #2

### Disassembly Procedures

1. Remove the side cover (R). (See the item 7.1.3.)
2. Lift up the bottle holder. (Remove the waste toner sensor by removing the hooked pawl.)
3. Disconnect all the connectors connected with the waste toner sensor.

### Assembly Procedures

1. Install a new waste toner sensor.
2. Connect the connectors with the waste toner sensor.
3. After the above, follow exactly the reverse order of disassembling procedures.



## 7.5.11 Toner Sensor Assembly (TPD)/(TTR)

### Tools

Phillips Screwdriver #1, #2

### Disassembly Procedures

#### (TPD):

1. Remove the side cover (R). (See the item 7.1.3.)
2. Remove the developer drive unit. (See the item 7.3.2.)
3. Remove the set screw ST3 6 (2 pcs.) of toner sensor Circuit Card.
4. Disconnect all the connectors connected with the toner sensor Circuit Card.

#### (TTR):

1. Remove the side cover (L). (See the item 7.1.2.)
2. Remove the high voltage unit (HVU). (See the item 7.2.6.)
3. Remove the DC power supply unit (LVPS). (See the item 7.2.5.)
4. Remove the set screw ST3 6 (3 pcs.) of toner sensor Circuit Card.
5. Remove the toner sensor Circuit Card.

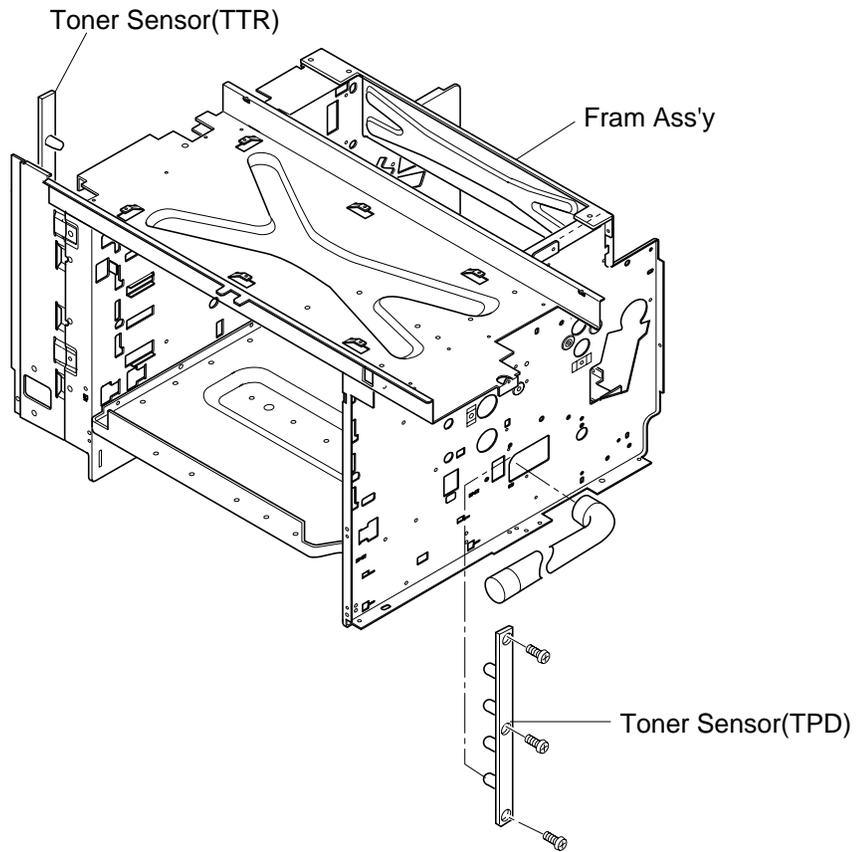
### Assembly Procedures

#### (TPD):

1. Connect the connectors with a new toner sensor Circuit Card.
2. Install the toner sensor Circuit Card. to the engine frame (R).

#### (TTR):

1. Connect the connectors with a new toner sensor Circuit Card.
2. Install the toner sensor Circuit Card. to the engine frame (L).
3. After the above, follow exactly the reverse order of disassembling procedures.



## 7.6 Replacement of Rollers and the Drum

### 7.6.1 Transfer Unit

#### Tools

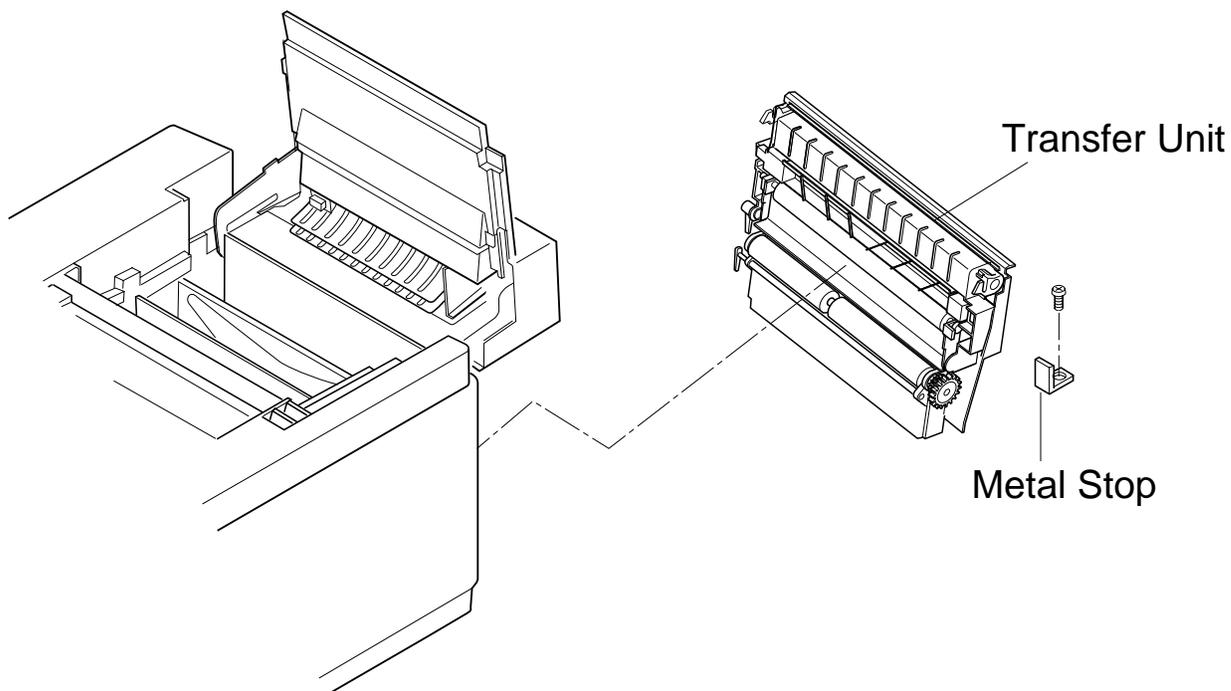
Phillips Screwdriver #1

#### Disassembly Procedures

1. Remove the set screw ST3 6 (1 pc.) of transfer unit metal stop.
2. Open the front cover unit.
3. Remove the support shaft from the installation hole of frame.
4. Remove the transfer unit.

#### Assembly Procedures

1. Have a new transfer unit meet the installation hole of base.
2. Install the transfer unit fixing metal.



## 7.6.2 Register Roller

### Tools

Phillips Screwdriver #1

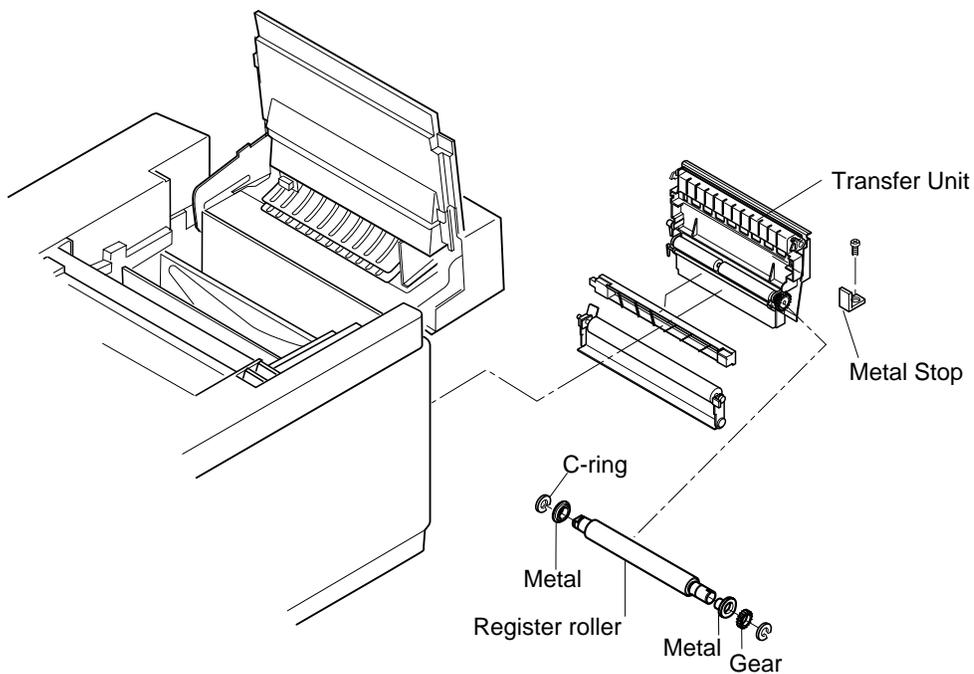
Slotted Screwdriver #1

### Disassembly Procedures

1. Open the transfer unit.
2. Remove the roller fixing C ring at both sides.
3. Remove the gear from the shaft.
4. Remove the shaft support at the both sides.
5. Remove the register roller.

### Assembly Procedures

1. Prepare a new register roller.
2. Install the register roller to the frame's hole.
3. Install the shaft support at the both sides.
4. Install the gear to the shaft.
5. Secure the shaft support and gear with the C- ring.



## 7.6.3 Transfer Drum

### Tools

Phillips Screwdriver #1, #2

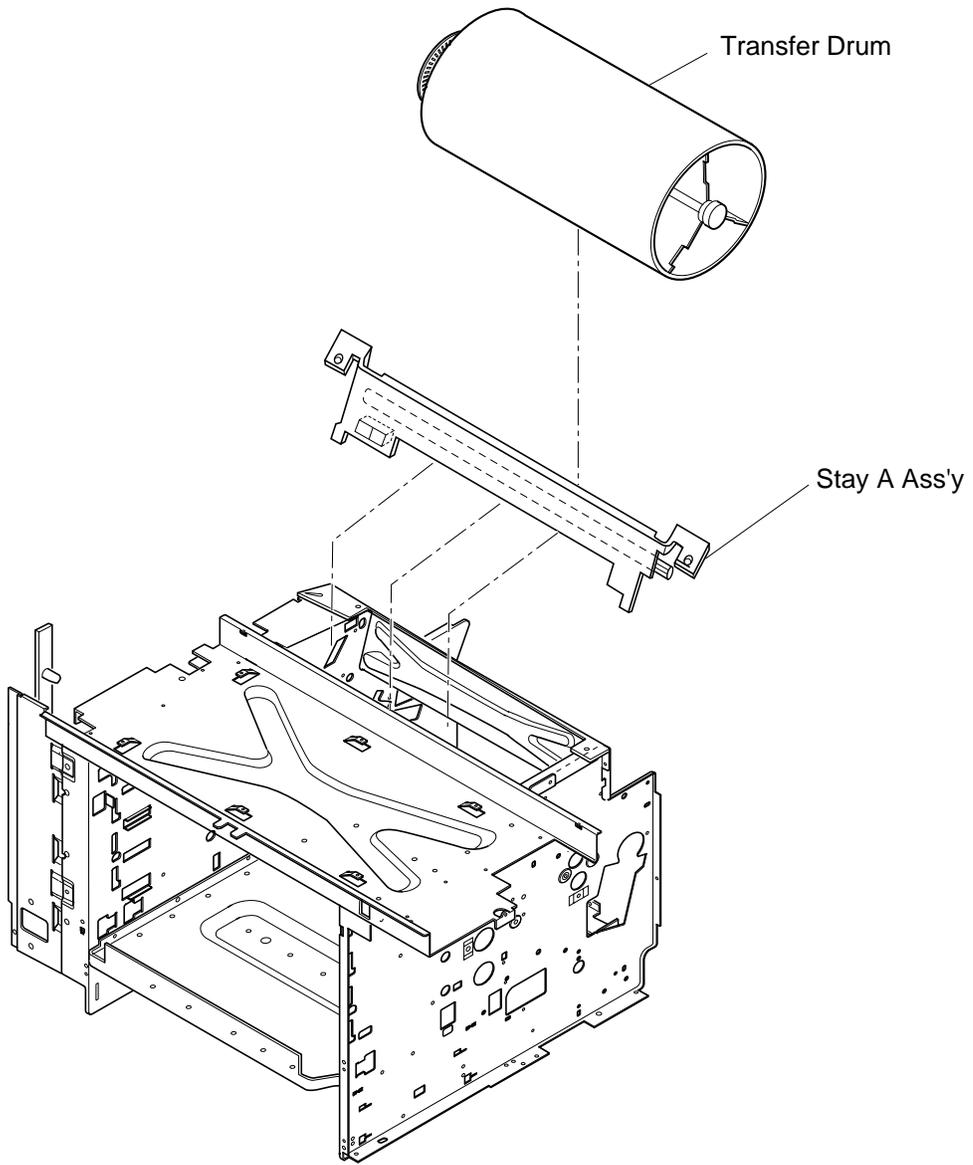
### Disassembly Procedures

1. Remove the toner module.
2. Remove the photoconductor belt module.
3. Remove the fuser unit.
4. Remove the cleaner cover.
5. Remove the drum cleaner.
6. Open the transfer unit.
7. Remove the top cover. (See the item 7.1.4.)
8. Remove the control fan assembly. (See the item 7.3.4.)
9. Remove the connector connected to the belt marker sensor.
10. Remove the set screw ST3 6 (2 pcs.) of stay 'A'.
11. Wrap transfer drum surface with paper so that the transfer drum will not be scratched.
12. Remove the stay 'A' assembly.
13. Push the transfer drum from the transfer unit side, and remove the transfer drum from the shaft support.
14. Pull up and remove the transfer drum from the top.

### Assembly Procedures

1. Put a new transfer drum into main body from the top.
2. Have the transfer drum's shaft meet the drum shaft support.
3. Pushing the transfer drum, fit it into the shaft support.
4. Install the stay A assembly.
5. After the above, follow exactly the reverse order of disassembling procedures.

**Caution!** Do not touch the transfer drum surface with bare hands, or scratch it.



## 7.6.4 Paper Feed Roller/Separator Pad

### Tools

Phillips Screwdriver #1

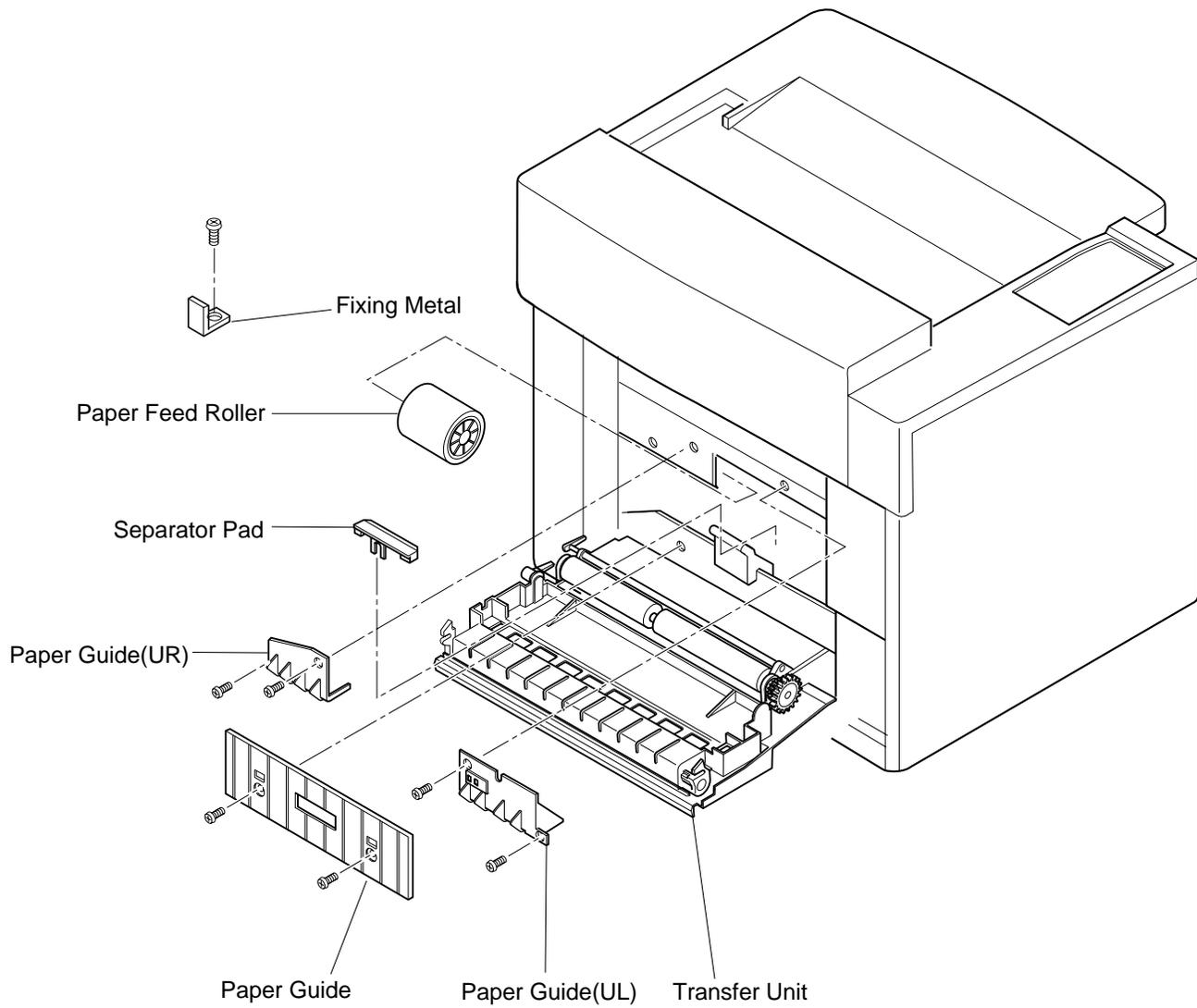
### Disassembly Procedures

1. Remove the paper feeding cassette.
2. Remove the transfer unit. (See the item 7.6.1.)
3. Remove the set screw ST3 6 (2 pcs.) of paper guide (L).
4. Remove the paper guide (L).
5. Remove the set screw ST3 6 (2 pcs.) of paper guide (UR).
6. Remove the paper guide (UR).
7. Disconnect all the harness connectors connected with the OHP sensor and paper sensor.
8. Sliding the paper feeding roller to the right side, remove it from the shaft.
9. Pull up and remove the separator pad.

### Assembly Procedures

1. Install a new separator pad.
2. Install a new paper feed roller.
3. After the above, follow exactly the reverse order of disassembling procedures.

**Caution!** Do not touch the surface of paper feed roller and separator pad.



## 7.6.5 Front Cover Unit

### Tools

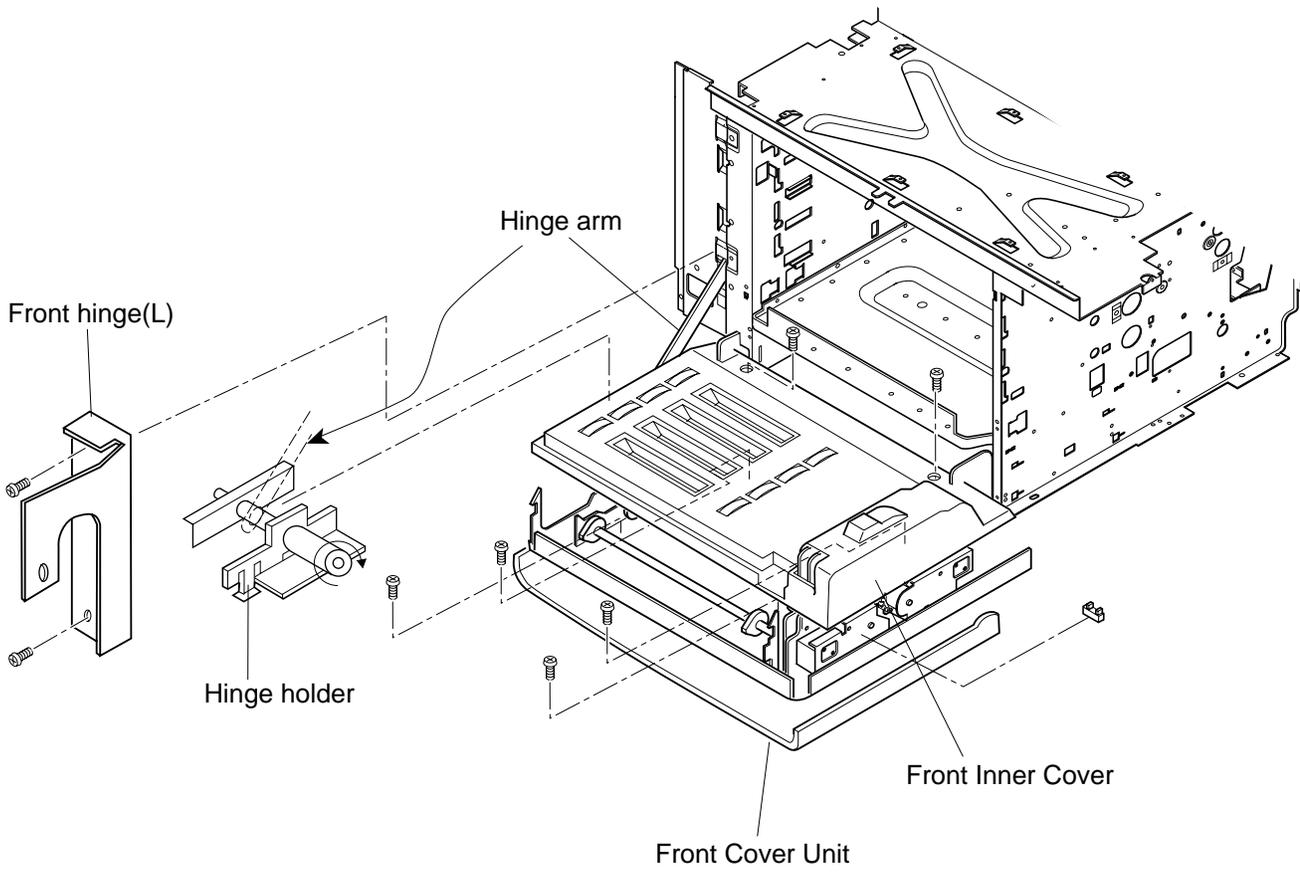
Phillips Screwdriver #1, #2

### Disassembly Procedures

1. Remove the side cover (L).(See the item 7.1.2.)
2. Remove the base cover (L). (See the item 7.1.10.)
3. Open the front cover unit.
4. Remove the set screw BT4 8 (2 pcs.) of front cover (inner).
5. Remove the coupling arm of waster toner tray.
6. Release the hinge holder of hinge arm's fixing pin.
7. Remove the fixing pin, and remove the coupling of hinge arm.
8. Remove the front cover (inner).
9. Disconnect all the harness connectors connected with the developer position sensor and developer solenoid.
10. Remove the set screw ST3 6 (2 pcs.) of front hinge (L).
11. Remove the front hinge (L) from the frame.
12. Sliding the front cover unit to the right side, remove the coupling of hinge's fixing pin at the right side.

### Assembly Procedures

1. Prepare a new front cover unit assembly.
2. Couple the hinge pin of right side with the front cover unit.
3. Have the hook of left front hinge (L) meet the frame, hook the left front hinge.
4. Fix the front hinge (L) by screwing.
5. Couple the hinge arm to the front cover with the fixing pin.
6. Lock the fixing pin with the hinge holder.
7. After the above, follow exactly the reverse order of disassembling procedures.



## 7.6.6 Paper Exit Roller

### Tools

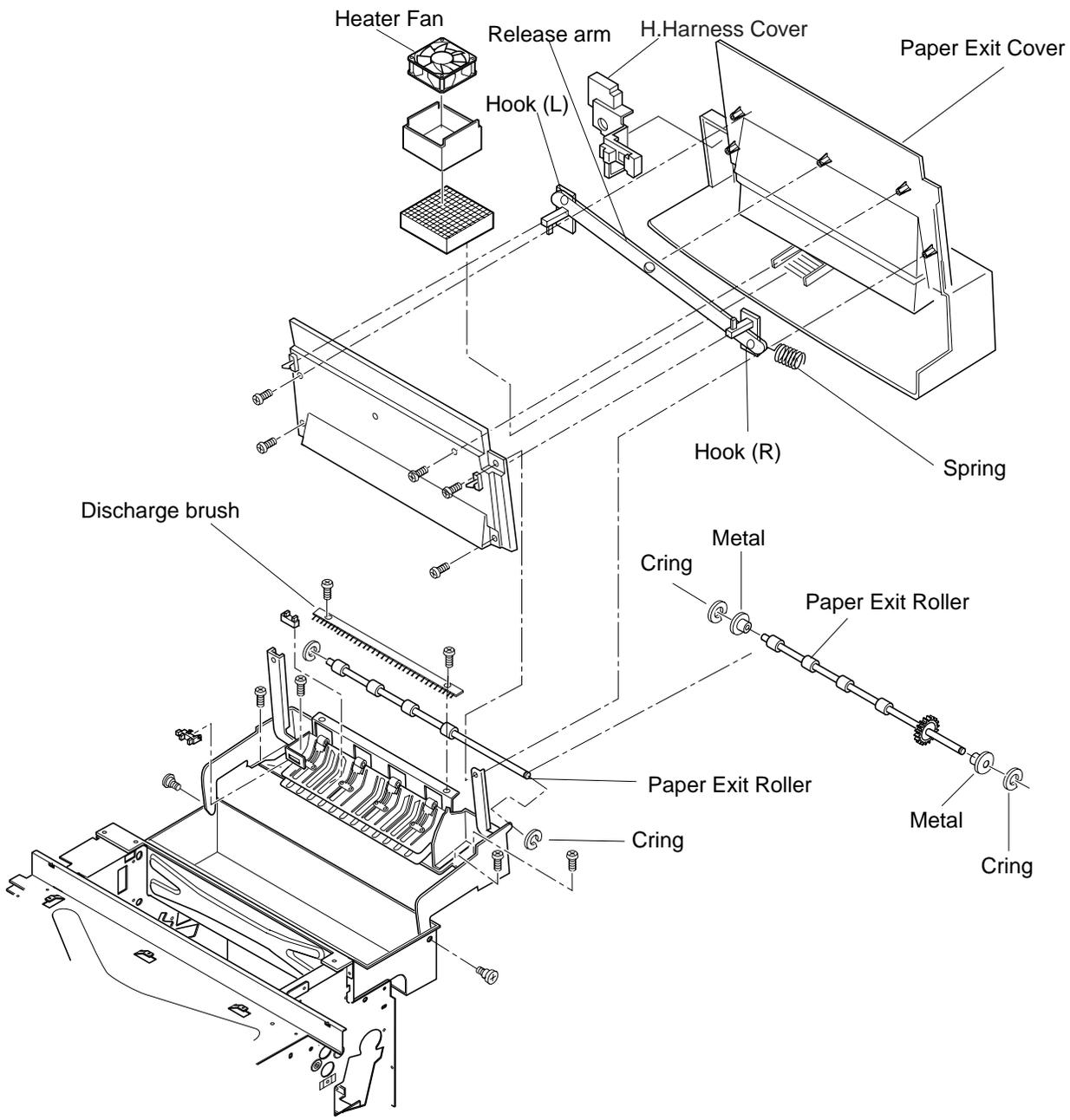
Phillips Screwdriver #1, #2

### Disassembly Procedures

1. Remove the paper exit unit. (See the item 7.1.5.)
2. Remove the paper exit cover. (See the item 7.1.5.)
3. Remove the C ring of both sides (left and right).
4. Remove the shaft support at the both sides.
5. Remove the paper exit roller from the frame.

### Assembly Procedures

1. Put a new paper exit roller through the frame's hole.
2. Install the shaft support of both sides (left and right).
3. Install the C ring of both sides to the groove of paper exit roller.



## 7.6.7 Discharger Brush

### Tools

Phillips Screwdriver #1, #2

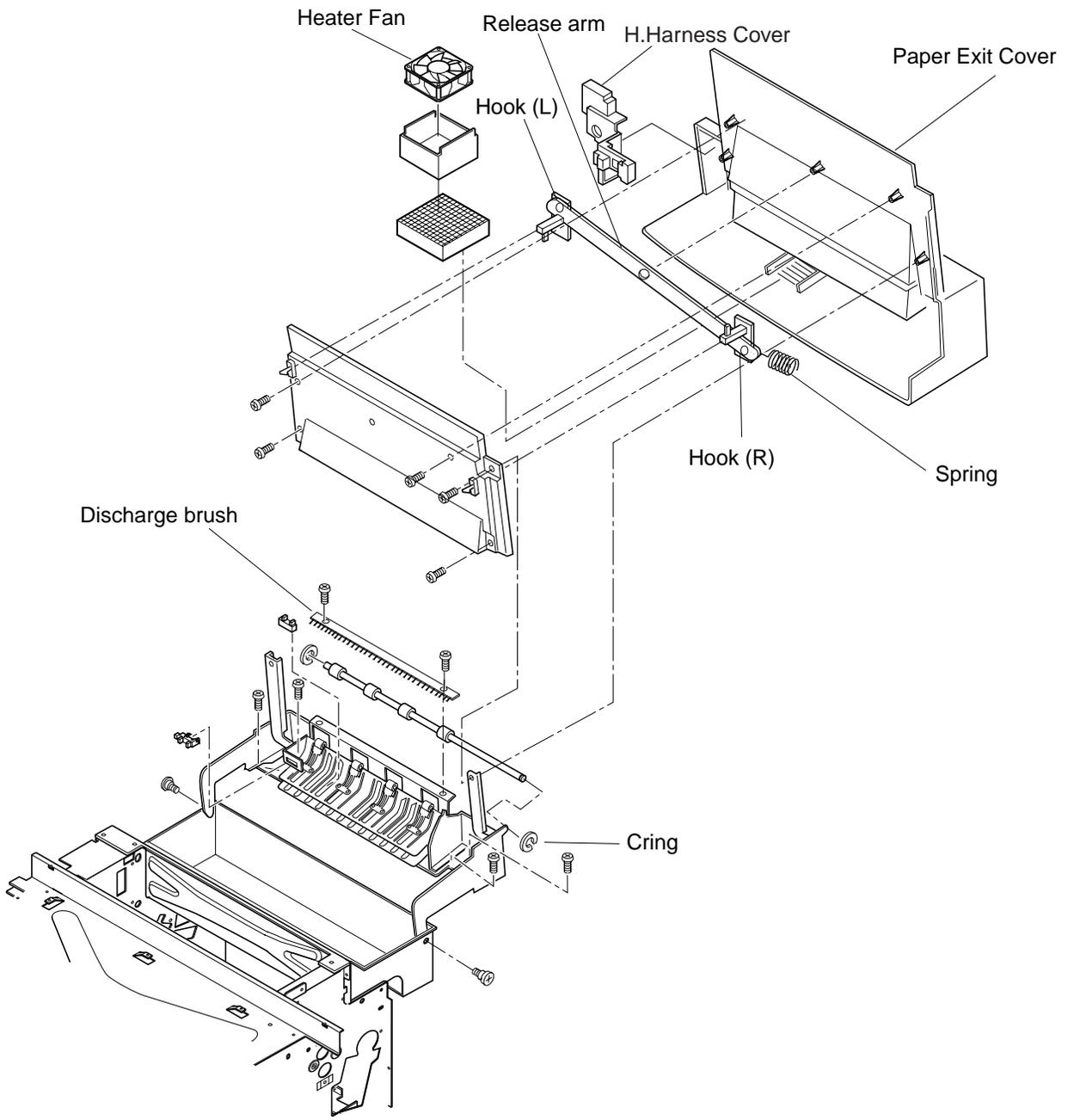
### Disassembly Procedures

1. Remove the paper exit unit. (See the item 7.1.5.)
2. Remove the paper exit cover. (See the item 7.1.5.)
3. Remove the paper exit front cover.
4. Remove the set screw BT4 6 (2 pcs.) of discharger brush.
5. Remove the discharger brush.

### Assembly Procedures

1. Install a new discharger brush to the paper exit unit.

**Caution!** Do not deform the fur brush of discharger brush.



## 7.6.8 Waste Toner Feeder D (Stay 'A' Assembly)

### Tools

Phillips Screwdriver #2

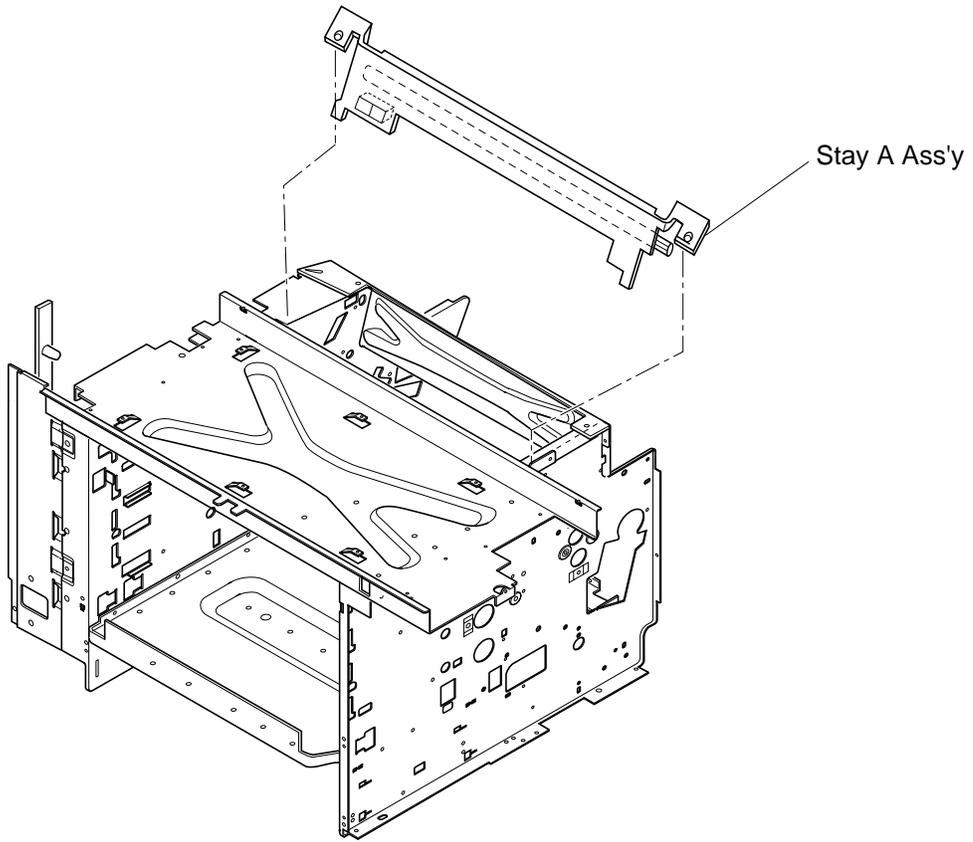
### Disassembly Procedures

1. Remove the photoconductor belt module.
2. Remove the toner module.
3. Remove the drum cleaner.
4. Remove the side cover (LU). (See the item 7.1.1.)
5. Remove the top cover. (See the item 7.1.4.)
6. Remove the control fan assembly. (See the item 7.3.5.)
7. Remove the set screw ST3 6 (2 pcs.) of stay 'A'.
8. Disconnect the connector connected with the belt sensor.
9. Pull up the stay 'A' assembly along the guide.

### Assembly Procedures

1. Install the new stay 'A' assembly.
2. After the above, follow exactly the reverse order of disassembling procedures.

**Caution!** Do not touch or scratch the transfer drum.  
Do not deform the sealing mylar of waste toner feeder D.



## 7.6.9 Fuser Connector

### Tools

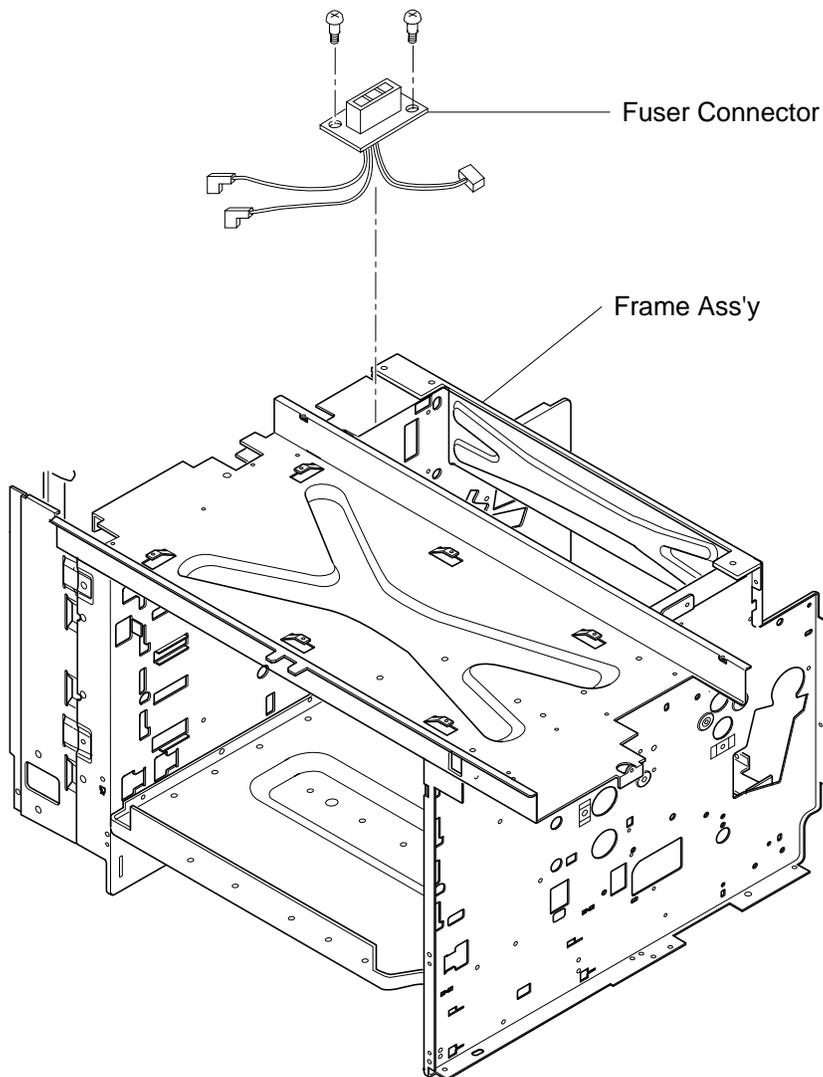
Phillips Screwdriver #1, #2

### Disassembly Procedures

1. Remove the fuser unit.
2. Remove the side cover (L). (See the item 7.1.2.)
3. Remove the shield case A assembly. (See the item 7.2.5.)
4. Remove the PN/PH connector connected with the DC power supply unit.
5. Remove the set screw SP3 8 (2 pcs.) of fuser connector.
6. Remove the fuser connector. \* Set screw of fuser connector is unique.

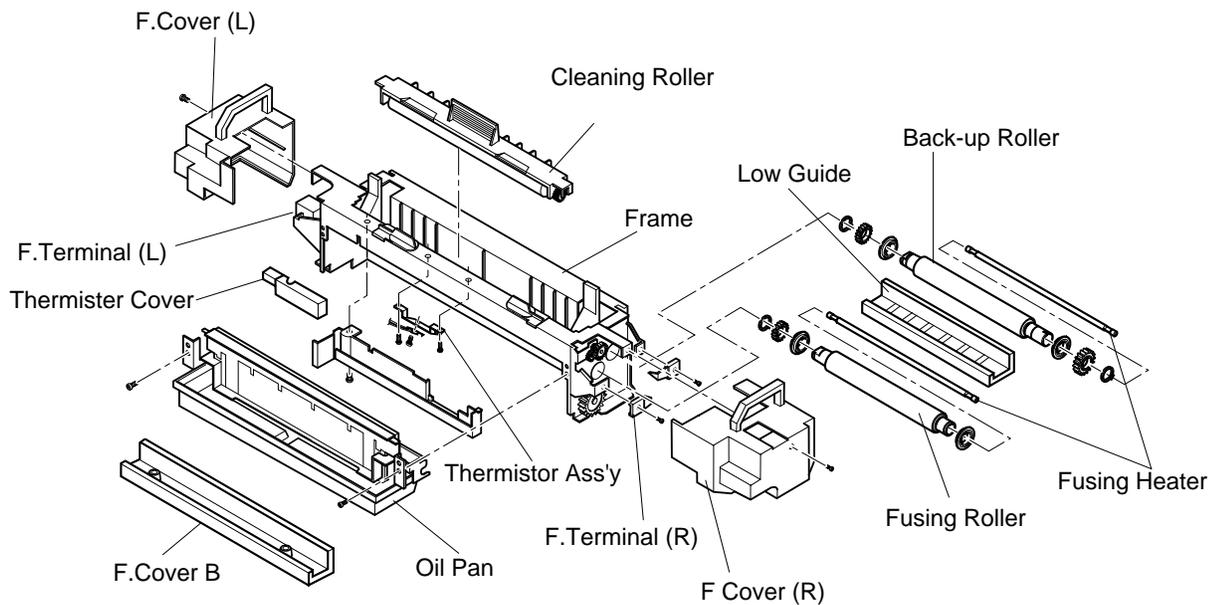
### Assembly Procedures

1. Install a new fuser connector.
2. After the above, follow exactly the reverse order of disassembling procedures.



## 7.7 Replacement of Fuser Unit

[Layout of Fuser Unit Parts]



### Caution!

1. Fuser unit consists of important parts in terms of the safety. Therefore, replacement of parts or disassembly and maintenance work should be done at the appropriate facilities by skillful service personnel acquainted with electrical safety. After the assembling work, the product safety should be reconfirmed.
2. Since the fuser unit is very hot, make sure that the fuser unit and perimeter is well cooled down prior to starting the replacement of parts. Otherwise, you may get burn when touching the hot areas.
3. Fuser unit contains the silicone oil. Care not to drop the silicone oil on the floor, otherwise, the floor is very slippery and dangerous.

## 7.7.1 Fusing Heater Lamp

### Tools

Phillips Screwdriver #1, #2

### Disassembly Procedures : See the layout of fuser unit parts.

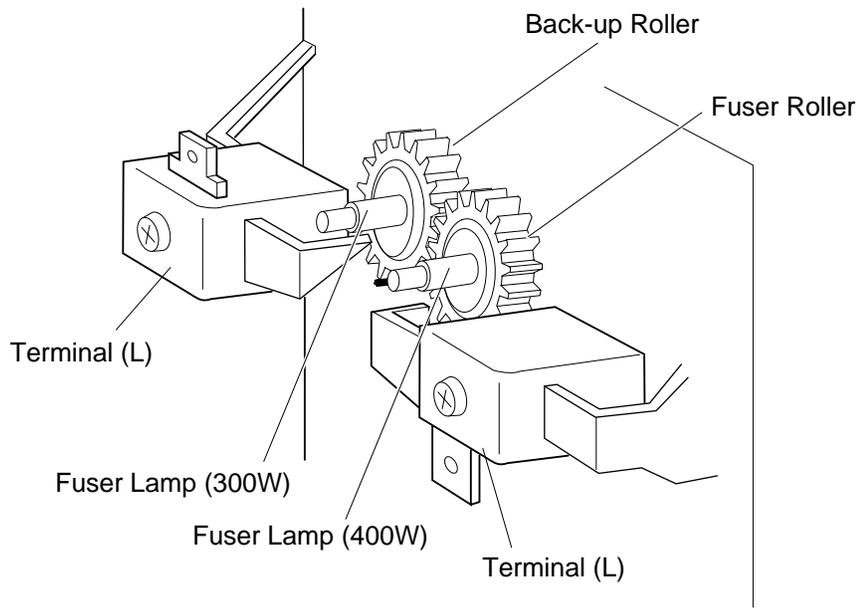
1. Remove the set screw ST3X6 (1 pc.) of F. cover (L), and F. cover (L).
2. Remove the set screw ST3X6 (1 pc.) of F. cover (R), and F. cover (R).
3. Pull F. terminal (L) of fuser roller side toward you, and remove the fusing heater lamp (400W) from F. terminal.
4. Pull out the fusing heater lamp (400W) from the fuser roller (inside).
5. Pull F. terminal (L) of back-up roller side toward you, and remove the fusing heater lamp (300W) from F. terminal.
6. Pull out the fusing heater lamp (300W) from the back-up roller (inside).

### Assembly Procedures

1. Prepare a new heater lamp (300W)/(400W). (2 heater lamps come in one set.)
2. Insert the heater lamp (300W) into the back-up roller.
3. Support the electrode of heater lamp with the F. terminal (R) and (L) at the back-up roller side.
4. Insert the heater lamp (400W) into the fuser roller.
5. Support the electrode of heater lamp with the F. terminal (R) and (L) at the fuser roller side.
6. Install F. terminal (L) and F. terminal (R).

**Caution!** Do not touch the surface of heater lamp with dirty hands.  
Capacity of the heater lamp is different between the fuser roller side and back-up roller side. Each capacity is marked on the insulator of lamp's electrode.

Fuser roller side: 400W (Length: 342mm)  
Back-up roller side: 300W (Length: 332mm)



## 7.7.2 Fuser Roller

### Tools

Phillips Screwdriver #1, #2

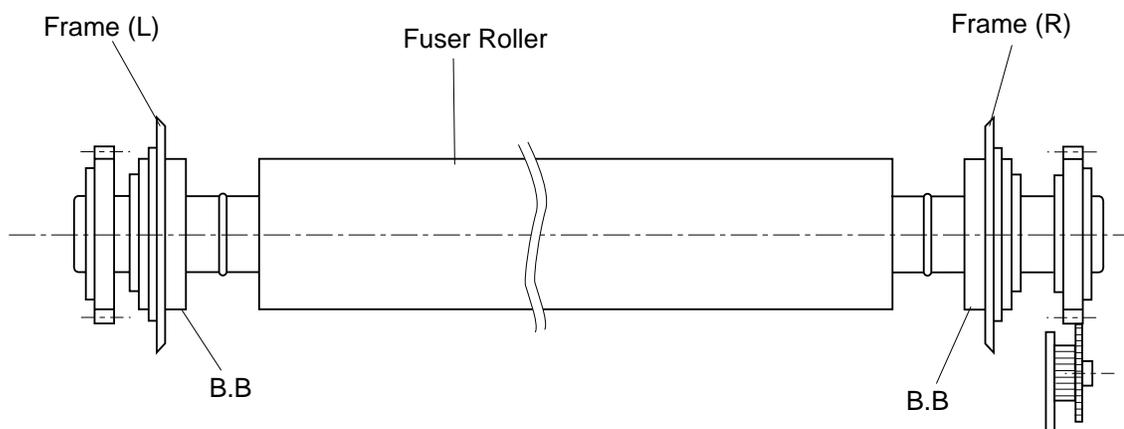
### Disassembly Procedures : See the layout of fuser unit parts.

1. Remove the fusing heater lamp (400W).(See the item 7.7.1.)
2. Remove the set screw FST3X10 (1 pcs.) of F. terminal (R), and remove F. terminal (R)
3. Remove the set screw ST3X6 (2 pcs.) of oil pan.
4. Remove the oil pan.
5. Remove the set screw ST3X6 (2 pcs.) of frame assembly.
6. Open the upper face of frame assembly.
7. Remove the fuser roller from the frame.

### Assembly Procedures

1. Install a new fuser roller to the frame.
2. After the above, follow exactly the reverse order of disassembling procedures.

**Caution!** Do not touch the surface of fuser roller with bare hands.  
Do not let any foreign particle such as debris adhere to the surface of fuser roller.



## 7.7.3 Back-Up Roller

### Tools

Phillips Screwdriver #1, #2

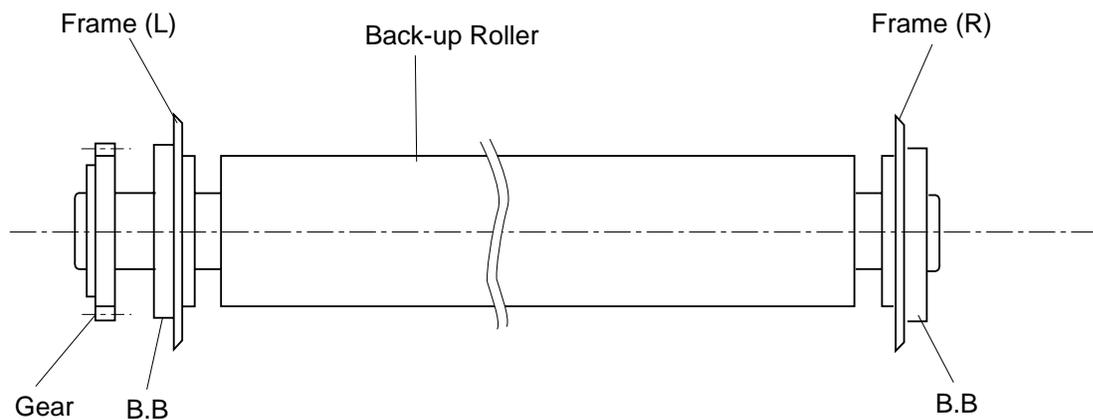
### Disassembly Procedures : See the layout of fuser unit parts.

1. Remove the fusing heater lamp (300W).(See the item 7.7.1.)
2. Remove the set screw ST3X6 (2 pcs.) of oil pan.
3. Remove the oil pan.
4. Remove the set screw ST3X6 (2 pcs.) of F. cover 'B'.
5. Remove the F. cover 'B'.
6. Remove the set screw F4X6 (2 pcs.) of low guide.
7. Remove the low guide.
8. Remove the set screw ST3X6 (2 pcs.) of frame assembly.
9. Open the upper face of frame assembly.
10. Remove the back-up roller from the frame.

### Assembly Procedures

1. Install a new back-up roller to the frame.
2. After the above, follow exactly the reverse order of disassembling procedures.

**Caution!** Do not let any foreign particle such as debris adhere to the surface of back-up roller.



## 7.7.4 Thermistor Assembly

### Tools

Phillips Screwdriver #1, #2

### Disassembly Procedures : See the layout of fuser unit parts.

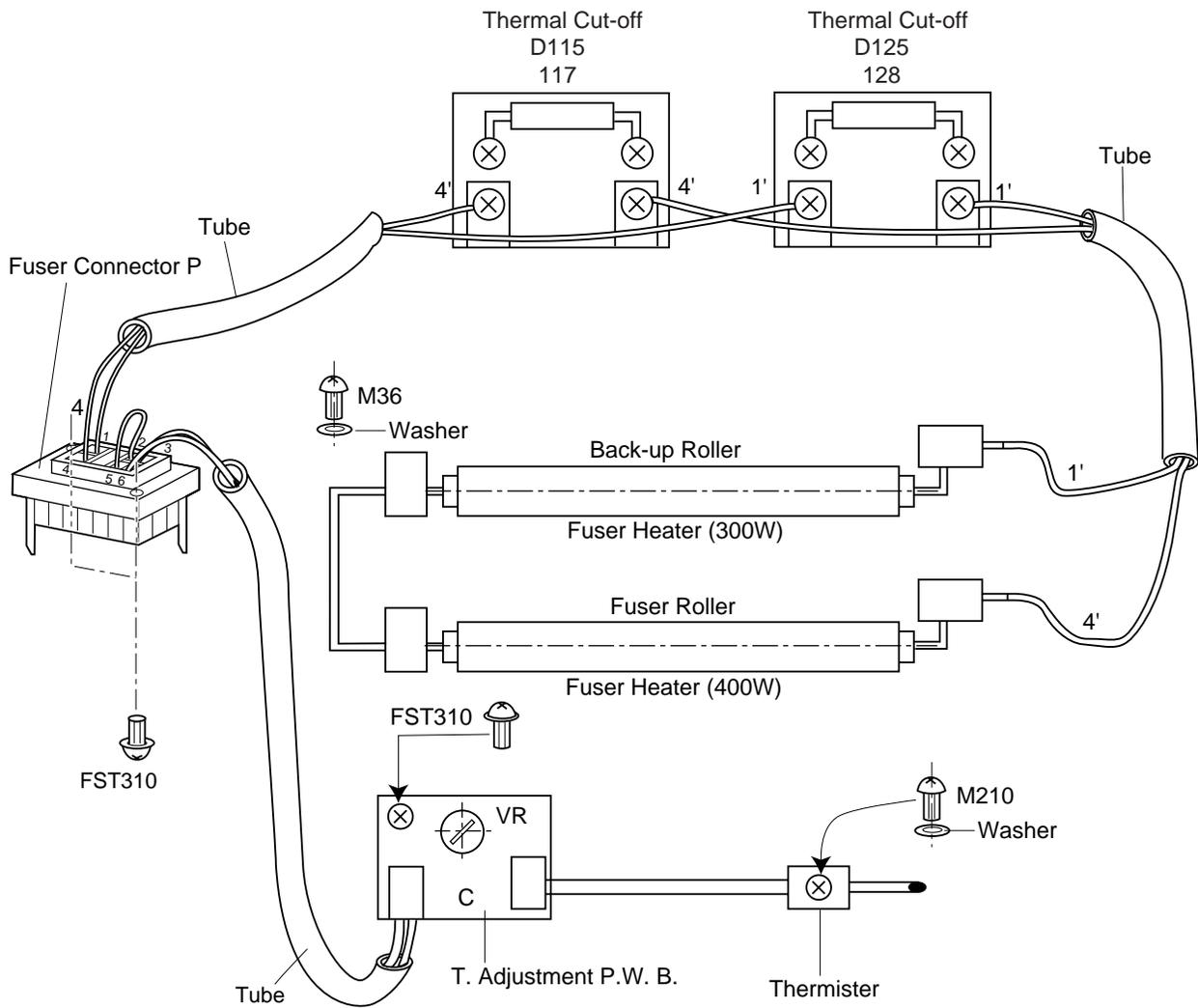
1. Remove the F. cover (R).
2. Remove the F. cover (L).
3. Remove the oil pan.
4. Remove the F. cover 'B'.
5. Remove the set screw BT3 8 of thermistor cover.
6. Remove the thermistor cover.
7. Remove the set screw M2X10 of thermistor.
8. Remove the thermistor.
9. Remove the set screw FST3X10 of temperature adjustment Circuit Card.
10. Remove the temperature adjustment Circuit Card.
11. Remove the set screw M3X6 of harness #4 connected to the temperature fuse base (D115).
12. Remove the set screw M3 X6 of harness #1 connected to the temperature fuse base (D125).
13. Remove the set screw FST3 X10 (2 pcs.) of fuser connector.
14. Remove the thermistor assembly (including fuser connector) from the fuser unit.

### Assembly Procedures

1. Prepare a new thermistor assembly.
2. Follow exactly the reverse order of disassembling procedures. Care not to apply any extra force to the sensor of thermistor.

### Caution!

1. Replacement work of the thermistor assembly is very much related with the product safety. Therefore, the replacement work should be done at the appropriate facilities by skillful service personnel acquainted with the electrical safety.
2. After the replacement work, make sure to implement the dielectric test of fuser unit (1500V, 1 minute), and confirm the temperature control.



Wiring of Fuser Unit

## CHAPTER 8: TROUBLESHOOTING

### *DESCRIPTION*

This chapter gives you the information you need to Troubleshoot problems that may occur with the SuperScript 4400/4400N printer and how to resolve them. The sections included in this chapter are:

- Clearing Jams
- Imaging Artifacts
- Error Messages
- Operator panel alert messages
- Factory Service Mode Test Procedures
- Frequently asked questions

### **Print Quality Maintenance**

Here are some suggestions for maintaining the highest print quality from your printer.

- Replace the toner modules immediately when the display indicates that replacement is necessary.
- Use high-quality paper or transparencies to obtain sharp, crisp characters and maximum contrast.
- Follow the cleaning procedures described in Chapter 6, "User Maintenance."

### **Simple Troubleshooting**

Here are some simple resolutions to occasional printer problems.

#### **Power light is off...**

Check that the power cord is plugged into a live power outlet and the printer power switch is turned on.

#### **Power light is on but printer does not print...**

- Verify that the Online indicator light is on (if it is not, press the **Online** button).
- Verify that all interface cable connections are tightly secured.

#### **Paper does not output to the output tray...**

Check for paper jam or misfeed.

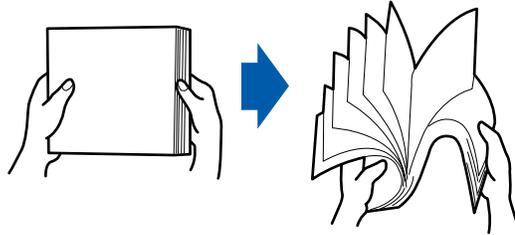
#### **Paper does not stack correctly...**

Check that the paper is between xx and xx lbs. base weight.

## PREVENTING PAPER JAMS

This section explains how to prevent and remove paper jams. There are several things you can do to prevent paper jams.

- Make sure the paper is not folded, wrinkled, or curled.
- Do not overfill the paper trays. Paper Tray 1 and 2 have a fill-limit mark on the inside left side.
- Use paper, envelopes, labels, and transparencies that match the printer specifications (see page xx).
- If you have problems with double feeding, remove the media from the tray and fan the sheets. They may be sticking together.



**note:** Do not fan transparencies since this increases static.

- Store all media in a dry location.
- Make sure you have loaded the paper printing-side up. Many manufacturers place an arrow on the end of the wrapper to indicate the printing side.

### Understanding the Paper Path

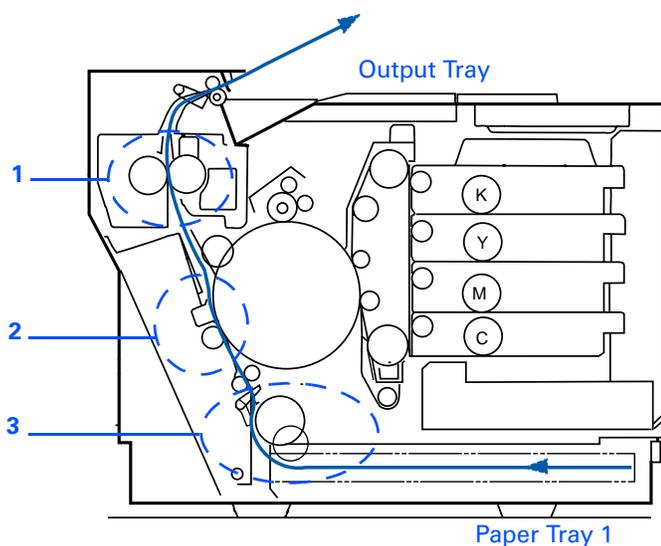
The following illustration shows the printer's paper path. Understanding this path will help you locate paper jams. The paper is picked up from Paper Tray 1 (or 2) and passed under the Transfer Drum. It then passes through the Fuser Unit and is delivered to the Output Tray on the top of the printer.

Paper jams occur in the following three areas.

1. The top Fuser Roller/output area. Operator Panel will report OUTER JAM.
2. The back Transfer Unit area. Operator Panel will report INNER JAM or DRUM JAM.
3. The Paper Tray feed area. Error message on Operator Panel will report MISFEED JAM.

**note:** Frequent jams in any area indicate that area should be checked, repaired, or cleaned.

### Paper Path of the SuperScript 4400



## REMOVING PAPER JAMS

- To avoid damage to rollers, always remove jammed paper gently.
- Try to remove jammed paper without tearing it. Any pieces of media left in the printer, whether large or small, can obstruct the paper path and cause further jams.

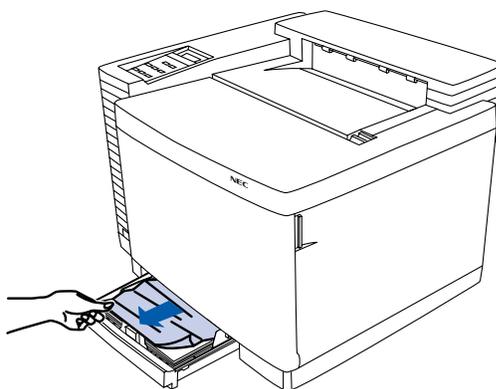
If, after clearing the paper jam, the jam message in the Operator Panel persists, open and close the Top Cover. This should clear the jam message.

If the automatic jam recovery is enabled (see page xx), once the jammed paper is removed and the printer is online, the printer should resume printing the job from the page where the jam occurred.

### Misfeed Jams

Misfeed jams happen in Paper Tray 1 or 2. A misfeed jam may be as simple as a sheet of media not being picked, or it may be that the paper was picked but not fed properly. Access to this area is through the tray slot.

1. Remove the paper tray.
2. Pull out the jammed media.

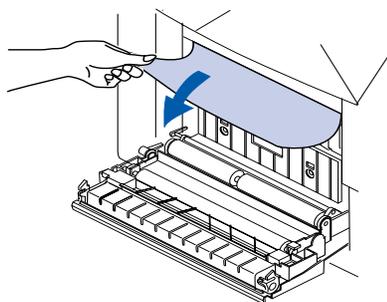


3. Make sure the paper is lying flat in the tray and that it does not exceed the media limit mark inside the tray.
4. Slide the tray back into the printer.

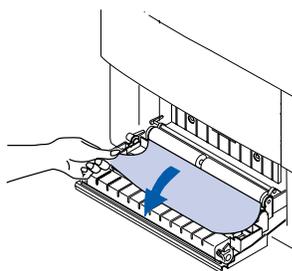
### Inner Jams

Inner jams happen in the transfer Drum/Transfer Unit area. This type of jam means that the media did not make it to the paper exit area.

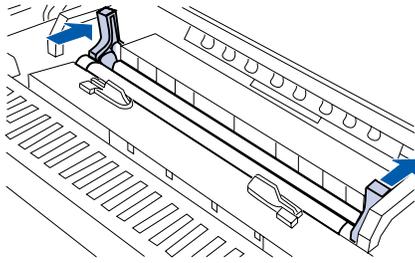
1. Open the Back Cover.



2. If most of the page is showing, gently pull it toward you.

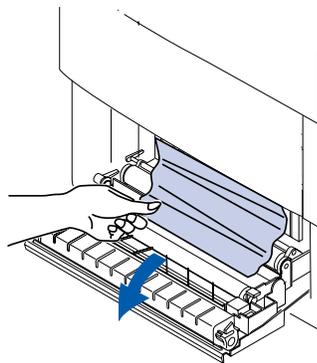


3. If the paper did not come out easily, open the Top Cover and open the Pressure Release Tabs.

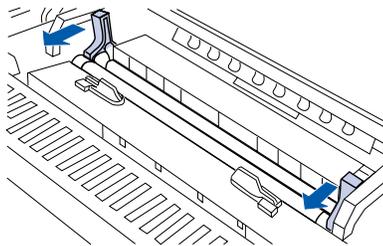


4. Remove the jammed paper by pulling it from the bottom of the fuser (through the printer's Back Cover, not from the top of the Fuser area. This prevents any unfused toner from dirtying the Fuser Rollers.

**WARNING!** Be careful not to touch the Transfer Drum while removing jammed paper.



5. Close the Pressure Release Tabs.

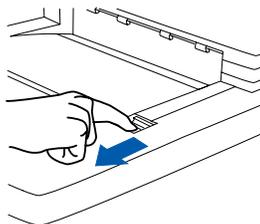


6. Close the Top and Back Covers of the printer.

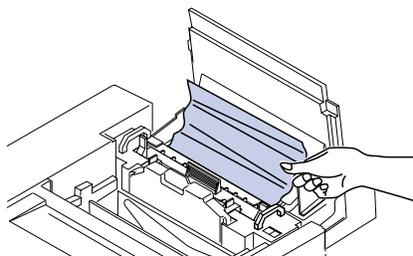
## Outer Jams

Outer jams occur in the fuser area. Jams of this type usually means that paper is stuck in the Fuser Roller/Output Area. Follow these steps to clear these kinds of jams.

1. Turn off the printer and open the Top Cover.



2. If there is a large amount of paper showing, gently pull it out.

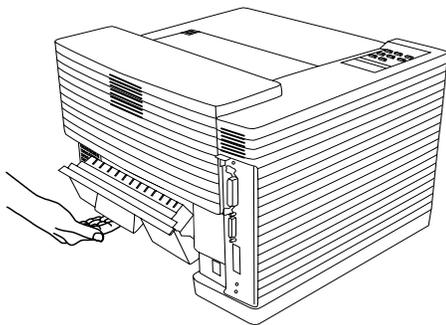


3. If the paper does not come out easily or if only a small amount is showing, open the Top Cover and follow steps 3—5 in the previous section.
4. Close the Top Cover.

## Drum Jams

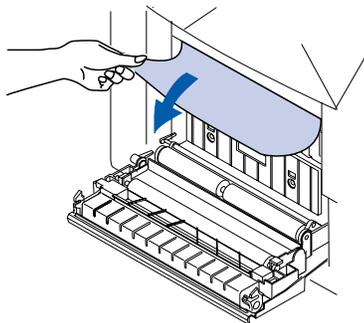
Drum jams occur when the paper gets wound around the Transfer Drum.

1. Turn off the printer and let it cool. Open the Back Cover.



2. Carefully remove the paper from the Transfer Drum.

**note:** Do not touch the Transfer Drum!



3. Close the Back Cover.

## IMAGING ARTIFACTS

This section is provided to assist in the correction of artifacts that are discovered on the printed media.

### Sample Artifacts Catalogue

To use this section select the artifact from the samples on the next few pages that represents the artifact you are experiencing, then turn to the page listed and follow the instructions on that page.

**Table 0-1: Sample Artifacts Catalogue**

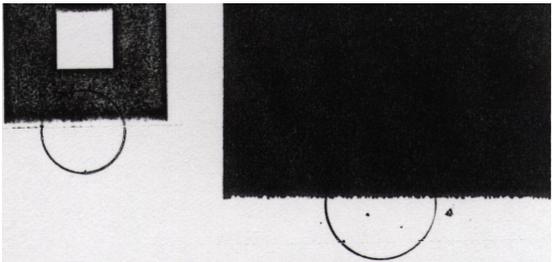
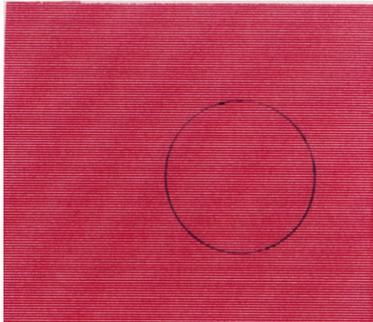
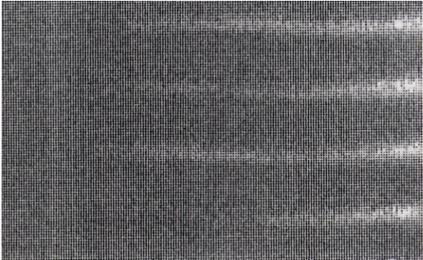
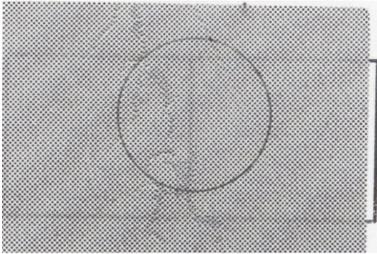
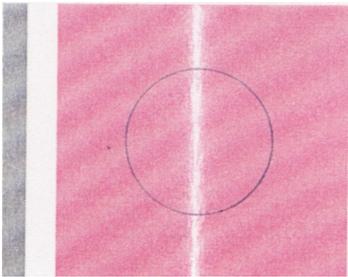
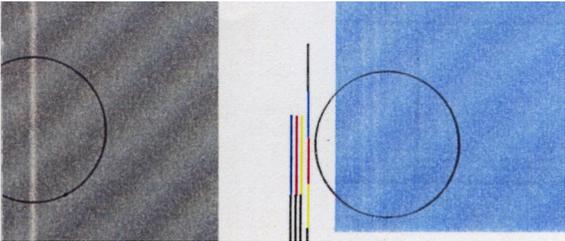
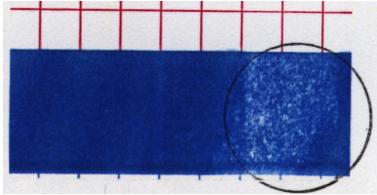
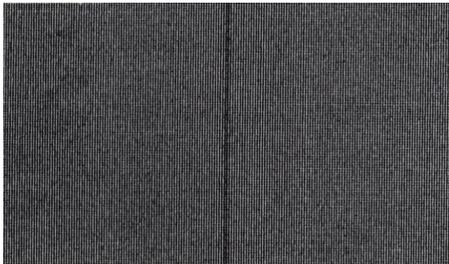
No.	Name/Description	Sample
1	<p><b>Background</b> The background is smeared due to the toner spread. Troubleshooting/Solution is on page 204.</p>	
2	<p><b>Missing Image at Edge</b> There are missing or peeling toner found in the image at edge. Troubleshooting/Solution is on page 205.</p>	
3	<p><b>Jitter</b> Uneven optical density appears periodically in the horizontal direction of printed image. Troubleshooting/Solution is on page 206.</p>	
4	<p><b>Ribbing</b> Light print occurs in the right or left side of image. Troubleshooting/Solution is on page 207.</p>	

Table 0-1: Sample Artifacts Catalogue

No.	Name/Description	Sample
5	<p><b>Wrinkle/Image Migration</b></p> <p>Banding shadows of different optical density appear due to the wrinkle, image migration and color misregistration occurring on the print paper. Troubleshooting/Solution is on page 208.</p>	
6	<p><b>White Line I</b></p> <p>Vertical white line appears in a specific color area when test-printed in the four color mode (Stripe Mode) Troubleshooting/Solution is on page 209.</p>	
7	<p><b>White Line II</b></p> <p>Vertical white line appears from the leading edge to the trailing edge of printed image. Troubleshooting/Solution is on page 210.</p>	
8	<p><b>Vertical White Band</b></p> <p>White band appears in the vertical direction of printed image. Troubleshooting/Solution is on page 211.</p>	
9	<p><b>Black Line</b></p> <p>Fine black line appears in the printed image. Troubleshooting/Solution is on page 212.</p>	

**Table 0-1: Sample Artifacts Catalogue**

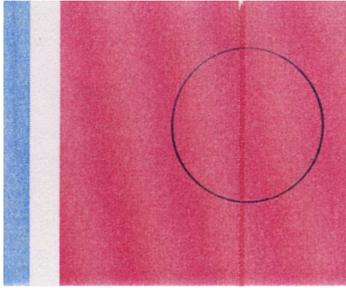
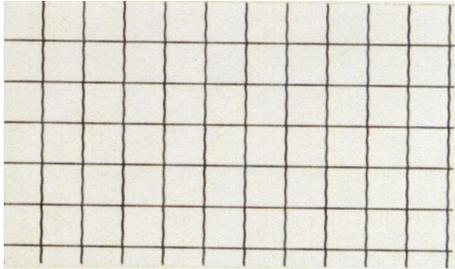
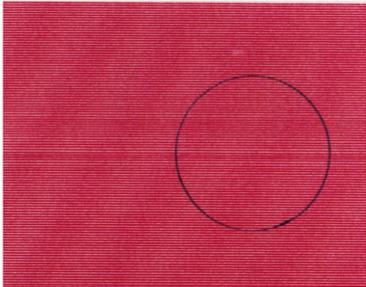
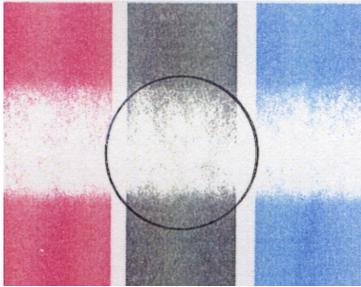
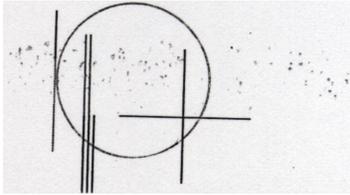
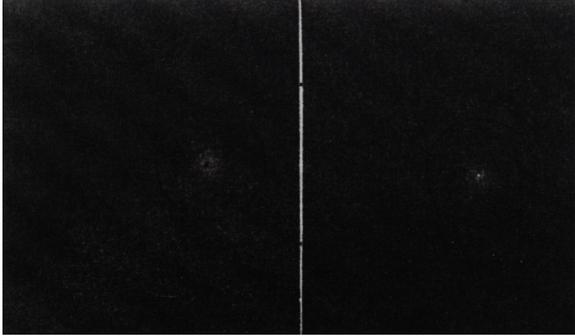
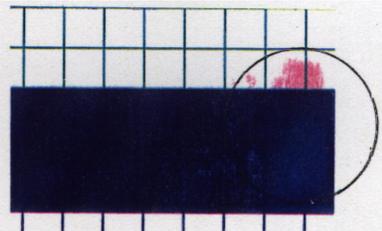
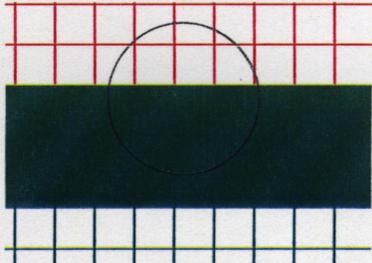
No.	Name/Description	Sample
10	<p><b>Vertical Line</b>                      Vertical line appears in the printed image.                      Troubleshooting/Solution is on page 213.</p>	
11	<p><b>Vertical Staggering Image</b>                      Printed image staggers in the vertical direction.                      Troubleshooting/Solution is on page 214.</p>	
12	<p><b>Banding</b>                      Banding line appears in the horizontal direction.                      Troubleshooting/Solution is on page 215.</p>	
13	<p><b>White Band</b>                      White banding line appears in the horizontal direction, and consequently causes a missing image.                      Troubleshooting/Solution is on page 216.</p>	

Table 0-1: Sample Artifacts Catalogue

No.	Name/Description	Sample
14	<p><b>Toner Drop</b>            Toner spot stain is caused on the print by the toner dropping within the printer engine.            Troubleshooting/Solution is on page 217</p>	
15	<p><b>White Spot/Black Spot</b>            White spot and black spot appear on the print.            Troubleshooting/Solution is on page 218.</p>	
16	<p><b>Mixed Color Image</b>            Mixed color image appears in the print.            Troubleshooting/Solution is on page 219.</p>	
17	<p><b>Color Misregistration</b>            Color misregistration is caused between the two colors.            Troubleshooting/Solution is on page 220.</p>	

**Table 0-1: Sample Artifacts Catalogue**

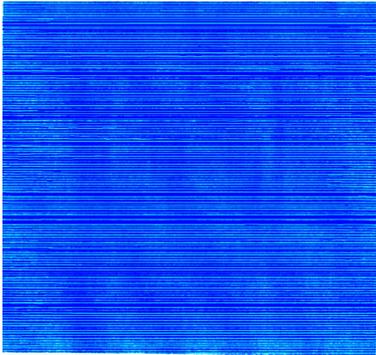
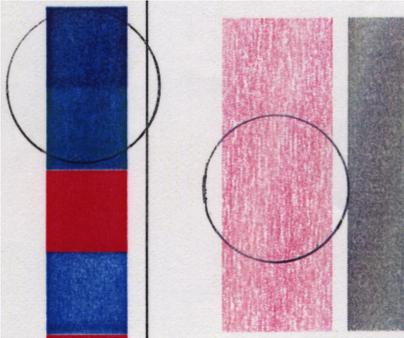
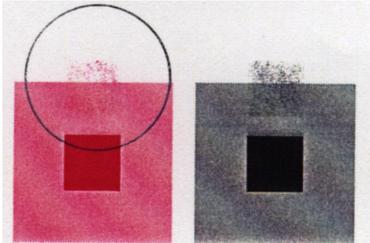
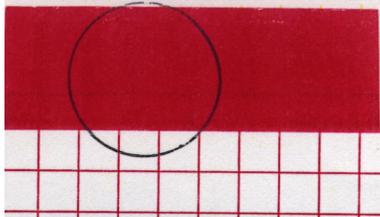
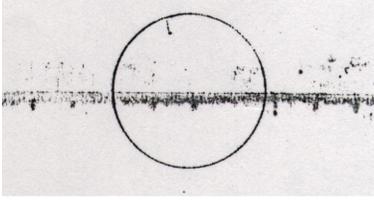
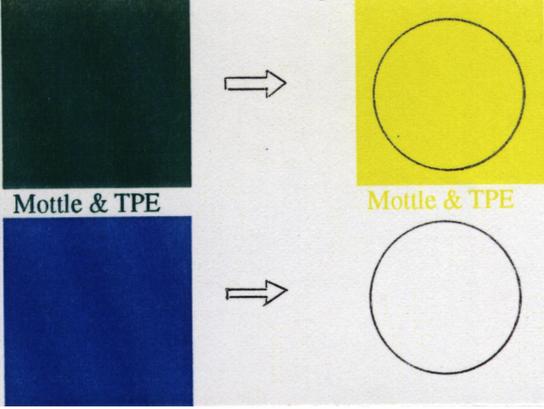
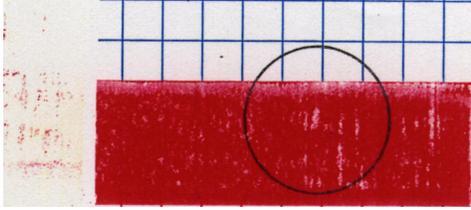
No.	Name/Description	Sample
18	<p><b>Toner Streak</b>                      Brush mark line of uneven optical density is caused in the image.                      Troubleshooting/Solution is on page 221.</p>	
19	<p><b>Mottle</b>                      Variation of the optical density is found in the image.                      Troubleshooting/Solution is on page 222.</p>	
20	<p><b>Residual Image</b>                      Image of the preceding page appears every other page.                      Troubleshooting/Solution is on page 223.</p>	
21	<p><b>Insufficient Gloss</b>                      Gloss of the print is not sufficient.                      Troubleshooting/Solution is on page 224.</p>	

Table 0-1: Sample Artifacts Catalogue

No.	Name/Description	Sample
22	<p><b>Black Stain</b> Back side of the print paper is stained. Troubleshooting/Solution is on page 225.</p>	
23	<p><b>White Print</b> Blank page (no print at all) is outputted or specific color is missing (not printed) Troubleshooting/Solution is on page 226.</p>	
24	<p><b>Improper Fusing</b> Printed image is partially missing. This proves that the fusing is improper. Troubleshooting/Solution is on page 227.</p>	

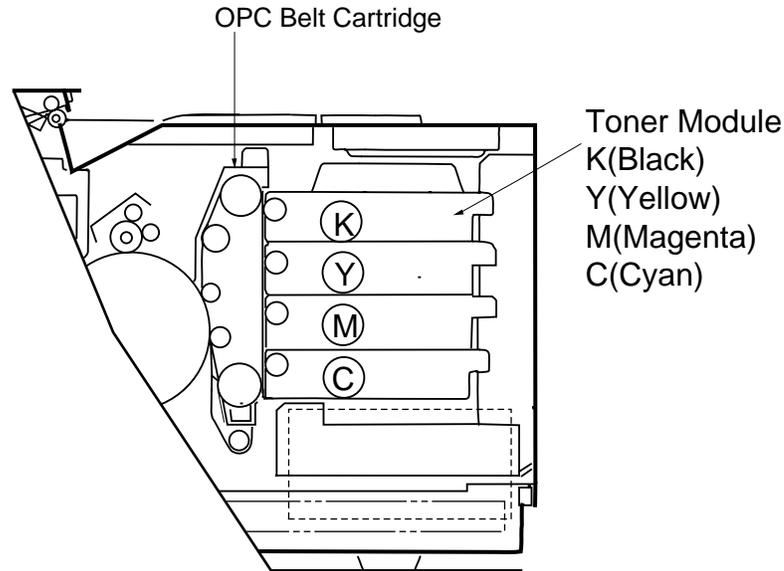
## Artifacts Error Recovery

Use this section to recover from the error condition that was selected in the previous section. The causes and counter measures listed for each item are in the order of probability.

1. **Background** - The background is smeared due to the toner spread.

### Main Causes

1. Too small toner mass amount and charging amount in the development process.
2. Life or failure of the belt module.



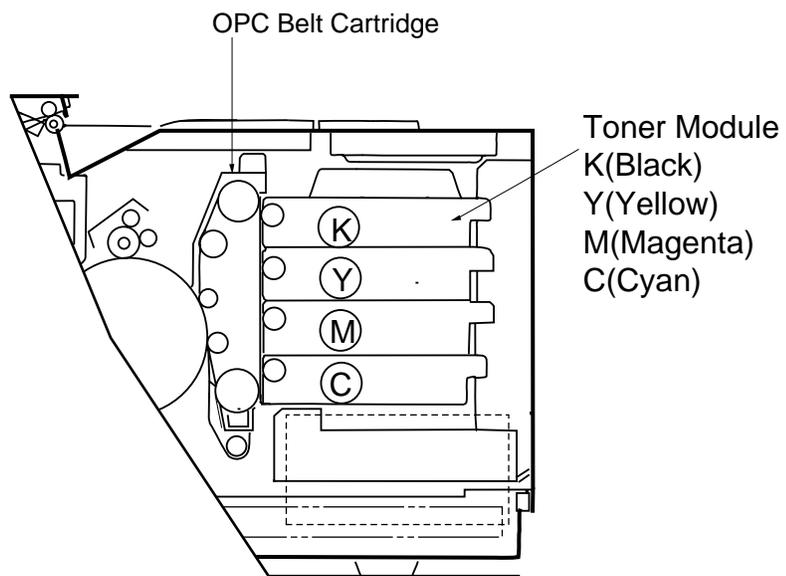
### Countermeasures

1. Replace the toner module. (See Chapter 7)
2. Replace the belt module. (See Chapter 7)

**2. Missing Image at Edge** - There are missing or peeling found in the image at edge.

## Main Causes

1. Too small toner mass amount and charging amount in the development process.
2. Life or failure of the belt module.



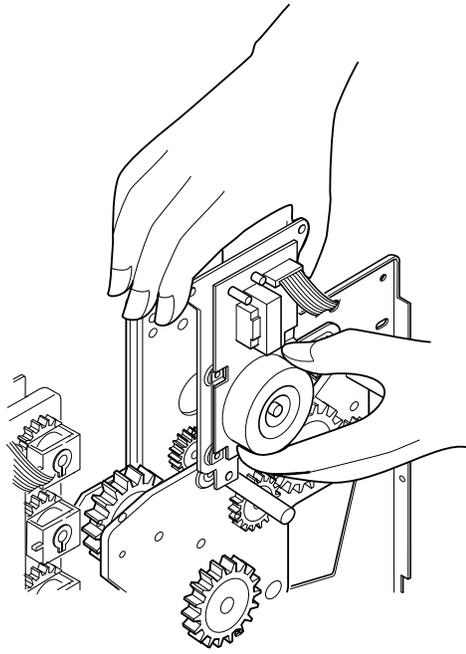
## Countermeasures

1. Replace the toner module. (See Chapter 7)
2. Replace the belt module. (See Chapter 7)

**3. Jitter** - Uneven optical density appears periodically in the horizontal direction of printed image.

Main Causes

1. Failure of the main motor.
  - a. Irregular rotation of the drive motor.
  - b. Failure of the gears.
  - c. Variation of Photoconductor belt running speed due to above reasons.
  - d. Too much rotational load on the Photoconductor belt.



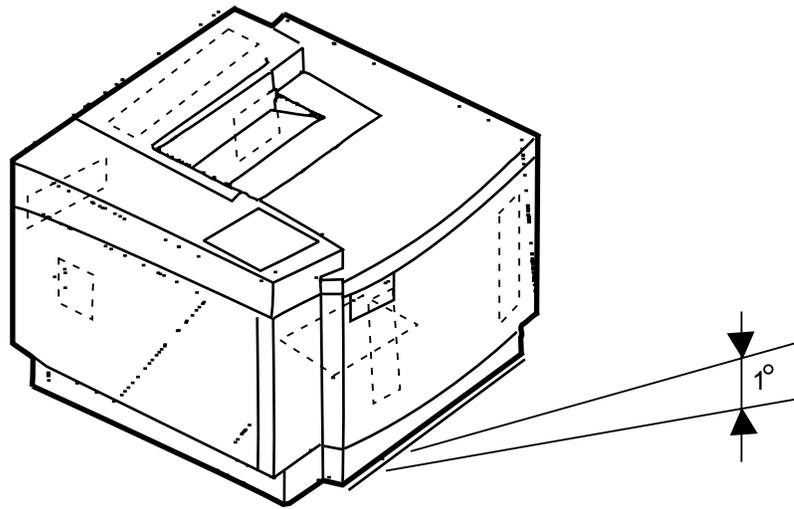
Countermeasures

1. Replace the Photoconductor belt drive motor (BM) with a new motor. (See Chapter 7)
2. Replace the Photoconductor belt module with a new cartridge. (See Chapter 6)

**4. Ribbing** - Light print occurs in the right or left side of image.

Main Causes

1. Slight tilt of the surface of printer table. (Tilt should be less than 1.5°)
2. Low toner in the toner module.



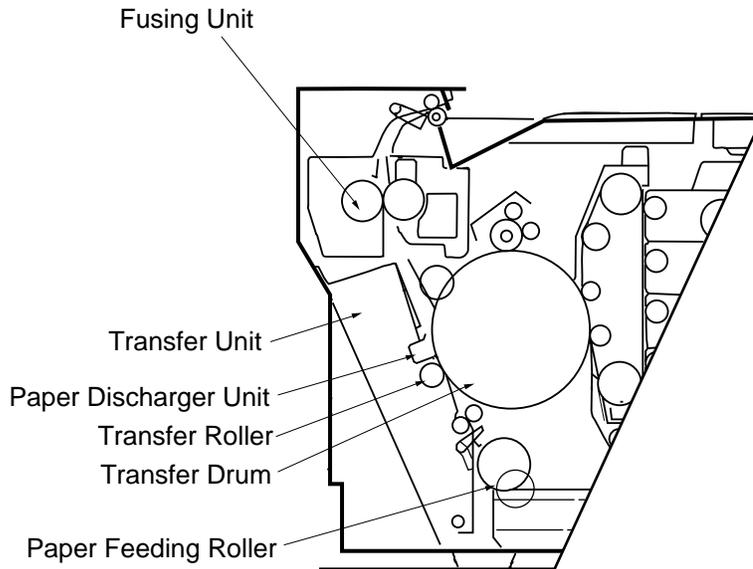
Countermeasures

1. Level the printer.
2. Replace the toner module with a new module. (See Chapter 6)

5. **Wrinkle/Image Migration** - Banding shadows of different optical density appear due to the wrinkle, image migration and color misregistration occurring on the print paper.

Main Causes

1. Print paper other than the recommended paper is used.
2. Paper discharger unit of transfer unit is not functioning.
3. Fuser oil of fuser unit is nearly out.
4. One side of fuser unit was lifted when installed.



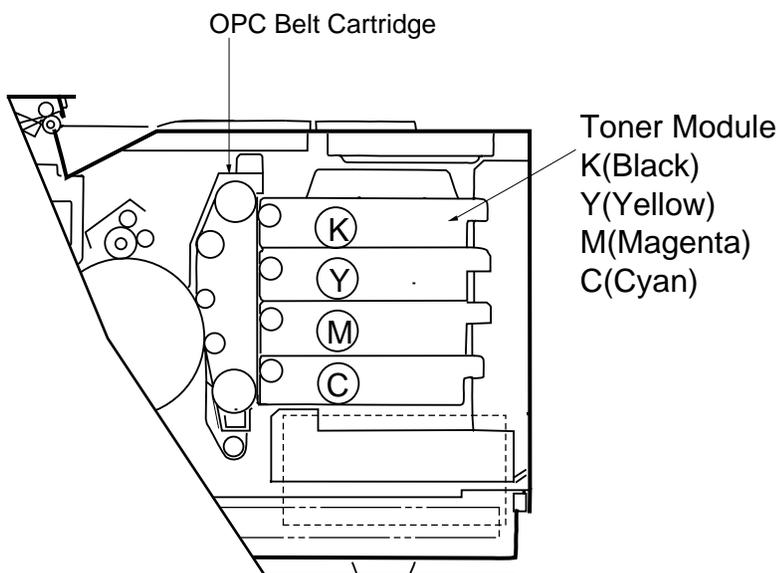
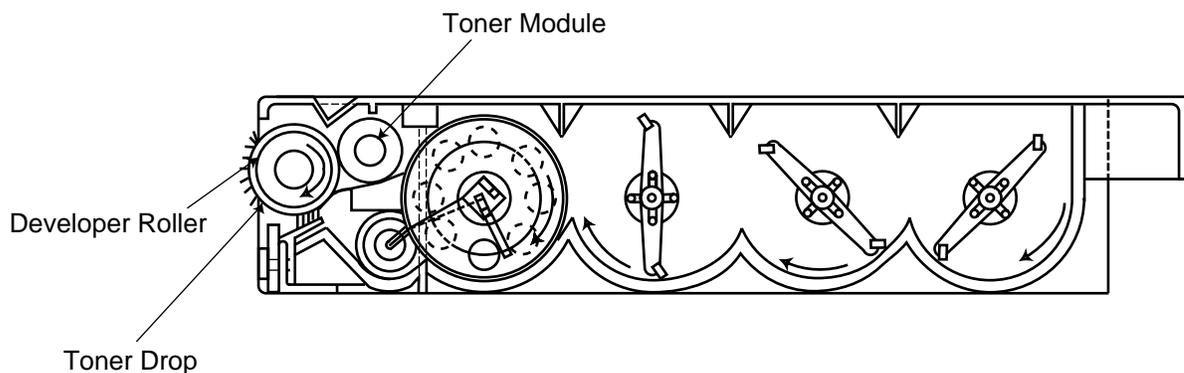
Countermeasures

1. Use a recommended paper.
2. Confirm that the transfer unit is properly installed in the paper discharger unit and functioning normally.
3. Clean the paper discharger unit, or replace it with a new unit. (See Chapter 7)
4. Replace the fusing unit with a new one. (See Chapter 6)

6. **White Line I** - Vertical white line appears in a specific color area when test-printed in the four color mode (Stripe Mode)

Main Causes

1. Foreign particles adhered to Developer Roller of specific color in question.
2. Foreign particles adhered to the Toner Module's Main Blade of specific color in question.



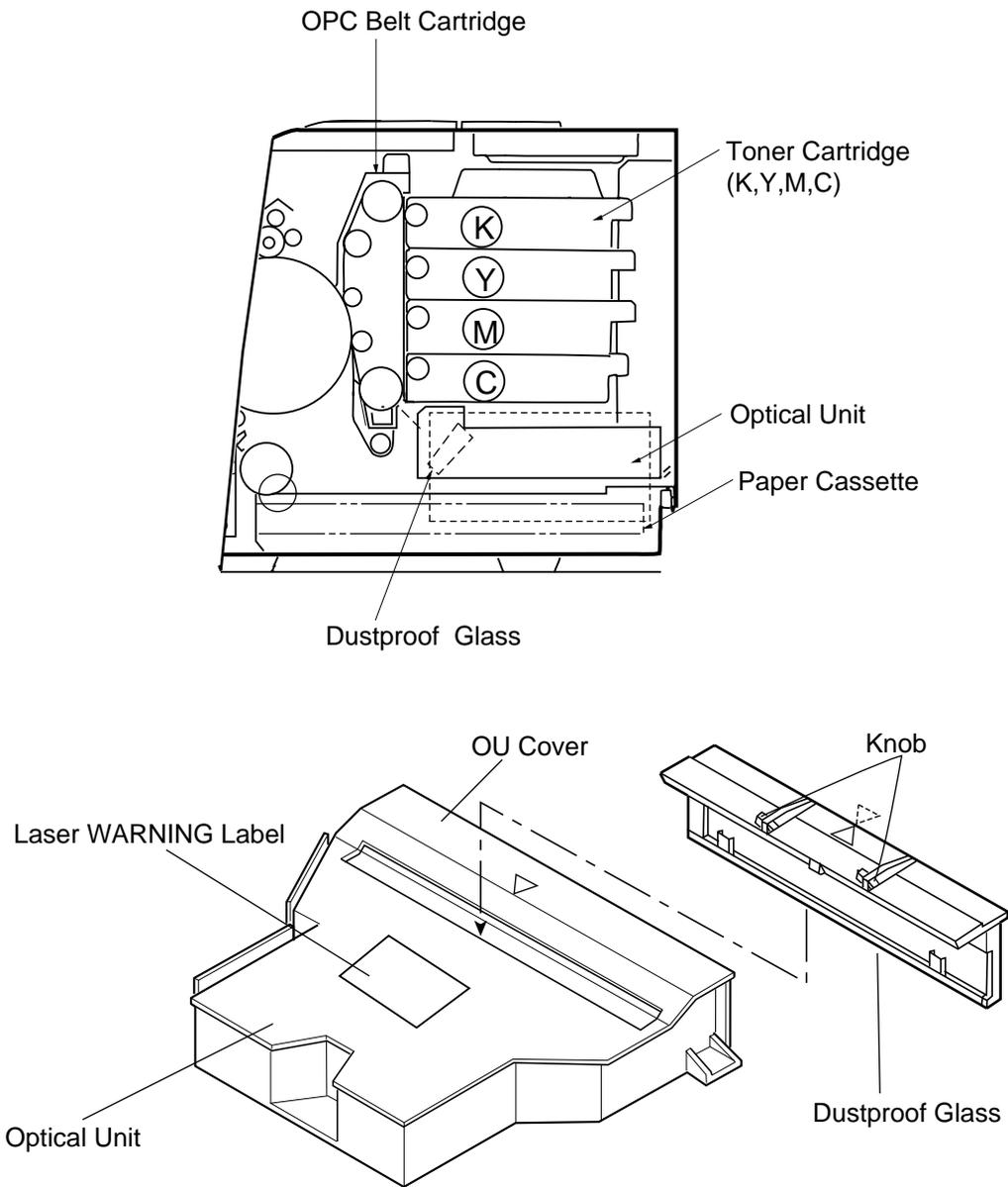
Countermeasures

1. Implement the test print.
2. Confirm which toner module has caused the white line.
3. Remove the foreign particles adhering to the developer roller.

**7. White Line II** - Vertical white line appears from the leading edge to the trailing edge of printed image.

Main Causes

1. Dustproof Glass of Optical Unit is smeared with toner or foreign particles.



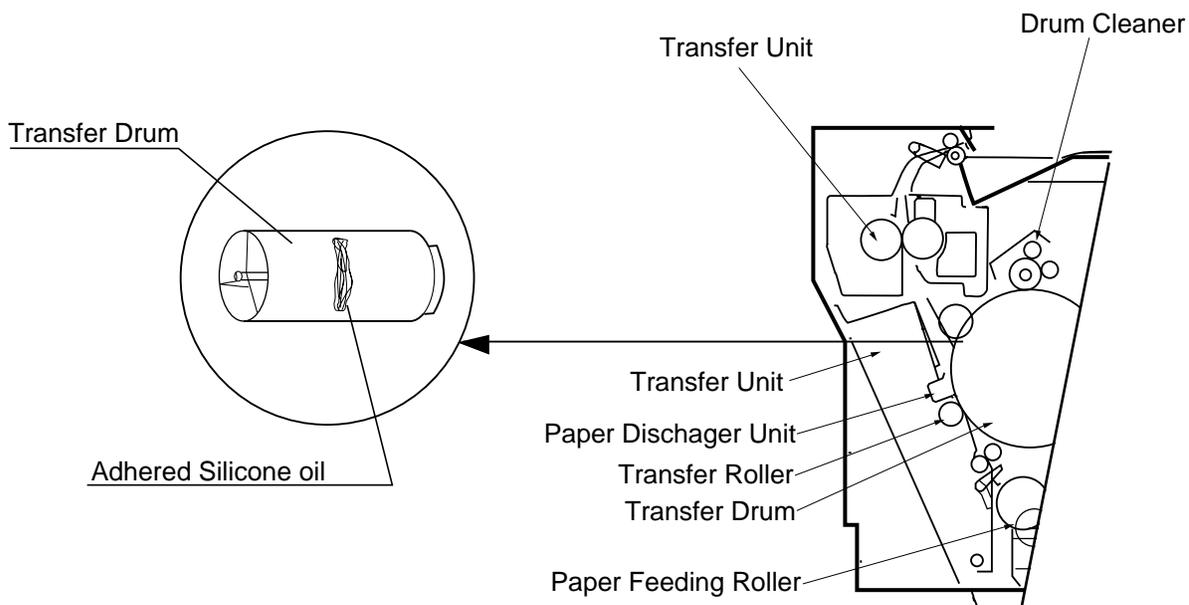
Countermeasures

1. Clean the dustproof glass.
  - a. Remove the belt module and toner module. (See Chapter 7)
  - b. Remove the dustproof glass from the optical unit.
  - c. Clean the dustproof glass. (See Chapter 7)

**8. Vertical White Band** - White band appears in the vertical direction of printed image.

Main Causes

1. Silicon oil on the transfer drum.



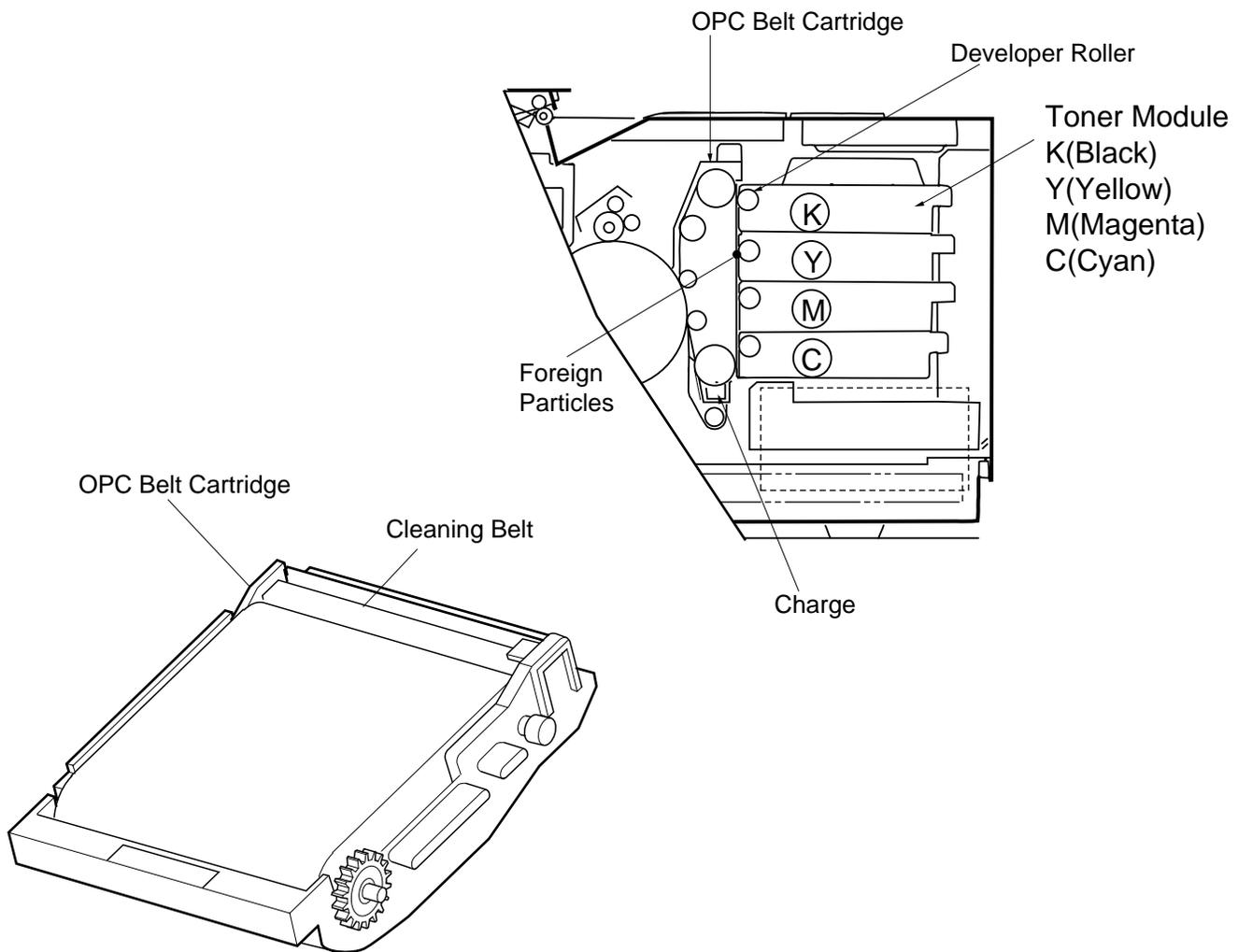
Countermeasures

1. Wipe off the oil adhering to the transfer unit and surrounding area.
2. Replace the transfer drum with a new drum. (See Chapter 7)
3. If the oil adhesion is excessive, replace the belt module and cleaning brush with a new cartridge and brush. (See Chapter 6)

**9. Black Line** - Fine black line appears in the printed image.

Main Causes

1. Wire grid of the charger unit is smeared.
2. photoconductor belt's surface is damaged.
3. Foreign particles (paper dust, etc.) are stuck in between the cleaning blade and photoconductor belt.
4. Debris adhering to the base of toner module's developer roller contacts to photoconductor belt.



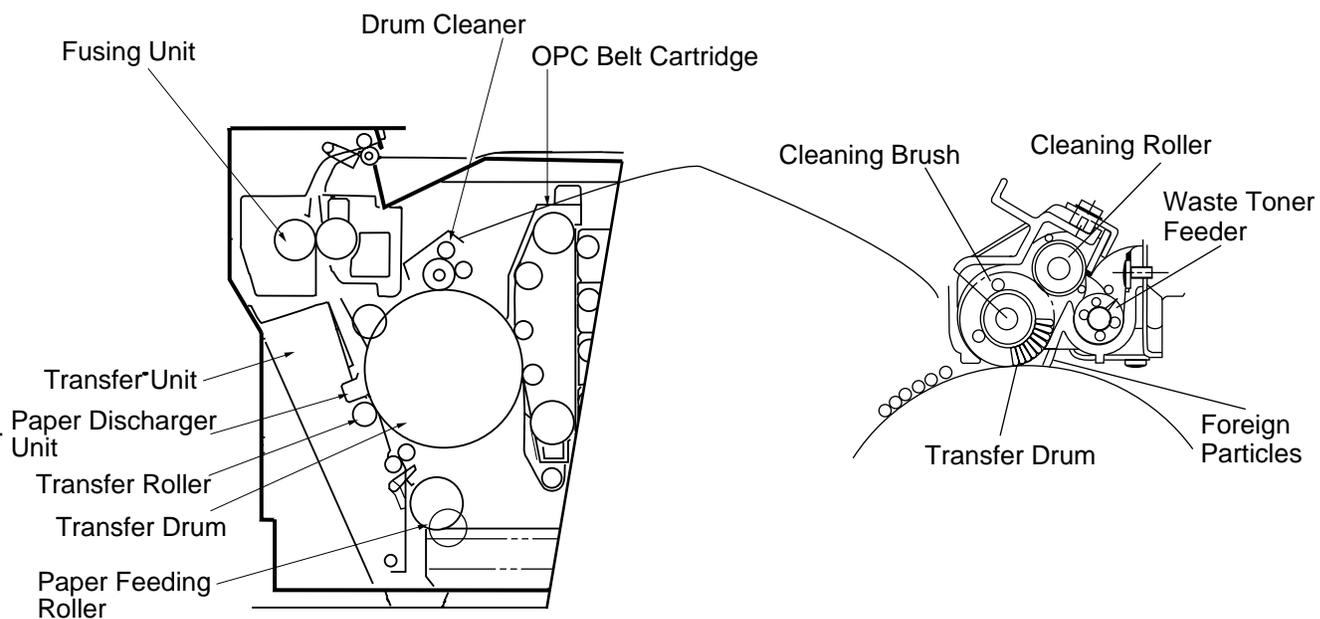
Countermeasures

1. Remove the belt module.
  - a. Clean the charger unit. (See Chapter 7)
  - b. Replace the photoconductor belt module. (See Chapter 6)
2. Clean the surface of developer roller.

## 10. Vertical Line - Vertical line appears in the printed image.

### Main Causes

1. Foreign particles (dust, etc.) adhere to the parts located around the transfer drum, and consequently contact the toner image on the transfer drum.



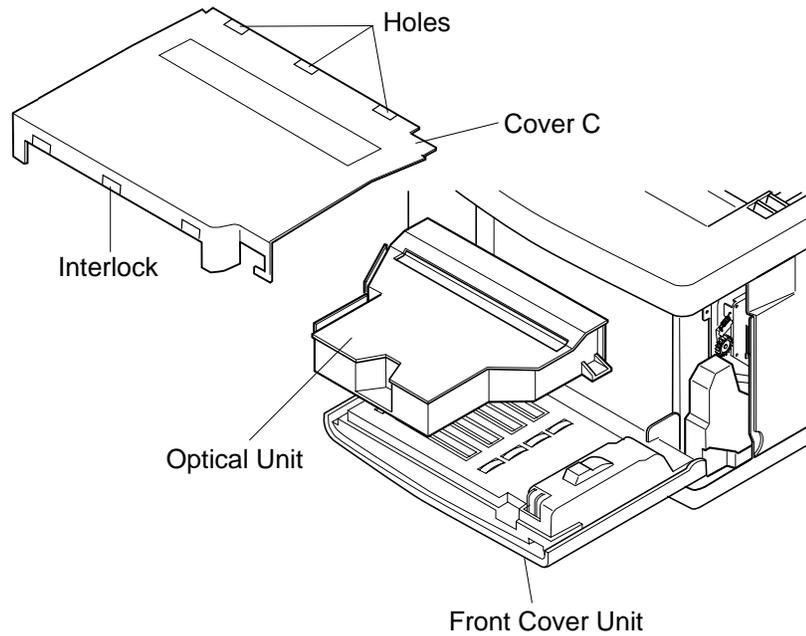
### Countermeasures

1. Clean the paper discharger unit. (See Chapter 7)
2. Clean the charger unit. (See Chapter 7)
3. Clean the rear face of waste toner feeder. (See Chapter 7)

## 11. Vertical Staggering Image - Printed image staggers in the vertical direction.

### Main Causes

1. The printer was bumped or was vibrating during the print process.
2. Failure of the optical unit: Vibration from the rotation of scanner motor.



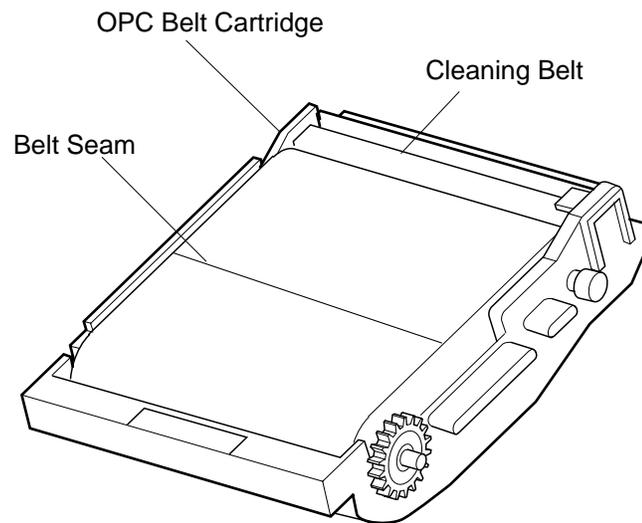
### Countermeasures

1. Avoid shock or vibration of the printer.
2. Installation location should be appropriate: No concern about shock or vibration.
3. 3. Replace the optical unit with a new unit. (See Chapter 7)

**12. Banding** - Banding line appears in the horizontal direction.

## Main Causes

1. This is a transfer failure due to the shock caused when photoconductor belt's seam passes over the cleaning blade.



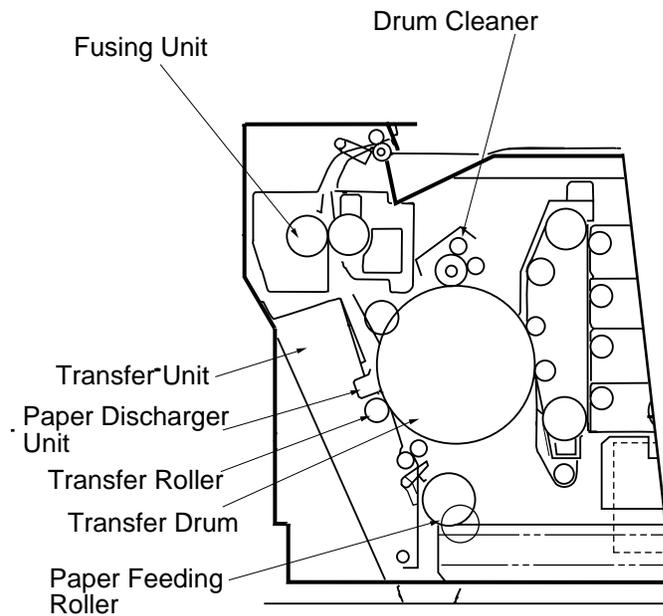
## Countermeasures

1. Replace the belt module with a new cartridge. (See Chapter 6)

**13. White Band** - White banding line appears in the horizontal direction, and consequently causes a missing image.

**Main Causes**

1. Installation failure of the transfer unit, and deformation of the transfer roller.
2. Contact failure of the transfer roller's bias pole.
3. Transfer Roller Cam Clutch failure.



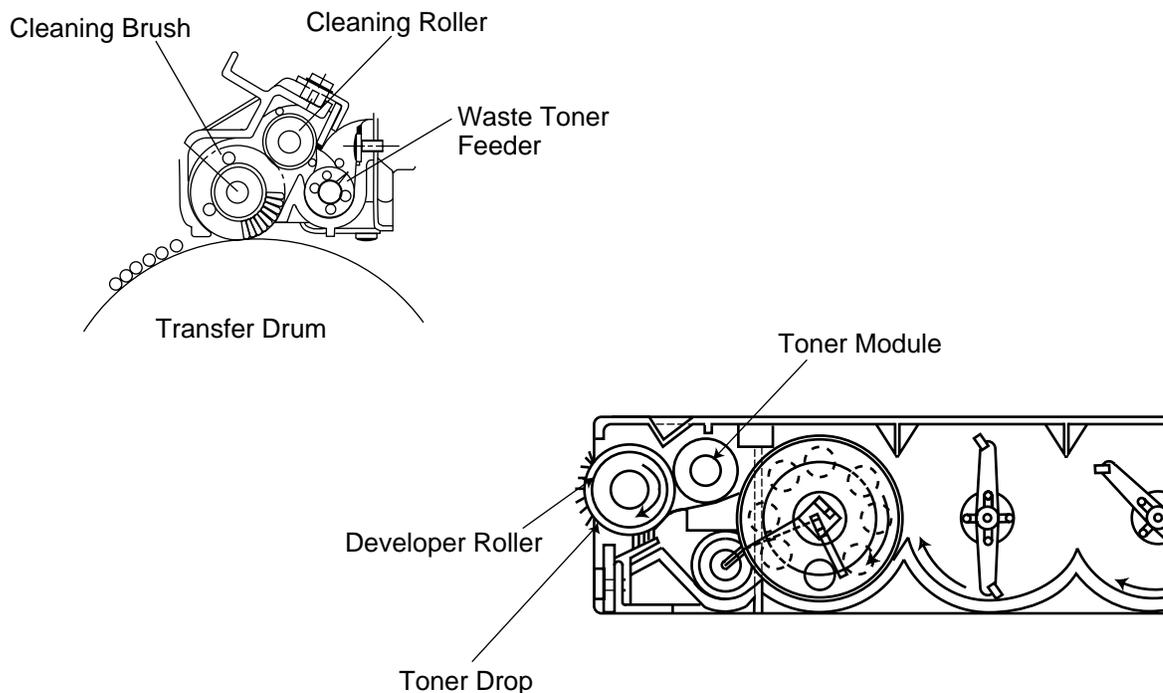
**Countermeasures**

1. Confirm that the transfer unit is properly locked into place; BOTH sides of the transfer unit are secured by a hook.
2. Confirm if the transfer unit is properly installed or not.
3. Replace the transfer roller cam clutch with a new clutch. (See Chapter 7)
4. Replace the transfer unit with a new unit. (See Chapter 7)

**14. Toner Drop** - Toner spot stain is caused on the print by the toner dropping within the printer engine.

Main Causes

1. Toner drops on the transfer drum due to the break-down of the waste toner feeder's drum cleaner.
  - a. Mylar of the waste toner feeder is deformed.
  - b. Waste toner is not properly collected by the waste toner feeder.
2. Toner adhering to the developer roller drops on the photoconductor belt.



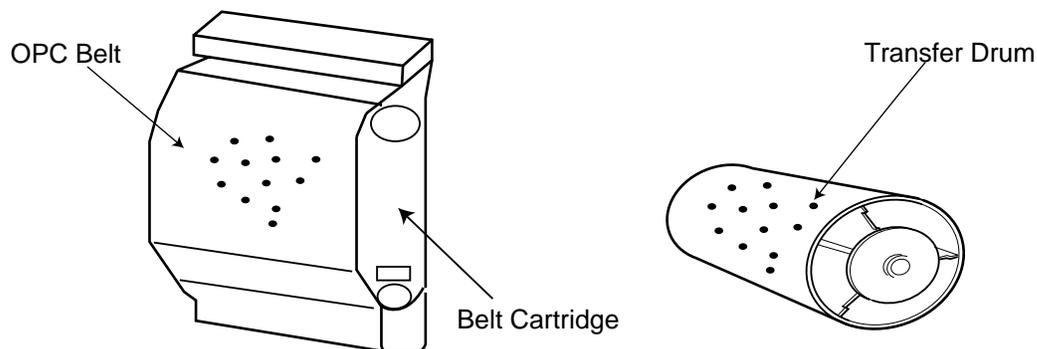
Countermeasures

1. Check up the cleaning brush and waste toner feeder.
  - a. Clean the perimeter of the cleaning brush installation location.
  - b. Check the seal for damage. If damaged, replace the waste toner feeder with a new feeder.
  - c. Check for waste toner in the printer. If so, vacuum the waste toner with a toner vacuum cleaner.
2. Remove the toner module.
  - a. Clean the surface of developer roller.
  - b. Replace the toner module with a new module.

**15. White Spot/Black Spot** - White spot and black spot appear on the print.

Main Causes

1. Foreign particles adhering to the photoconductor belt or transfer drum.
2. photoconductor belt or transfer drum is damaged.
3. Foreign particles mixed in with the toner.
4. Foreign particles adhering to the transfer roller.
5. Deformation of transfer roller..



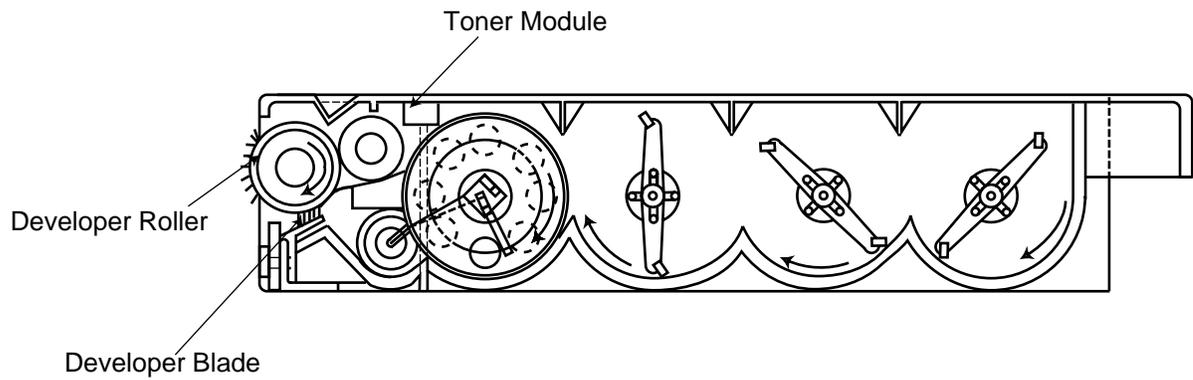
Countermeasures

1. Remove the belt module.
  - a. Lightly wipe off the foreign particles adhering to photoconductor belt, using cotton cloth.
  - b. Replace the damaged belt module with a new cartridge.
2. Open the transfer unit, and check the transfer drum.
  - a. Lightly wipe off the foreign particles adhering to transfer drum, using cotton cloth.
  - b. Replace the damaged transfer drum with a new drum. (See Chapter 7)
3. Remove the toner module.
  - a. Clean the surface of developer roller. (See Chapter 7)
  - b. Replace the toner module with a new module. (See Chapter 6)
4. Replace the transfer unit with a new unit.

**16. Mixed Color Image** - Mixed color image appears in the print.

## Main Causes

1. Failure of toner module: Blade pressure of the developer roller is inappropriate or the blade is deformed.
2. Registration error of toner module..



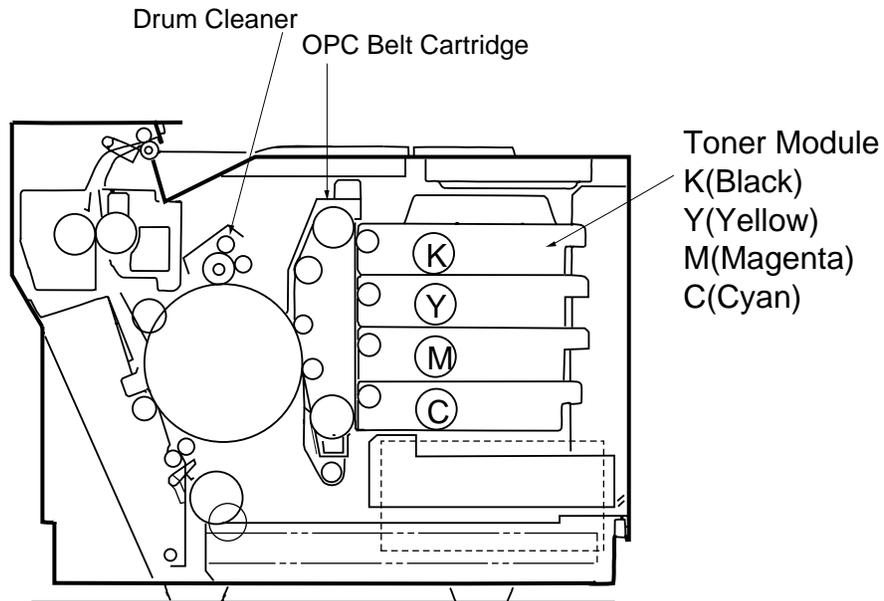
## Countermeasures

1. Confirm that the toner module can be inserted smoothly.
2. Replace the toner module with a new module.
3. Reconfirm that the front cover unit is locked.

**17. Color Misregistration** - Color misregistration is caused between the two colors.

Main Causes

1. Photoconductor belt module is not properly installed.
2. photoconductor belt module is deformed.
3. Cleaning brush is unstable in the operation.
4. Rotational load on the photoconductor belt module is excessive.



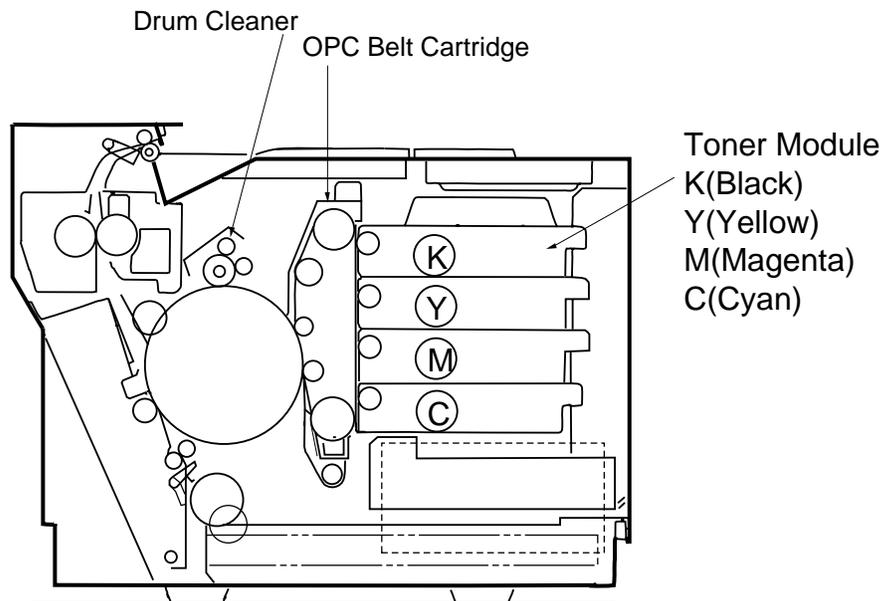
Countermeasures

1. Reseat the photoconductor belt module properly.
2. Replace the photoconductor belt module with a new cartridge.
3. Replace the cleaning brush. (See Chapter 7)

**18. Toner Streak** - Brush mark line of uneven optical density is caused in the image.

Main Causes

1. Main blade of the developer unit and the reset roller is not normal
2. Location of the toner module is not correct.
3. Transport paddle in the toner module is deformed.
4. Brush mark line appears in the continuous printing of high coverage (solid) pattern.



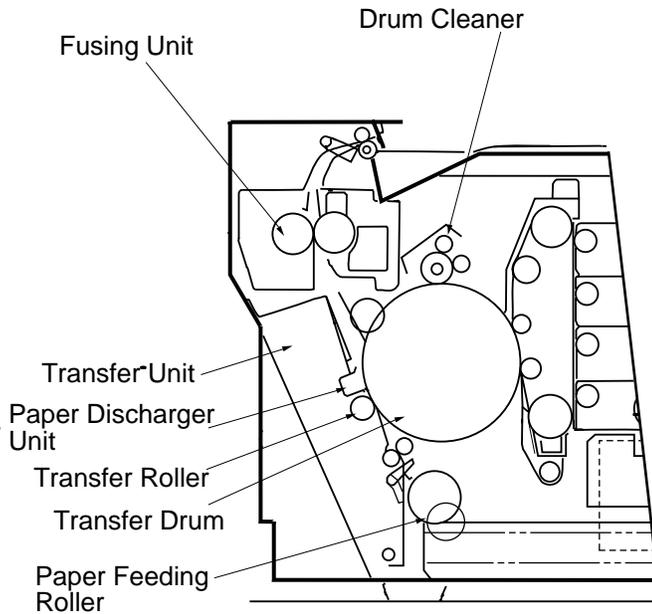
Countermeasures

1. Reseat the toner module.
2. Remove the toner module and rock it left to right.
3. Replace the toner module. (See Chapter 6)

**19. Mottle** - Variation of the optical density is found in the image.

Main Causes

1. Transfer unit is not locked into place.
2. Improper assembly of the transfer roller.
3. THV output of DC high voltage unit is not normal.
4. Failure of the toner module.
5. Deformation of the paper.



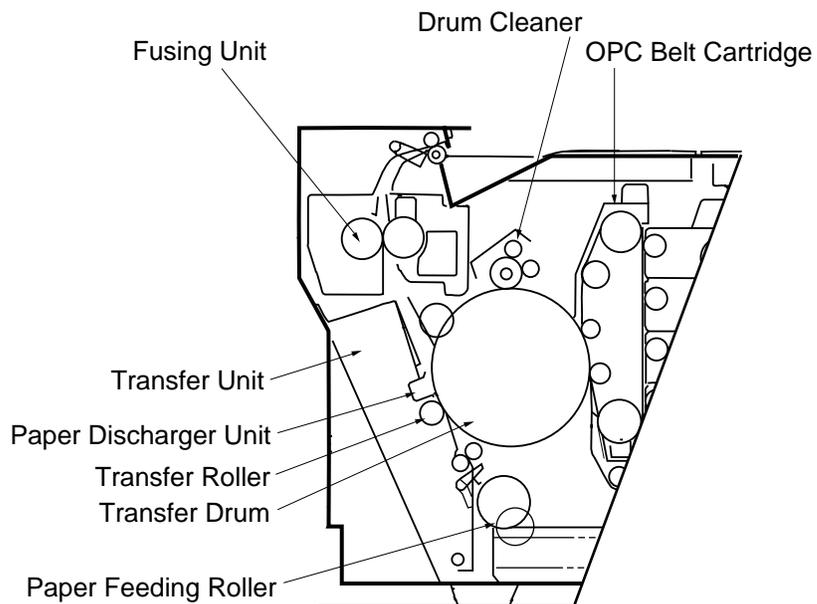
Countermeasures

1. Confirm that the transfer unit is firmly locked into place.
1. Ensure that the transfer roller is properly installed.
1. Replace the DC high voltage unit with a new unit. (See Chapter 7)
1. Replace the toner module with a new module.
2. Replace the Photoconductor belt module. (See Chapter 6)

**20. Residual Image** - Image of the preceding page appears every other page.

Main Causes

1. Cleaning failure due to the lifted cleaning brush of drum cleaner.
2. Contact failure of the drum cleaner's bias pole.
3. Failure of DC high voltage unit.



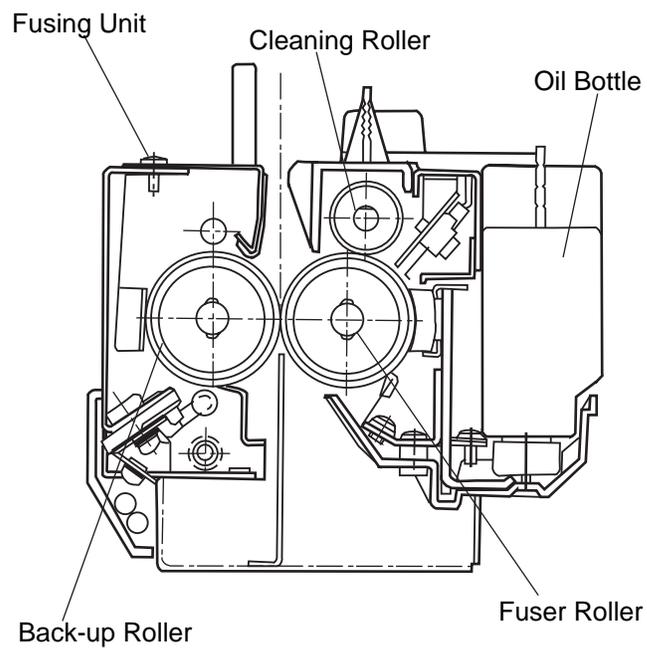
Countermeasures

1. Ensure that the drum cleaner is properly installed.
2. Replace the failed DC high voltage unit with a new unit. (See Chapter 7)

**21. Insufficient Gloss** - Gloss of the print is not sufficient.

Main Causes

1. Cleaning roller is stained.
2. Fuser roller is deteriorated.



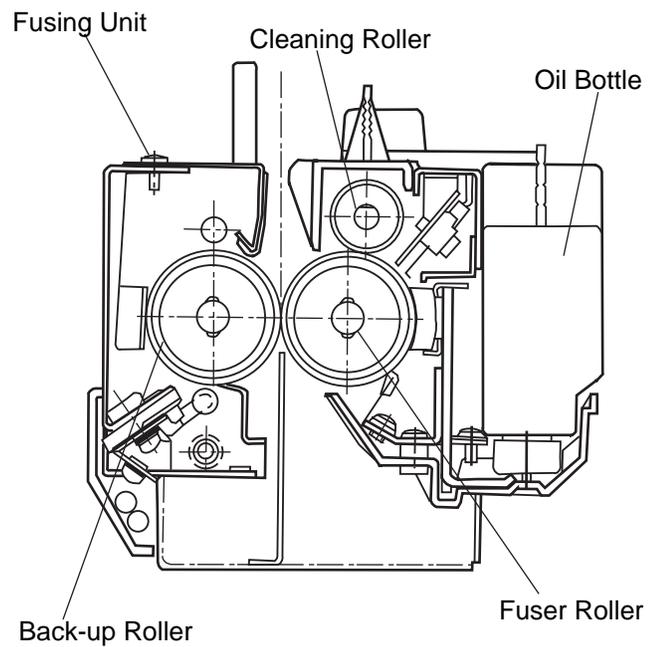
Countermeasures

1. Replace the cleaning roller with a new roller. (See Chapter 6)
2. Replace the fuser unit with a new unit. (See Chapter 6)

**22. Black Stain** - Back side of the print paper is stained.

## Main Causes

1. Cleaning pad is stained.
2. Fuser oil is low.
3. Fuser roller and back-up roller is stained.



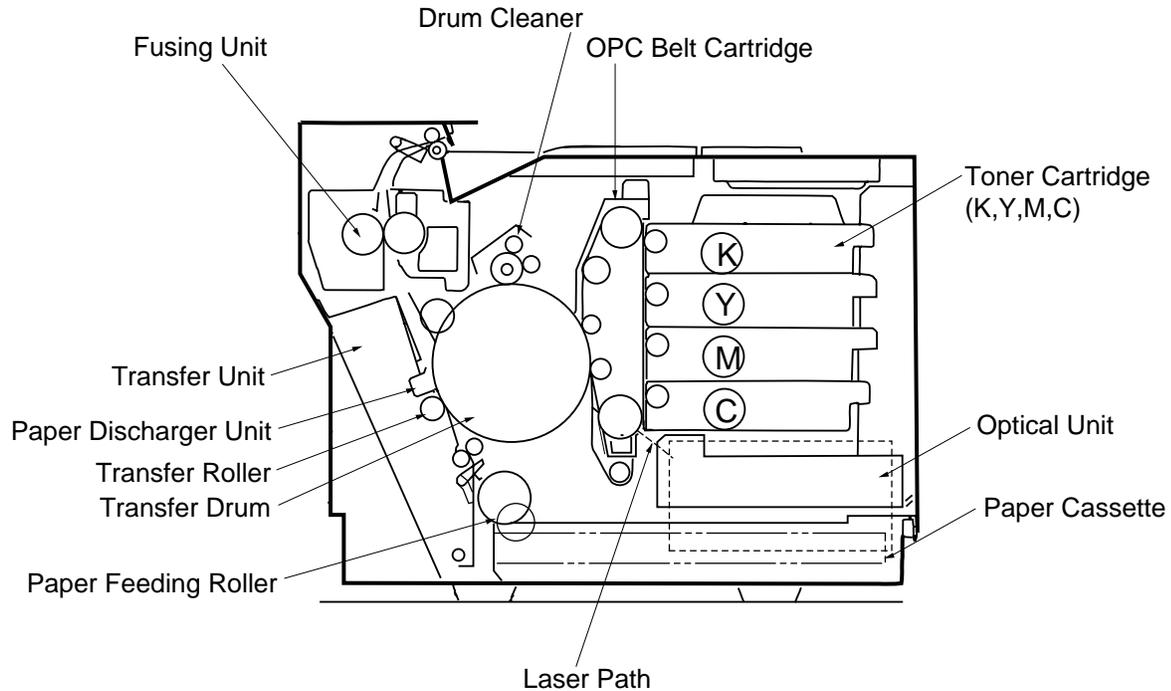
## Countermeasures

1. Replace the cleaning roller with a new roller. (See Chapter 6)
2. Clean the fuser roller and back-up roller.
3. Replace the fuser unit with a new unit. (See Chapter 6)

**23. White Print** - Blank page (no print at all) is outputted or specific color is missing (not printed)

Main Causes

1. Laser light path is blocked by paper or other material stuck at opening of optical unit.
2. Transfer Solenoid is not functioning.
3. There is no belt bias voltage (CBV) injected.
4. There is no output from the high voltage unit (HVU).



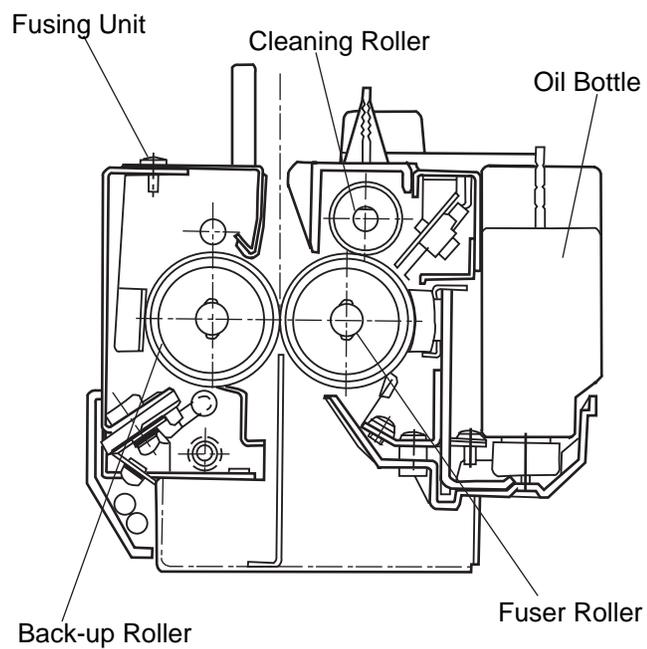
Countermeasures

1. Ensure that there are no foreign particles stuck in the opening of optical unit.
2. Replace the transfer solenoid with a new solenoid. (See Chapter 7)
3. Replace the photoconductor belt module with a new unit. (See Chapter 6)
4. Replace the high voltage unit (HVU) with a new unit. (See Chapter 7)

**24. Improper Fusing** - Printed image is partially missing. This proves that the fusing is improper.

Main Causes

1. Wrong selection of print media (label or envelope, etc.) at the computer side.
2. Recommended paper is not used.
3. Failure of the fuser unit.



Countermeasures

1. Ensure that the correct media type is selected.
2. Use the recommended paper.
3. Replace the failed fuser unit with a new unit.

## SERVICE ERROR CODES

This section describes the troubleshooting procedures for Service Call Error Codes.

Code	Description of Error	Cause of Error	Clearance Method
C3	NVRAM Error	1. Failure of MCTL P.W.B. CPU EEPROM	1. Turn on and off the power switch. 2. Above method 1 does not work, implement "C3 Error Clearance Procedure". 3. Replace the failed MCTL P.W.B
C4	Hard Error of MCTL Control Circuit.	1. Failure of MCTL P.W.B.	1. Turn on and off the power switch. 2. Replace the failed MCTL P.W.B
C7	Process Timing Error.	1. Power Feeding Failure 2. MM Failure 3. MM Input Circuit Failure	1. Implement the same clearance procedures employed for E2 error. Note: MM stands for OPC Belt Drive Main Motor.
D1	Developer Clutch (DCLY)	1. Loose/Broken connection  2. Incorrect voltage at DCLY ON-N  3. MCTL PWB Failure	1. Check connection between ECN17 of IOD2 and Clutch (DCLY2). 2. Check voltages below: a) Voltage drop ( $\nabla$ <sup>+24V</sup> ) between ECN17-3 and ECN2-8 then, replace the clutch (DCLY) b) Voltage jump ( $\uparrow$ ) between ECN1-1 and ECN2-12 then, replace IOD2 PWB 3. Replace MCTL PWB
D2	Developer Clutch (DCLM)	1. Loose/Broken connection  2. Incorrect voltage at DCLM ON-N  3. MCTL PWB Failure	1. Check connection between ECN16 of IOD2 and Clutch (DCLM) 2. Check voltages below: a) Voltage drop ( $\nabla$ <sup>+24V</sup> ) between ECN16-3 and ECN2-8 then, replace the clutch (DCLM) b) Voltage jump ( $\uparrow$ ) between ECN1-2 and ECN2-12 then, replace IOD2 PWB 3. Replace MCTL PWB

Code	Description of Error	Cause of Error	Clearance Method
D3	Developer Clutch (DCLC)	1. Loose/Broken connection 2. Incorrect voltage at DCLC ON-N 3. MCTL PWB Failure	1. Check connection between ECN14 of IOD2 and Clutch (DCLC). 2. Check voltages below: a) Voltage drop ( $\nabla$ +24V ) between ECN14-3 and ECN2-8 then, replace the clutch (DCLC) b) Voltage jump ( $\Uparrow$ ) between ECN1-3 and ECN2-12 then, replace IOD2 PWB 3. Replace MCTL PWB
D4	Developer Clutch (DCLK)	1. Loose/Broken connection 2. Incorrect voltage at DCLK ON-N 3. MCTL PWB Failure	1. Check connection between ECN13 of IOD2 and Clutch (DCLK). 2. Check voltages below: a) Voltage drop ( $\nabla$ +24V ) between ECN13-3 and ECN2-8 then, replace the clutch (DCLK) b) Voltage jump ( $\Uparrow$ ) between ECN1-4 and ECN2-12 then, replace IOD2 PWB 3. Replace MCTL PWB

Code	Description of Error	Cause of Error	Clearance Method
D5	Developer Solenoid (PSL YM)	<ol style="list-style-type: none"> <li>Loose/Broken connection</li> <li>Incorrect voltage at (PSL YM) ON-N</li> <li>MCTL PWB Failure</li> </ol>	<ol style="list-style-type: none"> <li>Check connection between ECN14 of IOD2 and Solenoid (PSL YM).</li> <li>Check voltages below: <ol style="list-style-type: none"> <li>Voltage drop ( <math>\nabla</math> <sup>+24V</sup> ) between ECN3-11 and ECN2-8 then, replace the front cover unit</li> <li>Voltage jump ( <math>\uparrow</math> ) between ECN1-5 and ECN2-12 then, replace IOD2 PWB</li> </ol> </li> <li>Replace MCTL PWB</li> </ol>
		<p>The diagram shows the MCTL PWB (12CN) connected to the IOD2 PWB. Pin 5 of 12CN is connected to ECN1 pin 5. ECN1 pins 5, 8, and 12 are labeled +24V-1, PGND, and SGND respectively. ECN2 pins 5, 8, and 12 are also labeled +24V-1, PGND, and SGND. ECN3 pins 10 and 11 are connected to the PSL(YM)ON-N terminal of the PSL YM solenoid. A +24V-1 supply is also connected to this terminal.</p>	
D6	Developer Solenoid (PSL KC)	<ol style="list-style-type: none"> <li>Loose/Broken connection</li> <li>Incorrect voltage at (PSL KC) ON-N</li> <li>MCTL PWB Failure</li> </ol>	<ol style="list-style-type: none"> <li>Check connection between ECN3 of IOD2 and Solenoid (PSL KC).</li> <li>Check voltages below: <ol style="list-style-type: none"> <li>Voltage drop ( <math>\nabla</math> <sup>+24V</sup> ) between ECN13-3 and ECN2-8 then, replace the front cover unit</li> <li>Voltage jump ( <math>\uparrow</math> ) between ECN1-6 and ECN2-12 then, replace IOD2 PWB</li> </ol> </li> <li>Replace MCTL PWB</li> </ol>
		<p>The diagram shows the MCTL PWB (12CN) connected to the IOD2 PWB. Pin 6 of 12CN is connected to ECN1 pin 6. ECN1 pins 5, 8, and 12 are labeled +24V-1, PGND, and SGND respectively. ECN2 pins 5, 8, and 12 are also labeled +24V-1, PGND, and SGND. ECN3 pins 12 and 13 are connected to the PSL(YM)ON-N terminal of the PSL KC solenoid. A +24V-1 supply is also connected to this terminal.</p>	

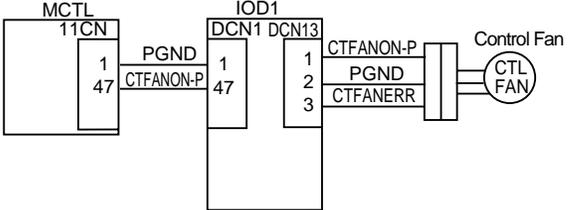
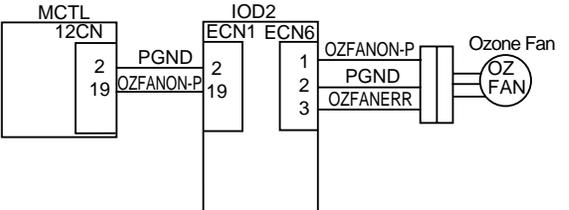
Code	Description of Error	Cause of Error	Clearance Method
E1	Developer Motor(DM)	<ol style="list-style-type: none"> <li>Defective toner cartridge/ developer gear unit and motor</li> <li>Loose/Broken connection</li> <li>Defective developer motor</li> <li>IOD2 Failure</li> <li>IOD1 Failure</li> <li>MCTL PWB Failure</li> </ol>	<ol style="list-style-type: none"> <li>Check for any unusual rotation noise while printing then replace the suspected toner cartridge. If the noise continues replace the developer gear unit and motor.</li> <li>Check the connections between:               <ol style="list-style-type: none"> <li>ECN15 of IOD2 and the connector of DM1.</li> <li>ECN1 of IOD2 and DCN9 of IOD1.</li> <li>ECN1 of IOD2 and I2CN of MCTL.</li> </ol> </li> <li>Check voltages below:               <ol style="list-style-type: none"> <li>+24V-1: between DM1-4 and 5,ECN15-4 and 5, ECN2-5 and 8 . If not replace developer motor</li> <li>+5V-1: between DM1-6 and 7,ECN15-6 and 7, ECN2-11 and 12. If not replace developer motor.</li> </ol> </li> <li>Replace MCTL PWB</li> <li>Replace MCTL PWB</li> <li>Replace MCTL PWB</li> </ol>
E2	Main Motor(MM)	<ol style="list-style-type: none"> <li>Belt cartridge Failure</li> <li>Fuser Failure</li> <li>Loose/Broken connection</li> <li>Defective Main Motor</li> <li>IOD2 Failure</li> <li>IOD1 Failure</li> <li>MCTL PWB Failure</li> </ol>	<ol style="list-style-type: none"> <li>Ensure that the belt cartridge rotates freely. If not, replace the belt cartridge.</li> <li>Ensure that the fuser rotates freely. If not, replace the fuser.</li> <li>Check the connections between:               <ol style="list-style-type: none"> <li>ECN12 of IOD2 and the connector of DM1.</li> <li>ECN2 of IOD2 and DCN9 of IOD1.</li> <li>ECN1 of IOD2 and I2CN of MCTL.</li> </ol> <p>NOTE: If any of the above connections are defective replace the main motor.</p> </li> <li>Check voltages below:               <ol style="list-style-type: none"> <li>+24V-1: between MM1-4 and 5,ECN12-4 and 5, ECN2-5 and 8 . If not replace main motor</li> <li>+5V-1: between MM1-6 and 7,ECN12-6 and 7, ECN2-11 and 12. If not replace main motor.</li> </ol> </li> <li>Replace MCTL PWB</li> <li>Replace MCTL PWB</li> <li>Replace MCTL PWB</li> </ol>
		SEE WIRING DIAGRAM ON NEXT PAGE	

Code	Description of Error	Cause of Error	Clearance Method
E2	Main Motor(MM) (Continued)		
E3	Drum HP Sensor	<ol style="list-style-type: none"> <li>1. Belt Cartridge Insatalled Incorrectly.</li> <li>2. Transfer Drum Failure</li> <li>3. Loose/Broken connection</li> <li>4. Defective Drum HP Sensor</li> <li>5. Low Voltage Power Supply (LVPS) Failure</li> <li>6. E3 Error Continues</li> </ol>	<ol style="list-style-type: none"> <li>1. Re-install the belt cartridge. If damaged, replace the belt cartridge.</li> <li>2. Ensure that the transfer drum rotates freely. If not, replace the transfer drum.</li> <li>3. Check the connections between DCN5 of IOD1 and the drum HP sensor connector.</li> <li>4. Check voltages below: <ol style="list-style-type: none"> <li>a) If voltage is +5V between DCN5-1 and 3. Replace Drum HP Sensor.</li> <li>b) If voltage is +5V between DCN2-1 and 2. Replace IOD1 P.W.B.</li> </ol> </li> <li>NOTE: If this does not clear the error replace MCTL P.W.B.</li> <li>5. Replace Low Voltage Power Supply (LVPS) Failure</li> <li>6. Re-check steps 1-5.</li> </ol>

Code	Description of Error	Cause of Error	Clearance Method
E5	Transfer Solenoid	1. Loose/Broken connection  3. Defective Transfer Solenoid  4. IOD2 Failure  5. IOD1 Failure  6. MCTL PWB Failure	1. Check the connections between: a) ECN8 of IOD2 and the solenoid connector. b) ECN2 of IOD2 and DCN9 of IOD1. c) DCN1 of IOD1 and 11CN of MCTL P.W.B.  3. If voltage between ECN8-4 and ECN2-8 of IOD2 is trailing edge then replace the transfer solenoid.  4. If voltage between ECN2-3 and 12 of IOD2 is rising edge then replace the IOD2 P.W.B.  5. If voltage between ECN2-31 and 1 of IOD1 is rising edge then replace the IOD1 P.W.B.  6. Replace MCTL PWB
E6	Cleaning Brush Solenoid	1. Loose/Broken connection  3. Cleaning Brush Solenoid  4. IOD2 Failure  5. IOD1 Failure  6. MCTL PWB Failure	1. Check the connections between: a) ECN10 of IOD2 and the solenoid connector. b) ECN2 of IOD2 and DCN9 of IOD1. c) ECN1 of IOD1 and 11CN of MCTL P.W.B.  3. If voltage between ECN10-4 and 8 of IOD2 is trailing edge then replace the cleaning brush solenoid.  4. If voltage between ECN2-2 and 12 of IOD2 is rising edge then replace the IOD2 P.W.B.  5. If voltage between ECN1-33 and 1 of IOD1 is rising edge then replace the IOD1 P.W.B.  6. Replace MCTL PWB

Code	Description of Error	Cause of Error	Clearance Method
E7	Cleaner Clutch	1. Loose/Broken connection  3. Defective Cleaner Clutch  4. IOD2 Failure  5. IOD1 Failure  6. MCTL PWB Failure	1. Check the connections between: a) ECN11 of IOD2 and the clutch connector. b) ECN2 of IOD2 and DCN9 of IOD1. c) ECN1 of IOD1 and 11CN of MCTL P.W.B. 3. If voltage between ECN11-3 and ECN2-8 of IOD2 is trailing edge then replace the transfer solenoid. 4. If voltage between ECN2-1 and 12 of IOD2 is rising edge then replace the IOD2 P.W.B. 5. If voltage between ECN1-35 and 1 of IOD1 is rising edge then replace the IOD1 P.W.B. 6. Replace MCTL PWB
E8	Fuser Clutch(FUCL)	1. Loose/Broken connection  3. Cleaning Brush Solenoid  4. IOD2 Failure  5. MCTL PWB Failure	1. Check the connections between: a) ECN9 of IOD2 and the clutch connector. b) ECN1 of IOD2 and 11CN of MCTL P.W.B. 3. If voltage between ECN9-3 and ECN2-8 of IOD2 is trailing edge then replace fuser clutch(FUCL). 4. If voltage between ECN1-20 and ECN2-12 of IOD2 is rising edge then replace the IOD2 P.W.B. 5. Replace MCTL PWB

Code	Description of Error	Cause of Error	Clearance Method
E9	Belt Sensor (P.B.S)	<ol style="list-style-type: none"> <li>1. Defective Belt Cartridge</li> <li>2. Belt Sensor Stained</li> <li>3. Loose/Broken connection</li> <li>3. Defective Belt Sensor</li> <li>4. IOD1 Failure</li> <li>6. MCTL PWB Failure</li> </ol>	<ol style="list-style-type: none"> <li>1. If the belt cartridge leans to one side replace the cartridge and level the printer.</li> <li>2. Clean the belt sensor, replace the belt cartridge and level the printer.</li> <li>3. Check the connections between:               <ol style="list-style-type: none"> <li>a) DCN11 of IOD1 and the sensor connector.</li> <li>b) DCN1 of IOD1 and 11CN of MCTL P.W.B.</li> </ol> </li> <li>3. If there are +5V between DCN11-2 and 3 of IOD1 then replace the Belt Sensor.</li> <li>4. If there are +5V between DCN1-5 and 1 of IOD1 then replace the IOD1 P.W.B.</li> <li>5. Replace MCTL PWB</li> </ol>
EL	Erase Lamp(EL)	<ol style="list-style-type: none"> <li>1. Loose/Broken connection</li> <li>3. Cleaning Erase Lamp</li> <li>4. IOD2 Failure</li> <li>5. MCTL PWB Failure</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the connections between:               <ol style="list-style-type: none"> <li>a) DCN7 of IOD1 and the Erase Lamp connector.</li> <li>b) DCN1 of IOD1 and 11CN of MCTL P.W.B.</li> </ol> </li> <li>3. If voltage between DCN7-11 and 9 is trailing edge then replace the Erase Lamp.</li> <li>4. If voltage between DCN1-41 and 2 of IOD2 is rising edge then replace the IOD2 P.W.B.</li> <li>5. Replace MCTL PWB</li> </ol>

Code	Description of Error	Cause of Error	Clearance Method
F0	Fan Motor (Control Cooling)	1. Loose/Broken connection  3. Defective Fan Motor  4. IOD1 Failure  6. MCTL PWB Failure	1. Check the connections between: a) DCN13 of IOD1 and the fan motor connector. b) DCN1 of IOD1 and 11CN of MCTL P.W.B. 3. If voltage between DCN13-1 and 2 is trailing edge then replace the fan motor. 3. If voltage between DCN1-47 and 1 is trailing edge then replace the IOD1 P.W.B. 5. Replace MCTL PWB
		 <p>The diagram shows the electrical connections for the Control Fan. On the left, the MCTL PWB has a connector labeled '11CN' with pins 1 and 47. On the right, the IOD1 PWB has connectors labeled 'DCN1' and 'DCN13' with pins 1, 2, and 3. The Control Fan connector has pins labeled 'CTFANON-P', 'PGND', and 'CTFANERR'. Connections are as follows: MCTL 11CN pin 1 to IOD1 DCN1 pin 1; MCTL 11CN pin 47 to IOD1 DCN1 pin 47; IOD1 DCN13 pin 1 to Control Fan CTFANON-P; IOD1 DCN13 pin 2 to Control Fan PGND; IOD1 DCN13 pin 3 to Control Fan CTFANERR. The Control Fan is represented by a circle with 'CTL FAN' inside.</p>	
F2	Fan Motor(OZFAN)	1. Loose/Broken connection  2. Defective Fan Motor(OZFAN) 3. IOD2 Failure  4. MCTL PWB Failure	1. Check the connections between: a) ECN6 of IOD2 and the fan motor connector. b) ECN1 of IOD2 and 12CN of MCTL P.W.B. 2. If voltage between ECN6-1 and 2 is trailing edge then replace the fan motor. 3. If voltage between ECN1-19 and 2 is trailing edge then replace the IOD2 P.W.B. 4. Replace MCTL PWB
		 <p>The diagram shows the electrical connections for the Ozone Fan. On the left, the MCTL PWB has a connector labeled '12CN' with pins 2 and 19. On the right, the IOD2 PWB has connectors labeled 'ECN1' and 'ECN6' with pins 1, 2, and 3. The Ozone Fan connector has pins labeled 'OZFANON-P', 'PGND', and 'OZFANERR'. Connections are as follows: MCTL 12CN pin 2 to IOD2 ECN1 pin 2; MCTL 12CN pin 19 to IOD2 ECN1 pin 19; IOD2 ECN6 pin 1 to Ozone Fan OZFANON-P; IOD2 ECN6 pin 2 to Ozone Fan PGND; IOD2 ECN6 pin 3 to Ozone Fan OZFANERR. The Ozone Fan is represented by a circle with 'OZ FAN' inside.</p>	

Code	Description of Error	Cause of Error	Clearance Method
F4	Heater Fan(HTFAN)	<ol style="list-style-type: none"> <li>Loose/Broken connection</li> <li>Defective Heater Fan</li> <li>IOD1 Failure</li> <li>MCTL PWB Failure</li> </ol>	<ol style="list-style-type: none"> <li>Check the connections between:               <ol style="list-style-type: none"> <li>DCN10 of IOD1 and the heater fan connector.</li> <li>DCN1 of IOD1 and 11CN of MCTL P.W.B.</li> </ol> </li> <li>If voltage between DCN10-4 and 5 is rising edge then replace the heater fan.</li> <li>If voltage between DCN1-49 and 2 is rising edge then replace the IOD1 P.W.B.</li> <li>Replace MCTL PWB</li> </ol>
F5	High Voltage Unit(HVU)	<ol style="list-style-type: none"> <li>Charger Unit Improperly Installed</li> <li>Corona Wire cut/shorted</li> <li>Contract failure of the high voltage (CHV) output terminal</li> <li>Contract failure or short of CHV socket</li> <li>High Voltage Unit(HVU) Failure</li> <li>IOD1 Failure</li> <li>MCTL PWB Failure</li> </ol>	<ol style="list-style-type: none"> <li>Re-install charger unit.</li> <li>Replace the charger unit or belt cartridge.</li> <li>Adjust contact to make proper connection</li> <li>Clean the socket part.</li> <li>Replace High Voltage Unit(HVU)</li> <li>Replace the IOD1 P.W.B.</li> <li>Replace MCTL PWB</li> </ol>

Code	Description of Error	Cause of Error	Clearance Method
H0 (wire cut/ short error of thermostat)	Fuser Unit	<ol style="list-style-type: none"> <li>1. Fuser Improperly Installed</li> <li>3. Contact failure due to damaged connector of fuser unit</li> <li>4. Loose/Broken connection</li> <li>5. Defective Fuser Unit</li> <li>6. IOD1 Failure</li> <li>7. MCTL PWB Failure</li> </ol>	<ol style="list-style-type: none"> <li>1. Re-install fuser unit.</li> <li>3. Replace fuser unit.</li> <li>4. Check the connection between the fuser unit and BCN2 of the high voltage unit (HVU)</li> <li>5. Replace fuser unit.</li> <li>6. Replace the IOD1 P.W.B.</li> <li>7. Replace MCTL PWB</li> </ol>
H2, H3, H4	Fuser Unit and Others	<ol style="list-style-type: none"> <li>1. Input voltage</li> <li>2. Fuser Voltage Rating (110 or 220)</li> <li>3. HP/HN connector not connected</li> <li>4. Fuser Unit improperly installed</li> <li>5. Fuser connector damaged</li> <li>6. Lamp Holder contract failure</li> <li>7. Heater wiring cut or damaged</li> <li>8. Low Voltage Power Supply Unit (LVPS) Failure</li> <li>9. MCTL PWB Failure</li> </ol>	<ol style="list-style-type: none"> <li>1. Ensure the outlet is at the correct voltage and amperage for the printer.</li> <li>2. Replace the Fuser Unit with the correct unit.</li> <li>3. Connect it properly.</li> <li>4. Re-install Fuser Unit.</li> <li>5. Replace the connector.</li> <li>6. Replace the lamp and lamp holder.</li> <li>7. Replace the heater.</li> <li>8. Replace the Low Voltage Power Supply Unit (LVPS).</li> <li>9. Replace MCTL PWB</li> </ol>

Code	Description of Error	Cause of Error	Clearance Method
L1	Optical Unit (Beam Detecting Error)	<ol style="list-style-type: none"> <li>Loose/Broken connection</li> <li>Optical Unit Failure</li> <li>MCTL P.W.B. Failure</li> </ol>	<ol style="list-style-type: none"> <li>Check these connections:                             <ol style="list-style-type: none"> <li>PDCN connector</li> <li>LCN1 and LCN of MCTL.</li> </ol> </li> <li>Replace Optical Unit.</li> <li>Replace MCTL P.W.B.</li> </ol>
L2	Optical Unit	<ol style="list-style-type: none"> <li>Loose/Broken connection</li> <li>Optical Unit Failure</li> <li>MCTL P.W.B. Failure</li> </ol>	<ol style="list-style-type: none"> <li>Check connector LCN3</li> <li>Replace Optical Unit.</li> <li>Replace MCTL P.W.B.</li> </ol>
LL	Optical Unit	<ol style="list-style-type: none"> <li>Loose/Broken connection</li> <li>Optical Unit Failure</li> <li>DC Power Supply(LVPS) Failure</li> <li>MCTL P.W.B. Failure</li> </ol>	<ol style="list-style-type: none"> <li>Check these connections:                             <ol style="list-style-type: none"> <li>LCN3</li> <li>PDCN</li> <li>LCN1 and LCN of MCTL.</li> </ol> </li> <li>Replace Optical Unit.</li> <li>Replace DC Power Supply(LVPS) Failure</li> <li>Replace MCTL P.W.B.</li> </ol>

LCD Message	Explanation
Booting...	First message to appear when the printer is powered up.
OUT OF PAPER	One of the paper trays is empty
TRAY 2 UNSUPPORTED SIZE	Lower tray contains paper size that is not supported by engine.
PAPER MISMATCH LOAD <Paper Size> TRAY	Paper tray does not have the correct paper size as specified for the print job. Load the paper size shown on the display <Letter, Legal, A4, B5JIS, B5ISO, EXEC, FOLIO, FSCAP, SPFOLI, QUARTO, COM-10, or DL>.
<K, Y, M, or C> TONER EMPTY	Specified toner module is empty. Replace it with a new one.
<K, Y, M, or C> TONER NOT FOUND	Specified toner module is not installed or installed incorrectly. Reinstall it.
PAPER JAM DRUM	Paper jam in drum area.
PAPER JAM INNER/DRUM	Paper jam in inner area.
PAPER JAM EXIT/DRUM	Paper jam in exit tray.
MISFEED	Paper misfeed.
CHECK WASTE TONER	Waste toner pack is full or is not installed.
REPLACE FUSER OIL	Fuser oil has run out.
REPLACE FUSER ROLLER	Fuser cleaning roller needs to be replaced.
MISPRINT HW FAULT	Printing error caused by no PRREQ-N within a page. ???
photoconductor belt module NOT FOUND	Photoconductor Belt Module photoconductor belt module is not installed.
FUSER UNIT NOT FOUND	Fuser unit is not installed.
FUSER ROLLER NOT FOUND	Fuser cleaning roller is not installed.
FRONT COVER OPEN	Front Cover is open.
BACK COVER OPEN	Back Cover (transfer unit) is open.
TOP COVER OPEN	Top Cover is open.
LOW FUSER OIL	Fuser cleaning unit has about 30 pages of operation remaining.
NEAR END FUSER ROLLER	Fuser cleaning roller has about 1000 pages of operation remaining.
REPLACE BELT	Photoconductor Belt Module photoconductor belt module worn out.
REPLACE FUSER UNIT	Fuser unit reaches end-of-life.
K-TONER LOW	Black Toner Module has less than 300 pages of operation remaining.
<Y, M, or C> TONER LOW	Specified Toner Module has less than 500 pages of operation remaining.
120K SERVICE	Paper discharge, drum cleaner, transfer roller, transfer drum, and paper pick-up roller all need to be replaced.
CASSETTE OUT <TRAY 1 or 2> MEDIA MISMATCH LOAD <MEDIA> TRAY	Cassette is not installed in Paper Tray 1 or 2. Tray does not have the correct media as specified for the print job. Load the media shown on the display <Paper, Label, or OHT (Over Head Transparency)>.

## FACTORY SERVICE MODE TEST PROCEDURES

This mode allows the service technician to perform diagnostic tests, and maintenance procedures on the printer engine. For instructions on entering this mode see Chapter 2

**Table 0-2: Factory Service Mode Menus**

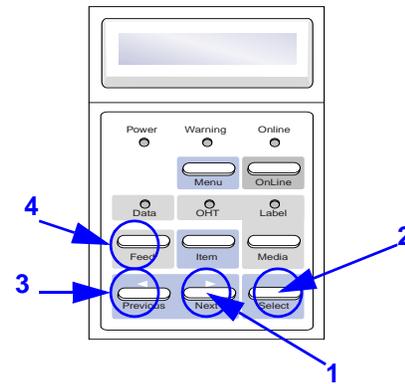
Code	Item	Code	Item	Item
31	TEST PRINT			
32	NEXT CARE INFO			
33	CASSETTE TYPE			
34	TOTAL PAGE			
35	EACH IMAGE			
36	CLEAR CARE			
37	MEDIA MODE			
39	FACTORY MODE	40	DP CHECK	
		41	BD CHECK	
		42	FU CHECK	
		43	MARGIN ADJUST	
		44	LIFE PERIOD SET	
		45	NVRAM TUNE UP	LP TUNE UP
		46	NVRAM INITIAL	THV TUNE UP
		47	TOTAL PAGE SET	DBV TUNE UP
		48	EACH IMAGE SET	CBV TUNE UP
				FBV TUNE UP

## Factory Service Mode Button Layout

The button functions for this mode are different from the labels used for normal operations. See the tabel and diagram below for the new layout.

**Table 0-3: Factory Service Mode**

Number	Button Name	Function
1	NEXT	Navigate to previous selection.
2	SELECT	Navigate to next selection.
3	PREVIOUS	Select a menu item
4	ITEM	Clear a test



## 31 Test Print

Grid Pattern of single color or two colors (R, G, B) and Stripe Pattern of full color can be printed as a Test Print. The procedure is as follows:

1. Press Select key.
2. Using Scroll key, select the desired pattern (i.e. grid pattern), and then, press Select key.
3. Using Scroll key, select the desired color (i.e. red color), and then, press Select key
4. After completion of the warming-up process, the desired pattern of selected color will be continuously printed.
5. Print operation is suspended by pressing Clear key.
6. If it is desired to return to the previous Control Panel LCD (message), press Clear key one more time.

## 32 Next Care Information

Information relating to the replacement timing of periodical replacement parts can be obtained, namely, the number of motion images and prints.

1. Press Select key after selecting Control Panel LCD (a) "NEXT CARE INFO"
2. Using Scroll key, select the care code of desired
  - a. Fuser Cleaning Roller (FC)
  - b. Photoconductor Belt Module (BL)
  - c. Fuser Unit (FU)
3. After selecting the desired information's code, press Select key. Then, number of images or printouts corresponding to the selected code is displayed.
4. Control Panel LCD can be cleared by pressing the Clear key.
5. Press the Clear key one more time at the Control Panel LCD to return to the service mode.

## 33 Cassette Type

Desired paper cassette can be selected.

1. Press Select key after selecting Control Panel LCD "CASSETTE TYPE".
2. Using Scroll key, select the applicable code of desired cassette (A, B or C), and then, press the Select key.
3. Press the Clear key to clear the Control Panel LCD

**note:** A = US, B = EC, C = Japan

## 34 Total Page

Total number of printouts can be confirmed.

1. Press Select key after selecting TOTAL PAGE mode.
2. A 6 digit number is displayed. This number represents the total number of pages that have been printed.
3. Press the Clear key to clear the Control Panel LCD

### 35 Each Image

Number of created images per color used in printing can be confirmed.

1. Press Select key after selecting EACH IMAGE mode.
2. Using Scroll key, select the subject color, and then, press Select key.
3. Number of created images per the selected color is displayed. (i.e. Yellow)
4. Press the Clear key to clear the Control Panel LCD
5. Using Scroll key, select other color, and then, press
6. Select key to confirm the number of created images per each colors.
7. Press the Clear key to return to the Service mode.

### 36 Clear Care

Care Code displayed in the LCD can be cleared. Make sure to implement the displayed CLEAR CARE mode whenever replacing the applicable periodical replacement parts with new parts.

1. Press Select key after selecting CLEAR CARE mode.
2. Using Scroll key, have the cursor meet the applicable CARE code, and then, press Select key.
3. When implementing CLEAR CARE, use the Scroll key to have the cursor meet YES, and then, press Select key.
  - Fuser cleaning roller
  - PhotoConductor Belt Module
  - Fuser unit
4. Press the Clear key to clear the CLEAR CARE mode.

### 37 Media Manage

Signal from OHP sensor can be ignored at the media select (OHP). However, this mode should not be used under the normal circumstances.

1. Press Select key after selecting MEDIA MANAGE.
2. SELECT the DEFIANCE, and then, press the Select key if OHP sensor signal should be ignored
3. In the normal operation, the mode is preset to MANAGE.

### 39 Factory Mode

This mode consists of nine subordinate modes for the confirmation of operations and the resetting functions necessary for the maintenance work.

#### 40 DP Check

toner module of each color can be activated.

1. Press Select key after selecting DP CHECK.
2. Using Scroll key, select the desired color, and then, press Select key.(i.e. yellow color)
3. When the yellow toner module is driven and no error is observed by the toner sensor, "Good" will be displayed on the panel, otherwise, "Fail".
4. Operation of the toner module will be halted automatically after 60 seconds.
5. Press the Clear key to stop the DP CHECK mode.
6. Press the Clear key one more time to return to the status of Control Panel LCD

#### 41 BD Check

Laser position and laser power can be confirmed.

1. Press Select key after selecting BD CHECK. Scanner motor scans the laser beam as rotating.
 

**note:** If the scanning position of laser beam is normal, "GOOD" is displayed in the LCD, otherwise, "FAIL". Scanner motor automatically halts to rotate 60 seconds after initial rotation.
2. Press the Clear key to stop the BD CHECK mode.

## 42 FU Check

Availability of oil in the fuser unit can be checked.

1. Press Select key after selecting FU CHECK.

**note:** Upon energized, fuser unit starts the heat-up process, and checks the availability of fuser oil. If the oil is available in the fuser unit, "GOOD" is displayed in the LCD, otherwise, "FAIL".

2. Press the Clear key to stop the FU CHECK mode.

## 43 Margin Adjust

The position of top margin and left margin can be confirmed and adjusted within the range between -3.5mm max. and +3.5mm max.

1. Press Select key after selecting MARGIN ADJUST.
2. Using Scroll key, select either TOP or LEFT, and then, press Select key. (i.e. Top)
3. Margin can be adjusted 3.5mm max. to both end (left and right) by 0.5mm pitch against the reference value "0".
4. Using Scroll key, select amount of adjustment by picking up a number displayed in Control Panel LCD. In this instance, the amount of adjustment selected will be displayed at the upper right corner of Control Panel LCD.
5. After confirming the desired amount of adjustment displayed, press Select key to set the adjustment.
6. Press the Clear key to terminate MARGIN ADJUST mode.
7. Press the Clear key one more time to return to FACTORY MODE.

## 44 Life Period Set

Replacement life of the periodical replacement parts can be set.

1. Press Select key after selecting LIFE PERIOD mode.
2. Using Scroll key, select the desired code to be set, and then, press Select key.
  - Fuser Cleaning Roller
  - Photoconductor Belt Module
  - Fuser Unit
3. Use Scroll key to designate or change the desired digit.
4. Use Select key to input values to the blinking digit.
5. Upon completing the input of values to be set, use the scroll key to move the cursor to SET displayed in the LCD, and then, press the select key to register the set value.
6. Press the Clear key to complete the setting work.
7. Press the Clear key one more time to return to FACTORY MODE.

## 45 NVRAM Tune Up

This mode is not used in the normal operation, but is used when fine adjustment of the adjust value is required.

1. LP Tune Up

This mode is used when optical density, line thickness and/or color reproduction needs to be adjusted. The adjustment will be made by changing the laser power against the reference value 0 (zero) in the range between the step -4 and +4.

  - a. Press Select key after selecting NVM TUNE UP.
  - b. After selecting LP TUNE UP Code 1, press Select key.
  - c. After selecting the color to be tuned up, press Select key. (i.e. Yellow)
  - d. Tune Up value can be adjusted within 8 steps between the step -4 and +4.
  - e. After selecting a given number, press Select key.
  - f. Press the Clear key to wrap up the tune-up work for yellow color.
  - g. Repeat the step c through e whenever the tune-up work is required to each color.
  - h. Press the Clear key to wrap up the tune-up work.

2. **THV Tune Up**  
 This mode is used when transfer voltage needs to be adjusted due to the errors caused such as transfer failure on the media. The adjustment is to change the transfer voltage, subject to the media to be used, against the reference value 0 (zero) in the range between the step -4 and +4.
  - a. Press Select key after selecting NVM TUNE UP.
  - b. After selecting THV TUNE UP Code 2, press Select key.
  - c. After selecting the media to be tuned up, press Select key. (i.e. PPC)
  - d. Tune Up value can be adjusted within 8 steps between the step -4 and +4.
  - e. After selecting a given number, press Select key.
  - f. Press the Clear key to wrap up the tune-up work for PPC.
  - g. Repeat the step 3 through 5 for other media such as OHP or Label.
  - h. Press the Clear key to wrap up the tune-up work.
  
3. **DBV Tune Up**  
 This mode is used when image optical density needs to be adjusted. Adjustment is to adjust the developer bias voltage against the reference value 0 (zero) in the range between the step -4 and +4.
  - a. Press Select key after selecting NVM TUNE UP.
  - b. After selecting DBV TUNE UP Code 3, press Select key.
  - c. After selecting the color to be tuned up, press Select key. (i.e. Magenta)
  - d. Tune Up value can be adjusted within 8 steps between the step -4 and +4.
  - e. After selecting a given number, press Select key.
  - f. Press the Clear key to wrap up the tune-up work for Magenta.
  - g. Repeat the steps c through e for each color.
  - h. Press the Clear key to wrap up the DBV tune-up work.
  
4. **CBV Tune Up**  
 This mode is used when the image defects attributing to transfer drum need to be improved. Adjustment is to adjust the drum cleaner bias voltage against the reference value 0 (zero) in the range between the step -4 and +4.
  - a. Press Select key after selecting NVM TUNE UP.
  - b. After selecting CBV TUNE UP Code 5, press Select key.
  - c. Tune Up value can be adjusted within 8 steps between the step -4 and +4.
  - d. After selecting a given number, press Select key.
  - e. Press the Clear key to wrap up the tune-up work for CBV.
  
5. **FBV Tune Up**  
 This mode is used when the image defects attributing to transfer drum need to be improved. Adjustment is to adjust the drum cleaner bias voltage against the reference value 0 (zero) in the range between the step -4 and +4.
  - a. Press Select key after selecting NVM TUNE UP.
  - a. After selecting FBV TUNE UP Code 6, press Select key.
  - a. Tune Up value can be adjusted within 8 steps between the step -4 and +4.
  - a. After selecting a given number, press Select key.
  - a. Press the Clear key to wrap up the tune-up work for FBV.

#### 46 NVRAM Initial

This mode can initialize (data clear) all the data of NVRAM on MCTL PWB.

1. Select YES if NVRAM should be executed. If not, select NO.
2. Press Select key so that RAM INITIAL will be executed. (All the data will be cleared.)
3. Following modes shall be executed to set the RAM data.

#### **47 Total Page Set**

This mode can reset the number of total pages on NVRAM whenever executing NVRAM INITIAL or replacing the MCTL PWB.

1. Press Select key after selecting TOTAL PAGE SET.
2. Use Scroll key to designate or change the desired digit.
3. Use Select key to input values to the blinking digit.
4. Upon completing the input of values to be set, use the scroll key to move the cursor to SET displayed in the LCD, and then, press the select key to register the set value.

#### **48 Each Image Set**

This mode can reset the number of total pages of each color toner on NVRAM whenever executing NVRAM INITIAL or replacing the MCTL PWB.

1. Press Select key after selecting EACH IMAGE SET.
2. Select the desired color subject to EACH IMAGE SET.
3. Use Scroll key to designate or change the desired digit.
4. Use Select key to input values to the blinking digit.
5. Upon completing the input of values to be set, use the scroll key to move the cursor to SET displayed in the LCD, and then, press the select key to register the set value.
6. Press the Clear key to wrap up the EACH IMAGE SET mode.

## FREQUENTLY ASKED QUESTIONS

Review the following questions and answers to gain an understanding of how the SuperScript 4400 operates. Refer to this section later if you experience any printing difficulties.

### **What is the procedure for printing envelopes with the SuperScript 4400?**

Up to 10 envelopes can be printed from the multipurpose feeder, or up to 75 envelopes can be printed from the optional envelope feeder. Instructions for both methods are in Chapter 4.

### **What type of labels should I use with the SuperScript 4400?**

Sheets of labels that meet the guidelines in Appendix B can be printed using the multipurpose feeder. Be sure to test a sample lot before purchasing a large quantity.

### **Can a parallel, and EtherTalk cable be plugged into the SuperScript 4400 concurrently?**

Yes. You can connect to the parallel and EtherTalk ports at the same time. Then the printer automatically monitors both interfaces.

### **How long should it take for a file to print on the SuperScript 4400?**

The amount of time a file takes to print is a function of the complexity of the page, that is, how many fonts are used and/or how many complex graphics it contains. A simple file may print at 17 pages per minute while complex desktop publishing may take longer.

### **How do you change emulations?**

The printer has Automatic Emulation Switching (AES). This means that it automatically changes to the proper mode for each job. Or you can specify PostScript 3 or PCL 5e mode using the operator panel menu tree.

### **Can I add additional fonts to the SuperScript 4400?**

Yes. Both PostScript fonts and PCL fonts are supported for their respective emulations. For a complete discussion of fonts, see Chapter 5.

### **What is the expected average life of a SuperScript 4400 toner module?**

The toner module prints approximately 10,000 pages at 5% toner coverage on A4 paper size. The actual page count depends on many factors.

### **How will I know when it is time to change the toner module?**

The printer alert message **LOW ON TONER** indicates that the toner module is running out of toner.

### **Can other brands of toner modules be used on the SuperScript 4400?**

No. Only SuperScript series toner modules manufactured by NEC can be installed in the 4400.

### **Can the toner module be refilled?**

Do not attempt to refill a used cartridge as damage to the printer may result. Replacing toner does not account for the fact that other parts of the cartridge (seals, electrophotographic drum, corona) have exceeded their designed life (see xxxx for information about recycling your toner module).

### **What is the proper method of shipping a SuperScript 4400 printer?**

The printer should be carefully repacked in the original packing materials.

### **Does the SuperScript 4400 have Line Draw capability while operating in PCL mode?**

Yes. Simply select a resident symbol set, which includes the Line Draw Characters, such as the PC-8 symbol set.

### **Can a SuperScript 4400 115-volt printer be converted to 220 volts in the field?**

No. The voltage must be specified when purchasing.

### **What printer driver should I select if the NEC SuperScript Model 4400 drivers are not available on my computer?**

The order of preference for selecting alternate printer drivers is xxxx



## CHAPTER 9: PRINTER MAINTENANCE PARTS AND CONSUMABLES

### OVERVIEW

This chapter provides information about different resources for information and technical support, including

- How to reach NEC Technical Support for assistance
- How to order repair parts, consumables, and printer options

### NEC TECHNICAL SUPPORT

NEC Technical Support is available to answer your questions, Monday through Friday, 8:30 a.m. to 8:00 p.m., Eastern Standard Time.

Please have the following printer information ready when you contact NEC:

- Model number
- Serial number
- Page count (shown on the Printer Settings page)
- Date and place of purchase
- NEC Maintenance agreement number (if printer is already under agreement)

NEC Technical Support can help you with the initial installation of this product. Please contact your operating system or network software vendor if you require assistance in optimizing or customizing your system.

### How to Contact NEC

There are a number of ways to contact NEC or receive information about technical issues, products, and services.

#### Contacting NEC Technical Support or Customer Service by Telephone

In North America, call 800-632-4650 to speak to a representative about technical support, extended warranties, repairs, or customer service.

#### Reaching NEC on the World Wide Web

NEC's web site provides up-to-date product information and includes links to NEC's FTP site and e-mail address. Using your Web browser, open this URL: <http://www.nec.com>

For customer service and technical support use: <http://www.nec.com/nectechsupport> This URL is available 24 hours-a-day.

- Search the Knowledge Base for compatibility charts, specifications, white papers, technical drawings, and various other helpful documents.
- Explore the FAQ pages for common problems and solutions.
- Visit the Message Board to post your technical questions or to search a vast library of previous technical support solutions.
- Browse Service Programs to learn about ways to extend or enhance your existing warranty.
- Use the Dealer Locator to find a NEC Technologies' sales or service center near you.

#### Sending Internet Electronic Mail

You can e-mail your questions to NEC. NEC will respond within three business days. Send e-mail messages to: [tech-support@necotech.com](mailto:tech-support@necotech.com)

#### Sending a Facsimile Transmission

You can fax questions or comments to NEC at 978-742-7049

Be sure to indicate the number where NEC can telephone or fax a response.

#### Using FastFacts—NEC's Information Retrieval System

NEC's technical support staff have created technical notes and tips for using NEC products. You can order these documents by touchtone menu and have these automatically sent to your fax machine.

To use NEC FastFacts in the US, call  
800-366-0476

To use NEC FastFacts in Canada, call  
630-775-7999

Follow instructions for ordering documents and include your return fax number.

## Reaching the NEC Bulletin Board System

You can use the NEC Bulletin Board System (BBS) to send messages and transfer files. The BBS number is 978-742-8706

## Writing NEC

You can mail your questions and comments to NEC Technical Support at the following address:

Printer Technical Support, Dept. #3390  
NEC Technologies, Inc.  
305 Foster Street  
Littleton, MA 01460-2004

## CONSUMABLES

The following table contains the list of user replaceable consumables:

**Table 0-1: Consumables**

Page Number	Item Number	Part Number	Description
N/A	N/A	70-510	Premium Color Laser Paper (24 lb. bond)
N/A	N/A	70-511	Premium Color Laser Paper (60 lb. cover)
N/A	N/A	70-515	Ultra Glossy Color Laser Paper (100 lb. text)
N/A	N/A	70-520	Premium Overhead Transparencies
266	1	20-200	Black Toner Module
266	2	20-201	Yellow Toner Module
266	3	20-202	Magenta Toner Module
266	4	20-203	Cyan Toner Module
266	40,6,7	20-210	12K Kit - The convenient 12K Kit includes the following items; 1 Fuser Cleaning Roller, 1 bottle of Fuser Oil, and 1 Toner Collector container. These items will need to be replaced at nearly the same intervals, so NEC provides this convenient kit.
269	6	20-211	Fuser Cleaning Roller
266	6	20-212	Fuser Oil
266	7	20-213	Toner Collector
266	27	20-219	Fuser Unit
266	5	20-205	Photoconductor Belt Module

## MAINTENANCE PARTS

The following is a list of maintenance parts required to service the SuperScript 4400/4400N printers:

**Table 0-2: Maintenance Parts**

Page Number	Item Number	Part Number	Description
267	8	126107	Top Cover
267	9	126108	Side Cover (R)
267	10	126109	Side Cover (L)
267	11	126110	Upper Side Cover
267	12	126065	Panel Case Assy (ST)
267	13	126062	Panel P.W.B.
267	14	126113	Front Cover Unit
267	15	126114	Front Cover
267	16	126115	Paper Exit Unit
267	17	126116	Paper Exit Unit Cover
267	18	126117	Paper Exit Front Cover
267	19	126118	Paper Exit Roller
267	20	123842	Discharging Brush
267	21	126120	Base Cover (R)
267	22	126121	Base Cover (L)
267	23	126122	Rear Cover
267	24	126123	Rear Cover (U)
267	25	126124	Rear Cover (L)
269	26	126125	Waste Toner Feeder (U)
269	30	123857	Fuser Heater (US)
269	33	123828	Fuser Roller
269	34	126133	Back-up Roller
266	36	126135	Transfer Unit
266	37	126137	Transfer Roller
266	38	126138	Paper Discharger
269	39	126139	Optical Unit
266	40	126140	Drum Cleaner

**Table 0-2: Maintenance Parts**

<b>Page Number</b>	<b>Item Number</b>	<b>Part Number</b>	<b>Description</b>
269	41	126141	Transfer Drum
269	42	126142	Paper Feeding Roller
269	43	126176	Seperator Pad
269	44	126144	Erase Lamp
269	45	126145	Oil Sensor
269	47	126064	Power Supply Unit (US)
266	48	126148	Power Cord (US)
269	50	126150	Fuser Connector
269	52	126152	Paper Feeding Clutch
269	53	126153	Registration Clutch
269	54	126154	Fuser Clutch
269	55	126155	Developer Clutch
269	57	126157	Transfer Solenoid
269	58	126158	Drum Cleaner Solenoid
269	59	126159	Main Motor
269	60	126160	Main Gear Unit
269	61	126161	Developer Drive Motor
269	62	126162	Developer Drive Unit
269	63	126163	Cooling Fan
266	64	126164	Ozone Filter
269	65	123817	Interlock Switch
269	66	126166	Paper Size Sensor
269	67	126167	Paper Sensor
269	68	126168	Belt Sensor
269	69	126169	Toner Sensor Assy.
269	70	126170	Transparency Sensor
269	72	126172	OD1 PWB
269	73	126173	OD2 PWB
267	74	126174	High Voltage Unit
266	51	126151	Paper Cassette

**Table 0-2: Maintenance Parts**

<b>Page Number</b>	<b>Item Number</b>	<b>Part Number</b>	<b>Description</b>
269	N/A	126061	Panel Switch
267	N/A	126066	LCD Cover
267	N/A	340-A0001-006	Sub-Assy EPU Bd.
268	N/A	30129105	Lower Feeder Unit (Option)
N/A	N/A	30129118	Legal Cassette
N/A	N/A	4005	Network Upgrade Kit
267	71	126171	MCTL PWB



# APPENDIX A

## PRINTER SPECIFICATIONS

### *OPERATING SPECIFICATIONS*

#### **Print speed**

**Letter:** 4-8 pages per minute color, 16ppm monochrome

**Warm-up:** Maximum xx seconds [what?]

#### **Print method**

- Electrophotographic
- Disposable color toner modules (C, Y, M, and K)

#### **Recommended Duty Cycle**

**Monochrome:** 20,000 prints per month

**Color:** Up to 5,000 full color prints per month

#### **Processor**

Based on 64-bit IDT 4700, 100 MHz RISC processor

#### **Random Access Memory (RAM)**

Uses industry-standard, 72-pin, 60-nanosecond SIMM

- 32 MB standard for the 4400
- 96 MB standard for the 4400N
- 128 MB Maximum

**note:** 96 MB is required for 1200 x 1200 dpi resolution

#### **Internal IDE Hard Disk**

For storing fonts and forms

#### **SCSI Interface**

Controlled from the printer Operator Panel

#### **Printer Language Emulations**

- PostScript Level 3
- PCL 5e

#### **Automatic Jam Recovery**

Automatically reprints jammed pages

### Color Support

- Apple® ColorSync 2.12
- Windows 95 ICM
- All ICC-compliant color management systems

### Interface Ports

- IEEE 1284-compliant parallel
- Ethernet 10/100Base-T (4400N only)

### Power Requirements

- 120V Model-120 VAC, ± 10%, 60 Hz, 8.3A

### Power consumption

- 1000 W maximum, 575W average
- Less than 45W when Power Saving is On

### Temperature

**Operating:** 50°F to 90.5°F (10°C to 32.5°C)

**Non-operating:** 41°F to 95°F (5°C to 35°C)

### Humidity

**Operating:** 20-80% RH (non-condensing)

**Non-operating:** 10-80% RH (non-condensing)

### Ozone Emission

Less than 0.02 ppm

### Dimensions (without options)

**Width:** 19.7" (500 mm)

**Depth:** 19.3" (490 mm)

**Height:** 15.3" (388 mm)

### Weight

64 lb (29 kg) without consumables, 90 lb (41 kg) shipped

### Administrative Compliance

- UL 1950 2nd Edition
- CSA C22.2 950M89
- FCC Class B for the 4400, FCC Class A for the 4400N
- Energy Star Compliant
- Year 2000 Compliant

## Paper Handling

### Supported Paper Sizes

SuperScript 4400 printer drivers support the following paper sizes.

Paper Size	Inches	Millimeters
Letter	8.5 x 11	216 x 279
Legal	8.5 x 14	216 x 356
A4	8.3 x 11.7	210 x 297
Executive	7.25 x 10.5	184 x 267
UK Quarto	8 x 10	203 x 254
Folio	8.5 x 13	216 x 330
Com10 Envelope	4.13 x 9.5	105 x 241

**note:** To print Legal size paper, you must install the optional Legal Paper Tray as Paper Tray 1 or Paper Tray 2.

In addition, the SuperScript 4400 Operator Panel allows the following paper size selections that are not available in the PostScript 3 or PCL 5e printer drivers.

Paper Size	Inches	Millimeters
B5 (JIS)	7.3 x 10.3	182 x 257
B5 Envelope (ISO)	6.9 x 9.9	176 x 250
Foolscap	xx	xx
SP Foli	xx	xx
DL Envelope	4.33 x 8.66	110 x 220

### Supported Media

- Plain paper
- Standard transparencies
- Glossy papers
- Laser-quality labels
- Heavy paper stock
- T-shirt transfer material
- Envelopes

## Recommended Media

Use NEC Premium papers (listed below) to ensure the best quality printed output. If you do not have the NEC Premium papers, try to match them as closely as possible for the best printing results.

**Premium Color Laser Paper 24 lb. Bond:** A bright paper with a super smooth finish for brilliant color reproduction. Use this for correspondence, proposals, charts, graphs, and illustrations.

**Premium Color Laser Paper 60 lb. Cover:** A heavier stock that is ideal for report covers, mailers, greeting cards and invitations.

**Ultra Glossy Color Laser Paper:** Has a double-sided glossy finish that is preferred for professional printing and photographic art. Use this for data sheets, brochures, and client presentations.

**Premium Transparency Color Laser Film:** Use this for brilliant projected images.

## Recommended Paper Weights

**Plain Paper:** 16 to 24 lb. bond (60 to 90 g/m<sup>2</sup> bond)

**Thick Stock:** Up to 60 lb. cover/90 lb. index (163 g/m<sup>2</sup>)

## Paper Sources

**Standard Paper Tray 1:** 250-sheet capacity

**Optional Paper Tray 2:** 250-sheet capacity

## Paper Output

Face Down Output Tray—250-sheet capacity

# APPENDIX B

## MEDIA SPECIFICATIONS

This appendix has general guidelines for purchasing and storing paper and other media for your NEC SuperScript 4400 series printer. Your printer supports a wide variety of print media, including

- Plain paper
- Transparencies
- Glossy papers
- Laser-quality labels
- Heavy paper stock
- T-shirt transfer material
- Envelopes

### Recommended Media

Use NEC Premium papers (listed below) to ensure the best quality printed output. If you do not have the NEC Premium papers, try to match them as closely as possible for the best printing results.

**Premium Color Laser Paper 24 lb. Bond:** A bright paper with a super smooth finish for brilliant color reproduction. Use this for correspondence, proposals, charts, graphs, and illustrations.

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**Premium Transparency Color Laser Film:** Use this for brilliant projected images.

### Recommended Paper Weights

**Plain Paper:** 16 to 24 lb. bond (60 to 90 g/m<sup>2</sup> bond)

**Thick Stock:** Up to 60 lb. cover / 90 lb. index (163 g/m<sup>2</sup>)

### Paper Handling Considerations

**Transparency Film:** When you are printing on transparency film, only load the transparencies to the mark indicated on the paper tray. Ensure that if the transparency has a white strip on one end that it is placed so that the stripe is towards the front of the printer. If the strip is positioned towards the rear of the printer the sensor will think it has paper instead of a transparency.

**Envelopes:** The printer accepts Commercial 10 and DL envelope sizes. The leading edge of an envelope that feeds into the printer must be straight. The fold must be firmly creased and be no thicker than two paper thicknesses. As a rule, the larger the envelope is, the more difficult it is to feed properly. You should load envelopes with the flap edge to the left. The address side must face up and the flap side must face down.

**Adhesive Labels:** Only use adhesive labels that are recommended for use in laser printers.

**Heavy Print Stock:** Excessive use of heavy stocks may cause premature wear in addition to causing excessive wear of print mechanisms.

**Preprinted Forms:** During the print operation, heat applied to preprinted forms can remove ink from the form and leave residue (called offset) inside the printer. In addition to offset residue problems, ink residues may generate harmful gases and emissions. Note the following considerations. Tell the commercial printer who will be printing your forms that you will be using them in a laser printer. Forms should be printed with heat-resistant inks that do not vaporize or generate harmful emissions at temperatures greater than 392°F (200°C) for 0.1 second. Do not use paper printed with low-temperature inks, flammable inks, or inks that are affected by the resin components found in toner.

Care must be taken to avoid changing the moisture content of paper being preprinted or using materials that change the electrical or handling properties of the paper. Forms should be sealed in moisture-proof wrapping after pre-printing to prevent moisture changes during storage.

## Choosing Paper and Media

Choosing quality paper is your best bet for avoiding many of the output problems common to heat-intensive printing. It is the most effective measure you can take to achieve consistently good results from your printer. Using the NEC Premium papers described above will ensure good results. Generally, paper manufactured for photocopying has good print quality and paper handling characteristics. Smoother surface paper generates sharper output resolution and detail. Try samples of any paper to determine if the printer performance and print quality are acceptable to you.

When purchasing paper

- Check that the media meets all specifications noted in this chapter.
- Order a small quantity to test with your printer and your work environment. Some paper vendors offer print quality guarantees to ensure that the output meets a predetermined standard when used with laser printers. If you do not like the paper, you may be able to return it for another type — but test that one, too.
- Tell the supplies buyer, the prospective seller, and commercial letterhead printer that you will be using this media in a laser printer.

**note:** NEC offers a media sampler. One is included in the Starter kit that comes with your printer.

## Storing Printer Supplies

Avoid storing printer supplies, such as Toner Modules and paper in direct sunlight, near an open flame, or in humid or dusty places. Only use Toner Modules that have been designed exclusively for use with this printer.

### **Paper and Print Media You Should NOT Use in This Printer**

Paper jams or poor print quality may result from using print media that is not recommended for use in this printer or from print media that is damaged. Do not use media with the following characteristics.

- Paper that does not meet the size and weight specifications of this printer
- Paper that is wrinkled, curled, torn, or bent
- Paper that is wet
- Paper that is extremely rough or heavily textured
- Paper that is sticky or has an adhesive surface
- Paper that is pasted
- Thermal paper
- Carbon paper
- Paper that is unable to withstand a temperature of 392°F.
- Paper that is stapled or clipped
- Paper that is labeled “NOT recommended for use in laser printers”
- Label stock with the backing sheets exposed between the individual labels
- Multiple copy perforated checks
- Envelopes with thick or uneven edges
- Envelopes with transparent windows
- Envelopes with clasps attached to them
- Embossed envelopes
- Envelopes that contain more than 25% cotton fiber

### **Printable Areas**

The print area of a page is the area on a given paper size that can actually be printed. Print areas for the SuperScript 4400 printer are 5mm from the upper left and right edges, and 4mm from the lower edge.

# APPENDIX C

## SAFETY INFORMATION

This chapter provides safety information and product specifications for the SuperScript 4400 printer. As you operate your printer, please be aware of the following safety considerations.

### Ozone Emission

The corona assemblies found in laser printers and photocopiers generate ozone gas (O<sub>3</sub>) as a by-product of the electrophotographic process. Ozone is only generated while the printer is printing (while the coronas are energized).

#### UL Standards for Ozone

The only existing standard for ozone emissions has been established by Underwriters Laboratory (UL). All SuperScript family printers meet this standard when shipped from the factory to our customers.

#### Employer Responsibilities

Because ozone can be an irritant, various regulatory agencies have established limits to the amount of ozone to which employees may be exposed. The employer is responsible for providing a safe work environment that meets the agencies' standards.

#### Recommendations for Minimizing Ozone Exposure

Almost all ozone concerns arise from abnormal site or operating conditions. The following conditions may generate an ozone complaint:

- Installation of multiple laser printers in a confined area
- Extremely low relative humidity
- Poor room ventilation
- The exhaust port of the printer is directed towards the face of personnel
- The existing ozone filter is in poor condition
- Long, continuous printing combined with any of the above

Inspect your work environment for the operating conditions listed above if you believe ozone emissions are a problem in your area. Some people may be ultra-sensitive to ozone odor. If these situations are encountered, it is advisable to position the printer away from the sensitive user.

### Laser Safety

This printer is certified as a Class 1 laser product under the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. This means that the printer does not produce hazardous laser radiation.

Since radiation emitted inside the printer is completely confined within protective housings and external covers, the laser beam cannot escape from the machine during any phase of user operation.

### CDRH Regulations

The Center of Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured after August 1, 1976. Compliance is mandatory for products marketed in the United States. The printer's rear panel indicates compliance with the CDRH regulations and must be attached to laser products marketed in the United States.

**Caution!** Caution! Use of controls, adjustments, or performance of procedures other than those specified in this user's guide may result in hazardous radiation exposure.

## FCC Statement

### (For United States Use Only)

Federal Communications Commission Radio Frequency Interference Statement.

**WARNING!** Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from the one to which the receiver is connected.
- Consult the dealer or an experienced radio or TV technician for help.

Use a shielded and properly grounded I/O cable to ensure compliance of this unit to the specified limits of the rules.

If your printer is the NEC SuperScript 4400N model or if you have installed the optional Network Interface Card (NIC), the printer meets the requirements of FCC Class A when connected to an Ethernet cable.

### (For Canadian Use Only)

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B présentes dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

### Declaration of Conformity

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

U.S. Responsible Party: NEC Technologies, Inc. Address: 1250 N. Arlington Heights Road, Itasca, Illinois 60143 Telephone Number: 630-467-5000
--

Type of product: Laser Printer.

Equipment Classification: Class B Peripheral.

Model: SuperScript 4400.



*We hereby declare that the equipment specified above conforms to the technical standards as specified in the FCC rules.*

## APPENDIX D

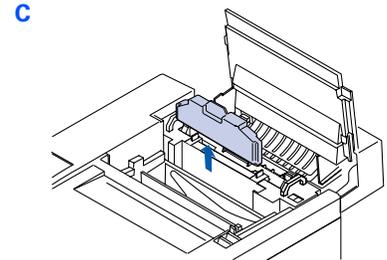
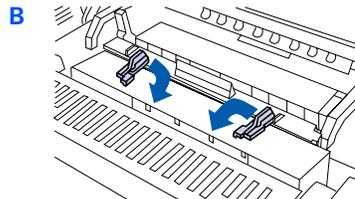
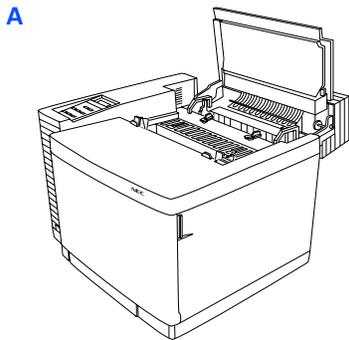
# MOVING YOUR PRINTER

This appendix gives you directions on how to safely move or ship your printer. Please follow these instructions carefully. Failure to do so may result in damage to the printer.

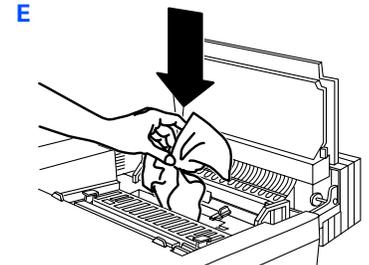
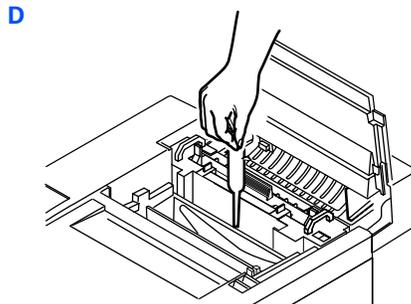
### *MOVING YOUR PRINTER LOCALLY*

To move the printer locally means that it can either be carried by two people or moved on a cart to its new location. Follow these steps:

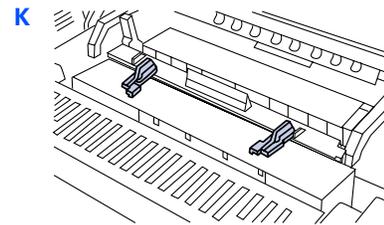
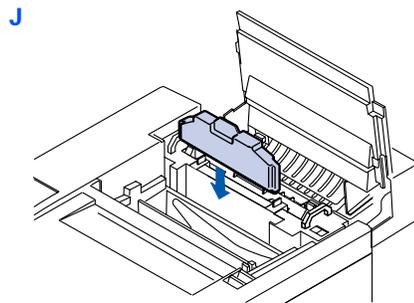
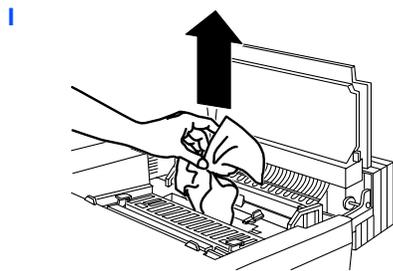
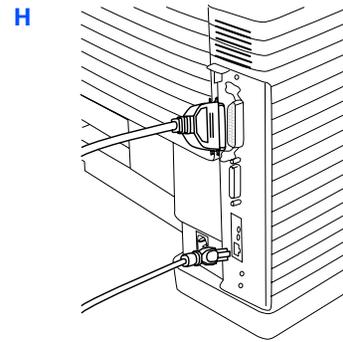
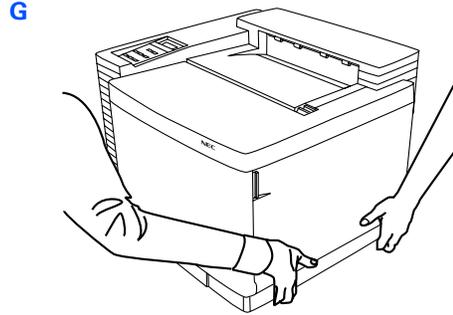
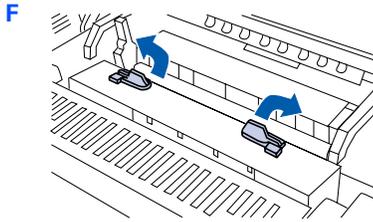
1. Turn the printer off and allow it to cool for 15 minutes.
2. Remove any cables, plugs, and paper trays.
3. Remove the optional Paper Tray 2 Unit if attached.
4. Open the Top Cover (A).
5. Open the Lock Tabs inside (B).
6. Carefully remove the Oil Bottle (C).
- note:** Hold a sheet of paper under the Oil Bottle so no oil drips back into the printer.
7. Place the Oil Bottle in an oil-proof container, such as a plastic bag, until you are ready to reinstall it.
8. Use the Oil Syringe provided with your printer (or an eye dropper) to remove any excess oil from the fuser area. Deposit in plastic dish and discard (D).
9. Clean out any extra oil residue with several paper towels (E). If you are also shipping the printer, fill the space normally occupied by the Oil Bottle with paper towels to absorb any residual oil during shipment.
10. Close the Locking Tabs and Top Cover (F).
11. Two adults should lift the printer onto a sturdy, level cart (G).
12. Move the printer to its new location.
13. Connect the interface cables (H).
14. Open the Top Cover and remove any paper towels from the fuser area (I).



**WARNING!** The printer must be kept level at all times unless ALL oil is removed.



15. Reinstall the Oil Bottle (**J**).Close the Lock Tabs (**K**) and Top Cover.
16. Plug the printer in and turn the power on. Check to make sure no error messages are showing up on the Operator Panel.



It takes two adults to move this printer!



## SHIPPING THE PRINTER

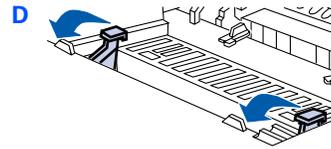
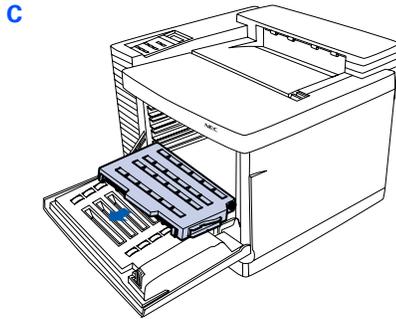
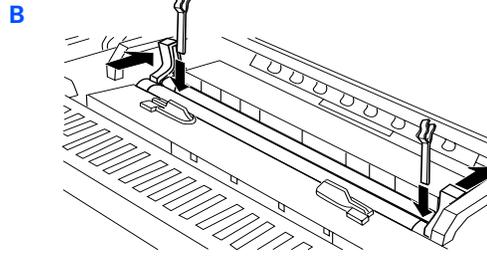
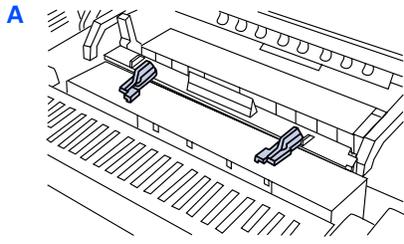
To ship your printer long distance, follow steps 1 —10 under “Moving Your Printer Locally” on page xx. Then proceed with the next instructions.

**note:** If you are returning the printer for **service**, you do not need to return the Power Cord, Toner Modules, Belt Cartridge, Oil Bottle, or Cleaning Roller.

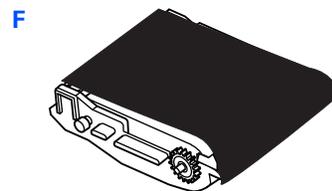
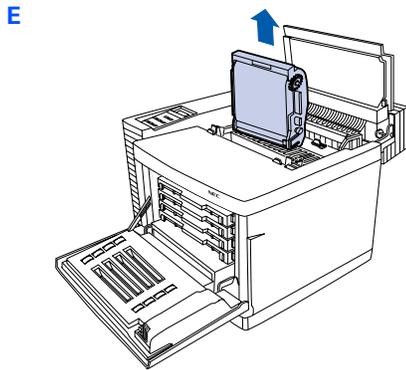
1. Make sure the Lock Levers are in the closed position holding the Cleaning Roller in place (**A**). Make sure Oil Bottle is out.
2. Install the Fuser Roller shipping restraints removed when you unpacked your printer. Open the Release Levers and insert them at each end of the fuser as shown (**B**).

**note:** If you need replacement packaging call NEC Customer Service at 800-632-4650

3. Open the Front Cover and remove the Toner Modules (**C**).
4. Repack the Toner Modules in their original packaging.
5. Flip up the Belt Module Locking Levers (**D**).
6. Remove the Belt Cartridge (**E**) and wrap it in its original black wrapper or a suitable black cloth (**F**)

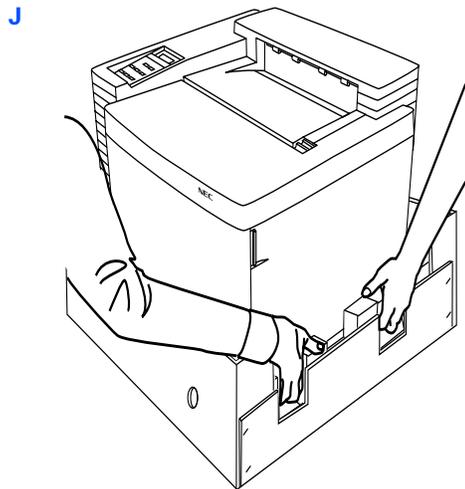
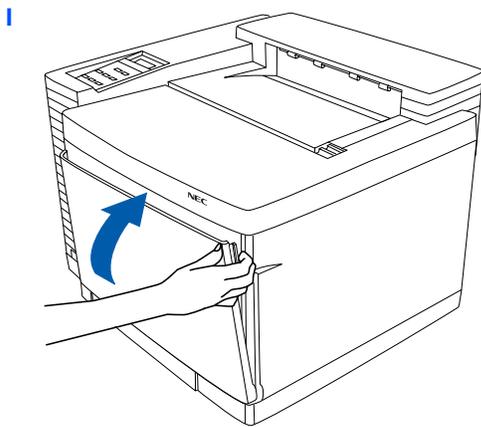
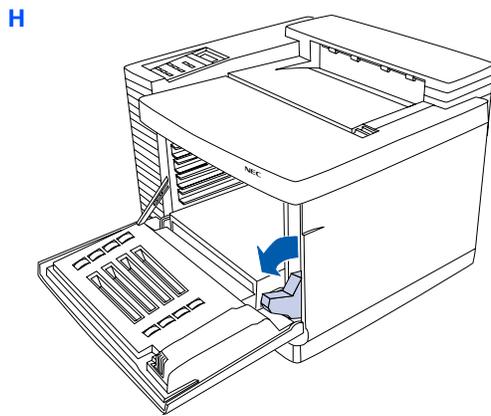
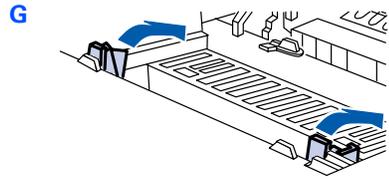
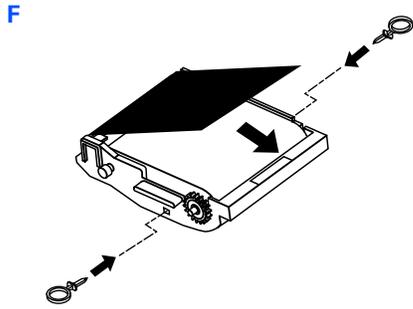


Avoid exposing the Belt Cartridge to light!



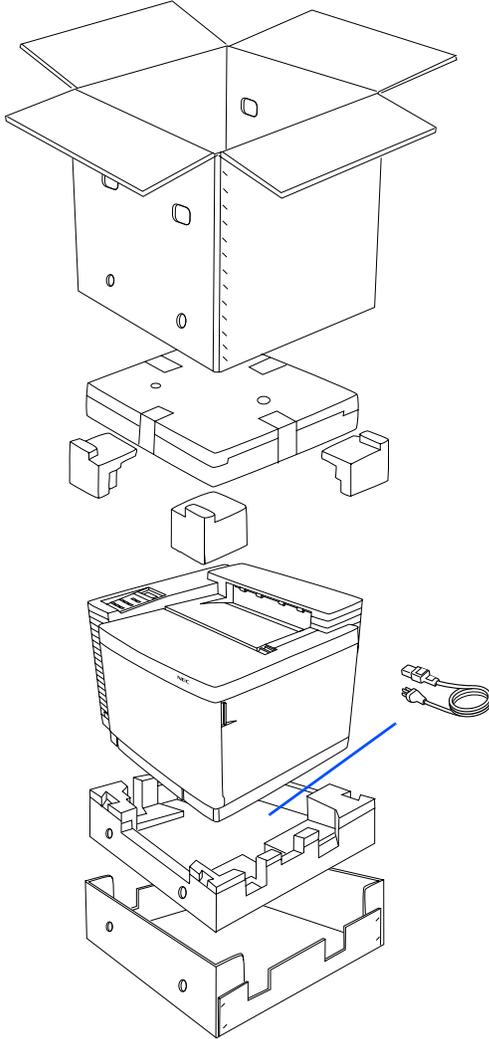
Avoid touching the Belt Cartridge!

7. Replace the Tension Release pin on each side. Insert the pin until you feel some resistance, then move it forward slightly and slide it in the rest of the way **(F)**. (The Tension Release pins protect the Belt Cartridge and its cleaning blade during its move.)
8. Snap down the Belt Cartridge Locking Levers **(G)**.
9. Remove and discard the Toner Collector **(H)**. If you have a new Toner Collector replace it now. To order a new Toner Collector call NEC Customer Service at 800-632-2326 and ask for part number 20-213. Do not ship your printer with a used Toner Collector.
10. Close the Front and Top Covers **(I)**.
11. With another person's help, put the printer into the plastic bag.
12. Place the printer into the base tray of the shipping carton **(J)**.

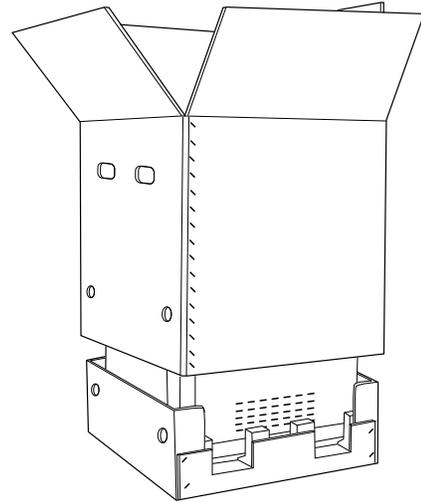


13. Pack the printer for shipment as shown **(K)**.
14. Do not forget the Power Cord and User Guide (unless you are shipping the printer for **service**). Slide box cover all the way down **(L)**.
15. Attach the shipping box to its base tray. Insert the screw holders first **(M)**, then the box screws themselves **(N)**.
16. Tape the top of the box shut
17. Put shipping straps around the carton.

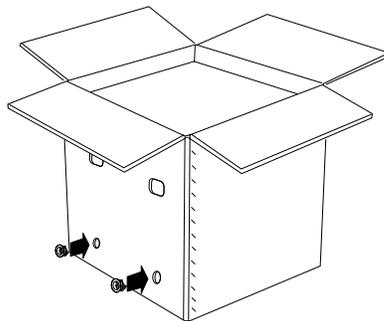
**K**



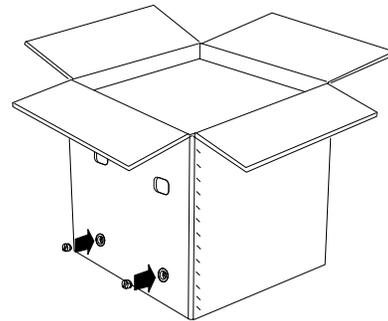
**L**



**M**



**N**





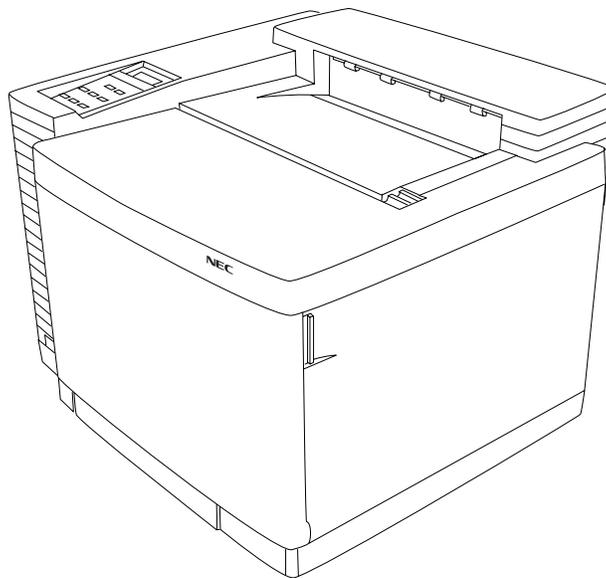
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# Addendum

**NEC**

SuperScript 4200N and 4400 Series Printers

Maintenance Guide



March, 1999  
703-A0322-001

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# ABOUT THIS ADDENDUM

## PURPOSE

This addendum revises information in the August, 1998, edition of the NEC SuperScript 4400/4400N Maintenance Guide.

**note:** The *NEC SuperScript 4400/4400N Maintenance Guide* is now called the *NEC SuperScript 4200N and 4400 Series Printers Maintenance Guide*.

## HOW TO USE THIS ADDENDUM

The table shown below cross-references the revisions in this addendum with pages in the Maintenance Guide. Use it for quickly identifying which pages of the Maintenance Guide are affected, and where the revisions can be found in this addendum.

The left column identifies which page in the Maintenance Guide is affected. The center column identifies which page in this addendum the revision can be found. The right column identifies the name of the revised subject.

### Maintenance Guide to Addendum Cross-Reference

User's Guide	Addendum	Subject
Page 39	Page 1	Service Modes
Page 39	Page 2	Factory Service Mode
Page 40	Page 3	Entering a Service Mode
Page 40	Page 3	Upgrading the 4200N System Code
Page 40	Page 4	Upgrading the 4400 Series Boot, PS, and Network Codes
New	Page 8	Appendix E: Error Messages
New	Page 10	Appendix F: 4400 Series Operator Panel Buttons
New	Page 11	Appendix G: 4400 Series Operator Panel LEDs
New	Page 12	Appendix H: 4400 Series Operator Panel Messages
New	Page 18	Appendix I: Glossary



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# Revisions to the SUPERSCRIPT 4200N AND 4400 SERIES PRINTERS MAINTENANCE GUIDE

## OVERVIEW

Listed below are subjects that revise and add information to the SuperScript 4200N and 4400 Series Printers Maintenance Guide. Each subject is listed in the order in which it affects the Maintenance Guide. Each section in this addendum states which page of the Maintenance Guide is affected.

- Service Modes
- Entering a Service Mode
- Upgrading the 4200N System Code
- Upgrading the 4400 Series Boot, PS, and Network Codes
- Appendix E: Error Messages
- Appendix F: 4400 Series Operator Panel Buttons
- Appendix G: 4400 Series Operator Panel LEDs
- Appendix H: 4400 Series Operator Panel Messages
- Appendix I: Glossary

## SERVICE MODES

*Revises page 39 of the Maintenance Guide.*

A service mode puts the printer into state for performing specific testing and service tasks. Described below are the service modes for the 4200N and 4400 Series printers.

### 4200N Service Modes

- |                         |   |
|-------------------------|---|
| <b>Burn Boot and PS</b> | Use this mode for upgrading the printer system code.  |
| <b>Burn PS Code</b>     | Do not use this service mode.   |
| <b>Burn Boot Code</b>   | Do not use this service mode.   |
| <b>Self Test</b>        | Use this mode for commanding the printer to check and analyze specific printer hardware. Automatically displays messages on the operator panel and controller board LEDs. |
| <b>Code Version</b>     | Use this mode for displaying the system code version.   |

### 4400 Series Service Modes

- |                      |   |
|----------------------|---|
| <b>Download Code</b> | Use this mode for upgrading boot code.  |
| <b>Run Disk File</b> | Use for selecting (starting) a custom program on the hard disk.   |
| <b>Burn Flash</b>    | Use this mode for upgrading the boot code.  |
| <b>Format Disk</b>   | Use this mode for formatting the boot partition of the hard disk.   |
| <b>Show Version</b>  | Use this mode for displaying the PS Code version.   |
| <b>Self Test</b>     | Use this mode for commanding the printer to check and analyze specific printer hardware. Automatically displays messages on the operator panel and controller board LEDs. |

## FACTORY SERVICE MODE

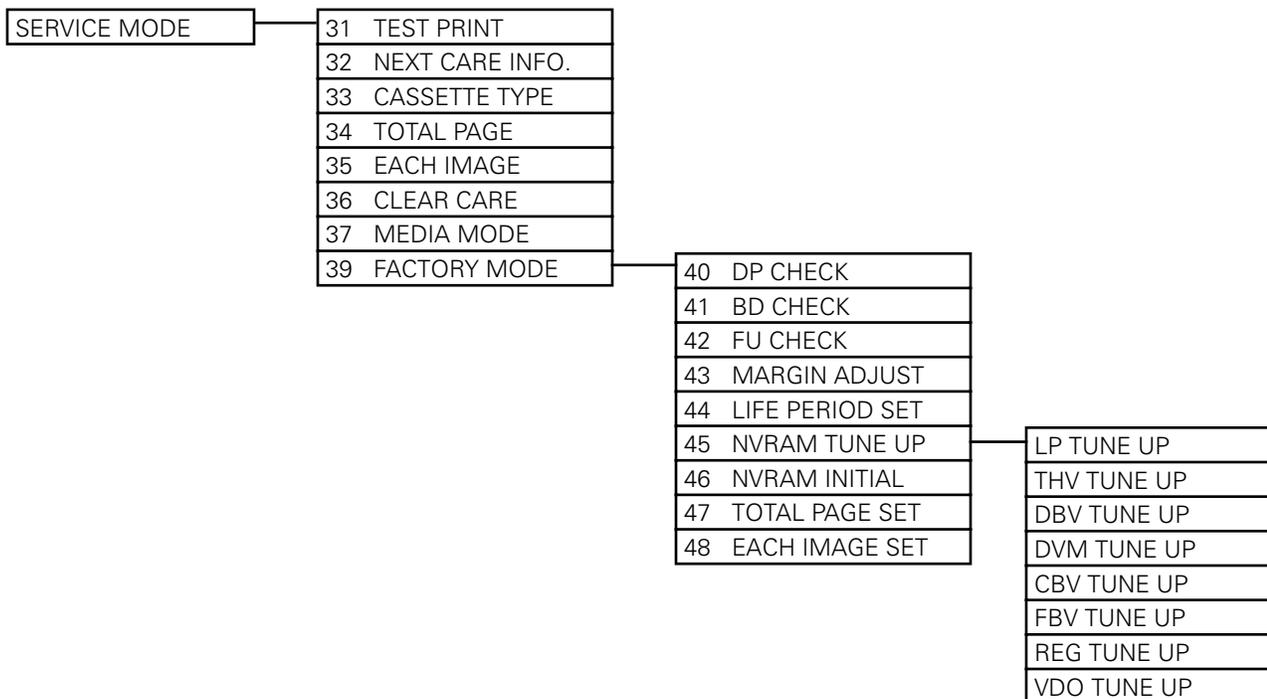
Revises page 39 of the Maintenance Guide.

Service mode is a state in which the printer can put into so that system, boot, PS, and network code can be serviced. Factory service mode is a state in which the printer can be put into so that the printer engine can be serviced.

### To enter factory service mode:

1. Turn off the printer.
2. Unfasten the controller board interface panel so that the board can be slid out enough to disconnect the board from the printer.
3. Simultaneously press and hold the **Feed**, **Next**, and **Select** buttons while turning on the printer.
4. Continue to hold the **Feed**, **Next**, and **Select** buttons until SERVICE MODE appears in the operator panel display and the OnlineLED is not illuminated.
5. Press **Next** until FACTORY MODE appears.
6. Press **Select** to enter factory mode.
7. Use the **Next** button to navigate the factory mode menu and the **Select** button to select specific menu items. A diagram of the menu tree is shown below.

### Factory Mode Menu Tree



8. When finished performing the tests, turn off the printer.
9. Slide the controller board back into the printer and fasten it.
10. The printer can be turned on and used for regular use (ready mode).

## ENTERING A SERVICE MODE

*Revises page 40 of the Maintenance Guide.*

Use the Operator Panel to enter service mode. The following procedures describe how to put the 4200N and 4400 series printers into service mode and select a specific mode.

### To enter a Service Mode for the 4200N printers:

1. Simultaneously press and hold the **Menu** and **Online** buttons while turning on the printer.
2. Continue to hold the **Menu** and **Online** buttons until SERVICE MODE appears in the operator panel display.
3. Use the **Next** and **Previous** buttons to move between modes.
4. Use the **Select** button to enter a specific service mode. Press **Item** to back out of a specific service mode.
5. Press **Media** to exit service mode.

### To enter a Service Mode for the 4400 Series printers:

1. Simultaneously press and hold the **Menu** and **Online** buttons while turning on the printer and until SERVICE MODE appears in the operator panel display.
2. Use the **Next** and **Previous** buttons to move between service modes.
3. Use the **Select** button to enter a specific service mode. Press **Item** to back out of a specific service mode.
4. Press **Media** to exit service mode.

## UPGRADING THE 4200N SYSTEM CODE

*Revises page 40 of the Maintenance Guide.*

The system code is upgraded by connecting a personal computer directly to the printer then transferring the upgraded code to the printer. The system code upgrade and an optional [Adobe Systems proprietary] installation program can be obtained from NEC Customer Support.

### Determining the System Code Version

Before upgrading the system code, determine which version is currently installed.

#### To display the version:

1. Put the printer into service mode.
2. Press **Next** until CODE VERSION appears.
3. Press **Select** to display the system code version.
4. Record the current version and save it with the printer records (documents).

### Performing the Upgrade

To perform the upgrade a personal computer must be directly connected to the printer's parallel port using an IEEE-1284 compliant cable. The computer must provide access to a command prompt (for example C:\). During the upgrade, you have the choice of upgrading the code by using a copy command or by using an installation program.

#### To upgrade the 4200N system code:

1. Use an IEEE-1284 compliant cable to connect your computer to the parallel port of the printer.
2. Insert the upgrade CD into your computer.
3. Simultaneously press and hold the **Menu** and **Online** buttons while turning on the printer.
4. Continue to hold the **Menu** and **Online** buttons until SERVICE MODE appears in the operator panel display.
5. Press **Next** until BURN BOOT AND PS appears.
6. Press **Select** and WAITING FOR DATA will appear.
7. From the computer, move to the directory containing the file for the new code or the installation program.  
The file name for the new code is SS42\_ *nnn*.CLT where *nnn* is the upgrade version number. The file name for the installation program is PCADOBE.
8. Use either the copy command or installation program to perform the upgrade.
  - To use the copy command, enter COPY /B SS42\_ *nnn*.CLT LPT1: at the command prompt.
  - To use the installation program, enter PCADOBE <DIR> SS42\_ *nnn*.CLT at the command prompt, where DIR is the path to SS42\_ *nnn*.CLT.

During the upgrade process, the operator panel will display the current status and any error messages. The

process can take up to 60 minutes to complete, depending on the computer and/or the method used.

If an error occurs, an message will appear on the operator panel. Repeat Step 3 through Step 8 if an error occurs. A list of error messages are shown in Appendix E.

Listed below is the sequence of messages that appear during the process.

WAITING FOR DATA  
RECEIVING DATA  
DECODING DATA  
ERASING PS FLASH  
STORING PS FLASH  
ERASING FLASH  
STORING FLASH

'SELECT' REBURNS (only displays for about 5 seconds during an unsuccessful upgrade)  
BURN BOOT AND PS (indicates the end of the upgrade process)

9. Turn off printer and restart it.

## **UPGRADING THE 4400 SERIES BOOT, PS, AND NETWORK CODES**

*Revises page 40 of the Maintenance Guide.*

Upgrading 4400 Series code involves connecting a personal computer directly to the printer then transferring the upgraded code to the printer. The code upgrade and an optional [Adobe Systems proprietary] installation program can be obtained from NEC Customer Support.

### **Determining the Boot Code Version**

If needed, you can determine which boot code version is already installed.

#### **To determine the version:**

1. Put the printer into service mode.
2. From the operator panel press **Next** until SELF TEST appears.
3. Press **Select**.
4. Press **Next** until DIAG VERSION appears.
5. Press **Select** and the boot code version will appear.
6. Make a record of the version number.

### **Performing the Upgrade**

To perform the upgrade a personal computer must be directly connected to the printer's parallel port using an IEEE-1284 compliant cable. The computer must provide access to a command prompt (for example C:\). During the upgrade, you have the choice of upgrading by using a copy command or by using an installation program.

#### **To setup the computer and 4400 Series printer:**

1. Use an IEEE-1284 compliant cable to connect a personal computer to the parallel port of the printer.
2. Insert the upgrade CD into the computer.

### To upgrade the 4400 Series boot code:

1. Put the printer into service mode.
2. From the operator panel, press **Next** until BURN FLASH appears.
3. Press **Select** and FLASH BURN 'SELECT' ENTERS appears.
4. Press **Select** and FLASH BURN WAITING FOR DATA appears.
5. From the computer, move to the directory containing the file for the new code or the installation program. The file name for the new code is REL*nnn*.BDL where *nnn* is the upgrade version number. The file name for the installation program is PCADOBE.
6. Use either the copy command or installation program to perform the upgrade.
  - To use the copy command, enter COPY /B REL*nnn*.BDL LPT1 : at the command prompt.
  - To use the installation program, enter PCADOBE <DIR> REL*nnn*.BDL at the command prompt, where DIR is the path to REL*nnn*.BDL.

During the upgrade process, the operator panel will display the current status and any error messages. The process can take up to 2 minutes to complete.

If an error occurs, a message will appear on the operator panel. Repeat Step 4 through Step 6 if an error occurs. A list of error messages are shown in Appendix E.

Listed below is the sequence of messages that appear on the operator panel display during the upgrade process.

WAITING FOR DATA  
DECODING DATA  
STORING DATA  
'SELECT' REBURNS (only displays for about 5 seconds during an unsuccessful upgrade)  
'MEDIA' EXITS (indicates the end of the upgrade process)

7. Turn the printer off and restart.

### To upgrade the 4400 Series PS Code:

1. Put the printer into service mode.
2. From the operator panel, press **Next** until DOWNLOAD CODE appears.
3. Press **Select** and WAITING FOR DATA appears.
4. From the computer, move to the directory containing the file for the new code or the installation program. The file name for the new code is SS44\_*nnn*.CRN where *nnn* is the upgrade version number. The file name for the installation program is PCADOBE.
5. Use either the copy command or installation program to perform the upgrade.
  - To use the copy command, enter COPY /B SS44\_*nnn*.CRN LPT1 : at the command prompt.
  - To use the installation program, enter PCADOBE <DIR> SS44\_*nnn*.CRN at the command prompt, where DIR is the path to SS44\_*nnn*.CRN.

During the upgrade process, the operator panel will display the current status and any error messages. The process can take up to 20 minutes to complete. If an error occurs, a message will appear on the operator panel display. A list of error messages are shown in Appendix E. Repeat Step 1 through Step 5 if an error occurs.

Listed below is the sequence of messages that appears on the operator panel display during the upgrade process.

WAITING FOR DATA  
RECEIVING DATA  
'SELECT' REBURNS (displays momentarily only during an unsuccessful upgrade)  
DOWNLOAD CODE (indicates end of process)

6. Turn off printer and restart it.

## To upgrade the 4400 Series Network Code:

**note:** If an error occurs during the upgrade, the printer will automatically print the error message if *Print PS Errors* option is turned on. The default operating mode for the printer is with *Print PS Errors* on. Use the operator panel to check and turn on this option.

1. Put the printer into ready mode by simply turning on the printer. This condition exists when **READY** is seen in the operator panel display.
2. From the computer, move to the directory that contains IDISK.PS.
3. Enter `IDISK.PS` to format a PostScript partition on the 4400 Series printer hard disk.
4. From the computer, move to the directory containing the file for the new code or the installation program. The file name for the new code is `PSHD $nnn$ .PS` where  $nnn$  is the upgrade version number. The file name for the installation program is `PCADOBE`.
5. Use either the copy command or installation program to perform the upgrade.
  - To use the copy command, enter `COPY /B PSHD $nnn$ .PS LPT1 :` at the command prompt.
  - To use the installation program, enter `PCADOBE <DIR> PSHD $nnn$ .PS` at the command prompt, where `DIR` is the path to `PSHD $nnn$ .PS`.

During the upgrade process, the Data LED on the operator panel will blink and **PROCESSING** can be seen in the operator panel display. The process can take up to 60 minutes to complete.

If an error occurs, a message will be printed by the printer (if the *Print PS Errors* option is on). Repeat Step 1 through Step 5 if an error occurs.

The upgrade is successfully completed when **READY** appears on the operator panel display.

6. Turn off printer.
7. While turning on the printer, simultaneously press and hold the **Online** and **Media** buttons until **INITIALIZING NVRAM** appears in the operator panel display.



## Appendix E

### ERROR MESSAGES

*This appendix is new to the Maintenance Guide.*

#### TESTING ERROR MESSAGES

Self-tests and power-on self-tests check the printer for problems. Problems identified by these tests are displayed as messages on the controller board LEDs and operator panel. A specific self-test can be started from the operator panel while the printer is in service mode.

#### Messages Displayed by the Controller Board LEDs

The controller board has 4 LEDs for indicating self-test errors. Should any of these LEDs be illuminated, the board must be sent to NEC for repair.

However, one type of error may be resolved without sending in the board. If the LED labeled LED0 is illuminated and the rest are not, the problem may be resolved by re-installing the SIMMs or replacing them.

#### Messages Displayed by the Operator Panel

The operator panel displays messages as numbers. The table shown below cross-references those numbers displayed by the 4200N and 4400 Series with a description of the error.

**note:** Error messages displayed by the operator panel are not the same as the error messages that are printed on pages during a failed print job.

Message	Description	Corrective Action
0001	Detected vs. reported RAM mismatch	Re-installing the SIMM modules or replace them
0002	Error in SIMM Bank A	Re-install or replace both SIMMs for Bank A
0003	Error in SIMM Bank A	Re-install or replace both SIMMs for Bank A
0004	Error in SIMM Bank B	Re-install or replace both SIMMs for Bank B
0005	Error in SIMM Bank B	Re-install or replace both SIMMs for Bank B
0006	Error in SIMM Bank A	Re-install or replace both SIMMs for Bank A
0007	Error in SIMM Bank B	Re-install or replace both SIMMs for Bank B
0008	NVRAM error	Replace controller board
0009	NVRAM error	Replace controller board
0010	DMA error	Replace controller board
0011	DMA error	Replace controller board
0012	DMA error	Replace controller board
0013	True Res error	Replace controller board
0014	True Res error	Replace controller board
0015	Network Interface Card (NIC) error	Replace NIC
0016	Hard Disk error	Replace Hard Disk
0017	Hard Disk error	Replace Hard Disk
0018	Hard Disk error	Replace Hard Disk
0019	Hard Disk error	Replace Hard Disk
0020	Print Engine error	Replace engine or call for service
0021	Print Engine error	Replace engine or call for service
0022	Print Engine error	Replace engine or call for service
0023	Print Engine error	Replace engine or call for service
0024	Boot Flash error	Replace boot flash
0025	Boot Flash error	Replace boot flash
0026	NIC Share Memory error	Replace NIC
0027	SCSI error	Replace controller board
0028	SCSI error	Replace controller board
0029	NIC error	Replace NIC
0030	NIC error	Replace NIC
0031	NIC Shared Memory error	Replace NIC
0032	NIC Shared Memory error	Replace NIC
0033	Device being tested was not detected	This error is specific to the type of self test performed.

## UPGRADE ERROR MESSAGES

During a Boot Code, PS Code, Network Code, and System Code upgrade, an error may occur and be displayed by the operator panel. The list shown below describes the upgrade error messages and their corrective action.

Message	Description	Corrective Action
Invalid Length	Incorrect length of S record	Perform the upgrade again
Bad Record Type7	Incorrect length of S7 record	Perform the upgrade again
Bad Record Type	Unknown S record type	Perform the upgrade again
Checksum Error	S record checksum does not match received checksum	Perform the upgrade again
Unexpected EOF	Transmission error	Perform the upgrade again
Verify PS Code		Verify existing PostScript code
No PS Erase	Cannot erase existing PostScript code	Replace controller board
PS Flash Protect	Cannot enable PS Flash writes	Replace controller board
PS Write Error	Error occurred while storing PS Code into flash	Perform the upgrade again
No PS Protection	Cannot disable PS Flash writes	Replace controller board
No PS Changes	New and existing PS Code are the same	No action required
Verify Boot Code		Validate the existing Boot Code
No Write Access	Cannot erase the existing Boot Code	Replace controller board
No Boot Changes	New and existing Boot Code are the same	No action required
File Error/Resend File	Incorrect file used for upgrade (4400 Series printers)	<ul style="list-style-type: none"> <li>Assure the correct upgrade file is being used</li> <li>Perform the upgrade again</li> </ul>
Boot Error No Boot File!	Specific to upgrading the PS code for 4400 Series printers	Upgrade (or install) PS code
No Working Disk	Specific to upgrading the PS code for 4400 Series printers	Format Disk, upgrade (or install) PS code, restart printer, or replace hard disk
Disk Not Initialized	Specific to upgrading the PS code for 4400 Series printers	Format hard disk
File Error	Specific to upgrading the PS code for 4400 Series printers	Perform the upgrade again
Disk Not ready	Specific to upgrading the PS code for 4400 Series printers	<ul style="list-style-type: none"> <li>Wait a few seconds</li> <li>Assure hard disk is securely connected</li> <li>Perform the upgrade again</li> <li>If all else fails, replace hard disk</li> </ul>
No Disk	Specific to upgrading the PS code for 4400 Series printers	<ul style="list-style-type: none"> <li>Assure hard disk is securely connected</li> <li>Perform the upgrade again</li> <li>If all else fails, replace hard disk</li> </ul>

## Appendix F

### 4400 SERIES OPERATOR PANEL BUTTONS

*This appendix is new to the Maintenance Guide.*

The following table summarizes the purpose of the of the 4400 Series operator panel buttons when the printer is in a specific operating mode.

Button	Mode	Function
Online	Offline	Press to bring printer online.
	Online	Press to take printer offline.
	Menu	Button is not active.
Feed	Offline	In PCL emulation or Automatic Emulation Switching (AES) mode, pressing this button with the DATA indicator light on allows data stored in the print buffer to be printed out. This button is not active in PostScript emulation mode.
	Online	Button is not active.
	Menu	Button is not active.
Menu	Offline	Press to enter the menu mode. The menu item, Printer Menu, appears on the status display.
	Online	Button is not active.
	Menu	Press to exit menu mode.
Media	Offline	Press once to change media to Label stock Green LED light turns on. Press again to return to plain paper. When engine detected the Over Head Transparencies (OHT) in the Tray 1, Button is not active.
	Online	Press once to change media to Label stock Green LED light turns on. Press again to return to plain paper. When engine detected the Over Head Transparencies (OHT) in the Tray 1, Button is not active.
	Menu	Button is not active.
Item	Offline	Button is not active.
	Online	Button is not active.
	Menu	Press to go back one menu level.
Previous	Offline	Button is not active.
	Online	Button is not active.
	Menu	Press to display the previous item in a menu.
Next	Offline	Button is not active.
	Online	Button is not active.
	Menu	Press to display the next item in a menu.
Select	Offline	Button is not active.
	Online	Button is not active.
	Menu	Selects/enables changes that were recently made.

## Appendix G

### 4400 SERIES OPERATOR PANEL LEDs

*This appendix is new to the Maintenance Guide.*

LEDs located on the 4400 Series operator panel indicate printer operation status. The table shown below lists each LED and describes its meaning depending on what is the state of the LED.

LED	State	Explanation
Power	On	Printer is on.
	Off	Printer is off.
	Blinking	Printer is in power saving mode
Data	On	Print buffer contains data.
	Off	Print job has ended or print buffer has been cleared by user canceling.
	Blinking	Data is being sent to the printer.
Online	On	Printer is online and ready to print.
	Off	Printer is offline or in menu mode.
	Blinking	Printer is warming up.
Warning	On	Service call required.
	Off	Normal state, no action required.
	Blinking	Printer has a problem, see error display on LCD.
OHT	On	Printing on Overhead Transparencies is selected.
	Off	Printing on Overhead Transparencies is NOT selected.
Label	On	Printing on Label is selected.
	Off	Printing on Label is NOT selected.

## Appendix H

# 4400 SERIES OPERATOR PANEL MESSAGES

*This appendix is new to the Maintenance Guide.*

This appendix lists three categories of messages that can appear on the operator panel display.

- Status Messages
- Alert Messages
- Service Call Messages

### STATUS MESSAGES

Status messages indicate the current operational state of the printer.

Message	Explanation
Line 1: INITIALIZING Line 2:	Indicates that the printer is initializing.
Line 1: RESETTING Line 2:	Indicates that the setup on the front panel returns to the default state.
Line 1: WARMING UP Line 2:	Printer is not yet ready to operate. It is performing an initial power up check or the fuser unit is warming up to operating temperature.
Line 1: READY Line 2:	Printer is online and ready to print under Auto Emulation Switching mode.
Line 1: PRINTING Line 2:	Printer is printing a page.
Line 1: PROCESSING Line 2:	Printer is processing a job.
Line 1: PRESS FEED TO PRINT Line 2:	For job hold feature, this message prompts the user to release the print job for printing. If no key is pressed after a time-out period, the print job is released and this message is changed to "Printing".
Line 1: WAITING Line 2:	Printer is waiting for additional input to complete the print job.
Line 1: POWER SAVE MODE Line 2:	Printer is in power saving mode. When the printer receives a print job, data, or if the Online button is pressed, the printer returns to ready mode.
Line 1: MEDIA TYPE Line 2: PAPER	Shows the current paper type when user presses Media button.
Line 1: MEDIA TYPE Line 2: TRANSPARENCY	Shows the current paper type when user presses Media button.
Line 1: MEDIA TYPE Line 2: THICK STOCK	Shows the current paper type when user presses Media button.
Line 1: SELECTED Line 2:	When some parameter is selected.
Line 1: TEST PRINT Line 2:	Printer is printing a test page.
Line 1: SPOOLING Line 2:	

	<b>Message</b>	<b>Explanation</b>
Line 1:	SPOOLER JOB	
Line 2:		
Line 1:	FIRST JOB	
Line 2:		
Line 1:	RESETTING JOB	Printer is resetting a job.
Line 2:		
Line 1:	OFFLINE	Printer is offline.
Line 2:		
Line 1:	PRESS SELECT	Presses Online button while the printer is processing a job or waiting for additional input to complete the print job.
Line 2:	TO CANCEL JOB	
Line 1:	SELECTION ERROR	
Line 2:		

## ALERT MESSAGES

Alert messages appear during printing or printer initialization and indicate minor and moderate printer problems.

	<b>Message</b>	<b>Explanation</b>
Line 1:	SuperScript 4400	First message to appear when the printer is powered up.
Line 2:	Booting...	
Line 1:	OUT OF PAPER	One of the paper trays is empty.
Line 2:	TRAY 1	
Line 1:	OUT OF PAPER	One of the paper trays is empty.
Line 2:	TRAY 2	
Line 1:	TRAY 2	Lower tray contains paper size that is not supported by engine.
Line 2:	UNSUPPORTED SIZE	
Line 1:	PAPER MISMATCH	Paper tray has papers but not the right type.
Line 2:	LOAD LETTER TRAY	
Line 1:	PAPER MISMATCH	Paper tray has papers but not the right type.
Line 2:	LOAD LEGAL TRAY	
Line 1:	PAPER MISMATCH	Paper tray has papers but not the right type.
Line 2:	LOAD A4 TRAY	
Line 1:	PAPER MISMATCH	Paper tray has papers but not the right type.
Line 2:	LOAD B5JIS TRAY	
Line 1:	PAPER MISMATCH	Paper tray has papers but not the right type.
Line 2:	LOAD B5ISO TRAY	
Line 1:	PAPER MISMATCH	Paper tray has papers but not the right type.
Line 2:	LOAD EXEC TRAY	
Line 1:	PAPER MISMATCH	Paper tray has papers but not the right type.
Line 2:	LOAD FOLIO TRAY	
Line 1:	PAPER MISMATCH	Paper tray has papers but not the right type.
Line 2:	LOAD FSCAP TRAY	
Line 1:	PAPER MISMATCH	Paper tray has papers but not the right type.
Line 2:	LOAD SPFOLI TRAY	
Line 1:	PAPER MISMATCH	Paper tray has papers but not the right type.
Line 2:	LOAD QUARTO TRAY	

	<b>Message</b>	<b>Explanation</b>
Line 1: Line 2:	PAPER MISMATCH LOAD COM-10 TRAY	Paper tray has papers but not the right type.
Line 1: Line 2:	PAPER MISMATCH LOAD DL TRAY	Paper tray has papers but not the right type.
Line 1: Line 2:	K-TONER EMPTY	Black toner cartridge is empty
Line 1: Line 2:	Y-TONER EMPTY	Yellow toner cartridge is empty.
Line 1: Line 2:	M-TONER EMPTY	Magenta toner cartridge is empty.
Line 1: Line 2:	C-TONER EMPTY	Cyan toner cartridge is empty.
Line 1: Line 2:	K-TONER NOT FOUND	Black toner cartridge is not installed or installed incorrectly.
Line 1: Line 2:	Y-TONER NOT FOUND	Yellow toner cartridge is not installed or installed incorrectly.
Line 1: Line 2:	M-TONER NOT FOUND	Magenta toner cartridge is not installed or installed incorrectly.
Line 1: Line 2:	C-TONER NOT FOUND	Cyan toner cartridge is not installed or installed incorrectly.
Line 1: Line 2:	PAPER JAM DRUM	Paper jam in drum area.
Line 1: Line 2:	PAPER JAM INNER/DRUM	Paper jam in inner area.
Line 1: Line 2:	PAPER JAM EXIT/DRUM	Paper jam in exit tray.
Line 1: Line 2:	MISFEED	Paper misfeed.
Line 1: Line 2:	CHECK WASTE TONER	Waste toner bottle is full or is not installed.
Line 1: Line 2:	REPLACE FUSER OIL	Fuser oil runs out.
Line 1: Line 2:	REPLACE FUSER ROLLER	Fuser cleaning roller reaches end-of-life.
Line 1: Line 2:	MISPRINT HW FAULT	Printing error caused by no PRREQ-N within a page.
Line 1: Line 2:	BELT CARTRIDGE NOT FOUND	OPC belt cartridge is not installed.
Line 1: Line 2:	FUSER UNIT NOT FOUND	Fuser unit is not installed.
Line 1: Line 2:	FUSER ROLLER NOT FOUND	Fuser cleaning roller is not installed.
Line 1: Line 2:	FRONT COVER OPEN	Front panel is open.
Line 1: Line 2:	BACK COVER OPEN	Back panel (transfer unit) is open.

	<b>Message</b>	<b>Explanation</b>
Line 1: Line 2:	TOP COVER OPEN	Top panel is open.
Line 1: Line 2:	LOW FUSER OIL	Fuser cleaning unit has about 30 pages left to end-of-life.
Line 1: Line 2:	FUSER ROLLER NEAR END	Fuser cleaning roller has about 1000 pages left to end-of-life.
Line 1: Line 2:	REPLACE BELT	OPC belt cartridge worn-out.
Line 1: Line 2:	REPLACE FUSER UNIT	Fuser unit reaches end-of-life.
Line 1: Line 2:	K-TONER LOW	Black toner cartridge has about less than 300 pages left to end-of-life.
Line 1: Line 2:	Y-TONER LOW	Yellow toner cartridge has about less than 500 pages left to end-of-life.
Line 1: Line 2:	M-TONER LOW	Magenta toner cartridge has about less than 500 pages left to end-of-life.
Line 1: Line 2:	C-TONER LOW	Cyan toner cartridge has about less than 500 pages left to end-of-life.
Line 1: Line 2:	120K SERVICE	Paper discharge, drum cleaner, transfer roller, transfer drum, and paper pick-up roller all reach end-of-life.
Line 1: Line 2:	CASSETTE OUT TRAY1	Cassette is not installed in paper tray1.
Line 1: Line 2:	CASSETTE OUT TRAY2	Cassette is not installed in paper tray2.
Line 1: Line 2:	MEDIA MISMATCH LOAD PAPER TRAY	Paper tray has papers but not the right type.
Line 1: Line 2:	MEDIA MISMATCH LOAD LABEL TRAY	Paper tray has papers but not the right type.
Line 1: Line 2:	MEDIA MISMATCH LOAD OHT TRAY	Paper tray has papers but not the right type.

## SERVICE CALL MESSAGES

Service messages indicate major printer problems. The printer must be serviced by a qualified technician to resolve the cause of these messages.

	<b>Message</b>	<b>Explanation</b>
Line 1: Line 2:	SERVICE CALL C3	NVRAM error
Line 1: Line 2:	SERVICE CALL C4	Engine controller hardware error
Line 1: Line 2:	SERVICE CALL C7	Process timing clock error
Line 1: Line 2:	SERVICE CALL D1	Yellow switching clutch error

	<b>Message</b>	<b>Explanation</b>
Line 1: Line 2:	SERVICE CALL D2	Magenta switching clutch error
Line 1: Line 2:	SERVICE CALL D3	Cyan switching clutch error
Line 1: Line 2:	SERVICE CALL D4	Black switching clutch error
Line 1: Line 2:	SERVICE CALL D5	YK switching clutch error
Line 1: Line 2:	SERVICE CALL D6	MC switching clutch error
Line 1: Line 2:	SERVICE CALL E1	Developing motor error
Line 1: Line 2:	SERVICE CALL E2	Main motor error
Line 1: Line 2:	SERVICE CALL E3	Drum error
Line 1: Line 2:	SERVICE CALL E4	Toner empty sensor error
Line 1: Line 2:	SERVICE CALL E5	Transfer roller solenoid error
Line 1: Line 2:	SERVICE CALL E6	Drum cleaning solenoid error
Line 1: Line 2:	SERVICE CALL E7	Drum cleaning clutch error
Line 1: Line 2:	SERVICE CALL E8	Fuser unit clutch error
Line 1: Line 2:	SERVICE CALL E9	Belt marker sensor error
Line 1: Line 2:	SERVICE CALL EL	Erase LED error
Line 1: Line 2:	SERVICE CALL F0	Cooling fan error
Line 1: Line 2:	SERVICE CALL F2	Ozone fan error
Line 1: Line 2:	SERVICE CALL F4	Fuser fan error
Line 1: Line 2:	SERVICE CALL F5	Charger HV unit error
Line 1: Line 2:	SERVICE CALL H0	Fuser thermometer error
Line 1: Line 2:	SERVICE CALL H2	Fuser temperature is not reaching printable temperature error

	<b>Message</b>	<b>Explanation</b>
Line 1:	SERVICE CALL	Fuser temperature is continuously low after printable temperature error
Line 2:	H3	
Line 1:	SERVICE CALL	Fuser temperature is continuously high after printable temperature error
Line 2:	H4	
Line 1:	SERVICE CALL	Beam detector error
Line 2:	L1	
Line 1:	SERVICE CALL	Scanner motor error
Line 2:	L2	
Line 1:	SERVICE CALL	Laser power error
Line 2:	LL	

# Appendix I

## GLOSSARY

*This appendix is new to the Maintenance Guide.*

**Boot Code** Used only for starting, initializing, and performing specific controller functions. Physically resides in the 4200N boot flash and the 4400 Series boot flash. Can be upgraded.

**Boot Flash** A semiconductor device located on the controller board used for storing the boot code and testing code.

**PS Code** The PostScript printer language code. Processes incoming print jobs for actual printing. Physically resides in the 4200N PS flash or on the 4400 Series hard drive. Can be upgraded

**PS Flash** Semiconductor devices on the 4200N controller board used for storing the PS code.

**Network Code** The Secondary File Server programs and associated web page images. Physically resides on the 4400 Series hard drive. On the 4200N, a small part of it physically resides in the boot flash, the majority of it resides on the computer acting as the secondary file server.

**System Code** On the 4200N, the boot code and PS code are installed and upgraded simultaneously as a single set of code called a system. NEC tracks each system by giving it a version number that can be displayed by the operator panel.

## NOTES





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