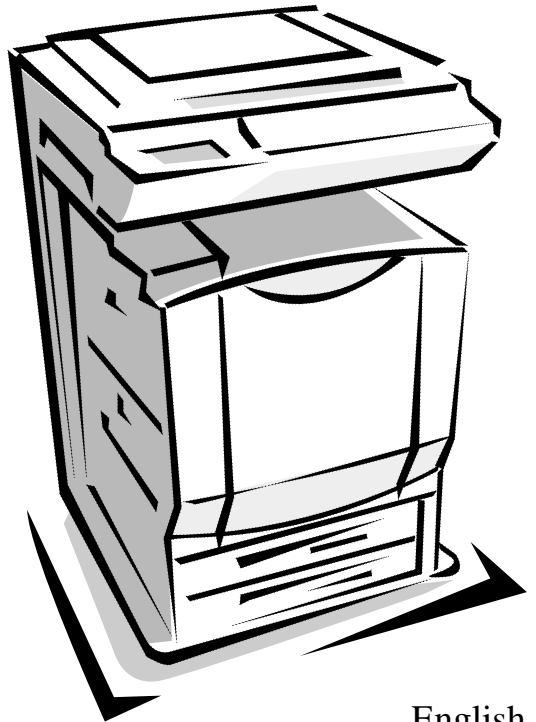


to
LaserJet[™]
8550 Printer

**Copy Module
Automatic Document Feeder
High-Capacity Input
Service Manual**



English

HP Copy Module, ADF, and side HCI for HP Color LaserJet 8550 series printers

_____ **Service Manual**

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WARNING

Electrical Shock Hazard

To avoid electrical shock, use only supplied power cords and connect only to properly grounded (3-hole) wall outlets.

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1 Product information

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Introduction

The HP Color LaserJet 8550 Multi-Function Printer (MFP) system consists of the following:

- Copy module
- Stand
- Print engine
- Optional automatic document feeder (ADF)
- Optional side high-capacity input (side HCI)

Copy module

Features

Control panel	<ul style="list-style-type: none">• 320-by-230 dot LCD touch screen
Copy speed (letter/A4)	<ul style="list-style-type: none">• 6 pages per minute (ppm) full color• 24 ppm monochrome
Copy speed (ledger/A3)	<ul style="list-style-type: none">• 3 ppm full color• 12 ppm monochrome
Original type	<ul style="list-style-type: none">• Sheet, book, three-dimensional object (2 kilogram maximum)
Magnification	<ul style="list-style-type: none">• Nine preset reduction and enlargement percentages• Zoom: 25% to 400%, by 1% increments
Resolution	<ul style="list-style-type: none">• 600 dots per inch by 600 lines per inch
Advanced copying features: <ul style="list-style-type: none">• Up to 100 continuous copies• Auto clear (two minute standard; variable, can be disabled)• Auto color select (identifies original to select four-color or mono copy)• One-touch adjust (vivid colors, tranquil colors, lighten image, darken image, highlight reproduction, old-fashioned photo)• Color adjust (color balance, density range YMCK adjustment)• Auto power save (30-minute standard; variable, can be disabled)• Low power (one-hour standard; variable in user mode)• Original mode (text/photo/map, printed image, photo, black text)	

Advanced copying features (continued):

- Frame erase
- Blind margin
- Auto gradation correction
- Auto exposure
- Auto paper select
- Auto zoom
- Two-page separation
- Heavy-sheet original
- Image creation
- Image shift
- Margin
- Color balance
- Sharpness
- Single color
- Image separation
- Mode memory and recall
- Framing/blanking
- Image combination

Specifications

Speed

Table 1. First copy time (in seconds*)

Type	Size	4-color	Mono-color
Plain paper	A4, Letter	34	18
Thick paper	A4, Letter	50	35
Transparency	A4, Letter	57	41

*Times shown assume A4-size media, direct copy using cassette 1, face-up delivery, and no pre-scanning; for face-down delivery, add three seconds for plain paper, six seconds for thick paper, and seven seconds for transparencies.

Table 2. Copying speed (pages per minute)

	Source	Size	4-color	Mono-color
Plain paper	Cassette Multifeeder	A3, B4, A4R, B5, 11 by 17, Legal, Letter	3 ppm	12 ppm
		A4/LTR	6 ppm	24 ppm
Thick paper	Multifeeder	A3/11 by 17	1.2 ppm	1.7 ppm
		A4/LTR	2.4 ppm	3.4 ppm
Transparency	Multifeeder	A4/LTR	2.1 ppm	2.8 ppm

Environmental

Table 3. Operating conditions—copy/print

Temperature	15° to 27.5° C 59° to 81.5° F
Humidity	20% to 80% RH
Atmospheric pressure	786 to 1013 hPa (560 to 760 mmHg)
Acoustic emissions	74 dB copying 62 dB standby
Ozone emissions	0.05 ppm or less 0.02 ppm or less

Electrical

Table 4. Electrical specifications—copy/print

Power source:	
110 V units	100-127 Vac \pm 10% at 50 Hz \pm 2 Hz, 60 Hz \pm 2 Hz
220 V units	220-240 Vac \pm 10% at 50 Hz \pm 2 Hz
Maximum power consumption	1.5 kW or less

Physical

Table 5. Physical specifications—copy/print

Weight	39 kg (348 lb)
Dimensions (mm)	Width: 673 mm (26.5 in) Height: 190 mm (7.5 in) Depth: 787 mm (31.0 in)

Supported media sizes

- A3
- A4R
- A4
- legal
- B4
- B5
- 11-by-17 inches
- letter

Overview

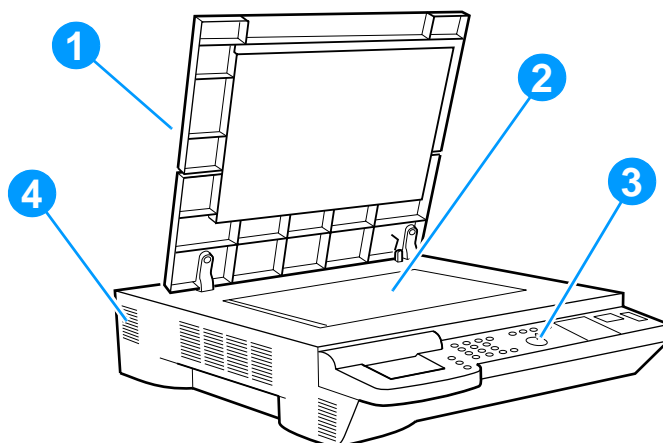


Figure 1.

Copy module front left

- 1 Copyboard cover
- 2 Copyboard glass
- 3 Control panel
- 4 Power supply cooling fan air inlet

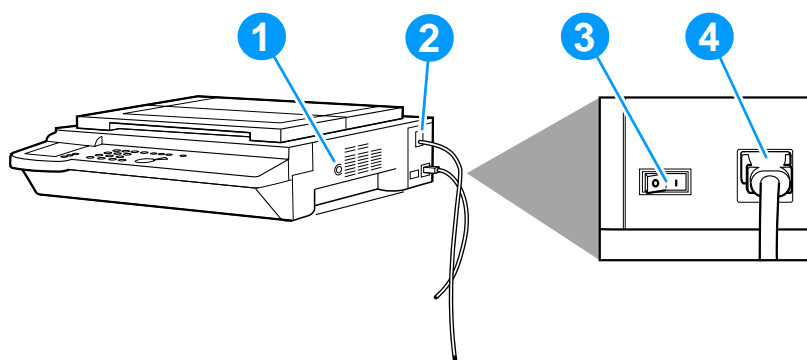


Figure 2.

Copy module front right

- 1 Control key switch
- 2 Power supply cord connector
- 3 Rear power switch
- 4 Printer power cord connector

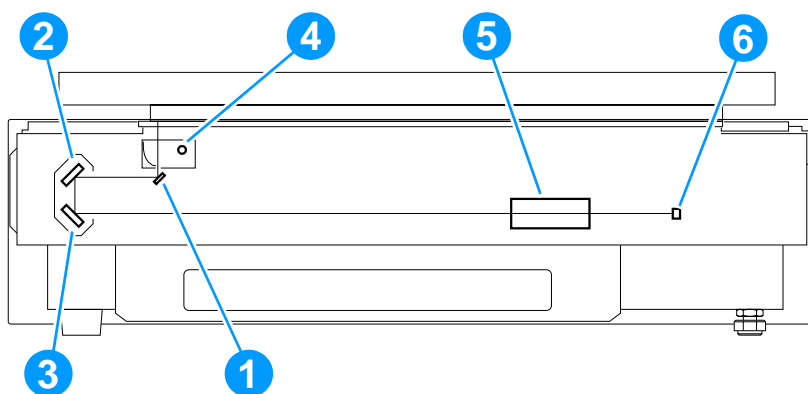


Figure 3. Copy module cross-section

- 1 Number 1 mirror
- 2 Number 2 mirror
- 3 Number 3 mirror
- 4 Scanning lamp
- 5 Lens
- 6 Charge-coupled device (CCD)

Automatic document feeder (ADF)

The ADF is not part of the standard MFP bundle. It can be ordered as an option.

Features

The ADF can identify the size of an original in terms of its length (feeding direction) and width for communication to its host computer. Features include:

- 24 copies per minute
- circulating, auto-duplexing pickup method
- communication with copier using interprocess communication (IPC)

Specifications

Electrical

Table 6. Electrical specifications—ADF

Power supply	24 Vdc (from the copy module)
Maximum power consumption	Less than 170 W

Physical

Table 7. Physical specifications—ADF

Weight	Approximately 14.8 kg (32.6 lb) Weight does not include the document output tray.
Dimensions	Width: 641 mm (25.2 in) Height: 152 mm (6.0 in) Depth: 508 mm (20.0 in) Dimensions do not include document output tray.

Supported media

Table 8. Supported media—ADF

Sizes	Weights	Capacity
A5, B5, A4, Letter, Legal	50 to 105 g/m ²	50 sheets
B4, A3, 11 by 17, Legal	50 to 105 g/m ²	25 sheets

ADF media selection guidelines

Do not use the following as originals in the ADF:

- transparencies, or paper with an opacity of 80% or less
- carbon-backed sheets
- sheets with paste-ups or binding
- sheets with cut-outs, holes, or tears
- sheets with a clips, staples, or glue
- sheets with curling, wrinkling, or creasing

CAUTION

Do not feed the same original more than once, to protect against damage.

Overview

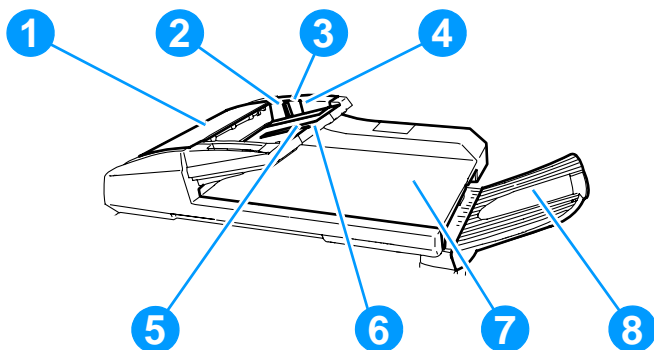


Figure 4.

Automatic document feeder

- | | | | |
|---|------------------------|---|----------------------|
| 1 | Upper cover | 5 | Document tray |
| 2 | Side guide | 6 | Sub-tray |
| 3 | Last-page detector | 7 | Body cover |
| 4 | Original-set indicator | 8 | Document output tray |

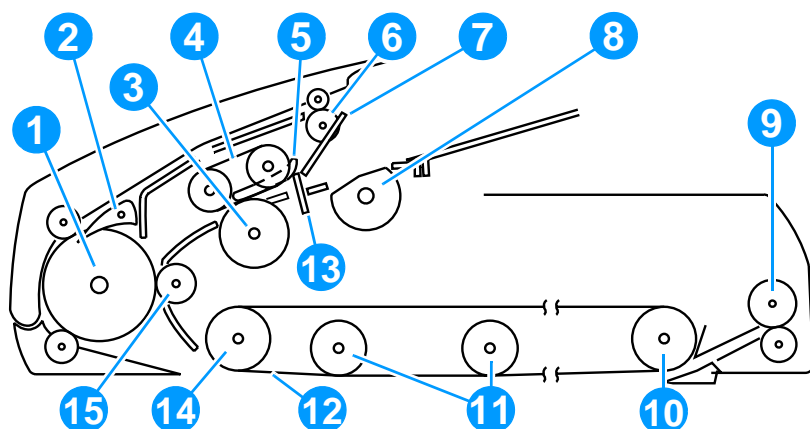


Figure 5. Automatic document feeder cross-section

- | | |
|--|------------------------------|
| 1 Reversing roller | 8 Pick-up roller |
| 2 Paper deflecting plate | 9 Delivery roller |
| 3 Feeding roller (separation function) | 10 Feeding belt link roller |
| 4 Separation belt (feeding function) | 11 Retaining rolls |
| 5 Pre-separation guide | 12 Feeding belt |
| 6 Delivery/pick-up roller | 13 Paper stopper plate |
| 7 Paper retaining plate | 14 Feeding belt drive roller |
| | 15 Registration roller |

Side high-capacity input (side HCI)

Features

- holds up to 1,000 sheets of 20-pound (lb) media
- supports media weights of 64 g/m² to 105 g/m²
- accommodates either letter- or A4-size media

Specifications

Environmental

Table 9. Operating conditions—side HCI

Temperature	10° to 32.5° C (50° to 90.5° F)
Humidity	20% to 80% RH
Atmospheric pressure	786 to 1013 hPa (560 to 760 mm Hg)

Electrical

Table 10. Electrical specifications—side HCI

Power supply:	
110 V units	100 to 120 Vac (50/60 Hz)
220 V units	220 to 240 Vac (50 Hz)
Power consumption	Less than 22 W

Physical

Table 11. Physical specifications—side HCI

Weight	Approximately 18.5 kg (40.8 lb)
Dimensions (mm)	Width: 317 mm (12.5 in) Height: 280 mm (11.0 in) Depth: 571 mm (22.5 in)

Overview

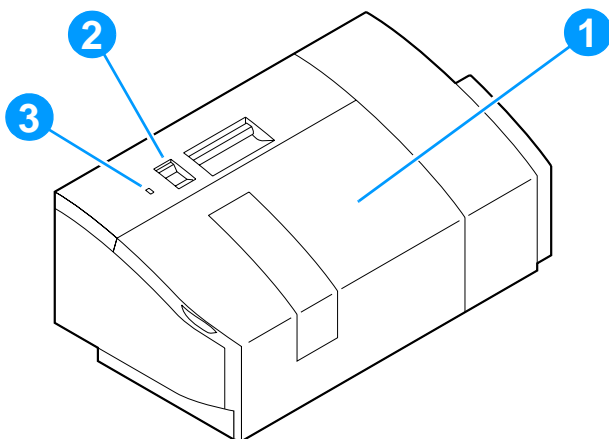


Figure 6.

Front of side HCI

- 1 Upper right cover
- 2 Paper-size selection tab
- 3 User LED

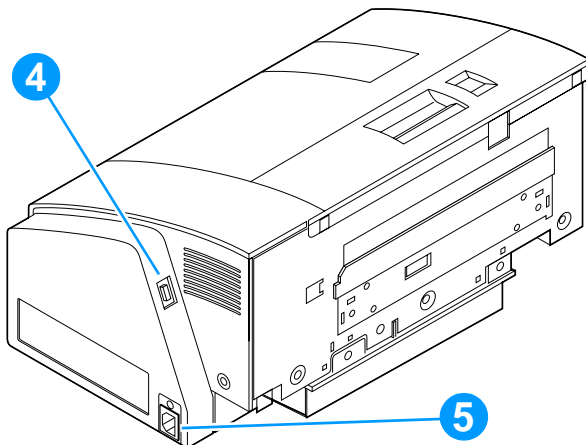


Figure 7.

Rear of side HCI

- 4 Interface connector
- 5 Power receptacle

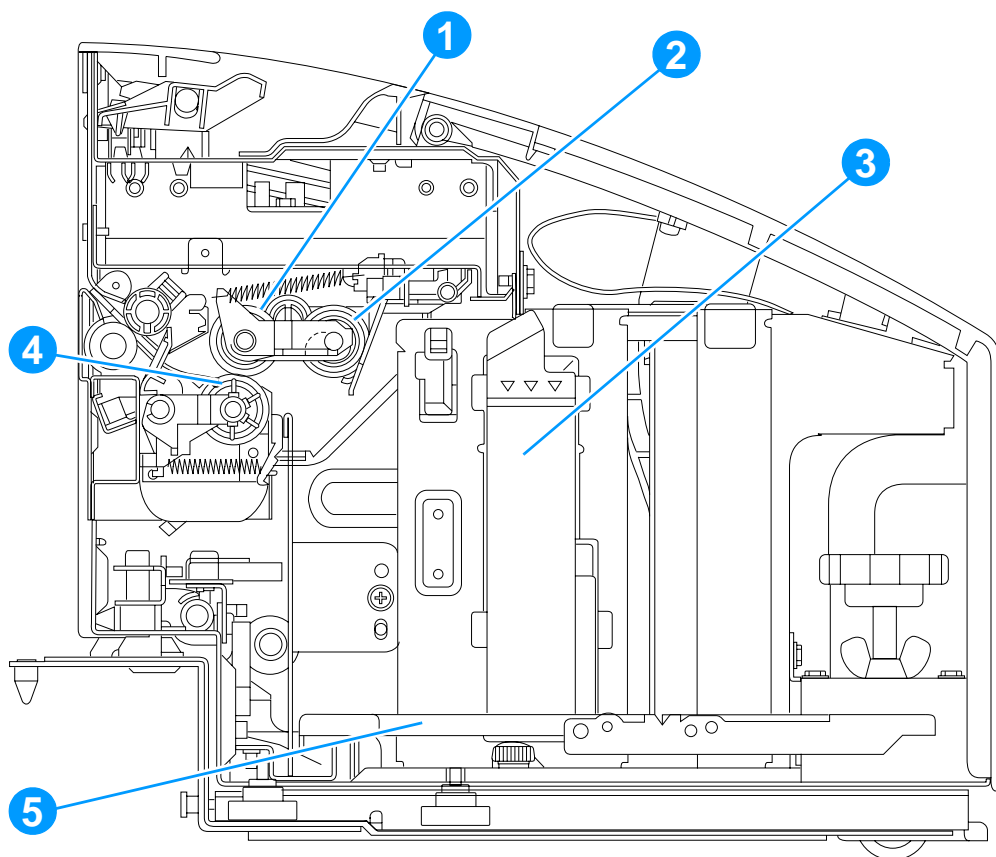


Figure 8. **Cross-section of side HCI**

- 1 Feed roller
- 2 Pick-up roller
- 3 Paper-size limit panel
- 4 Separation roller
- 5 Lifter

Model and serial numbers

The serial number on the HP Color LaserJet 8550MFP is the primary identification number for this MFP bundle. The serial number is located on the back of the print engine.

Accessories also have their own unique serial numbers, which are located on the back of each accessory.

Safety and regulatory information

Declaration of conformity

according to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name:

Hewlett-Packard Company

Manufacturer's Address:

11311 Chinden Boulevard
Boise, Idaho 83714-1021
USA

declares, that the product

Product Name:

Color LaserJet 8550MFP Accessories

Model Number:

C7836A, C7837A, and C7839A

Product Options:

All

conforms to the following Product Specifications:

Safety: IEC 950:1991+A1+A2+A3+A4 / EN 60950:1992+A1+A2+A3+A4+A11
IEC 825-1:1993 +A1/EN 60825-1:1994 +A11 Class 1 (Laser/LED)

EMC: CISPR 22:1997 / EN 55022:1998 Class A¹

EN 61000-3-2:1995

EN 61000-3-3:1995

EN 55024:1998

FCC Title 47 CFR, Part 15 Class A² / ICES-002, Issue 2

AS / NZS 3548:1995

Supplementary Information:

The product herewith complies with the requirements of the EMC Directive 89/336/EEC and the Low Voltage Directive 73/23/EEC, and carries the CE-Marking accordingly.

¹The product was tested in a typical configuration with Hewlett-Packard Personal Computer Systems.

²This 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, and (2) this device must accept any interference received, including interference that may cause undesired operation

June 17, 1999

For Regulatory Topics ONLY, contact:

Australia Contact: Product Regulations Manager, Hewlett-Packard Australia Ltd., 31-41 Joseph Street, Blackburn, Victoria 3130, Australia

European Contact: Your Local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department HQ-TRE / Standards Europe, Herrenberger Straße 110-140, D-71034 Böblingen, (Fax: +49-7031-14-3143)

USA Contact: Product Regulations Manager, Hewlett-Packard Company, PO Box 15, Mail Stop 160, Boise, Idaho 83707-0015, (Phone: 208-396-6000)

FCC regulations

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. If it is not installed and used in accordance with the instructions, it 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 receptions, 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 separation between equipment and receiver.
- Connect equipment to an outlet on a circuit different from that to which the receiver is located.
- Consult your dealer or an experienced radio/TV technician.

Note

Any changes or modifications to the printer that are not expressly approved by HP could void the user's authority to operate this equipment.

Use of a shielded interface cable is required to comply with the Class B limits of Part 15 of FCC rules.

2 Service approach

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Service approach overview

The HP Color LaserJet 8550MFP has a one-year, next-day, onsite warranty from HP to the customer. An in-field service strategy based on field-replaceable units (FRUs) applies to all devices of the HP Color LaserJet 8550MFP system (print engine, copy module, and side HCI).

The ADF under warranty will be first be serviced by a field technician who will troubleshoot, clean, and adjust the unit. The field technician can also replace the feeding belt, if necessary. If these measures fail to correct the problem, the ADF be replaced as a whole-unit exchange.

Parts and supplies

Field-replaceable and accessory part numbers are found in chapter 8 of this manual. Use only accessories specifically designed for this printer. Accessories can be ordered from an authorized service or support provider. Replacement parts can be ordered from HP's Service Materials Organization (SMO) or Support Materials Europe (SME).

Ordering

The following table lists information for ordering from SME, SMO, and the HP Distribution Center (HPD).

Table 12. Ordering parts

Organization	Address	Phone
SMO (Service Materials Organization)	Hewlett-Packard Company Support Materials Organization 8050 Foothills Blvd. Roseville, CA 95678	(800) 227-8164 (U.S. only)
SME (Support Materials Europe)	Hewlett-Packard Company Support Materials Europe Wolf-Hirth Strasse 33 D-7030 Böblingen, Germany	(49 7031) 14-2253
HPD (HP Distribution Center)		(805) 257-5565 (805) 257-6995 Fax

Obtaining related documentation and software

To order related documentation and software, contact SMO or SME at the numbers listed on the previous page.

For information through the World Wide Web, visit the following websites:

Table 13. Technical support websites

HP Customer Care Online Software drivers, support documentation, and answers to frequently asked questions	http://www.hp.com/go/support
HP Technical Training (North America) Classes and schedules	http://www.hp.com/go/resellertraining
Parts Parts information	http://outfield.external.hp.com/spi/welcom.htm

Ordering consumables

Consumable parts and accessories are available directly from Hewlett-Packard at the following numbers:

- U.S.: (800) 538-8787
- Canada: (800) 387-3154
(in Toronto: (416) 671-8383)
- United Kingdom: 0734-441212
- Contact your local HP Parts Coordinator for other local phone numbers.

To find a dealer near you (or if the local dealer is temporarily out of stock), call the HP Customer Information Center at (800) 752-0900.

Ordering FRUs

This printer is designed to be repaired by replacing FRUs. Part numbers are located in chapter 8 of this manual and can be ordered from SMO or SME (see page 40).

Parts exchange program

HP offers remanufactured assemblies for selected parts. These are identified in chapter 8 and can be ordered through SMO or SME (see page 40).

Technical assistance

List Server

A list server is an e-mail program that allows users to subscribe to certain mail lists by sending e-mail to the server. The list server allows HP LaserJet Technical Marketing to make the support community aware of new or urgent information by sending information to subscribers.

- To subscribe to hardware-related information, send e-mail to:
subscribe-CLJ8500/8550-HW@chsdess1.boi.hp.com
- To subscribe to software-related information, send e-mail to:
subscribe-CLJ8500/8550-SW@chsdess1.boi.hp.com

Once you subscribe, you will receive more information about the benefits of the list server as well as additional instruction about how to use the list server.

HP ASAP

HP ASAP (Automated Support Access Program) provides free technical support information 24 hours a day, 7 days a week. The ASAP system includes HP FIRST, explained below. The ASAP service at (800) 333-1917 (U.S.) requires a touch-tone phone.

HP FIRST

HP FIRST (Fax Information Retrieval Support Technology) is a phone-in fax service that provides technical information for HP LaserJet end-users and service personnel. Receiving a fax requires a type-3 facsimile machine or fax card. Service-related information includes:

- service notes (HP Authorized Dealers)
- Product Data Sheets (PDS)
- Material Safety Data Sheets (MSDSs)
- typeface and accessory information
- printer support software information
- toner information
- driver request form and Software Matrix

HP FIRST, U.S.

Call the U.S. HP ASAP system at (800) 333-1917 and follow the voice prompts to enter HP FIRST.

HP FIRST, Europe

Call HP FIRST at one of the following European numbers:

- U.K.: 0800-96-02-71
- Belgium: 078-111906 (Dutch)
- Switzerland: 155-1527 (German)
- Netherlands: 06-0222420
- Germany: 0130-810061
- Austria: 0660-8128

For English service outside the countries listed above, call (31) 20-681-8192.

Dealer Response Line

For further technical assistance on pre/post sales and service support, HP dealer service-authorized personnel can contact the Dealer Response Line.

(800) 544-9976 (U.S. only)
(800) 363-6584 (Canada)

HP Software Distribution Center

For printer drivers and application note orders:

(805) 257-5565

HP Direct

For supplies and accessories orders:

(800) 538-8787 U.S. only

Customer Support Sales Center

For existing hardware and software service agreements:

(800) 386-1115 U.S. only

For price quotations for or purchase of new hardware or software agreements:

(800) 743-8305 U.S. only

Parts identification

For service part number identification:

(916) 783-0804

Customer Information Centers

For further technical assistance, service-authorized HP and dealer service personnel can contact the Hewlett-Packard Customer Information Center at (800) 752-0900 in North America.

HP Customer Care Centers (CCC)

HP representatives are available to answer technical questions at no charge for a period equivalent to the original HP hardware warranty period.

Questions regarding operating systems such as MS-DOS®, UNIX®, or network configuration operating systems cannot be answered by the Customer Care Center, and should be referred to your dealer.

Note

Each time you call the HP Customer Care Centers, you will be asked to provide the printer serial number and the original date of purchase.

U.S. CCC

The CCC can be reached at (208) 323-2551 and is available weekdays from 6:00 A.M. to 6:00 P.M. Mountain Time.

European Customer Care Center (ECCC)

The ECCC can be reached at 31-0-20-605-0505 and is available weekdays from 8:30 A.M. until 6:00 P.M. Central European Time. Multilingual customer-support representatives are available to answer questions.

Canadian Customer Care Center (CCCC)

The CCCC at (905) 206-4663 is available weekdays from 8:00 A.M. until 8:00 P.M. Eastern Time. French- and English-speaking customer-support representatives are available to answer questions.

Asia Pacific country/region Customer Care Centers

Table 14. Asia Pacific country/region Customer Care Centers

Country/Region	Phone	Hours of operation
Australia	+ 61 3 8877 8000	9:00 A.M. to 5:00 P.M., Monday through Friday
China	+ 86 (0)10 6564 5959	8:30 A.M. to 5:30 P.M., Monday through Friday
Hong Kong SAR	800 96 7729	8:30 A.M. to 5:30 P.M., Monday through Friday
India	+ 91 11 682 6035	9:30 A.M. to 5:30 P.M., Monday through Friday
Indonesia	+62 (21) 350 3408	8:00 A.M. to 5:00 P.M., Monday through Friday
Japan	+ 81 3 3335 8333	9:00 A.M. to 12:00 noon and 1:00 P.M. to 5:00 P.M., Monday through Friday
Korea, Republic of (outside Seoul only)	+82 (2) 3270 0700	8:30 A.M. to 5:30 P.M., Monday through Friday
	080 999 0700	8:30 A.M. to 5:30 P.M., Monday through Friday
Malaysia	+60 (3) 295 2566	8:30 A.M. to 5:30 P.M., Monday through Friday
Penang	1 300 88 00 28	8:30 A.M. to 5:30 P.M., Monday through Friday
New Zealand	+64 (9) 356 6640	9:00 A.M. to 5:00 P.M., Monday through Friday
Philippines	+ 63 (2) 867 3551	8:30 A.M. to 5:30 P.M., Monday through Friday
Singapore	+65 272 5300	8:30 A.M. to 5:30 P.M., Monday through Friday
Taiwan	+ 886 (2) 2717 0055	8:30 A.M. to 6:00 P.M., Monday through Friday
Thailand	+66 (2) 661 4000	8:30 P.M. to 5:30 P.M., Monday through Friday
Vietnam	+84 (0) 8 823 4530	8:00 A.M. to 5:00 P.M., Monday through Friday, and 8:00 A.M. to 12:00 noon on Saturday

Warranty

The warranty outlines specific legal rights. Customers might also have other rights that vary from area to area. Refer to the user's guide for further warranty information.

3 Operational overview

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Feeder	114

Control panel

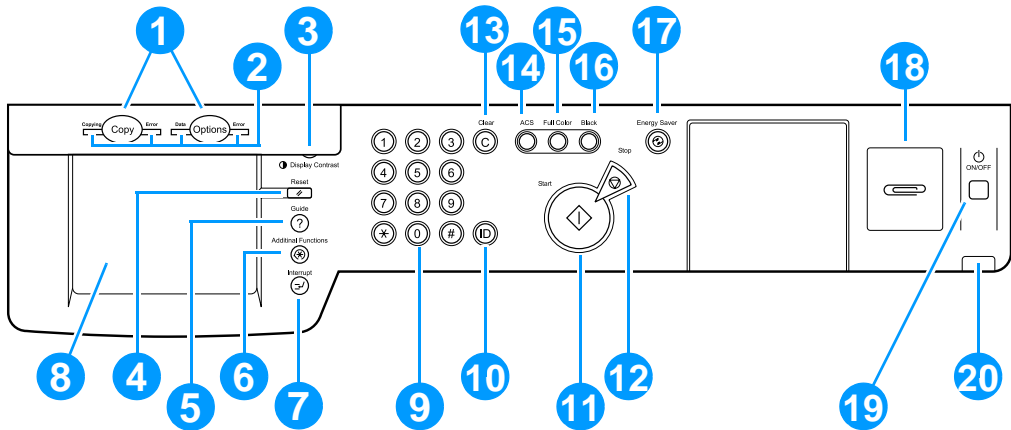


Figure 9. Copy module control panel

- 1 System switch—switch between the copy module user interface and the print system screen; also use to exit Power Save mode
- 2 Status indicators:
 - **copying**—glows green to indicate that copying is under way
 - **error**—flashes orange to indicate the absence of media, media jam, or absence of toner; glows orange to indicate a fault
 - **data**—glows green to indicate that data is being output
 - **error** (after “options”)—flashes orange to indicate a printer error, the absence of media, media jam, or absence of toner
- 3 Screen contrast dial—adjust the contrast of the liquid crystal display (LCD) (clockwise darkens the screen, counter-clockwise lightens the screen)
- 4 Reset key—return to standard copying mode; also use to back out of menus without making changes
- 5 Guide key—display context-sensitive help screens (functions, how to operate)
- 6 User mode key—start or end user mode, and check common settings, copy module settings, timer settings, adjust/clean settings, and counter readings
- 7 Interrupt key—make an interrupt copy


- 8** Touch panel display—display settings screen according to system functions
- 9** Keypad—enter numerical values, such as copy counts
- 10** ID key—start ID mode with the ID key and enter a user ID or password on the keypad; also use to lock the copy module
- 11** Start key—begin to copy
- 12** Stop key—stop continuous copying
- 13** Clear key—initialize numeric values, such as copy counts
- 14** ACS key—enable and disable black-and-white/color auto identification
- 15** Full-color key—select four-color (full-color) mode
- 16** Black key—select black (mono-color) mode
- 17** Save power key—enable and disable Power Save mode
- 18** Clip holder—a recessed area for paperclips
- 19** Control panel power switch—turn power to the copy module on and off
- 20** Pilot lamp—stays lit when there is power to the copy module

Copy module functionality

Table 15. Copy module functionality

Mode	Description
Auto paper select	Measures the size of the original and the reduction/enlargement percentage, and selects the appropriate size for copies.
Auto enlarge/reduce	Enlarges/reduces to suit the selected paper size.
Full image	Reduces images slightly to avoid copying in the unprintable area.
Zoom	Enlarges/reduces images to preset or selected percentages.
X/Y zoom	Enables specification of different ratios for X and Y directions in percentages.
Enlarged page separation	Divides an image into several pages for output.
Text/photo/map	Adjusts copy algorithms to best match the type of original. * text/photo/map (default) * print photo * photo * black-and-white text
Auto start	Starts copying automatically after the warm-up/calibration process from power-on or jam removal.
Double-sided (requires duplexing unit)	Makes double-sided copies of two single-sided copies, or makes double-sided copies of the left and right pages of an original (page separation).
Interrupt copying	Allows interruption and resumption of continuous copying for quick copies of different originals.
Color auto recognition (ACS)	Automatically identifies a color or a black-and-white original.
Page separate	Print left and right pages of a book on separate pages.
Book frame erase	Erases shadows from originals.
Original frame erase	Erases the shadow and frames along the sides and the middle of a copy that is larger than the original.
Hole image erase	Erases the shadow of holes on a copy.
Second-side elimination	Blocks the image on the back of a double-sided original on a copy.
Shift	Shifts images to the center (or corner) of a copy.
Bind margin	Shifts the image of the original to create a blank width of zero to 20 mm along the side of the copy (left/right/top/bottom bind).
Sheet frame erase	Creates a blank width (7 mm) along the sides of a copy to prevent soiling or line images on the copy.
Reduce page compose	Requires an ADF.
Enlarge page compose	Divides the image of a single original into several copies (1 to 2, or 1 to 4).
ID	Enables copying only in response to an appropriate ID number or password.

User mode

The copy module provides an administrative-functions menu that allows for customized defaults to suit users' needs. Four administrative menus are available when  is pressed.

- Common settings
- Copy module settings
- Timer settings
- Adjustment/cleaning

The administrative-functions key also allows users to check the readings of six software counters from the control panel display.

Common settings

Table 16. Common settings

Name	Description	Remarks
Buzzer	Enables and disables the input sound, alarm sound, or job sound. ON: enable OFF: disable	Factory setting: ON
Cassette auto select	Enables and disables auto selection (auto paper selection and auto cassette change) for each cassette (including the side HCI). ON: enable OFF: disable	Factory setting: cassette 1/2, ON; multifeeders, OFF
Black text auto density adjust	In black-text mode, selects "priority on image quality," in which pre-scanning is enabled, or "priority on speed," in which there is no pre-scanning.	Factory setting: priority on speed
Priority on photo/text in black mode for text/photo/map	In black mode of text/photo/map mode, selects "text original" or "photo original" for image quality. In "priority on text original," text is reproduced more faithfully. In "priority on photo originals," photographs are reproduced more faithfully.	Factory setting: priority on photo original.
Save power	Selects a rate of saving for the copy module in power save mode: 10%: saving at 10% 25%: saving at 25% 50%: saving at 50% No recovery time: no saving	The "rate of saving" is the rate of saving in relation to the copy module's total power consumption. Factory setting: 10%
Inch input	Enables and disables input in inches on screen designed for metric inputs (shift width or bind width). ON: enable OFF: disable	Factory setting: OFF.

Copy module settings

Table 17. Copy module settings

Name	Description	Remarks
Preference key	Allows for up to two commonly-used special functions to be displayed as buttons on the main menu.	Factory settings: none
Standard mode	Stores copy module standard mode settings selected at power-on or in response to the Reset key being pressed.	Factory setting: copy count: 1 paper select: auto density: auto original type: text/photo/map
Settings reset	Initializes the items of the copy module settings to factory settings.	

Timer settings

Table 18. Timer settings

Name	Description	Remarks
Auto clear time	Automatically returns the touch-panel display to standard mode if no operation takes place for a set time after the end of key operation. Set the time to between zero and nine minutes in one-minute increments.	Factory setting: 2 minutes
Auto save power time	Automatically puts the copy module in save power mode if no operation takes place for a set time after the end of copying or key operation. Set the time to one, two, five, 10, 20, or 30 minutes, or to one to eight hours in one-hour increments.	Factory setting: 30 minutes
Shift to low power time	Automatically puts the copy module into low-power mode if no operation takes places for a set time after the end of copying or key operation. Set the time to 30 minutes or to one to eight hours in one-hour increments.	Factory setting: one hour In low power mode, the fusing assembly is deprived of power in specific intervals.
Auto power-off time	Automatically turns off the copy module if no operation takes place for a set time after the end of copying or key operation. Turn the setting off or set the time to one to 24 hours in one-hour increments.	Factory setting: two hours The setting is changed to "off" at installation.


Adjustment/cleaning

Table 19. Adjustment/cleaning

Name	Description	Remarks
Zoom fine adjustment	Make fine adjustments to correct small discrepancies between the original image and the copy image made in Direct. For X (left/right) and Y (front/back), adjustment is possible between -1.0% and +1.0%.	Factory setting: 0.
Exposure recalibration	Correct differences in density between the original image and a copy image that has been made with the manual density control set at the standard (median) value. Adjust the density correction to any of five settings.	Factory setting: standard (median)
Auto gradation adjustment	Correct poor color balance caused by discrepancies in fine adjustment or density adjustment.	See the section that follows for information about auto gradation adjustment.
Feeder cleaning	Feed ten blank sheets of paper through the optional ADF to pick up loose toner and other contaminants.	

Automatic gradation adjustment

To change the automatic gradation adjustment

- 1 Press the  key.
- 2 Press **ADJUSTMENT/CLEANING**.
- 3 Press **AUTO GRADATION ADJUSTMENT**.
- 4 Press **TEST PRINT 1**. The message **PRINTING TEST PRINT 1** appears on the copy module touch screen display.
- 5 Place the page from Test Print 1 on the copy module glass, face-down, with the black portion of the page aligned with the orange arrow, and then press **SCAN**. **SCANNING** appears on the display if the page was placed on the glass correctly. If not, **CORRECTLY PLACE THE TEST PRINT ON THE GLASS** appears; adjust the placement of the page and press **OK**.
- 6 After the page has been scanned, remove it from the copy module glass.
- 7 Repeat steps 4 through 6 for Test Print 2.
- 8 Repeat steps 4 through 6 for Test Print 3.
- 9 When scanning of Test Print 3 is complete, **SCAN IS COMPLETE** appears on the display for approximately two seconds.

Cold reset

To perform a cold reset on the print engine portion of the HP Color LaserJet 8550MFP, see the HP Color LaserJet 8500/8550 Printer Family Service Manual.

Cold reset on the copy module is useful in three circumstances:

- after replacement of the firmware dual inline memory modules (DIMM)
- after replacement of the reader controller printed circuit board (PCB)
- if a system settings password has been set and forgotten

For more information about cold resets, see page 96.

Original-set indicator (ADF)

The original-set indicator turns on when an original is placed on the document tray, and flashes when an original jams.

- 1 If the original is A3 or 11-by-17 inch in feeding length, open the original sub tray.
- 2 Set the side guide to suit the size of the original.

Note

The side guide lock must be removed if the width of the original is larger than 297 mm (A4/A3). For details, see “To remove the side guide lock” on page 382.

- 3 Place the originals with the first page on top.
- 4 As needed, set the appropriate copying mode on the copy module.
- 5 Press the copy module’s Copy Start key.

Warnings and actions

If the original-set indicator flashes while an original is being fed, suspect a jam and perform the following:

- 1 Remove the originals from the document tray.
- 2 Open the upper cover, and remove the jam. Then, open the ADF to reset the warning. (If any original is on the copyboard glass, remove it.)

CAUTION

If the jam is in the copy module, the copy module will run jam recovery mode and will automatically set the originals. Do not open the ADF to reset.

- 3 Set the originals in correct order, and set the stack in the ADF.

Self-diagnostic messages

If a self-diagnostic (error) message appears, see the instructions on the touch panel display.

If there is no message, but the HP Color LaserJet 8550MFP fails to make copies, there might be an error in the printer unit. Follow the instructions on the printer control panel display.

Table 20. Self-diagnostic (error) messages

Message	Cause	Solution
PAPER HAS JAMMED IN THE "_____" AREA. REMOVE THE JAMMED PAPER.	An original or copy media jam has occurred, halting any print or copy jobs.	See the location ("_____") and follow the removal procedures described in the screen for instructions to clear the jammed media.
RETURN PG.1 TO THE TOP AND PRESS THE START KEY AGAIN.	Copying was stopped because of a problem in the optional ADF.	Rearrange the originals in page order from the first page in the optional ADF, and then press the Start key.
REPLACE THE DRUM.	The drum cartridge is near the end of its life cycle.	Replace the drum kit.
SET THE DRUM CARTRIDGE.	The imaging drum is not installed correctly.	Reinstall the imaging drum.
SET THE FUSER UNIT.	The fuser unit is not installed correctly.	Reinstall the fuser unit.
SET THE INTERMEDIATE TRANSFER DRUM.	The intermediate transfer drum is not installed correctly.	Reinstall the intermediate transfer drum.
<COLOR> TONER NEEDS TO BE REPLACED.	There is a small amount of the toner remaining as indicated in the touch panel display.	Prepare the toner cartridge indicated in the touch panel display.
REPLACE THE <COLOR> TONER CARTRIDGE.	There is only a small amount of the toner remaining as indicated in the touch panel display, halting any print or copy jobs.	Replace the toner cartridge indicated in the copy module touch panel display.
LOAD PAPER.	The copy module has run out of media, halting any print or copy jobs.	Load media into one of the input trays.
LOAD LTRR-SIZE PAPER.	Copy media of the appropriate size and rotation is not placed in the selected media input tray.	Place copy media of the indicated size and rotation in the input tray. If the Start key is pressed while the message is shown, copying will be performed on the displayed copy media size.
ADJUSTING... WAIT A MOMENT, THEN SET THE STACK BYPASS SIZE AGAIN	The copy module is making internal operational adjustments.	Remove the media from Tray 1 (stack bypass), wait one minute, and the replace the media in the tray.

Service mode

Note

You cannot start service mode when the “Wait” message appears on the user screen after the power is turned on. Start service mode when the “Wait (Select Auto Start)” or “Enter Group ID and ID No.” message appears.

Overview

The copy module's service mode is divided into two major items, each with its own initial screen:

- COPIER (copier service screens begin on page 65)
- FEEDER (feeder service screens begin on page 114)

Each of these major items consists of sub-items, called “Level 1” items:

Table 21. Service mode sub-items

Initial screen	Level 1 menu	Mode
COPIER	DISPLAY	Control display mode
	I/O	I/O mode
	ADJUST	Adjust mode
	FUNCTION	Run/check mode
	OPTION	Settings mode
	TEST	Test print mode
	COUNTER	Counter mode
FEEDER	DISPLAY	Control display mode
	ADJUST	Adjust mode
	FUNCTION	Run/check mode
	OPTION	Settings mode

To start service mode and make selections



- 1 Press the administrative-functions key () on the control panel.
- 2 Press the 2 and 8 on the keypad simultaneously.
- 3 Press  again. The display changes to the screen shown in figure 10.



Figure 10. Service mode initial screen

- 4 Select an item on the touch panel. The screen for the selected item appears.

To end service mode

Press the Reset key to return to the service mode initial screen. Press the Reset key again to end service mode and return to the User screen.

Backing up copy module service settings

Figure 11 shows the label attached behind the lower front cover of the copy module.

COPIER/ADJUST		Factory	1	2	3	4	5	COPIER/ADJUST		Factory	1	2	3	4	5
ADJ-XY	ADJ-X							CCD	B-GB						
	ADJ-Y								AL-RG						
									AL-GB						
CCD	W-PLT-X														
	W-PLT-Y														
	W-PLT-Z														
	A-RG														
	B-RG														
	A-GB														
Body No.								Date.				FB4-0866			

Figure 11. Service label (inside the lower front cover of the copy module)

The copy module is adjusted at the factory, and the adjustment settings are recorded on this label.

- If you have replaced the reader controller PCB, the firmware DIMM, or the dc controller PCB (on the printer), you must reenter these numbers in service mode.
- If you have replaced the standard white plate, you must enter the new values found on the new standard white plate into service mode (W-PLT-X, W-PLT-Y, and W-PLT-Z).
- If you have replaced the CCD unit, you must enter the new values found on the new CCD into service mode (AL-RG and AL-GB).

Navigating service mode screens

The screens are arranged in three layers:

- initial screen (see figure 10 on page 61)
- Level 1/Level 2 screen
- Level 3 screen

Select one of the two major items on the initial screen (either **COPIER** or **FEEDER**) by pressing the item.

Note

Feeder is available only when an optional ADF is attached.

After you press one of the major items, the Level 1/Level 2 screen appears on the display. Figure 12 shows the Level 1/Level 2 screen that appears after **COPIER** is selected from the initial screen.

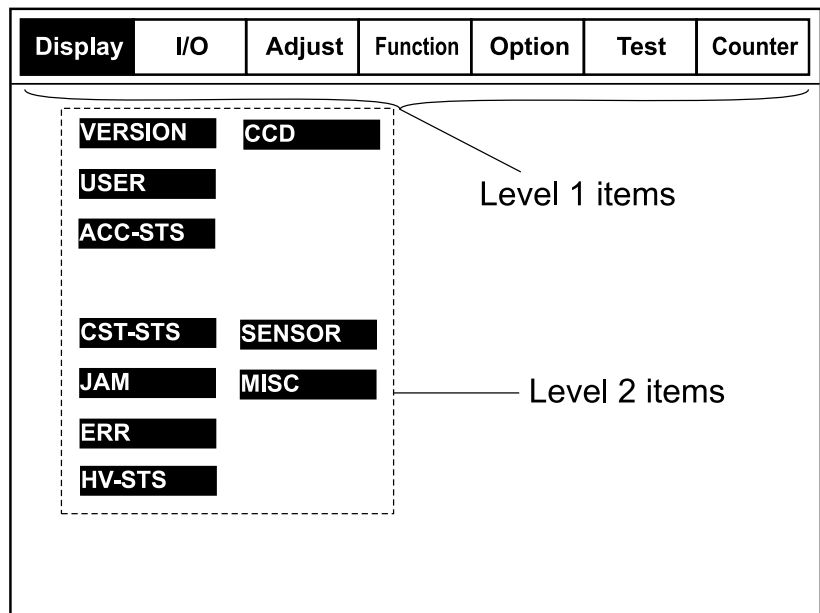


Figure 12. Example of a Level 1/Level 2 item screen

- Level 1 items are at the top of the screen. To select a Level 1 item, press an item shown across the top of the screen.
- To select a Level 2 item, select an item shown as white text on a black background.

After a Level 2 item is selected, a Level 3 screen appears. Figure 13 shows the Level 3 screen that appears after **COPIER**, from the initial screen, and **DISPLAY** and **VERSION**, from the Level 1/Level 2 screen, are selected.

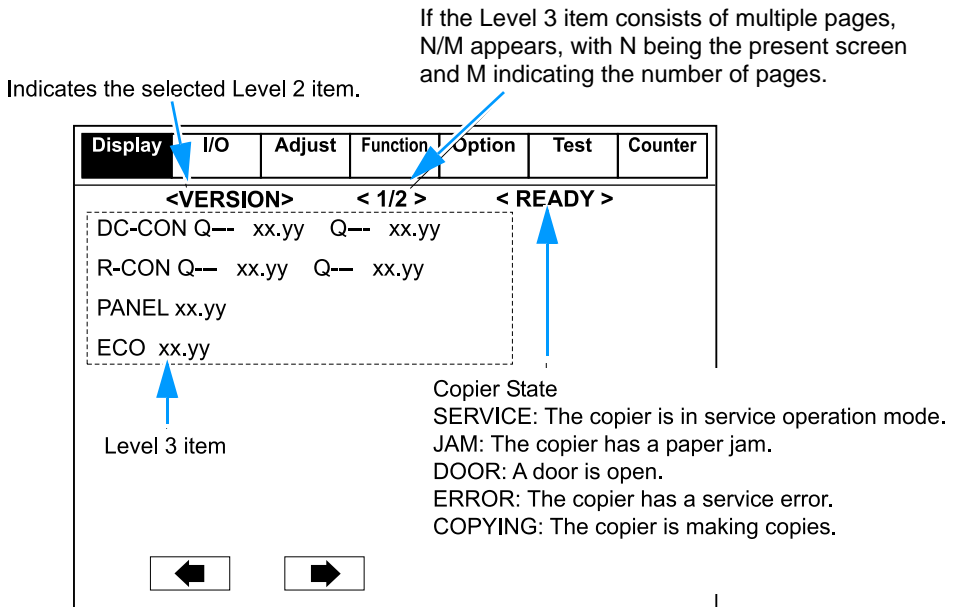


Figure 13. Example of a Level 3 screen

Press the Level 3 item to select it.

Copier, display mode (DISPLAY)

Display	I/O	Adjust	Function	Option	Test	Counter
<div> <div>VERSION</div> <div>CCD</div> </div> <div> <div>USER</div> </div> <div> <div>ACC-ST5</div> </div> <div> <div>CST-ST5</div> <div>SENSOR</div> </div> <div> <div>JAM</div> <div>MISC</div> </div> <div> <div>ERR</div> <div>ALARM-1</div> </div>						

Figure 14. Copier, display mode Level 1/Level 2 screen

Table 22. Copier, display mode menu

Item	Description
VERSION	Read-only memory (ROM) versions of the PCBs used in the copy module and accessories
USER	Indicates items related to the user screen and the user interface
ACC-ST5	Connection status of accessories (only if installed)
CST-ST5	State of use of cassettes and multifeder
JAM	Log of jams
ERR	Log of errors and alarms
CCD	Measured readings of the CCD
SENSOR	State of sensors (important in servicing)
MISC	Miscellaneous other conditions
ALARM-1	Latest alarm for the ADF

Table 23. Copier, display mode Level 2 and Level 3 menus

Level 2 item	Level 3 item	Description
VERSION	DC-CON	ROM version of the dc controller PCB "DC-CON xx.yy/XX.YY" xx.yy: ROM version that controls the communication between the video controller (LIPS, PS/PCL) PCB on the dc controller PCB, controls high voltage, and controls some loads (xx = version number; yy = R&D number) XX.YY: Version of the ROM which controls loads on the dc controller PCB (mechanical workings) (XX = version number; YY = R&D number)
	R-CON	ROM version of the reader controller PCB "R-CON: xx.yy" (xx = version number; yy = R&D number)
	PANEL	ROM version of the control panel controller PCB. "PANEL xx.yy" (xx = version number; yy = R&D number)
	ECO	ROM version of the ECP PCB "ECO xx.yy" (xx = version number; yy = R&D number)
	FEEDER	ROM version of the ADF controller PCB (if an ADF is installed) "FEEDER xx.yy" (xx = version number; yy = R&D number)
	SORTER	ROM version of the sorter driver PCB (not available on the HP Color LaserJet 8550MFP) "SORTER xx.yy" (xx = version number; yy = R&D number)
	DECK	ROM version of the deck controller PCB "DECK xx.yy" (xx = version number; yy = R&D number)
	OP-CON	ROM version of the ACC controller PCB "OP-CON xx.yy" (xx = version number; yy = R&D number)
USER	LANGUAGE	Selected language "LANGUAGE xx.yy,zz,aa" xx (first 2 digits): country code (see table 24) yy (last 2 digits): language code (see table 25) zz: destination code aa: series code (see table 26)
ACC-STS 0 = not connected 1 = connected)	FEEDER	Connection status of the ADF (if installed)
	SORTER	Connection status of the sorter (not available on the HP Color LaserJet 8550MFP)
	DECK	Connection status of the side HCI (if installed)
	EDITOR	Connection status of the editor (not available on the HP Color LaserJet 8550MFP)
	CARD	Connection status of the control card (not available on the HP Color LaserJet 8550MFP)
	DATA-CON	Connection status of the copy data controller (not available on the HP Color LaserJet 8550MFP)
	PCB	Connection status of various boards (9 = accessories control PCB)

Table 23. Copier, display mode Level 2 and Level 3 menus (continued)

Level 2 item	Level 3 item	Description
CTS-STC (width of media in terms of converted value or media size)	WIDTH-C1	Media width in cassette 1
	WIDTH-C2	Media width in cassette 2
	WIDTH-C3	Media width in cassette 3 (supports either a 1,000-sheet side side HCI or a 200-sheet paper deck)
	WIDTH-C4	Media width in cassette 4 (supports only a 2,000-sheet side HCI)
	WIDTH-MF	Media width in the multifeed
	WIDTH-DK	Media width in the side HCI (supports only a 1,000-sheet side side HCI)
JAM (jam history; see figure 15 on page 71 for screen setup)	AA	1 through 50 (lower numbers indicate more recent jams)
	E	Location (0 = copy module; 1 = ADF)
	FFFF	Jam code First two digits indicate the type of jam (see table 29 on page 72) Last two digits indicate the sensor that detected the jam (table 30 on page 73)
	G	Location of pickup (see table 31 on page 73)
	HHHHHH	Soft counter reading at the time of a jam
	IIII	Media size.
ERR (error history; see figure 16 on page 76 for screen setup)	AA	1 through 20 (higher numbers indicate older errors)
	EEEE	Error code "Exxx" (to decode error codes, see Chapter 7, "Troubleshooting")
	FFFF	Detail code (if not available, "0000")
	G	Location (0 = copy module; 1 = ADF)
CCD (CCD-related measured readings)	TARGET-B	Shading target value for blue
	TARGET-G	Shading target value for green
	TARGET-R	Shading target value for red
	BOF-B	Output value of the blue CCD (when the scanning lamp is off) "BOF-B-xx/yy" (xx = odd-numbered bit; yy = even-numbered bit)
	BOF-G	Output value of the green CCD (when the scanning lamp is off) "BOF-G-xx/yy" (xx = odd-numbered bit; yy = even-numbered bit)
	BOF-R	Output value of the red CCD (for when the scanning lamp is off) "BOF-R-xx/yy" (xx = odd-numbered bit; yy = even-numbered bit)

Table 23. Copier, display mode Level 2 and Level 3 menus (continued)

Level 2 item	Level 3 item	Description
CCD, continued (when "0" is set to COPIER > OPTION > BODY > SH-SW)	OFST-OB	Offset level (SH-SW = 0) of blue for CCD odd-numbered bits
	OFST-OG	Offset level (SH-SW = 0) of green for CCD odd-numbered bits
	OFST-OR	Offset level (SH-SW = 0) of red for CCD odd-numbered bits
	OFST-EB	Offset level (SH-SW = 0) of blue for CCD odd-numbered bits
	OFST-EG	Offset level (SH-SW = 0) of green for CCD odd-numbered bits
	OFST-ER	Offset level (SH-SW = 0) of red for CCD odd-numbered bits
	GAIN-OB	Offset level (SH-SW = 0) of blue for CCD odd-numbered bits
	GAIN-OG	Offset level (SH-SW = 0) of green for CCD odd-numbered bits
	GAIN-OR	Offset level (SH-SW = 0) of red for CCD odd-numbered bits
	GAIN-EB	Offset level (SH-SW = 1) of blue for CCD even-numbered bits
	GAIN-EG	Offset level (SH-SW = 1) of green for CCD even-numbered bits
	GAIN-ER	Offset level (SH-SW = 1) of red for CCD even-numbered bits
CCD, continued (when "1" is set to COPIER > OPTION > BODY > SH-SW)	POFST-OB	Offset level (SH-SW = 1) of blue for CCD odd-numbered bits
	POFST-OG	Offset level (SH-SW = 1) of green for CCD odd-numbered bits
	POFST-OR	Offset level (SH-SW = 1) of red for CCD odd-numbered bits
	POFST-EB	Offset level (SH-SW = 1) of blue for CCD even-numbered bits
	POFST-EG	Offset level (SH-SW = 1) of green for CCD even-numbered bits
	POFST-ER	Offset level (SH-SW = 1) of red for CCD even-numbered bits
	PGAIN-OB	Offset level (SH-SW = 1) of blue for CCD odd-numbered bits
	PGAIN-OG	Offset level (SH-SW = 1) of green for CCD odd-numbered bits
	PGAIN-OR	Offset level (SH-SW = 1) of red for CCD odd-numbered bits
	PGAIN-EB	Offset level (SH-SW = 1) of blue for CCD even-numbered bits
	PGAIN-EG	Offset level (SH-SW = 1) of green for CCD even-numbered bits
	PGAIN-ER	Offset level (SH-SW = 1) of red for CCD even-numbered bits
CCD, continued	CCD-TYPE	Indicates CCD or analog processor (0 = CCD, 1 = analog)
	TAR2-B	Shading target value for blue Needed when "1" is set to COPIER > OPTION > BODY > SH-SW (in other words, when the lamp intensity is decreased)
	TAR2-G	Shading target value for green Needed when "1" is set to COPIER > OPTION > BODY > SH-SW (in other words, when the lamp intensity is decreased)
	TAR2-R	Shading target value for red Needed when "1" is set to COPIER > OPTION > BODY > SH-SW (in other words, when the lamp intensity is decreased)

Table 23. Copier, display mode Level 2 and Level 3 menus (continued)

Level 2 item	Level 3 item	Description
SENSOR	SC-HP	Output of the scanner home position sensor (0 = home position, 1 = non-home position)
	W-TONER	Indicates that the waste toner case is almost full (0 = normal, 1 = full warning)
	DOC-SZ	Original size detected by the original size sensor (xxxx = A4, A3, B4, B5, and so on)
	DRUMLIFE	Life of the photosensitive drum in the drum cartridge: 0 = normal 1 = warning 1 (70%) 2 = warning 2 (100%, at which point the copy module cannot ensure normal levels of quality) 4 = memory error
MISC	DSNS-ALM	The density sensor is faulty on the printer side; indicates that the value is outside the stable image guarantee range for the printer (0 = normal, 1 = error) Check the sensors and the condition of the intermediate transfer drum. If the warning remains, density control will fail, bringing about gradual deterioration of image quality.
	Y-OUTRNG	Indicates that the value is outside the stable Y image guarantee range for the printer unit (0 = normal, 1 = error)
	M-OUTRNG	Indicates that the value is outside the stable M image guarantee range for the printer unit (0 = normal, 1 = error)
	C-OUTRNG	Indicates that the value is outside the stable C image guarantee range for the printer unit (0 = normal, 1 = error)
	K-OUTRNG	Indicates that the value is outside the stable K image guarantee range for the printer unit (0 = normal, 1 = error)
	ENV-DENS	Site environment; checks the temperature and humidity inside the printer and indicates the environmental range for density control 0: normal temperature/normal humidity (N/N) 1: high temperature/high humidity (H/H) 2: normal temperature/low humidity (N/L) 3: low temperature/low humidity (L/L)
	ENV-TR	Site environment; checks the temperature and humidity inside the printer and indicates the environmental range for transfer control 0: N/N 1: H/H 2: N/L 3: L/L
	FL-LIFE	Life of the scanning lamp (0 = normal, 1 = warning); when end-of-life is reached, E219 is indicated
ALARM-1	DF	Latest ADF error ("00" if no errors)

Copier, display mode, user > language details

Table 24. Country code

Code	Country	Code	Country
IT	Italy	AU	Australia
US	North America	FR	France
SG	General	DE	Germany
GB	United Kingdom	NL	Netherlands

Table 25. Language code

Code	Language	Code	Language
JA	Japanese	DE	German
EN	English	IT	Italian
FR	French		

Table 26. Series code

Code	Configuration	Code	Configuration
00	AB	02	A
01	Inch	03	All configurations

Copier, display mode, jam details

Display	I/O	Adjust	Function	Option	Test	Counter
< JAM >			< 1/7 >	< READY >		
AA	----	----	----	E	FFFF	G HHHHHH IIII
AA	----	----	----	E	FFFF	G HHHHHH IIII
AA	----	----	----	E	FFFF	G HHHHHH IIII
AA	----	----	----	E	FFFF	G HHHHHH IIII
AA	----	----	----	E	FFFF	G HHHHHH IIII
AA	----	----	----	E	FFFF	G HHHHHH IIII
AA	----	----	----	E	FFFF	G HHHHHH IIII
AA	----	----	----	E	FFFF	G HHHHHH IIII
<div> <div>◀</div> <div>▶</div> </div>						

Figure 15. JAM screen

Table 27. JAM screen legend

Item	Description
AA	1 through 50 (lower numbers indicate more recent jams)
E	Location (0 = copy module; 1 = ADF)
FFFF	Jam code First two digits indicate the type of jam (see table 29 on page 72) Last two digits indicate the sensor that detected the jam (table 30 on page 73)
G	Location of pickup (see table 31 on page 73)
HHHHHH	Soft counter reading at the time of a jam
IIII	Media size.

Copier, display mode, jam details (continued)

the copy module distinguishes 14 types of jams (including jams in the duplexing unit). Table 28 below shows the combination of codes.

Table 28. Types of jams

First 2 digits	Last 2 digits	Jam type
01	01	Pick-up delay jam 2
	02	Intermediate transfer drum jam
	03	Face-down delivery outlet delay jam
	04	Pick-up delay jam 1
	06	Fusing delivery delay jam
	07	Duplexing feeding assembly delay jam
	08	Reversing assembly delay jam
01	01	Delivery long-length paper jam
	03	Face-down delivery outlet stationary jam
	05	Non-default-size paper feeding jam
	06	Fusing delivery stationary jam
	08	Reversing assembly stationary jam
10	10	Internal residual jam
11	11	Door-open jam

Table 29. First 2 digits of FFFF (type of jam)

Code	Description
00	ADF jam
01	Delay jam
02	Stationary jam
10	Residual jam at power-on
11	Door open/closed during copying

Copier, display mode, jam details (continued)

Table 30. Last 2 digits of FFFF (jam sensor)

Code	Description	Sensor
01	Registration paper sensor	PS1
02	Separation sensor	PS5
03	Face-down tray delivery sensor	PS11
04	Pick-up assembly paper sensor	PS17
05	Transparency sensors 1 and 2	PS1801, PS1802
06	Fusing delivery sensor	PS1903
07	Duplexing unit paper sensor	PS24
08	Reversal paper sensor	PS26
10	Separation sensor, face-down tray delivery sensor, pick-up assembly paper sensor, or fusing delivery sensor	PS5, PS11, PS17, or PS1903
11	Registration paper sensor, separation sensor, face-down tray delivery sensor, pick-up assembly paper sensor, transparency sensors 1 and 2, or fusing delivery sensor	PS1, PS, PS11, PS17, PS1801, PS1802, or PS1903

Table 31. G (pick-up position)

Code	Description
1	Cassette 1
2	Cassette 2
3	Cassette 3 (supports the two 500-sheet paper decks and the 2,000-sheet paper deck)
4	Cassette 4 (supports the two 500-sheet paper decks)
8	Multifeeder
9	Duplexing unit (accessory)

Copier, display mode, jam details (continued)

Table 32. Pick-up jams

Type of original	Sensor	Description	Code
Original extraction	S1, S7	The sensor S7 does not detect the leading edge of an original 1500 msec after pick-up motor M1 has turned on and, in addition, the sensor S1 does not detect an original.	0001
Pick-up delay	S7	The sensor S7 does not detect the leading edge of an original 1500 msec after the pick-up motor M1 has turned on.	0002
Registration delay	S3, S7	The sensor S3 does not detect the leading edge of an original 350 msec after the sensor S7 has detected the leading edge of an original.	0003

Table 33. Detecting jams

Original placement	Sensor	Description	RF operation	Code
Recirculation lever idle rotation	S1	The recirculation lever rotates idly without coming into contact with an original immediately after the recirculation motor (M4) turns on.	Stops operating upon detection.	01
Pick-up failure	S7	The sensor S7 does not detect the leading edge of an original in 1500 msec during pick-up.	The separation belt, feeding roller, and pick-up roller stop immediately. The ADF stops after discharging the preceding originals.	03
Paper overriding the stopper plate	S7	The original has overridden when placed.	Stops operating upon detection.	05
Different number of originals after jam removal	S3	The number of originals placed on the document tray has changed as follows*: Number at end Number set on of copying document tray	Stops operating upon detection.	11

Table 33. Detecting jams (continued)

Original placement	Sensor	Description	RF operation	Code
Unidentified number of originals	S3	The recirculating bar does not fall below the document tray, not enabling the detection of the last original. Reference: Normally, the document tray is capable of holding 50 sheets of A5, STMT, A4, B5, or Letter; 25 sheets of A3, B4, 279 X 432 mm (11-by-17-inch), or Legal.	Stops operating after counting up to 100 sheets.	12
Original extraction	S14	The recirculating drops on the document tray while an original is being processed.	Stops operating upon detection.	13
Wrong original size	S3	The size of the original which is picked up is not of a default size.	Stops operating upon detection.	14
Wrong original size or mixed original sizes in reduced page composition (Note 1)	S3	1. The original which has been picked up is not of a size supported by reduced image composition mode. 2. The size of the original which has been picked up is of a size different from the first original.	Stops operating upon detection.	15

1To reset, remove the originals from the document tray, and open the ADF.

Copier, display mode, err details

Display	I/O	Adjust	Function	Option	Test	Counter
< ERR >			< 1/3 >		< READY >	
AA	----	----	----	EEEE	FFFF	G 00
AA	----	----	----	EEEE	FFFF	G 00
AA	----	----	----	EEEE	FFFF	G 00
AA	----	----	----	EEEE	FFFF	G 00
AA	----	----	----	EEEE	FFFF	G 00
AA	----	----	----	EEEE	FFFF	G 00
AA	----	----	----	EEEE	FFFF	G 00
AA	----	----	----	EEEE	FFFF	G 00
<div>◀</div>			<div>▶</div>			

Figure 16. ERR screen

Table 34. ERR screen legend

Item	Description
AA	1 through 20 (higher numbers indicate older errors)
EEEE	Error code "Exxx" (to decode error codes, see Chapter 7, "Troubleshooting")
FFFF	Detail code (if not available, "0000")
G	Location (0 = copy module; 1 = ADF)

Copier, I/O mode (I/O)

Display	I/O	Adjust	Function	Option	Test	Counter
<div>DC-CON</div> <div>R-CON</div> <div>FEEDER</div>						

Figure 17. Copier, I/O mode Level 1/Level 2 screen

Table 35. Copier, I/O mode descriptions

Item	Description
DC-CON	Input/output state of the CPU on the dc controller PCB
R-CON	Input/output state of the CPU on the reader controller PCB
FEEDER	State of the CPU on the feeder controller PCB

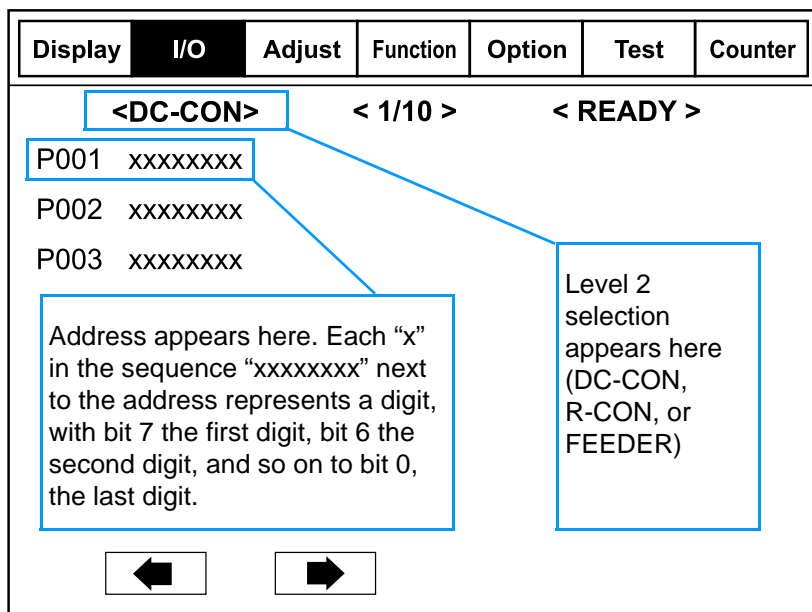


Figure 18. Copier, I/O mode Level 3 screen example

Table 36. Copier, I/O mode Level 2 and Level 3 menus

Level 2	Level 3 (address)	Bit	Item	Description
DC-CON (input ports of the dc controller PCB)	P001	4	FDOUT	Face-down tray delivery sensor (PS11) ("1" when paper is detected)
		3	FXOUTS	Fusing delivery sensor (PS1903) ("1" when paper is detected)
		2	SEPS	Separation sensor (PS5) ("1" when paper is detected)
		1	FEEDS	Pick-up paper sensor (PS17) ("1" when paper is detected)
		0	REGS	Registration paper sensor (PS1) ("1" when paper is detected)
	P002	5	SWBKS	Duplexing unit reversal paper sensor (PS26) ("1" when paper is detected) For bit 5, the door must be closed. Defeat the door switch to simulate a closed door.
		4	DUPPS	Duplexing unit paper sensor (PS24) ("1" when paper is detected) For bit 4, the door must be closed. Defeat the door switch to simulate a closed door.
		3	LDECKS	Cassette 2 paper sensor (PS1207) ("1" when paper is detected)
		1	UPDECKS	Cassette 1 paper absent sensor (PS1208) ("1" when paper is detected)
		0	MPDFS	Multifeeder tray last paper sensor (PS19) ("1" when no more than one sheet is set)
	P003	1	TMPSNS	Temperature and humidity sensor 00: normal temperature/normal humidity 01: high temperature/high humidity 10: normal temperature/low humidity 11: low temperature/low humidity
		0	HUMSNS	

Table 36. Copier, I/O mode Level 2 and Level 3 menus (continued)

Level 2	Level 3 (address)	Bit	Item	Description
R-CON (input/output state of the CPU on the reader controller PCB)	P001	6	---	SW7 of SW1601
		5	---	SW6 of SW1601
		4	---	SW5 of SW1601
		3	---	SW4 of SW1601
		2	---	SW3 of SW1601
		1	---	SW2 of SW1601
		0	---	SW1 of SW1601
	P002	7	DSZ4	Original size sensor 4 (PS106)
		6	DSZ3	Original size sensor 3 (PS105)
		5	DSZ2	Original size sensor 2 (PS104)
		4	DSZ1	Original size sensor 1 (PS103)
	P003	5	FLPWN	Scanning lamp activation
	P004	7	FLERR	Scanning lamp error signal ("1" if error)
		3	CCIVCON E*	Control card connected signal ("1" when connected)
		1	FM4DEC	Power supply fan locked signal ("1" when locked)
		0	CBCC	Copyboard cover open/close sensor (PS102) ("1" when closed)
	P005	2	KEYSW	Control key switch signal ("1" when on)
	P006	7	ACCON	Accessories power supply connected signal ("1" when connected)
		6	YON	Scanning lamp pre-heat ON signal
		5	FLONOUT	Scanning lamp ON signal
		1	MMIRST	LCD control panel rest signal
	P008	4	LPHTON	Scanning lamp heater ON signal
		1	FM4ON	Power supply fan (FM4) drive signal ("1" when rotating)
		0	BLON*	LCD control panel back-light ON signal ("1" when on)
	P009	2	ASTCNT	Copy data control counter signal
		1	CCIVCNT	Control card counter signal
	P013	0	FL_TH	Scanning lamp thermistor signal
	P022	2	SOFSWON	Power soft switch ON signal ("1" when on)

Table 36. Copier, I/O mode Level 2 and Level 3 menus (continued)

Level 2	Level 3 (address)	Bit	Item	Description
FEEDER (input ports of the feeder controller PCB)	P001	3	BDIR	Belt motor (M3) rotation direction signal ("1" when in correct delivery mode)
		2	SMPSL	Stamp solenoid (SL4) drive ("1" when on)
		1	FLPSL1	Paper deflecting plate solenoid (SL3) drive ("1" when on)
		0	STPSL	Stopper plate solenoid (SL1) drive ("1" when on)
	P002	2	SPRS	Pick-up sensor (S7) ("1" when paper is present)
		1	EJTS1	Delivery sensor 1 (S6) ("1" when paper is present)
		0	TLIRNS	Reversal sensor (S8) ("1" when paper is present)
	P003	5	RSS	Recirculation sensor (S14) ("1" when paper is present)
	P004	4	DCTS	Pick-up roller sensor (S13) ("1" when paper is present)
		3	ECLK	Delivery motor clock sensor (S13) (alternates "0" and "1" when rotating)
		2	RCLK	Registration roller clock sensor (S11) (alternates "0" and "1" when rotating)
		1	FCLK	ADF motor clock sensor (S9) (alternates "0" and "1" when rotating)
		0	BCLK	Belt motor clock sensor (S10) (alternates "0" and "1" when rotating)
	P006	7	SMON	Pick-up motor (M1) drive signal ("1" when on)
		6	SMPWM	Pick-up motor (M1) speed signal ("0" or "1" according to speed)
		4	FMPWM	ADF motor (M2) speed signal ("0" or "1" according to speed)
		3	BMON	Belt motor (M3) drive signal ("1" when on)
		2	BMPWM	Belt motor (M3) speed signal ("0" or "1" according to speed)

Table 36. Copier, I/O mode Level 2 and Level 3 menus (continued)

Level 2	Level 3 (address)	Bit	Item	Description
FEEDER, continued	P007	7	WGTSL	Paper holding plate solenoid (SL2) ("1" when on)
		6	CL	Clutch (CL) drive ("1" when on)
		5	BK	Brake (BK) drive ("1" when on)
		3	ORGLD	Original indicator LED (LED101, LED 102) ("0" when on)
		2	RSDRV	Recirculation motor (M5) drive signal ("1" when on)
		1	SDIR	Pick-up motor (M1) direction signal ("1" when in top-separation mode)
		0	EMPWM	Delivery motor (M5) speed signal ("0" or "1" according to speed)
	P008	5	RFC	ADF switch (MS1) ("1" when open)
		4	UPCC1, CVRSW	Upper cover switch (MS2), Upper cover sensor (S4) ("0" when upper cover is open)
		3	EJTS2	Delivery sensor 2 (S12) ("1" when paper is present)
		2		SW3 on feeder controller PCB ("1" when pushed)
		1		SW2 on feeder controller PCB ("1" when pushed)
		0		SW1 on feeder controller PCB ("1" when pushed)
	P009	1	---	LED2 on feeder controller PCB ("0" when on)
		0	---	LED1 on feeder controller PCB ("0" when on)
	P010	7	---	DSW1-8 on feeder controller PCB ("1" when on)
		6	---	DSW1-7 on feeder controller PCB ("1" when on)
		5	---	DSW1-6 on feeder controller PCB ("1" when on)
		4	---	DSW1-5 on feeder controller PCB ("1" when on)
		3	---	DSW1-4 on feeder controller PCB ("1" when on)
		2	---	DSW1-3 on feeder controller PCB ("1" when on)
		1	---	DSW1-2 on feeder controller PCB ("1" when on)
		0	---	DSW1-1 on feeder controller PCB ("1" when on)

Copier, adjust mode (ADJUST)

Display	I/O	Adjust	Function	Option	Test	Counter
		BLANK				
	AE					
ADJ-XY	PASCAL					
CCD	COLOR	FEED-ADJ				
IMG-REG	HV-TR					
		MISC				
DENS						

Figure 19. Copier, adjust mode Level 1/Level 2 screen

Table 37. Copier, adjust menu descriptions

Item	Description
AE	Adjust AE mode
ADJ-XY	Adjust the image position
CCD	Adjust CCD- and shading-related items
IMG-REG	Correct color displacement
DENS	Adjust developing density-related items
BLANK	Adjust the image margins
PASCAL	Execute auto gradation correction control
COLOR	Adjust color balance
HV-TR	Adjust transfer charging bias output by condition
FEED-ADJ	Adjust ADF-related items
MISC	Other

Table 38. Copier, adjust mode Level 2 and Level 3 menus

Level 2 item	Level 3 item	Range	Description
AE	AE-TBL	+1 to +9 Standard = 5	Adjust if the density of the text is too low (light text) with priority on speed in AE mode (black-and-white text mode only). Use higher settings for darker print.
	BE-TBL	+1 to +9	Adjust if the density of the text is too high (dark text), with priority on speed in AE mode (black-and-white text mode only).
ADJ-XY See the details after this table on page 90	ADJ-X	0 to +32	Moves the image on the copied page (X direction).
	ADJ-Y	0 to +255	Moves the image on the copied page (Y direction).
CCD	W-PLT-X	+2000 to +11997	Standard white plate X signal data. See the details after this table on page 90.
	W-PLT-Y	+2000 to +11997	Standard white plate Y signal data.
	W-PLT-Z	+2000 to +11997	Standard white plate Z signal data.
	A-RG	9 to +9	Correct color displacement in sub-scanning direction dependent on R-G ratio.
	B-RG	9 to +9	Correct color displacement in sub-scanning direction not dependent on R-G ratio.
	A-GB	9 to +9	Correct color displacement in sub-scanning direction dependent on G-B ratio.
	B-GB	9 to +9	Correct color displacement in sub-scanning direction not dependent on G-B ratio.
	AL-RG	9 to +9	Correct color displacement in sub-scanning direction dependent on R-G ratio for the lens unit. Note: this number is specified on the CCD unit.
	AL-GB	9 to +9	Correct color displacement in sub-scanning direction dependent on G-B ratio for the lens unit. Note: this number is specified on the CCD unit.

Table 38. Copier, adjust mode Level 2 and Level 3 menus (continued)

Level 2 item	Level 3 item	Range	Description
IMG-REG See additional information on page 90.	REG-V-Y	-7 to +8	Adjusts the Y pattern start position (1st page, sub-scanning direction) when M is the color of reference.
	REG-V-C	-7 to +8	Adjusts the C pattern start position (1st page, sub-scanning direction) when M is the color of reference.
	REG-V-K	-7 to +8	Adjusts the K pattern start position (1st page, sub-scanning direction) when M is the color of reference.
	REG2-V-Y	-7 to +8	Adjusts the Y pattern start position (2nd page, sub-scanning direction) when M is the color of reference.
	REG2-V-C	-7 to +8	Adjusts the C pattern start position (2nd page, sub-scanning direction) when M is the color of reference.
	REG2-V-K	-7 to +8	Adjusts the K pattern start position (2nd page, sub-scanning direction) when M is the color of reference.
DENS Higher settings increase the toner deposit; lower settings decrease the toner deposit. Note: Effective only during copying operation.	DM-FIX-Y	-7 to +8	Adjusts Y density (toner deposit) for the printer unit to correct fusing faults.
	DM-FIX-M	-7 to +8	Adjusts M density (toner deposit) for the printer unit to correct fusing faults.
	DM-FIX-C	-7 to +8	Adjusts C density (toner deposit) for the printer unit to correct fusing faults.
	DM-FIX-K	-7 to +8	Adjusts K density (toner deposit) for the printer unit to correct fusing faults.
	DM-TR-Y	-7 to 0	Adjusts Y density (toner deposit) for the printer unit to correct transfer faults.
	DM-TR-M	-7 to 0	Adjusts M density (toner deposit) for the printer unit to correct transfer faults.
	DM-TR-C	-7 to 0	Adjusts C density (toner deposit) for the printer unit to correct transfer faults.
	DM-TR-K	-7 to 0	Adjusts K density (toner deposit) for the printer unit to correct transfer faults.
BLANK In "Range" (third column), 100 = 4.2 mm. Defaults: 118. See additional information on page 91.	BLANK-T	0 to +65535	Adjusts the right blank margin (for A4- or letter-size paper). Higher settings increase the margin.
	BLANK-L	0 to +65535	Adjusts the left blank margin (for A4- or letter-size paper). Higher settings increase the margin.
	BLANK-R	0 to +65535	Adjusts the bottom blank margin (for A4- or letter-size paper). Higher settings increase the margin.
	BLANK-B	+118 to +65535	Adjusts the top blank margin (for A4- or letter-size paper). Higher settings increase margin.

Table 38. Copier, adjust mode Level 2 and Level 3 menus (continued)

Level 2 item	Level 3 item	Range	Description
PASCAL See additional information on page 91.	LUT-P-Y	-4 to +3	Fine-adjust the gradation control level (correction table) for Y.
	LUT-P-M	-4 to +3	Fine-adjust the gradation control level (correction table) for M.
	LUT-P-C	-4 to +3	Fine-adjust the gradation control level (correction table) for C.
	LUT-P-K	-4 to +3	Fine-adjust the gradation control level (correction table) for K.
	LUT-P-1	-4 to +3	Fine-adjust the gradation control level (correction table, image processing pattern A).
	LUT-P-2	-4 to +3	Fine-adjust the gradation control level (correction table, image processing pattern B).
	LUT-P-3	-4 to +3	Fine-adjust the gradation control level (correction table, image processing pattern C).
COLOR Higher settings in ADJ categories make colors darker. Higher settings in OFST categories reduce fogging.	ADJ-Y	-8 to +8	Adjusts the color balance for Y for the user.
	ADJ-M	-8 to +8	Adjusts the color balance for M for the user.
	ADJ-C	-8 to +8	Adjusts the color balance for C for the user.
	ADJ-K	-8 to +8	Adjusts the color balance for K for the user.
	OFST-Y	-8 to +8	Adjusts the color balance and the density of light areas of Y.
	OFST-M	-8 to +8	Adjusts the color balance and the density of light areas of M.
	OFST-C	-8 to +8	Adjusts the color balance and the density of light areas of C.
	OFST-K	-8 to +8	Adjusts the color balance and the density of light areas of K.

Table 38. Copier, adjust mode Level 2 and Level 3 menus (continued)

Level 2 item	Level 3 item	Range	Description
HV-TR See additional information on page 92. Environment codes are shown under the Level 3 item "ENV-DENS" on page 69.	TR-N1M	0 to +15 Default = 8	For a N/N environment, use it to adjust the secondary transfer bias for single-sided printing or first-side printing of double-sided printing on plain paper.
	TR-N1H	0 to +15 Default = 8	For a H/H environment, use it to adjust the secondary transfer bias for single-sided printing or first-side printing of double-sided printing on plain paper.
	TR-N1L	0 to +15 Default = 8	For a L/L environment, use it to adjust the secondary transfer bias for single-sided printing or first-side printing of double-sided printing on plain paper.
	TR-N2M	0 to +15 Default = 8	For a N/N environment, use it to adjust the secondary transfer bias for second-side printing of double-sided printing on plain paper.
	TR-N2H	0 to +15 Default = 8	For a H/H environment, use it to adjust the secondary transfer bias for second-side printing of double-sided printing on plain paper.
	TR-N2L	0 to +15 Default = 8	For a L/L environment, use it to adjust the secondary transfer bias for second-side printing of double-sided printing on plain paper.
	TR-N1N/L	0 to +15 Default = 8	For a N/L environment, use it to adjust the secondary transfer bias for single-sided printing or first-side printing of double-sided printing on plain paper.
	TR-N2N/L	0 to +15 Default = 8	For a N/L environment, use it to adjust the secondary transfer bias for second-side printing of double-sided printing on plain paper.
	TR-TSM	0 to +15 Default = 8	For a N/N environment, use it to adjust the secondary transfer bias for thick, small-size paper.
	TR-TSH	0 to +15 Default = 8	For a H/H environment, use it to adjust the secondary transfer bias for thick, small-size paper.
	TR-TSL	0 to +15 Default = 8	For a L/L environment, use it to adjust the secondary transfer bias for thick, small-size paper.
	TR-TSN/L	0 to +15 Default = 8	For a N/L environment, use it to adjust the secondary transfer bias for thick, small-size paper.
	TR-TLM	0 to +15 Default = 8	For a N/N environment, use it to adjust the secondary transfer bias for thick, large-size paper.

Table 38. Copier, adjust mode Level 2 and Level 3 menus (continued)

Level 2 item	Level 3 item	Range	Description
HV-TR (continued)	TR-TLH	0 to +15 Default = 8	For a H/H environment, use it to adjust the secondary transfer bias for thick, large-size paper.
	TR-TLL	0 to +15 Default = 8	For a L/L environment, use it to adjust the secondary transfer bias for thick, large-size paper.
	TR-TLN/L	0 to +15 Default = 8	For a N/L environment, use it to adjust the secondary transfer bias for thick, large-size paper.
	TR-OSM	0 to +15 Default = 8	For a N/N environment, use it to adjust the secondary transfer bias for a small-size transparency.
	TR-OSH	0 to +15 Default = 8	For a H/H environment, use it to adjust the secondary transfer bias for a small-size transparency.
	TR-OSL	0 to +15 Default = 8	For a L/L environment, use it to adjust the secondary transfer bias for a small-size transparency.
	TR-OSN/L	0 to +15 Default = 8	For a N/L environment, use it to adjust the secondary transfer bias for a small-size transparency.
	TR-OLM	0 to +15 Default = 8	For a N/N environment, use it to adjust the secondary transfer bias for a large-size transparency.
	TR-OLH	0 to +15 Default = 8	For a H/H environment, use it to adjust the secondary transfer bias for a large-size transparency.
	TR-OLL	0 to +15 Default = 8	For a L/L environment, use it to adjust the secondary transfer bias for a large-size transparency.
	TR-OLN/L	0 to +15 Default = 8	For a N/L environment, use it to adjust the secondary transfer bias for a large-size transparency.

Table 38. Copier, adjust mode Level 2 and Level 3 menus (continued)

Level 2 item	Level 3 item	Range	Description
FEED-ADJ See additional information on page 92.	REGIST	0 to +52 Default = 18	Adjusts the timing at which the registration clutch turns on (1st page of 1-page mode and 1st page of 2-page mode only). Higher settings decrease the leading edge margin.
	ADJ-C1	1 to +62 Default = 32	Adjusts the image-write start position in main scanning direction for the cassette 1.
	ADJ-C2	1 to +62 Default = 32	Adjusts the image-write start position in main scanning direction for the cassette 2.
	ADJ-MF	1 to +62 Default = 32	Adjusts the image-write start position in main scanning direction for the multifeeders.
	REGIST2	0 to +52 Default = 18	Adjusts the timing at which the registration clutch turns on (2nd and subsequent pages in 1-page mode or 2nd and subsequent pages in 2-page mode). Higher settings decrease the leading edge margin.
MISC	SEG-ADJ	-4 to +4	Adjusts the degree of distinction between text and photo in text/photo/map mode. + values tend to identify as photo; - values tend to identify as text
	K-ADJ	-3 to +3	Adjusts the degree of back for black-text identification. Higher settings tend to identify text as black.
	ACS-ADJ	-3 to +3	Adjusts the area of color recognition for ACS. + values tend to identify as black original; - values tend to identify as color original.
	ACS-EN	-2 to +2	When an image is being read for ACS, a large area of displaced color in a leading edge/ trailing edge/side width (main scanning direction) can cause wrong identification. Use ACS-EN to limit the area of ACS. + values increase the area; - values decrease the area
	ACS-CNT	-2 to +2	Adjusts the area in which pixels are counted for identification of chromatic components for ACS. + values increase the area. Fine, colored lines might be identified as part of a color original, but identification is affected more by color displacement. - values decrease the area. The absence of chromatic pixels in a wide area of an original will prevent the original from being identified as colored, but identification is affected less by color displacement.

Copier, adjust mode, ADJ-XY details

Image-read start positions (X-direction and Y-direction) will return to the standard settings when the reader controller PCB is replaced, the RAM on the reader controller PCB is initialized, or the DIMM is replaced, requiring you to reenter the settings. Record new settings on the service label on the copy module if you have changed the settings or replaced parts.

Copier, adjust mode, CCD details

- If you replace the standard white plate, you must enter the values indicated on the bar code of the new standard white plate.
- If you replace the CCD, you must enter the values indicated on the bar code of the new CCD.

Enter the values in service mode, and then record the values on the service label on the copy module.

Copier, adjust mode, IMG-REG details (color image displacement)

Higher settings move the pattern toward the trailing edge. The range is -7 pixels to +8 pixels (with 0 as the standard setting). To change a setting:

- 1 Enter the setting.
- 2 Press **OK**.
- 3 Select **FUNCTION > MISC-P > DC-LOAD**.
- 4 Press **OK**.
- 5 Turn off and then back on the control panel power soft switch.
- 6 Perform auto gradation adjustment.

Copier, adjust mode, BLANK details

Figure below shows the four blank margins for an A4- or letter-size sheet.

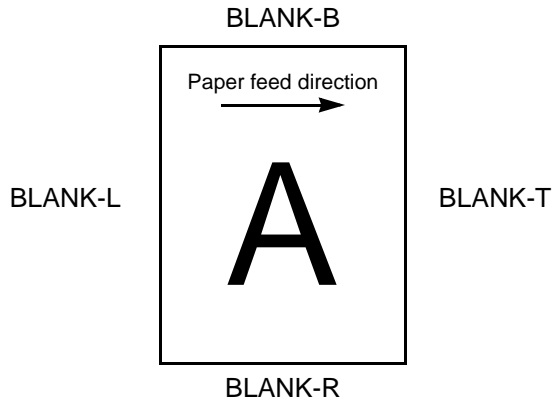


Figure 20. BLANK margins

Copier, adjust mode, PASCAL details

LUT-P-Y, LUT-P-M, LUT-P-C, and LUT-P-K settings:

The density of Dhalf after auto gradation correction control and the density of Dhalf during image gradation correction control are compared to adjust the LUT gain for correction of each color.

LUT-P-1, LUT-P-2, and LUT-P-3 settings:

The density of Dhalf after auto gradation correction control and the density of Dhalf during image gradation correction control are compared to adjust the LUT gain for image processing patterns A, B, and C (which correspond to Test Prints 1, 2, and 3 used in auto gradation correction control).

Copier, adjust mode, HV-TR and FEED-ADJ details

Note

The following information applies to both HV-TR (transfer charging bias output by condition) and FEED-ADJ (feeding system).

To change a setting:

- 1 Enter a setting.
- 2 Press **OK**.
- 3 Select **FUNCTION** > **MISC-P** > **DC-LOAD**.
- 4 Press **OK**.
- 5 Turn off and then back on the control panel power soft switch.
- 6 Perform auto gradation adjustment.

Copier, run/check mode (FUNCTION)

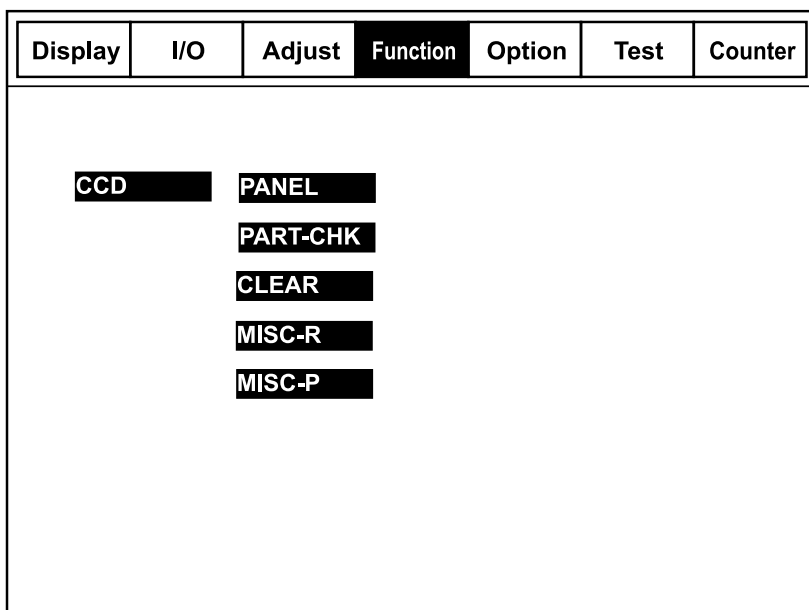


Figure 21. Copier, run/check mode Level 1/Level 2 screen

Table 39. Copier, run/check mode menu descriptions

Item	Description
CCD	Execute automatic adjustment of CCD-/shading-related items.
PANEL	Check the control panel.
PART-CHK	Check the various electric parts.
CLEAR	Initialize RAM and resets jam/error code histories.
MISC-R	Various adjustments and checks for the copy module.
MISC-P	Various adjustments and checks for the printer.

The state of the copy module is indicated in the upper right corner of the screen. Take note of the indications. While this mode is being executed, the indications will be as follows:

- **READY**—copy module is ready for servicing/printing operations
- **SERVICE**—the copy module is executing servicing operations (for example, running a check in service mode)

Table 40. Copier, run/check mode Level 2 and Level 3 menus

Level 2 item	Level 3 item	Outline
CCD	CCD-ADJ	To start auto-adjustment, press CCD-ADJ and then press OK. At the end of auto-adjustment, "End" appears on the screen. Note: This adjustment is performed automatically each time the copier is turned on.
	FILT-B	Ensure that the B signal is generated by the CCD correctly by generating images expressed by blue signals using cyan only. Press FILT-B, place a color original on the glass, and press OK.
	FILT-G	Ensure that the G signal is generated by the CCD correctly by generating images expressed by green signals using cyan only. Press FILT-G, place a color original on the glass, and press OK.
	FILT-R	Ensure that the R signal is generated by the CCD correctly by generating images expressed by red signals using cyan only. Press FILT-R, place a color original on the glass, and press OK.
PANEL	LCD-CHK	To check the control panel LCD for missing dots, press LCD-CHK and then press OK (to stop the check, press the Stop key). The screen turns white for several seconds, then blue for several seconds.
	LED-CHK	To check the LEDs on the control panel, press LED-CHK and then press OK. The LEDs turn on in sequence. To stop the check, press LED-OFF.
	LED-OFF	Turn off the LEDs on the control panel by pressing LED-OFF.
	KEY-CHK	Check the keys on the control panel. Press KEY-CHK and then press a key. The screen mimics the key pressed (see table 41 on page 96 for screen notations).
	TOUCHCHK	Adjust the position of coordinates on the analog touch panel by matching the points pressed and the coordinates indicated on the screen. Press + on the screen for the next + (this sequence is repeated nine times). To select a different item, press TOUCHCHK again.
PART-CHK	FAN-ON	Check the copy module fan (power supply cooling fan FM4 only). Press FAN-ON and then press OK. The fan switches from half-speed to high-speed rotation. Press OK again to return the fan to half-speed rotation.
CLEAR	ERR	Initialize error codes E000, E001, E003, E004, E009, E211, E215, E217, E717, and E808. Press ERR, then press OK, and turn off and then on the main power switch manually.
	R-CON	Initialize the RAM on the reader controller PCB or the control panel CPU PCB (user mode). For more information, see "Copier, run/check mode, CLEAR > R-CON details (cold reset)" on page 96. Note: All end-user default or custom settings and all values recorded on the service label must be re-entered after performing this reset.
	JAM-HIST	Initialize the jam history.
	ER-HIST	Initialize the error codes history.
	CNT-ERR	--
	CNT-CLR	--
	E354-CLR	--

Table 40. Copier, run/check mode Level 2 and Level 3 menus (continued)

Level 2 item	Level 3 item	Outline
MISC-R	SCANLAMP	To check the activation of the scanning lamp, press SCANLAMP and then press OK. The lamp turns on for one second.
	SC-MOVE	To check movement of the mirror assemblies, press SC-MOVE. Mirror assemblies move at 25% increments and then return to "home" positions in sequence when you press OK: operation HP -> A is checked the first time you press OK operation HP -> B is checked when you press OK the second time operation HP -> C is checked when you press OK the third time operation HP -> D is checked when you press OK the fourth time
	LAMP-ADJ	Adjust the intensity of light of a new scanning lamp. Press LAMP-ADJ and then press OK to turn on the scanning lamp. When the scanning lamp replacement VR is turned slowly, an audible beep is emitted when the optimum intensity is reached. Press OK in response to the beep to save the intensity setting and quit adjustment. CAUTION: Wait until the intensity of the lamp has stabilized (approximately five minutes) before adjusting it.
	USE-LAMP	Adjust the intensity of the lamp after removing and remounting the lamp, or when replacing the reader controller PCB or the light intensity detection PCB. Press USE-LAMP and then press OK to turn on the scanning lamp. When the scanning lamp replacement VR is turned slowly, an audible beep is emitted when the optimum intensity is reached. Press OK in response to the beep to save the intensity setting and quit adjustment. CAUTION: Wait until the intensity of the lamp has stabilized (approximately five minutes) before adjusting it.
MISC-P	IP-CHK	To run self-diagnosis on the AP-IP PCB, press IP-CHK and then press OK. When self-diagnosis ends, "OK" or "NG" appears to the right of "IP-CHK."
	POWEROFF	To check operation of the auto power-off mechanism, press POWEROFF, press the OK key, and then turn off and then on the power to start the mechanism.
	DEV-DRV	To drive the developing rotary and the sleeve motor for approximately 25 seconds, press DEV-DRV, press the OK key, and then turn off and then on the power to start the mechanism.
	PPR-FEED	Run paper feeding test. Select the source of paper (cassette 1 or 2, multifeder) and mode of delivery (face-up, face-down) in user mode. Press PPR-FEED, press the OK key, and then turn off and then on the power to start the mechanism.
	MAIN-DRV	Drive the intermediate transfer drum and the photosensitive drum for approximately ten seconds. Press MAIN-DRV, press the OK key, and then turn off and then on the power to start the mechanism.
	DC-SAVE	Save data stored in EEPROM on the ECO-2 PCB to the RAM on the reader controller PCB when replacing the ECO-2 PCB. For more information, see "Copier, run/check mode, MISC-P > DC-SAVE/DC-LOAD details" on page 97.
	DC-LOAD	Load data unique to the ECO-2 PCB (and saved in RAM on the reader controller PCB) to EEPROM on the ECO-2 PCB after replacing the ECO-2 PCB. For more information, see "Copier, run/check mode, MISC-P > DC-SAVE/DC-LOAD details" on page 97.

Copier, run/check mode, PANEL > KEY-CHK details

Table 41. Control panel key descriptions

Key	Screen indication	Key	Screen indication
Copy	COPY	ID	ID
Extend	ETC	ACS	ACS
Reset	RESET	Full Color	F-COLOR
Guide	?	Black	BLACK
Use Mode	M	Start	START
Interrupt	INTERRUPT	Stop	STOP
0-9, #, *	0-9, #, *	Save Power	STAND BY
Clear	CLEAR		

Copier, run/check mode, CLEAR > R-CON details (cold reset)

To perform a cold reset on the copy module:

- 1 Enter service mode.
- 2 Select **COPIER** > **FUNCTION** > **CLEAR** > **R-CON**.
- 3 Press **OK**.

All of the following result from a cold reset of the copy module:

- All user settings, including ID, passwords, and system settings password, are erased.
- All service mode settings recorded on the service label (on the inside of the lower front cover of the copy module) are erased.

To **restore** the settings, complete the following steps:

- 1 Manually re-enter all 11 numbers that appear on the service label in service mode.
- 2 Perform a DC-SAVE adjustment in service mode (**COPIER** > **FUNCTION** > **MISC-P** > **DC-SAVE**) and press **OK**.
- 3 Turn the copier off and then back on (cycle power).
- 4 Perform an auto gradation adjustment.

For more information about auto gradation adjustments, see page 57.

Copier, run/check mode, MISC-P > DC-SAVE/DC-LOAD details

Save data stored in EEPROM on the ECO-2 PCB to the RAM on the reader controller PCB when replacing the ECO-2 PCB, and then load the data to the new ECO-2 PCB.

- 1 Start service mode.
- 2 Select **COPIER** > **FUNCTION** > **MISC-P** > **DC-SAVE** and then press **OK**.
- 3 Turn off the power.
- 4 Replace the ECO-2 PCB.
- 5 Turn on the power.
- 6 Start service mode.
- 7 Select **COPIER** > **FUNCTION** > **MISC-P** > **DC-LOAD** and then press **OK**.
- 8 Exit service mode.
- 9 Turn the power off and then back on.

Copier, machine settings (OPTION) mode

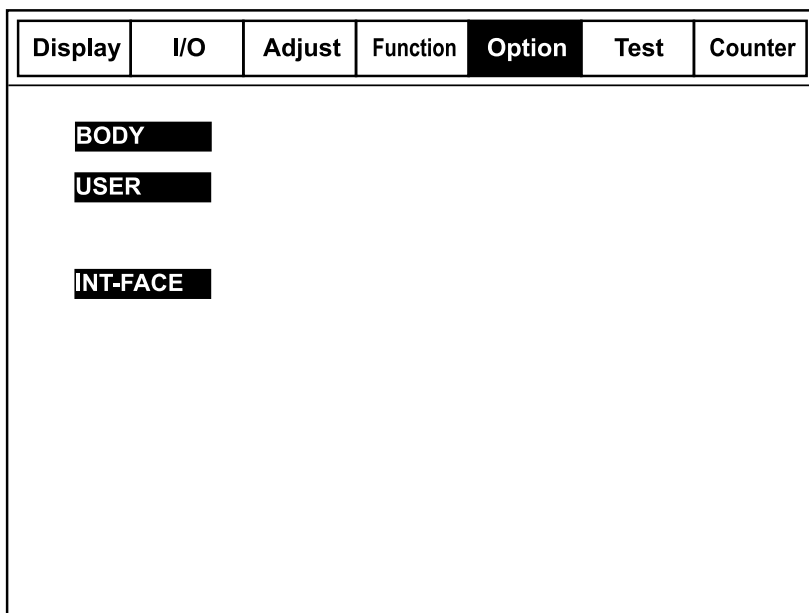


Figure 22. Copier, machine settings mode Level 1/Level 2 screen

Table 42. Copier, machine settings menu descriptions

Item	Description
BODY	Configure default settings related to the copier.
USER	Configure default settings related to user mode under 'BODY'.
INT-FACE	Set conditions for connection of an external controller (not available on the HP Color LaserJet 8550MFP).

Table 43. Copier, machine settings mode Level 2 and Level 3 menus

Level 2 item	Level 3 item	Description
BODY (copier-related settings)	MODEL-SZ	Switch between different paper-size recognition (0 = AB, 1 = Inch, 2 = A, 3 = AB/Inch). This setting need not be changed in the field. Note: Selections 0 and 3 are not available on the HP CLJ 8550MFP.
	FIX-TEMP	Enable/disable the fusing improvement mechanism for black halftone (0 = disable, 1 = enable). The default is "0." Enabling this setting improves fusing of black halftone, but increases the first copy time by approximately 45 seconds. To set the fusing temperature to "off," see the HP Color LaserJet 8500/8550 Printer Family Service Manual.
	PASCAL	Enable/disable contrast potential/gradation correction data (0 = disable, 1 = enable). Default = 1.
	PLT-TYPE	Switch between the standard and the aluminum white plates (0 = standard white plate, 1 = aluminum white plate). Default = 0. This setting need not be changed in the field.
	SH-SW	Select the method of shading when using the standard white plate (0 = standard white plate, 1 = standard white plate with a different hue). Default = 0. This setting need not be changed in the field.
	DH-SW	Switch modes for image gradation correction control (0 = off, 1 = as needed, 2 = always, 3 = reserved). Default = 0. Image gradation correction control ensures good gradation of images, but takes approximately one minute.
	DM-MODE	Enable/disable image density correction for auto gradation correction (0 = disable, 1 = enable). Default = 0. Image density correction control is executed during PG output of auto gradation correction; auto gradation correction is executed with the adjusted image density correction value serving as the copier's density control standard, thereby improving the accuracy of gradation control. Images are likely to improve, but the auto gradation correction time increases significantly.
	ITD-CLN	Enable/disable ITD cleaning rotation insertion mode (0 = disable for all modes, 1 = enable for enlarge page separation/page separation, 2 = enable for all modes). Default = 1. See details on page 100.
	SP-1-SW	Enable/disable separation static elimination for 1st side printing (0 = disable, 1 = enable). Default = 0. See details on page 101.
	SP-2-SW	Enable/disable separation static elimination for 2nd side printing (0 = disable, 1 = enable). Default = 1. See details on page 102.
	TR-ON-SW	Adjust the secondary transfer bias application timing to prevent paper from wrapping around the intermediate transfer drum and other separation faults (settings: 1 to +3). Default is 1.
	RE-TR-SW	Enable/disable the remedy against re-transfer in high-humidity environments (0 = disable remedy, 1 = enable remedy in H/H, 2 = enable remedy in H/H and N/N). Default = 0. See details on page 102.
	EC-GLASS	Specify the use of EC-coated glass (0 = not used, 1 = used). Default = 1. This setting need not be changed in the field.

Table 43. Copier, machine settings mode Level 2 and Level 3 menus

Level 2 item	Level 3 item	Description
USER	COPY-LIM	Use it to change the print counter upper limit (settings: 1 to 100 pages). Default = 100.
	SERIAL	Enter the five-digit serial number of the copy module when replacing the reader controller PCB.
	TX-PT-ON	Enable/disable indication of "text/photo" items when text/photo/map is selected on the User screen (0 = do not indicate text/photo, 1 = indicate text/photo). Default is 0.
	COUNTER1	Set the soft counter 1 indication. See details starting on page 103.
	COUNTER2	Set the soft counter 2 indication. See details starting on page 103.
	COUNTER3	Set the soft counter 3 indication. See details starting on page 103.
	COUNTER4	Set the soft counter 4 indication. See details starting on page 103.
	COUNTER5	Set the soft counter 5 indication. See details starting on page 103.
	COUNTER6	Set the soft counter 6 indication. See details starting on page 103.
	CONTROL	Enable copying, printing, or scanning without the control key, control card, or ID Number. See details following this table.
	S/U-SW	Switch between user maintenance and service maintenance at time of installation, so that error reporting on the user screen differs depending on the method of maintenance (0 = service maintenance, 1 = user maintenance). Defaults: 1 in U.S.; 0 elsewhere.
INT-FACE (conditions for settings when a connection is made to an external controller)	B-CLR (clearing E717)	<p>Indicate connection/disconnection of a copy data controller (0 = not connected, 1 = connected). Note: This setting is not available on the HP CLJ 8550MFP. You can disconnect the copy data controller temporarily by performing the following steps.</p> <ol style="list-style-type: none"> 1 Install the copy data control. 2 Turn on the power 3 Execute error clear in service mode. 4 Set B-CLR to '0'.

Copier, machine settings mode, Body > ITD-CLN details

When disabled, traces of a first-page image might appear on the second page, especially when printing in enlargement page separation/page separation.

- Sequence when disabled (standard sequence):
Y1 > M1 > C1 > K1 > Y2 > M2 > C2 > K2 > cleaning rotation
- Sequence when enabled:
Y1 > M1 > C1 > K1 > cleaning rotation > Y2 > M2 > C2 > K2 > cleaning rotation

Copier, machine settings mode, Body > SP-1-SW/SP-2-SW details



Claw-like lines

SP-1-SW

Enable separation static elimination if claw-like lines or tread-like lines occur because of low humidity when generating (copying/printing) a 1st page in a normal temperature/normal humidity environment (0 = disable, 1 = enable). Default is 1.

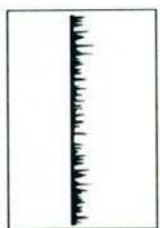
SP-2-SW

Enable/disable separation static elimination if brush-like lines occur on some types of paper when copying/printing a 2nd side in double-sided mode using auto/multifeeder mode in a high-temperature/high-humidity environment or when copying/printing a 2nd side in double-sided mode using auto/multifeeder mode in a high-temperature/high-humidity environment.

0 = disable (if brush-like lines occur), 1 = enable (if claw-like lines occur). Default is 1.



Tread-like lines



Brush-like lines

Copy type	H/H	N/N	N/L	L/L
1st page	OFF	Enable/disable using this mode	ON	ON
Auto double-sided	Enable/disable the mechanism during this mode	ON	ON	ON
Manual double-sided	Enable/disable the mechanism during this mode	Enable/disable the mechanism during this mode	ON	ON

Copier, machine settings mode, Body > RE-TR-SW details

Enable/disable the use of a remedy against re-transfer occurring in a high-humidity environment. The Dmax control parameter will change, consequently changing the primary charging bias and the primary transfer bias to the appropriate settings.

0 = disable remedy

1 = enable remedy in H/H

2 = enable remedy in H/H and N/N

Default = 0

To enable or disable the remedy:

- 1** Enter service mode.
- 2** Enter the setting.
- 3** Exit service mode.
- 4** Turn off and then on the control panel power soft switch.
- 5** Execute auto gradation correction in user mode.

Copier, machine settings mode, User > Soft counter details

Guide to Terms

- **Functions:**
 - C = copied pages
 - P = printed pages
 - S = scanned pages
- **Color:**
 - 4C = 4 full colors
 - MONO = single color (such as yellow, magenta, cyan, blue, green, red, and brown)
 - BK = black
 - ALL = 4C, MONO, and BK
- **Paper size:**
 - L = large-size (larger than A3 or 11-by-17-inch)
 - S = small-size (A4- and letter-size)
 - M = large- and small-sizes
- **Count for double-sided:**
 - 0 = two-sided pages counted as one
 - - = two-sided pages counted as two, as in normal copying
- **Count for large-size**
 - 1 = large-size pages counted as single pages
 - 2 = large size pages counted as two pages

Table 44. Copier, machine settings mode, soft counter specifications

No.	Counter	Function	Color	Paper size	Count, 2-side	Count, large
0	None					
1	Total counter 1	C+P	All	M	---	1
2	Total counter 2	C+P	All	M	---	2
3	Total counter (full color 1)	C+P	4C	M	---	1
4	Total counter (full color 2)	C+P	4C	M	---	2
5	Total counter (mono color)	C+P	Mono	M	---	1
6	Total counter (black-and-white 1)	C+P	Bk	M	---	1
7	Total counter (black-and-white 2)	C+P	Bk	M	---	2
8	Total counter (large-size)	C+P	All	L	---	1
9	Total counter (small-size)	C+P	All	S	---	--

Table 44. Copier, machine settings mode, soft counter specifications (continued)

No.	Counter	Function	Color	Paper size	Count, 2-side	Count, large
10	Copy counter 1	C	All	M	---	1
11	Copy counter 2	C	All	M	---	2
12	Copy counter (full color 1)	C	4C	M	---	1
13	Copy counter (full color 2)	C	4C	M	---	2
14	Copy counter (mono color 1)	C	Mono	M	---	1
15	Copy counter (mono color 2)	C	Mono	M	---	2
16	Copy counter (black-and-white 1)	C	Bk	M	---	1
17	Copy counter (black-and-white 2)	C	Bk	M	---	2
18	Copy counter (full color, large-size)	C	4C	L	---	1
19	Copy counter (full color, small-size)	C	4C	S	---	--
20	Copy counter (mono color, large-size)	C	Mono	L	---	1
21	Copy counter mono color, small-size)	C	Mono	S	---	--
22	Copy counter (black-and-white, large-size)	C	Bk	L	---	1
23	Copy counter (black-and-white, small-size)	C	Bk	S	---	--
24	Copy counter (full color, large-size, double-sided)	C	4C	L	0	1
25	Copy counter (full color, small-size, double-sided)	C	4C	S	0	--
26	Copy counter (mono color, small-size, double-sided)	C	Mono	L	0	1
27	Copy counter (mono color, small-size, double-sided)	C	Mono	S	0	--
28	Copy counter (black-and-white, large-size, double-sided)	C	Bk	L	0	1
29	Copy counter (black-and-white, small-size, double-sided)	C	Bk	S	0	--
30	Print counter 1	P	All	M	---	1
31	Print counter 2	P	All	M	---	2
32	Print counter (full color 1)	P	4C	M	---	1
33	Printer counter (full color 2)	P	4C	M	---	2
34	Print counter (mono color 1)	P	Mono	M	---	1
35	Print counter (mono color 2)	P	Mono	M	---	2
36	Print counter (black-and-white 1)	P	Bk	M	---	1
37	Print counter (black-and-white 2)	P	Bk	M	---	2
38	Print counter (full color, large-size)	P	4C	L	---	1
39	Print counter (full color, small-size)	P	4C	S	---	--
40	Print counter (mono color, large-size)	P	Mono	L	---	1

Table 44. Copier, machine settings mode, soft counter specifications (continued)

No.	Counter	Function	Color	Paper size	Count, 2-side	Count, large
41	Print counter mono color, small-size)	P	Mono	S	---	--
42	Print counter (black-and-white, large-size)	P	Bk	L	---	1
43	Print counter (black-and-white, small-size)	P	Bk	S	---	--
44	Print counter (full color, large-size, double-sided)	P	4C	L	0	1
45	Print counter (full color, small-size, double-sided)	P	4C	S	0	--
46	Print counter (mono color, large size, double-sided)	P	Mono	L	0	1
47	Print counter (mono color, small-size, double-sided)	P	Mono	S	0	--
48	Print counter (black-and-white, large-size, double-sided)	P	Bk	L	0	1
49	Print counter (black-and-white, small-size, double-sided)	P	Bk	S	0	--
54	Copy scan counter (full color, large-size)	S	4C	L	---	1
55	Copy scan counter (full color, small-size)	S	4C	S	---	--
56	Copy scan counter (black-and-white, small-size)	S	Bk	L	---	1
57	Copy scan counter (full color, large-size, double-sided)	S	Bk	S	---	--
58	Copy + print counter (full color, large-size)	C+P	4C	L	---	1
59	Copy + print counter (full color, small-size)	C+P	4C	S	---	--
60	Copy + print counter (black-and-white, large-size)	C+P	Bk	L	---	1
61	Copy + print counter (black-and-white, small-size)	C+P	Bk	S	---	--
62	Copy + print counter (black-and-white 2)	C+P	Bk	M	---	2
63	Copy + print counter (black-and-white 1)	C+P	Bk	M	---	1
64	Copy + print counter (full color + mono color, large-size)	C+P	4C + Mono	L	---	1
65	Copy + print counter (full color + mono color, small-size)	C+P	4C + Mono	S	---	--
66	Copy + print counter (full color + mono color 2)	C+P	4C + Mono	M	---	2
67	Copy + print counter (full color + mono color 1)	C+P	4C + Mono	M	---	1

Table 44. Copier, machine settings mode, soft counter specifications (continued)

No.	Counter	Function	Color	Paper size	Count, 2-side	Count, large
68	Copy counter (full color + mono color, large-size)	C	4C + Mono	L	---	1
69	Copy counter (full color + mono color, small-size)	C	4C + Mono	S	---	--
70	Copy counter (full color + mono color 2)	C	4C + Mono	M	---	2
71	Copy counter (full color + mono color 1)	C	4C + Mono	M	---	1
72	Print counter (full color + mono color, large-size)	P	4C + Mono	L	---	1
73	Print counter (full color + mono color, small-size)	P	4C + Mono	S	---	--
74	Print counter (full color + mono color 2)	P	4C + Mono	M	---	2
75	Print counter (full color + mono color 1)	P	4C + Mono	M	---	1
76	Copy + print counter (large-size)	C+P	All	L	---	1
77	Copy + print counter (small-size)	C+P	All	S	---	--
78	Copy + print counter 2	C+P	All	M	---	2
79	Copy + print counter 1	C+P	All	M	---	1
80	Copy counter (large-size)	C	All	L	---	1
81	Copy counter (small-size)	C	All	S	---	---
82	Print counter (large-size)	P	All	L	---	1
83	Print counter (small-size)	P	All	S	---	---
84	Total counter (mono color, large-size)	C+P	Mono	L	---	1
85	Total counter (mono color, small-size)	C+P	Mono	S	---	---
86	Total counter (black-and-white, large-size)	C+P	Bk	L	---	1
87	Total counter (black-and-white, small-size)	C+P	Bk	S	---	---
88	Copy scan counter (full color)	S	4C	M	---	---
89	Copy scan counter (black-and-white)	S	Bk	M	---	---
90	Copy scan counter (large-size)	S	All	L	---	---
91	Copy scan counter (small-size)	S	All	S	---	---
92	Copy scan counter (total)	S	All	M	---	---
93	Copy scan counter (large-size 4)	S	All	L	---	---
94	Copy scan counter (small-size 4)	S	All	S	---	---
95	Copy scan counter (total 4)	S	All	M	---	---

Table 45. Soft counter defaults by voltage and country/region

Model	Model Number	Counter 1	Counter 2	Counter 3	Counter 4	Counter 5	Counter 6
120V (USA)	F13-5731	1	6	68	69	72	73
120V (TWN)	F13-5701	1	6	58	59	5	0
230V (Others)	F13-5741	1	6	58	59	5	0
230V (UK)	F13-5751	1	64	65	77	60	61
230V (CA)	F13-5761	1	6	68	69	72	73
230V (FRN)	F13-5771	1	64	65	77	60	61
230V (GER)	F13-5781	1	64	65	60	61	95
230V (AMS)	F13-5791	1	6	68	69	72	73
230V (ITA)	F13-5721	1	6	68	69	72	73

Copier, machine settings mode, User > Control details

Enable copying or printing with conditions by changing the last three digits of the appropriate input in the absence of the control key, control card, or ID number. Set the three digits to settings from 0 to 4.

Format: CONTROL XYZ

- set X in place of an ID number
- set Y in place of a control card
- set Z in place of the control key

Setting	Black-and white copying	Black-and-white printing	Color printing
0	disabled	disabled	disabled
1	disabled	disabled	disabled
2	disabled	enabled	enabled
3	enabled	disabled	disabled
4	enabled	enabled	enabled

For example, if CONTROL is set to 421:

- all printing and copying is permitted without an ID number
- all printing, but no copying, is permitted without a control card
- no printing or copying is permitted without the control key

Copier, test print mode (TEST)

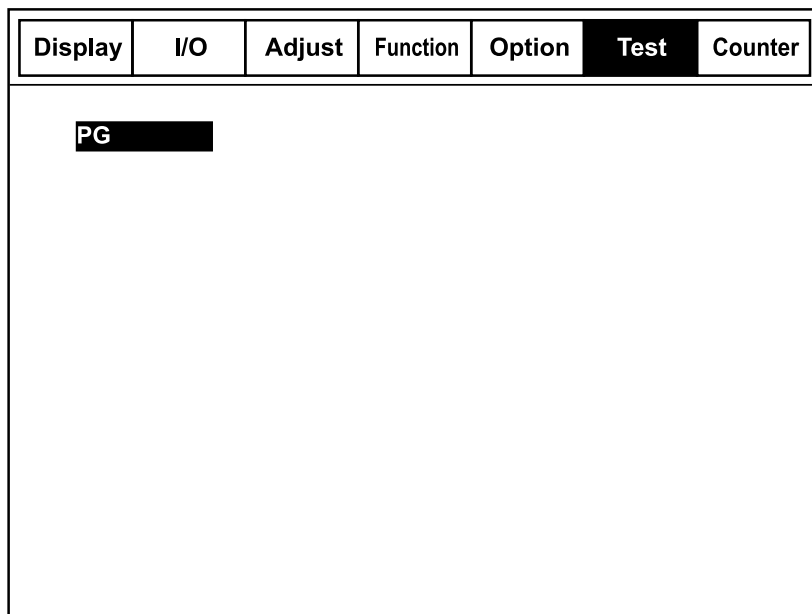


Figure 23. Copier, test print mode Level 1/Level 2 screen

Table 46. Copier, test print mode Level 2 and Level 3 menus

Level 2 item	Level 3 item	Description
PG	TYPE	Enter a number and press the Copy Start key to generate a test print. For test print details, see page 110.
	TXPH	Switch between text mode and photo mode: 3 = text/photo/map 4 = film photo 5 = printed photo 6 = text/photo 7 = black-and-white text
	THRU	Enable/disable the gate array of the laser controller PCB (0 = disable, 1 = enable).
	DENS-Y	Adjust the density of Y at TYPE=5 (range: 0 to +255).
	DENS-M	Adjust the density of M at TYPE=5 (range: 0 to +255).
	DENS-C	Adjust the density of C at TYPE=5 (range: 0 to +255).
	DENS-K	Adjust the density of K at TYPE=5 (range: 0 to +255).
	COLOR-Y	Enable/disable generation of Y for each TYPE (0 = disable, 1 = enable).
	COLOR-M	Enable/disable generation of M for each TYPE (0 = disable, 1 = enable).
	COLOR-C	Enable/disable generation of C for each TYPE (0 = disable, 1 = enable).
	COLOR-K	Enable/disable generation of K for each TYPE (0 = disable, 1 = enable).
	F/M-SW	Switch between full color and mono color for PG generation (0 = full color, 1 = mono color). When set to 1, select the output color under TEST > PG > COLOR (Y, M, C, or K).

Copier, test print mode, PG > TYPE details

Table 47. Test print options

No.	Test print
00	Image from the CCD (normal copying)
01	For R&D
02	256 colors
03	256 gradations
04	16 gradations
05	Entire face in halftone
06	Grid
07	For R&D
08	For R&D
09	for R&D
10	YMCK horizontal stripes (laser FF activation)
11	For R&D
12	YMCK 64 gradations
13	BGR 64 gradations
14	Full-color 16 gradations
15	Full-color light area 16 gradations
16	YMCK horizontal stripes (Laser A0 activation)

Copier, counter mode

Display	I/O	Adjust	Function	Option	Test	Counter
<div>TOTAL</div> <div>SCANNER</div> <div>PICKUP</div> <div>FEEDER</div> <div>JAM</div>						

Figure 24. Counter mode, Level 1/Level 2 screen

Table 48. Copier counter menu descriptions

Item	Description
TOTAL	Total counter
SCANNER	Scan counter
PICK-UP	Pick-up counter
FEEDER	ADF counter
JAM	Jam counter

Note

All counters return to “00000000” after “99999999.”

Table 49. Copier, counter mode Level 2 and Level 3 menus

Level 2 item	Level 3 item	Description
TOTAL	SERVICE 1	Total counter 1 for servicing
	SERVICE 2	Total counter 2 for servicing
	TTL	Total counter (copy + print + combination)
	L-TTL	Large-size total counter (copy + print + combination)
	S-TTL	Small-size total counter (copy + print + combination)
	C-L-TTL	Color large-size total counter (copy + print + combination)
	C-S-TTL	Color small-size total counter (copy + print + combination)
	K-L-TTL	Black large-size total counter (copy + print + combination)
	K-S-TTL	Black small-size total counter (copy + print + combination)
	COPY	Total copy counter
	L-COPY	Large-size total copy counter
	S-COPY	Small-size total copy counter
	C-L-COPY	Color large-size total copy counter
	C-S-COPY	Color small-size total copy counter
	K-L-COPY	Black large-size total copy counter
	K-S-COPY	Black small-size total copy counter
	PRNT	Total print counter
	L-PRNT	Large-size total print counter
	S-PRNT	Small-size total print counter
	C-L-PRNT	Color large-size total print counter
	C-S-PRNT	Color small-size total print counter
	K-L-PRNT	Black large-size total print counter
	K-S-PRNT	Black small-size total print counter
	4C-TTL	4-color total copy counter
	Y-COPY	Y mono copy counter
	M-COPY	M mono copy counter
	C-COPY	C mono copy counter
	K-COPY	K mono copy counter
SCANNER	SC-TTL	Scanner total scan counter
	SC-COPY	Scan counter for copying

Table 49. Copier, counter mode Level 2 and Level 3 menus (continued)

Level 2 item	Level 3 item	Description
PICK-UP	C1	Cassette 1 pick-up total counter
	L-C1	Large-size cassette 1 pick-up total counter
	S-C1	Small-size cassette 1 pick-up total counter
	C2	Cassette 2 pick-up total counter
	L-C2	Large-size cassette 2 pick-up total counter
	S-C2	Small-size cassette 2 pick-up total counter
	C3 ¹	Cassette 3 pick-up total counter
	L-C3 ¹	Large-size cassette 3 pick-up total counter
	S-C3 ¹	Small-size cassette 3 pick-up total counter
	C4 ²	Cassette 4 pick-up total counter
	L-C4 ²	Large-size cassette 4 pick-up total counter
	S-C4 ²	Small-size cassette 4 pick-up total counter
	MF	Multifeeder pick-up total counter
	L-MF	Large-size multifeeder pick-up total counter
	S-MF	Small-size multifeeder pick-up total counter
	DK ³	External paper deck pick-up total counter
	L- DK ³	Large-size external paper deck pick-up total counter
	S- DK ³	Small-size external paper deck pick-up total counter
	2-SIDE	2nd side in double-sided mode total counter
FEEDER	FEED	ADF pick-up total counter
	L-FFED	Large-size original ADF pick-up total counter
	S-FFED	Small-size original ADF pick-up total counter
	PICKUP-L	Left pick-up total counter
JAM	TOTAL	Indicates the total number of jams in the copier.
	PRINT	Indicates the total number of print jams in the copier.
	FEEDER	Indicates the total number of jams in the ADF.
	SORTER	Indicates the total number of jams in the sorter (not available on HP CLJ 8550MFP).
¹ : For the 2x500-Sheet Paper Deck, 2000-Sheet Paper Deck (not available on HP CLJ 8550MFP) ² : For the 2x500-Sheet Paper Deck (not available on HP CLJ 8550MFP) ³ : For the 1000-Sheet Paper Deck		

Feeder

Display	I/O	Adjust	Function	Option	Test	Counter
<div>< 1/1 > < READY ></div> <div>FEEDSIZE A4</div> <div><div>◀</div><div>▶</div></div>						

Figure 25. Feeder screen, example of a Level 3 item

Note

For FEEDER items, the Level 1 modes I/O, Test, and Counter are not used. Also, there are no Level 2 menus.

Table 50. Feeder options

Level 1 item	Level 3 item	Outline
DISPLAY	FEEDSIZE	Indicate the size of the original detected by the ADF. Note: This is a good test of automatic page-size detection.
ADJUST Note: ADJUST settings and adjustments have the same function as adjustments made with the switches on the DADF controller PCB.	DOCST	Adjust the original stop position for top pick-up by units of 0.5 mm. Place an original on the ADF document tray, and press OK . When the original has been fed, open the ADF, and check the position of the original stopped on the copyboard glass. If it is to the left of the orange arrow, increase the setting. If it is to the right of the orange arrow, decrease the setting.
	DOCST-RP	--
	P-INTL-U	Adjust the sheet-to-sheet distance for top pick-up by units of 0.5 mm. Place two originals on the document tray and press OK . The original will be picked up and stopped on the copyboard glass. Adjust the sheet-to-sheet distance. If it is small, increase the setting. If it is large, decrease the setting.
	P-INTL-D	--
FUNCTION Note: FUNCTION settings and adjustments have the same function as adjustments made with the switches on the DADF controller PCB.	SENS-INT	Use it to adjust the ADF sensor auto sensitivity (initialization). Perform the adjustment if you have replaced the feeder controller PCB, document tray paper sensor (S1), or registration sensor (S3). However, keep in mind that you must perform additional steps if you have replaced the DADF controller PCB. The contents of the adjustment are the same as making adjustments using the DIP switch on the feeder controller PCB. 1. Remove the feeder controller PCB cover. 2. Check the position of LED 1/2. 3. Select the mode, and press OK . 4. The copier executes the mode and stops automatically.
	UBLT-CLN	Perform separation belt cleaning mode for top pick-up for the ADF. Note: The separation belt provides the "feed" function on the HP CLJ 8550MFP. 1. Select "UBLT-CLN" to highlight. 2. Moisten the center of a sheet of plain paper with isopropyl alcohol. 3. Place the sheet in the document tray. 4. Press OK . Paper is picked up and then stopped in the middle; the top pick-up separation belt rotates idly. 5. Press the OK key to stop the operation. 6. Open the ADF, remove the paper, and then close the ADF.
	DBLT-CLN	--
OPTION	SIZE-SW	Enable/disable the size mix mechanism (AB-/Inch-size originals). 0 = disable detection (default) 1 = enable detection
	DOC-DELI	--

4 Adjustments and maintenance

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Overview

This chapter will address adjustments to and maintenance and cleaning of the copy module, the ADF, and the side HCI. Unique adjustments and parts for the HP LaserJet 8550MFP print engine (as compared to a standard HP LaserJet 8550 printer print engine) will also be addressed.

MFP print engine adjustments

Parts unique to the HP LaserJet 8550MFP print engine

Table 51. Serviceable printer parts

Part number	Description
FG6-3597-000CN	ECO-2 PCB assembly
FG2-9543-000CN	ECO-2 cable
FG2-9545-000CN	Interface PCB assembly 100-127 and 20-240 V
FG2-9479-000CN	Interface cable
FG2-9476-000CN	IOT cable
FG2-9470-000CN	Dc controller PCB assembly
C7835-60101	Modified top cover assembly (without electronics)

Note



Adjustment is required when replacing the printer dc controller PCB or the ECO-2 PCB assembly.

Adjustments unique to the HP LaserJet 8550MFP print engine

To replace the dc controller PCB

- 1 Remove the dc controller PCB as shown in the HP Color LaserJet 8500/8550 Printer Family Service Manual.
- 2 Install the new dc controller PCB.
- 3 Reassemble the parts except for the printer unit rear cover. Do not replace the rear cover until you have determined that the printer operates normally.
- 4 Connect the power plug to the power outlet
- 5 Turn on the copy module rear power switch.
- 6 Turn on the control panel power soft switch.
- 7 Execute auto gradation correction in user mode.

To replace the ECO-2 PCB

- 1 Start service mode by first pressing , then pressing 2 and 8 simultaneously, and then pressing  again.
- 2 Select **FUNCTION>MISC-P>DC-SAVE**.
- 3 Press **OK**.
- 4 Turn the printer off.
- 5 Remove the old ECO-2 PCB assembly and replace it with a new ECO-2 PCB assembly.
- 6 Turn the printer on.
- 7 Start service mode.
- 8 Select **FUNCTION>MISC-P>DC-LOAD**.
- 9 Press **OK**.
- 10 End service mode, and turn off and then on the control panel power soft switch.

Copy module adjustments

End-user adjustments

Note

These adjustments and tests should be attempted before service is performed on the hardware to remedy copy quality complaints. For instructions about how to perform these adjustments, see the Copy Module User Guide.

- Clean the glass, ADF belts and rollers, standard white plate, mirrors, and lenses.
- Inspect the original. Defects and imperfections of the original often cause copy quality complaints. Check to see if the copier is simply making an accurate reproduction of a bad original. Also examine the original to see if the source of the complaints is simply a limitation of a four-color process printer.
- Determine whether the image adjustment is required for all copies or only for a specific original. Don't make adjustments to the default settings of the copier for a single original that is uniquely difficult to copy.
- Try a different original-type setting (printed image, photo, or black text) to better match the original.
- Manually lighten or darken the exposure with the arrow keys on the main menu.
- Adjust sharpness. Increase to sharpen edges and add contrast, or decrease to soften contrast and reduce granularity of photos.
- Adjust color balance. Increase or decrease relative strengths of primary colors YMCK to achieve best reproduction.
- Use the density fine adjust to control the relative lightness or darkness of each primary color in high, medium, or low density areas.
- Use the background color adjustment to eliminate the color that appears on copies as a result of the copy module trying to reproduce the color or texture of the original media.
- Use second-side elimination to reduce the image from the back side of a lightweight original that appears on the copy.
- Perform auto gradation to calibrate the scanner to match the condition of printer (consumables, lamp, etc.).
- Perform zoom fine adjustment to adjust for small deviations between original and copy size.
- Use exposure recalibration to change the medium value of light/dark if the print on all copies is too light or too dark.

Mechanical and electrical adjustments

To adjust the non-image width and image margin on the copier

The image margin and non-image width are correct if the following specifications are met (for copies made without reduction or enlargement):

- leading edge: 5.0 ± 2.0 mm
- left/right: 5.0 ± 2.0 mm
- trailing edge: 5.0 ± 2.0 mm

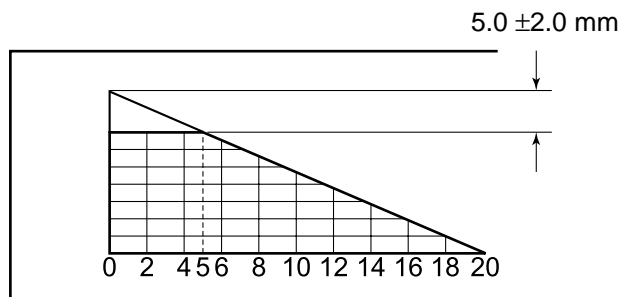


Figure 26. Image and non-image width of the leading edge

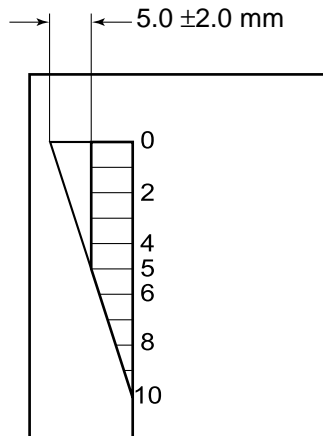


Figure 27. Image and non-image width of the left or right margin

- 1 Start service mode on the copy module.
- 2 If needed, adjust the leading edge margin registration (**COPIER** > **ADJUST** > **FEED-ADJ** > **REGIST**, **REGIST 2**). This setting controls the timing of the registration clutch (CL1) engagement in the printer. **REGIST** adjusts the timing for when the registration clutch turns on for the first sheet. **REGIST2** adjusts the timing for when the registration clutch turns on for the second and subsequent sheets. This changes the position of the image transferred from the transfer drum to the copied page, thereby adjusting the image margin.
- 3 If needed, adjust the image left/right margin (**COPIER** > **ADJUST** > **BLANK** > **BLANK-L, R**). These settings adjust the blank margin area.
- 4 If needed, adjust the leading/trailing edge non-image width (**COPIER** > **ADJUST** > **BLANK** > **BLANK-T, B**) These settings adjust the leading and trailing blank margin areas.

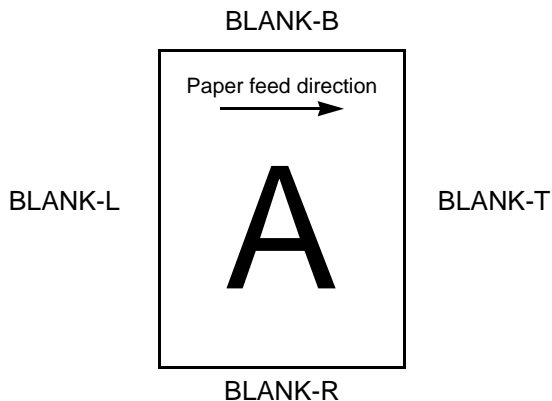


Figure 28. **BLANK margins**

- 5 If needed, adjust the image read start (**COPIER** > **ADJUST** > **ADJ-XY** > **ADJ-X, Y**).
- 6 Recheck the image margin.

For details, see “Copier, adjust mode, BLANK details” on page 91 and “Copier, adjust mode, ADJ-XY details” on page 90.

Note

Keep in mind that the new settings will become effective when the copier has been turned off and on.

To adjust the copy module horizontal registration

- 1 Start service mode on the copy module.
- 2 Enter '6' under **COPIER** > **TEST** > **PG** > **TYPE** in service mode to make a test print of a grid.
- 3 Make a copy of the grid test page.
- 4 If the lines do not intersect at 90-degree angles or are distorted (check against the corner of a piece of paper), adjust the horizontal registration for the copy module as shown in figure 29. Use the adjustment wrench FY9-1027-000, which ships with every unit and which installers are instructed to place on the stand behind the print engine. (Normally, this adjustment is not needed, as adjustments are made at the factory.)

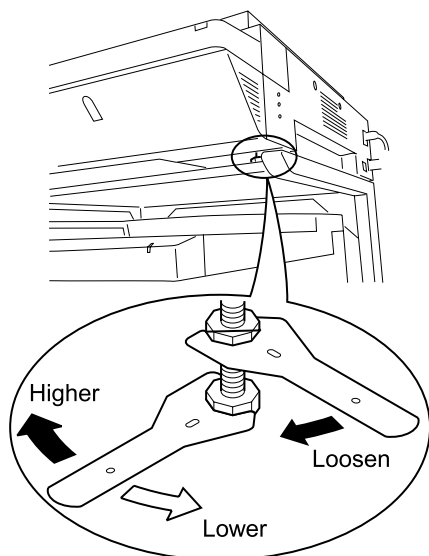



Figure 29. Adjusting horizontal registration

- 5 Make another copy of the test grid page and check the angles.

To adjust auto gradation

The copy module reproduces original images in full color by making fine adjustments to the amount of toner used. Incorrect adjustments and changes in copy exposure may result in poor reproduction of the colors of the original. If the colors reproduced on copy images differ from the original, or if the color exposure of copied images changes after a new color toner cartridge has been installed or other printer consumables have been replaced, perform auto gradation adjustment to improve the quality of copy images. This function makes three test prints and scans them so that the copy module can perform an auto gradation adjustment.

- 1 Press .
- 2 Press **ADJUSTMENT/CLEANING**.
- 3 Press **AUTO GRADATION ADJUSTMENT**.
- 4 Press **TEST PRINT 1**. The message PRINTING TEST PRINT 1 appears on the copy module touch-screen display.
- 5 Place the page from Test Print 1 on the copy module glass, face-down with the black portion of the page aligned with the orange arrow, and press **SCAN**. SCANNING appears on the display if the page has been placed on the glass correctly. If not, **CORRECTLY PLACE THE TEST PRINT ON THE GLASS** appears; adjust the placement of the page and press **OK**.
- 6 After the page has been scanned, remove it from the copy module glass.


Note

Use Test Print 1 for the first scan, Test Print 2 for the second scan, and Test Print 3 for the third scan. Altering the order will cause copy quality problems.

- 7 Repeat steps 4 through 6 for Test Print 2.
- 8 Repeat steps 4 through 6 for Test Print 3.
- 9 When scanning of Test Print 3 is complete, **SCAN IS COMPLETE** appears on the display for approximately two seconds.


To fine-adjust zoom

Use zoom fine-adjust to correct the slight difference in size between the original and the output copy images when the copy ratio is set to 100%.

- 1 Press .
- 2 Select **ADJUSTMENT/CLEANING**.
- 3 Press **ZOOM FINE ADJUSTMENT** on the adjustment/cleaning screen.
- 4 Make fine adjustments using the arrow buttons, then press OK.

To adjust exposure recalibration

Use exposure recalibration to adjust the exposure of the copy. In instances when copy images are a little lighter or darker than the original, the copy exposure can be adjusted manually. This function adjusts the middle or normal exposure setting of the copy module touch panel display exposure scale.

- 1 Press .
- 2 Select **ADJUSTMENT/CLEANING**.
- 3 Press **EXPOSURE RECALIB** on the Adjustment/Cleaning screen 1/2.
- 4 Select **LIGHT** or **DARK** to recalibrate the copy exposure, then press **OK**.

To adjust lamp output

Use this procedure to adjust the output of the lamp after replacing various components of the copy module, including the lamp itself. This procedure can also be helpful in optimizing copied output quality.

- 1 Remove the lower front cover of the copy module.
- 2 Turn the copy module on.
- 3 Allow five minutes for the lamp to warm up.
- 4 Start service mode on the copier.
- 5 Select **COPIER** > **FUNCTIONS** > **MISC-R** > **LAMP-ADJ.**
- 6 Press **OK**.
- 7 Wait for the lamp to turn on, then turn the lamp-adjusting VR clockwise or counterclockwise until it beeps.
- 8 Press **OK**. **READY** should appear on the screen.

To use lamp adjustment

Use this procedure to recalibrate the output of the lamp in the following circumstances:

- when the lamp has been removed and replaced
- when replacing the intensity detection PCB, the reader controller PCB, or the firmware DIMM
- when various other parts have been replaced

This procedure is also used to optimize copied output quality.

- 1 Remove the lower front cover of the copy module.
- 2 Turn the copy module on.
- 3 Allow five minutes for the lamp to warm up.
- 4 Start service mode on the copier.
- 5 Select **COPIER** > **FUNCTION** > **MISC-R** > **USE-LAMP**
- 6 Press **OK**.
- 7 While the lamp is on, turn the lamp-adjusting VR clockwise or counterclockwise until it beeps.
- 8 Press **OK**.

To adjust the CCD

Use this procedure to calibrate the CCD after replacing various components of the copy module. The procedure can also be used to improve copy quality.

Note

This adjustment occurs automatically when the unit is powered on.

- 1 Select **COPIER** > **FUNCTION** > **CCD** > **CCD-ADJ**.
- 2 Press **OK**. When **END** appears, the adjustment is complete.
- 3 Exit service mode.

Required adjustments when replacing parts or upgrading

This section describes the adjustments necessary when the following parts have been replaced:

- Reader controller PCB
- Firmware/language DIMM
- CCD unit
- Scanning lamp
- Intensity detection PCB
- Standard white plate
- AP-IP PCB

To replace the reader controller PCB

CAUTION

Do not mount a reader controller PCB equipped with an EEPROM from a different machine.

- 1 Remove the two face plates, and remove the two screws; then, detach the copy module lower front cover. (See “Removing the lower front cover” on page 334.)
- 2 If possible, enter service mode and verify the 11 values listed on the service label (COPIER > ADJUST > ADJ-XY and COPIER > ADJUST > CCD).

COPIER/ADJUST		Factory	1	2	3	4	5	COPIER/ADJUST		Factory	1	2	3	4	5
ADJ-XY	ADJ-X	16						CCD	B-GB	0					
	ADJ-Y	92							AL-RG	1					
									AL-GB	0					
CCD	W-PLT-X	8316													
	W-PLT-Y	8782													
	W-PLT-Z	9480													
	A-RG	0													
	B-RG	1													
	A-GB	-1													
Body No.								Date.				FB4-0866			

Figure 30. Service label

- 3 Turn the copier off and remove the old reader controller PCB. (See “Removing the electrical unit pullout” on page 367.)

- 4 Detach and keep the EEPROM from the old reader controller PCB.
- 5 Attach the old EEPROM to the new reader controller PCB.
- 6 Replace the parts, except for the cover removed in step 1.
- 7 Turn the copier on.
- 8 The control panel will indicate Error 353 (mismatch of serial numbers between the new reader controller PCB and the old EEPROM).
- 9 Enter service mode on the copier.
- 10 Select **OPTION** > **USER** > **SERIAL** and type in the five-digit serial number of the copy module.
- 11 Initialize the RAM on the reader controller PCB in service mode (**FUNCTION** > **CLEAR** > **R-CON**).
- 12 Enter the settings recorded on the copy module service label in service mode (**COPIER** > **ADJUST** > **ADJ-XY**, **CCD**); these are the same settings verified in step 2.
- 13 Press **OK**.
- 14 Select **COPIER** > **FUNCTION** > **MISC-R** > **USE-LAMP** in service mode.
- 15 Press **OK**.
- 16 Allow five minutes for the lamp to warm up.
- 17 Turn the scanning lamp adjusting VR clockwise or counterclockwise until it beeps. (See "Removing the intensity-detection PCB" on page 364.)
- 18 Select **COPIER** > **FUNCTION** > **CCD** > **CCD-Adj**.
- 19 Press **OK**.
- 20 When **END** appears, exit service mode.
- 21 Reinstall the lower front cover (with the service label) removed in step 1.
- 22 Adjust auto gradation correction in user mode. (See "To adjust auto gradation" on page 125.)

Replacing the firmware/localization DIMM

- 1 Enter service mode on the copier.
- 2 Select **COPIER** > **FUNCTION** > **CLEAR** > **R-CON**.
- 3 Select **COPIER** > **ADJUST** > **ADJ-XY**, **CCD**, and type in the values noted on the copy module service label.
- 4 Select **COPIER** > **FUNCTION** > **MISC-R** > **USE-LAMP**.
- 5 Press **OK**.
- 6 While the lamp is on, turn the scanning lamp adjusting VR clockwise or counterclockwise until it beeps.
- 7 Press **OK**. **READY** should appear on the screen.
- 8 Select **COPIER** > **FUNCTION** > **CCD** > **CCD-ADJ**.
- 9 Press **OK**.
- 10 When **END** appears, exit service mode.
- 11 Adjust auto gradation correction in user mode. (See "To adjust auto gradation" on page 125.)

To replace the CCD Unit

- 1 Record the values (AL-RG, AL-GB) shown on the new CCD unit to the service label attached to the copy module lower front cover.
- 2 Turn off the copier.
- 3 Install the new CCD unit in the copier. (See "Removing the power supply cooling fan (FM4)" on page 375.)
- 4 Turn on the copier.
- 5 Enter service mode on the copier.
- 6 Type in the new CCD settings in **ADJUST** > **CCD** > **AL-RG**, **AL-GB**. These are the values recorded in step 1.
- 7 Execute CCD auto adjustment in **FUNCTION** > **CCD** > **CCD-ADJ**.
- 8 Adjust auto gradation correction in user mode. (See "To adjust auto gradation" on page 125.)

To replace the scanning lamp

- 1 Replace the scanning lamp. (See “Removing the scanning lamp and scanning lamp heater” on page 357.)
- 2 Turn on the copier.
- 3 Remove the copy module lower front cover. (See “Removing the lower front cover” on page 334.)
- 4 Allow five minutes for the lamp to warm up.
- 5 Enter service mode on the copier.
- 6 Select **COPIER** > **FUNCTION** > **MISC-R** > **LAMP-ADJ.**
- 7 Press **OK**.
- 8 Turn the scanning lamp adjusting VR clockwise or counterclockwise until it beeps.
- 9 Select **COPIER** > **FUNCTION** > **CCD** > **CCD-ADJ.**
- 10 Press **OK**.
- 11 When END appears, exit service mode.
- 12 Adjust auto gradation correction in user mode. (See “To adjust auto gradation” on page 125.)

To replace the intensity detection PCB, or to remove and replace the same scanning lamp

- 1 Replace the intensity detection PCB. (See “Removing the intensity-detection PCB” on page 364.)
- 2 Turn on the copier.
- 3 Remove the copy module lower front cover. (See “Removing the lower front cover” on page 334.)
- 4 Allow five minutes for the lamp to warm up.
- 5 Enter service mode on the copier.
- 6 Select **COPIER** > **FUNCTION** > **MISC-R** > **USE-LAMP**.
- 7 Press **OK**.
- 8 Turn the scanning lamp adjusting VR clockwise or counterclockwise until it beeps. (See “Removing the intensity-detection PCB” on page 364.)
- 9 Select **COPIER** > **FUNCTION** > **CCD** > **CCD-Adj**.
- 10 Press **OK**.
- 11 When **END** appears, exit service mode.
- 12 Adjust auto gradation correction in user mode. (See “To adjust auto gradation” on page 125.)

To replace the standard white plate

- 1 Remove the copy module lower front cover. (See “Removing the lower front cover” on page 334.)
- 2 Record the three four-digit numbers printed on the bar code label (XXXX YYYY ZZZZ; see figure 31 below) of the new standard white plate for use in step 6.



Figure 31.

Standard white plate barcode

- 3 Replace the standard white plate. (See “Removing the standard white plate cover” on page 363.)
- 4 Enter service mode on the copier.
- 5 Select **COPIER** > **ADJUST** > **CCD** to bring up the input screen.
- 6 Type in the settings recorded in step 2 in W-PLT-X, W-PLT-Y, W-PLT-Z.
- 7 Press **OK**.

To replace the AP-IP PCB

- 1 Enter service mode on the copier.
- 2 Select **COPIER** > **FUNCTION** > **CCD** > **CDD-Adj.**
- 3 When END appears, exit service mode.
- 4 Execute auto gradation correction in user mode. (See “To adjust auto gradation” on page 125.)

Upgrading and localizing the copy module firmware

System requirements:

- Pentium processor
- Windows 95/98 (not supported on Windows NT; not tested on Windows 2000)
- IEEE 1284-compliant port and B-type connector parallel cable

To obtain and install the Service Support Tool

- 1 Download the Service Support Tool archive file.
- 2 Run the self-extracting archive file. This program will extract two directories containing the install data (DISK1 and DISK2).
- 3 Run the SETUP.EXE program from the DISK1 directory. This program does the following:
 - creates a startup icon.
 - creates supporting directory structures.
 - copies the necessary files to C:\Program Files\ServiceSupportTool and to C:\SERVTOOL.

To obtain the firmware image files for the correct language localization

- 1 Download the firmware archive file.

Note

There will be one firmware archive file for each of the following languages: English, French, German, Italian, Finnish, Swedish, Dutch, and Spanish. Be sure to obtain and use the correct file.

- 2 Run the self-extracting archive file. This program will extract three firmware files.

Note

Each language/ROM version contains three files: .ift, .ird, and .pgr.

- 3 Copy all three firmware files to C:\SERVTOOL\NewROM.

To install the firmware image to the Service Support Tool

- 1 Start the Service Support Tool by clicking **Start**, then **Programs**, and then the Service Support Tool icon. The opening splash screen appears, followed by the program's main menu. The main menu allows two choices of operations:
 - Use **Revision Control** to add or delete firmware images to the Service Support Tool program.
 - Use **Download/Upload** to perform the firmware download to the copy module.
- 2 Click **Continue** under **Revision Control**.
- 3 Click the **Add ROM Data** to install a new firmware image. Note that old firmware images can be removed by selecting **Remove ROM Data**.
- 4 Copy the new firmware image files to the C:\SERVTOOL\NewROM directory.
- 5 Click **Install**.
- 6 When the installation of a language or ROM version is complete, the new version appears in the directory structure.

Note

After **Install** is pressed, the contents of the NewROM directory are installed and a subdirectory in C:\ServTool\Cp660\R-con\ is created with the new firmware files under it. This leaves the NewROM directory empty; the LastROM directory now contains the files.

To prepare the copy module for downloading

- 1 Turn off the copy module's soft switch and the rear power switch.
- 2 Disconnect the copy module power cable.

CAUTION

ESD damage is possible; please take standard ESD precautions and use a grounding wrist strap.

- 3 Remove the lower front cover of copy module and connect the copy module to the computer with the parallel cable.
- 4 Set the DIP switch SW1 to the LOAD position (left switch down).
- 5 Turn on the computer.
- 6 Start the Service Support Tool by clicking **Start**, then **Programs**, and then the Service Support Tool icon.
- 7 Reconnect the copy module power cable.
- 8 Turn on the rear power switch.
- 9 Turn on the soft switch (note that the copy module will appear dead, with no lights and no front panel display).

To download the new firmware / language localization using the Service Support Tool

- 1 From the Service Support Tool main menu, click **Continue** button under **Download/Upload**.
- 2 Select **R-CON** under **ServTool** and then select **CP660**.
- 3 Click **Connect** to establish the connection between the computer and the copy module. A reminder screen appears.
- 4 If the connection has been established, click **Continue** to start the connection. A progress bar showing the status of the connection appears. If the bar does not show progress, there has been a failure to communicate and an error message/screen should appear. If the connection has not been established, click **Return to Previous Menu**.
- 5 When the connection is successfully established, press **OK**.

CAUTION

Do not use options and utilities that allow you to read or write to RAM data. These options are used to back up copy module configuration and calibration data to the computer hard disk.

- 6 Click **Write to Flash ROM**.

Note

The screen that appears when you click **Write to Flash ROM** shows several different firmware/language images that have been installed and are available to download.

- 7 Click the appropriate version/language. The **Selected ROM Version** section in the lower part of the window will confirm your selection of language, country, and version.
- 8 Click **Start** to begin the download process
- 9 Select version/language.
- 10 Click **Start** to begin the programming phase.
- 11 If you are changing from the original language, a warning appears. Press **Start Write Operation** to continue, or **Go Back** if you do not want the selected language. Pressing **Start Write Operation** will bring up a screen which tracks the status as the Service Support Tool program obtains more information from the original ROM, and as the download progresses. The ROM is erased before it is written to. The information for the previous and new language, country, and firmware version all appear.

Note

If this procedure fails at any point during the download, return to “To prepare the copy module for downloading” on page 137 and begin the process again.

- 12 Once the write process is complete, a Cyclic Redundancy Check (CRC) is performed automatically to confirm that the download occurred without error. Upon completion of the reprogramming, the program confirms the previously loaded ROM version, the ROM version designated to download, and the ROM version on the copy module after download. The results of the CRC of the flash ROM also appear.
- 13 Click **OK** to continue.
- 14 Click **Return to the Model/PCB Selection Menu** to terminate the programming procedure.
- 15 Click **OK** to return to the PCB select menu and complete the programming procedure. A screen should appear that indicates that the download process ended successfully.
- 16 Click **Return to Main Menu** and exit the Service Support Tool.

To turn the copy module off and return to standard condition

- 1 Turn off the copy module soft switch and the rear power switch.
- 2 Disconnect the copy module power cord.
- 3 Disconnect the parallel cable.
- 4 Set the DIP switch SW1 back to the COPY position (up).
- 5 Reconnect the power cord and turn the rear power switch on.
- 6 Turn the copy module soft switch on.

To check new ROM version number

- 1 Confirm that the desired display language appears on the LCD.
- 2 Start service mode and check the ROM version under **COPIER > DISPLAY > VERSION**.
- 3 Confirm that the version is correct.

ADF adjustments

Perform ADF adjustments if the ADF has been replaced, or as part of ADF troubleshooting. Mechanical and electrical adjustments are required for the ADF.

CAUTION

It is critical that these adjustments be performed in the order listed.

Mechanical adjustments

- 1 Adjust the ADF height.
- 2 Correct the skew.
- 3 Check the distance from the horizontal plate.
- 4 Check the original leading edge stop position.
- 5 Check the sheet-to-sheet distance for reduced page composition mode.
- 6 Adjust the ADF open/closed switch (MS1).
- 7 Adjust separation belt pressure.

Electrical adjustments

- 1 Adjust the level of the document tray paper sensor (S1) and registration sensor (S3).
- 2 Adjust the original-width-detecting variable resistor (VR1).
- 3 check the initial setting for paper pick-up (only needed after replacing the DADF controller PCB).

Mechanical adjustments

To adjust the ADF height

The height of the ADF is adjusted by lengthening or shortening the left and right adjusting bolts (callout 1) so that the distance between the two rubber feet (callout 2) at the rear and the horizontal size plate (callout 3) on the copyboard glass (callout 4) is 0.2 ± 0.1 mm (the thickness of two sheets of 64 g/m² copy paper) when the ADF (callout 5) is closed, and the feet (callout 6) at the front are in contact with the copyboard glass.

To adjust the ADF height, follow these steps:

- 1 Turn the copier off.
- 2 Remove the ADF to expose the adjusting bolts. (See “Removing the ADF” on page 378.)

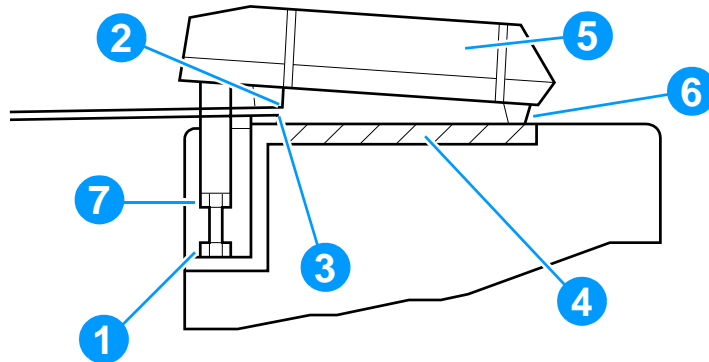


Figure 32. Adjusting the ADF height

- 3 Loosen the lock nuts (callout 7) and turn the bolts of the left and right supports to raise and lower the ADF.

Note

After adjustment, tighten the nuts (callout 7) to lock them.

- 4 Replace the ADF and recheck the height. Repeat steps 2 and 3 as necessary.
- 5 After adjustment, check to make sure that both the left and right rubber feet at the front of the ADF are in contact with the copyboard glass. If not, adjust the height of the magnet at the front of the ADF.

To correct the original skew

- 1 Remove the screw (callout 1), and detach the DADF controller PCB cover (callout 2).

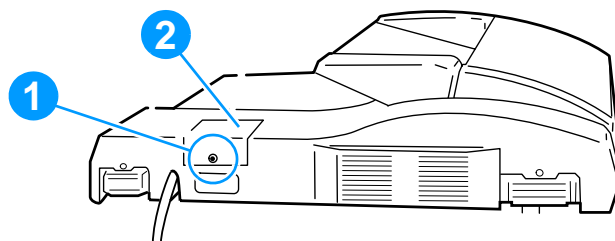


Figure 33. DADF controller PCB cover

- 2 Shift bit 1 of the DIP switch (DSW1) on the DADF controller PCB to ON.

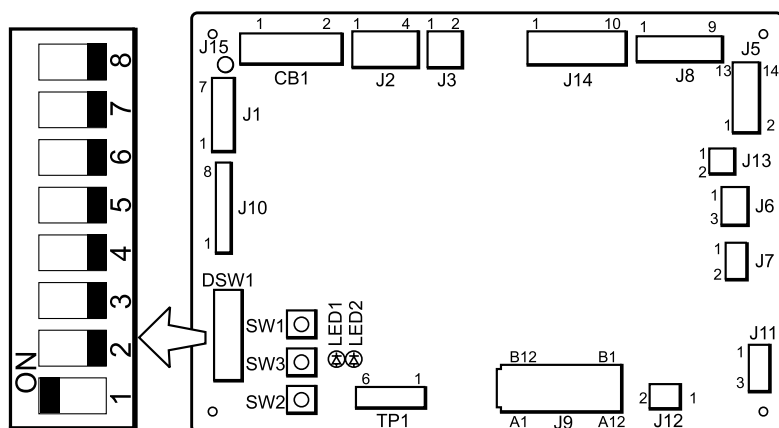


Figure 34. DSW1 on the DADF controller PCB

- 3 Place an A3 or 11-by-17-inch sheet of copy paper in the document tray of the ADF.

- 4 Press switch SW3 on the DADF controller PCB one time. The sheet is picked up and placed on the copyboard glass.

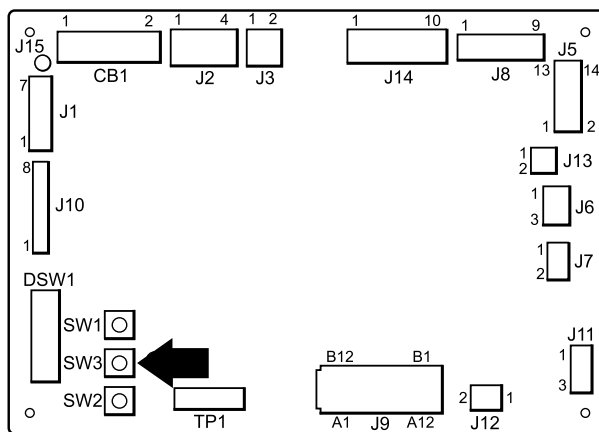


Figure 35. SW3 DADF controller PCB

- 5 Open the ADF slowly, and measure the distance between the horizontal size plate and the sheet at any two points (l_1 and l_2) 150 mm apart along the top edge of the page. The difference in measurement of l_1 and l_2 should be within 1 mm.

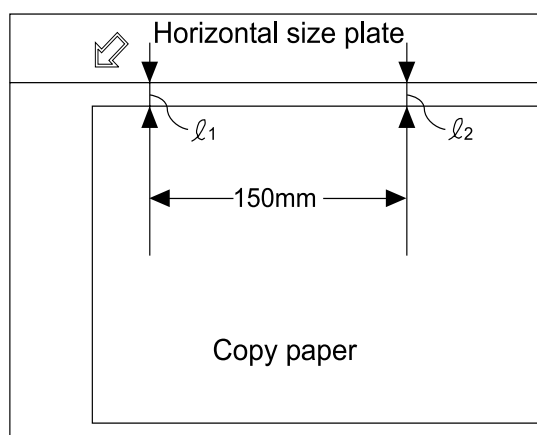


Figure 36. Testing the ADF adjustment

Note

Skew adjustments are performed at the rear of the ADF (callout 1 in figure 37).

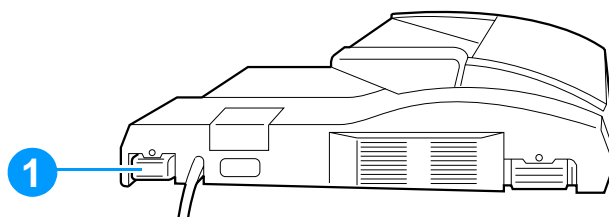


Figure 37. Rear view of the ADF

- 6 If the difference is not within 1 mm, loosen the nut (callout 1) at the rear of the right hinge unit (callout 2), and turn the adjusting screw (callout 3) to make adjustments.

If . . .	Then turn the adjusting screw . . .
l_1 is greater than l_2	Clockwise
l_1 is less than l_2	Counterclockwise

- 7 Tighten the lock nut (callout 1) completely.

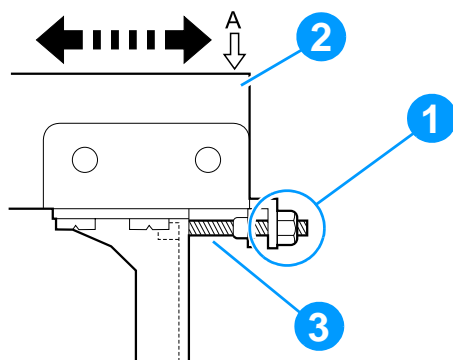


Figure 38. Adjusting screw

- 8 Press switch SW3 to move the sheet of copy paper back to the document tray, then press SW3 again to move the page back to the copyboard glass.
- 9 Check the skew again as described in step 5, and repeat steps 6, 7, and 8, if necessary.
- 10 When adjustment is complete, tighten the nut to lock the adjusting screw in place.
- 11 Return the DIP switches to the OFF position.

To adjust the distance from the horizontal size plate

Be sure to perform “To correct the original skew” on page 142 before adjusting the distance to the horizontal size plate.

Note

When copying from the ADF, originals are placed on the glass in different positions compared to the positioning when copying from the glass. For this procedure, do not adjust the position of the original to match the positioning guides on the glass plate.

- 1 Shift bit 1 of the DIP switch (DSW1) on the DADF controller PCB to ON.

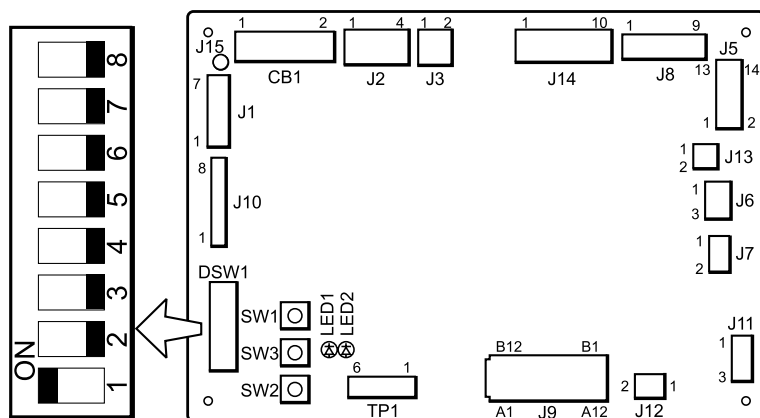


Figure 39.

DSW1 on the DADF controller PCB

- 2 Place an A3 or 11-by-17-inch sheet of copy paper in the document tray.
- 3 Press switch SW3 on the DADF controller PCB one time. The sheet is picked up and placed on the copyboard glass.

- 4 Open the ADF slowly, and check to make sure that the distance l_3 shown in the figure is as indicated.

Note

The l_3 measurement for A3 paper should be 2.3 ± 1 mm.
The l_3 measurement for 11-by-17 inch paper should be 11.1 ± 1 mm

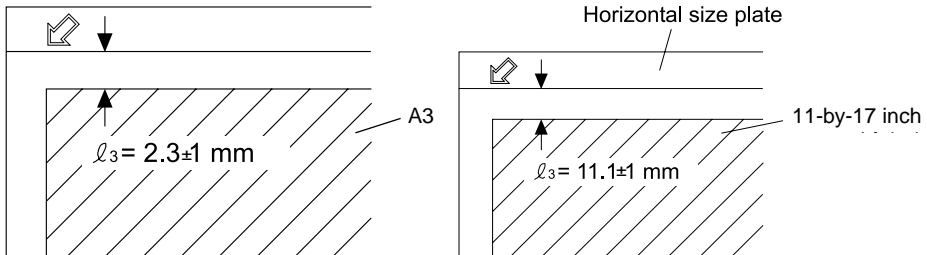


Figure 40. Testing adjustment

- 5 If the distance is not as indicated, loosen the positioning screw (callout 1) and the fixing screws (callout 2) of the ADF document tray (callout 3), and adjust the position of the ADF document tray.

CAUTION

When making a test copy, be sure to tighten the two fixing screws and the positioning screw (two pieces). Otherwise, the original might jam and the adjustment become inaccurate.

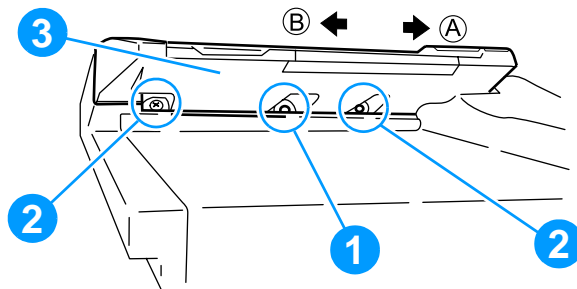


Figure 41. Adjusting ADF document tray

- 6 Move the ADF input tray to correct the positioning of the original on the glass. If l_3 is too large, move the tray toward the rear of the copier. If l_3 is too small, move the tray toward the front of the copier.
- 7 Close the ADF and leave the copy paper on the glass during the adjustment.
- 8 After adjustment, check to make sure that the positioning screw and the fixing screws are fully tightened.

- 9 Press SW3 again to advance another page to the copyboard glass.
- 10 Repeat step 4. If adjustment is necessary, repeat steps 5 through 8.
- 11 Return the DIP switch to the OFF position.

To adjust the left edge stop position

Be sure to perform “To correct the original skew” on page 142 and “To adjust the distance from the horizontal size plate” on page 145 before adjusting the original-left-edge stop position.

- 1 Shift bits 1, 4, and 5 of the DIP switch (DSW1) on the DADF controller PCB to ON.

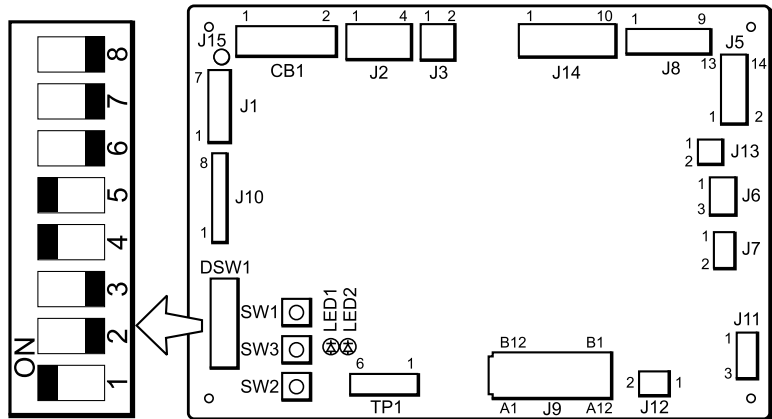
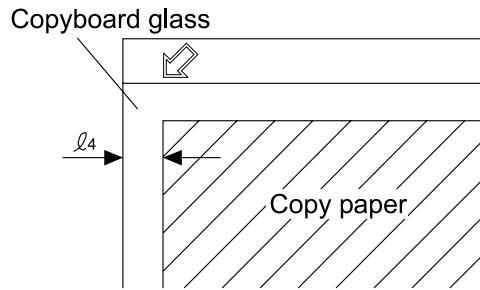


Figure 42. DSW1 on DADF controller PCB

- 2 Place an A3 or 11-by-17-inch sheet of copy paper on the document tray.
- 3 Press switch SW3 on the DADF controller PCB one time. The sheet is picked up and placed on the copyboard glass.

- 4 Open the ADF slowly, and measure the stop position l_4 ; then, close the ADF. The distance l_4 should be 11.0 ± 1 mm, and the left edge of the page should align with the indicator arrow on the horizontal size plate.



Standard: $l_4 = 11.0 \pm 1$ mm

Figure 43. Measuring the copy paper stop position

- 5 To adjust the original-leading-edge stop position, use switches SW1 and SW2 on the DADF controller PCB.
 - Pressing switch SW1 shifts the original stop position to the right by 0.34 mm.
 - Pressing switch SW2 shifts the original stop position to the left by 0.34 mm.

Note

Holding down the push switch causes only a single shift.

- 6 Press switch SW3 one time to move the sheet off the glass back to the document tray and store the new setting.
- 7 Press switch SW3 again to place the sheet back on the copyboard glass.
- 8 Open the ADF slowly, and measure the copy paper stop position l_4 ; then, close the ADF. The distance l_4 should be 11.0 ± 1 mm, and the left edge of the page should align with the indicator arrow on the horizontal size plate. If necessary, adjust as described in step 5.
- 9 When no more adjustment is required, press switch SW3 to discharge the page and save the final stop position setting.
- 10 Return the DIP switches to the OFF position.

To adjust the sheet-to-sheet gap for two-page copy mode

Be sure to perform “To correct the original skew” on page 142, “To adjust the distance from the horizontal size plate” on page 145, and “To adjust the left edge stop position” on page 147 before adjusting the sheet-to-sheet distance for reduced page composition mode.

- 1 Shift bits 1, 2, 4, and 5 of the DIP switch (DSW1) on the DADF controller PCB to ON.
- 2 Place two sheets of A4- or letter-size copy paper on the document tray. Make sure that the copy paper matches the ADF model (if it is an A-size model, use A4 copy paper; if it is an inch-size model, use letter-size copy paper).

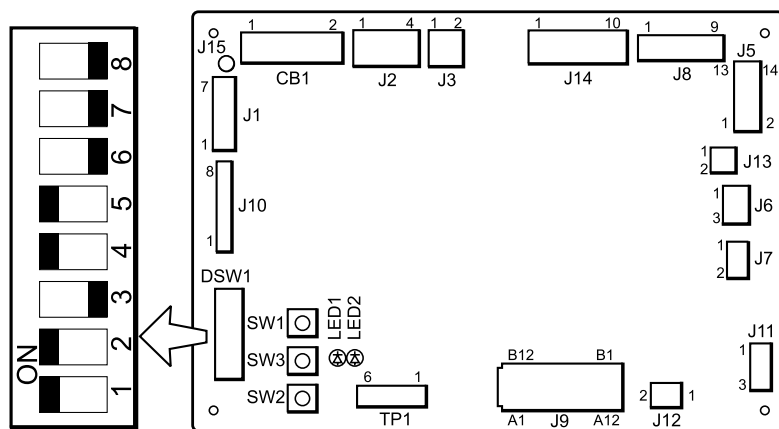


Figure 44. DSW1 on DADF controller PCB

- 3 Press switch SW3 on the DADF controller PCB one time. Both pages will be picked up and placed on the copyboard glass.

- 4 Open the ADF slowly, and measure the distance l_5 between the two sheets of copy paper. Then, close the ADF.

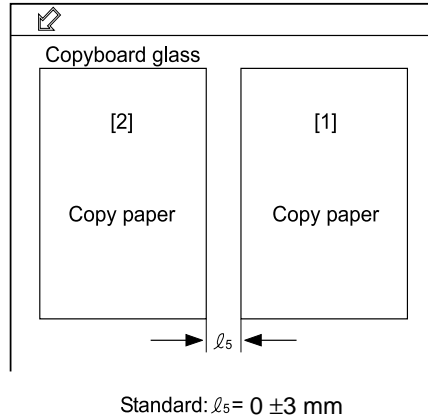


Figure 45. Positioning paper

- 5 Use switches SW1 and SW2 on the DADF controller PCB to adjust the sheet-to-sheet distance.
 - Pressing SW1 increases the distance between sheets by 0.34 mm.
 - Pressing SW2 decreases the distance between sheets by 0.34 mm.
- 6 Press switch SW3 one time to move the sheets off of the glass to the document tray and store the new setting.
- 7 Press SW3 again one time. Both pages are picked up and placed on the copyboard glass.
- 8 Open the ADF slowly, and measure the distance l_5 between the two sheets of copy paper. Then, close the ADF. If the distance is still not within specifications, repeat steps 5 and 6.
- 9 When no more adjustment is necessary, press switch SW3 to discharge the pages and save the final stop position setting.
- 10 Return the DIP switches to the OFF position.

To adjust the ADF open/closed switch (MS1)

- 1 Remove the ADF body cover (upper). (See “Removing the body cover” on page 380.)
- 2 Open and close the ADF and adjust the retaining plate (callout 1) so that the ADF switch MS1 (callout 2) turns on and off when the distance from the copyboard glass (callout 3) to the end of the ADF (callout 4) is between 10 and 100 mm.

Note

When opening and closing the ADF, listen for the switch to audibly click at the point at which it actuates.

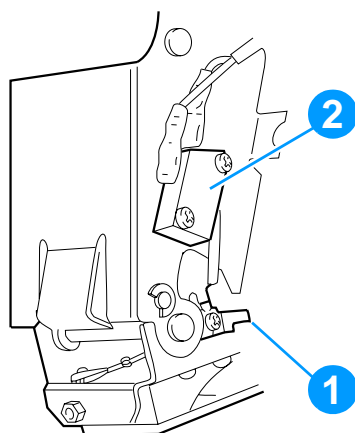


Figure 46. Retaining plate adjustment

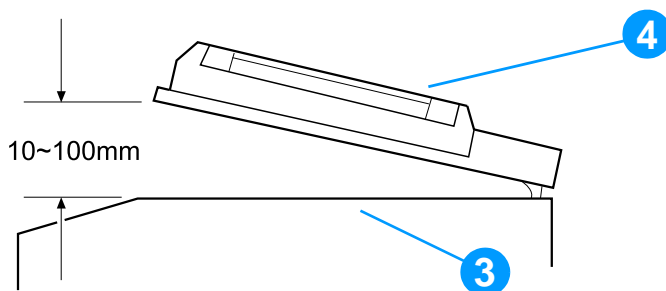


Figure 47. Measuring the distance from the copyboard glass to the ADF

To adjust separation belt pressure

Adjust the pressure of the separation belt under the following circumstances:

- if originals start to skew because of wear on the separation belt or the feeding roller
- if the separation belt or the feeding roller are replaced

1 Prepare test strips for measuring feeding power.

To create the measurement tool, cut an A4- or letter-size sheet of copy paper into thirds lengthwise (strips of about 70 mm in width), then put tape on both sides of one end of each of the strips. Put a small hole in the taped end about 10mm into the tape, as shown in figure 48. This creates three test strips.

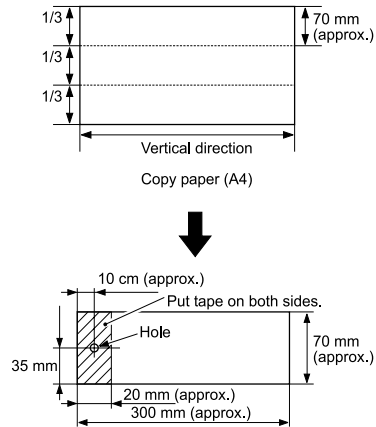


Figure 48. Preparing test strips for measuring feeding power

2 Remove the screw (callout 1), and detach the DADF controller cover (callout 2) of the ADF.

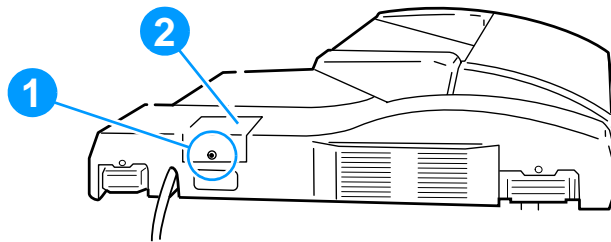


Figure 49. DADF controller cover

- 3 Shift bits 5 and 6 of the DIP switch DSW1 on the DADF controller PCB to ON to select separation belt/feeding roller cleaning mode.

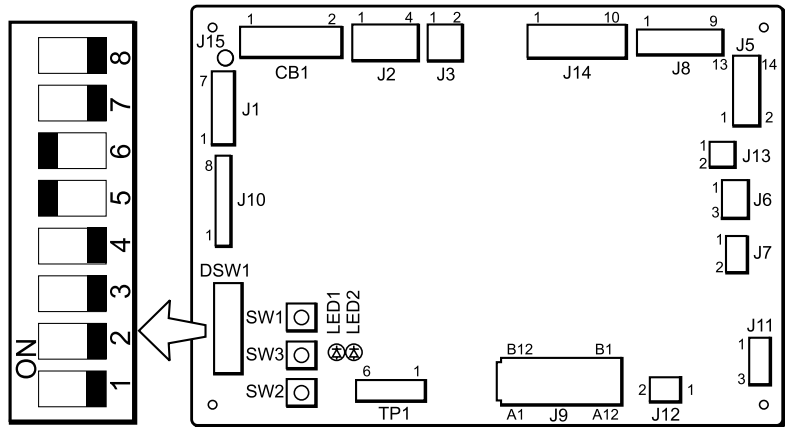


Figure 50. DSW1 on DADF controller PCB

- 4 Press switch SW3 on the DADF controller PCB.
- 5 Hook a spring-tension gauge through the tape-reinforced hole.
- 6 Put the test strip into the middle separation assembly, and measure the feeding power.
 - Make sure that the three separation belts are in contact with the test strip.
 - Make sure that the test strip is pulled straight along the separation belt.
 - Take the measurement when the rear end of the test strip and the rear end of the document tray are flush.

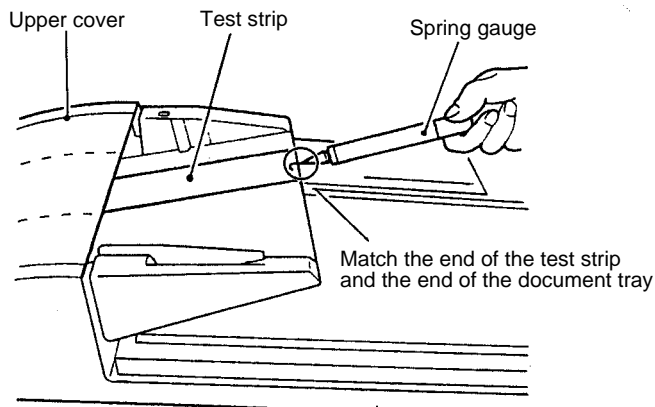


Figure 51. Measuring feeding power

- 7 Open the upper cover of the ADF to end the measurement, and then
- 8 Press switch SW3 on the DADF controller PCB one time.

Table 52. Feeding power measurements

Test strip	Target feeding power (g)
64 g/m ²	300±30
80 g/m ²	330±30

- 9 If feeding power is insufficient, turn the adjusting screw clockwise 1/8 turn (see figure 52 below).
 - Clockwise rotation increases the feeding power
 - counterclockwise rotation decreases the feeding power.

Loosening the lock nut (callout 1) is not necessary for small adjustments. The lock nut is glued in place. If greater adjustment is necessary, loosen the lock nut first.

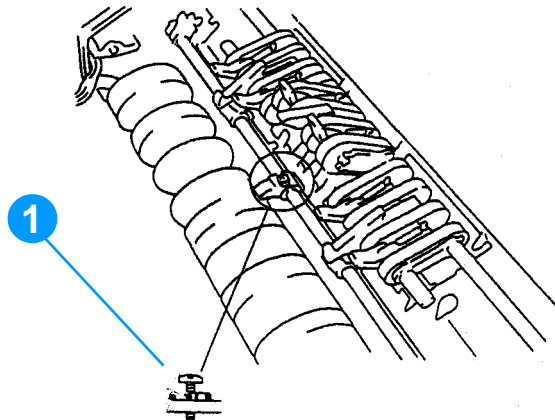


Figure 52. Lock nut glued in place

- 10 Repeat the measurement test, and readjust as needed.
- 11 After final adjustment, reglue the lock nut in place, if necessary.

Electrical adjustments

Adjustments are required if the following parts are replaced on the ADF:

- Document tray paper sensor (S1)
- Registration sensor (S3)
- Original-width-detecting variable resistor (VR1)

Note

Under the whole-unit replacement strategy, these parts will not be replaced in the field.

To adjust the document tray paper sensor (S1) and registration sensor (S3)

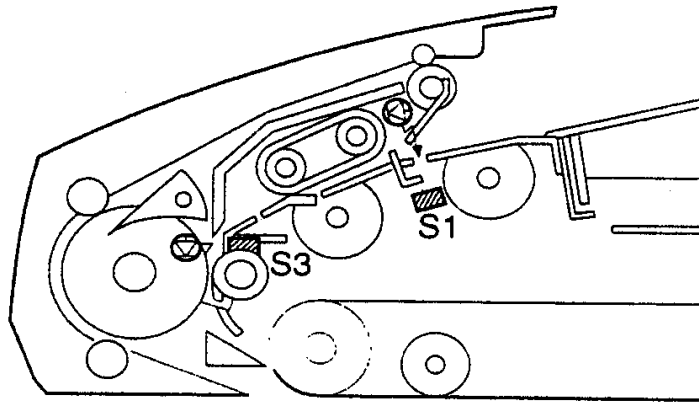


Figure 53. ADF sensors

- 1 Remove the PCB cover of the ADF.
- 2 Turn bit 4 of the DIP switch bank ON.

- 1

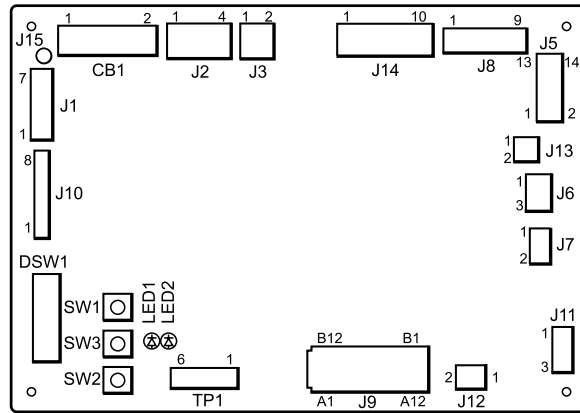


Figure 54. LED 1 and 2 on DADF controller PCB

- 4 Press switch SW3 again one time. The LEDs turn off and the adjustment is complete.
- 5 Return the DIP switch to the OFF position.

Note

If LED 1 does not turn on in 30 seconds, suspect that the Document Tray Paper Sensor is bad.
If LED 2 does not turn on in 30 seconds, suspect that the Registration Sensor or the DADF controller PCB is bad.

To adjust the original-width-detecting variable resistor (VR1)

Note

This procedure requires a sheet of A4- or letter-size paper. Be sure to use the size that matches the original configuration of the ADF and copy module.

- 1 Remove the PCB cover of the ADF.

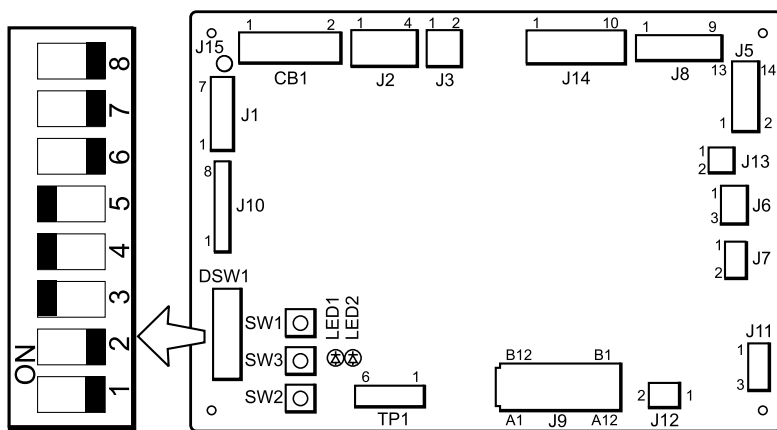


Figure 55.

DADF controller PCB

- 2 **For A4 paper:** Turn bits 3 and 4 of the DIP switch bank ON.
For letter-size paper: Turn bits 3, 4, and 5 of the DIP switch bank ON.
- 3 Place the page of A4- or letter-size paper in the portrait orientation (long edge leading) in the document tray and adjust the side guides to the width of the page.
- 4 Press switch SW3 on the DADF controller PCB.
- 5 LED 1 will turn on, then immediately off, and LED 2 will turn on.
- 6 Place the page in the landscape orientation (short edge leading) in the document tray and adjust the side guides to the width of the page.
- 7 Push switch SW3 again one time and the adjustment will end with LEDs 1 and 2 on. Return the DIP switches to their OFF position.

Replacing the DADF controller PCB

CAUTION

Use care when performing this procedure. The setting on the DADF controller PCB can be configured only one time. If set incorrectly, damage may result in the ADF and DADF controller PCB.

- 1 Set the paper setting:
 - e Remove the PCB cover of the ADF.
 - f Turn bits 4 and 5 of the DIP switch bank ON.
 - g Press switch SW3 on the DADF controller PCB one time.
 - h Press switch SW2 on the DADF controller PCB five times to move the pick-up assembly.
 - i Press switch SW3 on the DADF controller PCB one time.
 - j Turn bits 4 and 5 of the DIP switch bank OFF.
- 2 Adjust the document tray paper sensor (S1)/registration sensor (S3). (See "To adjust the document tray paper sensor (S1) and registration sensor (S3)" on page 155.)
- 3 Adjust the original-width-detecting variable resistor (VR1). (See "To adjust the original-width-detecting variable resistor (VR1)" on page 157.)
- 4 Adjust the left-edge stop position. (See "To adjust the left edge stop position" on page 147.)
- 5 Adjust the sheet-to-sheet gap in reduced composition mode. (See "To adjust the sheet-to-sheet gap for two-page copy mode" on page 149.)

Side HCI adjustments

There are three adjustments for the side HCI:

- Gap between the printer and the side HCI
- Base plate position
- Paper-size change (A4 or letter)

Gap between the printer and the side HCI

Note

Improper adjustment of this gap can cause misfeeds.

- 1 Loosen the wing nuts on both adjustment screws on the bottom of the side HCI.

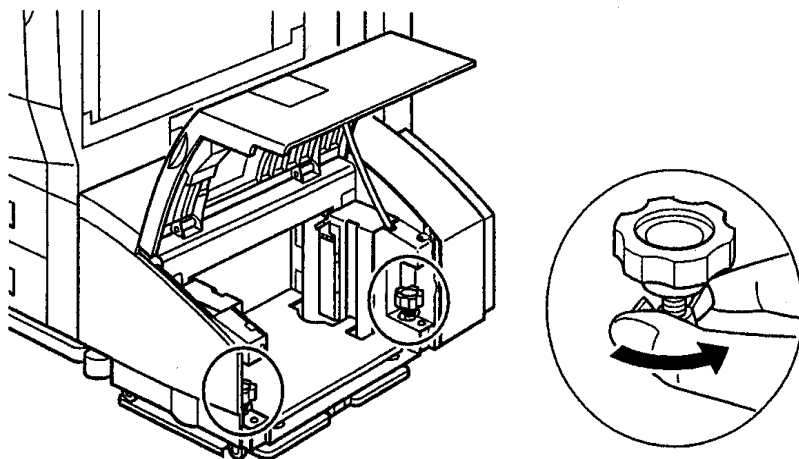


Figure 56. Wing nuts on the adjustment screws

- 2 Use the adjustment screws to straighten the gap between the side HCI and the print engine.
- 3 When adjustment is complete, secure the wing nuts to lock the adjustment screws into place.

Base plate position

Note

Improper positioning of the base plate will cause printed images to be misplaced on the paper. For best results, the base plate should be centered.

- 1 Loosen the two securing screws on the base plate.

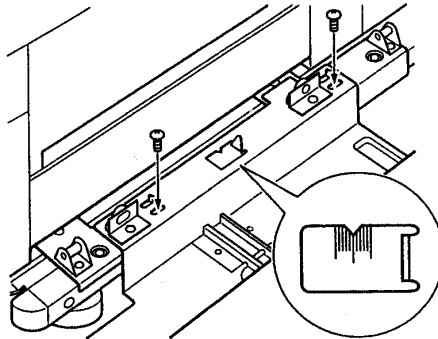


Figure 57. Base plate securing screws

- 2 If the printout is placed too far to the top of the page, move the plate toward the rear of the printer.
- 3 If the printout is placed too far to the bottom of the page, move the plate toward the front of the printer.
- 4 When adjustment is complete, tighten the two securing screws.

Note

You might have to lift the plate completely off to move it.

Paper-size change (A4 or letter)

- 1 Loosen the two white paper-guide fixing screws.

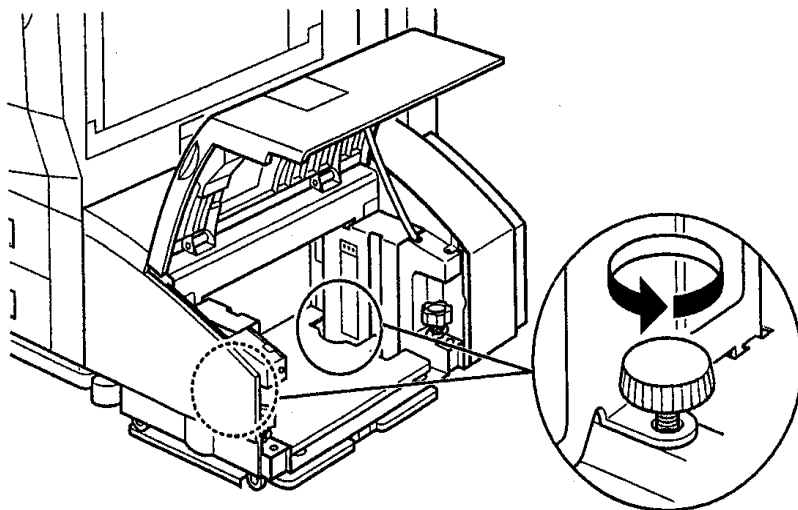


Figure 58. Paper guide fixing screws

- 2 Lift the paper guides out of their slots and place them into the holes for LTR or A4, as labeled.

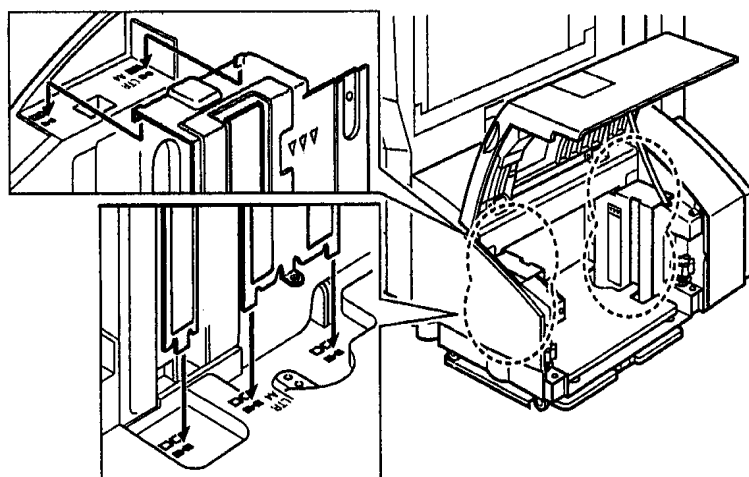


Figure 59. Paper guides

- 3 Replace the fixing screws.

- 4 Insert the plastic paper-size tab so that the notation for the correct size is displayed (LTR or A4).

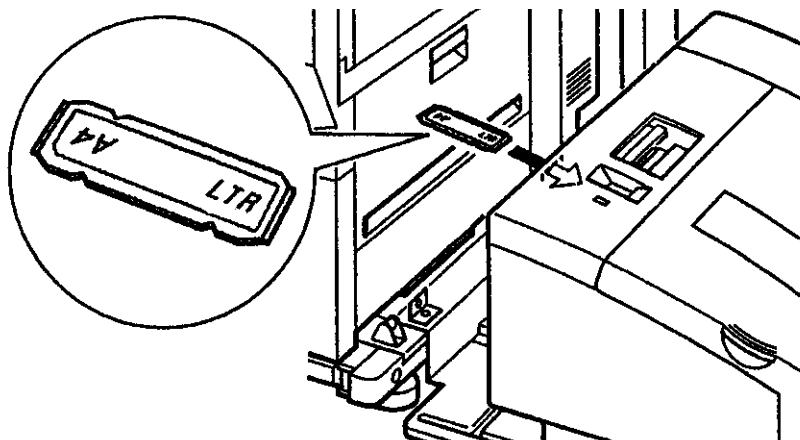


Figure 60. Paper size card

Note

If the side HCI fails to register letter, or incorrectly reports A4 instead of letter, reinsert the plastic paper-size tab to make sure that the tab is activating the switch correctly.

Periodically replaced parts

Note

The copy module, ADF, and side HCI do not contain parts that must be replaced after a certain number of printed pages or at a certain time interval. The numbers provided below are for estimation purposes only and do not indicate a point at which the part must be replaced. Replace parts upon failure only.


Table 53. Periodically replaced parts

	Part name	Part number	Approximate life expectancy
Copy module	Lamp	FH7-3336-000CN	500 hours or 75,000 pages
	Fan	FH6-1463-000CN	30,000 hours
	Control panel LCD	FG6-0365-000CN	10,000 hours
ADF	Feeder belt	FC1-7815-020CN	200,000 sheets
	Paper pick-up roller	FF5-5191-000CN	250,000 sheets
	Feeder belt (separation)	FB3-5702-000CN	250,000 sheets
	Separation roller	FF5-5207-000CN	250,000 sheets
Side HCI	Feed roller and separation roller	RF5-1834-0000CN	350,000 pages

Cleaning

Cleaning by an end-user

The user should clean the following at least once a week:

- **Copyboard glass and cover.** Wipe with water or mild detergent on a well-wrung cloth, and then wipe dry.
- **ADF.** Execute ADF cleaning(, [ADJUSTMENTS/CLEANING](#), [FEEDER CLEANING](#)).

Note

For information on cleaning the printer, see the printer service manual.

Cleaning by service technicians

Service technicians should perform cleaning during a service visit, not periodically.

Solvents

Isopropyl alcohol is the recommended solvent for all parts except the copyboard glass, external plastic covers, and rubber rollers/belts. Isopropyl alcohol can be procured locally.

Clean external plastic covers and rubber rollers/belts with a well-wrung, water-dampened cloth.

Note

In the absence of isopropyl alcohol, use a water-dampened cloth for cleaning.

Cleaning parts on the copy module

To clean the copyboard glass and cover

- 1 Wipe the copyboard glass and cover with a cloth moistened with water or solution of mild detergent; then, wipe them dry.

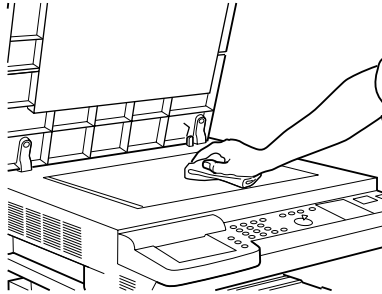


Figure 61. Copyboard glass

- 2 Wipe the inside surface of the copyboard cover with a cloth moistened with water or solution of mild detergent; then, wipe it dry.

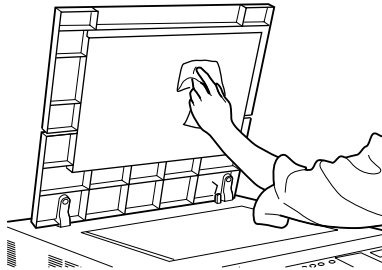


Figure 62. Copyboard cover

To clean internal parts of the copy module

- 1 Clean the mirrors, reflecting shade, CCD lens, and standard white plate with a soft blower brush.
- 2 Clean and lubricate the scanner rail only if contaminated.

Table 54. Items to be cleaned

Parts	Remarks
Copyboard glass and cover	Use lint-free cloth with water or detergent.
Mirrors 1, 2, and 3	Use a blower brush.
Lens CCD	Use a blower brush.
Standard white plate	Use lint-free cloth with water or isopropyl alcohol.

CAUTION

Do not touch the mirrors and lenses. Keep the CCD free from dust.

For a list of periodically replaced parts of and consumables/durables for the printer unit, see the HP Color LaserJet 8500/8550 Printer Family Service Manual.

Cleaning ADF parts

- Inspect and blow paper dust out of timing sensors.
- Clean delivery/reversing roller with a water-dampened, lint-free, soft cloth.
- Clean the registration roller with a water-dampened, lint-free, soft cloth.
- Clean the registration paper sensor (S3) and registration sensor LED3 with a water-dampened, lint-free, soft cloth. See “To clean the registration sensor (S3)” on page 170.
- To clean the separation belt (pick function), use a sheet of paper moistened with alcohol. If you do not have isopropyl alcohol, use dry paper, shift bit 6, and then press SW3 to clean.
- To clean the feeding roller (separation function), use a sheet of paper moistened with alcohol. If you do not have isopropyl alcohol, use dry paper, shift bit 6, and then press SW3 to clean.
- Clean the document tray paper sensor (S1) and the reflecting face of the original sensor with a water-dampened, lint-free, soft cloth. See “To clean the sensors” on page 169.
- Clean the delivery roller with a water-dampened, lint-free, soft cloth.
- Clean the pick-up roller with a water-dampened, lint-free, soft cloth.
- Clean the feeding belt with a water-dampened, lint-free, soft cloth. Move the belt by hand in the paper-feed direction to clean the entire belt.
- Clean the copyboard glass retainer with a water-dampened, lint-free, soft cloth (right).
- To clean the separation guide, use alcohol, or, in absence of alcohol, use a water-dampened, lint-free, soft cloth to clean the 12 tabs. Clean with strokes in paper-feed direction. See “To clean the separation guide” on page 173.
- Clean the vertical size plate with a water-dampened, lint-free, soft cloth.

To clean the belt assembly

- 1 Move the feeding belt in the direction of the arrow as you wipe it with a water-dampened cloth.

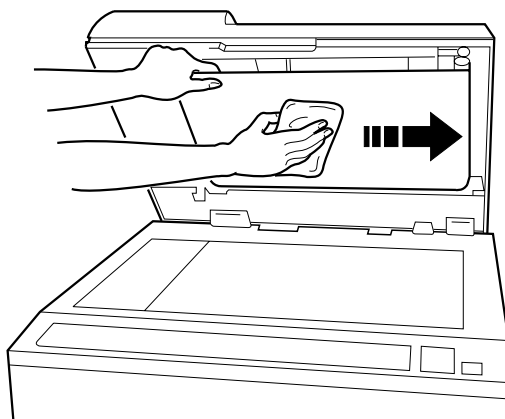


Figure 63. Belt assembly

- 2 Moisten the center of a sheet of copy paper with alcohol and place the paper on the document tray; then, shift bit 6 of the DIP switch (SW1) on the DADF controller PCB to ON.

Note

In the absence of alcohol, use dry paper.

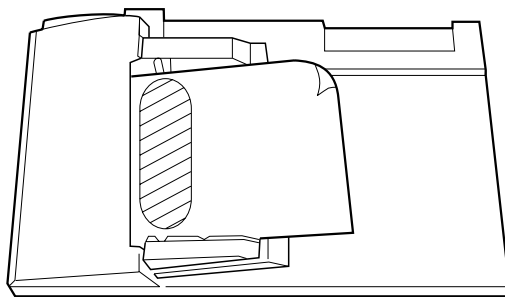


Figure 64. Document tray

- 3 Press the push switch (SW3) to execute cleaning of the separation belt.
- 4 When cleaning has ended, press the push switch (SW3), and shift all bits of the DIP switch to OFF.
- 5 Mount the DADF controller PCB cover.

To clean the sensors

The ADF's feeding path is equipped with two transmission-type sensors (original sensor S1, registration sensor S3) and three photointerrupters (pick-up sensor S7, delivery sensor S6, reversal sensor S8).

The light-receiving face of a transmission-type sensor tends to collect more paper lint than does a photointerrupter, possibly leading to malfunction.

Follow the steps below to clean the sensors:

- 1 Remove the body cover.
- 2 Remove the two screws (callout 1) and remove the document-tray mounting plate (callout 2).

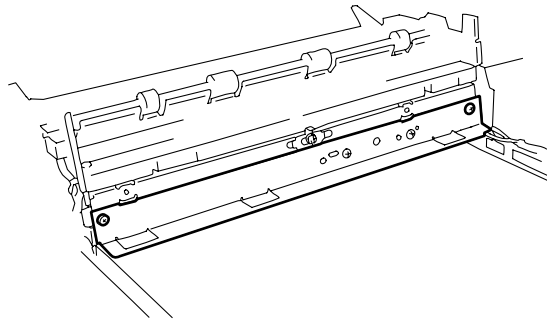


Figure 65. Sensors

- 3 Clean the sensor S1 (callout 3) shown in the following figure.

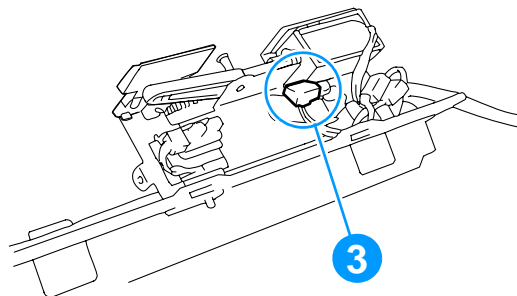


Figure 66. Sensor S1

To clean the reflecting face (original sensor)

Clean the reflecting face (callout 1) of the original sensor while keeping the delivery roller (callout 2) down.

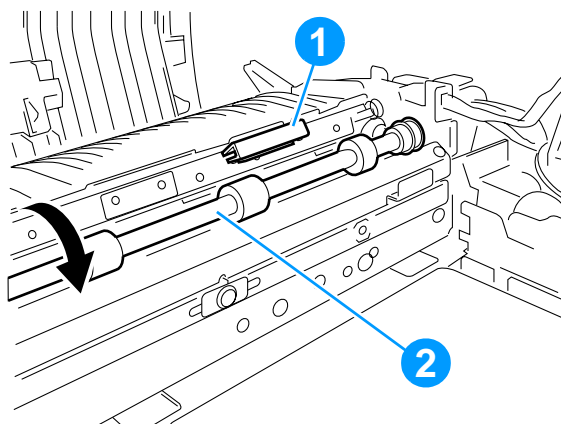


Figure 67. Reflecting face sensor

To clean the registration sensor (S3)

- 1 Remove the separation belt unit.
- 2 Remove the four screws (callout 1), and detach the separation guide plate (callout 2).

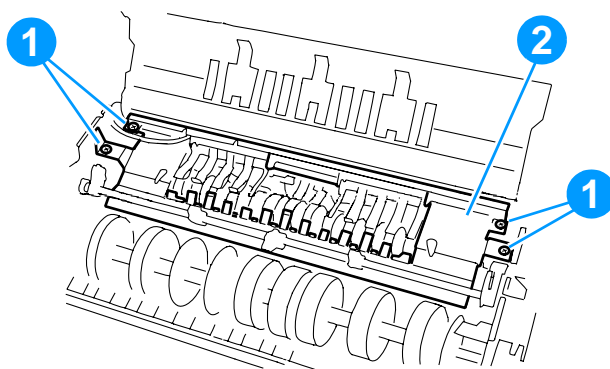


Figure 68. Registration sensor

- 3 Remove the two screws (callout 3), and detach the inside guide plate (callout 4).

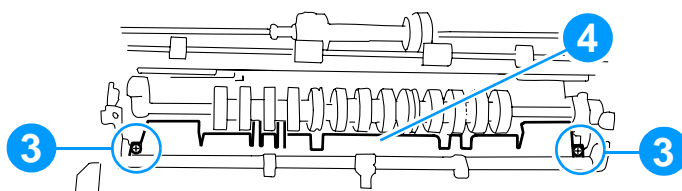


Figure 69. Guide plate

- 4 Clean the registration sensor S3 (callout 5) mounted on the inside of the plate (callout 4).

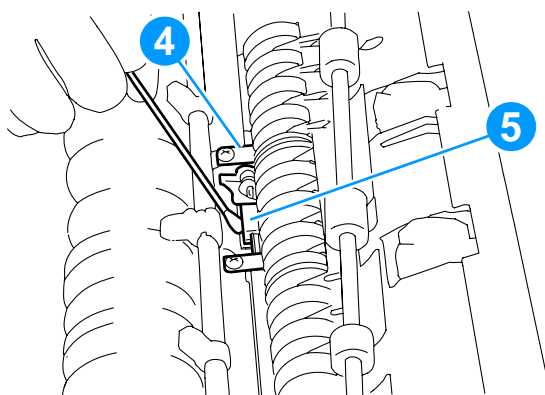


Figure 70. Registration sensor

To clean the registration sensor LED3

- 1 Remove the screw (callout 1), and detach the registration sensor LED3 cover (callout 2) of the reversing roller unit (callout 3).

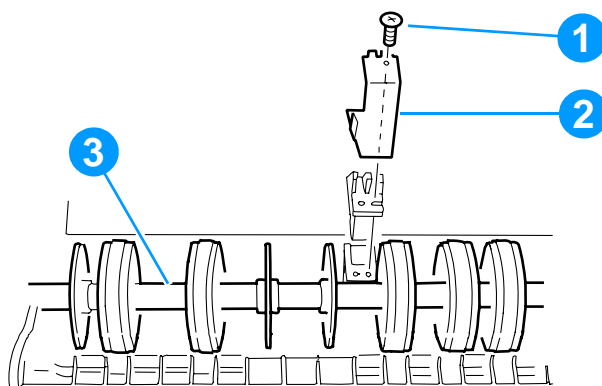


Figure 71. Registration sensor LED3 cover

- 2 Clean the light-emitting face of the registration sensor LED3 (callout 4).

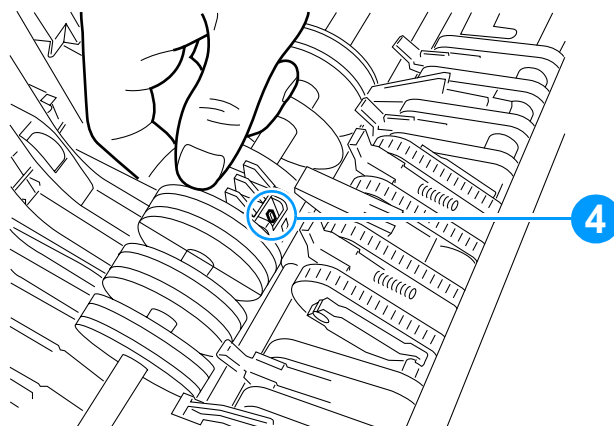


Figure 72. Light-emitting face

To clean the separation guide

- 1 Remove the separation belt. (See See “Removing the separation belt unit” on page 398..)
- 2 Remove the two front separation flappers.
- 3 Clean all 12 areas of the pre-separation guide with alcohol.

Note

Make cleaning strokes in the paper-feed direction.

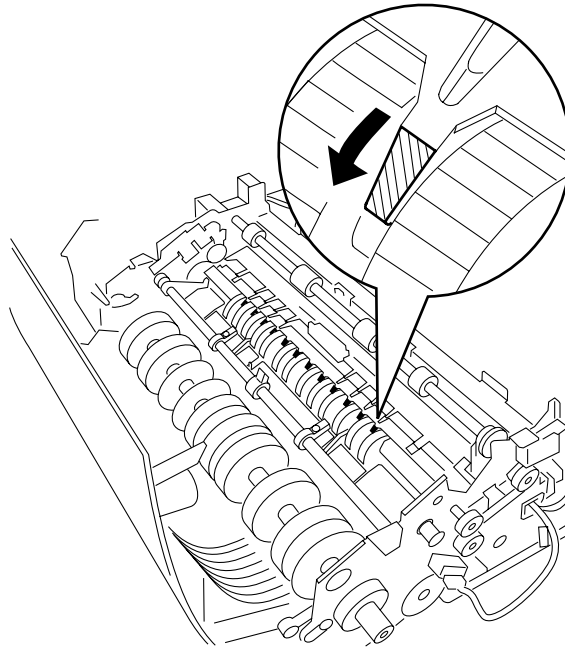


Figure 73. Separation guide

Cleaning side HCl parts

Clean the following items periodically using a water-dampened, lint-free, soft cloth:

- Pick-up roller
- Separation roller
- Feed roller

Lubricating

The HP Color LaserJet 8550MFP does not have any parts that require periodic lubrication. Apply lubricant only if contamination has necessitated cleaning, or if lubricated parts have been replaced.

CAUTION

When applying lubricant, take care that other parts are not soiled with lubricant. If this occurs, be sure to wipe clean the affected parts.

Table 55. Lubricants

	Name	Use	Composition	Remarks
Copy module	Lubricant	Lubricating scanner rail	Light mineral oil (paraffin family)	Procure locally
Copy module	Lubricant	Lubricating between gear and shaft	Mineral oil of the petroleum family	Procure locally
Copy module	Lubricant	Lubricating drive parts	Silicon oil	Procure locally
ADF	Lubricant	Lubricating	Silicon oil	Procure locally
side HCI	Lubricating oil	Apply between the gear and shaft	Petroleum jelly	Procure locally
side HCI	Lubricating solvent	Apply to the gear; not for moulded-assembly application	Lithium grease	Procure locally

5 Theory of operation

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Introduction

This chapter addresses the theory of operation for the copy module, the ADF, and the side HCI. The theory of operation for the print engine is covered in the printer service manual.

Notes on the power switch

Use the control panel soft switch to power off the copy module. Do not power off the copy module with the rear power switch unless the copy module will not be used for several days or will be moved to another location. To power off the copy module for an extended duration, follow these steps:

- 1 Switch the control panel soft switch to off.
- 2 Wait at least 30 minutes while the HP Color LaserJet 8550MFP cools down. Failure to allow at least 30 minutes for cooling can damage toner cartridges.
- 3 Switch the rear power switch to off.
- 4 Disconnect the power.

Note

The copy module should be relocated only by professional equipment movers.

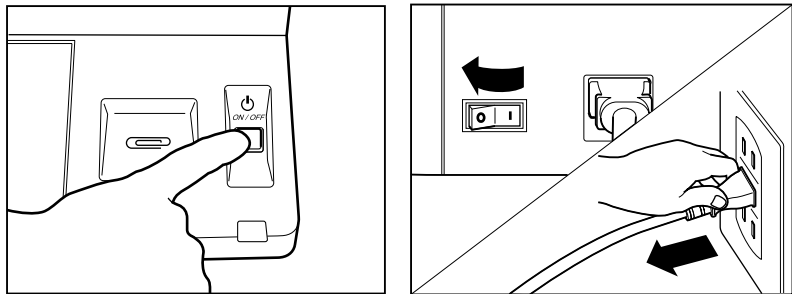


Figure 74. Control panel power soft switch, copy module rear power switch, and power plug

CAUTION

Do not turn off the control panel power soft switch or the rear power switch while the copy module is in operation.

Do not open the printer door while the copy module is in operation.

Copy module

Functional construction

The copy module may is divided into two functional blocks: control system and exposure system.

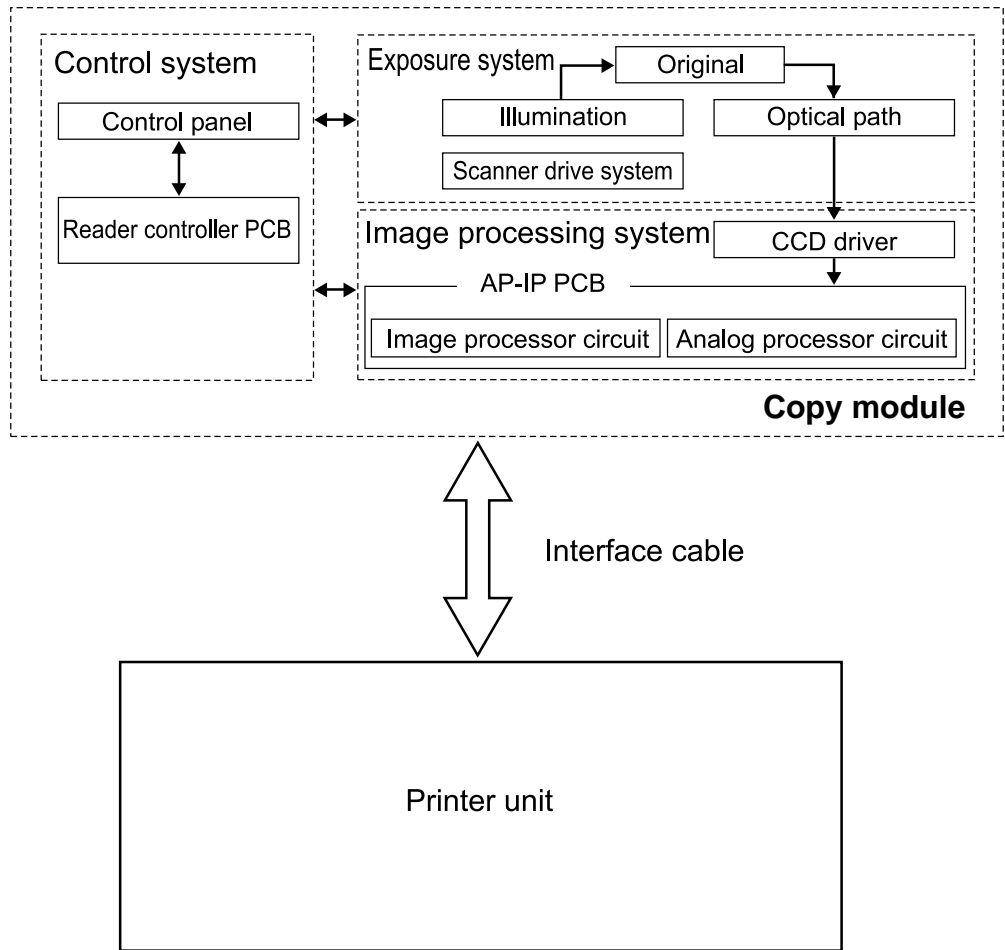


Figure 75. Copy module

Outline of electrical circuitry

The main electrical mechanisms of the copy module are controlled by the CPU on the reader controller PCB. The reader controller PCB is equipped with a lithium battery for backing up important data. The control panel is equipped with its own CPU for control of keys, LEDs, and LCD.

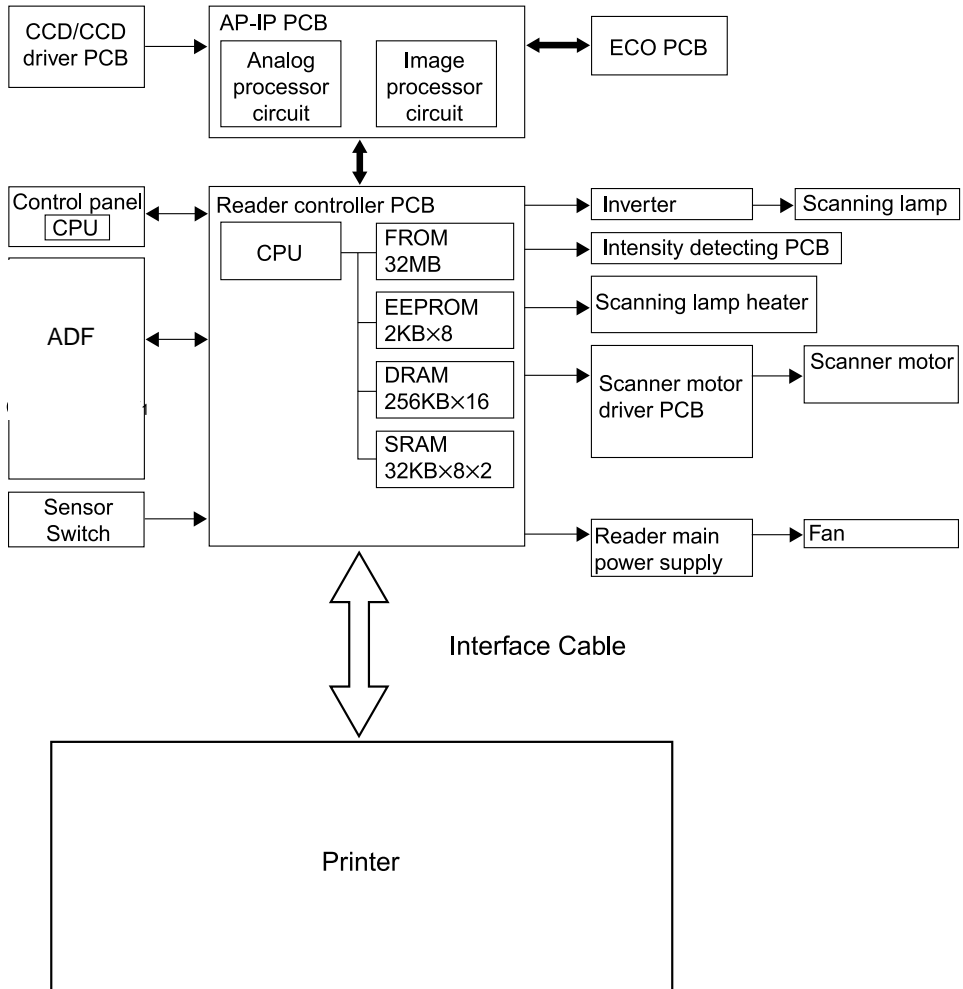


Figure 76. Electrical circuitry

Inputs to and outputs from the major PCBs

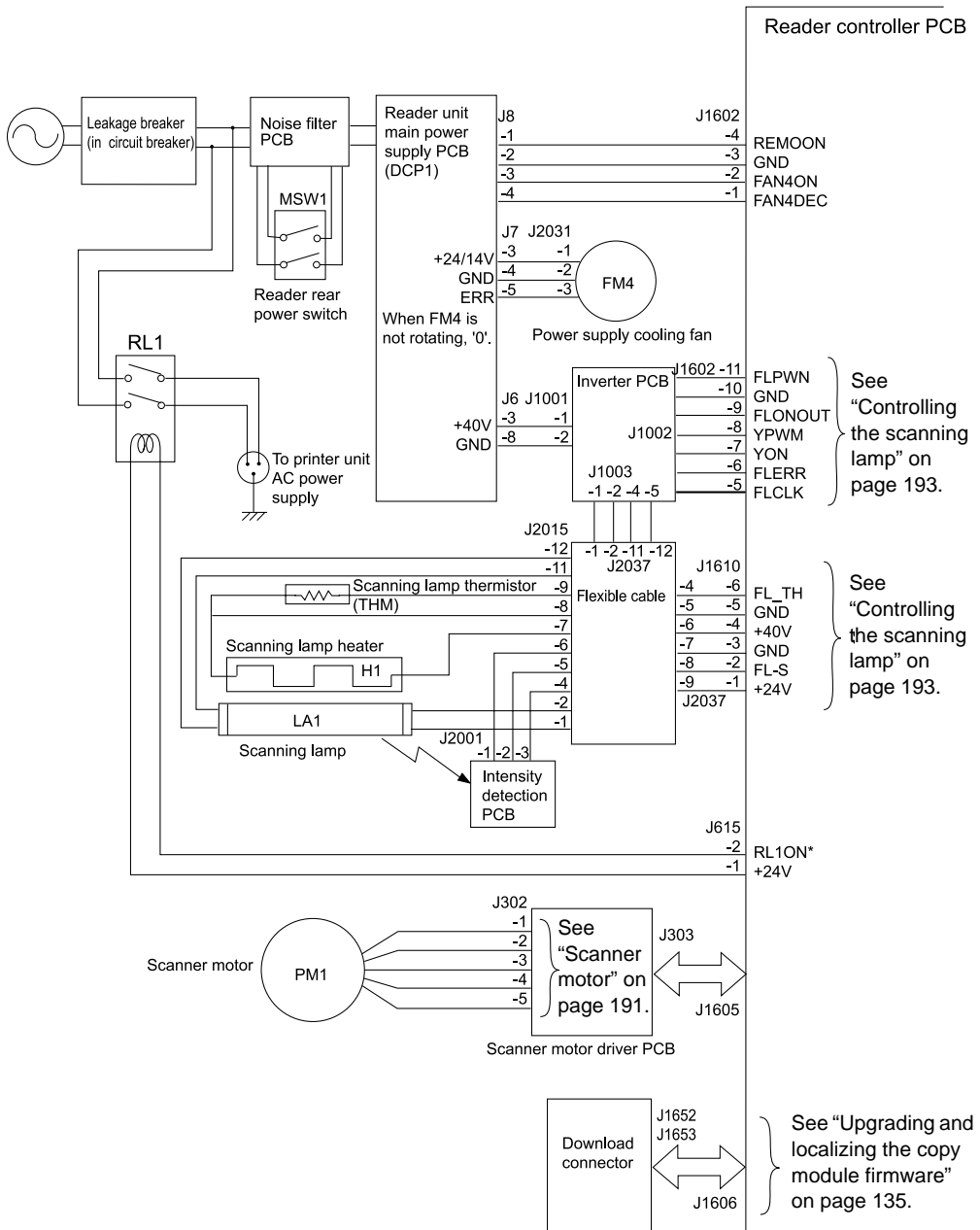


Figure 77. Inputs to and outputs from the reader controller PCB (1 of 3)

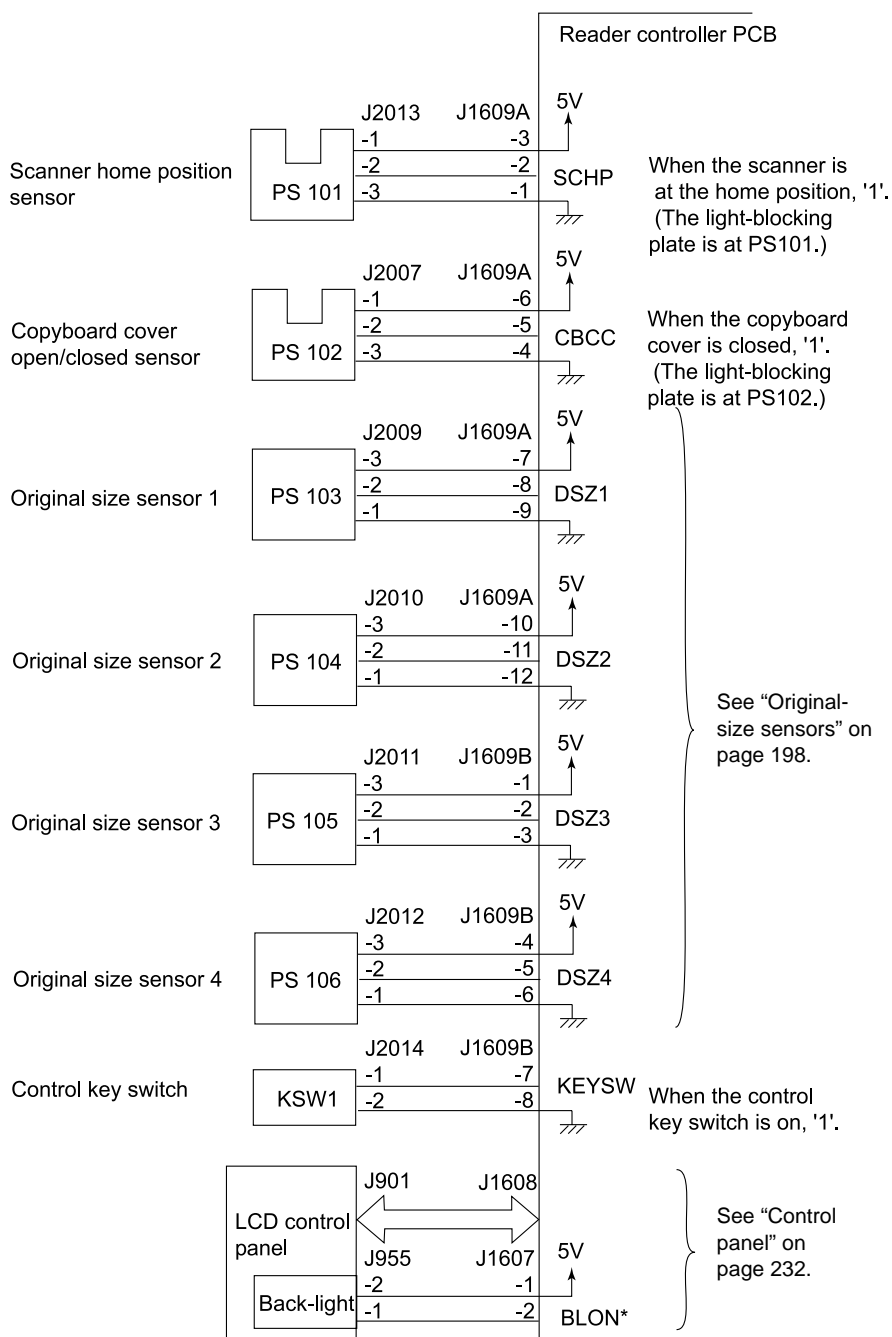


Figure 78. Inputs and outputs from the reader controller PCB (2 of 3)

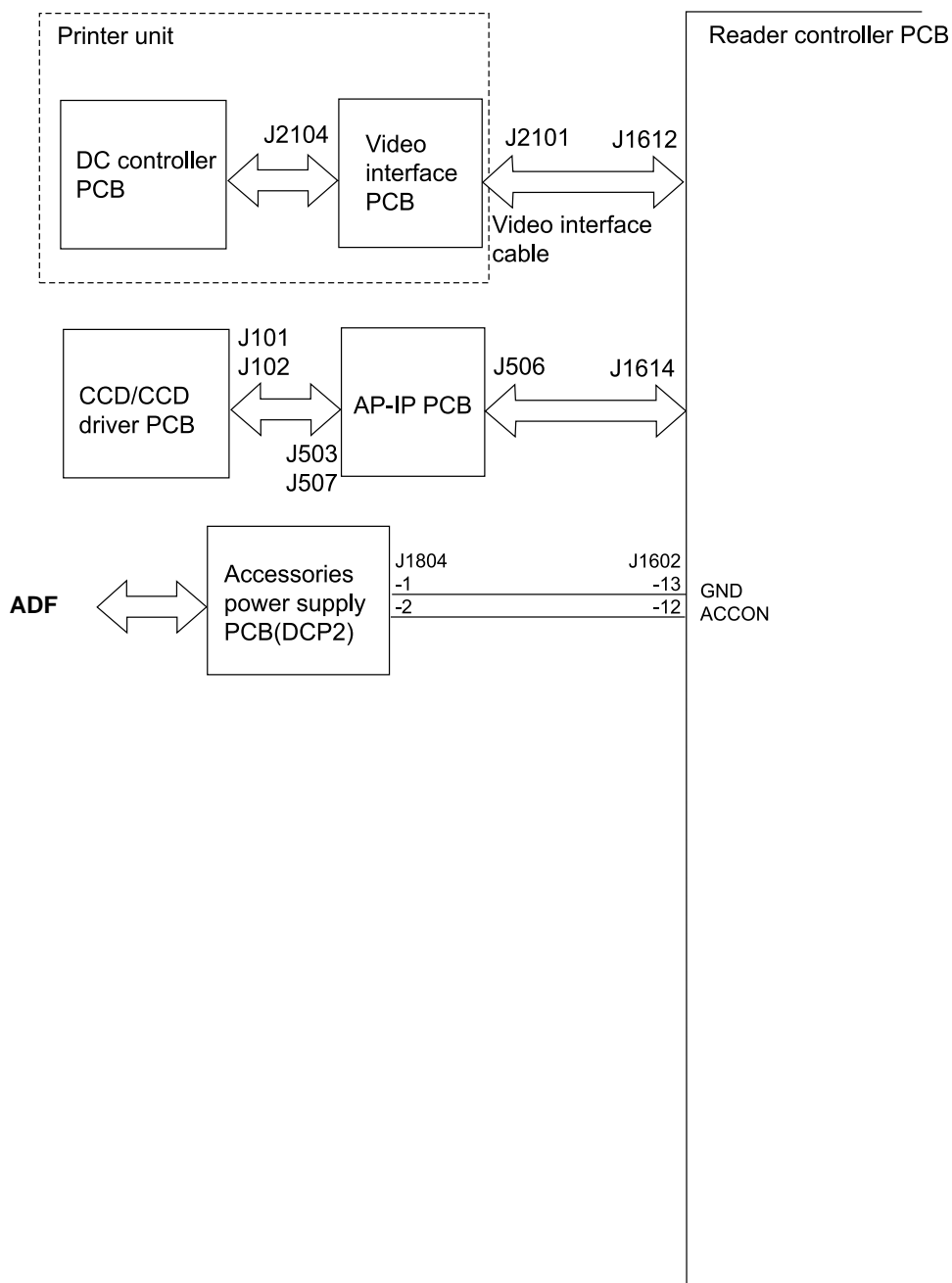


Figure 79. Inputs and outputs from the reader controller PCB (3 of 3)

Basic sequence of operations

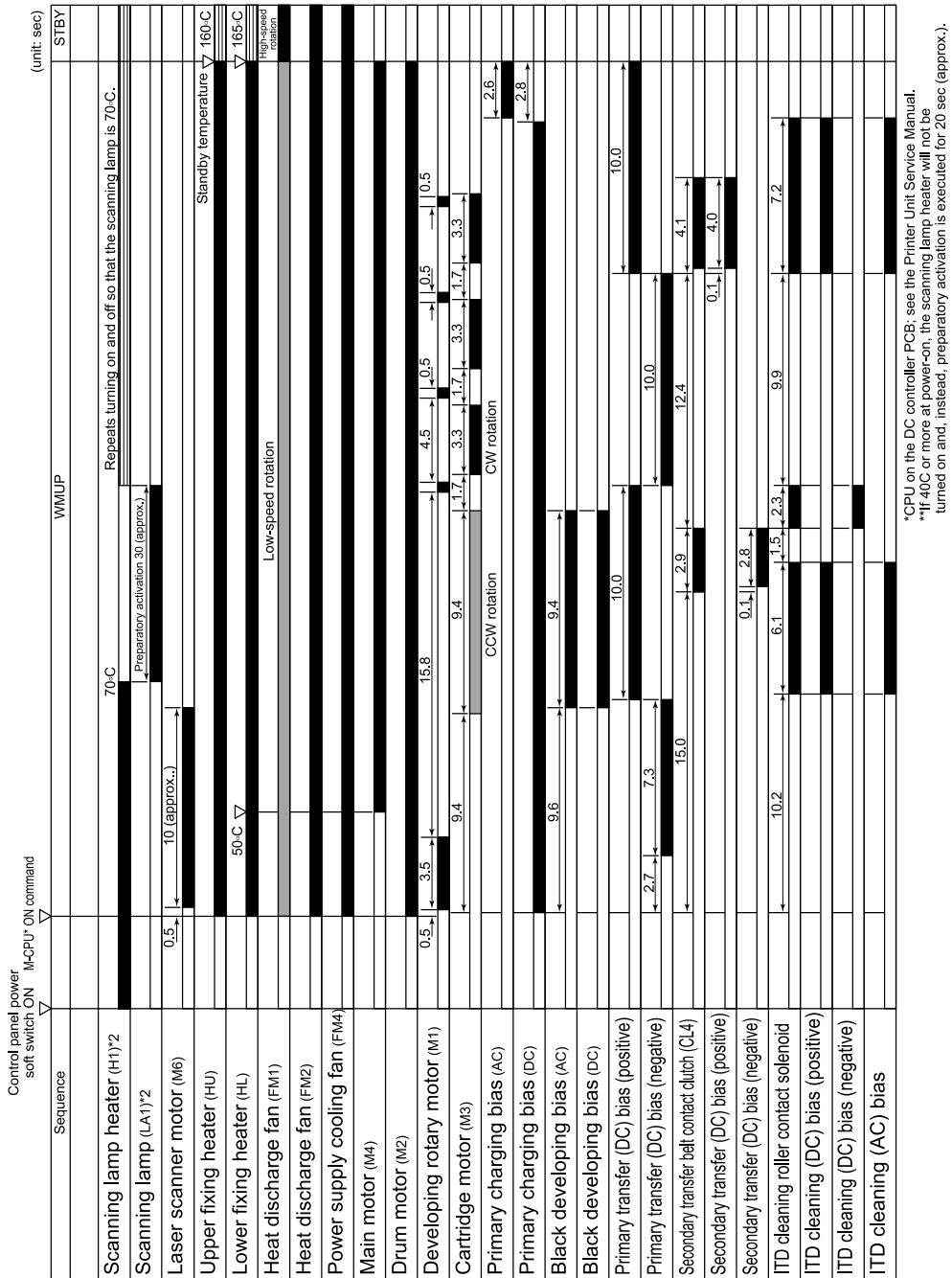


Figure 80. Basic sequence of operations at power-on

Table 56. Warm-up and standby phases

Item	Period	Purpose	Remarks
WMUP (warm-up)	From when the control panel power soft switch is turned on until the surface temperature of the upper fusing roller reaches 160° C and the temperature of the lower fusing roller reaches 165° C.	To heat the fusing roller and to put the printer into standby state.	During this period, the printer checks for residual paper and the presence/absence of the toner cartridge, and executes correction for stable reproduction of images.
STBY (standby)	From when WMUP ends until the COPY START is turned on or the power switch is turned off.	To wait for COPY START or another key to be pressed.	

Note

The copy module is not likely to be used on its own, and the sequence of operations is discussed in terms of a combination of the copy module and the printer.

Sequence of operations during copying

Key input, Original set				Copy start key ON				(unit: sec)				
Sequence	STBY	INTR	DSRDY	COPY						LSTR	STBY	
				Y1	Y2	M1	M2	C1	C2	K1	K2	CCW rotation
Scanner motor (PM1)			CW rotation									
Scanning lamp (LA1)												
Laser scanner motor (M6)												
Upper fixing heater (HU)	160-C		Copied									
Lower fixing heater (HL)	165-C		Copied									
Heat discharge fan (FM1)	High-speed rotation											
Heat discharge fan (FM2)												
Heat discharge fan (FM3)												60
Pre-exposure LED												60
Main motor (M4)												
Registration clutch (CL1)										1.8	1.8	
Pick-up motor (M5)					1.0	1.6				1.0	2.3	
Cassette pick-up solenoid (SL3)					0.2	1.1				0.2		
Feeding clutch (CL2)						4.3						
Drum motor (M2)					0.3							2.5
Developing rotary motor (M1)					1.1	4.7		4.7		4.7	3.5	
Cartridge motor (M3)		0.8	2.0	1.6	4.3		4.3		4.3		3.5	1.0
				CCW rotation		CW rotation					CCW rotation	

Figure 81. A4- and letter-size, 2 copies, 4-color, Direct, and cassette 1 sequence of operations (1 of 2)

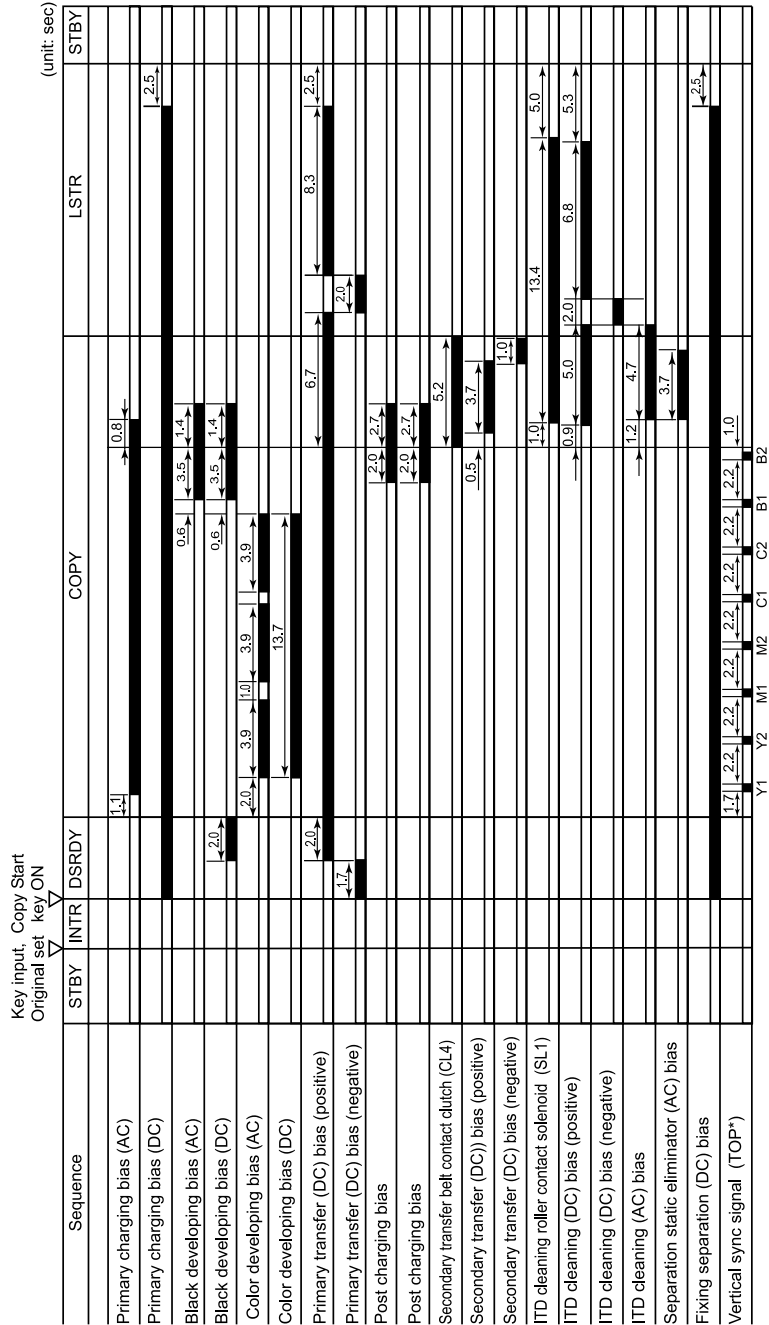


Figure 82. A4- and letter-size, 2 copies, 4-color, Direct, and cassette 1 sequence of operations (2 of 2)

Table 57. Sequence functions

Item	Period	Purpose	Remarks
INTR (initial rotation)	From when a key input is made or an original is set until COPY START is pressed.	To rotate the laser scanner motor, thereby stabilizing the sensitivity of the photosensitive drum.	
DSRDY (scanning preparation)	From when COPY START key is pressed until the point of rotation of the intermediate transfer drum reaches the leading edge of the first color.	To turn on and off the laser beam using video signals so as to form an image on the photosensitive drum; thereafter, to turn the toner image into a visible image and transfer the result to copy paper.	
COPY (copy)	From when control rotation ends until all toner has been transferred to the copy paper.		
LSTR (last rotation)	From when COPY ends until the main motor stops.	To discharge copy paper and to clean the intermediate transfer drum.	The intermediate transfer drum is cleaned for each copy. In the case of continuous copying, cleaning is also executed during COPY.

Copy module exposure system

The exposure system includes functions used to expose the original and direct the reflected optical image to the CCD. Figure 83 is a cross-section of the exposure system, while figure 84 is a diagram of the mechanics involved.

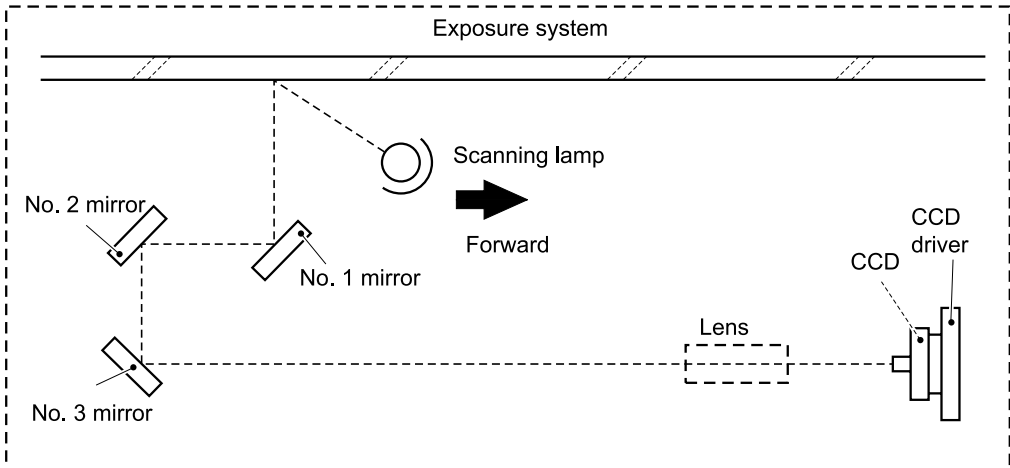


Figure 83. Cross-section of exposure system

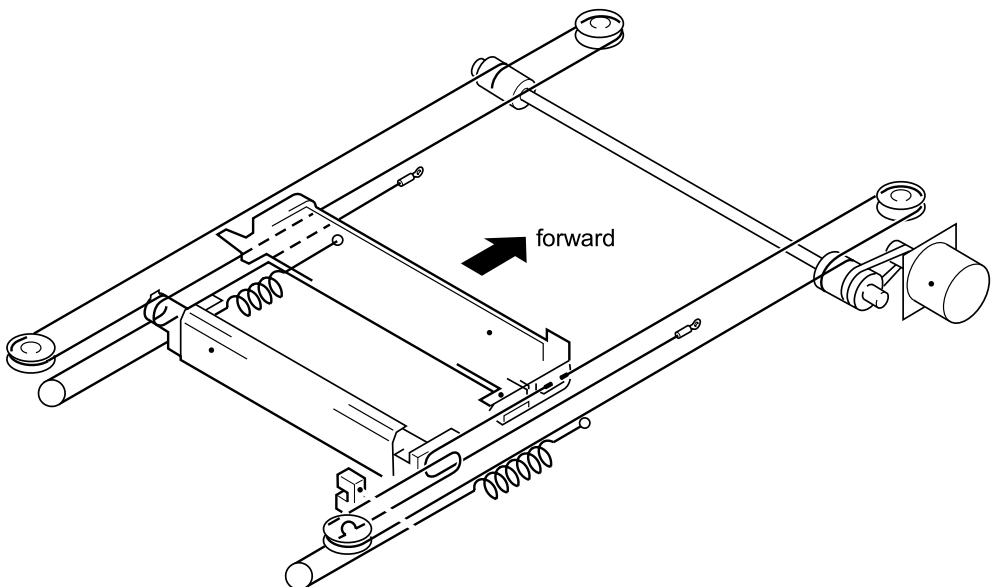
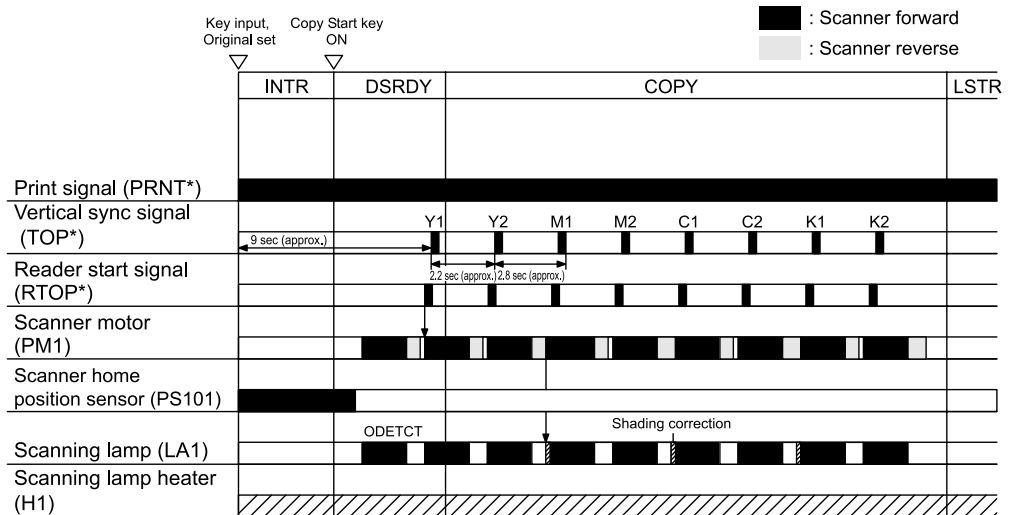


Figure 84. Exposure system mechanics

Basic sequence of operations



ODETCT: black original identification, AE measurement.

Figure 85. A4- and letter-size, 2 copies, 4-color, Direct, cassette 1 sequence of operations

- INTR—initial rotation
- ODETCT—original detection and shading correction
- LSTR—last rotation; approximately equal to secondary transfer end to paper discharge
- DSRDY—document scanner ready

Scanner home position sensor and operation

The scanner home position sensor operates at the following timing:

- When the power is turned on
- When **COPY START** is pressed
- When all originals are read
- While the CCD is being adjusted in service mode

The home position sensor does not turn on during continuous copying; if the sensor does turn on, scanning stops immediately. Figure 86 shows the movement of the scanner during copying. The start position is approximately 5 mm forward of the home position in Direct Mode.

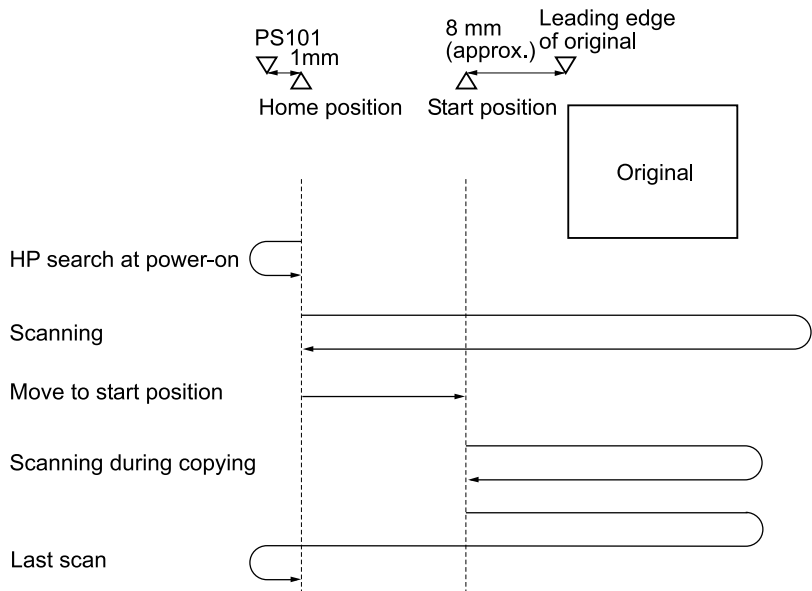


Figure 86. Scanner movement

Scanner motor

Figure 87 shows the circuit used to control the scanner motor. The circuit has the following functions:

- Controls the direction of rotation of the scanner motor
- Controls the speed of rotation of the scanner motor

The scanner motor changes its direction of rotation to move the scanner forward and in reverse. The speed of its rotation during scanning varies according to the selected reproduction ratio. The scanner moves at four different speeds when moving in reverse. The greater the distance, the greater the speed. The four speeds are described below, compared to the forward speed with a 1:1 enlargement ratio.

- One-page mode (7.7 times as fast)
- Reverse distance of the mirror 1 mount is 105.1 mm or more (16.4 times as fast)
- Reverse distance of the mirror 1 mount is 70.1 mm or more and less than 105.1 mm (9.3 times as fast)
- Reverse distance of the mirror 1 mount is less than 70.1 mm (5.7 times as fast)

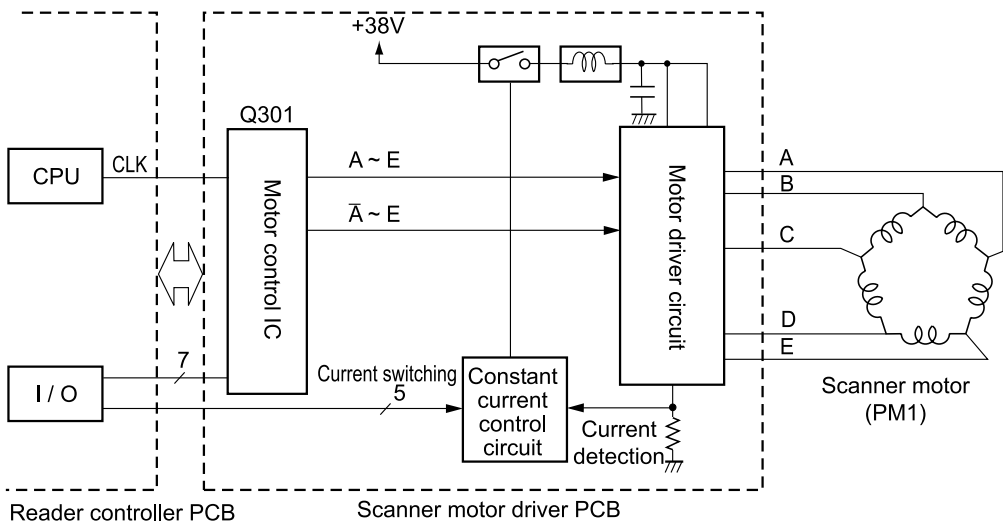


Figure 87. Scanner motor circuit

The reader controller PCB sends the MTCLK signal, CW/CCW signal, and STEP_ANGLE through STEP_ANGLE3 signals to the scanner motor driver PCB to suit the scanning mode, distance, and reproduction ratio. In response, the motor control IC (Q301) on the scanner motor driver PCB generates motor drive pulses (SPA to SPE, SNA to SNE) to drive the scanner motor. The scanner motor is a five-phase stepping motor, and controls the direction and speed of scanning by varying the sequence and frequency of the motor drive pulses (SPA through SPE and SNA through SNE). The constant current control circuit controls the current flowing to the motor to a specific level to suit the speed of motor rotation. When the motor remains at rest in standby, the current flowing to the motor is cut in response to the MOVE signal to prevent heating of the motor.

Changing the reproduction ratio

The reproduction ratio in main scanning direction (drum axial direction) is changed by skipping image signals when writing them into the line memory (reduction) or by reading the same image signals when reading them from the line memory (enlargement). The reproduction ratio in sub scanning direction is changed by moving the mirror mount faster (reduction) or slower (enlargement).

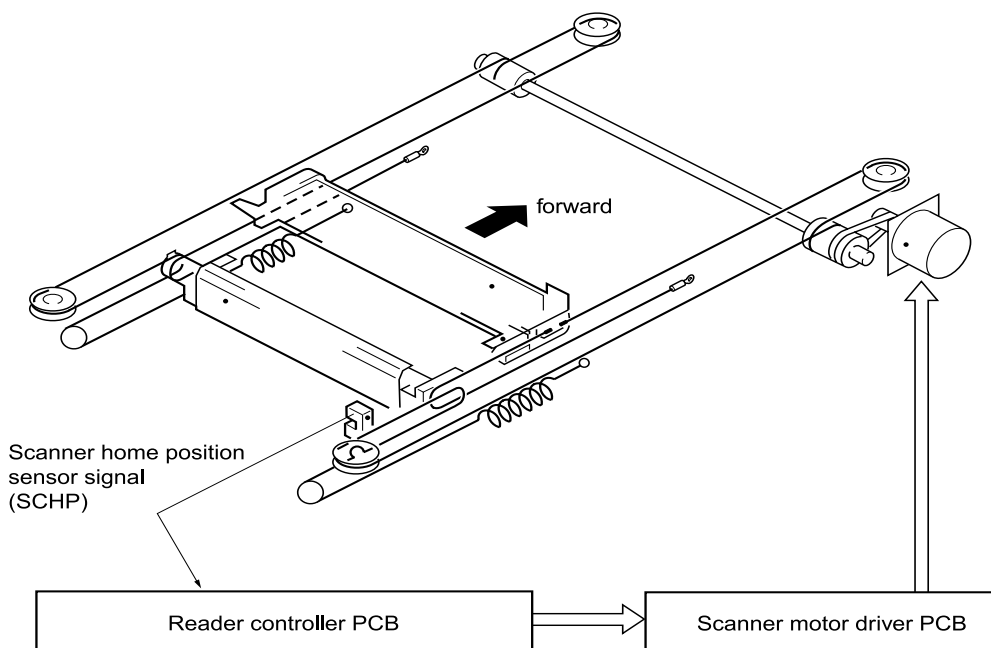


Figure 88. Changing the reproduction ratio

Controlling the scanning lamp

The scanning lamp in the copy module is a fluorescent lamp. The lamp is turned on and off by the inverter PCB according to the reader controller PCB. The reader controller PCB controls the following functions:

- Scanning lamp preheating mechanism
- Power to the scanning lamp on and off
- Density of the scanning lamp
- Temperature of the scanning lamp heater
- Condition (deterioration) checks of the scanning lamp
- Error detection

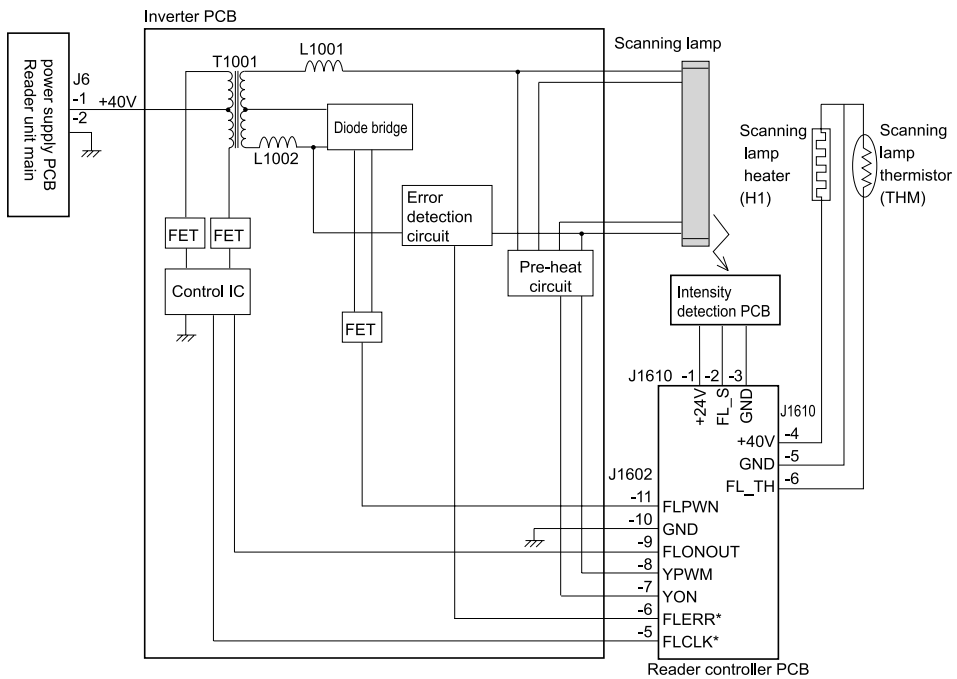


Figure 89. Controlling the scanning lamp

Controlling the pre-heating mechanism of the scanning lamp

To reduce the time required for the scanning lamp to reach its optimum intensity after **COPY START** is pressed, the filament of the scanning lamp is supplied with power. This mechanism is called “pre-heating,” and it may be standby pre-heating, pre-activation pre-heating, or activation pre-heating.

- **Standby pre-heating**—The filament is supplied with a voltage of 2.9 ± 0.25 V after power-on, during initial rotation, and after copying. If the lamp turns on and then off at the end of copying, standby pre-heating is ended and it will be started as soon as the lamp heater turns on next time. Thereafter, standby pre-heating remains on until the next time the lamp turns on.
- **Pre-activation pre-heating**—The filament is supplied with a voltage of 4.35 ± 0.45 V 1.5 seconds before the scanning lamp is turned on for copying.
- **Activation pre-heating**—The filament is supplied with a voltage of 3.8 ± 0.4 V during copying. Thereafter, a voltage determined based on the intensity duty value read while the scanning lamp is on will be applied.

Turning on and off the scanning lamp

The scanning lamp is turned on and off by the scanning lamp on signal (FLPWM), scanning lamp clock signal (FLCLK), and scanning lamp ON signal (FLONOUT) from the reader controller PCB.

Controlling the intensity of the scanning lamp

The FLPWM signal is a pulse signal, and the intensity of the scanning lamp is controlled so that it remains a constant level by changing the duty ratio of the signal according to the scanning lamp intensity signal (FL_S) detected by the intensity detection PCB and the scanning lamp VR setting.

Controlling the temperature of the scanning lamp heater

The copy module uses a scanning lamp heater to speed up the preparation of the scanning lamp. Normally, the scanning lamp heater is set to $70^{\circ}\text{C} \pm 5^{\circ}\text{C}$, and its temperature is monitored by the scanning lamp thermistor integrated into the heater unit. The temperature of the scanning lamp is controlled as follows:

- If the scanning lamp is less than 40°C at power-on, the filament of the scanning lamp is supplied with power for 120 seconds by way of standby pre-heating. Thereafter, the intensity duty ratio is made 10%, and minimum current preparatory activation is executed for 120 seconds, during which time the scanning lamp heater is controlled to 70°C . The scanning lamp heater is not turned on unless the scanning lamp is turned on as part of preparatory activation.
- If the temperature is 40°C or more at power-on, the copy module will assume that the power has been turned on immediately after it was turned off, and will not turn on the scanning lamp heater but will start preparatory activation (about 20 seconds).
- After preparatory activation, the temperature of the scanning lamp is controlled so that it remains the selected level (about 70°C). When the temperature falls below the selected level, the copy module turns on the scanning lamp heater; when the temperature rises above the selected level, the copy module turns off the scanning lamp heater.

Checking the condition (wear) of the scanning lamp

The condition of the scanning lamp is checked at the following times:

- The intensity duty value while the scanning lamp remains on is read every 100 ms (approximately), and the value is found to be higher than a specific level.
- The temperature of the scanning lamp while it remains on is detected by the scanning lamp thermistor, and the value is found to be higher than the selected level (130°C).
- The time taken by the scanning lamp to reach a specific level is monitored each time the lamp turns on, and it does not reach a specific level within a specific time (two seconds, approximately).
- When the luminous distribution of the scanning lamp lowers, and the deterioration falls outside the compensated range by shading correction.

If any of the above four conditions is detected, the copy module assumes the end of the scanning lamp, and indicates a message under **COPIER > DISPLAY > MISC > FL-LIFE** in service mode.

To replace the scanning lamp, see “Removing the scanning lamp and scanning lamp heater” on page 357.

Detecting errors

Table 58 shows the types of errors that are related to the scanning lamp and scanning lamp heater.

Table 58. Scanning lamp/scanning lamp heater errors

Code	Cause	Description
E211	The scanning lamp thermistor has an open circuit.	The temperature has fallen below a specific level while it was controlled to 70° C.
E215	The scanning lamp thermistor has a short circuit.	When the FLONOUT signal is off (including at time of power-on), the thermistor of the scanning lamp heater has detected 170° C or more.
E216	The scanning lamp does not turn on in 15 seconds.	The intensity sensor does not detect light from the scanning lamp within 15 seconds.
E217	The scanning lamp heater is out of order.	While the scanning lamp is controlled to a specific temperature by the scanning lamp heater, its temperature does not exceed the selected level after supplying the lamp heater with power for three minutes or more.
E218	The scanning lamp is out of order.	The scanning lamp is not installed (as after replacement work). Or, the filament of the lamp is broken.
E219	The scanning lamp has reached the end of its life.	While the scanning lamp is on, the thermistor of the scanning lamp heater has detected 150° C or more.

Identifying the size of originals when copying from the glass

The copy module identifies the size of an original in reference to an original placed on the copyboard glass, and turns on the following functions based on the identified size:

- Automatic paper selection
- Automatic ratio selection

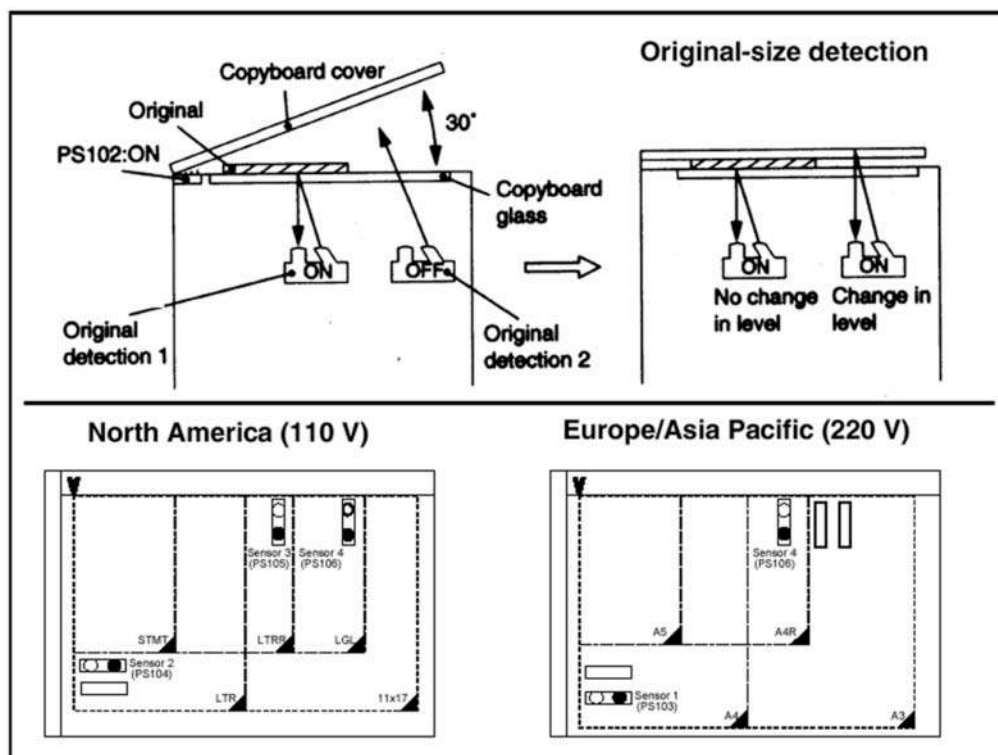


Figure 90. Paper selection sensors

Original-size sensors

The original-size sensors (figure 91) are reflective and are mounted under the copyboard glass (callout 1) to identify the size of originals (callout 2) placed on the copyboard glass. When the copyboard glass cover (callout 3) is brought down to an angle of approximately 30°, a flag blocks photointerrupter PS102 (callout 4) and it turns on. For 15 seconds after PS 102 turns on, or until **START** is pressed, the output level of each sensor is read at intervals of approximately 0.1 seconds. If the level of the output remains the same during the period, the copy module assumes the presence of an original over the sensor, and identifies the size of the original as shown in tables 59 and 60. This way, the copy module can also identify the size of a black original.

The level of the output of a sensor will not change under conditions **a** and **b** below; in the case of **c**, the copy module shows a screen on the control panel, in response to a press on **COPY START**, for selecting a cassette in the case of auto paper selection or for selecting an original size in the case of auto ratio selection.

- a** A3-size black original
- b** Book original (thickness prevents changes in the sensor level)
- c** Copyboard cover open (PS 102 is off)

Note

In each case above, the copy module can incorrectly identify the size of the original.

Note

For automatic size-detection of ADF-fed originals, see “Detecting originals” on page 269.

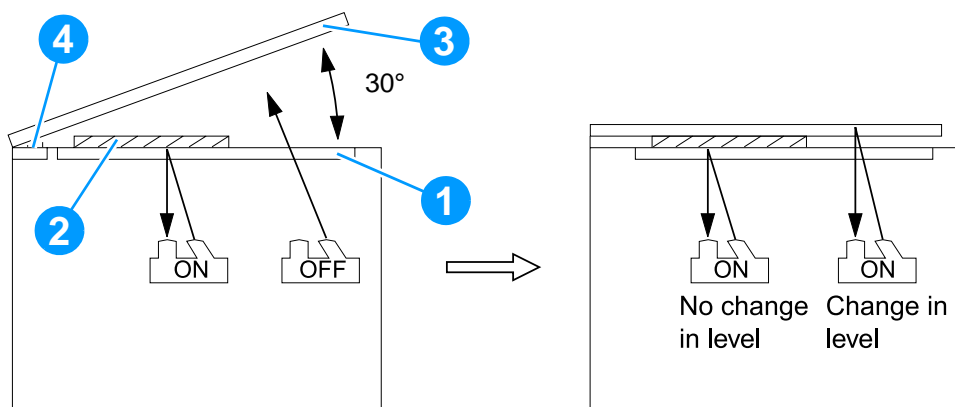


Figure 91. Sensor operation

Identifying the size of originals

The reader controller PCB identifies the size of an original based on signals indicating the presence or absence of an original.

- **Unchanged:** the output of the sensor is read about every 100 ms after the copyboard cover opened/closed sensor turns on. The notation “unchanged” means that the sensor output remained unchanged, detecting the presence of an original.
- **Changed:** the output of the sensor is read about every 100 ms after the copyboard cover opened/closed sensor turns on. The notation “changed” means that the sensor output has changed, detecting the absence of an original.

Table 59. Identifying original size, metric

Original size	Original size sensor	
	1	4
A3	unchanged	unchanged
A4R	changed	unchanged
A4	unchanged	changed
A5	changed	changed

Table 60. Identifying original-size, inches

Original-size	Original-size sensor		
	2	3	4
11-by-17	unchanged	unchanged	unchanged
Legal	changed	unchanged	unchanged
Letter-R	changed	unchanged	changed
Letter	unchanged	changed	changed

Copy module image processing system

The image processing system converts optical images from the scanning system into electrical signals, which are then sent to the laser exposure system of the printer. The image processing system also performs corrections and various image processing to the electrical images. The image processing system consists of a CCD, CCD driver PCB, and AP-IP PCB.

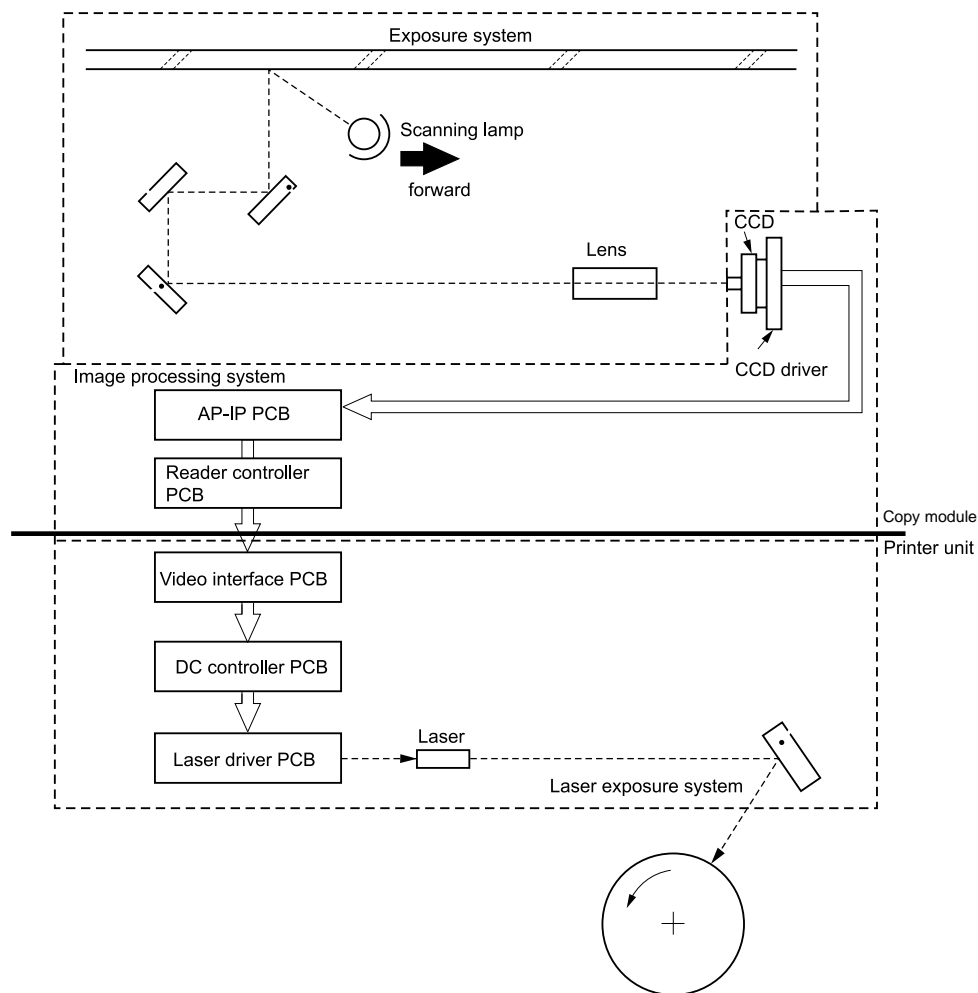


Figure 92. Image processing unit

Note

The reader controller PCB is pass-through only with regard to copy data.

CCD

The CCD (charge-coupled device) consists of a 3-line CCD composed of about 7,500 photocells. Each CCD line is covered with a blue, green, or red filter (callout 1) and consists of a transfer block (callout 2) and an output block. The output of the odd-numbered photocells (callout 3) and the output of the even-numbered photocells (callout 3) are sent out by output blocks A and B, respectively. This way, the CCD sends out image signals simultaneously in six channels. This split speeds up the signal processing.

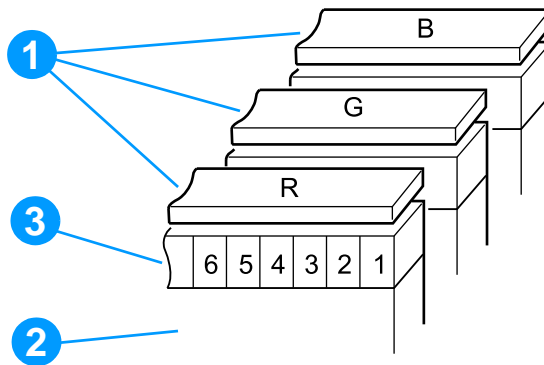


Figure 93. CCD lines and filters

CCD driver

The image signals generated by the CCD are sent through a buffer (low-impedance circuit) for reduction of impedance and then to the AP-IP PCB.

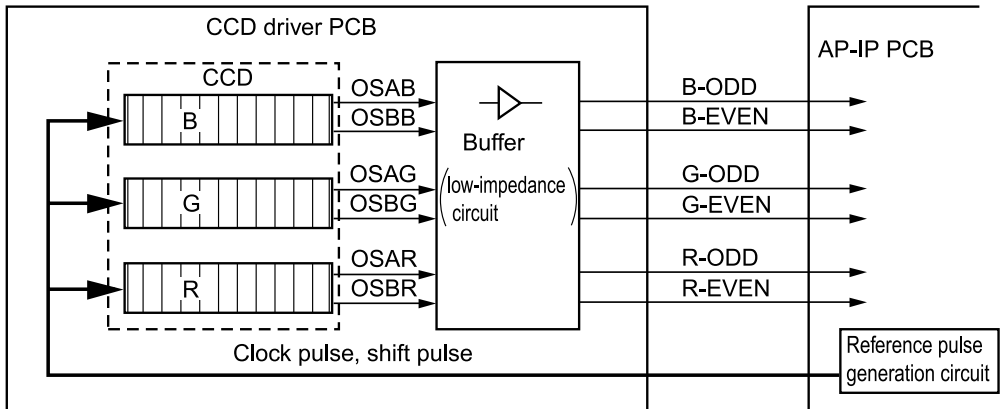


Figure 94. CCD circuit

AP-IP (analog image processing) PCB

The analog image processing circuit processes the output from the CCD for the following:

- Odd- and even-number bit synthesis
- BGR level matching
- A/D conversion circuit
- ABC circuit

The image signals coming from the CCD in six channels are held for sampling by the sample hold signals (SH1 through SH4) for extracting signal components. Thereafter, BGR signal levels are matched according to the BGR gain and offset signals for correction of photo conversion efficiencies (of the B, G, and R CCD lines); then, the results are synthesized into B, G, and R image signals according to the select signal (SEL). The A/D conversion circuit operates in response to the ADCLK signal, and serves to convert B, G, and R image signals into 8-bit digital signals for input to the image processor block.

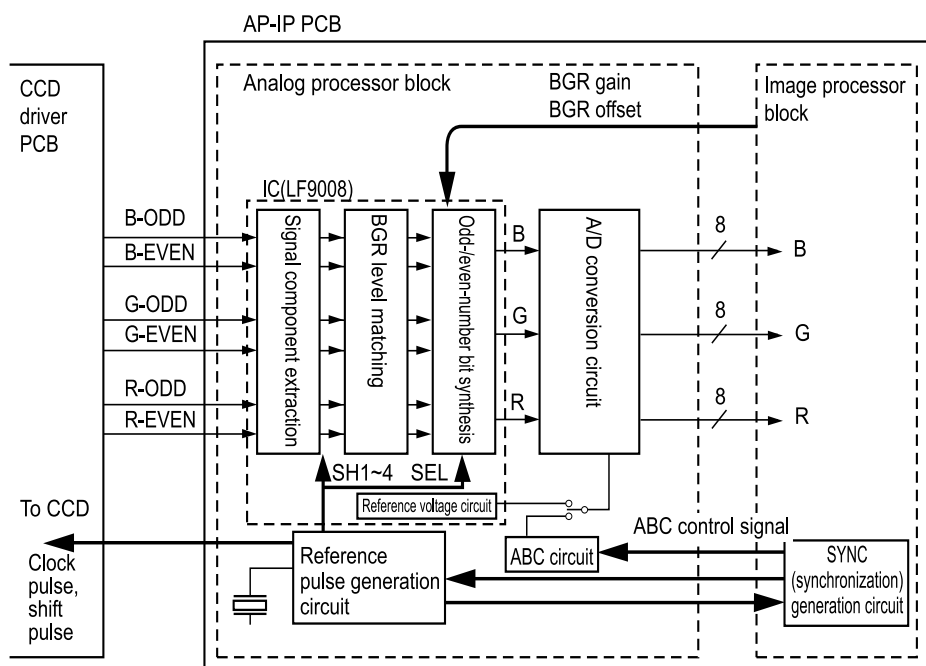


Figure 95. Analog circuit

ABC (auto background control) circuit

AE Mode

The copy module's AE mode (in black-and-white text mode) may be set to either of the following:

- Priority on speed (factory default)
- Priority on image quality

In general, "priority on speed" is best for mostly text originals, and turns out first prints in a short time because of the absence of pre-scanning. "Priority on image quality" is best for originals consisting mostly of images. In "priority on image quality" mode, the copy module uses different density correction curves according to types of originals, and performs pre-scanning over the entire face of the original to take measurements of the density.

ABC circuit

The A/D conversion circuit converts BGR analog image signals representing each single line in main scanning direction from the CCD into 8-bit digital image signals for B, G, and R. The circuit operates in reference to reference voltage. The range (the difference between maximum output level and minimum output level) increases and decreases in response to increases and decreases in the reference voltage, affecting the level of signals after A/D conversion. In auto background control (ABC), the range of the reference voltage is varied according to the A/D conversion circuit output signal level to vary the background level of an original to enable adjustment of the density of the background.

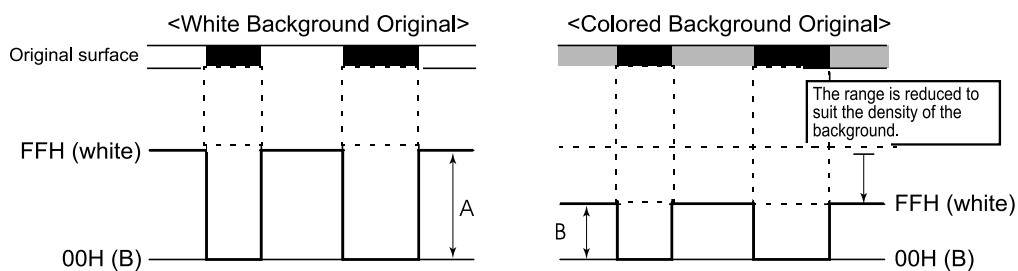


Figure 96. G image signal

As shown in figure 96 above, the range **A** of a white background original is varied (as in the case of the range **B** of a colored background original) to “white out” a colored background. In addition, the ABC circuit is designed to return image signals resulting from A/D conversion to the ABC circuit for identification of the level of the A/D conversion circuit output signals. The result of identification (reference voltage) is sent to the A/D conversion circuit.

Digital image processing

Digital image processing is performed by the PCBs shown in table 61. These PCBs make up the image processor block of the copy module. The BGR image signals from the analog image processing block are converted into CMYK image signals in the digital image processing block. At the same time, individual data units are subjected to data conversion for various image processing effects specified by the user on the control panel. At the end of data conversion, the image data is sent to the printer unit in the form of 8-bit image signals.

Table 61. PCB functions

PCB	Functions
AP-IP PCB	Shading correction, 3-line position matching, sensor color correction, background cancellation, logarithmic correction, text identification, pre-enlargement/-reduction processing, enlargement/reduction and image processing, density processing, anti-counterfeit processing, black text generation (black extraction, etc.)
ECO-2 PCB	Assists AP-IP PCB (anti-counterfeiting)

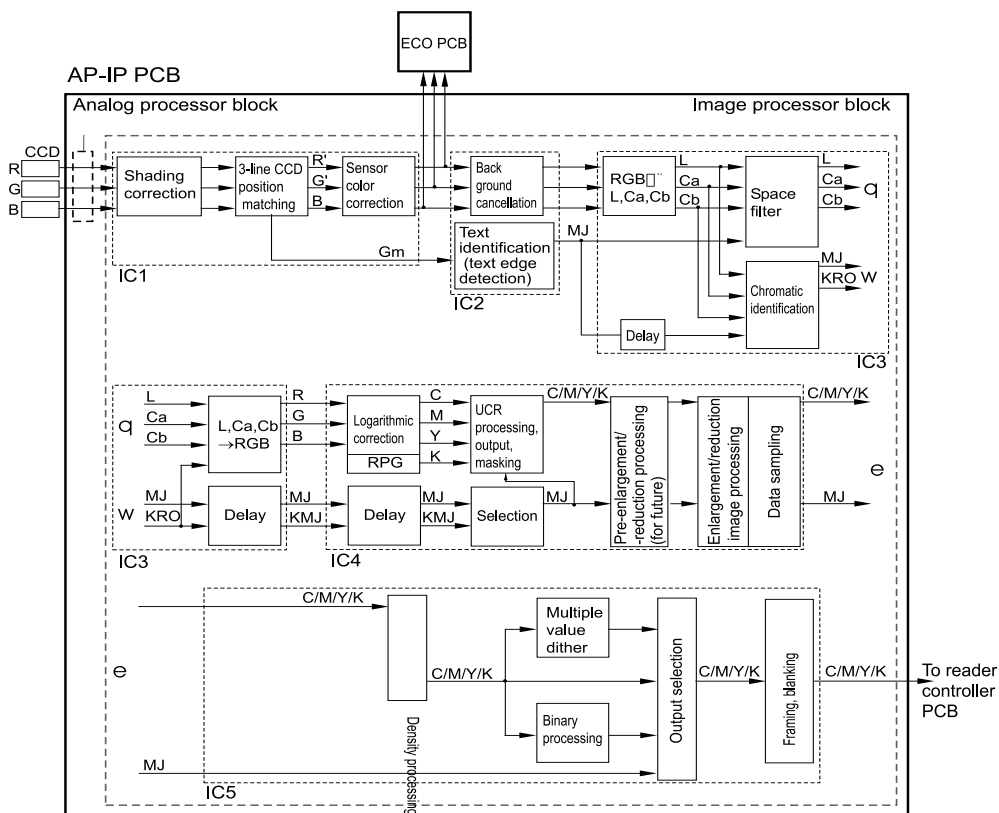


Figure 97. Digital image processing

Gm	G Image signal for text detection
MJ	Text detection signal
KRO	Black pixel signal
KMJ	Black text identification signal
L	Luminous component signal
Ca	Color component signal
Cb	Color component signal

Shading correction

The output of the CCD is not necessarily uniform even when the light it receives is from an original with perfectly uniform density for the following reasons:

- The sensitivity of each CCD pixel is different.
- The level of lens transmission differs between the middle and ends.
- The intensity of the scanning lamp differs between the middle of the lamp and its ends.
- The scanning lamp deteriorates over time.

Shading correction is performed to make up for these discrepancies.

Shading correction overview

The CCD measures the intensity of light reflected by a standard white plate (very uniform density) (callout 1). Values generated from this process are used to correct data gathered from each scanned original.

Correction values are taken from the standard white plate each time **START** is pressed.

If the standard white plate is ever replaced, the value printed under its bar code (callout 2) must be entered in service mode.

The shading correction circuit compares the measurement data gathered by the CCD from the standard white plate and the target value from the numbers recorded on the standard white plate. It then uses this comparison to calculate a “shading correction value” that is stored in memory.

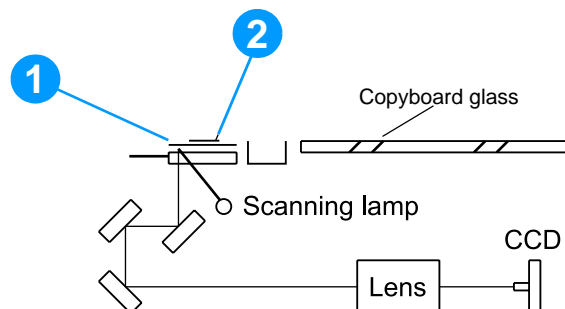


Figure 98. Scanning lamp and lens

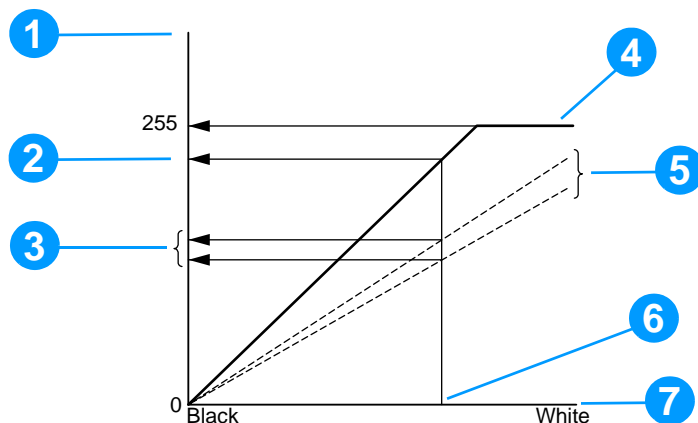


Figure 99. Shading correction measurement

- 1 CCD output
- 2 Target value (TRGT)
- 3 Measurement data
- 4 Characteristics after correction
- 5 Characteristics before correction
- 6 Standard white plate
- 7 Original density

Note The color balance of light areas may be adjusted in service mode ([ADJUST](#) > [COLOR](#) > [OFST-Y/M/C/K](#)).

Note Shading correction tends to be stronger over areas where scratches or dirt exist on the standard white plate, leading to vertical white lines on printed pages. If such a problem occurs and cannot be corrected after cleaning the standard white plate, replace the standard white plate.

CCD 3-line position matching

The CCD consists of three CCD arrays, each covered with an R, G, or B filter. The line image from any CCD at any point in time, therefore, is subject to a discrepancy of about 0.33 mm (12-line equivalent) in reference to the copyboard glass. To correct these discrepancies, the R and G image signals are first stored in the line memory temporarily, and are sent out after synchronization with the B image signals.

The delay in the B image signal is maximized at 400% enlargement, requiring a 96-line delay of the R image signal and a 48-line delay of the G image signal. For example, at 320% enlargement, the R image signal must be delayed by 51.2 lines. To enable the delay, the following correction will be performed using the data of adjacent pixels:

$$\begin{aligned} &\text{pixel data of the 76.8th line} \\ &= 0.2 \times (\text{pixel data of the 76th line}) \\ &+ 0.8 \times (\text{pixel data of the 77th line}) \end{aligned}$$

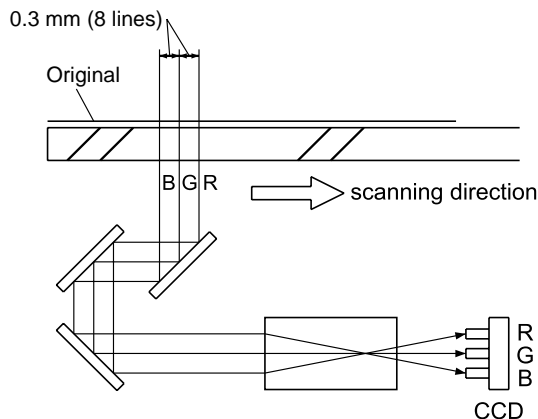


Figure 100. CCD position matching

Text identification (character edge detection)

As shown in figure 101, the text identification block identifies the edges of characters according to the Gm signal of the G image signal. It compares the Gm signal of the pixel in question and multiple pixels adjacent to it to detect the edge component; it then identifies whether the pixel in question is part of the edge of a character or not based on the size of the edge component and the distribution of edge components. When the copy module identifies it as part of an edge, it generates the MJ signal (text detection signal). The MJ signal, however, will suffer a delay of 12 lines in the text identification block, requiring that the Gm image signal be advanced by 12 lines in relation to the G' image signal.

The copy module generates the Gm image signal ahead of time by 12 lines so that the MJ signal (text detection signal) from the text identification block will match the R'/G'/B' image signal. In other words, the line image at this point in time would be as follows:

$R'/G'/B'$ image signal = MJ signal (text detection signal)

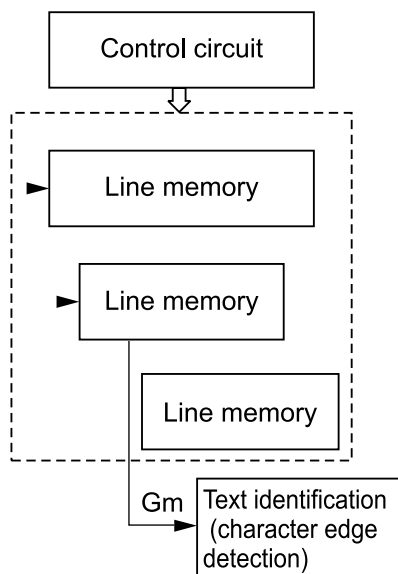


Figure 101. Text identification

Sensor color correction block

The sensor color correction block consists of a circuit used to correct the transmission characteristics of the R, G, and B filters of the CCD. Each filter lets through light of wavelengths outside a specific range, requiring color correction. In the case of the G filter, the filter lets through light of wavelengths falling within **a** and **c** and blocks out light of wavelengths falling within **b** (figure 102).

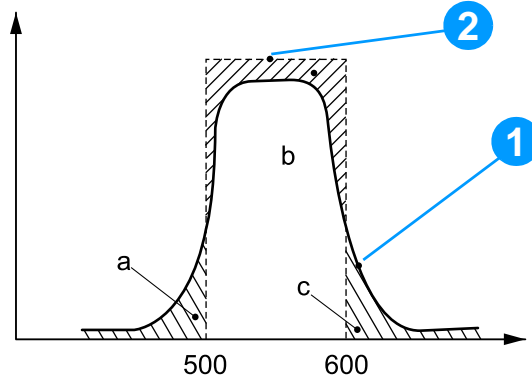


Figure 102. Sensor color correction measurement

The following computations are made so as to correct the actual characteristics (callout 1) and bring them closer to the ideal characteristics (callout 2).

$$\begin{bmatrix} R \text{ out} \\ G \text{ out} \\ B \text{ out} \end{bmatrix} = \begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix} \begin{bmatrix} R \\ G \\ B \end{bmatrix}$$

- R, G, B: input signal to the color correction circuit
- Rout, Gout, Bout: output signal from the color correction circuit
- a11 to a 33: correction coefficients

Background cancellation (background level adjustment)

When reading the light reflected by an original, the CCD also reads the color data of the surface (background) of the paper. To correct the image signal, the background cancellation block sets aside background data or correction of the image signal, preventing fogging and improving the level of reproduction. The pixels are identified as representing the background of an original if the level of each frequently appearing R, G, and B signal is 200 or higher (figure 103).

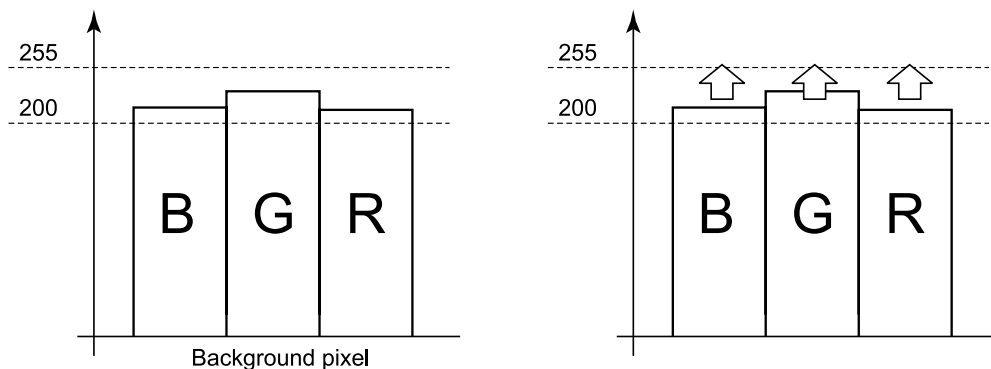


Figure 103. Background pixel measurement

The collection of extended modes (accessible via the administrative functions menu and image adjustment; see the copy module user guide) provides two modes, each with a different method of correction:

- In “background omission mode,” the level of RGB signal of the background pixels is corrected to 255 to remove the specified background color.
- In “anti-see-through mode” or “second side removal mode,” the RGB signal of the background pixels are removed from the image data for the entire image area to remove the image on the other side of the original.

R/G/B->L/Ca/Cb conversion, L/Ca/Cb->R/G/B conversion

As shown in figure 97 on page 207, in the R/G/B->L/Ca/Cb conversion block, the RGB image signal is converted to chromatic spaces of L (light area component) and Ca/Cb (color component).

$$L=(R+2G+B)/4$$

$$Ca=(R-G)/2$$

$$Cb=(R+G-2B)/4$$

Using L/Ca/Cb, the copy module performs spatial filter processing and chromatic identification. After spatial filter processing and chromatic identification, the copy module then performs L/Ca/Cb->R/G/B conversion.

$$R=(4L+5Ca+2Cb)/4$$

$$G=(4L-3Ca+2Cb)$$

$$B=(4L+Ca-6Cb)/4$$

Spatial filter processing / chromatic identification

The copy module performs spatial filter processing based on the edge component computed from the L (luminous component) signal and the Ca/Cb (chromatic component) signal component and the MJ (text detection) signal from the text identification block. During spatial filter processing, the copy module performs computations to generate images which are sharp or soft according to the combination of printing modes selected on the control panel, or the sharpness setting on the control panel.

If image data as shown in figure 104 on page 215 is input and “lower sharpness” is selected, the output level will be as shown in figure 105 on page 215. With the “lower sharpness” setting, the variations in density of an image are evened out to produce a soft image.

In “higher sharpness,” the contrast of an image is emphasized to produce a crisp image.

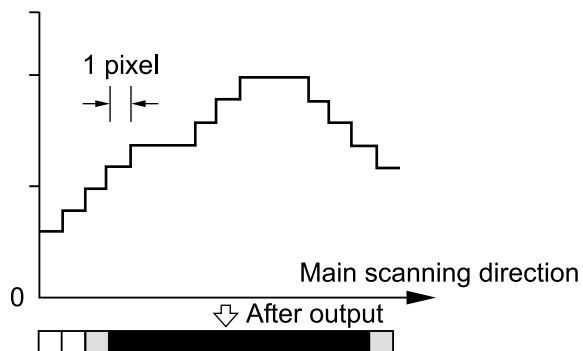


Figure 104. Input level

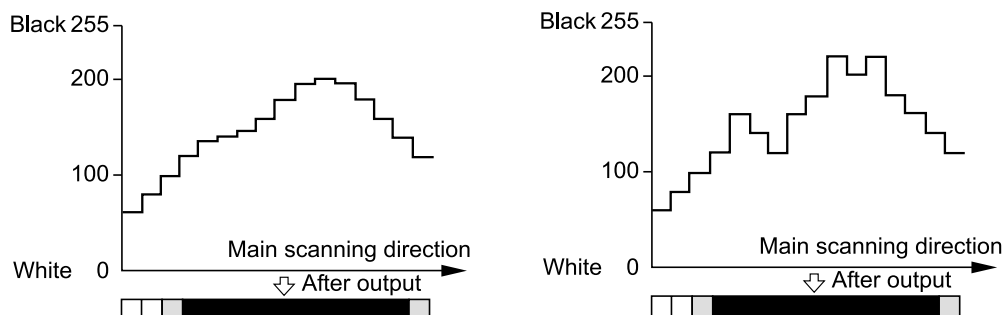


Figure 105. Weak and strong sharpness

The copy module also performs chromatic identification (used for ACS, black text identification) based on the L (luminous component) signal and the Ca/Cb (chromatic component) signal. After chromatic identification, the copy module generates the KMJ signal in the form of a 1-bit black text identification signal using logical integration on the results of computation on the achromatic (KRO) signal, and the MJ signal.

Logarithmic correction and BGR->YMC conversion

A Logarithmic Correction

The output of the CCD has linear characteristics in relation to the light reflected by an original. However, the density perceived when looking at an original does not necessarily have linear characteristics. Figure 106 shows the relationship between the density of an original perceived by the eye and the output of the CCD.

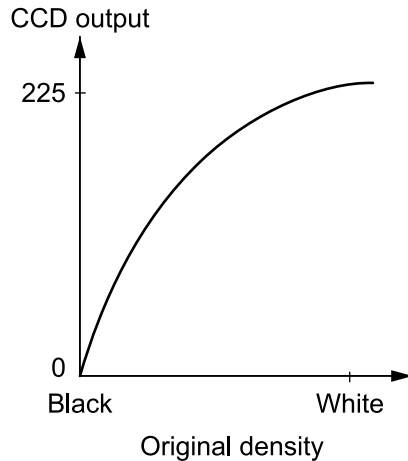


Figure 106. Original density compared to CCD output

To correct the discrepancy, the copy module performs a level conversion as shown in figure 107.

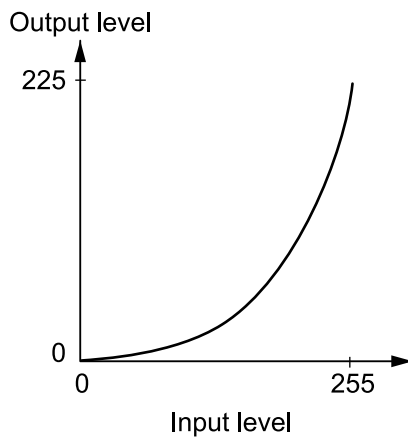


Figure 107. Density level conversion

B BGR->YMC Conversion

The copy module generates YMC signals taking advantage of the fact that BGR chromatic components are in a complementary relationship to YMC toners (reflected light).

Table 62. BGR->YMC conversion

Toner		Y	M	C
Chromatic light	B	Absorbs	Reflects	Reflects
	G	Reflects	Absorbs	Reflects
	R	Reflects	Reflects	Absorbs

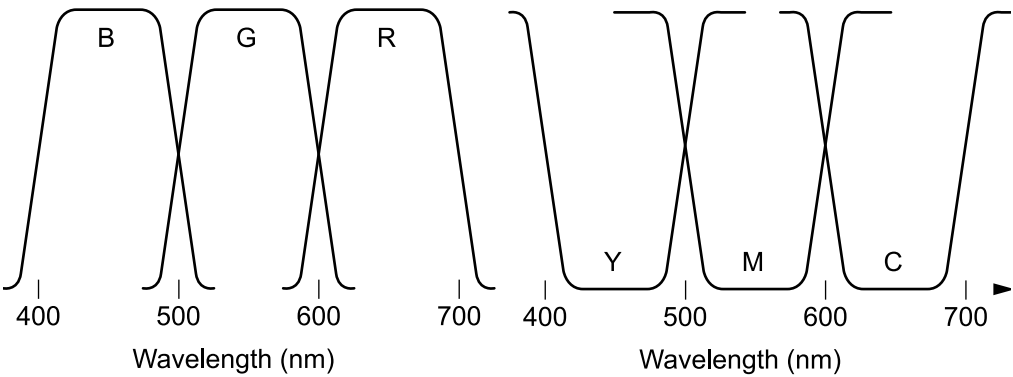


Figure 108. BGR and YMC levels

The level of transmission of each filter (B, G, R) of the CCD and the density (Y, M, C) of the original are in a complementary relationship; level conversion is performed as in figure 109 to generate the Y, M, and C signals.

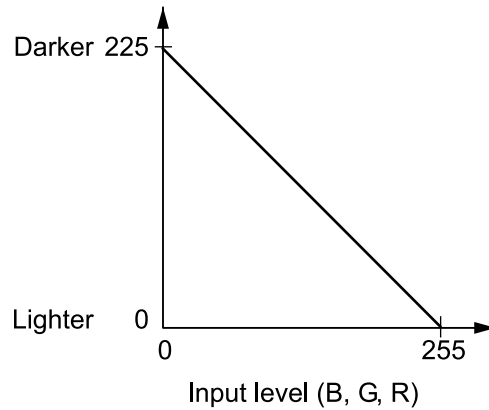


Figure 109. BGR to YMC conversion

Note

$$Y = \bar{B}, M = \bar{G}, C = \bar{R}$$

UCR (under color removal) processing

In theory, when equal parts of Y, M, and C toners are mixed, black will be generated (absence of light). However, since no toner possesses pure chromatic absorption characteristics, mixing the three colors (as in YMC conversion) in equal parts will not produce a pure black. In this block, the Bk signal is generated using the Y, M, and C signals. Text characters signal for the addition of Bk to the Y, M, and C signals, with the aim of improving black reproduction.

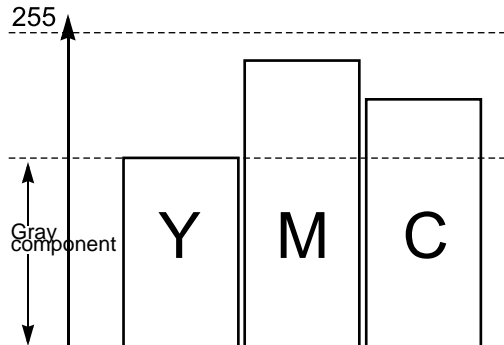


Figure 110. Gray components

Specifically, the Bk signal is generated as follows:

The gray component of the YMC signal is as shown in figure 111.

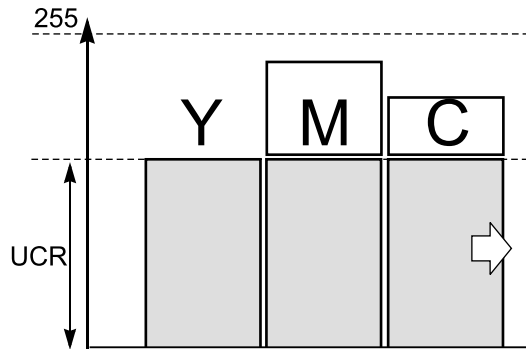


Figure 111. Bk signal

The gray component on the figure is removed, and is replaced with the Bk signal. The size of the component that has been replaced is referred to as “UCR amount,” and it is 100% in the case of figure 111.

With URC at 100%, Bk toner would be used on the entire image, causing shading in light areas. The UCR amount, therefore, is increased or decreased in relation to the text signal, limiting it to less than 100%. This processing is performed for each pixel.

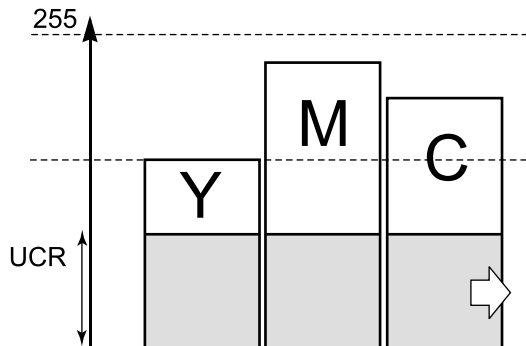


Figure 112. UCR amount

Output masking

A color image is reproduced using color toners since the Y toner absorbs only B components, the M toner absorbs only the G component, and the C toner absorbs only the R component.

In reality, however, no toner possesses chromatic absorption characteristics as depicted in figure 113. In general, Y toner possesses good absorption characteristics: however, M toner is affected by B components, while C toner is affected by G and B components (see circled areas). In other words, M toner has a chromatic reproduction quality that includes Y components, while C toner has a chromatic reproduction quality that includes M and Y components.

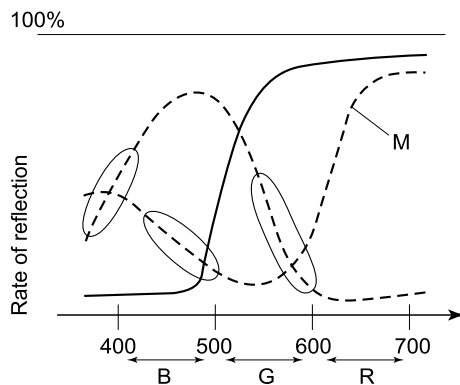


Figure 113. Chromatic absorption characteristics

If Y and M toners were mixed in an attempt to reproduce red, therefore, the Y component of the M toner would cause the result to have a reddish tinge, requiring removal (masking) of the Y component from the Y toner in advance. In this block, the excess component of each toner is corrected by means of masking.

Enlargement/reduction and image processing

1 Enlargement/reduction

a Horizontal reproduction ratio (main scanning direction)

Data units may be skipped when they are written into the memory (reduction) or read multiple times from the memory (enlargement).

b Vertical reproduction ratio (sub-scanning direction)

The scanner is moved at different speeds, thereby changing the width of scanning a single pixel on an original.

Table 63. Enlargement/reduction and image processing

	Direct	Reduce	Enlarge
Reproduction in scanning direction	All data units are written into or read from the memory as they are.	To reduce by half, every other data unit is written into the memory.	To enlarge by 200%, all data units are written into the memory as they are, but each data unit is read twice.
Reproduction in sub-scanning direction		The scanner is moved faster to increase the width of scanning a single pixel on an original.	The scanner is moved slower to decrease the width of scanning a single pixel on an original.

2 Enlargement Correction

In enlargement, the image data is corrected so that the difference in density between pixels will not vary excessively. Figure 114 shows the image data of an original, image data in enlargement, and image data after enlargement correction.

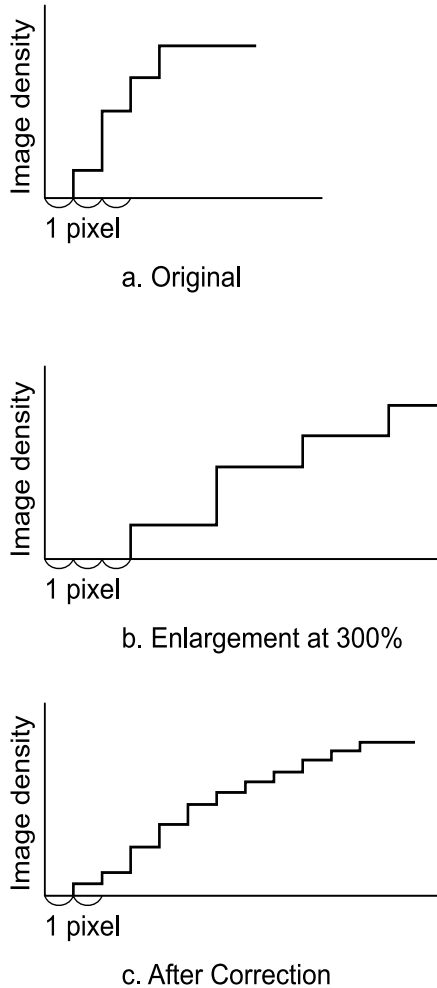


Figure 114. Enlargement/correction

3 Shift

The following diagrams provide an outline of the principles of how an image is shifted in main and sub scanning directions.

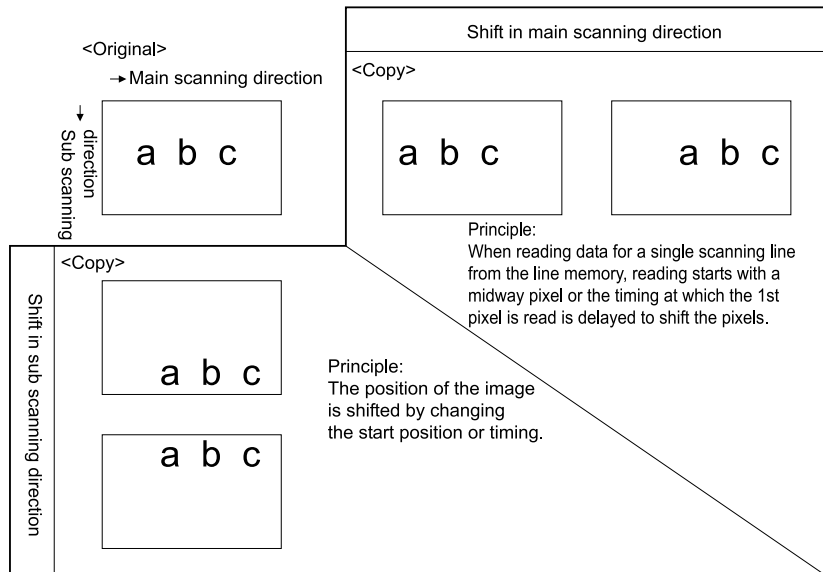


Figure 115. Image shifts

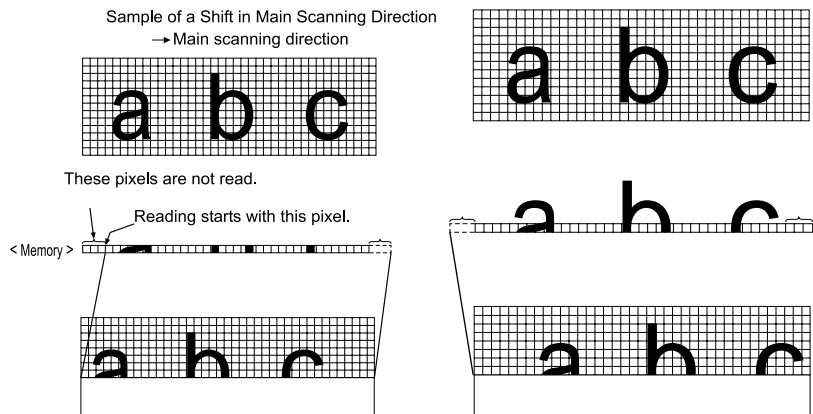


Figure 116. Shift in main and sub-scanning directions

The position of an original may be shifted as follows by combining a shift in main scanning direction and a shift in sub-scanning direction:

- **Center shift**
The copy module computes the coordinates (Xm, Ym) of a corner which make the top/bottom and left/right margins of the copy equal, based on the size of the area to be moved and the size of the copy paper; then, it moves X1 and Y1 to the corner.
- **Left/right bind and top/bottom bind**
The copy module shifts the entire image of the original to create a margin (for binding).
- **Selective shift**
The copy module shifts the image over a selected distance.

Note

$$\frac{X_{\max} - (X_2 - X_1)}{2}$$

$$\frac{Y_{\max} - (Y_2 - Y_1)}{2}$$

q Center Shift

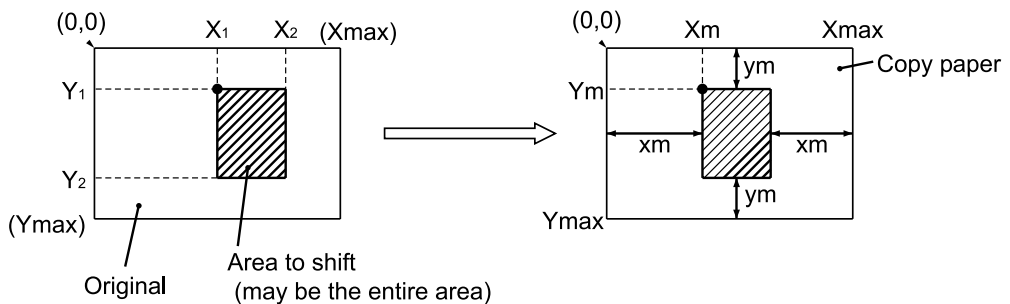


Figure 117. Center Shift

4 Mirror image

When reading data for a single scan from the RAM, reading is started in reverse direction to create a mirror image in relation to main scanning direction.

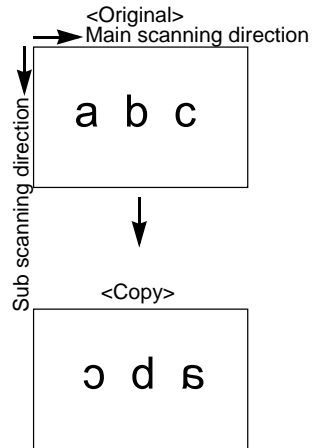


Figure 118. Mirror image

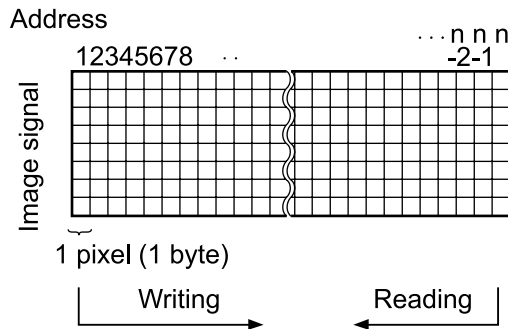


Figure 119. Mirror image principle

5 Image repeat

When reading data for a single scan from the RAM, an S address (read start address) and an E address (read end address) are specified. Then, reading is started with the S address and, upon reaching the E address, reading is continued while returning to the S address. A repeat image is created by repeating this operation.

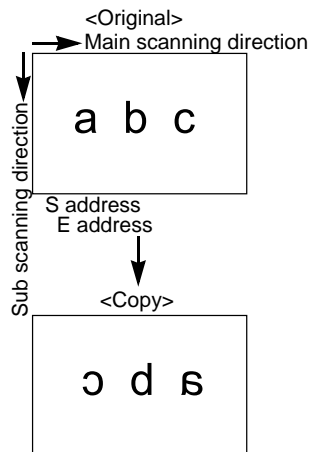


Figure 120. Image repeat

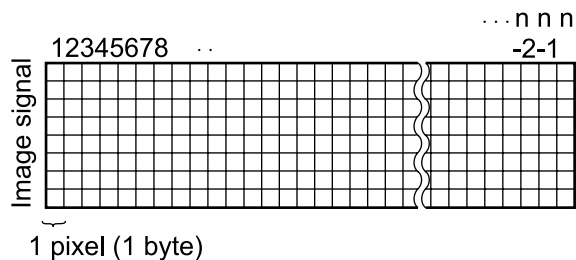


Figure 121. Image repeat principle

6 Slant

When reading data for a single scan from the RAM, the starting address (S address) is shifted by an n number of lines for slant processing.

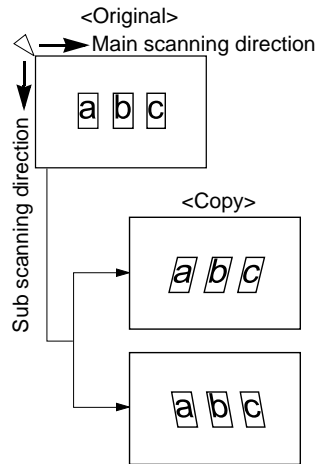


Figure 122. Slant

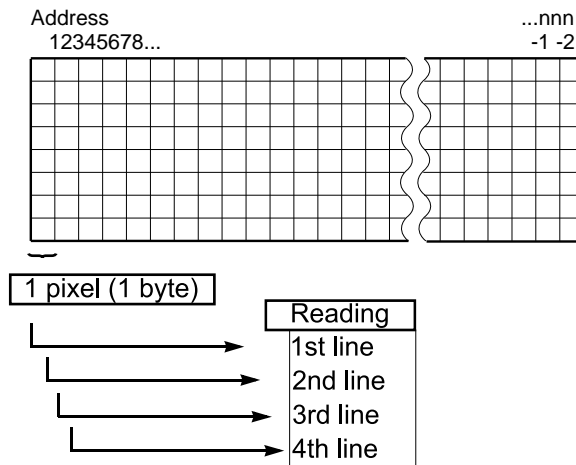


Figure 123. Slant principle

Density processing

The correction curve for density processing varies with the following:

- a Setting of the Copy Density key on the control panel
- b Setting of color balance (control panel)
- c Setting of color balance (service mode) (COPIER > ADJUST > COLOR > ADJ-Y/M/C/K)
- d Adjusting the light area density and color balance in service mode COPIER > ADJUST > COLOR > OFST-Y/M/C/K
- e Black-and-white text mode

As shown in figure 124, the dark or the light curve is selected to suit items a. through d. In the case of black-and-white text mode (item e.), the curve shown in figure 125 will be selected to produce a copy free of image, yet with dark text characters.

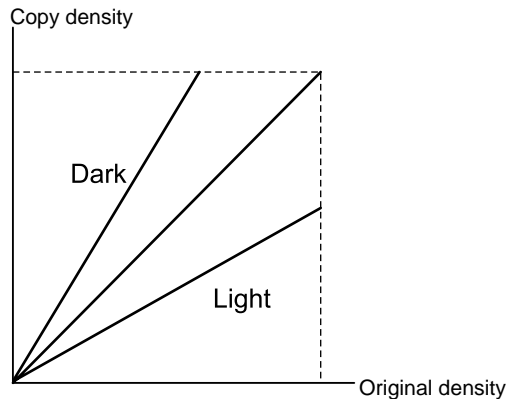


Figure 124. Curve for items A through D

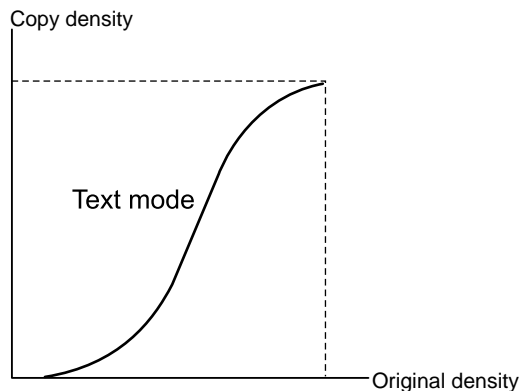


Figure 125. Curve for black-and-white text mode

Framing and blanking

For framing and blanking, as many as four areas and as many as 10 points may be selected.

- Framing

The signals representing areas *outside* the selected areas of an original are forced to represent white.

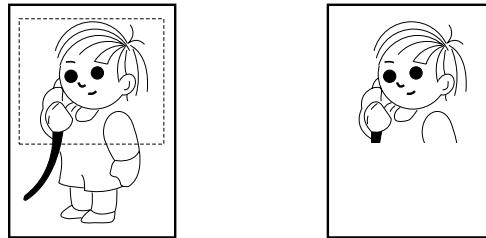


Figure 126. Framing

- Blanking

As opposed to framing, the signals *inside* the selected area of an original are forced to represent white.

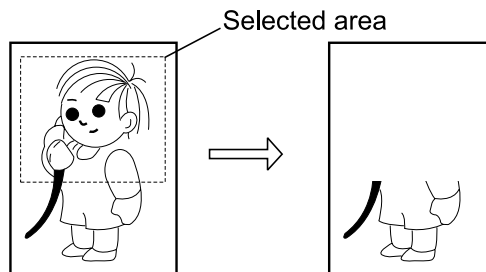


Figure 127. Blanking

Anti-counterfeit processing

The copy module is equipped with the following two functions designed to prevent counterfeiting of bank notes or securities certificates.

- Tracking

A unique ID number (stored in the copy module memory) is printed on all copies, invisible to the eye, so that any counterfeit of a bank note or a securities certificate produced by the copy module can be traced to the copy module. This identification number is **not** printed on the printed pages.

- Bank note detection

- If the copy module judges an original to be a bank note (registered in its memory), it produces a solid black print.
- If an original is replaced in continuous printing mode with an original judged to be a bank note, the copy module will produce a solid black print for the original.

Control panel

The control panel consists of the PCBs shown in figure 128 on page 233 and a liquid crystal display (LCD) capable of displaying images in 320 by 240 dots, and has the following functions:

- Data communication
- LCD processing
- LCD contrast adjustment
- Touch switch input processing

Data communication

The communication of data is controlled by the CPU on the reader controller PCB.

LCD processing

The CPU on the reader controller PCB provides the control panel CPU PCB with data (display data) as instructed by the program. The data is moved through the control panel CPU PCB to the LCD panel.

LCD contrast adjustment

The control panel is equipped with a dial to enable the user to adjust the contrast of the LCD. The user may turn the dial to adjust the contrast to suit his/her preference.

Control panel CPU

The control panel CPU has the following functions:

- Monitoring the key inputs (communicates keypad and function key inputs to the CPU on the reader controller PCB)
- Controlling the buzzer sound
- Turning off and on the control panel LEDs

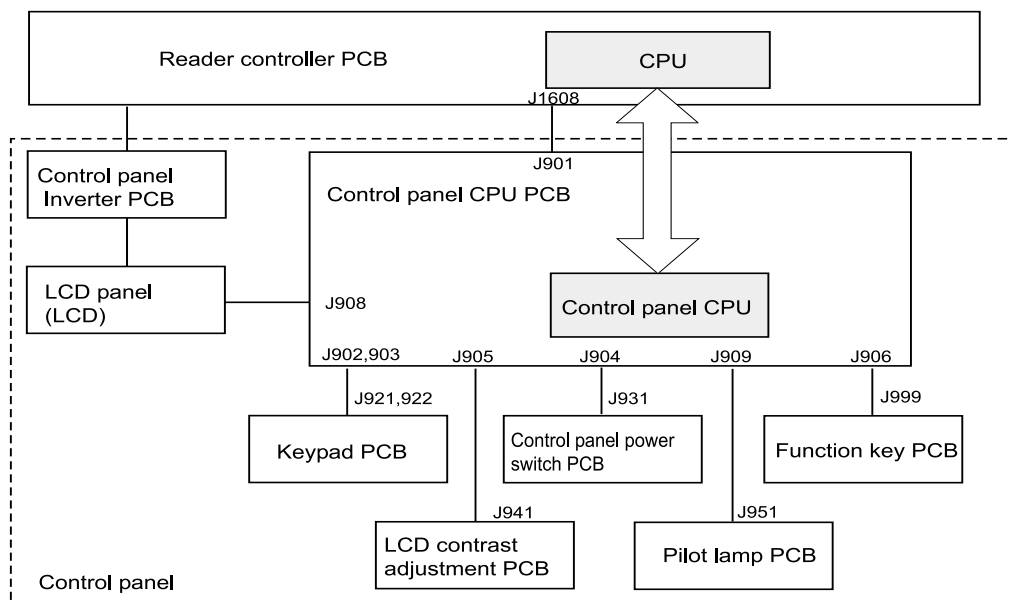


Figure 128. Control panel

Fan

The copy module is equipped with a single fan to cool the copy module. Figure 129 shows the location of the fan and the air movement when the fan is turned on. Table 64 shows its function, filter, direction, and associated error code.

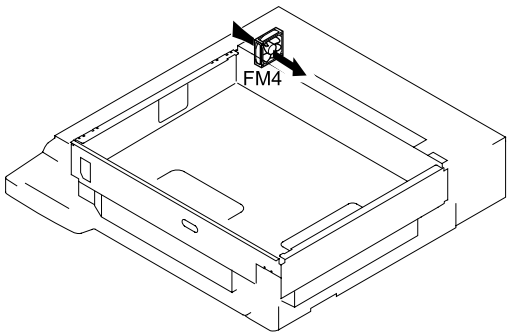


Figure 129. Copy module fan

Table 64. Copy module fan

Notation	Name	Filter	Function	Error code
FM4	Power supply cooling fan	Air	Cools the power supply unit (copy module).	E809

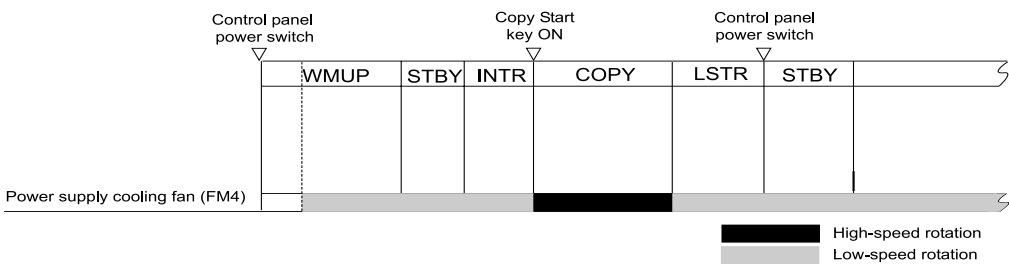


Figure 130. Cooling fan engaged

Note

To prevent overheating of the copy module, the power supply cooling fan (FM4) does not stop when the control panel power soft switch is turned off.

Power supply

Figure 131 and figure 132 show the distribution of power inside the copy module. The AC power sent to the copy module main power supply is turned on and off by the copy module rear power switch (MSW1). When the copy module main power supply PCB is supplied with AC power, +5V is generated. When the control panel power supply soft switch is turned on, the power cut relay ON signal (RL1ON) is sent through the reader controller PCB to turn on the power cut relay, thereby supplying the printer unit with AC power. The copy module main power supply PCB generates +5V, +5VA, +5.2V, -12V, +15V, +24V, and +40V.

Power saving function

The copy module is provided with “low power mode” and “auto power save mode.”

Table 65. Power saving function

State of power	Copy module rear power switch	Control panel power soft switch	Fuser assembly
Low-power mode	ON	ON	OFF
Auto power save mode	ON	ON	Variable temperature control

- Low power mode—In low power mode, the fusing assembly is turned off to reduce power consumption.
- Auto power save mode—In auto power save mode, the fuser assembly remains on; however, the temperature control target is lowered to reduce power consumption.

Protective function

The copy module main power supply PCB is equipped with an overcurrent protective function and an overvoltage protective function which will automatically shut off power to prevent damage to the power supply circuit if an overcurrent or an overvoltage occurs as a result of a fault in any of the loads (for example, short circuit). To reset the copy module, turn off the control panel power supply soft switch, turn off the copy module rear power switch, disconnect the power plug, remove the cause of activation, and turn on the power once again. The protection circuit may be reset by turning off the copy

module rear power switch, leaving the copy module alone for approximately three minutes, and turning on the copy module rear power switch/control panel power soft switch.

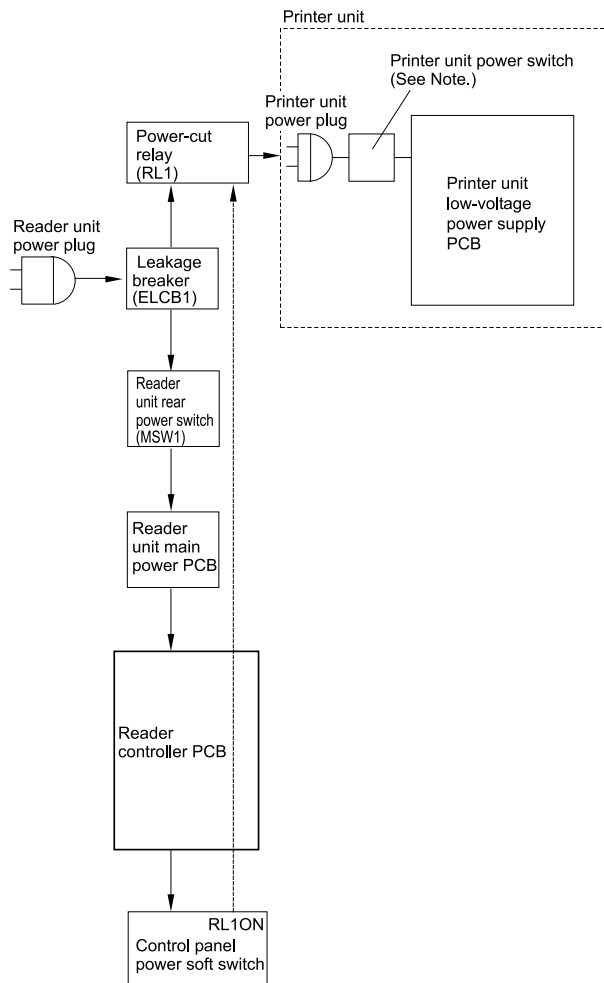


Figure 131. Power

CAUTION

The printer power supply is under the control of the copy module rear power supply switch and the control panel power soft switch. Be sure to mount the switch cover that comes with the copy module after turning on the power switch upon installation of the copy module.

Do not connect the power cord of the printer to an external power outlet. Be sure to connect the power cord of the printer only to the outlet of the copy module. Connecting the printer power cord directly to an external outlet is acceptable when troubleshooting.

Do not disconnect or connect cables (lattice connectors) used to connect accessories (for example, the ADF) and connectors used to connect various units while the copy module remains powered (the copy module rear power switch is on) to prevent blowing the protective fuse on the secondary side of the power supply.

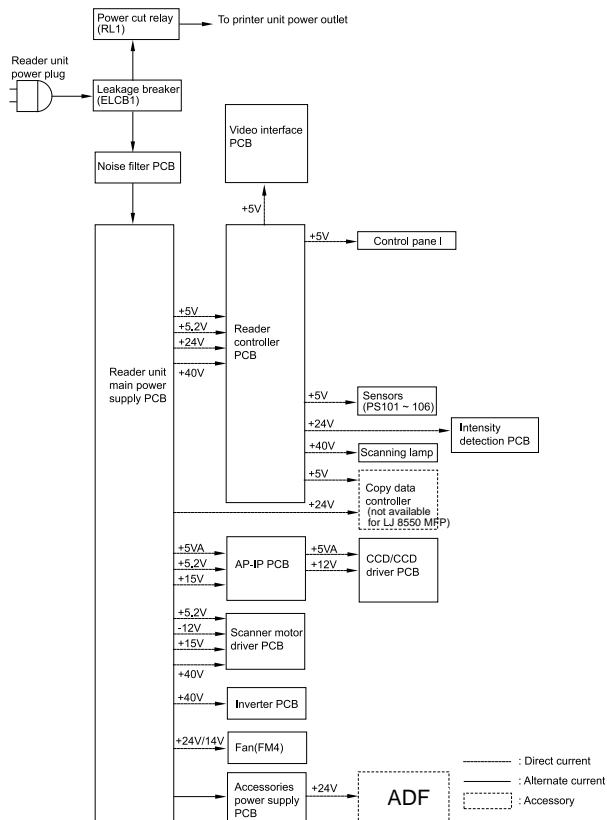


Figure 132. Copy module power distribution

Accessories power supply PCB

The copy module is equipped with an accessory power supply PCB for the ADF. The accessories power supply PCB receives DC power from the copy module main power supply PCB (after AC activation); +24V is sent to each load (ADF) in response to the remote signal from the reader controller PCB. As in the case of the copy module main power supply PCB and the printer unit low-voltage power supply PCB, the accessories power supply PCB is equipped with an overcurrent protective function and an overvoltage protective function to automatically cut off the output voltage to prevent damage to the power supply PCB in the event of an overcurrent or an overvoltage.

To reset the accessories power supply PCB, turn off the control panel power soft switch, turn off the copy module rear power switch, disconnect the power plug, remove the cause of activation (usually a bad component or a short), and then turn on the power.

To reset the copy module protection circuit, turn off the copy module rear power switch for approximately three minutes, and then turn on the copy module rear power supply and control panel power soft switch.

CAUTION

Do not disconnect or connect cables (lattice connectors) used to connect accessories (for example, the ADF) and connectors used to connect various units while the copy module remains powered (the copy module rear power switch is on) to prevent blowing the protective fuse on the secondary side of the power supply.

The ratings of the fuses used on the secondary side of the copy module main power supply and the accessories power supply are as follows:

Table 66. Copy module main power supply

Signal	Rating
FU1501, FU1505, FU1514	1 A, 60 V
FU1506, FU1512, FU1518	2 A, 60 V
FU1516, FU1517	0.25 A, 60 V
FU1502, FU1503, FU1504, FU1519	0.4 A, 60 V
FU1507	4 A, 60 V
FU1515	0.5 A, 60 V
FU1511, FU1513	5 A, 60 V
FU1509	0.63 A, 60 V
FU1508	7 A, 60 V
F1	10 A, 125 V
F12, F18	1 A, 60 V
F19, F20, F24, F28	2 A, 60 V
F29, F30	0.25 A, 60 V
F11, F13, F14, F15, F17	0.4 A, 60 V
F27	4 A, 60 V
F16	0.5 A, 60 V
F21, F23	5 A, 60 V
F25	0.63 A, 60 V
F26	7 A, 60 V

Table 67. Accessories power supply (secondary side)

Signal	Rating
FU1801	10 A, 60 V
FU1802	1 A, 60 V

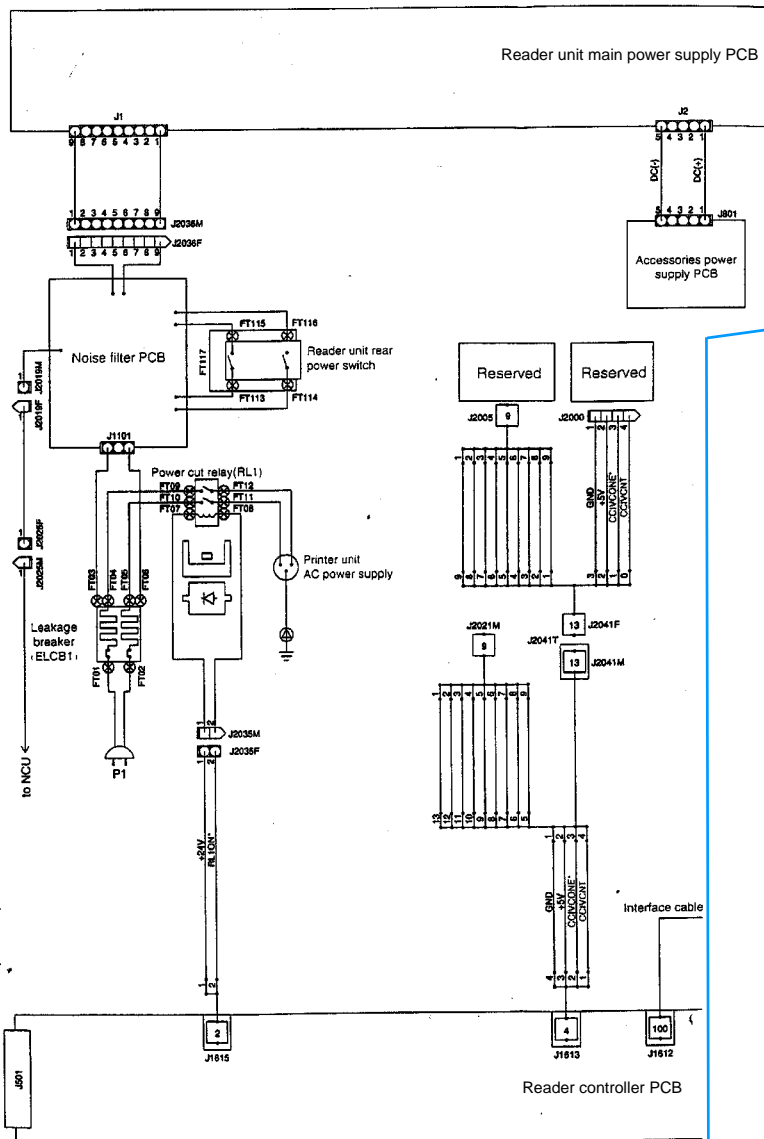


Figure 133. Copy module general circuit diagram (1 of 2)

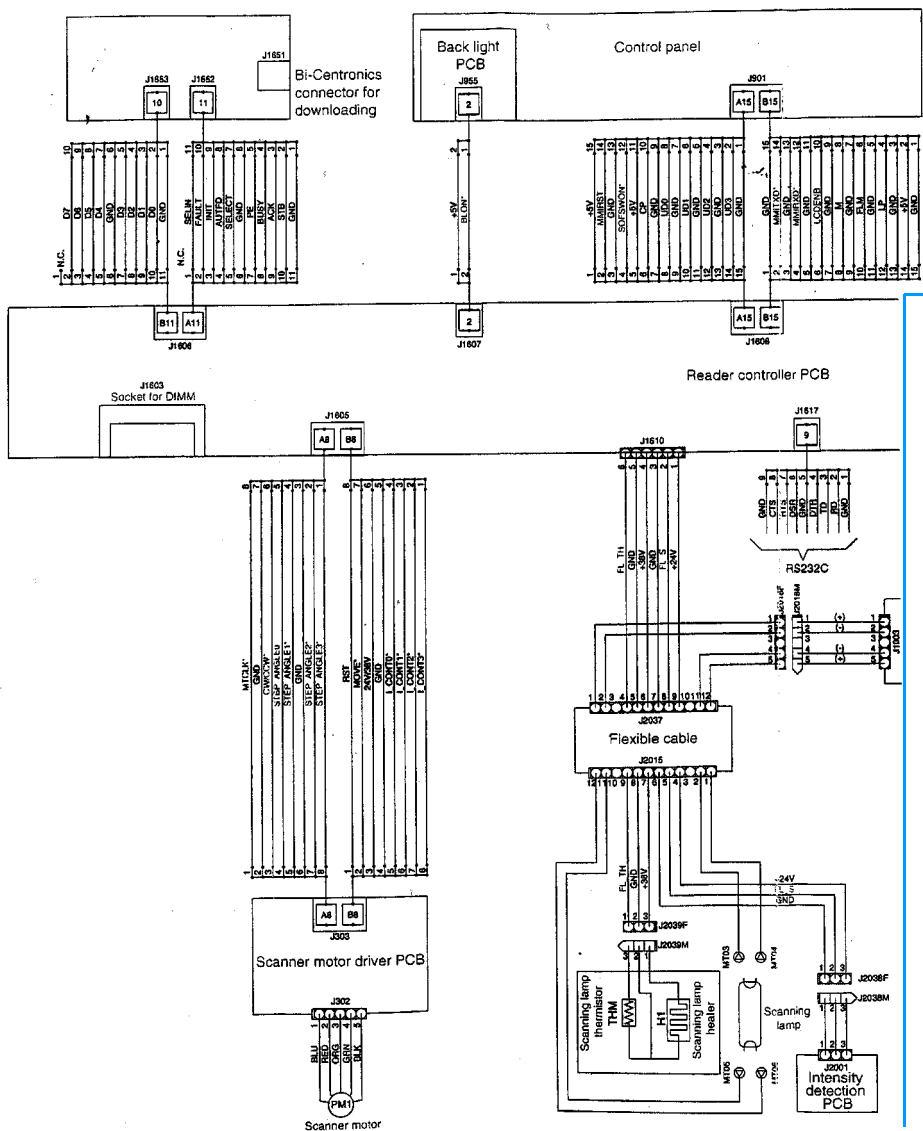
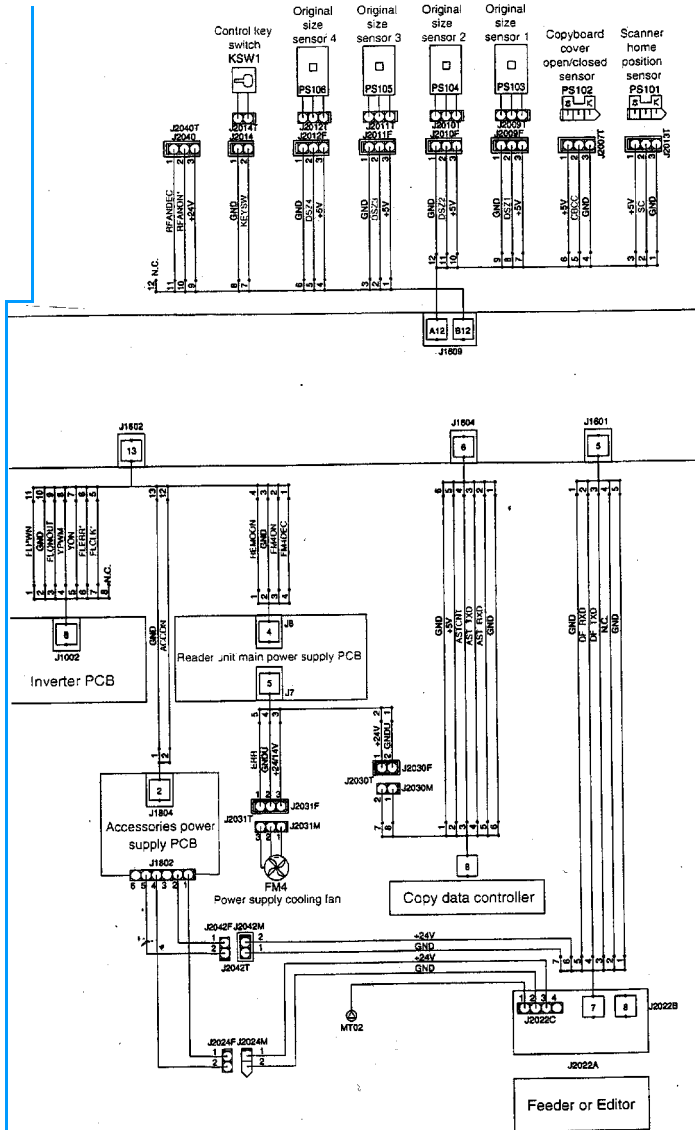


Figure 134. Copy module general circuit diagram (2 of 2)



ADF electrical circuitry

The ADF's electrical mechanisms are controlled by the DADF controller PCB. A microprocessor (CPU) is used on the DADF controller PCB, and the microprocessor reads the input signals from the sensors and the copy module and generates signals used to drive dc loads (motors, solenoids) at such times dictated by ADF firmware.

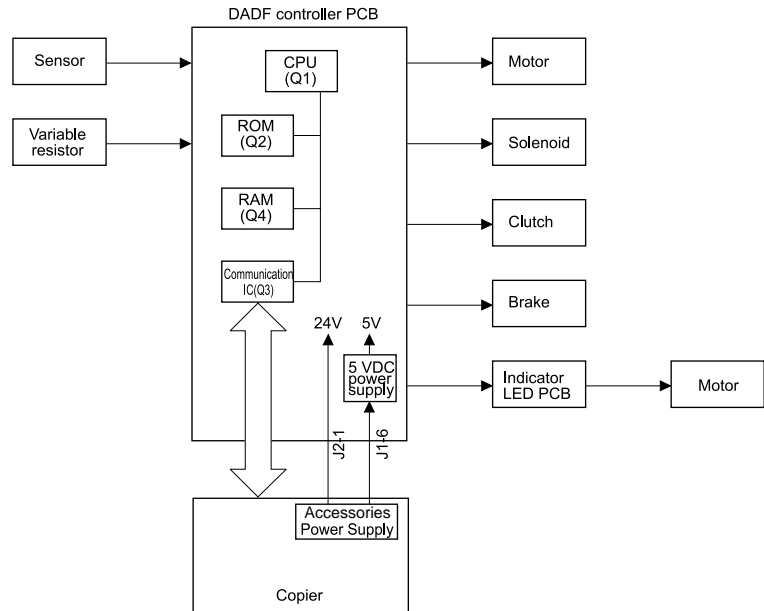


Figure 135. ADF electrical circuitry

Communication with the copy module

The operation modes selected on the copy module are communicated to the ADF in an IPC communication method. Likewise, the operation states of the ADF are communicated to the copy module in an IPC communication.

If an error occurs in the IPC communication, the self-diagnosis function in the copy module turns on to indicate “E712” on its control panel.

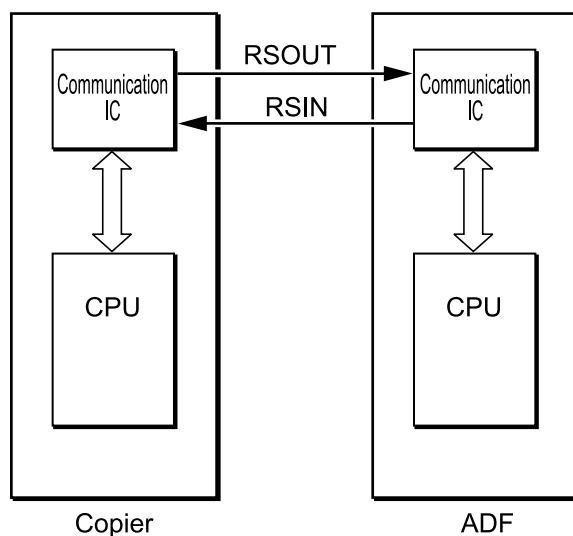


Figure 136. Operation mode communication

Inputs and outputs to the DADF controller PCB

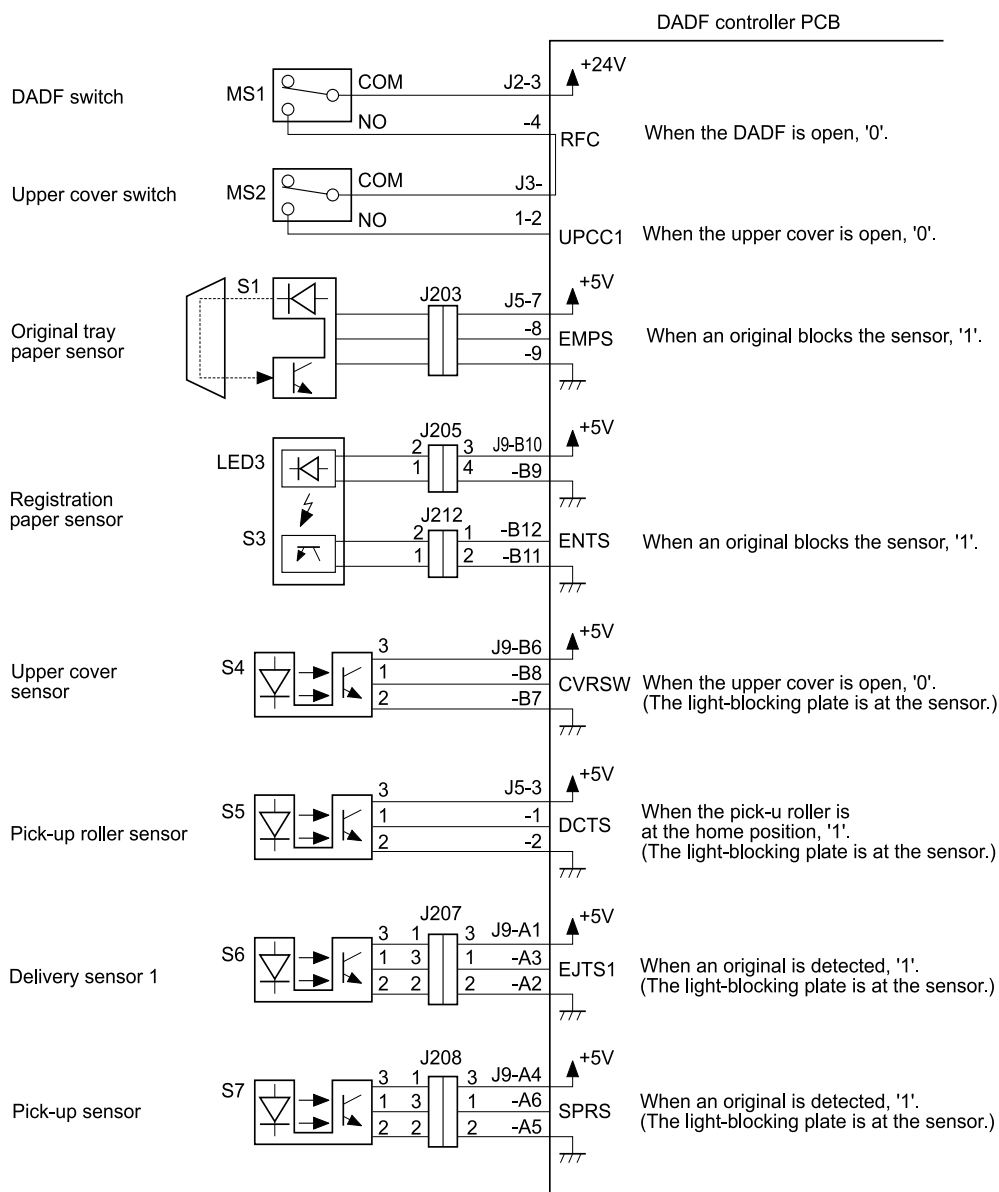


Figure 137. Inputs to the DADF controller PCB (1 of 2)

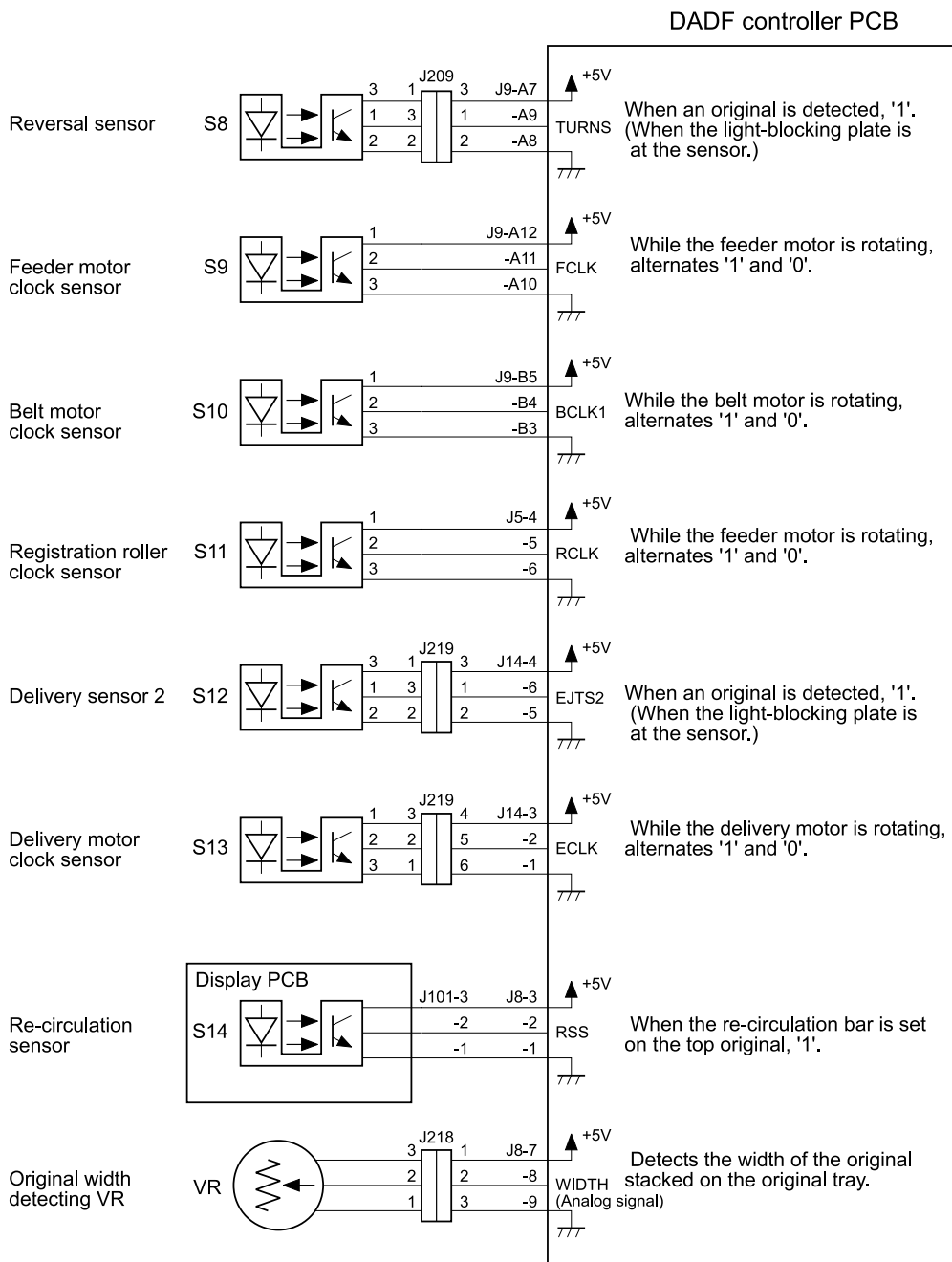


Figure 138. Inputs to the DADF controller PCB (2 of 2)

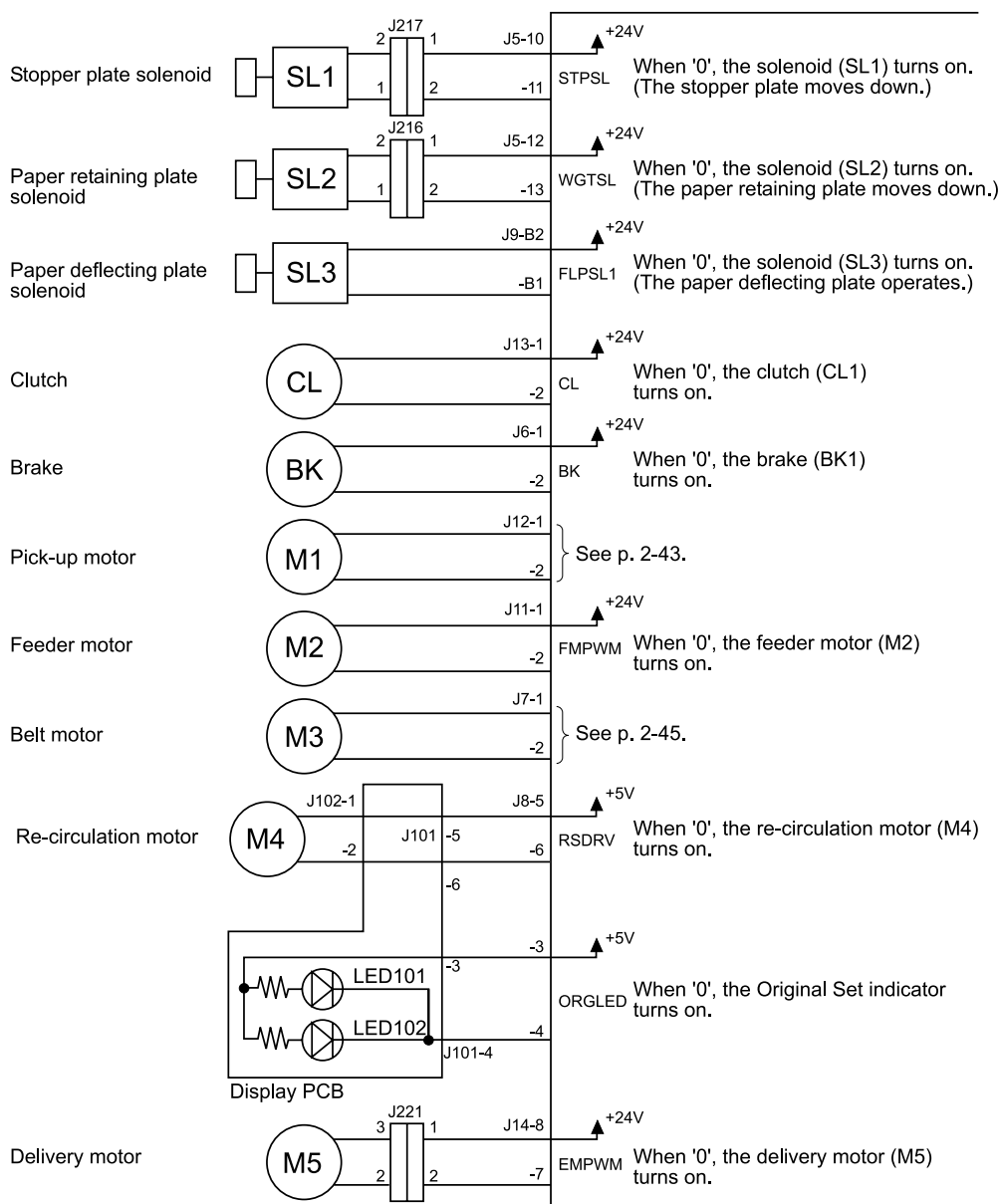


Figure 139. Outputs to the DADF controller PCB

Basic operation

The ADF uses four motors and one clutch to pick up, feed, and deliver originals.

The pick-up motor (M1) serves to pick up originals. The ADF motor (M2) serves to pick up originals and reverse and deliver originals. The belt motor (M3) moves and stops originals to and on the copyboard glass, and delivers them. The delivery motor (M5) operates to deliver originals to the delivery tray.

The clutch (CL) is used to engage or disengage the drive of the ADF motor (M2) and the belt motor (M3).

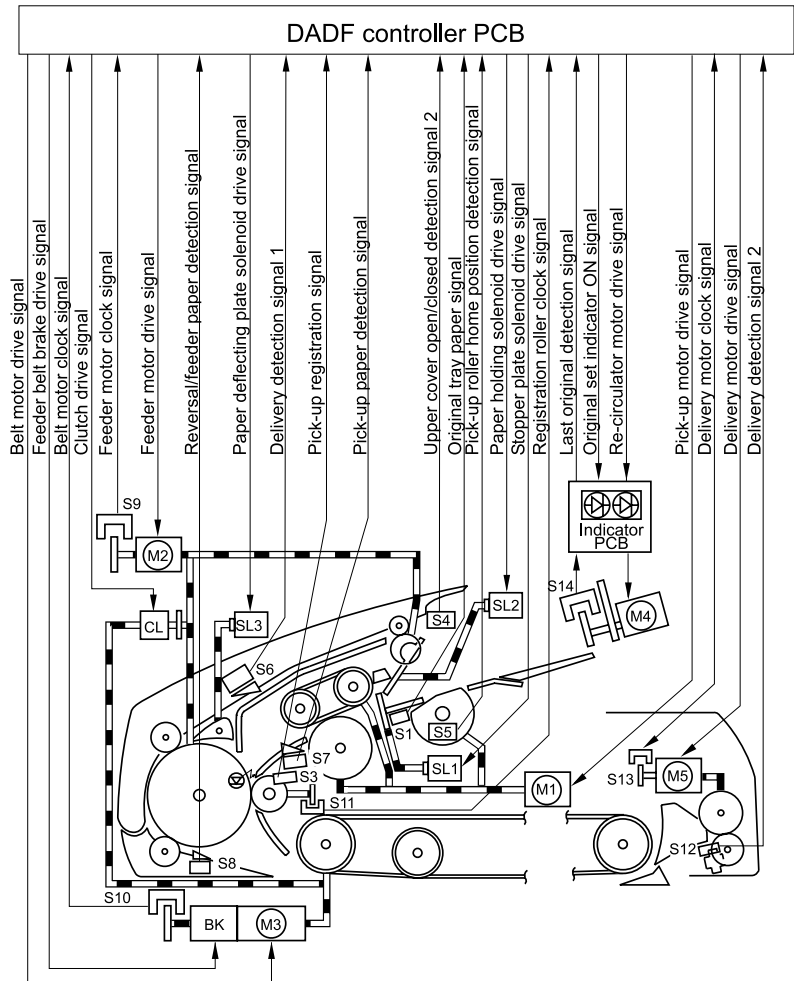
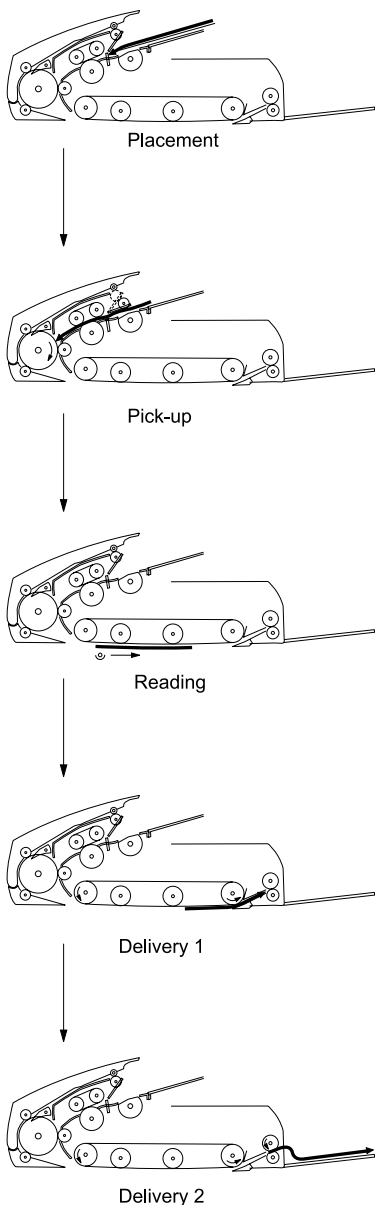


Figure 140. ADF motors

Functional overview

The ADF performs the following five operations:

- Top pick-up mode original-feeding
- Single-sided original to double-sided copy
- Double-sided original to single-sided copy
- Double-sided original to double-sided copy using the standard duplexing unit
- Two small-size originals (A4- or letter-size) to reduced page composition



Top pick-up feeding

The ADF picks up the originals on the document tray from the top (first page of the stack), and places them on the copyboard glass.

Each time an original has been read, the ADF moves the original from the copyboard glass to the original delivery tray.

Figure 141. Top pick-up path

Double-sided original mode

The ADF feeds double-sided originals in two ways depending on the specified printer output tray.

- If the output tray is the left, or face up, output tray (default when copying double-sided originals, the procedure is as follows:

- 1 Pick up the original.
- 2 Copy the first side.
- 3 Reverse the original.
- 4 Copy the second side.
- 5 Reverse the original.
- 6 Deliver the original.

See figure 142 on page 253.

- If the output tray is forced to the top, or face down, output tray, the procedure is as follows:

- 1 Pick up the original.
- 2 Reverse the original.
- 3 Copy the second side.
- 4 Reverse the original.
- 5 Copy the first side.
- 6 Deliver the original.

See figure 143 on page 254.

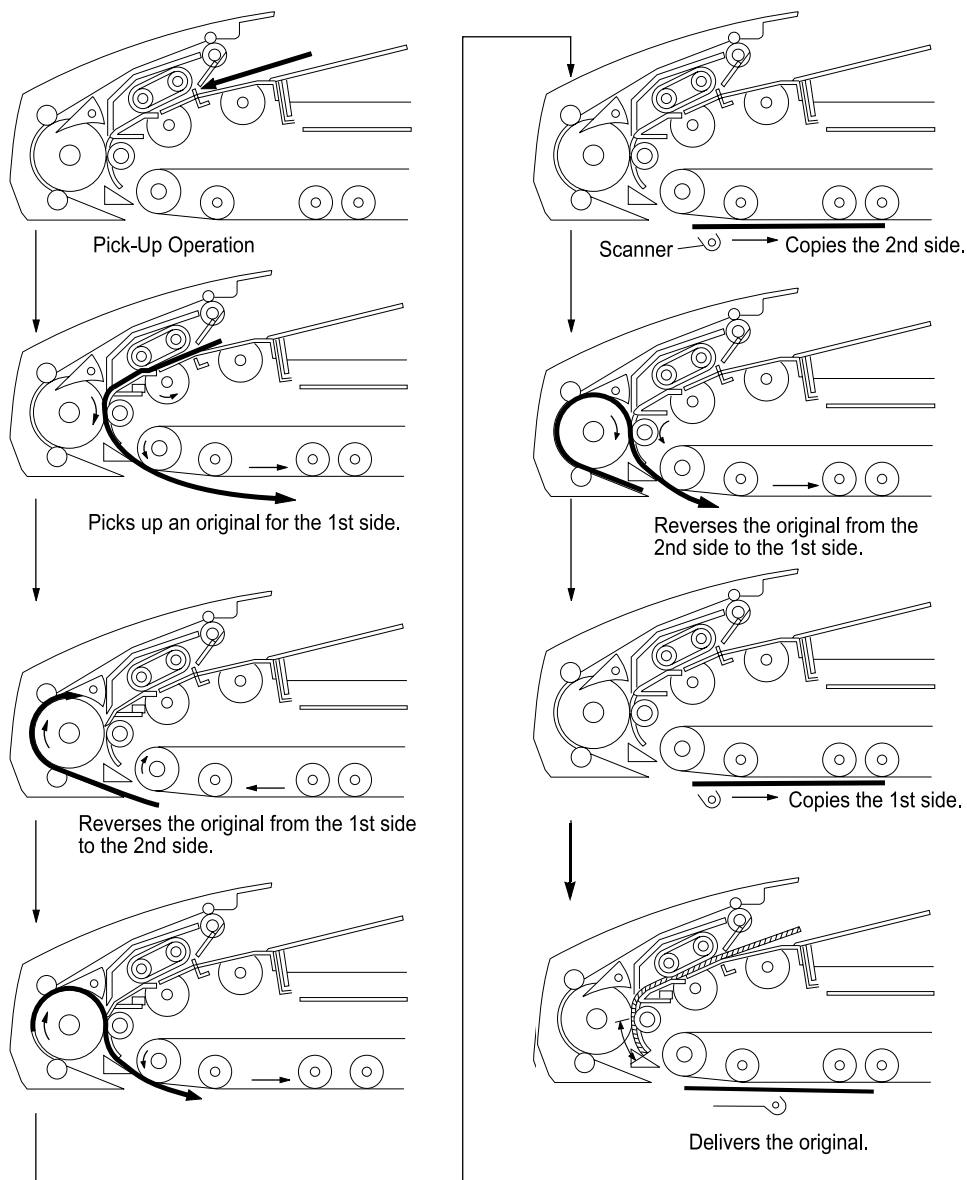


Figure 142. Face-up (left) output tray

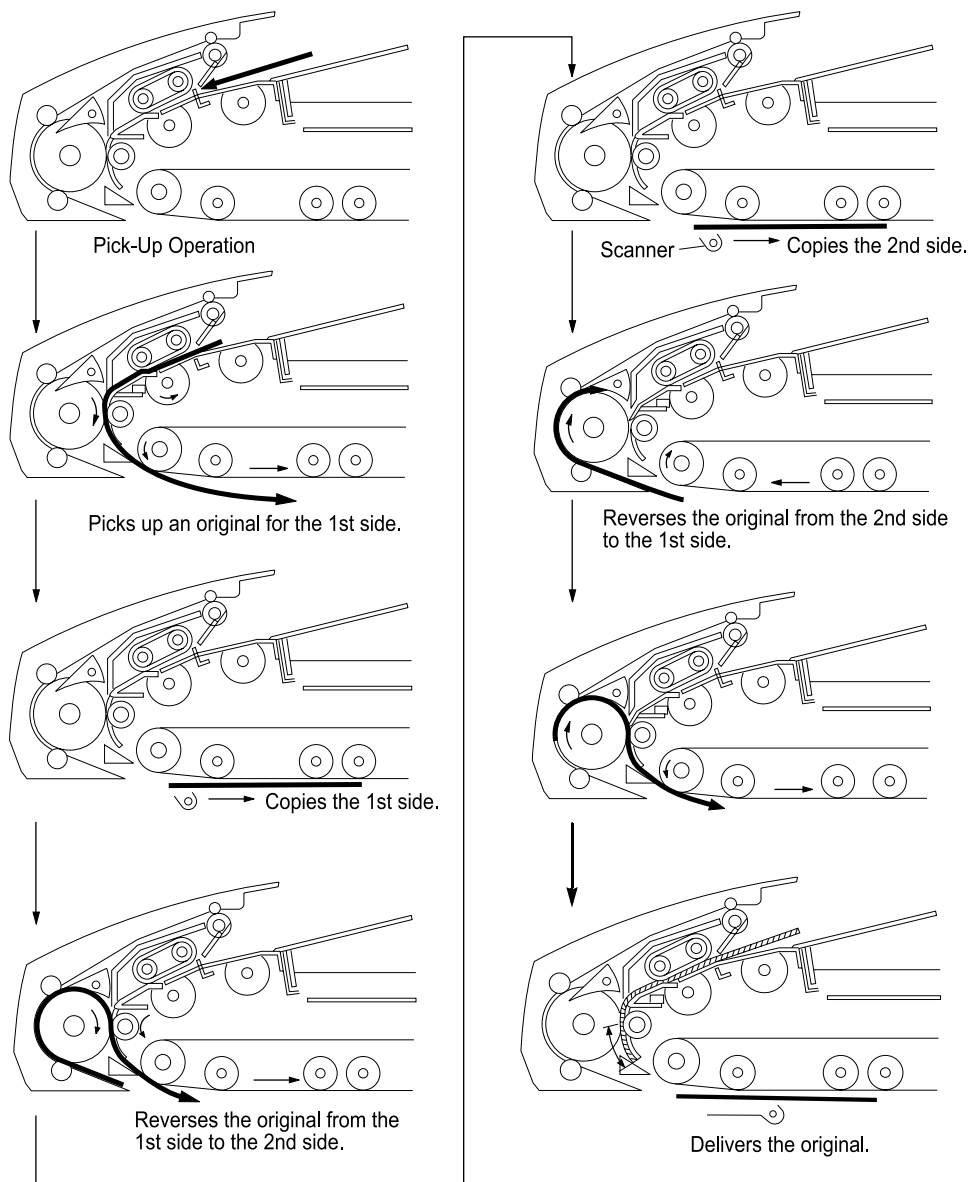


Figure 143. Face-down (top) output tray

Reduced page composition mode

When reducing and copying two originals in page composition mode, the ADF automatically picks up two originals and places them on the copyboard glass side by side. Table 68 shows the sizes of originals that may be used in the ADF.

Table 68. Page composition sizes

Europe/Asia (A4)	U.S. (Letter)
A5	STMT
B5	LTR
A4	

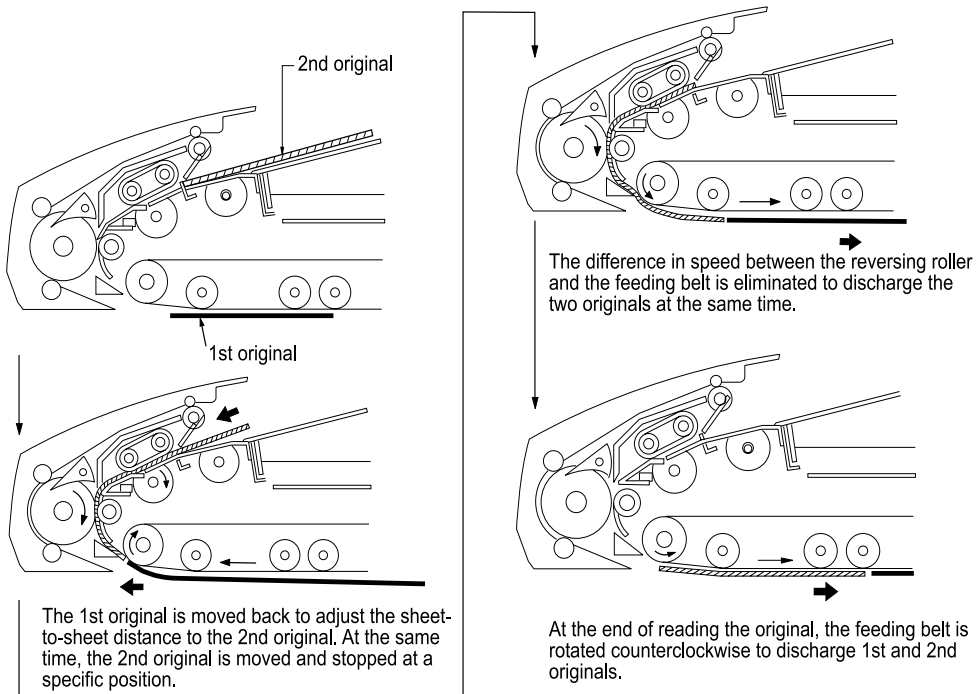


Figure 144. Page composition copy sequences

Picking up originals

The ADF uses top pick-up mode (that is, top separation, in which the top sheet of the stack of originals is picked up first). See figure 145 for the construction of the pick-up assembly.

Note

The names of the separation belt and feed roller do not match their actual functions. Their roles are reversed.

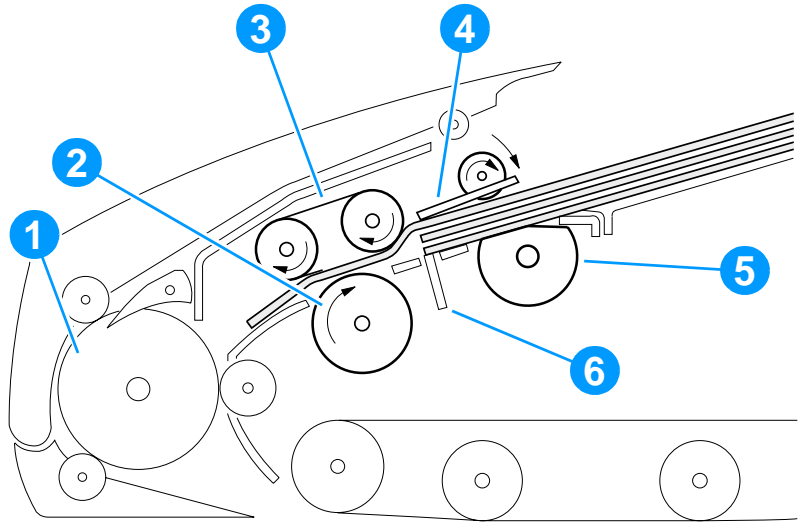


Figure 145. Picking up originals

- 1 Registration roller
- 2 Feed roller (separation function)
- 3 Separation roller (feed function)
- 4 Paper retaining plate
- 5 Pick-up roller
- 6 Paper stopper plate

When the pick-up motor starts to rotate counterclockwise, the arm on the pick-up roller shaft transmits its drive to the original guide and the switching arm. In response, the original guide moves downward. Then, the rear and the front of the separation belt operating in connection with the switching arm move upward to start the pick-up operation.

Pick-up operation

When top pick-up mode is executed with originals on the document tray, the following will take place:

1 Pick-up separation

The paper stop plate is brought down, and the paper retaining plate is moved down to the stack of originals; then, the first page of the stack is picked up. After pick-up, the original is fed between the separation belt and the feeding roller to prevent double feeding.

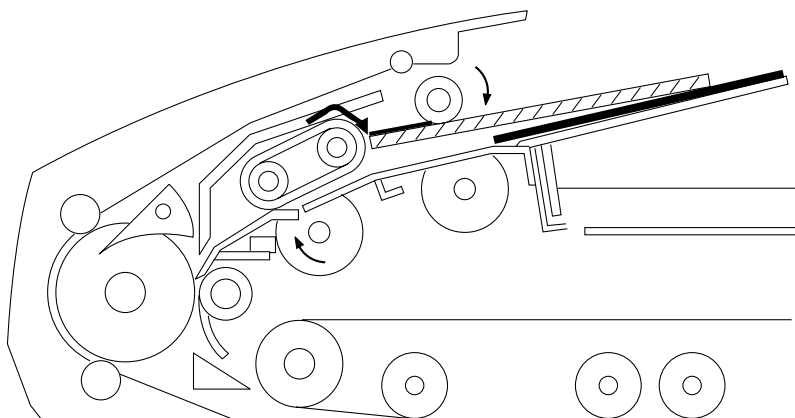


Figure 146. Pick-up path

2 Arching

The original is butted against the registration roller so that it arches. This ensures that the original will be fed without rotational skew.

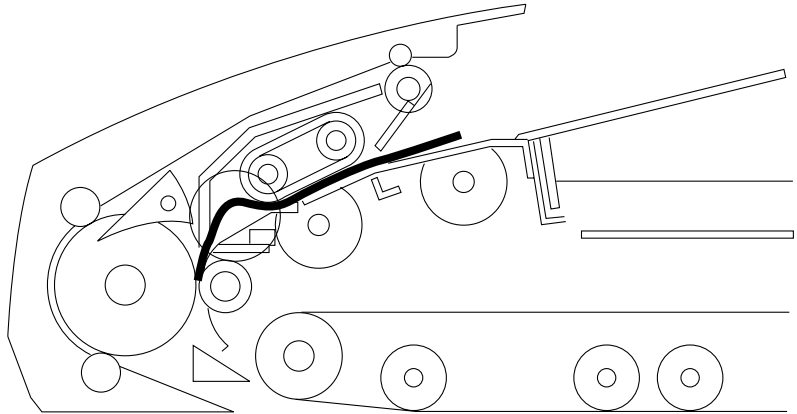


Figure 147. Feeding sequence

3 Feeding

The feeding belt, registration roller, and separation belt are rotated to move the original to the copyboard glass.

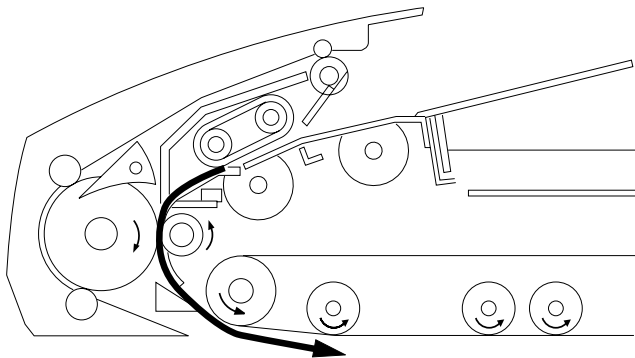


Figure 148. Feeding

4 Picking up the second original

When the original reaches the correct position on the copyboard glass, the copy module scanner starts to move forward. At the same time, the second original is picked up (if A4- or letter-size). In the case of a large-size original (A3-size or 11-by-17 inch), the second original is picked up after delivery of the first original.

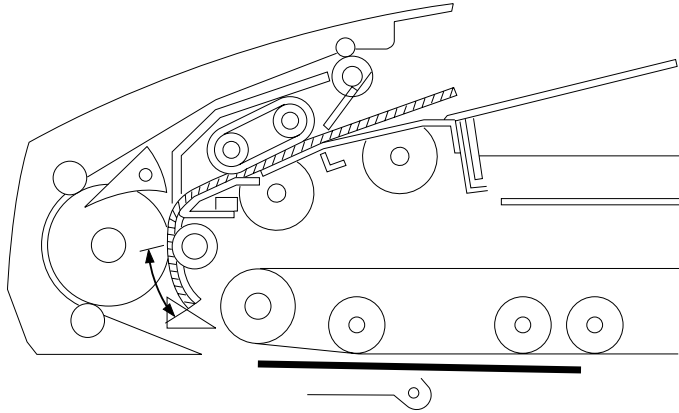
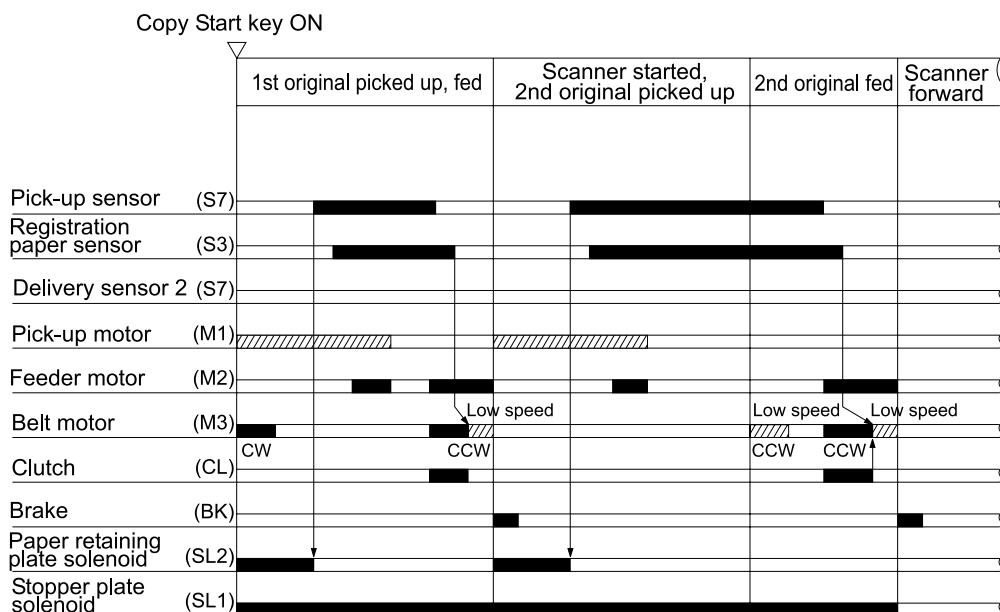


Figure 149. Second original pick-up

Sequence of operations (A4, two originals, top pick-up mode)



[Hatched] : The pick-up motor rotates in the direction opposite to the direction in copying mode.
 CW : The feeding belt rotates clockwise.
 CCW : The feeding belt rotates counterclockwise.

Figure 150. Sequence of operations (A4, 2 originals, top pick-up mode)

Reversal operation

Reversal may be either from the first side to the second side, or from the second side to the first side. (Since the same mechanism is involved, the discussions herein will be on reversal from the first side to the second side.)

- **Picking up for the first side**
An original is moved from the document tray to the copyboard glass.
- **Reversal/feeding**
The feeding belt is rotated clockwise to feed the original off the copyboard glass and to the reversing roller.
- **Reversal/delivery switching**
The paper deflecting solenoid (SL3) is turned on to open the paper deflecting plate so that the original is moved back to the copyboard glass, reversing the original.

When the second side of the original is set on the copyboard glass, the scanner starts to move forward.

While the scanner is moving in reverse, the original is reversed once again so that its first side is set on the copyboard glass.

When the first side of the original has been copied, the original is moved for delivery.

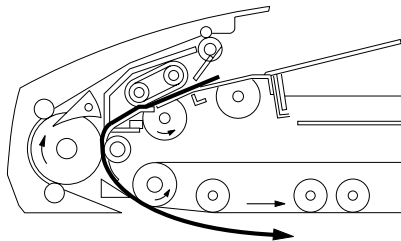


Figure 151. Picking up for the first side

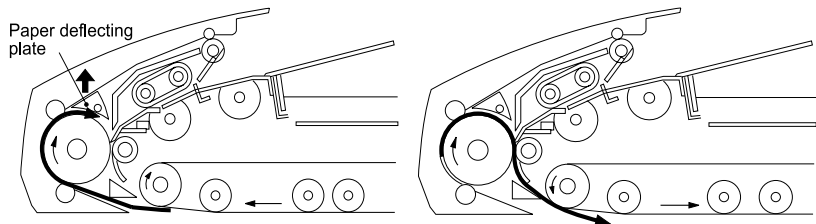


Figure 152. Reversing from the first side to the second side

Sequence of operations (reversal)

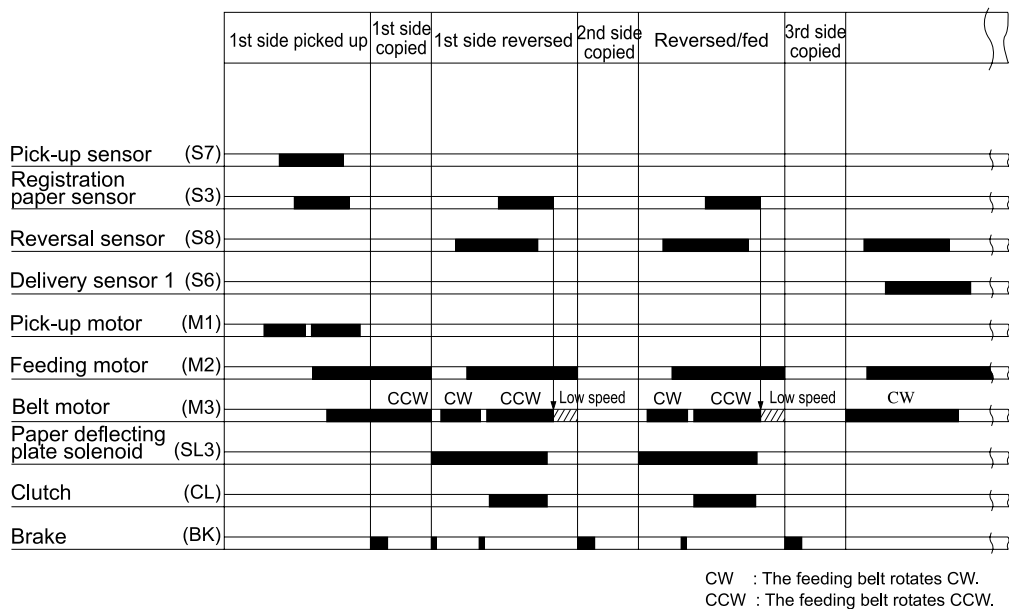


Figure 153. Sequence of operations (reversal)

Reduced page composition

In top pick-up mode, the originals are picked up starting with the top sheet, not requiring reordering of the originals.

1 Picking up the first original

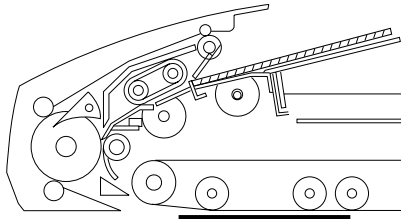


Figure 154. Placement of first original

The first original is picked up and stopped on the copyboard glass. For details of pick-up operation, see “Picking up originals” on page 256.

2 Positioning the first original and feeding the second original

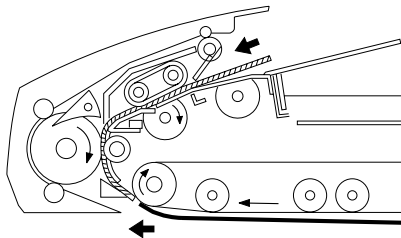


Figure 155. Positioning the first original and pick-up of second original

The first original is moved back to adjust the sheet-to-sheet distance. Then the two originals are moved simultaneously and stopped on the glass at a specified position.

3 Feeding the first and second originals simultaneously

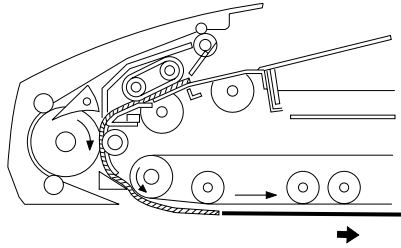


Figure 156. Movement of first and second originals

The clutch (CL) is turned on to eliminate the difference in speed between the delivery/reversing roller and the feeding belt, and the two originals are fed simultaneously.

4 Delivering the first and second originals

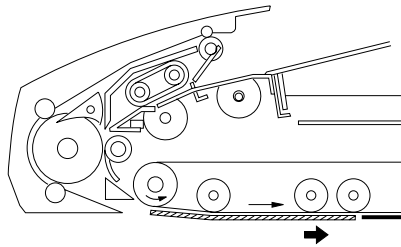


Figure 157. Delivery of originals

When the original has been read, the feeding belt is rotated counterclockwise, and the first and second originals are delivered.

If there are third and fourth originals, the procedure repeats.

Sequence of Operations (reduced page composition)

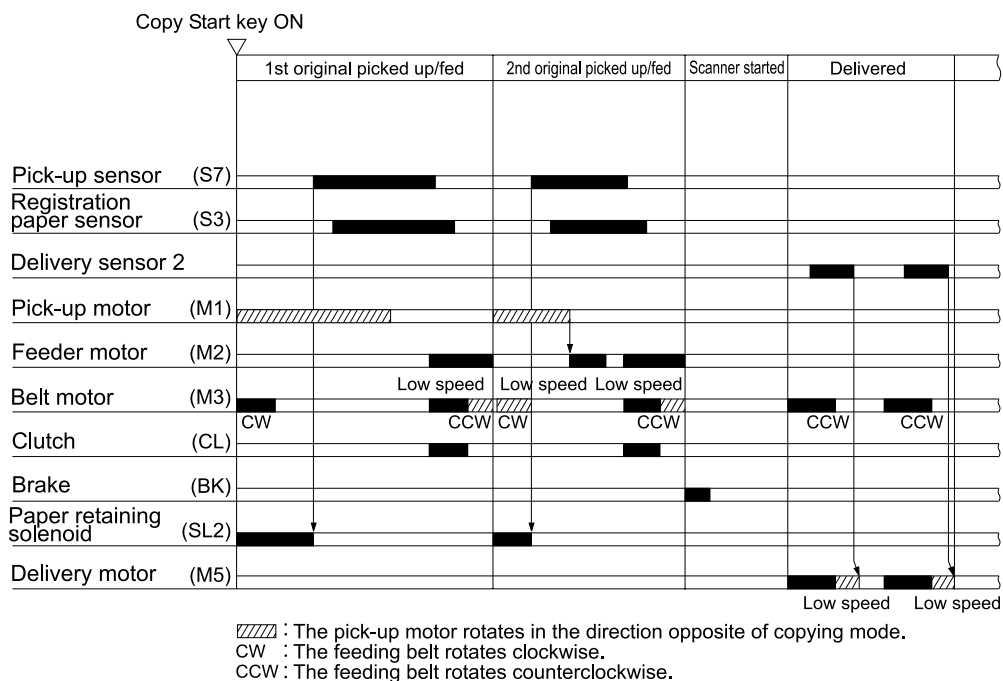


Figure 158. Sequence of operations (reduced page composition; top pick-up)

Delivery operation

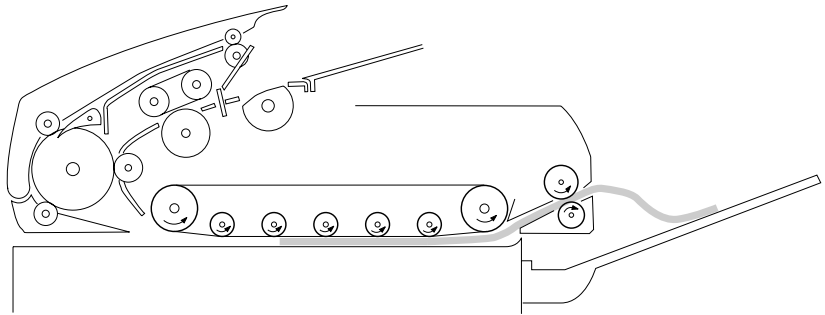


Figure 159.

Delivery path

The ADF delivers originals to the document delivery tray.

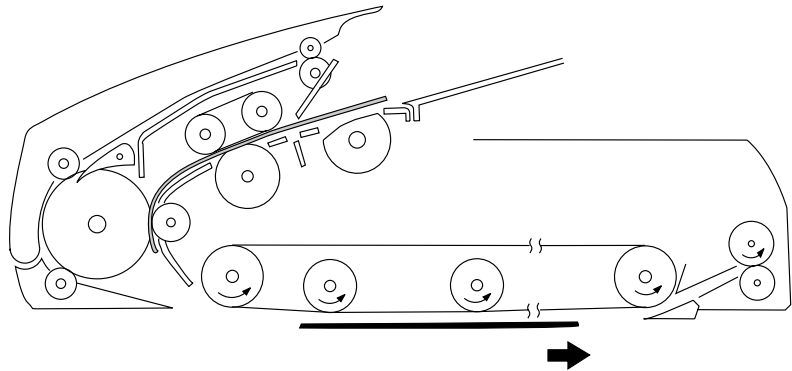


Figure 160.

Feeding the first original

The ADF delivers the original on the copyboard tray as follows:

1 Feeding the first original

The feeding belt is rotated counterclockwise to feed the first original about 30 mm (to maintain the sheet-to-sheet distance from the second original).

2 Delivering the first original and picking up the second original

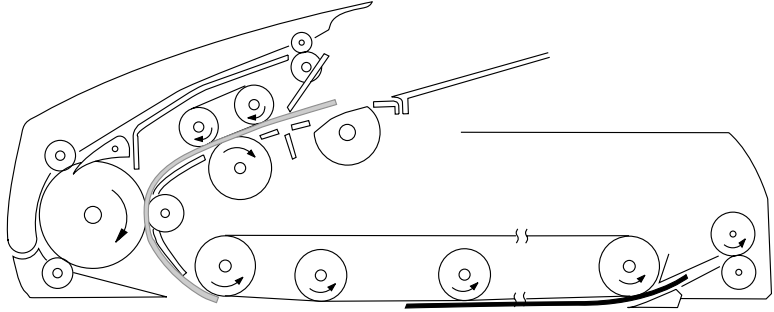


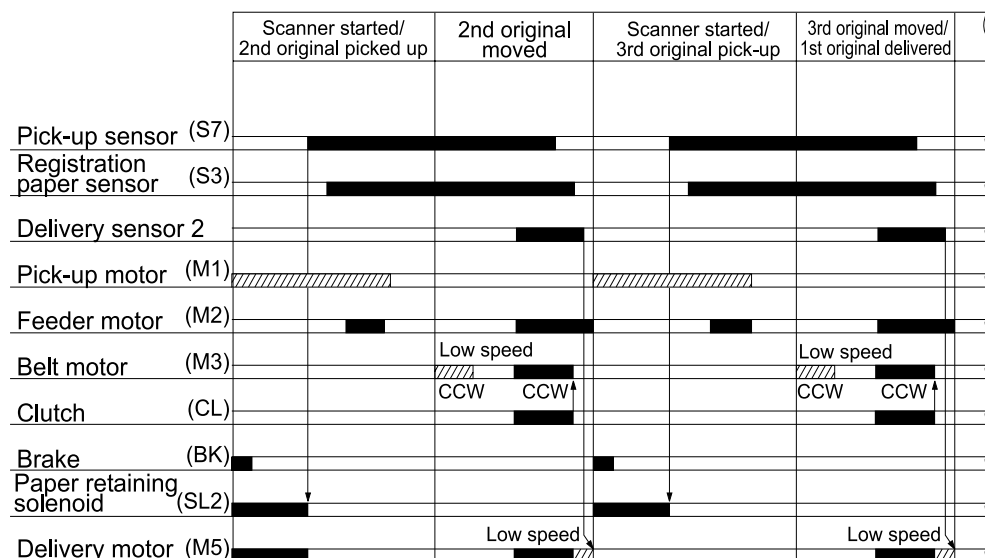
Figure 161. Delivering the first original and picking up the second original

The clutch (CL) is turned on to eliminate the difference in speed between the delivery/reversing roller and the feeding belt; the first original is moved for delivery, and the second original is picked up.

3 Delivery to the document delivery tray

While the trailing edge of the original is moved to the document delivery tray, the delivery motor (M5) switches to low speed to deliver the original slowly.

Sequence of operations (small size, pick-up and delivery)



[Hatched bar] : The pick-up motor rotates in the position opposite of copying mode.
 CW : The feeding belt rotates clockwise.
 CWW : The feeding belt rotates counterclockwise.

Figure 162. Sequence of operations (small size, pick-up and delivery)

Detecting originals

The ADF has the following types of document detection:

- The presence or absence of an original on the document tray
- The size of originals place on the document tray
- The number of originals that have been copied
- The trailing edge of the last original

Detecting the presence or absence of an original

The presence or absence of an original on the document tray is detected by the document tray paper sensor (PS1).

When an original is placed in the document tray, the light between the document tray paper sensor (S1) and the prism is blocked, causing the document tray paper sensor (S1) to generate the original detection signal (EMPS).

In response to the original detection signal (EMPS), the DADF controller PCB turns on the original-set indicator (LED101, LED102).

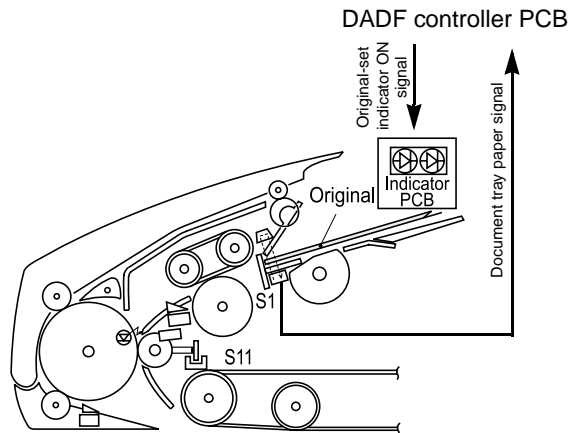


Figure 163. Detecting an original

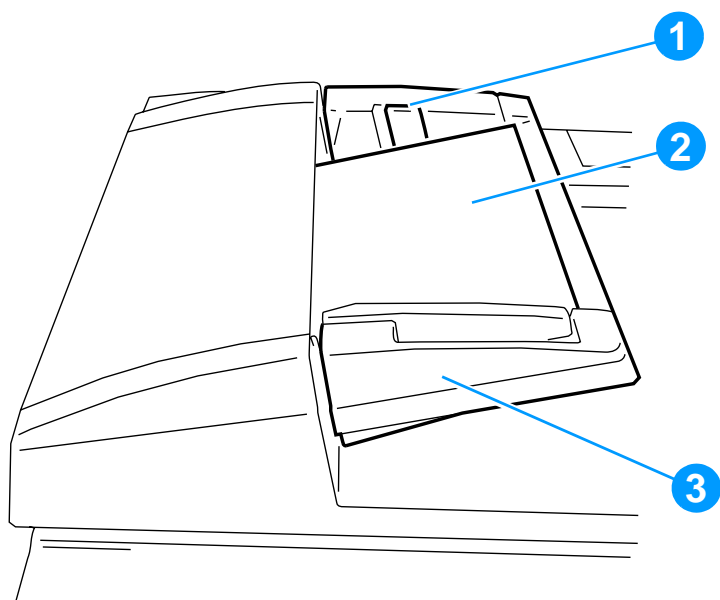


Figure 164. Document tray

- 1 Original-set indicator
- 2 Original
- 3 Document tray

Detecting the size of an original

The ADF detects the size of an original in relation to the vertical (feeding) and horizontal directions of the original, to provide correct original size detection.

Detecting in vertical (feeding) direction

Detection in the vertical direction is made by the registration paper sensor (S3) and the registration roller clock sensor (S11).

The registration paper sensor detects the leading and trailing edges of an original, and the registration roller clock sensor detects the rotation of the registration roller while the original moves past the sensor. The rotation of the registration roller is converted to the length of the original.

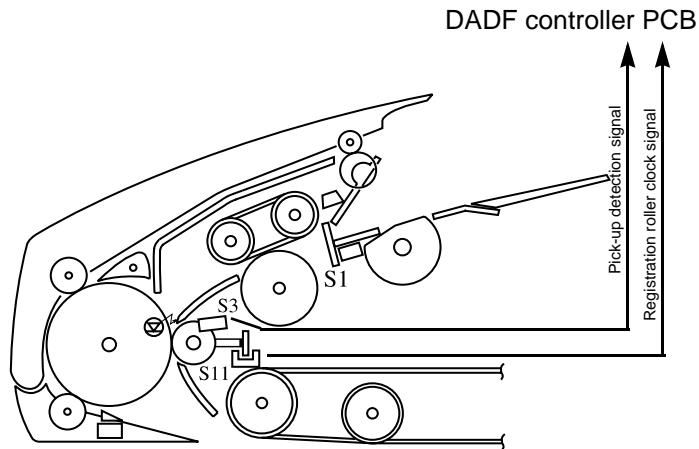


Figure 165. Registration rollers

Detection in horizontal direction

Detection in the horizontal direction is made by the original-width detecting volume (VR) on the document tray. The original-width detecting volume operates in conjunction with the side guides (callout 1) on the document tray. As its resistance varies, the changes are detected by the DADF controller PCB, which converts them into length in the horizontal direction.

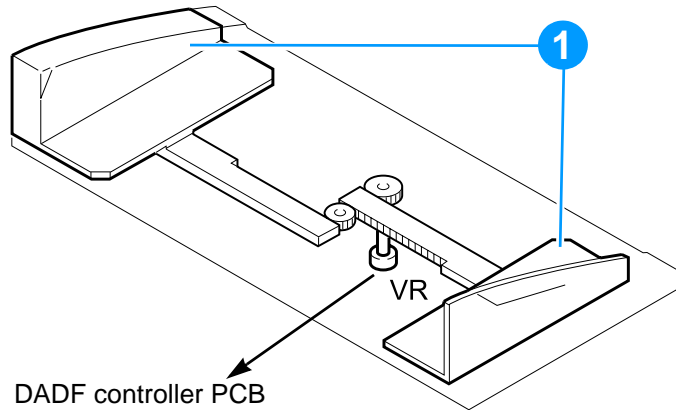


Figure 166. Horizontal detection

The copy module identifies the size of an original in terms of a default size based on the results of vertical and horizontal lengths communicated by the ADF.

Tables 69 and 70 show the default sizes that are identified:

Table 69. Europe/Asia (A4)

Vertical	Horizontal	Default
257 mm	177 to 187 mm	B5R
148.2 mm	205 to 215 mm	A5
330 mm	205 to 215 mm	A4R
330 mm	205 to 215 mm	FOOLSCAP
182 mm	252 to 262 mm	B5
364 mm	252 to 262 mm	B4
381 mm	274 to 284 mm	COMPUTER paper
210 mm	292 to 302 mm	A4
420 mm	292 to 302 mm	A3

Table 70. U.S. (Letter)

Vertical	Horizontal	Default
140 mm	211 to 221 mm	STMT
279 mm	211 to 221 mm	LTRR
330 mm	211 to 221 mm	FOOLSCAP
456 mm	211 to 221 mm	LGL
216 mm	274 to 284 mm	LTR
381 mm	274 to 284 mm	COMPUTER paper
432 mm	274 to 284 mm	11-by-17 inches

Note

For vertical direction, a deviation of ± 10 mm is ignored; for horizontal direction, a deviation of ± 5 mm is ignored. Outside the ranges, the original will be identified as being of a non-default size.

Detecting the trailing edge of the last original

The ADF is designed to pick up originals to match the timing at which the printer picks up paper.

If the length of an original is 220 mm or less, the ADF sets the first original on the copyboard glass, and moves the second original beyond the registration roller.

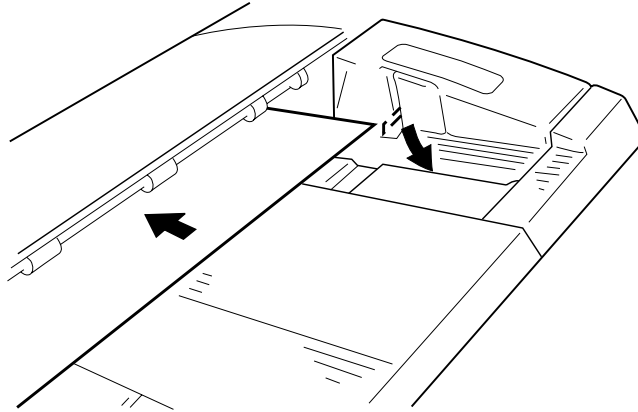


Figure 167. Placement of original

If the recirculating lever on the document tray is still resting on an original, the ADF communicates to the printer that the third and subsequent originals are present, and the printer picks up paper for the next copied page.

When the recirculating lever on the document tray has dropped, the ADF communicates to the printer that there is not third or subsequent originals (RSS signal) so that the printer will not pick up additional paper.

Controlling the pick-up motor

The ADF motor is a dc motor. The microprocessor (Q1) on the DADF controller PCB sends the pick-up motor drive signal (SMON), pick-up motor rotation direction signal (SDIR), and the pick-up motor rotation speed control signal (SMPWM) to the drive circuit.

In response, the drive circuit drives the pick-up motor according to these three signals.

The control circuit is not equipped with a circuit used to provide the microprocessor (Q1) with feedback, indicating the state of pick-up rotation. As such, the pick-up motor rotation speed control signal (SMPWM) remains constant at all times, and no correction is made when the rotation speed of the pick-up motor fluctuates because of an external force.

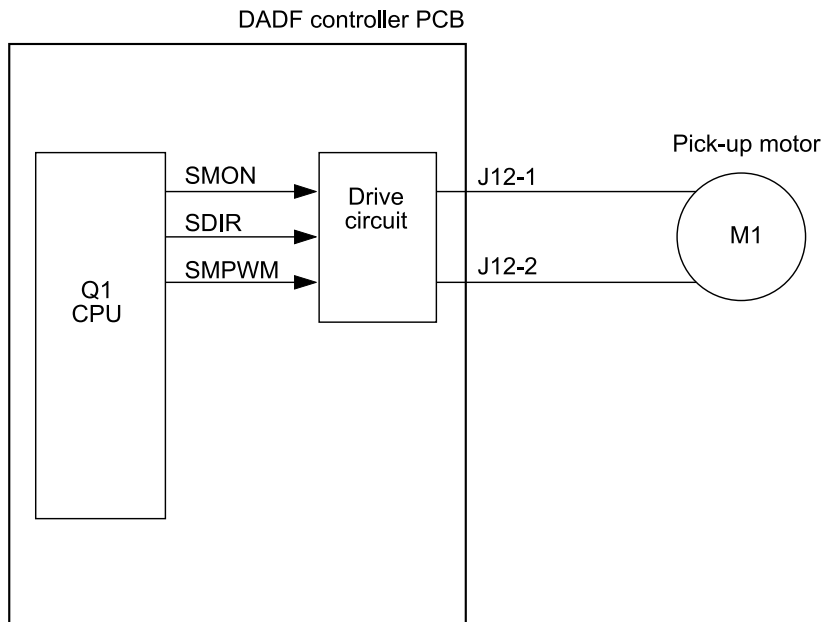


Figure 168. Control of pick-up motor

Table 71 shows the relationship between the pick-up motor drive signal (SMON), pick-up motor rotation direction signal (SDIR), and pick-up motor rotation speed control signal (SMPWM) and the operation of the pick-up roller.

Table 71. Relationship between pick-up motor signals and the pick-up roller

Pick-up motor drive signal (SMON)	Pick-up motor rotation direction signal (SDIR)	Pick-up motor rotation speed control signal (SMPWM)	Pick-up roller operation
1	1	Pulses	The pick-up roller rotates in copier mode pick-up direction (counterclockwise).
1	1	0	The pick-upper roll rotates by inertia in copier mode pick-up direction.
1	0	Pulses	The pick-up roll rotates in fax mode pick-up direction (clockwise).
1	0	0	The pick-upper roller rotates by inertia in fax mode pick-up direction (clockwise).
0	1 / 0	1 / 0	The pick-upper roller stops.

Controlling the belt motor

The belt motor is a dc motor.

The microprocessor (Q1) on the DADF controller PCB sends the belt motor drive signal (BMON), belt motor rotation direction signal (BDIR), and belt motor rotation speed control signal (BMPWM) to the drive circuit.

When the belt motor begins to rotate, the belt motor clock sensor (S10) sends the belt motor clock signal (BCLK1) to the microprocessor (Q1). In response, the microprocessor (Q1) compares the belt motor clock signal (BCLK1) against the rotation speed stored in memory to vary the belt motor rotation speed control signal (PMPWM) to make a match, causing the belt motor (M3) to rotate at a specific speed at all times.

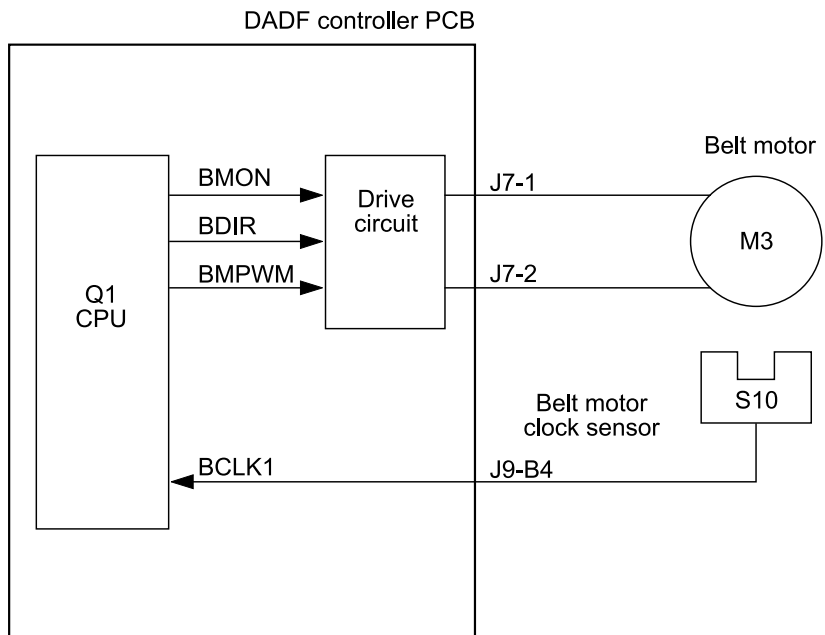


Figure 169. Control of belt motor

Table 72 shows the relationship between the belt motor drive signal (BMON), belt motor rotation direction signal (BDIR), belt motor rotation speed control signal (BMPWM), and the feeding belt.

Table 72. Relationship between belt motor drive signal and the feeding belt

Belt motor drive signal (BMON)	Belt motor rotation direction signal (BDIR)	Belt motor rotation speed control signal (BMPWM)	Feeding Belt
1	1	Pulses	The feeding belt rotates in pick-up direction (counterclockwise).
1	1	0	The feeding belt rotates by inertial in pick-up direction (clockwise).
1	0	Pulses	The feeding belt rotates in copier mode delivery direction (clockwise).
1	0	0	The feeding belt rotates by inertial in copier mode delivery direction (clockwise).
0	1 / 0	1 / 0	The feeding belt stops.

Protecting the belt motor from overcurrent

At times, overcurrent can occur because of a specific type of original or state of the ADF. To protect the power supply circuit from extra loads occurring because of continuing overcurrent while the belt is rotating in pick-up direction, an overcurrent control circuit is provided.

Detecting jams

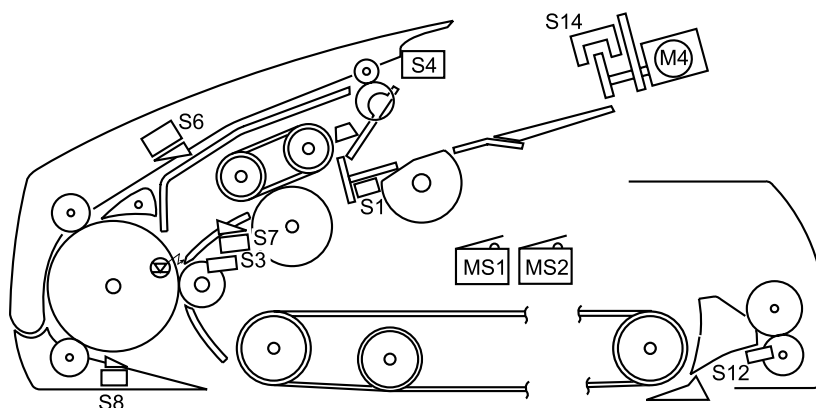


Figure 170. ADF jam sensors

Table 73. Jam detection sensors

S1	Document tray paper sensor
S3	Registration paper sensor
S4	Upper cover sensor
S6	Delivery sensor 1
S7	Pick-up sensor
S8	Reversal sensor
S12	Delivery sensor 2
S14	Recirculation sensor
MS1	ADF switch
MS2	Upper cover switch

The timing at which the ADF checks for jams is stored in memory in the microprocessor on the DADF controller PCB, and a jam is detected in terms of the presence or absence of paper at a specific sensor at the time.

When a jam is detected, the ADF communicates the fact to the copy module in the form of a code. The copy module reports the results of these on the LCD and in service mode.

Table 74. Jam detection

Function	Jam Type	Sensor	Description	Code
Pick-up	Original retraction	S1, S7	Sensor S7 does not detect the leading edge of an original 1500 msec after the pick-up motor (M1) has turned on and, in addition, sensor S1 does not detect an original.	01H
Pick-up	Pick-up delay	S7	Sensor S7 does not detect the leading edge of an original 1500 msec after the pick-up motor (M1) has turned on.	02H
Pick-up	Registration delay	S3, S7	Sensor S3 does not detect the leading edge of an original 350 msec after sensor S7 has detected the leading edge of an original.	03H
Pick-up	Double feeding	S3	Sensor S3 remains on even when the first original is placed on the copyboard.	06H
Pick-up	Original leading edge retreat	S3	At the start of original pick-up, sensor S8 does not detect the leading edge of an original.	08H
Reversal	Reversal delay	S8	At time of original reversal or delivery, sensor S8 does not detect the leading edge of an original 140 mm or 225 msec after the belt motor (M3) has started to rotate clockwise.	11H
Reversal	Reversal stationary	S8	At time of original reversal or delivery, sensor S8 does not detect the trailing edge of an original after a reversal delay check.	12H
Reversal	Reversal delay 2	S8	At time of original delivery pick up, sensor S8 does not detect the preceding original 50 mm after the belt motor has started to rotate counterclockwise. (The original to be delivered is moved back to the copyboard glass together with the original picked up.)	13H
Reversal	Reversal initial paper	S8	At time of original reversal, sensor S8 is on.	20H
Reversal	Reversal pick-up delay	S3	At time of original reversal, sensor S3 does not detect the leading edge of the original that has been reversed 100 mm or 300 msec after sensor S8 has detected and original.	21H
Reversal	Reversal pick-up stationary	S3	Sensor S3 does not detect the trailing edge of an original (original size + 180 mm) after sensor S8 has been turned on.	23H
Delivery	Delivery delay	S6	At time of original delivery, sensor S6 does not detect an original 100 mm or 250 msec after sensor S8 has detected the leading edge of an original.	41H
Delivery	Delivery Stationery	S6	Sensor S6 does not detect the trailing edge of an original 100 mm or 250 msec after a reversal stationary check.	42H
Delivery	ADF open	MS1	The ADF is open while in operation.	81H

Table 74. Jam detection (continued)

Function	Jam Type	Sensor	Description	Code
Delivery	Upper cover open	MS2, S4	The upper cover is open while the ADF is in operation.	82H
Delivery	Jam original	S1	Sensor S1 does not detect the original delivered on the document tray.	83H
Delivery	Recirculating lever idle rotation (second circulation or latter)	S6, S3, S8, S7	At the start of original pick-up, sensor S6, S3, or S8 (also S7 if the paper stopper plate is up) is on.	84H
Delivery	Residual original	S8	When picking up for the first original is detected on the copyboard glass.	88H
Double Feeding	Double feeding	S14	For the second circulation or later, the recirculation lever rotates idly without coming into contact with an original.	89H
Delivery	Delivery failure	S3,S6	At time of delivery in bottom separation pick-up mode. the original fails to stop (for example, the original that has been picked up is longer than the original being delivered).	84H
Delivery	ADF open	MS1	While the copy module is at rest (because, for example, the absence of paper) the ADF is open.	91H
Delivery	Upper cover opened	MS2, S4	While the copy module is at rest (because, for example, the absence of paper) the upper cover is opened	
Delivery	Recirculating lever idle rotation	S13	At time of original pick-up, the recirculating lever fell off a stack of original.	93H

Note

The ADF operation stops immediately upon detection of a jam.

Note

For a pick-up delay jam, reset the ADF by removing the original from the document tray. For other types of jams, remove the originals from the document tray, remove the jam from the ADF, and open the ADF.

Improper placement of originals

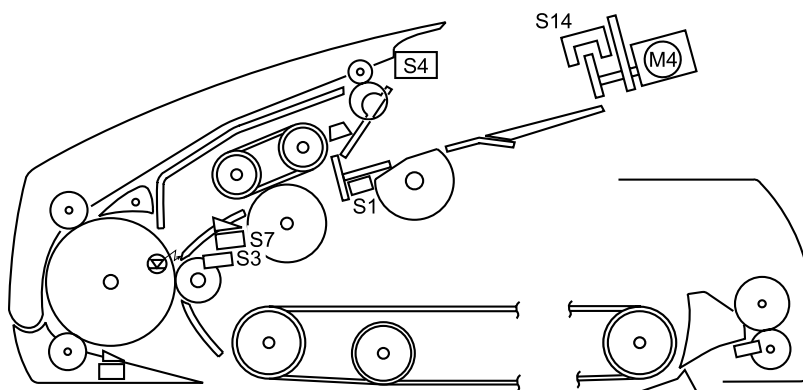


Figure 171. Improper placement of originals

Table 75. Improper placement of originals sensors

S1	Document tray paper sensor
S3	Registration paper sensor
S7	Pick-up sensor
S14	Recirculation sensor

An original, placed improperly, can cause a jam or damage to the original. The ADF ensures that all originals are placed properly to prevent jams or damage. The timing of a check is stored in the microprocessor on the DADF controller, and detection is made in terms of the presence/absence of paper over a specific sensor.

When the ADF detects an improperly placed original, it communicates the fact to the copy module. The copy module will report the results of these codes as errors on the LCD and in service mode.

Table 76. Improper placement detection

Fault	Sensor	Description	ADF operation	Code
Recirculation lever idle rotation	S11	Immediately after the recirculation motor M4 starts to operate, the recirculating lever rotates idly without coming into contact with an original.	Stops operation immediately upon detection.	01H
Pick-up failure	S7	Sensor S7 does not detect the leading edge of an original 1500 msec after the start of pickup.	The separation belt, feeding roller, and pick-up roller stop operation immediately. The original moving in advance is delivered after the end of copying; then, the ADF stops operation.	03H
Paper stopper plate overriding	S7	At time of placement of originals, the originals ride over the paper stopper plate.	Stops operation immediately upon detection.	05H
Count mismatch	S3	The number of originals placed on the document tray after jam removal is fewer than the number of originals copied.	Stops operation immediately upon detection.	11H
Original count	S3	The recirculating lever does not fall under the document tray, not enabling detection of the last original. Note: Normally, the document tray can hold as many as 50 sheets of A5, STMT, A4, B5, or LTR or 25 sheets of A3, B4, 11-by-17 inch, or LGL.	Stops operation after counting 100 sheets.	12H
Original extraction	S14	The recirculating lever fell under the document tray while an original was being processed.	Stops operation immediately upon detection.	13H
Wrong original size	S3	The original that is picked up is a non-standard size.	Stops operation immediately upon detection.	14H
Wrong original size or size mix in reduced page composition mode	S3	1. The original that is picked up is of a type not supported by reduced page composition mode, or 2. The original that is picked up is of a size different from the size of the first original.	Stop detection immediately upon detection.	15H

When a jam occurs, the copy module remembers how many originals have been copied. The count is sent to the ADF after jam removal, and the ADF circulates the originals that have been copied; it then places originals that have not been copied on the copyboard for copying. This is the reason normal copying would not be possible if a different number of originals are placed on the document tray after jam removal.

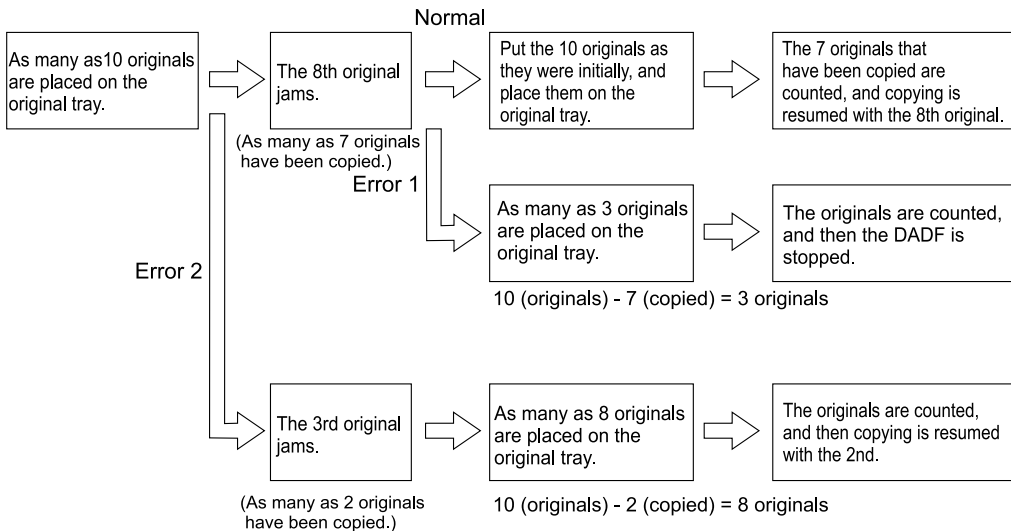


Figure 172. Jam flowchart

In the above chart, error 1 will be treated as a condition in which a different number of originals are placed after jam removal; in such a case, both the ADF and the copy module stop operation to indicate an error. The operation continues, however, for error 2.

Resetting

To reset, remove all originals from the document tray and glass, straighten them, and replace them on the document tray. If the copy module indicates a message follow such the message when placing the originals.

In reduced page composition mode remove the originals from the document tray and open the ADF once.

Power supply

Figure 173 is an outline of the power supply system in the ADF.

The power supply is provided by the copy module with 24 V dc (24 VP, 24 VL).

- 24 VP is mainly used for loads and is cut off when the ADF is opened or its upper cover is opened. The circuit breaker (CB1) operates to cut off the power to protect the circuit in response to overcurrent.
- 24 VL is converted by the regulator into 5 V and is used by the logic system and sensors.
- The fuse resistance (R26) melts in response to overcurrent in the circuit, thereby cutting off the power and protecting the circuit.

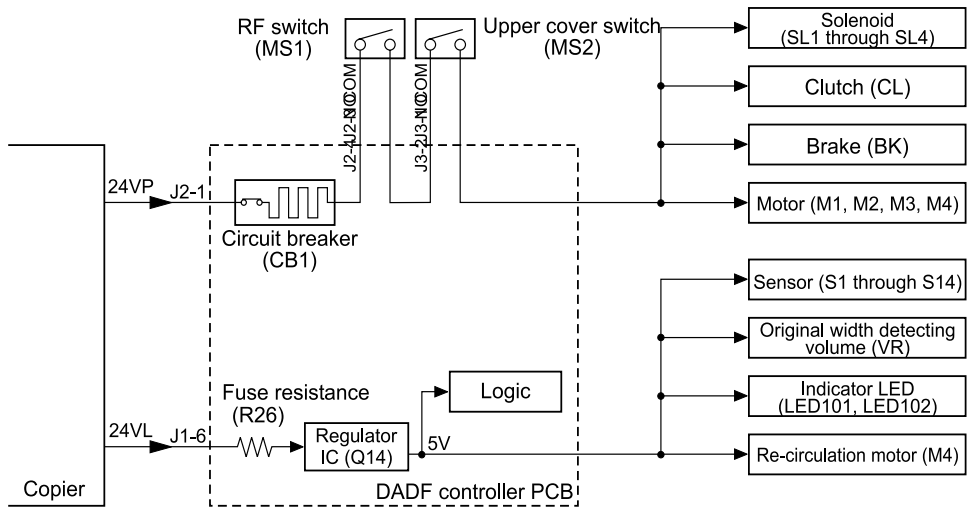


Figure 173. Power supply

Motors, solenoids, and sensors

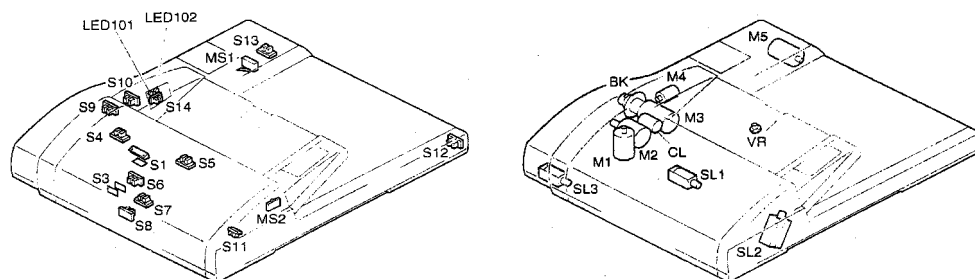


Figure 174. Motors, solenoids, and sensors

Table 77. Motors, solenoids, and sensors

Name	Notation	Description
Motor	M1	Pick-up motor
	M2	ADF motor
	M3	Belt motor
	M4	Recirculating motor
	M5	Delivery motor
Clutch	CL	Clutch
Brake	BK	Belt motor brake
Solenoid	SL1	Stopper plate solenoid
	SL2	Paper-retaining-plate solenoid
	SL3	Paper-delivery-plate solenoid
Variable resistor	VR	Original-width-detecting volume
Microswitch	MS1	ADF open/close switch
	MS2	Upper cover switch
Phototransistor	S1	Document tray paper sensor
	S3	Registration sensor
Photointerrupter	S4	Upper cover sensor
	S5	Pick-up roller sensor
	S6	Delivery sensor 1
	S7	Pick-up sensor
	S8	Reversal sensor
	S9	Feeding motor clock sensor
	S10	Belt motor clock sensor
	S11	Registration roller clock sensor
	S12	Delivery sensor 2
	S13	Delivery motor clock sensor
	S14	Recirculation sensor
LED	LED101	Original-set indicator
	LED102	

PCBs

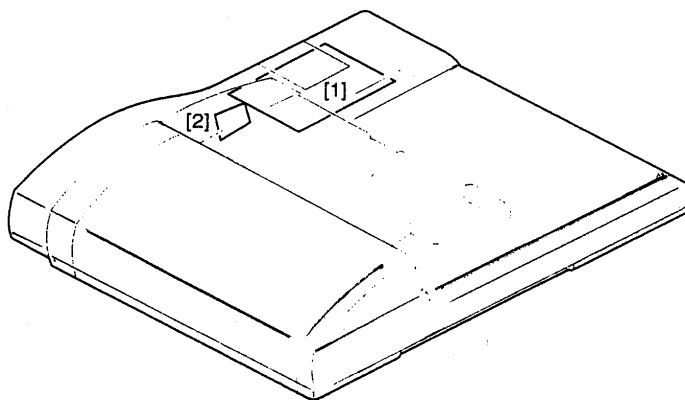


Figure 175. PCB locations

Table 78. PCB functions

Name	Notation	Description
DADF controller PCB	1	Controls ADF
Indicator PCB	2	Indicates the presence of an original

Indicator PCB

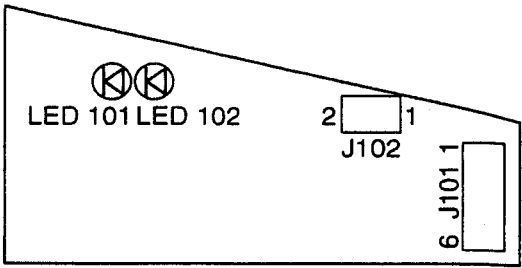


Figure 176. Indicator PCB

Table 79. LEDs on the indicator PCB

LED	Description
LED101	Indicates the presence of an original
LED102	Indicates the presence of an original

Note Use only variable resistors and check pins noted and referenced. Adjusting others may cause damage.

General timing charts

The following are the signal names and abbreviations used in this manual and circuit diagrams.

Note The abbreviations in parentheses are analog signals, which cannot be expressed in terms of '1' and '0'. Others are digital signals, which may be expressed in terms of '1' and '0'.

Table 80. Names and abbreviations of signals

Abbreviation	Name of signal
BDIR	BELT MOTOR ROTATION Command
BK	BRAKE DRIVE Command
BMCLK	BELT MOTOR CLOCK PULSE Signal
BMON	BELT MOTOR DRIVE Command
BMPWM	BELT MOTOR SPEED CONTROL Command
CL	CLUTCH DRIVE Command
CNCT	CONNECT Signal
CVRSW	UPPER COVER CLOSED Signal 2
DCTS	PICK-UP ROLLER START POSITION Signal
EJTS1	PAPER DETECTION Signal 2
EJTS2	PAPER DETECTION Signal 4
ENTS	PAPER DETECTION Signal 3
EPMS	DOCUMENT ENPUTY 1 Signal
FLPSL1	DEFLECTOR SOLENOID DRIVE Command
FMCLK	FEED MOTOR CLOCK PULSE Signal
FMPWM	FEED MOTOR DRIVE Command
ORGLED	DOCUMENT SENC DRIVE Command
RFC	ADF CLOSED Signal
RSDRV	RECYCLE MOTOR DRIVE Command
RSIN	ADF SERIAL INPUT Command
RSOUT	ADF SERIAL OUTPUT Command
RSS	LAST DOCUMENT DETECTION Signal
SDIR	PICK-UP MOTOR ROTATION Command
SMON	PICK-UP MOTOR DRIVE Command
SMPWM	PICK-UP MOTOR SPEED CONTROL Command
SPRS	PAPER DETECTION Signal 1
STPSLD	STOPPER SOLENOID DRIVE Command
SUPCC	UPPER COVER CLOSED Signal 1
URNS	PAPER DETECTION Signal 5
WGTSL	WEIGHT SOLENOID DRIVE Command
WIDTH	DOCUMENT SIZE DETECTION Signal

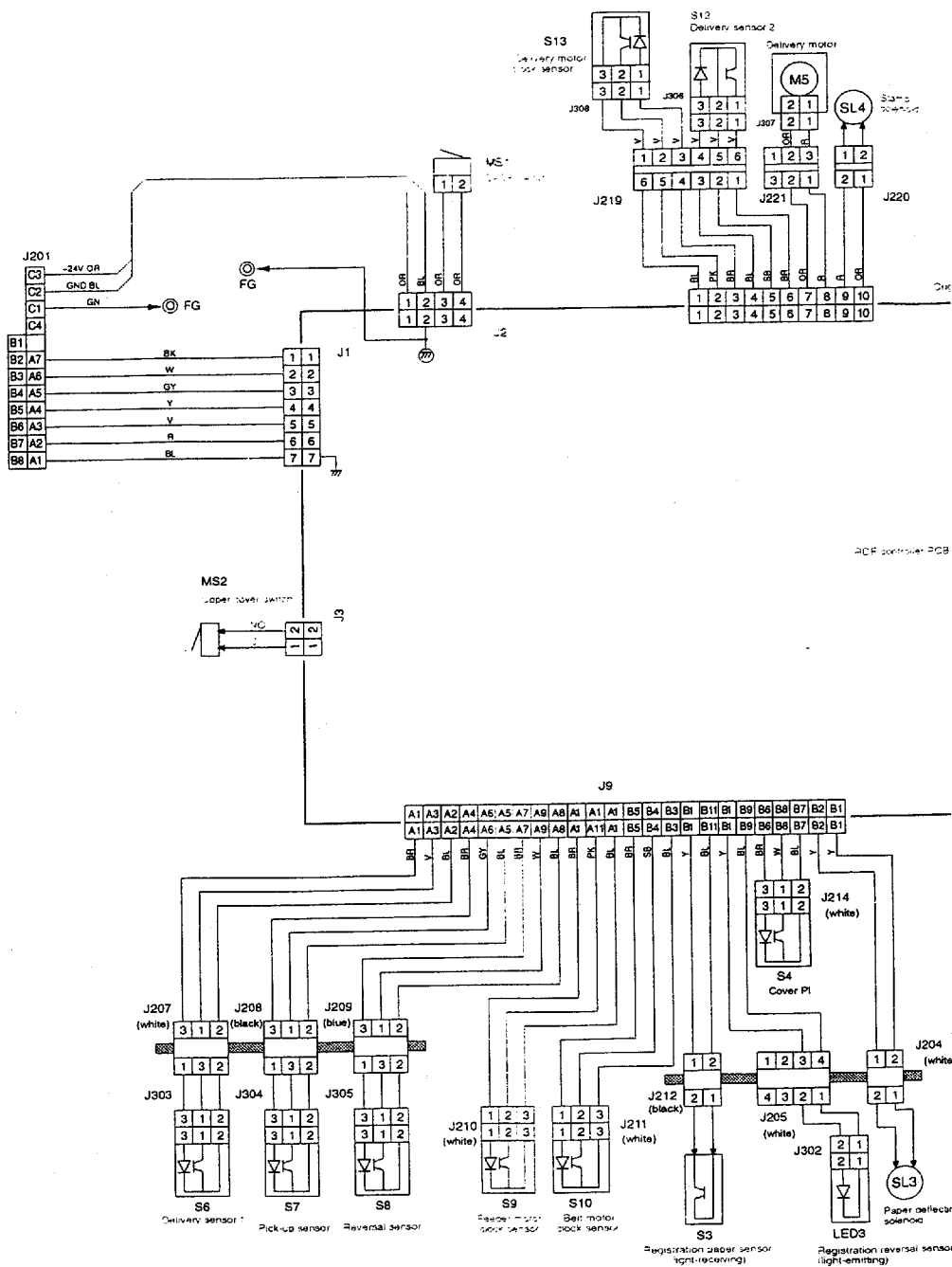


Figure 177. ADF general circuit diagram

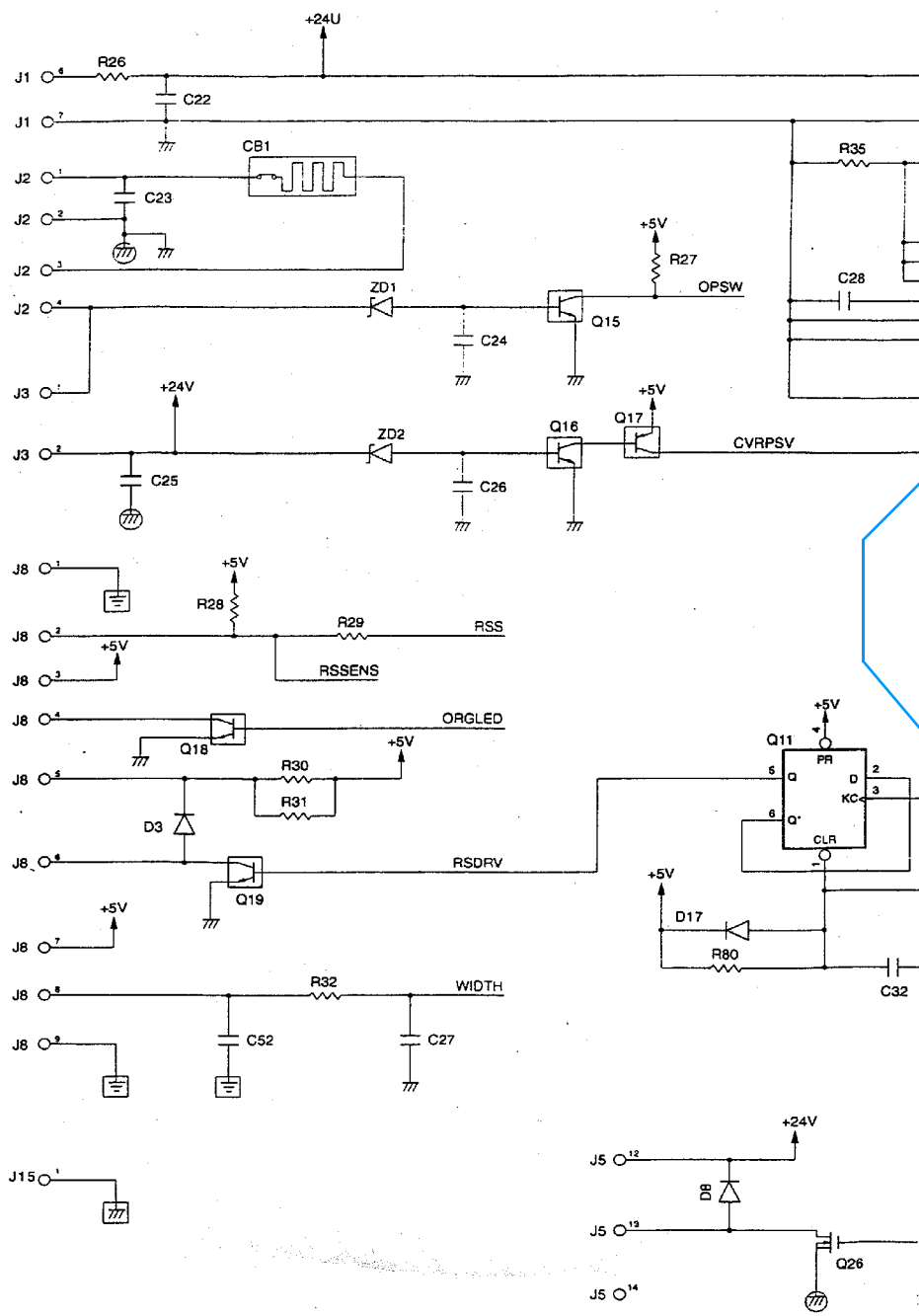
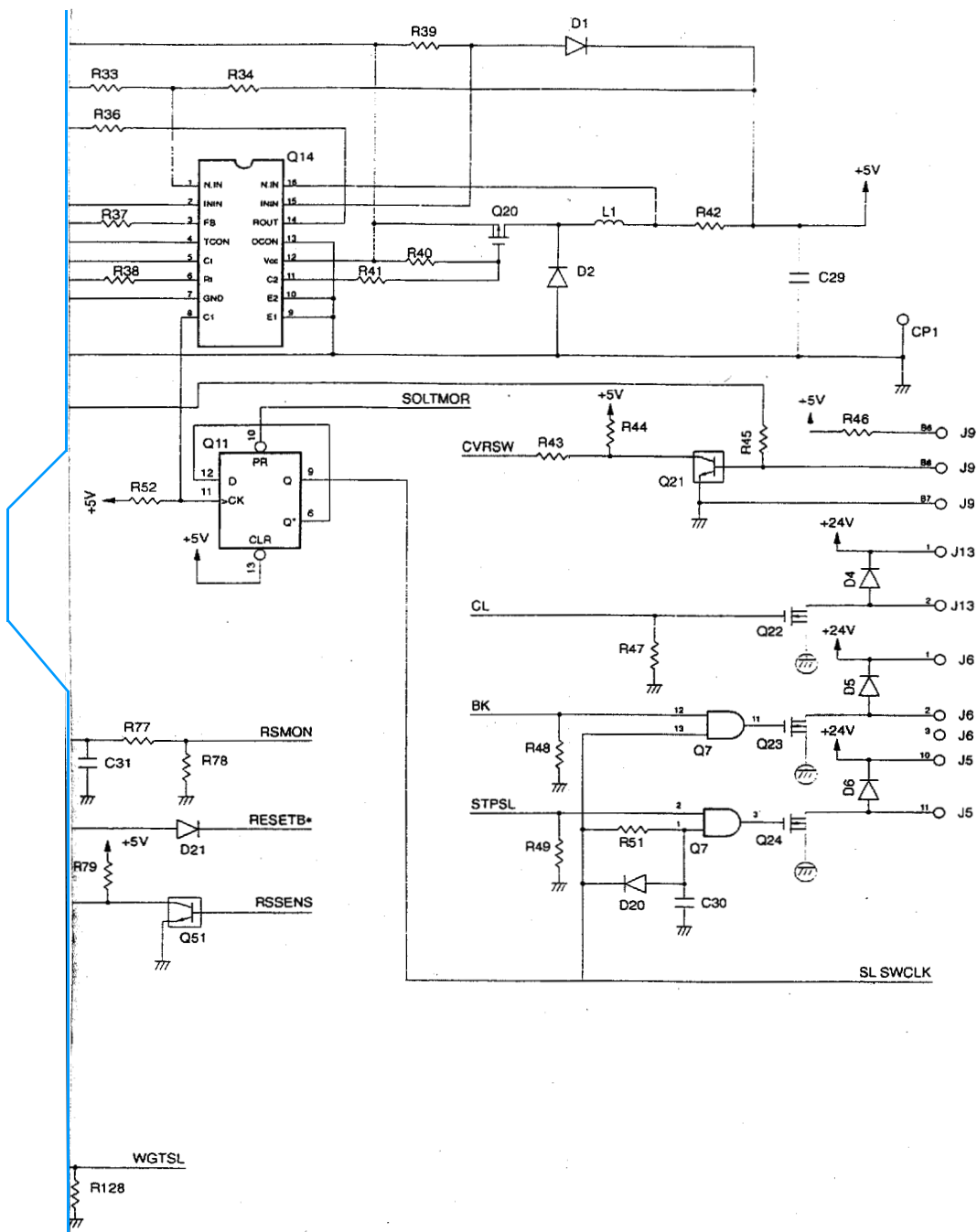


Figure 179. ADF controller circuit diagram (2 of 7)



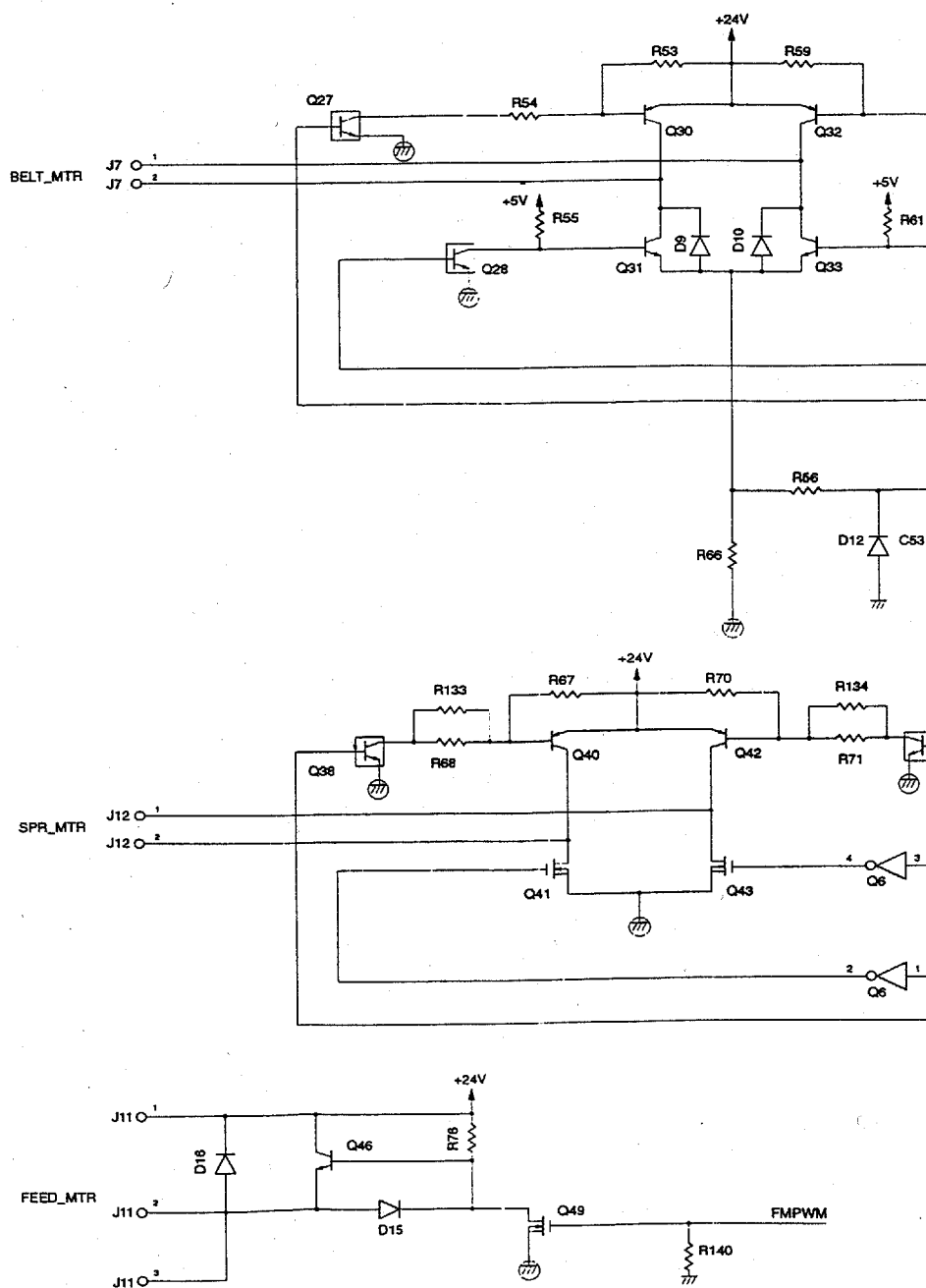
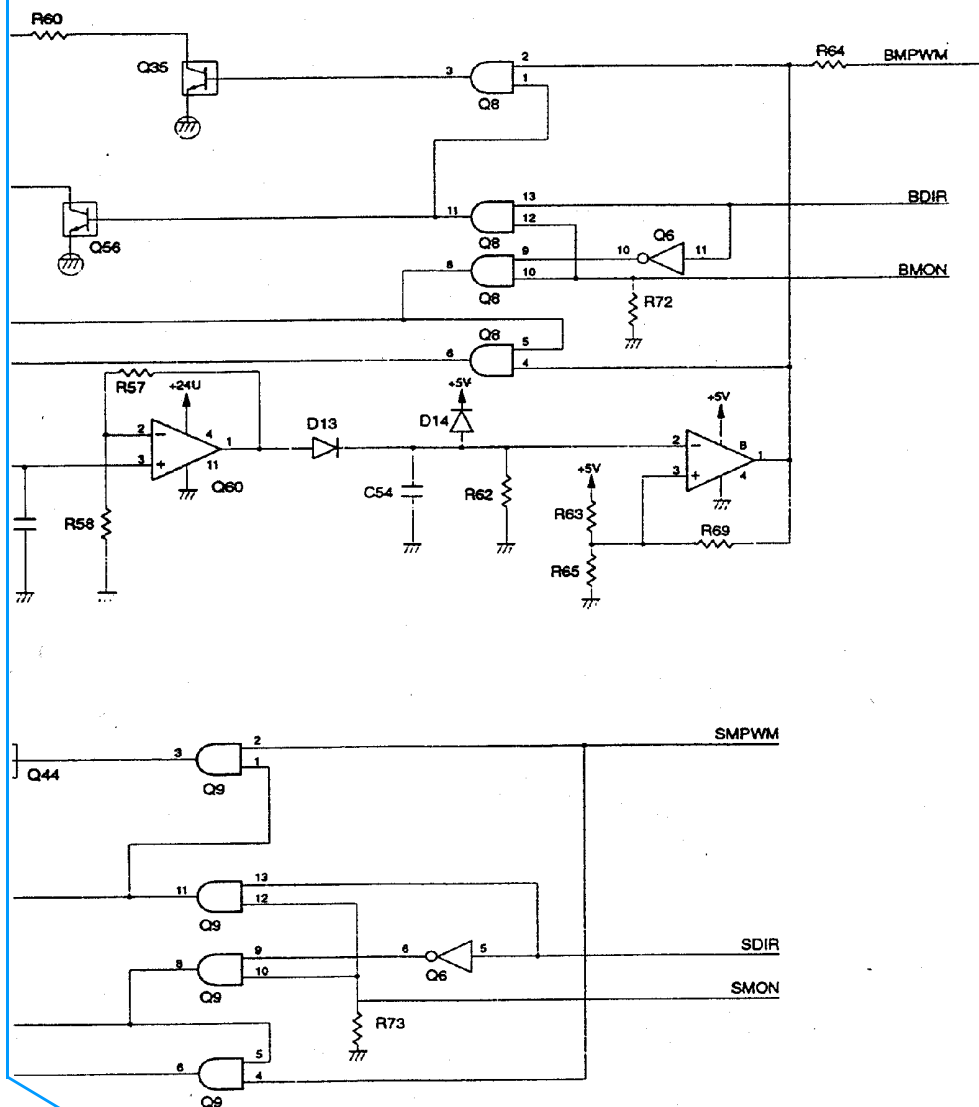


Figure 180. ADF controller circuit diagram (3 of 7)



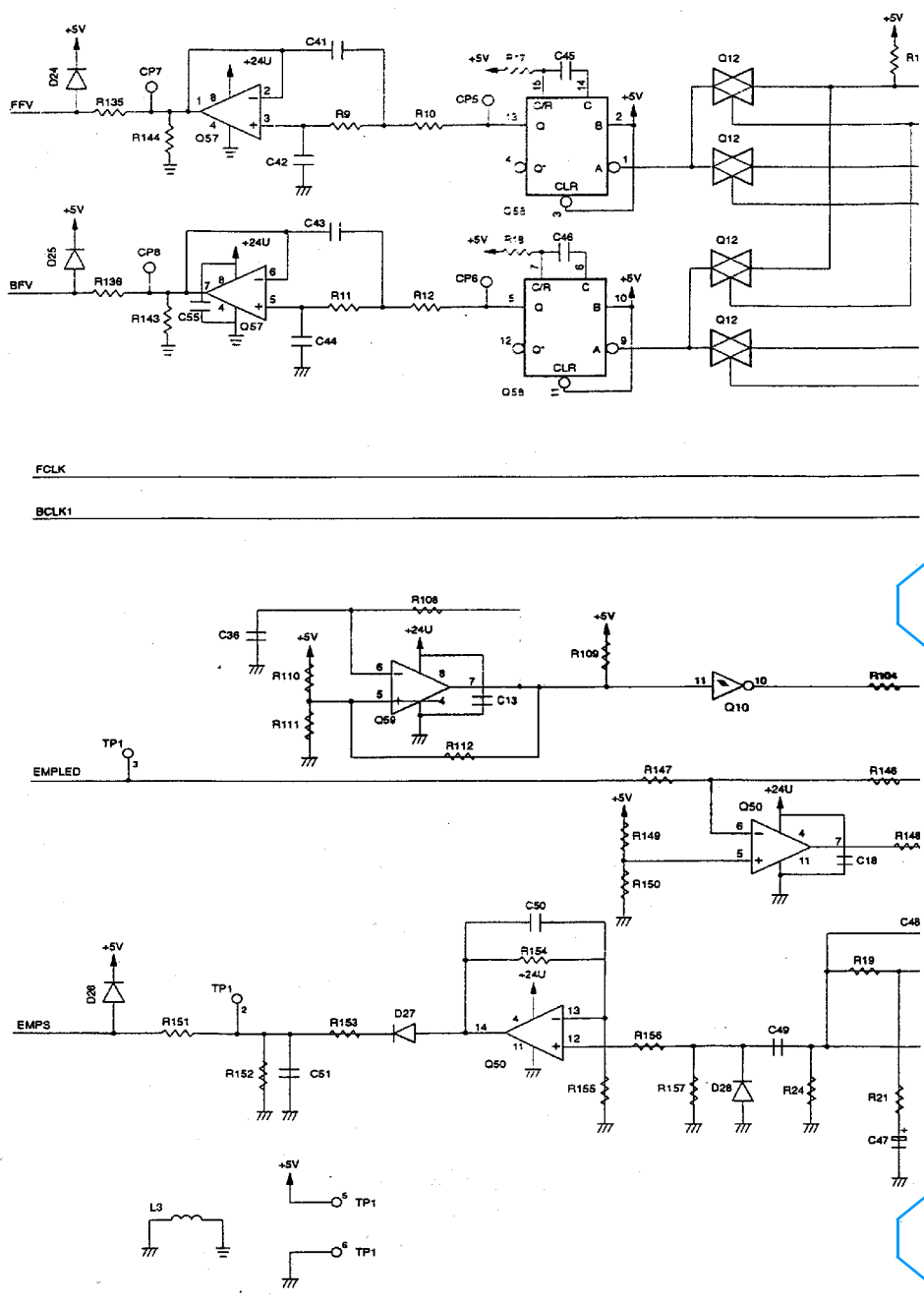
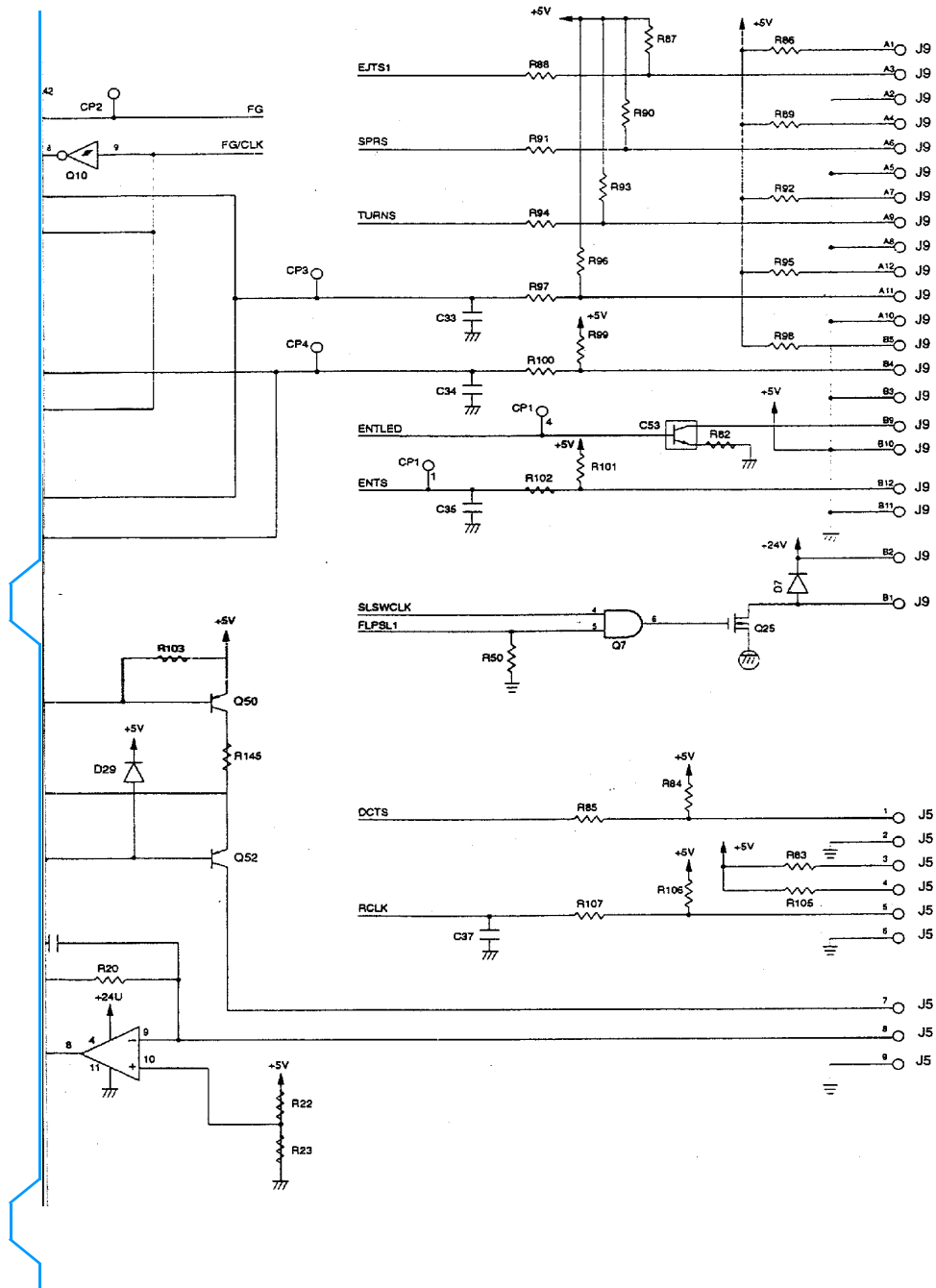


Figure 181. ADF controller circuit diagram (4 of 7)



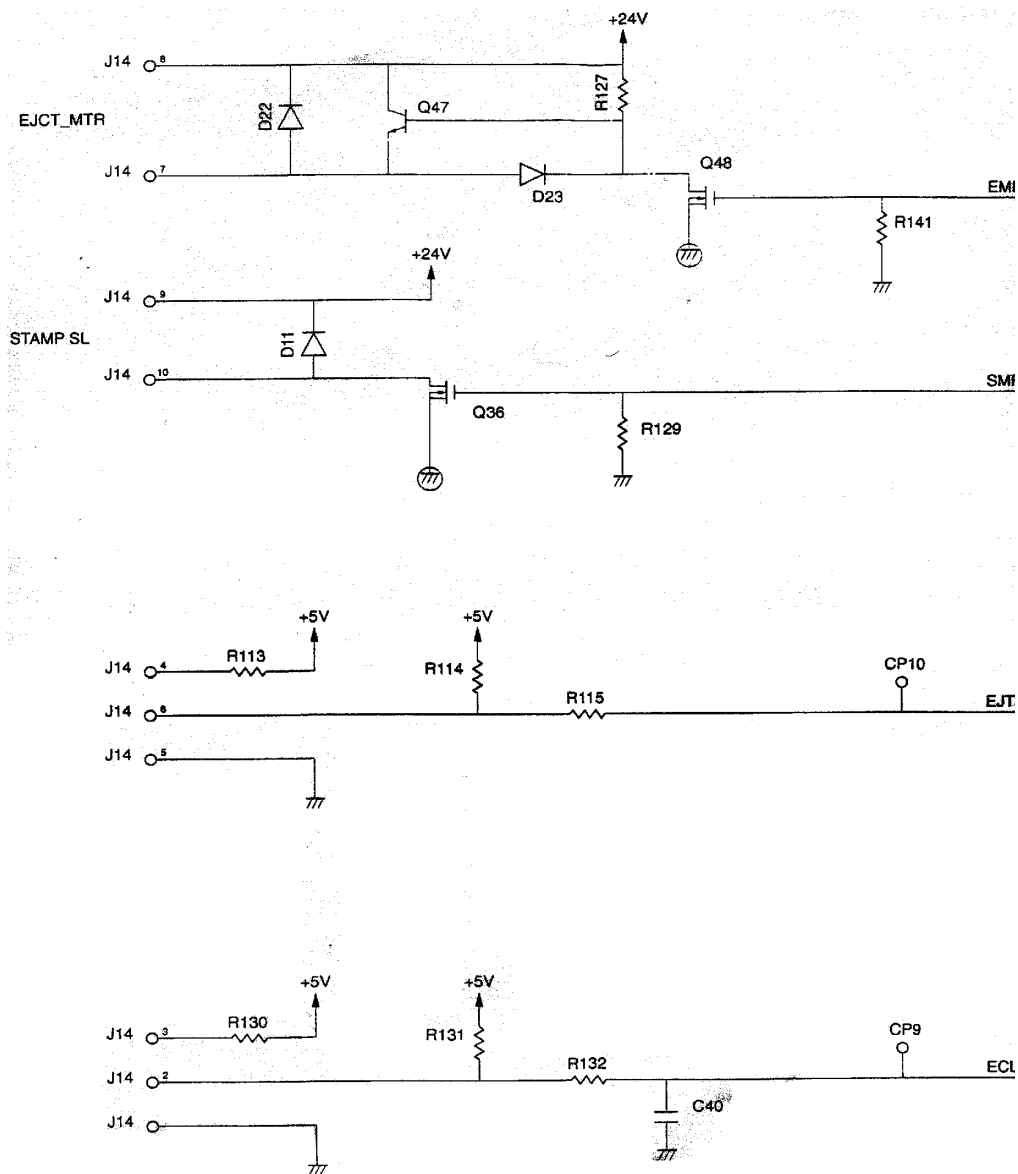


Figure 182. ADF controller circuit diagram (5 of 7)

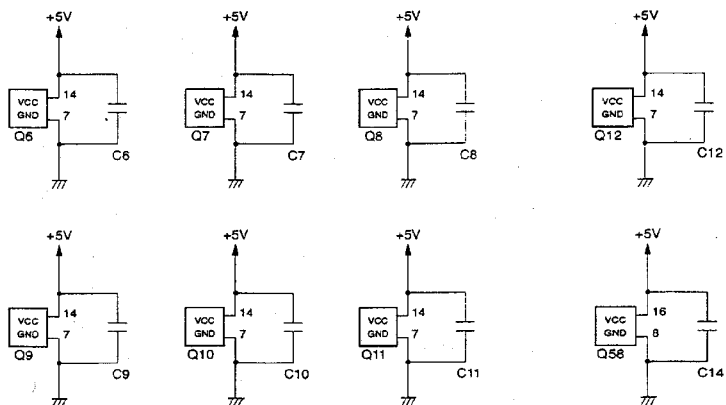


Figure 183. ADF controller circuit diagram (6 of 7)

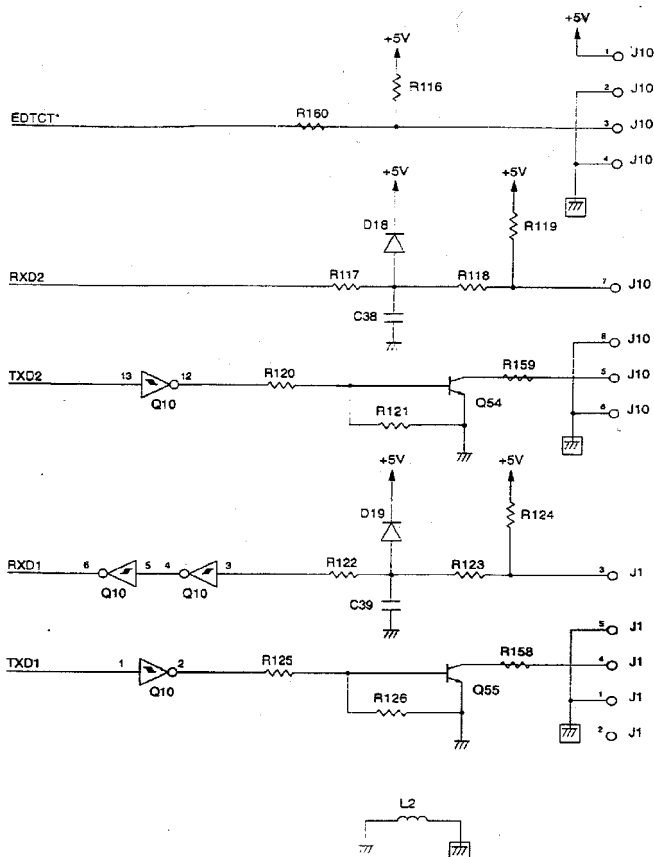


Figure 184. ADF controller circuit diagram (7 of 7)

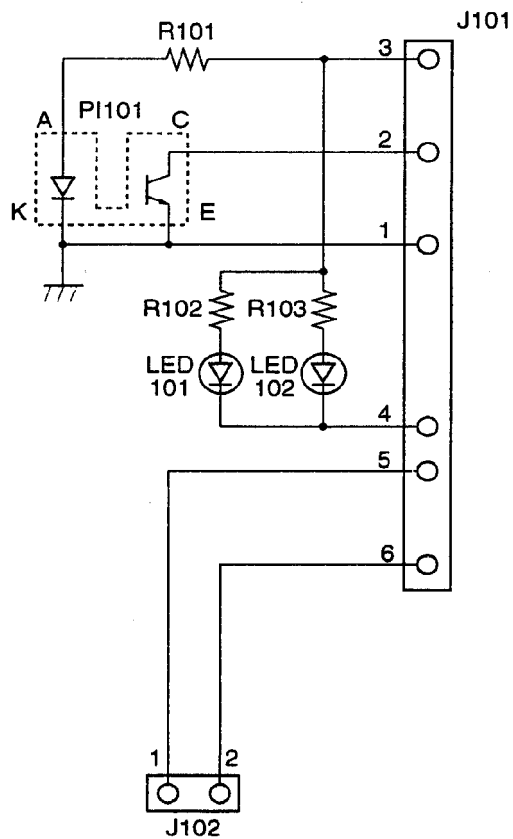
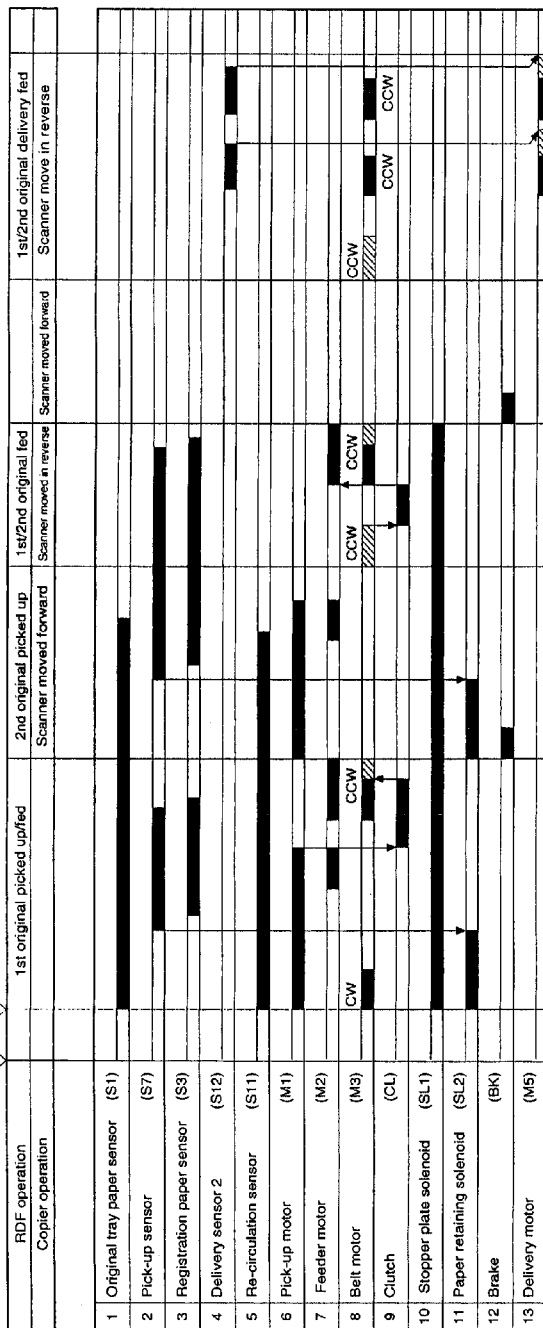


Figure 185. ADF display board

Copy Start key ON

Original set



: Motor low-speed rotation.
 CW : (copier mode delivery direction) rotation.
 CCW : rotation (pick-up direction) rotation.

Figure 186. ADF general timing chart (top pick-up mode, A4, and 2 originals—single-sided original to single copy)

Side HCI

The side HCI feeds paper to the printer. The side HCI operating sequence is controlled by the deck controller PCB.

The deck controller PCB employs an 8-bit microprocessor (IC201) that controls the operating sequence and serial communications between the printer formatter and the side HCI.

The deck controller PCB drives the solenoids and motors, in response to signals fed from the printer formatter via the serial (C-link) interface. The deck controller PCB, also sends sensor, switch and other information to the printer formatter, via the serial (C-link) interface.

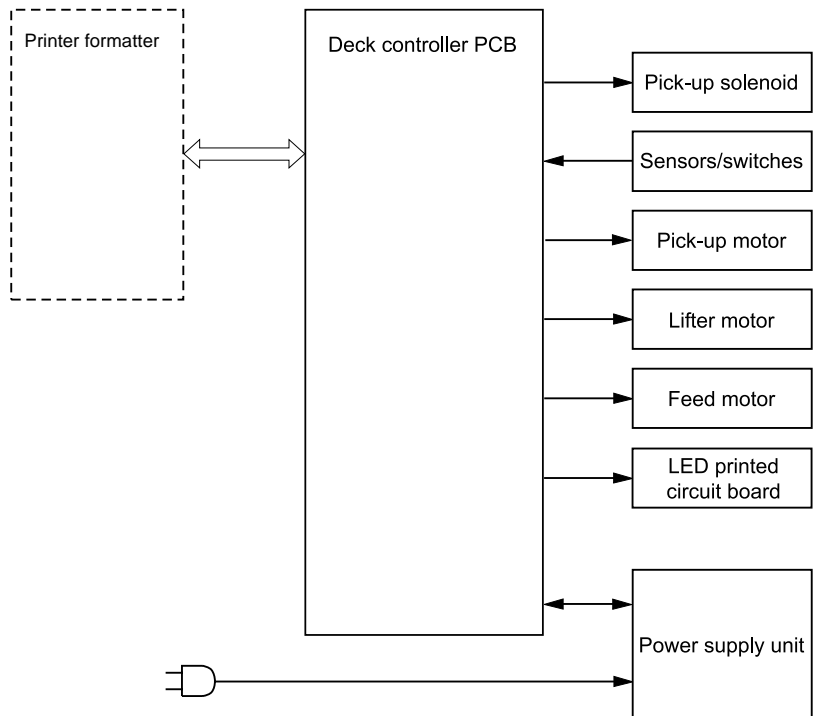


Figure 187. Deck block diagram

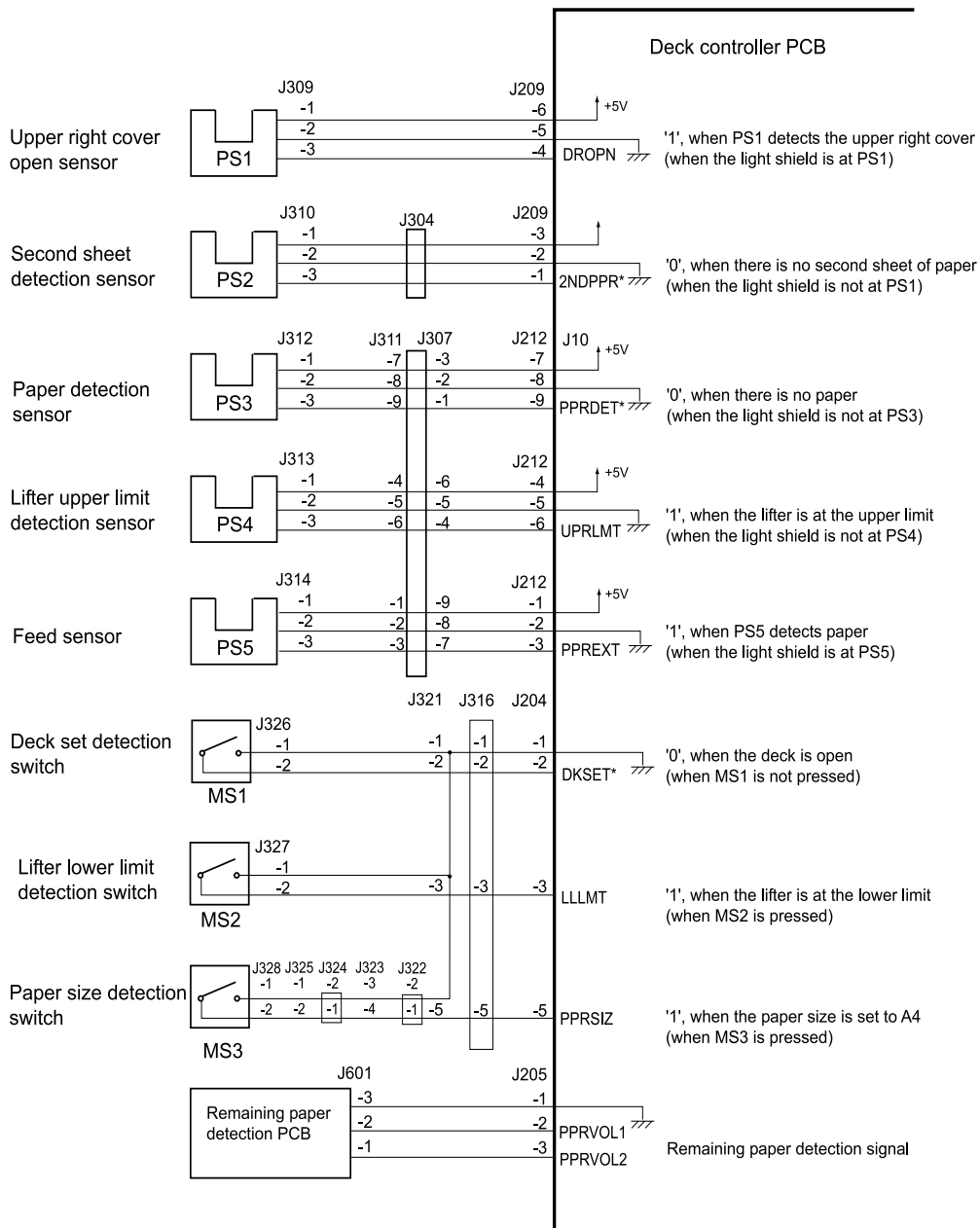


Figure 188. Deck controller PCB

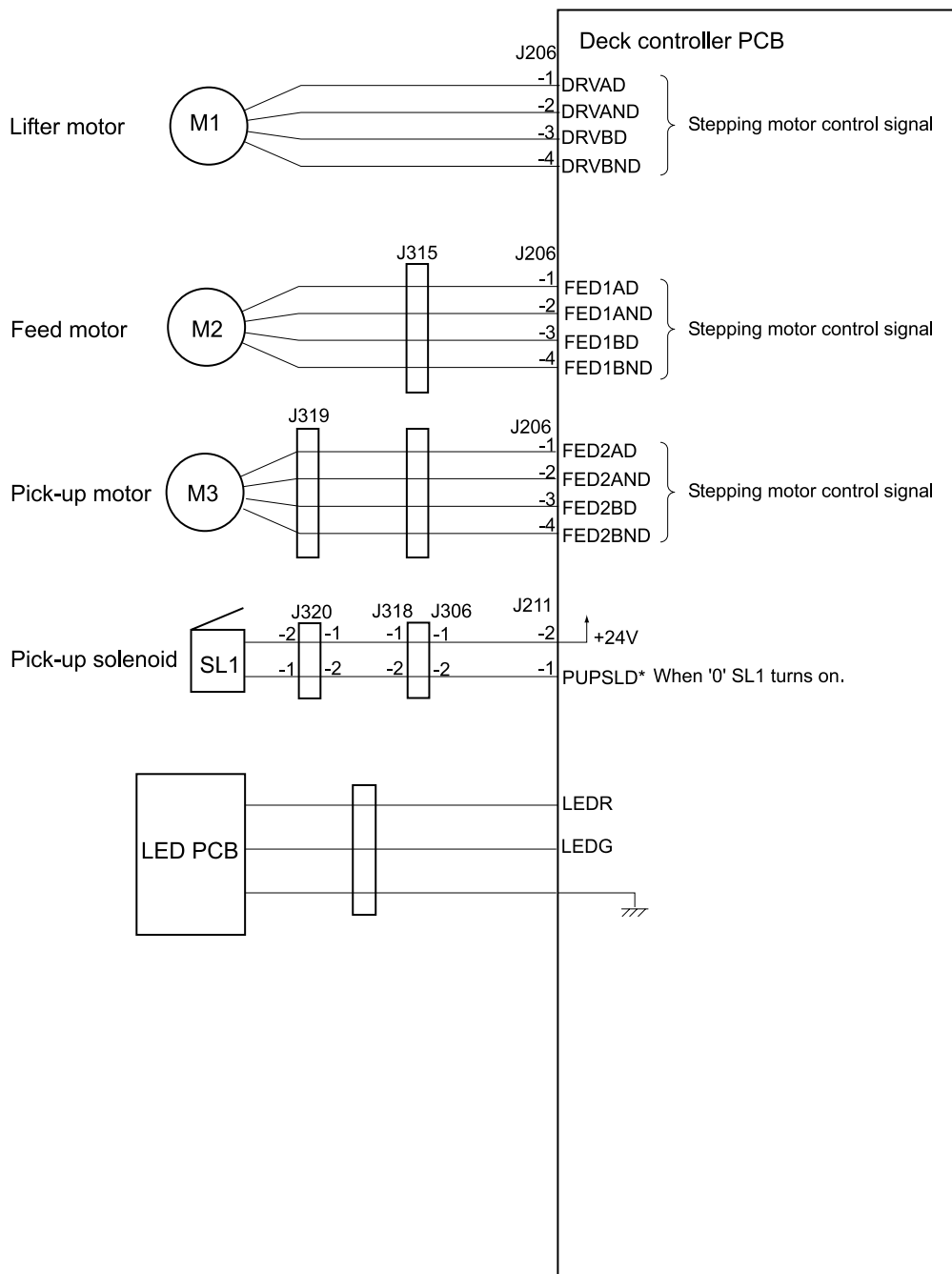


Figure 189. Deck controller PCB output

Pick-up feed system

The side HCI out-of-paper sensor (PS3) detects whether or not there is paper in the side HCI. When the pick-up start signal is transmitted from the printer formatter, the deck controller PCB starts turning the pick-up motor (M3). This action causes the pick-up roller (callout 1), feed roller 1 (callout 2) and separation roller (callout 3) to turn.

At the same time as the pick-up motor starts turning, the pick-up solenoid (SL1) (callout 4) goes on. This causes the pick-up roller to be lowered to the paper surface. As a result, the paper is fed to feed roller 2 by the rotating pick-up roller.

When the leading edge of the copy paper reaches the feed sensor (PS5) in front of feed roller 2, the feed motor starts to turn and the paper is fed to the copy module main unit.

When the deck controller PCB detects that the currently picked up sheet is the last sheet during continuous printing when the second sheet detection sensor is off, before the next pick-up operation starts, the deck controller PCB notifies the printer formatter that there is no more paper.

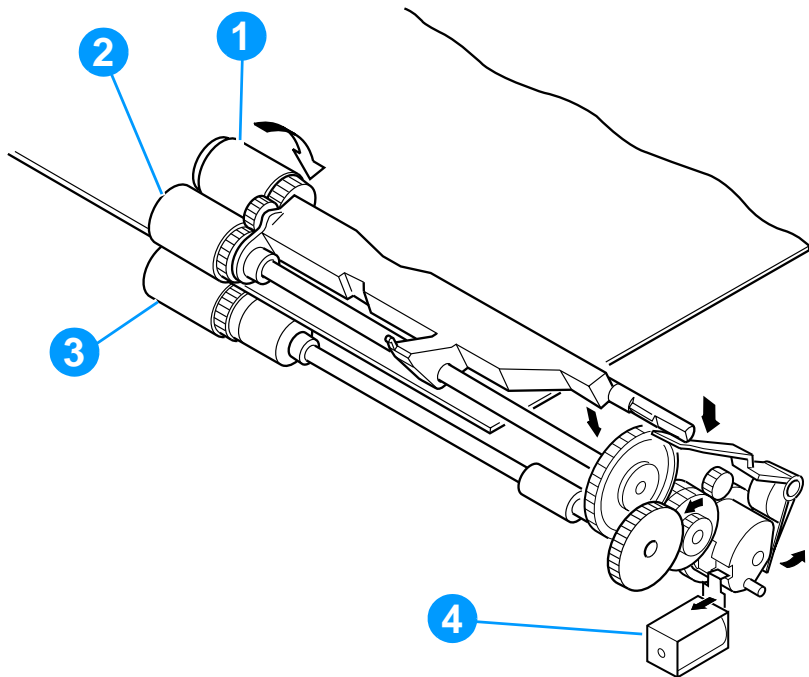


Figure 190. Pick-up feed rollers

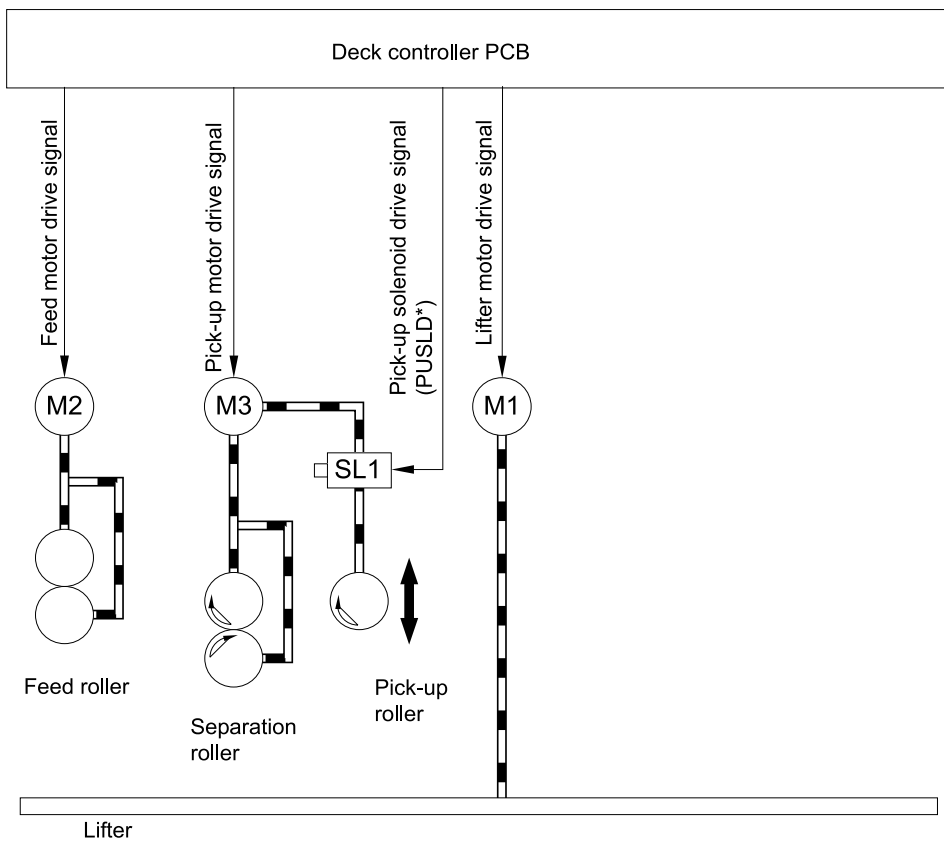


Figure 191. Pick-up feed signals

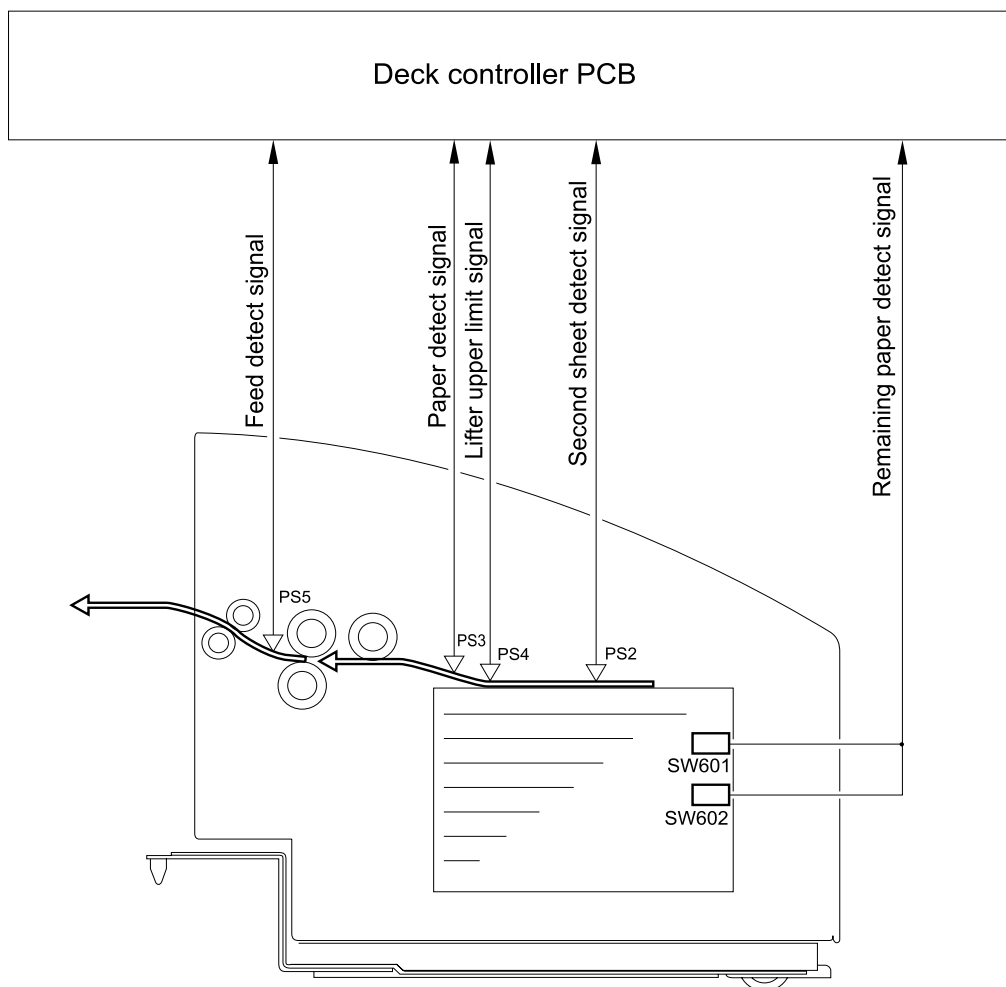


Figure 192. Signal transfer points

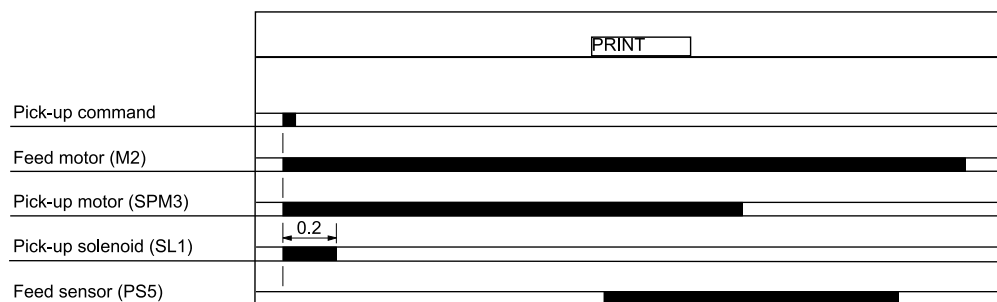


Figure 193. Pick-up signal levels

Lifter operation

The lifter in the side HCI is suspended by two wires. The wires are operated by the lifter motor (M1: stepping motor).

When the right upper cover open sensor (PS1) detects that the upper right door has been opened, the deck controller PCB reverses the lifter motor and lowers the lifter until the lower limit lifter switch (MS3) goes on.

When the right upper cover opening sensor (PS1) detects that the upper right door has been closed, the deck controller PCB rotates the lifter motor forward and raises the lifter until the upper limit lifter sensor (PS4) goes on.

As the number of sheets in the stack are reduced by paper being picked up, the upper limit lifter detection sensor goes off, the deck controller PCB rotates the lifter motor forward and raises the lifter until the lifter upper limit goes on.

When the lifter upper limit sensor does not go on within the stipulated time after the lifter starts to rise, the deck controller PCB assumes that a lifter breakdown has occurred and transmits an error code to the option controller PCB in the copy module main unit.

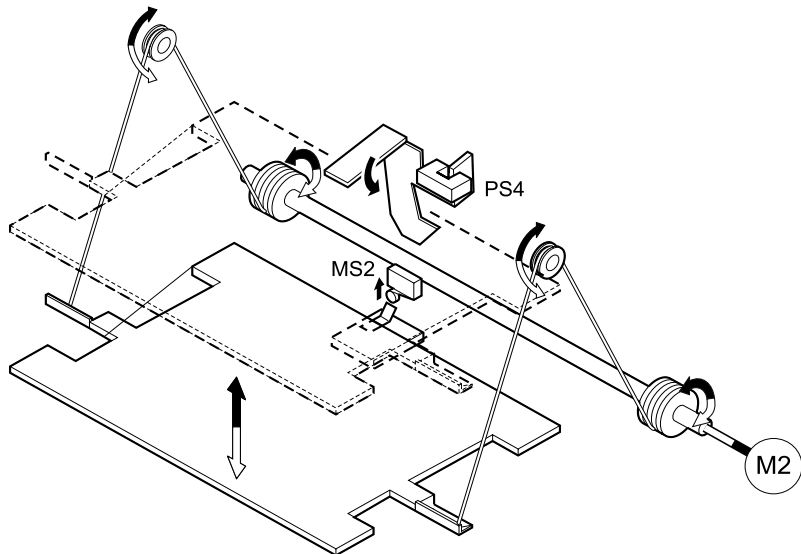


Figure 194. Lifter operation

Remaining paper detection mechanism

The remaining paper detection switch 1 (SW601) and the remaining paper detection switch 2 (SW602) on the remaining paper detection PCB are pressed through the lifter ascending movement and the swing arm operation. The combination of the on/off status of these two remaining paper detection switches makes it possible to detect four remaining paper levels (in 25% increments). Remaining paper detection switch combinations are shown in table 81 .

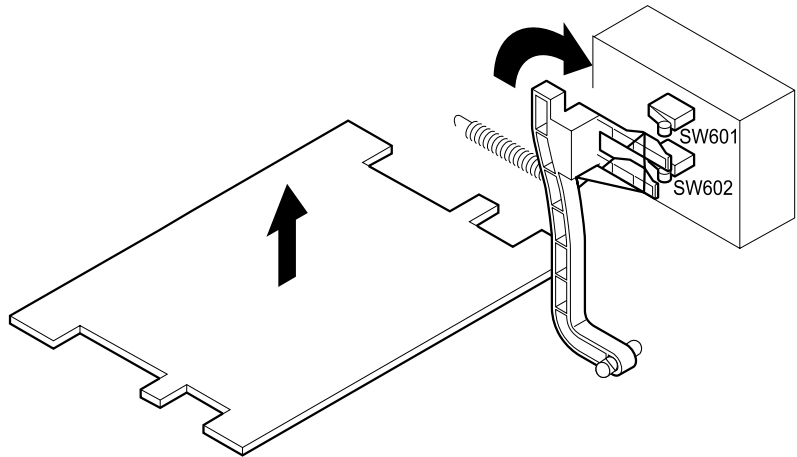


Figure 195. Remaining paper detection

Table 81. Remaining paper detection switches

SW601	SW602	Remaining paper level
OFF	OFF	100%
ON	OFF	75%
ON	ON	50%
OFF	ON	25%

Paper-size-detection mechanism

The copy module detects paper size through the use of a paper-size-detection switch (MS3). This switch is activated by a notch in the paper-size indication plate. The switch activates when the paper-size-detection plate is set to the A4 side. The switch is not active when the plate is set to the LTR side.

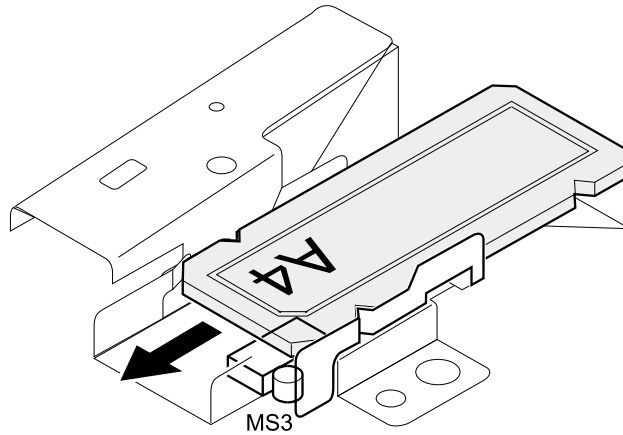


Figure 196. Paper-size-detection switch and detection plate (A4)

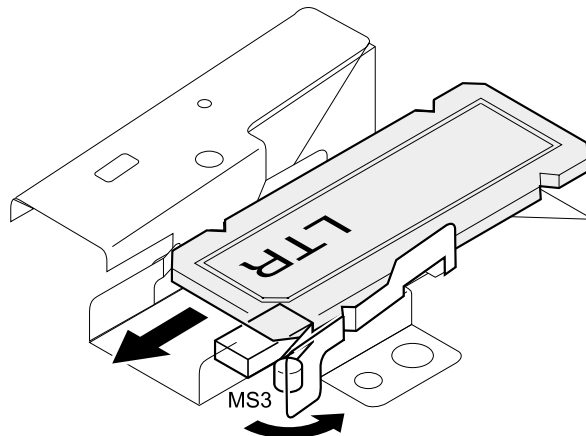


Figure 197. Paper-size-detection switch and detection plate (LTR)

Jam detection

A feed sensor (PS5) detects the presence of paper and whether or not the paper is being fed normally.

The microprocessor in the deck controller PCB detects paper jams by sensing whether or not the paper is at the sensor position at check timing intervals stored in memory.

When the microprocessor calculates that a paper jam has occurred, it notifies the printer main unit to stop the pick-up operation and tells the printer formatter that a paper jam has occurred.

- Pick-up delay jam**—The microprocessor assumes that a pick-up delay jam has occurred when the paper does not reach the feed sensor (PS5) within a specified time after receiving the pick-up start signal.

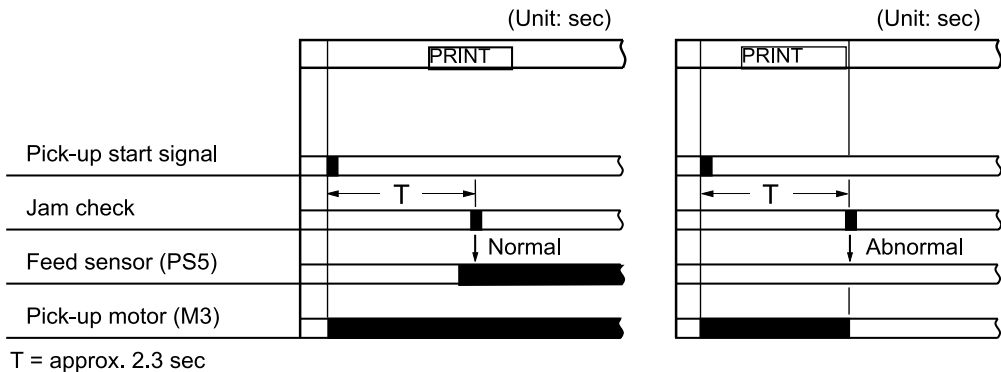


Figure 198. Jam detection levels

- Stationary jam**—The microprocessor assumes that a stationary jam has occurred when the paper does not pass the feed sensor (PS5) within a specified time after the feed sensor (PS5) goes on.

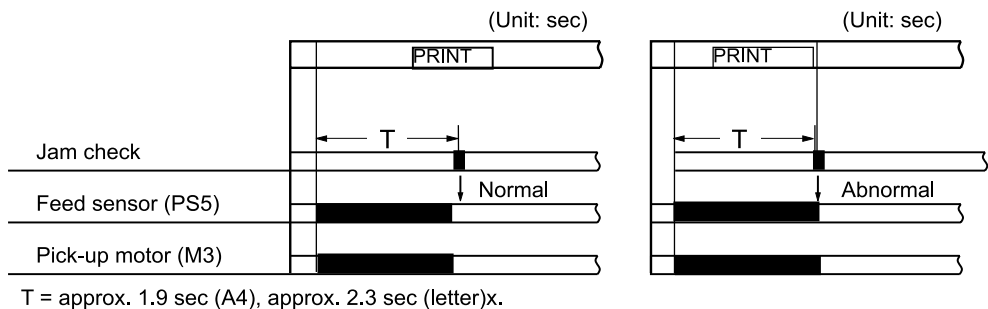


Figure 199. Stationary jam

Power supply

The side HCl power supply unit is equipped with a remote switch system.

When the power switch of the copy module and printer are turned on, the printer formatter outputs a power on signal (PWRON) to the power supply PCB, to the deck controller PCB. When the PWRON signal is “1,” the power supply provides +24 V and +5 V to the deck controller PCB.

The lifter motor, pick-up motor, feed motor and solenoids use +24 V, while the sensors and the deck controller PCB ICs, use +5 V. A diagram of the power supply is shown below.

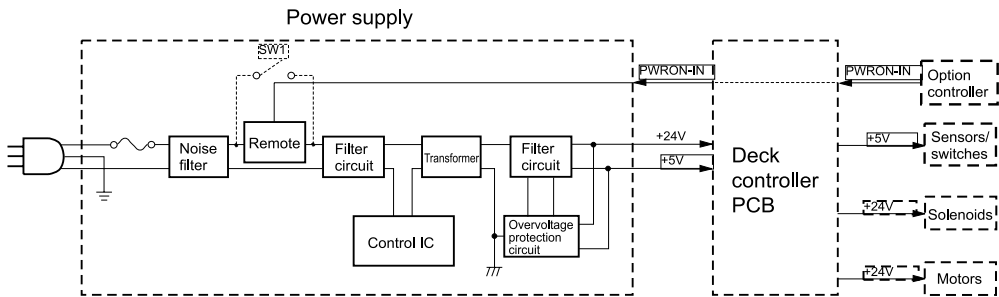


Figure 200. Side HCl power supply

Protective Functions

The +24 V and +5 V power circuits are equipped with overvoltage and overcurrent protective functions that automatically turn off the output voltage to prevent the breakdown of power supply circuits in the event of overcurrent or overvoltage caused by electrical shorts or other problems on the load side.

When the overvoltage and overcurrent protection functions have been triggered, and dc voltage is no longer being supplied from the power supply circuit, turn off the power switch on the copy module, and correct the problem on the load side before turning on the printer assembly power switch.

Sensors

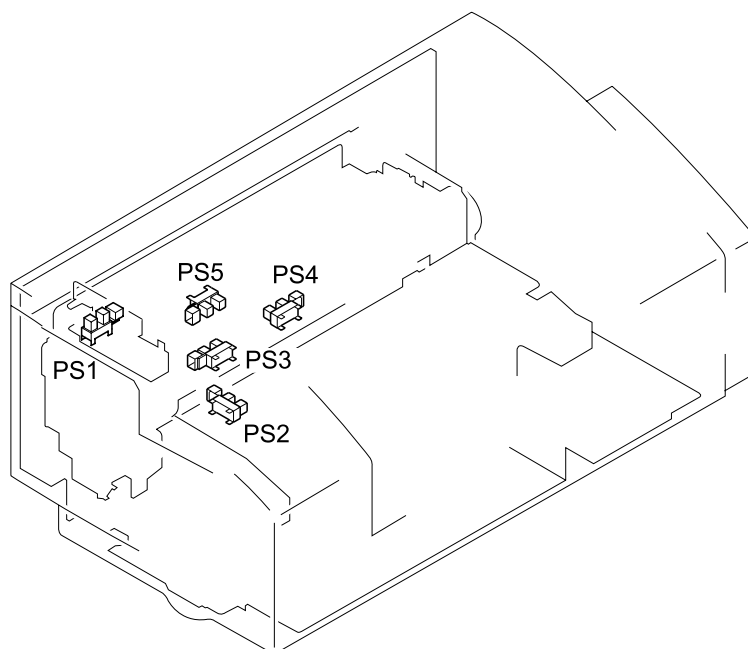


Figure 201. Sensors

Table 82. Sensor functions

Name	Signal	Function
Photo interrupter	PS1	Upper right cover open detection sensor
	PS2	Second-sheet-detection sensor
	PS3	Paper-detection sensor
	PS4	Lifter upper-limit-detection sensor
	PS5	Feed sensor

Solenoids and motors

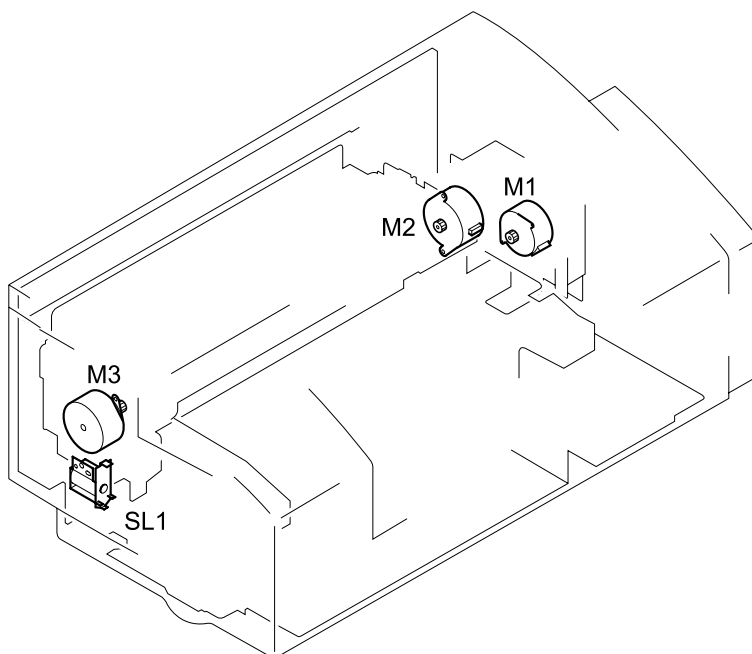


Figure 202. Solenoids and motors

Table 83. Solenoid and motor functions

Name	Signal	Function
Solenoid	SL1	Pick-up solenoid
Motors	M1	Lifter motor
	M2	Feed motor
	M3	Pick-up motor

PCBs

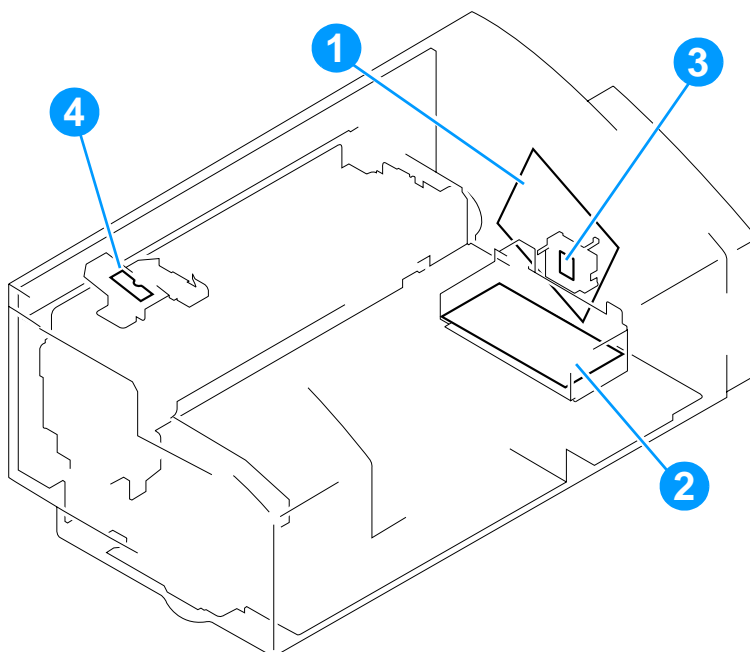


Figure 203. PCBs

Table 84. PCB functions

Number	Name	Function
1	Deck controller PCB	Control and detection of loads
2	Power supply unit	Power supply
3	Remaining paper detection PCB	Detects paper remaining in the side HCI
4	LED PCB	Displays unit status

List of variable resistors (VR), LEDs, check pins by PCB

Only the LEDs and check pins that need to be checked during field service are listed below.

Note

Check pins not listed below are only for factory use, and their adjustment and checking requires special tools and measurement instruments. Their adjustments require a great degree of accuracy and must not be touched during field service.

Note

Some LEDs leak a small amount of current even when normal, and therefore glow faintly even when they are off. Do not mistake the faint glow for the LEDs being on.

Deck controller PCB

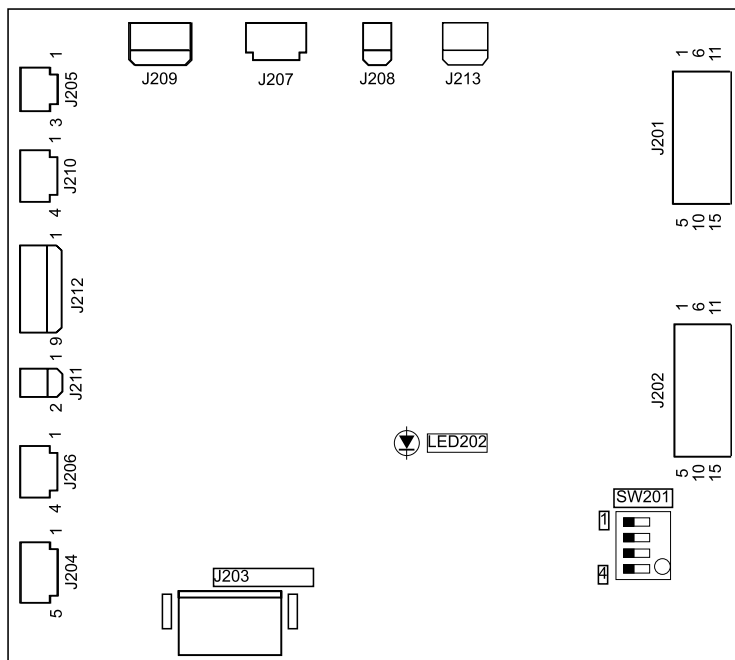


Figure 204. Deck controller PCB

Table 85. Deck controller switches and LEDs

Number	Function
SW201 (1 through 4)	Switch for operation check.
LED202	Inspect for servicing

User LED PCB

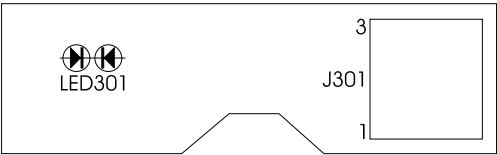


Figure 205. User LED PCB

Table 86. User LED

LED number	Function
LED1	LED to be inspected by the user

Remaining-paper-detection PCB

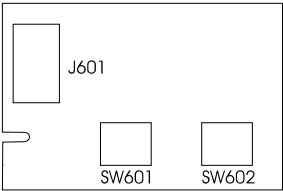


Figure 206. Remaining-paper-detection PCB

Input and output signals to the deck controller PCB

Table 87. Signal names and codes

Connector	Pin	Code	I/O	Signal name
J201	1	TXI	Input	Serial input signal
	2	GND		
	3	RXO	Output	Serial output signal
	4	CONTO	Output	Communication ready signal
	5	+24V		
	6	CKI	Input	Synch clock signal
	7	GND		
	8	GND		
	9	GND		
	10	+24V		
	11	GND		
	12	STRBI		Strobe signal
	13	PWRON-IN	Input	Power ON signal
	14	GND	Input	
	15	+24V		
J202	1	TXO	Output	Serial output signal
	2	GND		
	3	RXI	Input	Serial input signal
	4	CONTI	Input	Communication ready signal
	5	+24V		
	6	CKO	Input	Synch clock signal
	7	GND		
	8	GND		
	9	GND		
	10	+24V		
	11	GND		
	12	STRBO	Output	Strobe signal
	13	PWRON-OUT	Output	Power ON signal
	14	GND		
	15	+24V		

Table 87. Signal names and codes (continued)

Connector	Pin	Code	I/O	Signal name
J203	1	+24V	Input	Power ON signal
	2	+24V	Input	
	3	PWRON-IN	Output	
	4	+5V	Input	
	5	GND		
	6	GND		
J204	1	GND		Deck set detect signal Lifter lower limit signal
	2	DKSET	Input	
	3	LLLMT	Input	
	4	NC	Input	Paper size detect signal
	5	PPRSIZE	Input	
	6	GND		
J205	1	GND		Remaining paper detect signal Remaining paper detect signal
	2	PAP-VOL1	Input	
	3	PAP-VOL2	Input	
J206	1	DRVAD	Output	Lifter motor control signal
	2	DRVAND	Output	Lifter motor control signal
	3	DRVBD	Output	Lifter motor control signal
	4	DRVBND	Output	Lifter motor control signal
J207	1	FED1AD	Output	Feed motor control signal
	2	FED1AND	Output	Feed motor control signal
	3	FED1BD	Output	Feed motor control signal
	4	FED1BND	Output	Feed motor control signal
J208	1	NC		
	2	NC		
J209	1	+5VB2	Output	2nd paper detect signal
	2	GND		
	3	2NDPPR	Input	
	4	+5VB1	Output	
	5	GND		Upper right cover open signal
	6	DROPN	Input	
J211	1	PUPSLD	Output	Pick up solenoid drive signal
	2	+24V	Output	

Table 87. Signal names and codes (continued)

Connector	Pin	Code	I/O	Signal name
J212	1	+5VB5		Paper feed detect signal
	2	GND		
	3	PPREXT		
	4	+5VB4		Lifter upper limit detect signal
	5	GND		
	6	UPRLMT		
	7	+5VB3		Paper detect signal
	8	GND		
	9	PPREXT		
J213	1	LED R	Output	Red LED lit-up signal
	2	LED G	Output	Green LED lit-up signal
	3	GND		

General circuit diagram

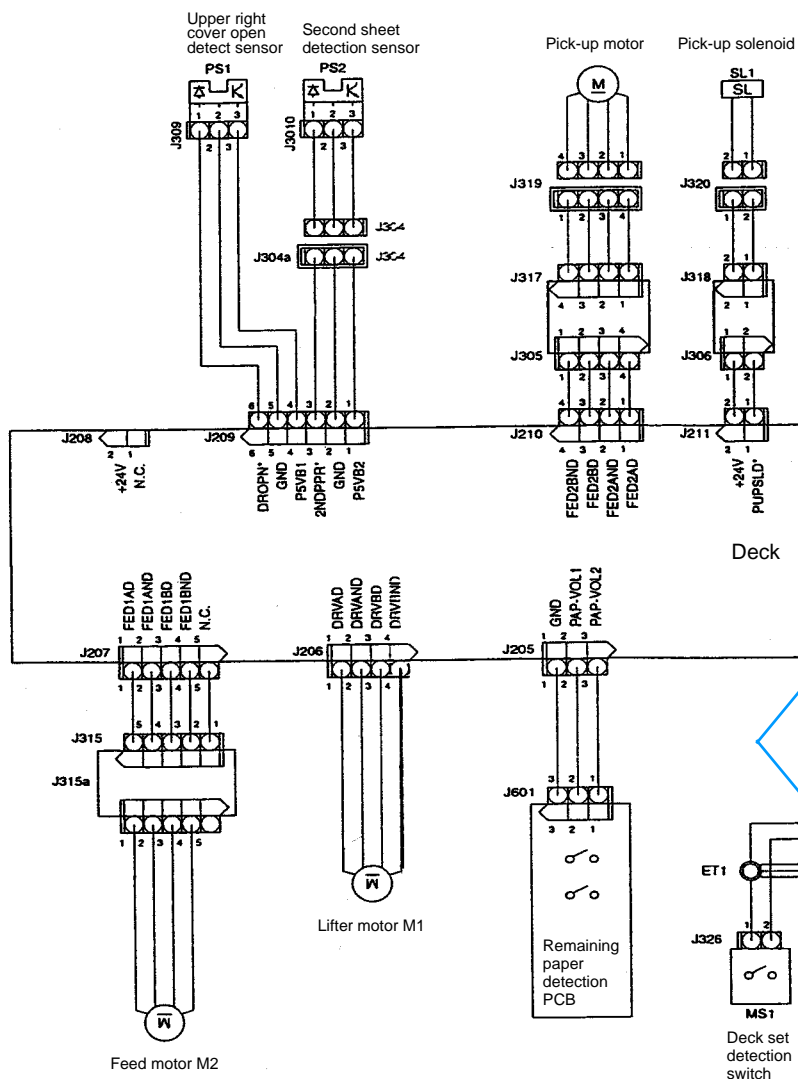
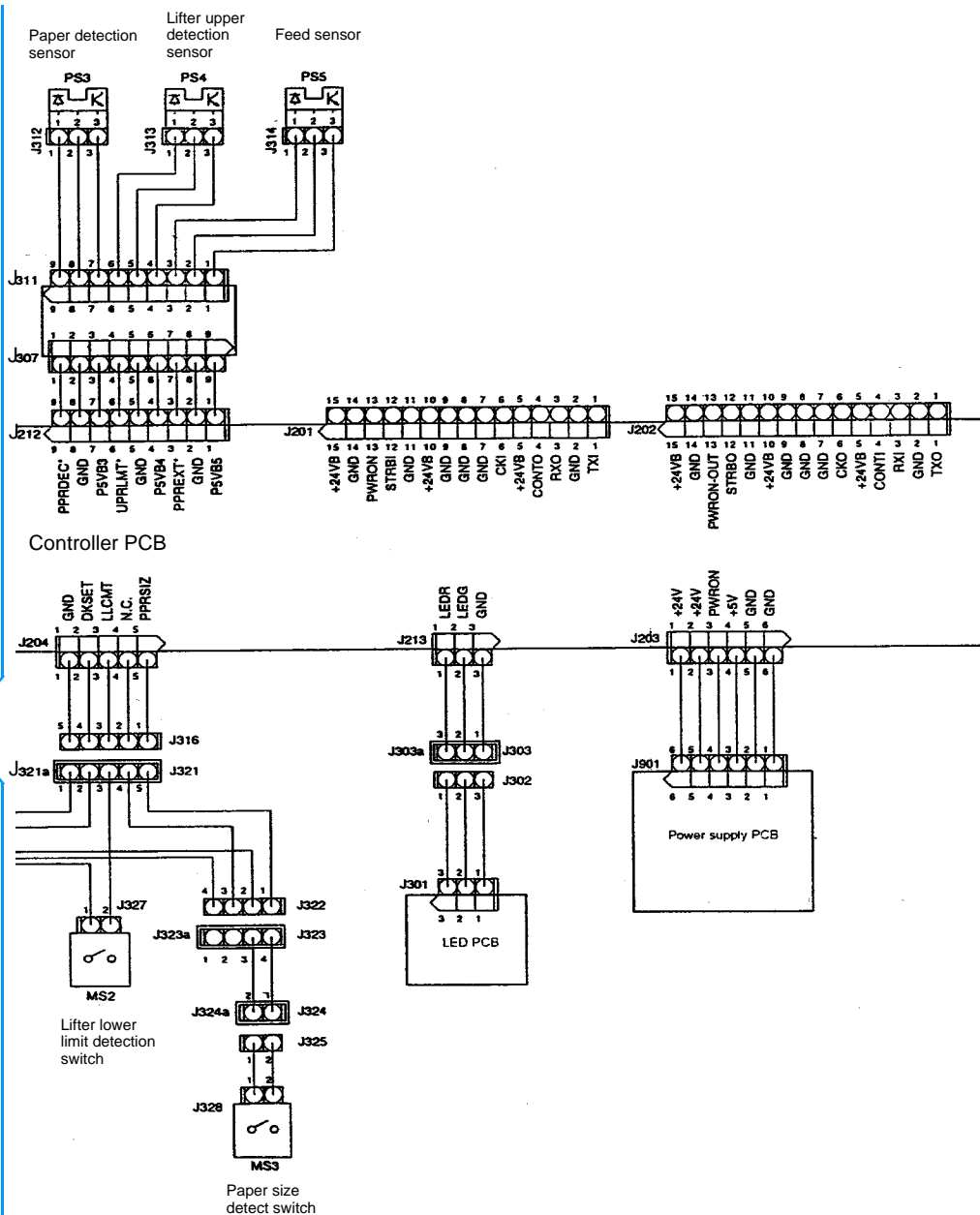


Figure 207. Deck controller PCB general circuit diagram



6 Removal and replacement

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Required tools

You will need the following tools to perform service on the HP Color LaserJet 8550MFP and its accessories:

Table 88. Service tools

Tool Name	Part number	Uses
Mirror positioning tool	FY9-3040-000CN	For positioning mirrors
Stop ring pliers	Procure locally	For removing clip rings (4 to 9 mm)
Tension gauge (270-330g)	Procure locally	For adjusting the tension on belts
Standard image test Sheet (optional)	RY9-9030-020CN	Troubleshooting copied image defects
Phillips #2 screwdriver (long reach, magnetic)	Procure locally	Various
Allen wrench (2mm)	Procure locally	ADF skew adjustment
Small adjustable wrench	Procure locally	ADF skew adjustment
Ruler (150 mm or longer)	Procure locally	Measuring stop position adjustments for ADF
Screwdriver (very small Phillips or flat-blade)	Procure locally	Adjusting lamp intensity VR
Penlight	Procure locally	Illumination
Needle nose pliers	Procure locally	Various

Note

See the pages inside the back cover of this manual. These pages can be used to keep track of screws while removing and replacing parts. To use them, enlarge the pages so that an ice-cube tray or egg carton fits the middle of the page.

Repair notices

Make sure of the following when disassembling or assembling the printer.



When the control panel soft switch (on the front of the copy module) is turned off, the fans continue to operate to cool the printer (to prevent clumping of toner). Be sure to perform the following before disconnecting the power plug:

- Wait for 30 minutes after turning off the control panel power soft switch (to the right of the copy module control panel) or turning off the control panel soft switch and the copy module rear power switch (to the right side of the copy module rear), and then remove the fusing assembly of the printer unit.
- Assemble the parts by reversing the steps used to disassemble them, unless otherwise instructed.
- Identify the screws by type (length, diameter) and location.
- Do not omit or forget to replace the toothed washer that comes with one of the mounting screws on the rear cover, as it protects against static electricity.
- Do not omit or forget to replace the washer that comes with the screw used for the grounding wire and the varistor, as it ensures electrical continuity.
- Do not operate the printer with any of its parts removed, unless otherwise instructed.
- Use standard ESD precautions when disassembling the devices.

Note

All illustrations in this chapter assume that the copy module assembly is mounted on its stand.

Remove the ADF when servicing the copy module.

Service the copy module as it sits on the stand. Removal is not necessary.

Pull the printer unit out of the stand when servicing, but do not remove it from its wheeled base.

Remove the ADF and place it on a table when servicing to avoid personal injury or damage to the hardware.

There are two unused connectors in the copy module. One is under the front panel, to the right of the scanner motor. The other is behind the rear panel, below the leakage breaker.

Copy module

Identifying the external covers

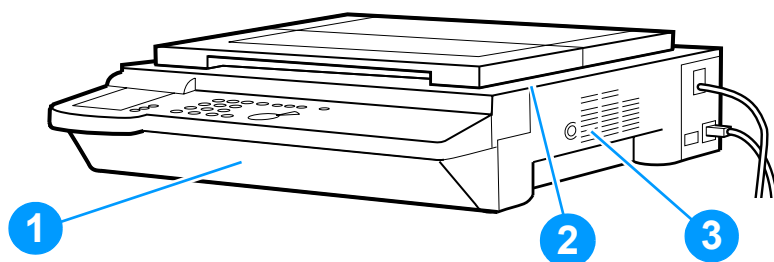


Figure 208. Front view of copy module

- 1 Lower front cover
- 2 Upper front cover
- 3 Upper right cover

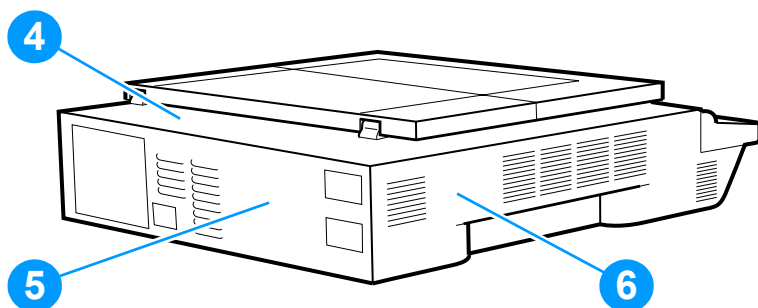


Figure 209. Rear view of copy module

- 4 Upper rear cover
- 5 Rear cover
- 6 Upper left cover

Removing the lower front cover

- 1 Remove two face plates and screws (callout 1).
- 2 Detach the lower front cover (callout 2).

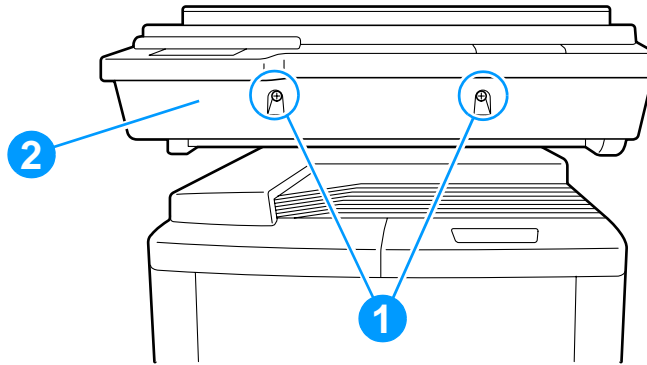


Figure 210. Removing the copy module lower front cover

Removing the upper right cover

- 1 Remove four screws (callout 1).
- 2 Detach the upper right cover (callout 2).

Note

If the ADF is attached, remove the document output tray that is retained by two long screws.

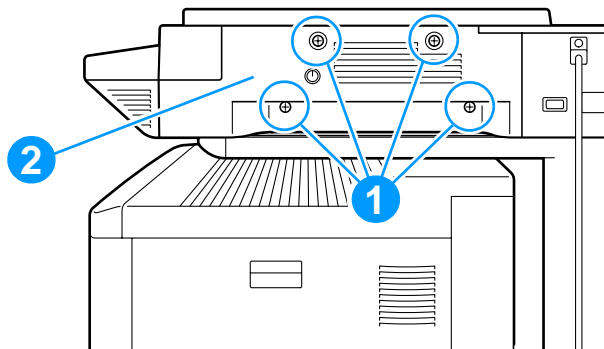


Figure 211. Removing the copy module upper right cover

Removing the upper rear cover

- 1 Remove three rubber face plates and five screws (callout 1).
- 2 Detach the upper rear cover (callout 2).

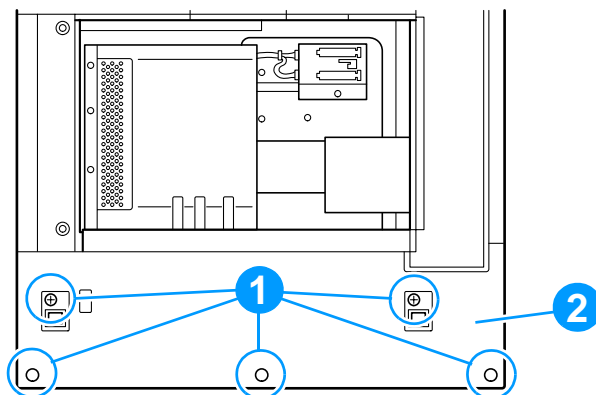


Figure 212. Removing the copy module upper rear cover

Removing the upper left cover

- 1 Remove the upper rear cover (see above).
- 2 Remove five screws (callout 1).
- 3 Detach the upper left cover (callout 2).

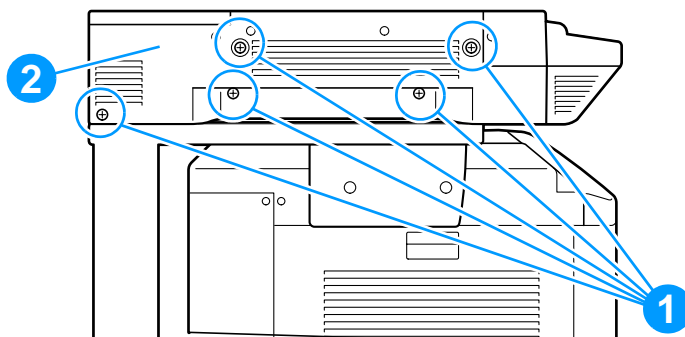


Figure 213. Removing the copy module upper left cover

Removing the rear cover

- 1 Remove the upper rear cover (see page 335).
- 2 Remove the upper left cover (see page 335).
- 3 Remove three screws (callout 1).
- 4 Detach the rear cover (callout 2).

Note

Be sure to use the same toothed washers when reinstalling.

There is an unused 8-pin connector located below the leakage breaker.

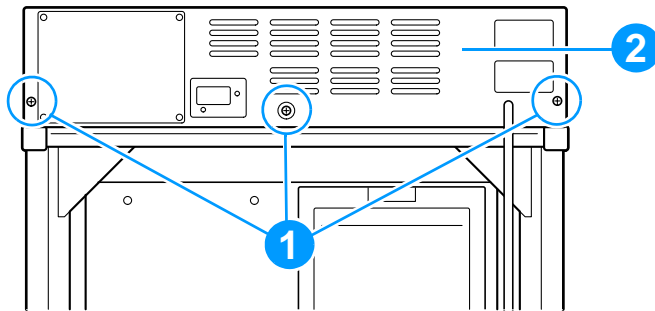


Figure 214. Removing the copy module rear cover

Removing the upper front cover

- 1 Remove the lower front cover (see page 334).
- 2 Remove the control panel (see page 344).
- 3 Remove four rubber face plates and four screws (callout 1).
- 4 Detach the upper front cover (callout 2).

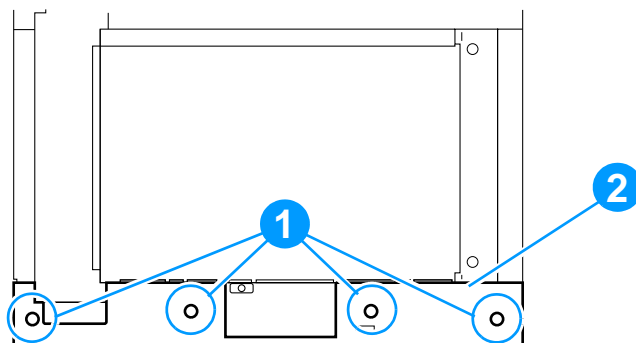


Figure 215. Removing the copy module upper front cover

Removing the scanner motor

- 1 Remove the lower front cover (see page 334).
- 2 Remove the control panel (see page 344).
- 3 Disconnect the connector (callout 1), and remove three screws (callout 2).

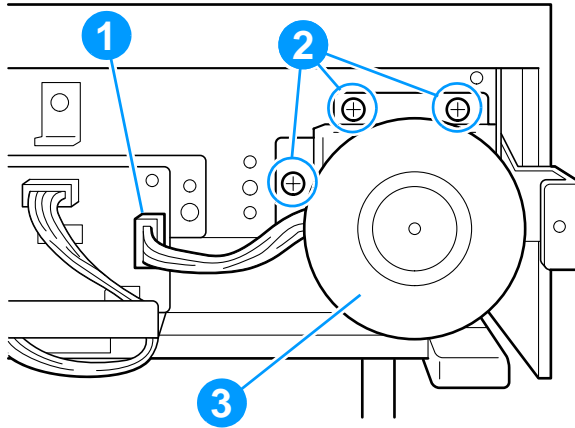


Figure 216. Removing the copy module scanner motor

- 4 Detach the scanner motor (callout 3) with its support plate.

Note

There is an unused 9-pin connector located below the scanner motor.

To adjust the tension of the drive belt

When mounting the scanner motor, move the scanner motor and support plate to the right as far as possible by hand. This provides correct belt tension. Tighten the screws in place. (Refer to the initial screw position.)

Removing the scanner motor driver PCB

- 1 Remove the lower front cover (see page 334).
- 2 Disconnect three connectors (callout 1), and remove two screws (callout 2).
- 3 Free the cable from the cable clamp.
- 4 Detach the scanner motor driver PCB.

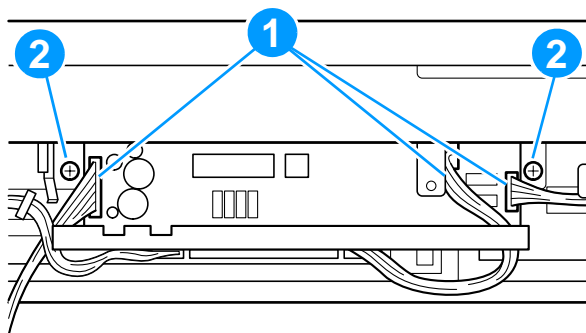


Figure 217. Removing the copy module the scanner motor driver PCB

Removing DIMMs on the reader controller PCB

Note

The printer's copy module can be upgraded by either of the following methods:

- Replacing the DIMM on the reader controller PCB, or
- Replacing the contents of the DIMM by downloading data from a computer.

To remove the ROM DIMM

- 1 Remove the lower front cover (see page 334).
- 2 Disconnect three connectors, and remove two screws.
- 3 Detach the scanner motor driver PCB (see page 339).
- 4 Remove two screws (callout 1), and detach the ROM DIMM cover (callout 2).

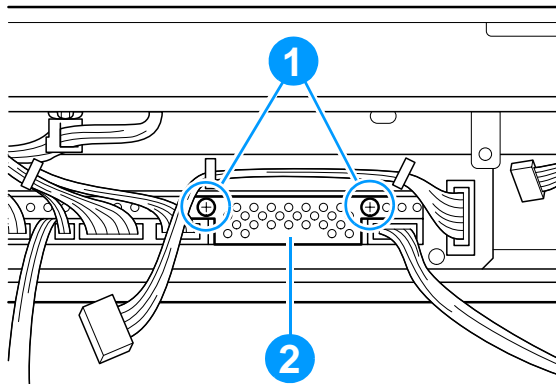


Figure 218. Preparing to remove the ROM DIMM

- 5 While opening the claws (callout 3) of the slot, lift and detach the ROM DIMM.

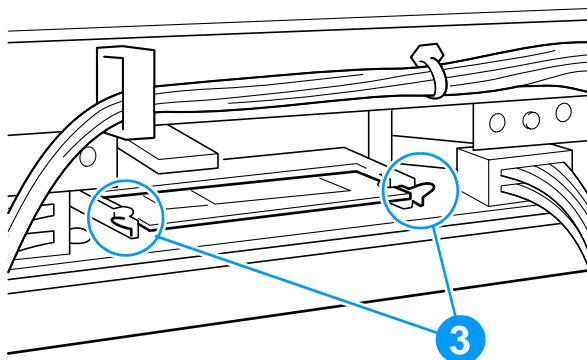


Figure 219. Opening the claws

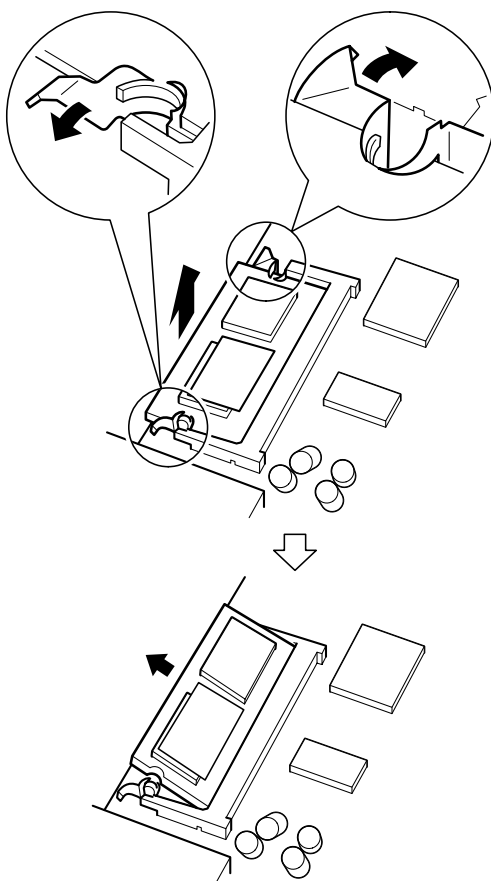


Figure 220. Lifting the ROM DIMM to detach

To mount the ROM DIMM

- 1 Insert the ROM DIMM into the slot at an angle.

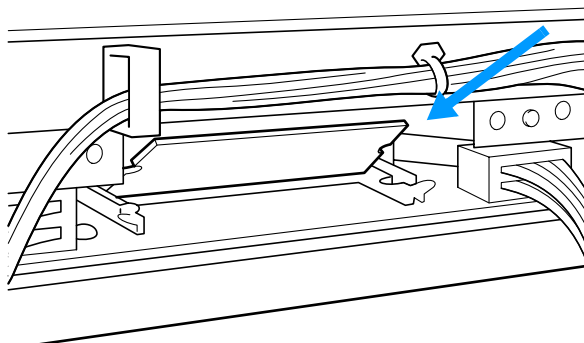


Figure 221.

Inserting the ROM DIMM

- 2 Shift the ROM DIMM down in the direction indicated by the arrows until a click is heard.

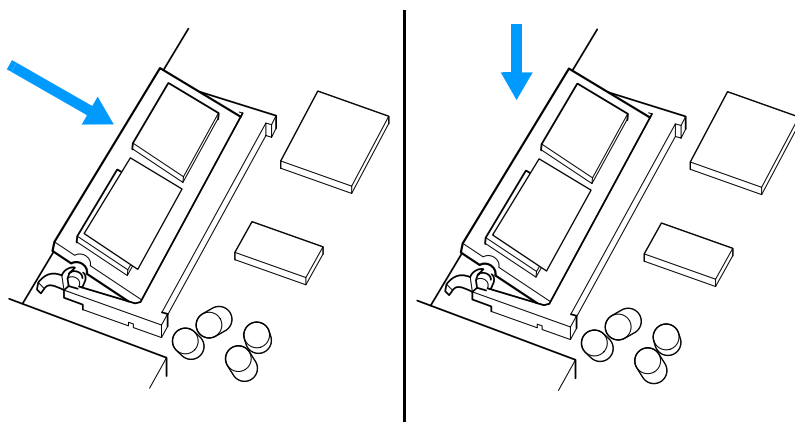


Figure 222.

Engaging the ROM DIMM

CAUTION

Do not force the ROM DIMM. It can crack.

After replacing the ROM DIMM, perform the following steps at the copy module control panel:

- 1 From the service menu, press **COPIER** > **FUNCTION** > **CLEAR** > **R-CON**.
- 2 From the service menu, press **COPIER** > **ADJUST** > **LAMP**, **ADJ-XY**, **CCD**, **PASCAL** (enter the value indicated on the service label).
- 3 From the service menu, press **COPIER** > **FUNCTION** > **MISC-R** > **USE-LAMP**.
- 4 From the service menu, press **COPIER** > **FUNCTION** > **CCD** > **CCD-ADJ**.
- 5 Turn the power off and then on.
- 6 Execute auto gradation correction in user mode.

Removing the control panel

- 1 Remove the copy module lower front cover (see page 334).
- 2 Disconnect two connectors (callout 1), and free the cable from the cable saddle. Further, free the scanner motor cable from the wire saddle.

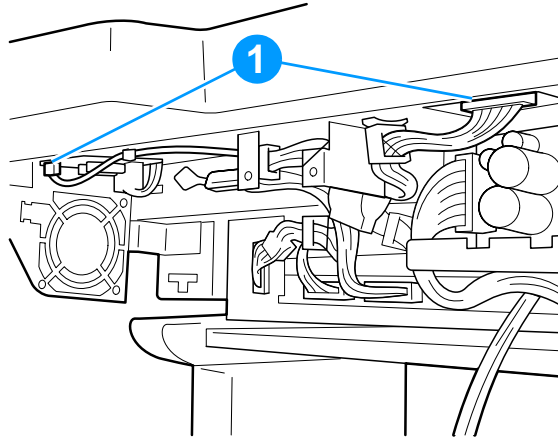


Figure 223. Control panel

CAUTION

When securing the cable, be sure to fit it in the wire saddle, preventing its contact with metal plates.

- 3** Remove five screws (callout 2), and detach the control panel (callout 3).

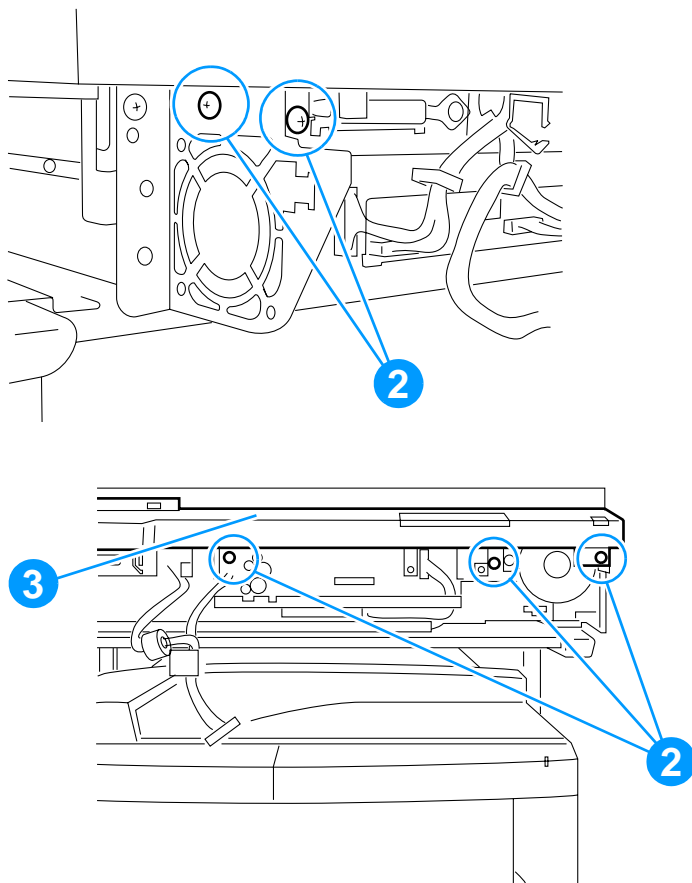


Figure 224. Detaching the control panel

Removing the LCD assembly

- 1 Remove the control panel (see page 344).
- 2 Disconnect the connector (callout 1), and remove the 11 screws (callout 2) to detach the metal plate on the LCD assembly.

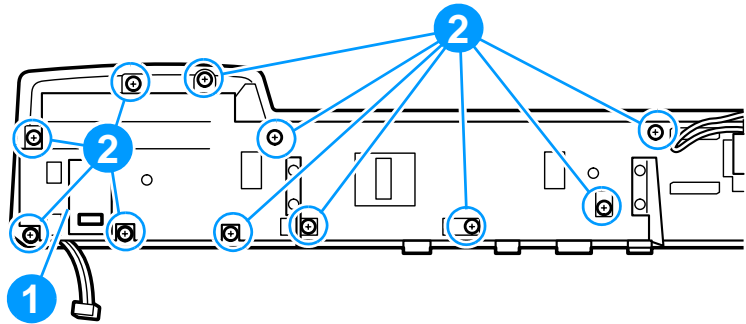


Figure 225. Detaching the metal plate on the LCD assembly

- 3 Disconnect three connectors (callout 3), and remove four screws (callout 4).
- 4 Detach the LCD assembly.

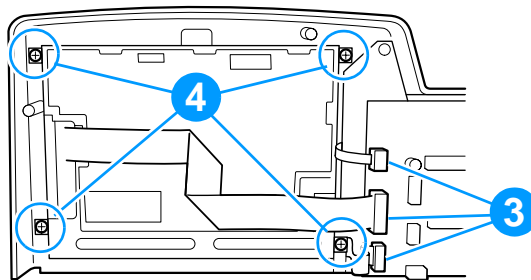


Figure 226. Detaching the LCD assembly

To route the scanner drive cable

Note

You will need a mirror positioning tool (FY9-3040-000CN) when mounting the scanner drive cable.

- 1 Remove the copyboard cover.
- 2 Remove two screws (callout 1), and detach the right glass retainer cover (callout 2).

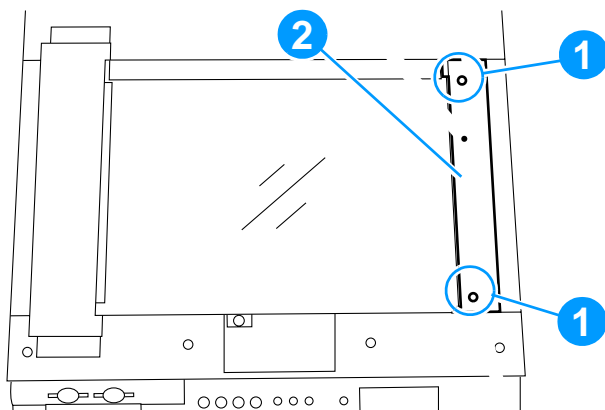


Figure 227. Copyboard glass

- 3 Remove the copyboard glass.
- 4 Remove the lower front cover (see page 334).
- 5 Remove the control panel (see page 344).
- 6 Remove the upper front cover (see page 337).
- 7 Remove the upper rear cover (see page 335).
- 8 Remove the standard white plate (see page 363).

- 9 Remove four screws (callout 3), and detach the right reinforcing stay (callout 4).

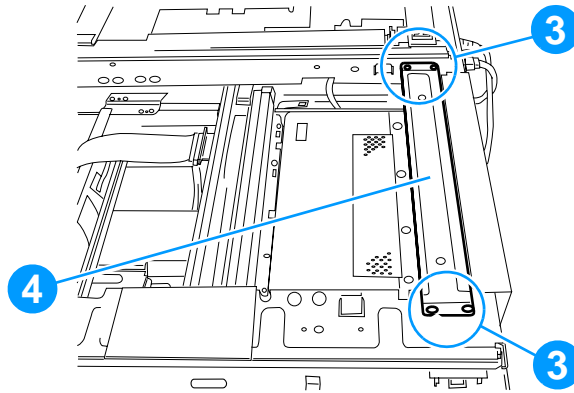


Figure 228. Scanner drive cable

- 10 Remove the upper left cover (see page 335).
- 11 Remove the rear cover (see page 336).
- 12 Remove the electrical tray pullout (see page 347).
- 13 Remove two front horizontal reinforcing stays and the rear horizontal reinforcing stay.

Note

When replacing these parts, be sure to tighten the front and rear screws before tightening the side screws. Test the copyboard glass for correct fit.

- 14 Place the mirror 1 mount (callout 5) so that the metal cable clamp of mirror 1 is in view through the long hole in the front and rear plates (callout 6).

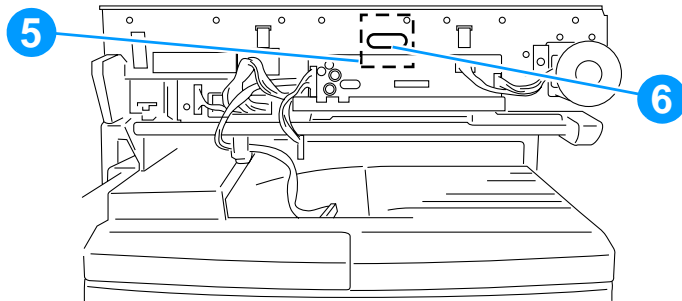


Figure 229. Securing the metal cable clamp (front view)

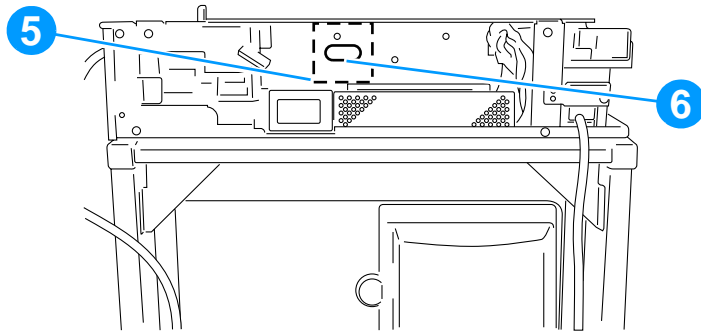


Figure 230. Securing the metal cable clamp (rear view)

CAUTION

Take care not to damage the cable by catching it on edges of the metal plates.

Note

Removing the scanner motor might provide easier access to the cables.

- 15 Loosen the screws on the mirror positioning tool (FY9-3040-000CN), and **contract the arms fully**.

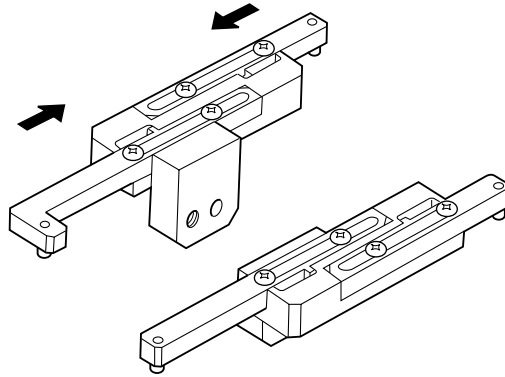


Figure 231. Mirror tool

- 16 Fit the mirror positioning tool (callout 7) between the mirror 1 mount and the mirror 2 mount, and insert the pin (callout 8) that comes with the positioning tool.

Note

The threaded hole in the tool is for storage only. For correct alignment, insert the pins into the non-threaded holes in the positioning tool (see figures 232 and 233 below).

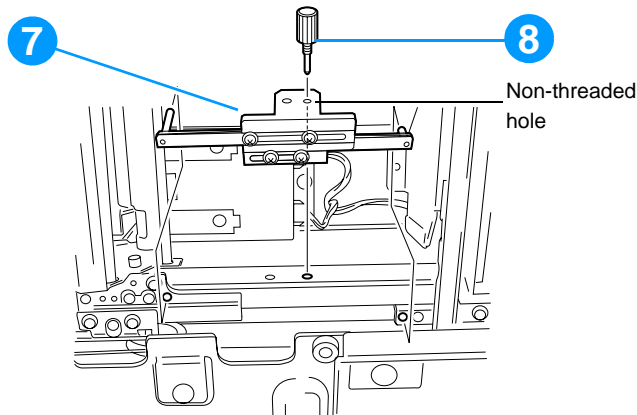


Figure 232. Detaching and reattaching the mirror positioning tool (front view)

Note

Verify that the tool arms are collapsed.

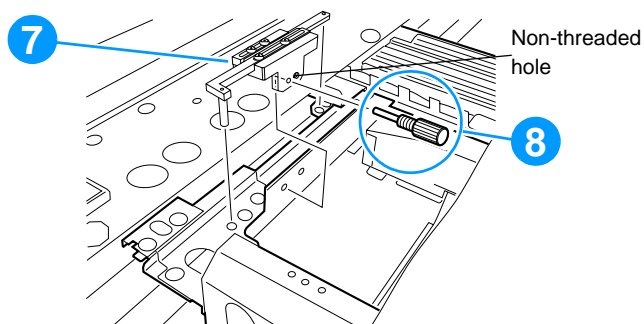


Figure 233. Detaching and reattaching the mirror positioning tool (rear view)

- 17** Secure the metal cable clamp that was temporarily secured in step 15 with two screws (callout 9) inside the long hole (callout 10) of the side plate.

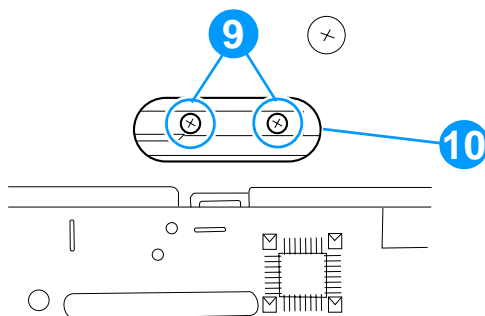


Figure 234. Securing the metal cable clamp to the mirror 1 mount (front view)

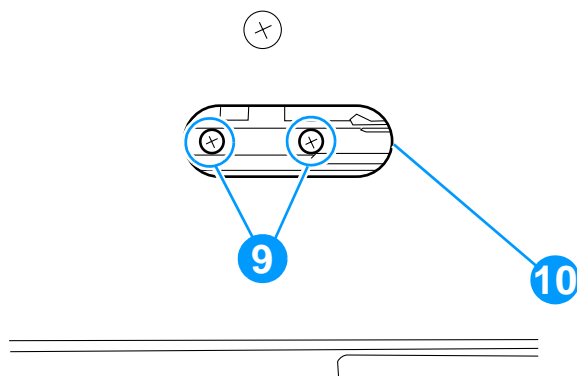


Figure 235. Securing the metal cable clamp to the mirror 1 mount (rear view)

- 18 Engage the scanner cable on the pulley and the hook as shown in figure 236.

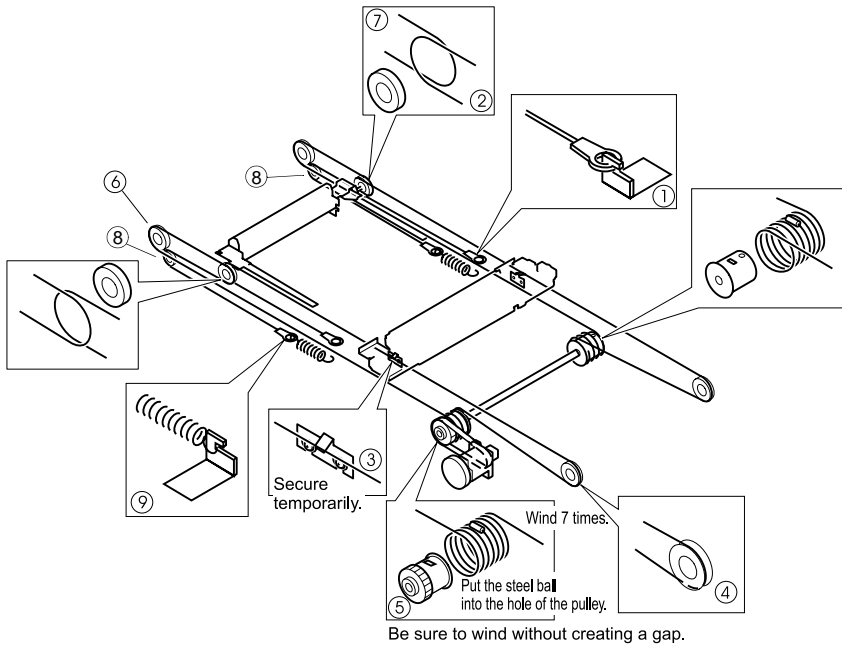


Figure 236. Cable positioning

- 19 Detach the mirror positioning tool.

Removing the flexible cable

Note

Do not disconnect the connector of the flexible cable connected to the mirror 1 mount except when replacing the mirror 1 mount. (The mirror can be cleaned without disconnecting the cable.)

- 1 Remove two screws (callout 1), and detach the right glass retainer cover (callout 2).

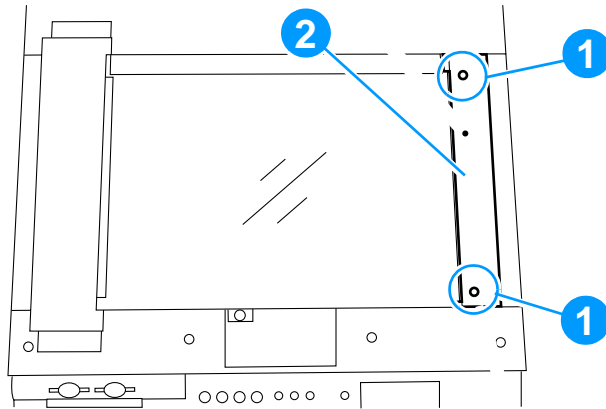


Figure 237. Copyboard glass

- 2 Remove the copyboard glass.
- 3 Shift the mirror 1 mount (callout 3) to the center.

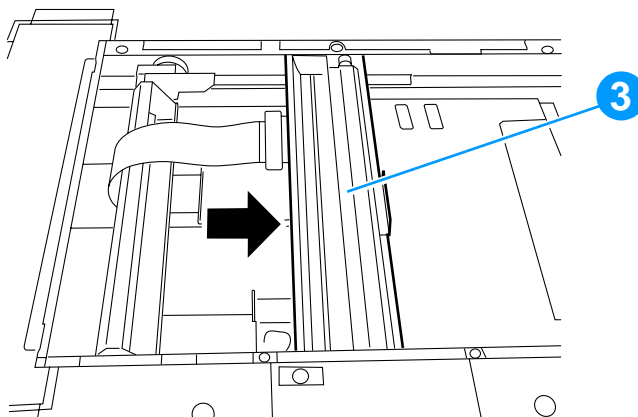


Figure 238. Flexible cable warning label

- 4 Peel the warning label (callout 4) from the flexible cable (callout 5).

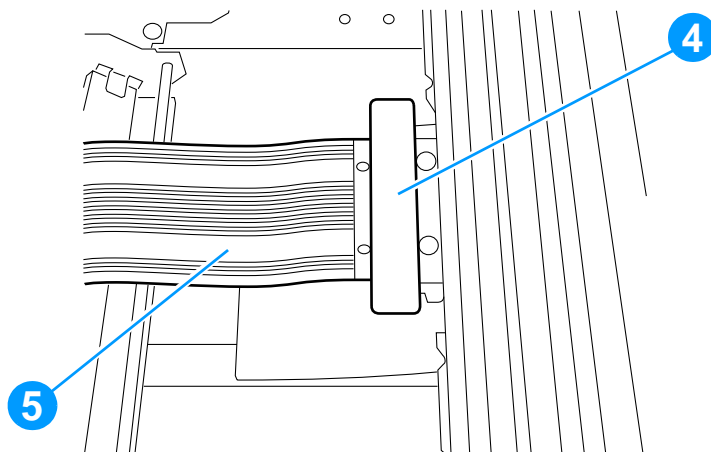


Figure 239. Releasing the connector to the flexible cable

- 5 Push the inside claws inward (callout 6), and release the connector to the flexible cable (callout 5).

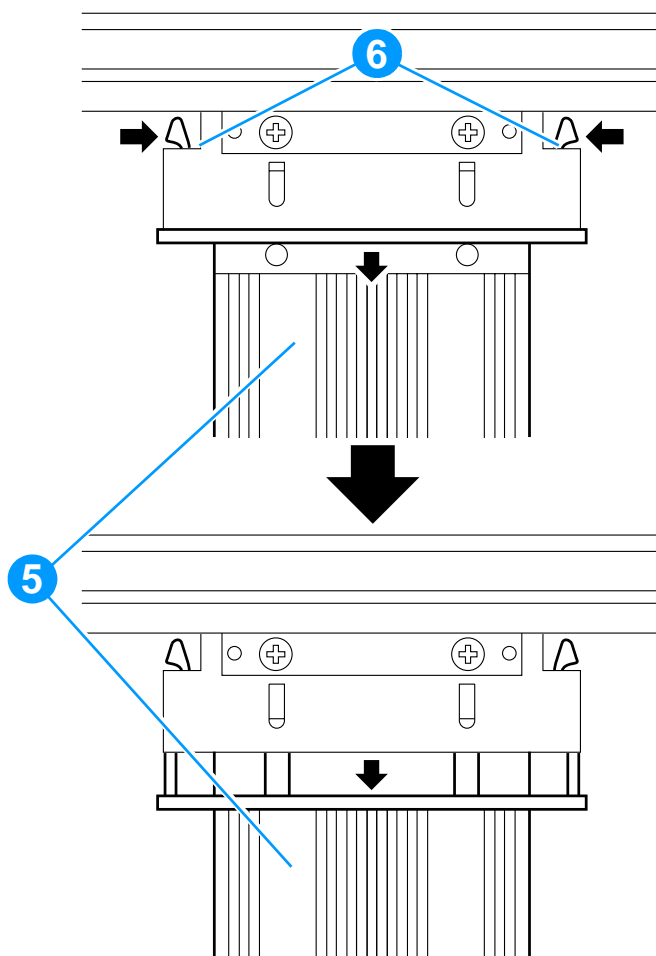


Figure 240. Disconnecting the flexible cable

- 6 Using a small screwdriver (callout 7), push the two tabs that hold the flexible cable (callout 5) to disconnect the flexible cable from the connector.

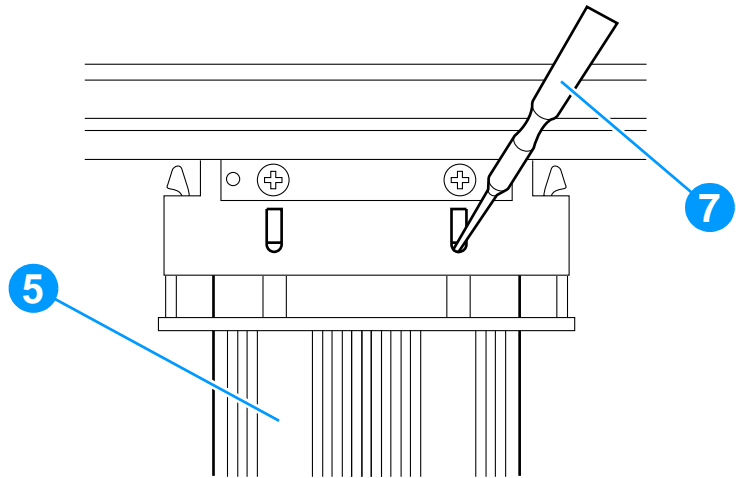


Figure 241. Connecting the flexible cable

CAUTION

When connecting the flexible cable to the connector, make sure that the metal area of the cable has not collected metal powder or dust. Clean it as necessary.

Removing the scanning lamp and scanning lamp heater

- 1 Remove two screws, and remove the right glass retainer cover or jump board if the ADF is installed (page 347).
- 2 Remove the copyboard glass.
- 3 Remove the screw and plate (callout 1), and detach the scanning lamp cover (callout 2).

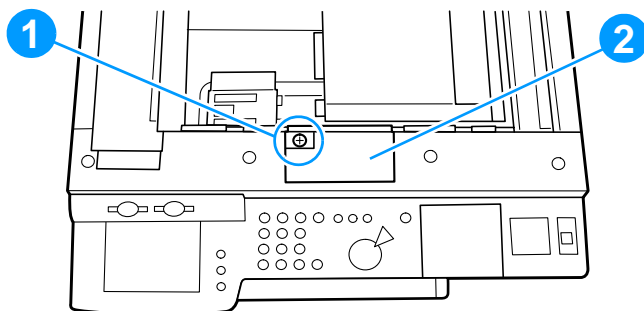


Figure 242. Scanning lamp cover

- 4 Remove two screws (callout 3), and detach the scanning lamp inside cover (callout 4).

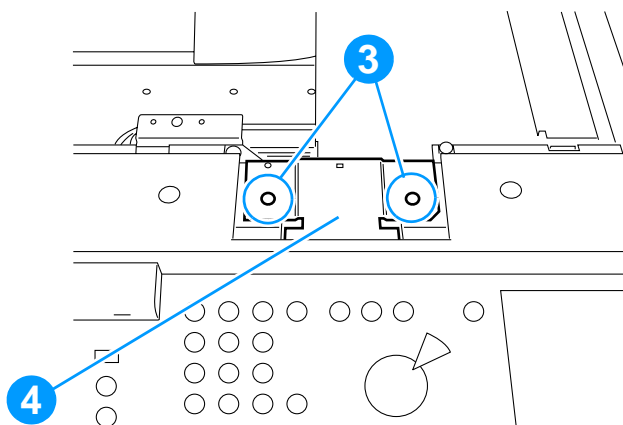


Figure 243. Scanning lamp inside cover

- 5 Position the mirror 1mount under the opening for access.

- 6 Remove two screws (callout 5), and detach the anti-reflecting plate (callout 6).

Note

These screws are difficult to remove for the first time. Take care to use the correct screwdriver (a Phillips #2 screwdriver) and not damage the screw heads. If necessary, use needle nose pliers to assist in removal.

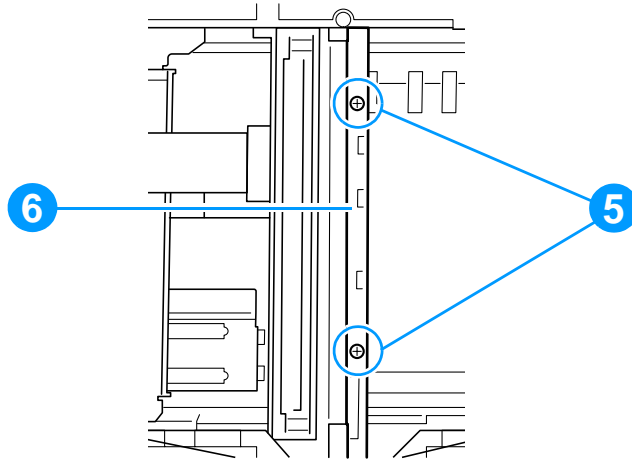


Figure 244. Anti-reflecting plate

CAUTION

When mounting the anti-reflecting plate, be sure to fit the anti-reflecting plate securely into the cut-off (front, rear) (callout 7) in the mirror 1 mount. Further, be sure to fit the lamp heater connector (in step 7) to the anti-reflecting plate. Failure to do so will inhibit free movement of the mirror 1 mount assembly and will cause damage to the scanning system.

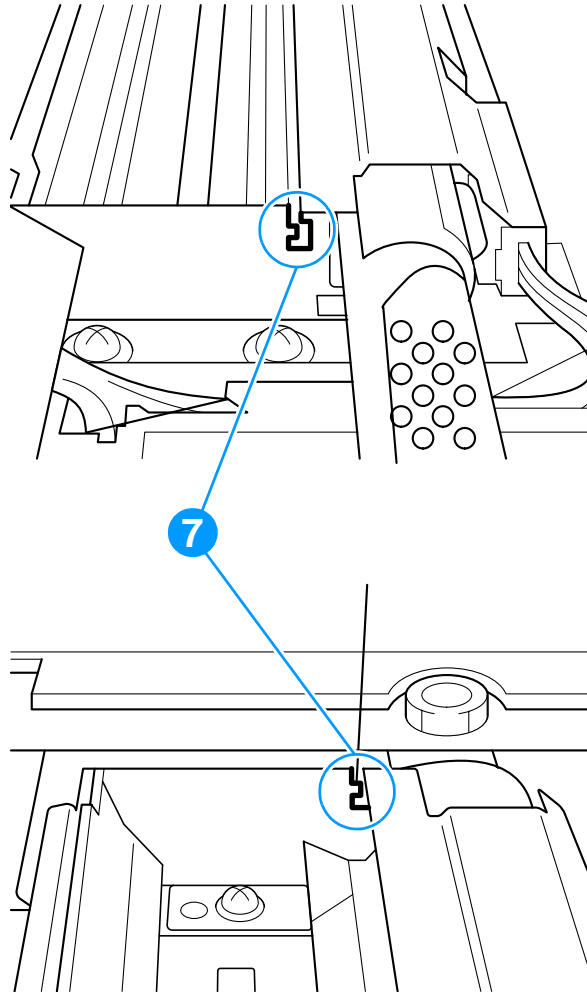


Figure 245. Detaching the scanning lamp

- 7 Disconnect the connector (callout 8), and remove two screws (callout 9).

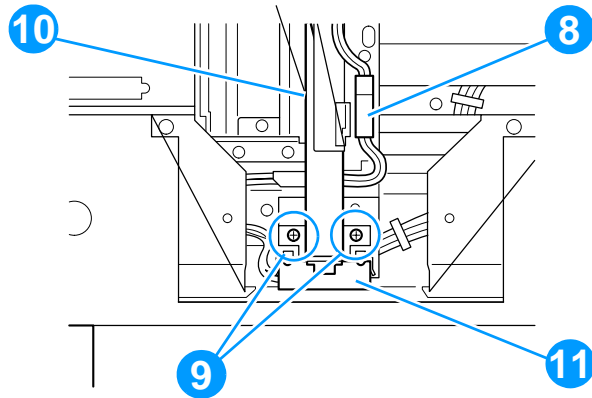


Figure 246. Removing the scanning lamp

- 8 Detach the scanning lamp (callout 10) from the electrode plate (front) (callout 11) by pulling the assembly toward the front.

CAUTION

Avoid touching the scanning lamp with your fingers. Touching the scanning lamp will create hot spots and decrease lamp life.

- 9 Remove the scanning lamp (callout 10) and the scanning lamp heater (callout 12) by moving them together towards the front.

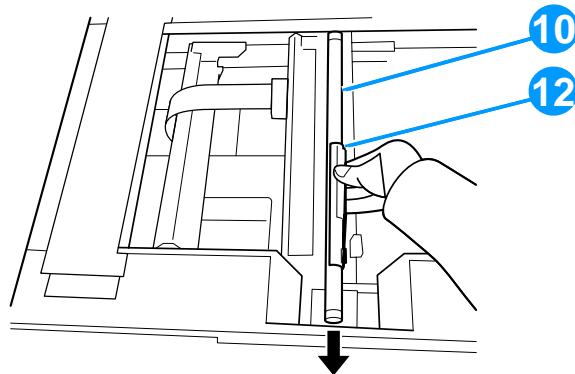


Figure 247. Scanning lamp heater

- 10 Carefully remove the scanning lamp heater and the copper heater rings (front and rear, two pieces) from the scanning lamp.

Note

The scanning lamp thermistor is integrated with the heater assembly and is replaced with the heater assembly.

When replacing the scanning lamp:

- Do not work when the surface of the scanning lamp is hot.
- Do not leave fingerprints on the surface of the scanning lamp.
- If the surface of the scanning lamp is soiled, wipe it with a clean, soft, dry cloth.
- When mounting the scanning lamp heater to the scanning lamp, be sure to match the reference points. (The connector of the scanning lamp heater is toward the front of the copy module.)

Note

The lamp can be reversed, but the heater must be positioned so that the connectors will reach.

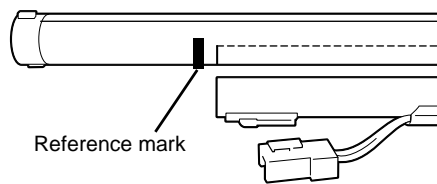


Figure 248. Replacing the scanning lamp

- When mounting the scanning lamp to the copier, take care not to touch the light-emitting section.

- When mounting the copper heater ring (callout 1), be sure to locate it about 4 to 8 mm from the light-emitting section of the lamp (callout 2).

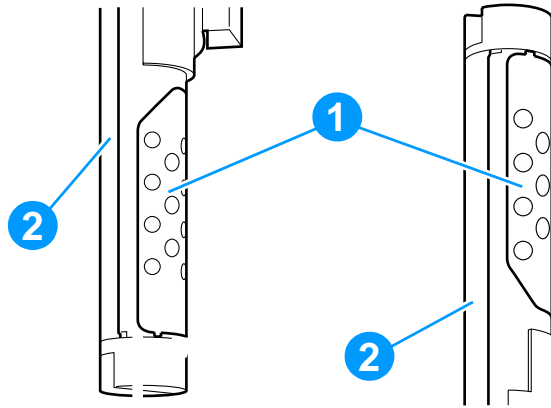


Figure 249. Scanning lamp adjustment

- When mounting a new scanning lamp, or when removing and then remounting the existing lamp, be sure to make the necessary adjustments. See “To replace the scanning lamp” on page 132.

Removing the standard white plate cover

- 1 Remove two screws, and detach the right glass retainer cover (see page 347).
- 2 Remove the copyboard glass.
- 3 Remove the standard white plate plastic covers (one each from front and rear, callout 1) using a flat-blade screwdriver.

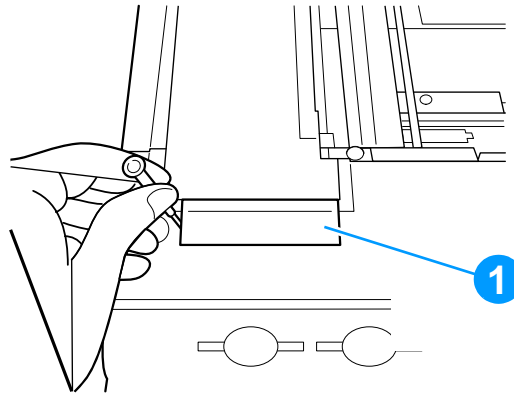


Figure 250. White plate cover removal

- 4 Remove four screws (callout 2), and detach the standard white plate (callout 3).

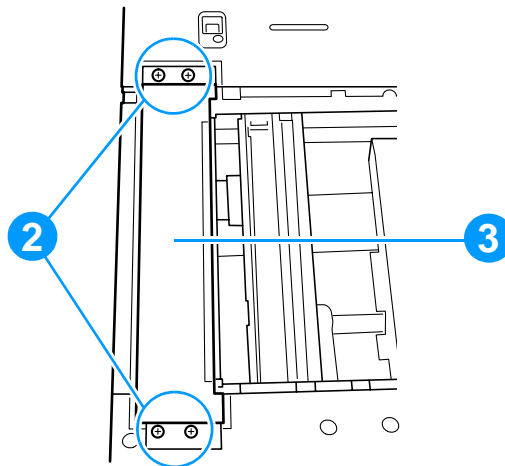


Figure 251. Replacing the white plate cover

Note

When replacing the standard white plate, be sure to make service mode adjustments (see page 84).

Removing the intensity-detection PCB

- 1 Remove two screws, and detach the right glass retainer cover (page 347) or jump board if the ADF is installed.
- 2 Remove the copyboard glass.
- 3 Remove the screw (callout 1), and detach the claws (callout 2) while pushing them down.

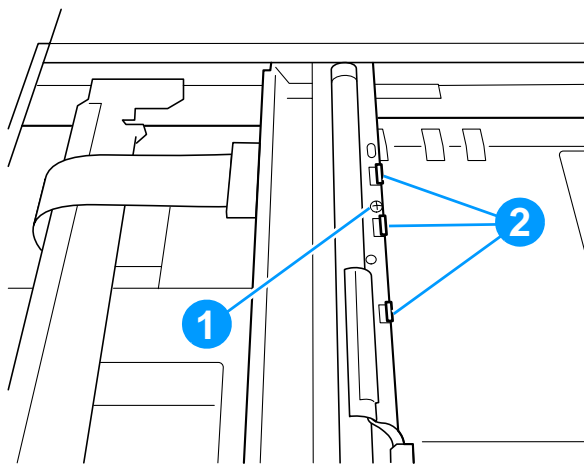


Figure 252. Detaching the claws

- 4 Disconnect the connector (J2001) (callout 3), and remove the screw (callout 4) that secures the PCB.

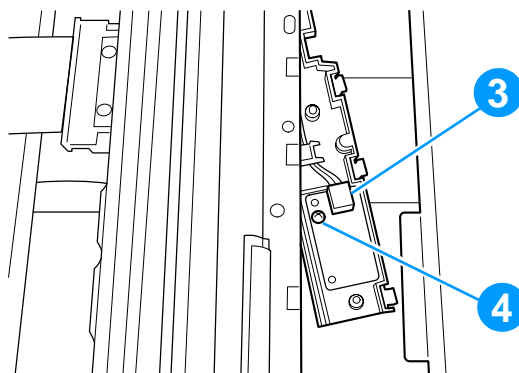


Figure 253. Detaching the intensity-detection PCB

- 5 Detach the intensity-detection PCB.

Removing the lens-mount cover and CCD unit

- 1 Remove two screws, and detach the right glass retaining cover.
- 2 Remove the copyboard glass.
- 3 Remove ten screws, and detach the lens-mount cover.

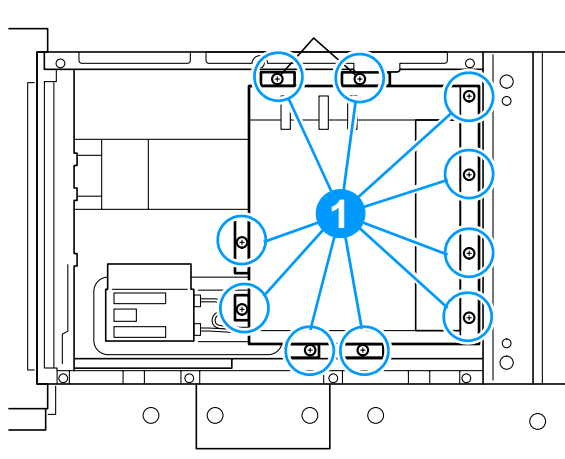


Figure 254. Lens mount cover

- 4 Remove four screws (callout 2), and detach the CCD unit-retaining spring (callout 3) and the cable-retaining metal plate (callout 4).

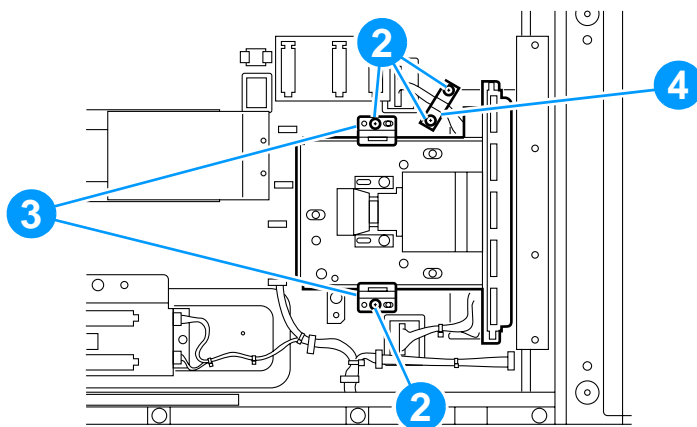


Figure 255. Detaching the CCD unit

- 5 Remove the cable clamp (callout 5) from the copier, and disconnect two connectors (J101, J102) (callout 6).

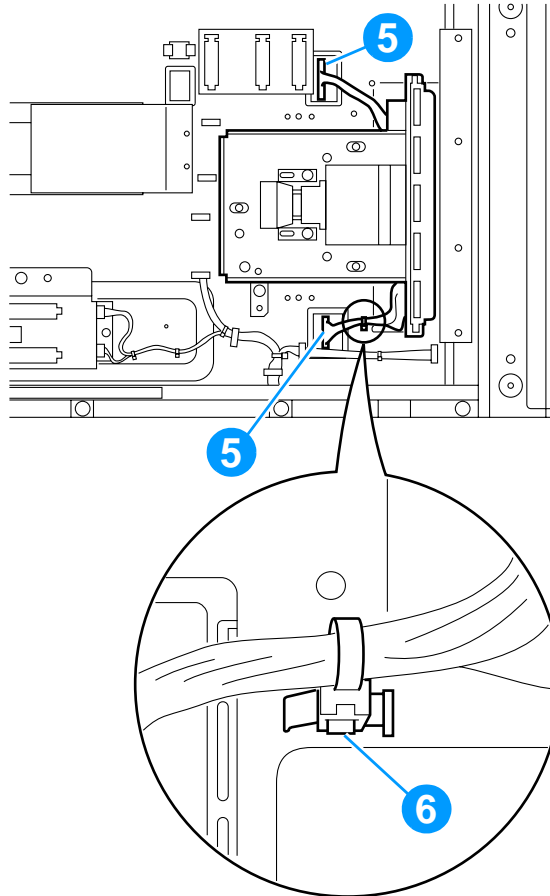


Figure 256. CCD unit connectors

- 6 Detach the CCD unit.

CAUTION

Do not move the mirror 1 mount to the left or right, or turn on the power to make copies. If you do so, the leaf spring on the CCD unit will hit against the mirror 1 mount, damaging the leaf spring.

Removing the electrical unit pullout

- 1 Remove the copy module lower front cover (two covers, two screws).
- 2 Disconnect three connectors, and remove two screws, holding the scanner motor driver PCB.
- 3 Detach the scanner motor driver PCB (see page 339).
- 4 Remove two shoulder screws (callout 1), and disconnect eight connectors (callout 2).

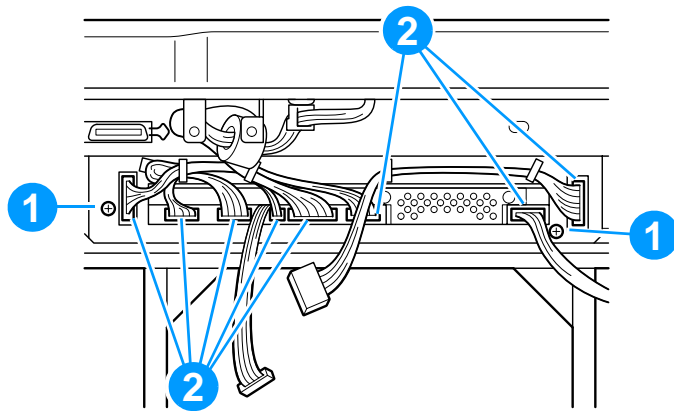


Figure 257. Electrical unit screws and connectors

- 5 Remove the lens-mount cover (see page 365).
- 6 Remove two large tie-down screws (callout 3), and disconnect three connectors (callout 4).

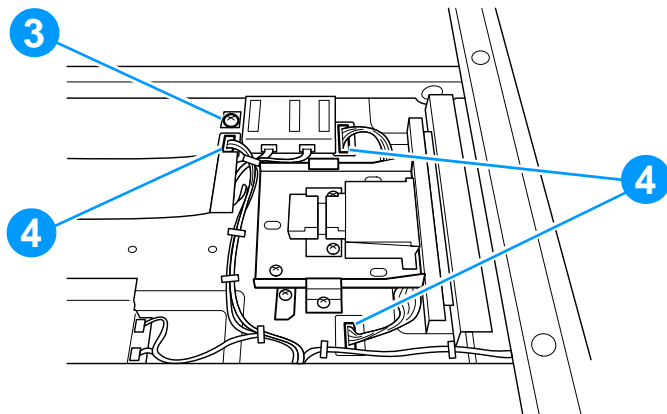


Figure 258. Reader controller PCB connectors

- 7 Remove the copyboard cover, copy module upper rear cover, upper left cover, and rear cover, in that order.
- 8 Remove seven screws (callout 5).

Note

Refer to figure 259 below for help in locating the seven screws.

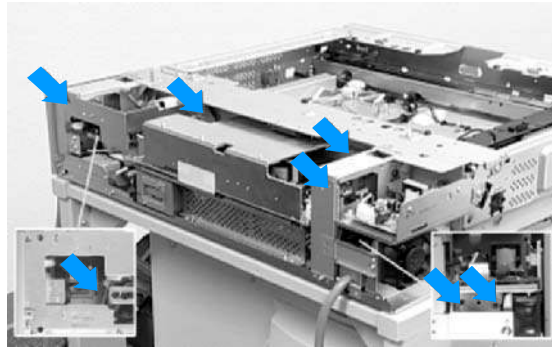


Figure 259. Removing the reader controller PCB cover (1 of 2)

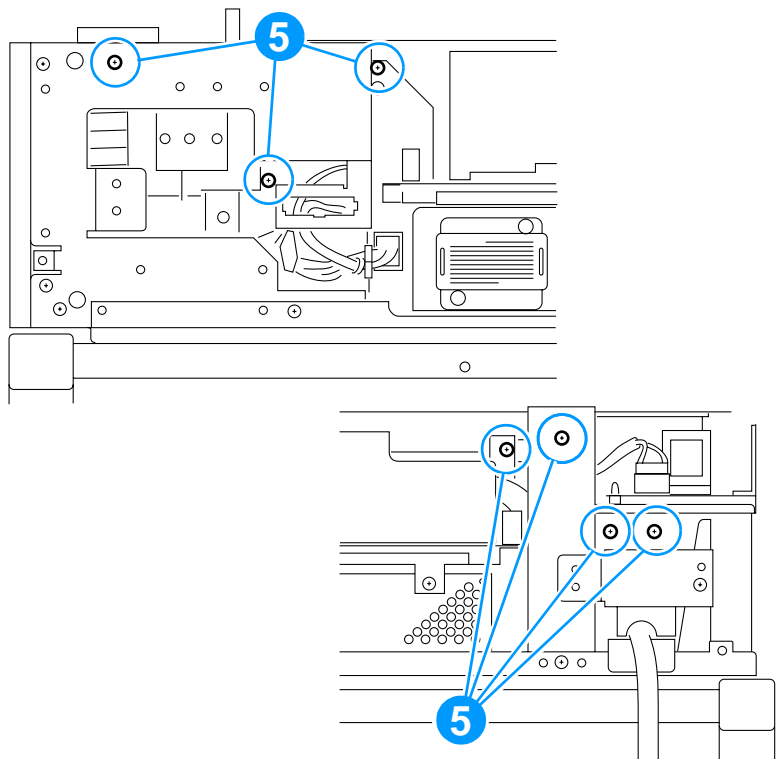


Figure 260. Removing the reader controller PCB cover (2 of 2)

- 9 Pull out the electric unit (callout 6) to the rear, as shown.

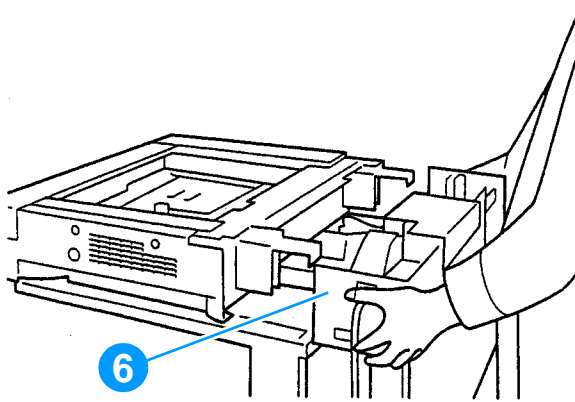


Figure 261. Removing the electrical unit

CAUTION

When pulling out the electrical unit to the rear, you might hear some rough noise caused by plastic film rubbing against a metal plate. Ignore the noise. When putting the electrical unit back into the copy module, take care not to damage the cable and connectors at the front.

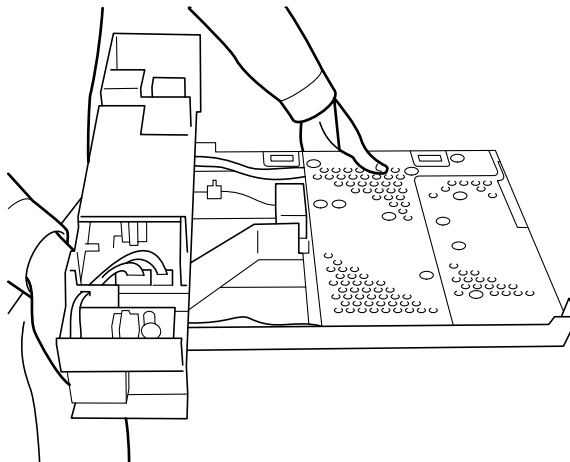


Figure 262. Holding the electrical unit

Removing the reader controller PCB

- 1 Remove the electrical unit pullout (page 367).
- 2 Remove seven screws (callout 1), and detach the electrical unit RFI cover (callout 2).

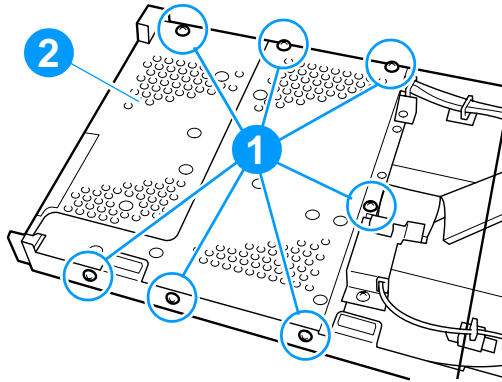


Figure 263. Detaching the electrical unit cover

- 3 Disconnect eight connectors (callout 3) and six screws (callout 9).
- 4 Detach the reader controller PCB.

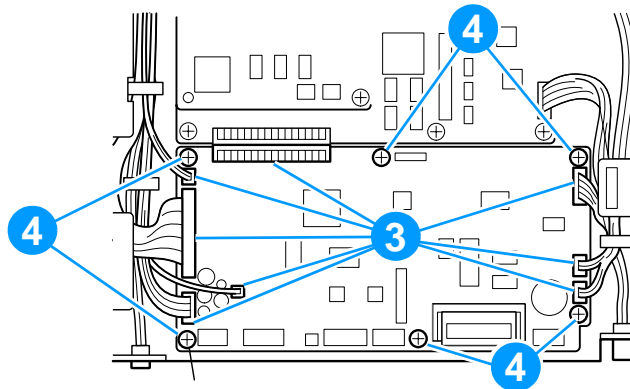


Figure 264. Electrical unit connectors

Take note of DIP switch bank SW1601 on the reader controller PCB. These DIP switch settings should not be changed in the field. If they are changed accidentally, restore the settings to the factory defaults shown below.

Switch	110V setting	220V setting
SW7	0	0
SW6	0	1
SW5	1	0
SW4	0	1
SW3	1	1
SW2	0	1
SW1	1	0

Removing the ECO-2 PCB

- 1 Remove the electrical unit pullout (page 367).
- 2 Perform the work through step 10 provided for the removal of the reader controller PCB (see page 404).
- 3 Remove two screws (callout 1), and detach the ECO-2 PCB (callout 2) from the two PCB supports (callout 3).

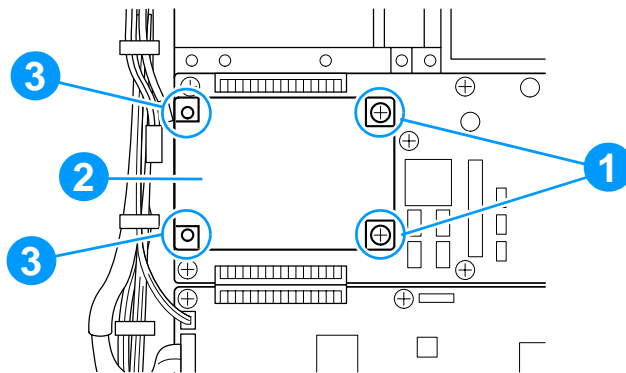


Figure 265. ECO PCB replacement

Removing the AP-IP PCB

- 1 Remove the electrical unit pullout (see page 367).
- 2 Remove the ECO PCB (see page 371).
- 3 Disconnect three connectors (callout 1), and remove seven screws (callout 2).
- 4 Detach the AP-IP PCB (callout 3).

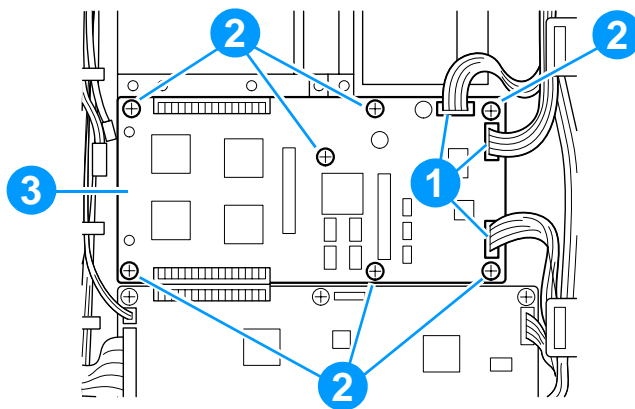


Figure 266. AP-IP PCB removal

Removing the copy module main power supply PCB (DCP1)

- 1 Remove the copy module upper rear cover, upper left cover, and rear cover, in that order.
- 2 Disconnect nine connectors (callout 1), and remove five screws (callout 2).

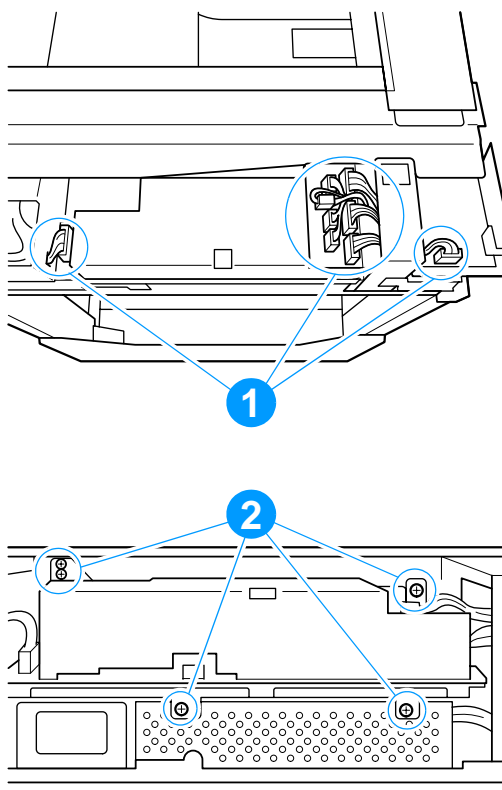


Figure 267. Removing the copy module main power supply PCB (DCP1)

- 3 Detach the copy module power supply PCB unit.
- 4 Disconnect the AC cable to the accessories power supply PCB.

Removing the accessories power supply PCB (DCP2)

- 1 Remove the copy module upper left cover, upper rear cover, and rear cover.
- 2 Disconnect the connector (J1801) (callout 1), and remove three screws (callout 2).

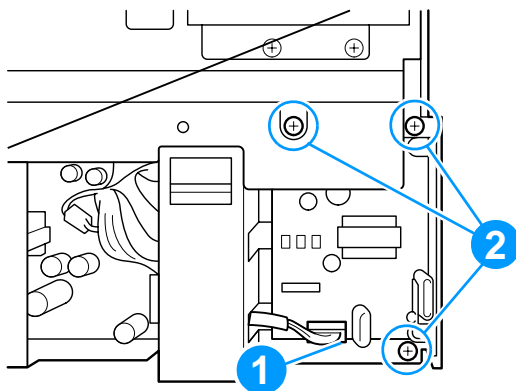


Figure 268. Accessory power supply

- 3 Disconnect connectors J1802 and J1804, and detach the accessory power supply PCB unit.

Removing the power supply cooling fan (FM4)

- 1 Remove the copy module upper rear cover, upper left cover, and rear cover, in that order.
- 2 Disconnect the connector, and remove two screws (callout 1).
- 3 Detach the fan.

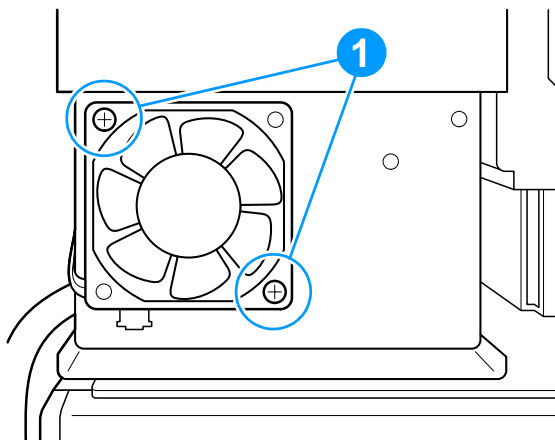


Figure 269. Power supply cooling fan

CAUTION

When mounting the fan (FM4), be sure that the arrow on the fan is toward the inside (so that air is blown toward the inside).

Removing the inverter PCB unit

- 1 Remove the copy module upper left cover, upper rear cover, and rear cover.
- 2 Remove the electrical unit pullout (see page 367).
- 3 Remove the copy module main power supply PCB (see page 373).
- 4 Disconnect three connectors (callout 1), and remove two screws (callout 2).
- 5 Remove the inverter PCB unit.

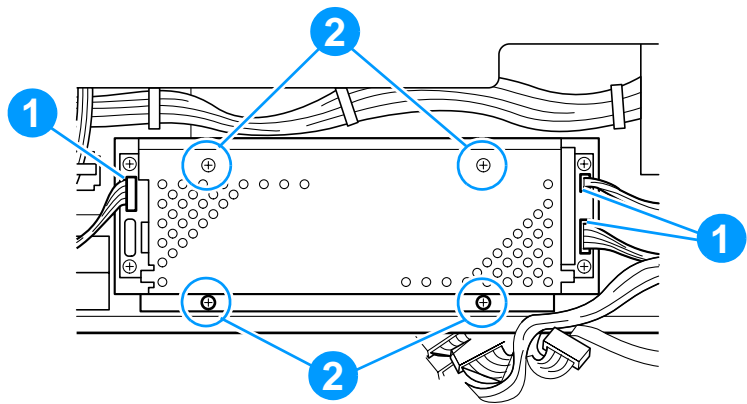


Figure 270. Inverter PCB unit

Automatic document feeder (ADF)

Note

The only serviceable part of the ADF is the large white feeding belt (part number FC1-7815-020CN). (See “Removing the feeding belt” on page 431.) The remainder of the ADF will be serviced via adjustment/calibration (see “ADF adjustments” on page 140) and cleaning (see “Cleaning ADF parts” on page 167), or, only when necessary, whole-unit exchange.

The exchange part number for the ADF is C7837-69053. The replacement product number for the ADF is C7837A.

The following removal and replacement procedures are provided for reference only, and should not be performed in the field (except for replacement of the large white feeding belt).

Identifying external covers

Remove the covers when cleaning, inspecting, and repairing the inside of the ADF.

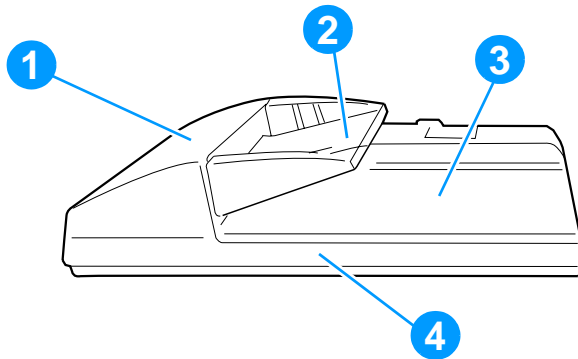


Figure 271. ADF external covers

- 1 Upper cover
- 2 Document tray
- 3 Body cover
- 4 Front cover

Removing the ADF

CAUTION

The ADF should be removed from the copier and placed on a table before servicing. Failure to do so may result in personal injury or damage to the ADF.

- 1 Turn off the copier.
- 2 Disconnect the communication cable of the ADF from the copier.
- 3 Open the ADF fully.

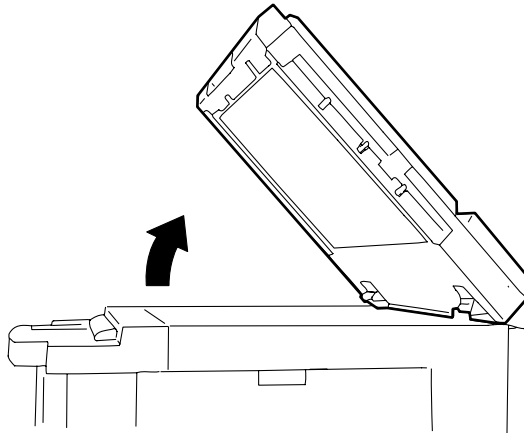


Figure 272. Opening the ADF

- 4 Go to the rear of the copier, and lift the ADF upright to remove.

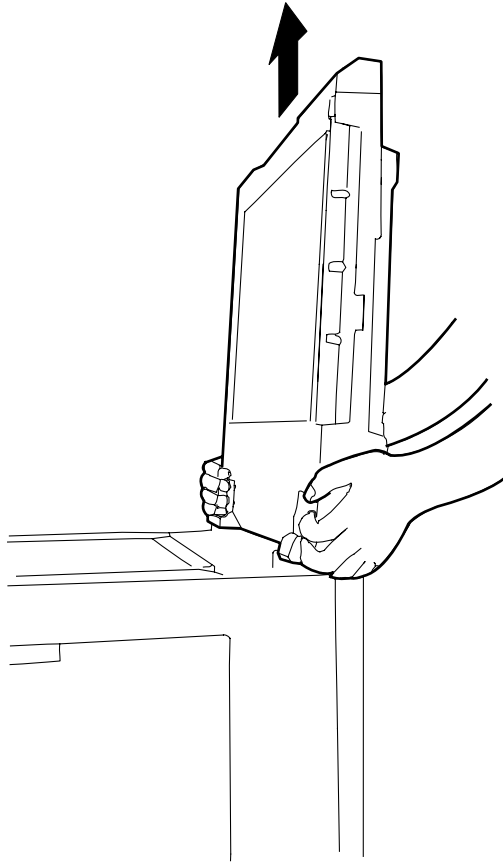


Figure 273. Removing the ADF

The feet of the hinges of the ADF are equipped with a locking mechanism designed to prevent slippage. When detaching the ADF from the copier, you must fully open it to disengage these locks.

When removing the ADF from the copier, be sure to hold it as shown in figure 273 above. Do not support it by the delivery assembly, which might create or cause subsequent faulty delivery.

Removing the body cover

- 1 Remove seven mounting screws (callout 1), and detach the body cover.

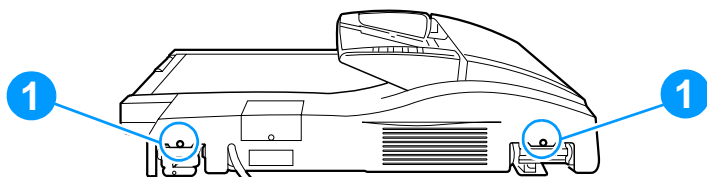


Figure 274. Mounting screws

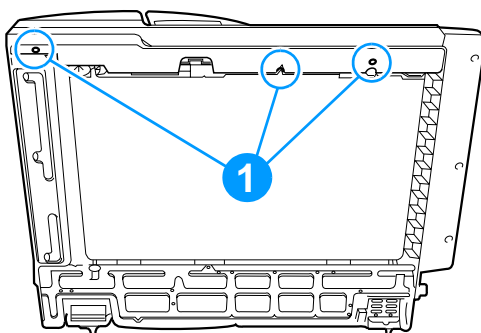


Figure 275. Body cover

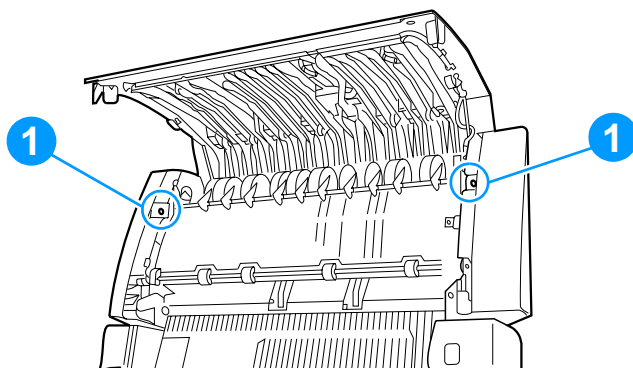


Figure 276. Mounting screws

- ## CAUTION

To remove the side guide lock

The side guide of the ADF is equipped with a side guide lock so that it will not open farther than 297 mm (the width of A3-size media). If an original larger in width than 297 mm is used, the side guide lock must be removed.

- 1 Loosen the screw (callout 1).
- 2 Remove the side guide lock (callout 2).

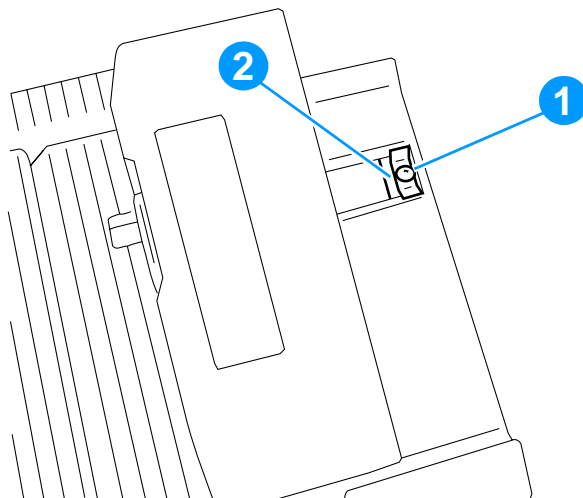


Figure 278. Side guide

CAUTION

When making copies, be sure to adjust the side guide to the size of the original. If the side guide is improperly positioned, the original will tend to move askew.

Mounting the original-width detecting volume

- 1 Loosen two screws (callout 1), and detach the side guide (callout 2).

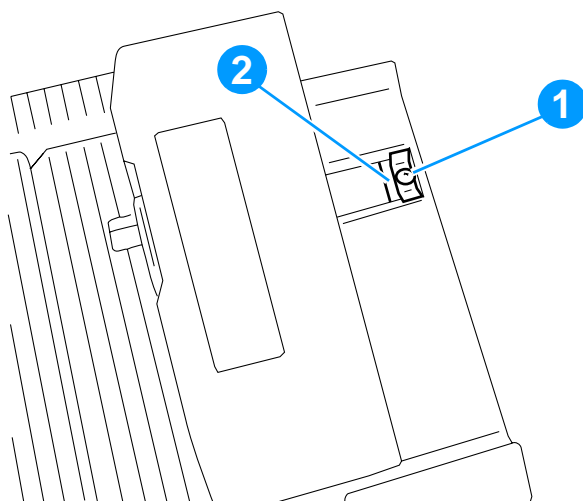


Figure 279. Side guide and screws

- 2 Fully open the side guide at the rear (callout 3) and the front (callout 4).

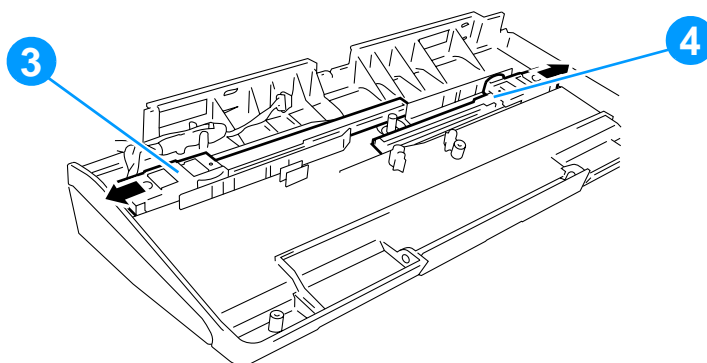


Figure 280. Opened side guide

- 3 Mount the gear (callout 5).

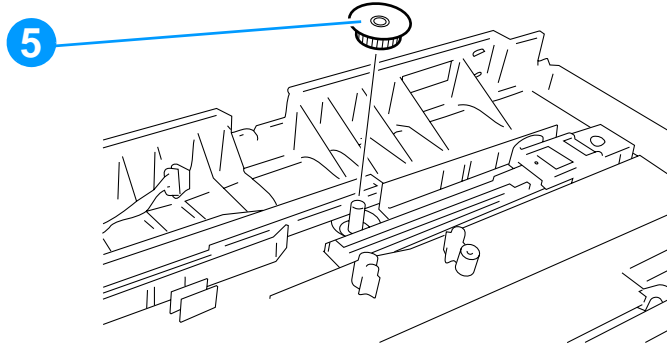


Figure 281. Mounting the gear

- 4 Turn the original-width detecting volume (callout 6) fully in the direction of the arrow; then, turn it in the opposite direction (equivalent to half a tooth) to the position indicated in the figure.

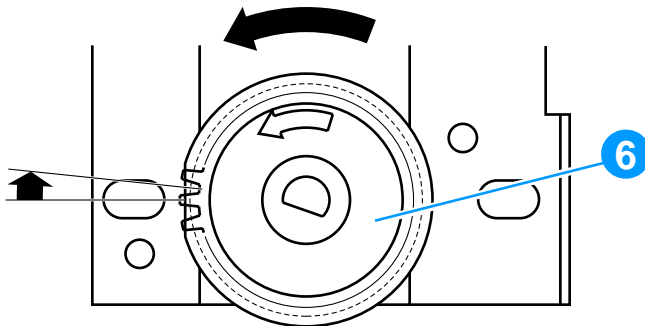


Figure 282. Setting the width detection volume

- 5 Keeping the original-width detecting volume (callout 6) (as in step 4), mount it to the original tray (callout 7), and fix it in position with screws (callout 8).
- 6 Connect the connector (callout 9).

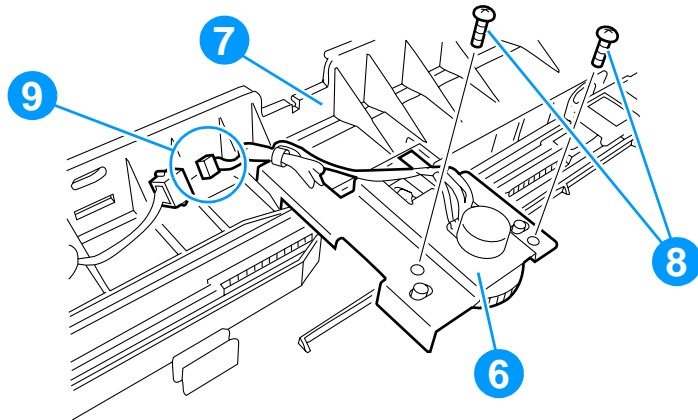


Figure 283. Setting the screws and mounting lock

- 7 Mount the side guide lock removed in step 1, and execute adjustments to the original-width detecting volume. (For adjustments, see p. 518.)

Removing the pick-up motor unit

- 1 Remove the body cover (see page 380).
- 2 Remove the tie-wrap as necessary.
- 3 Disconnect the connector J12 (callout 1) from the ADF controller PBC (callout 2).

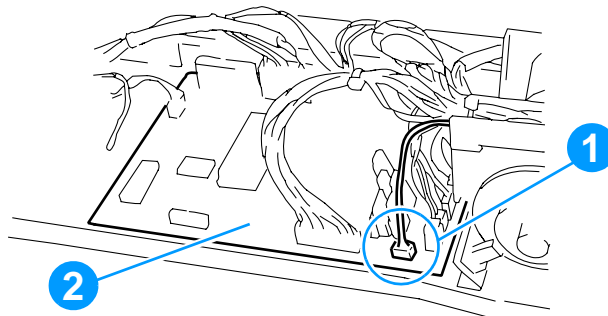


Figure 284. Connector J12 on pick-up motor

- 4 Remove the screw (callout 3), and remove the cable guide (callout 4).

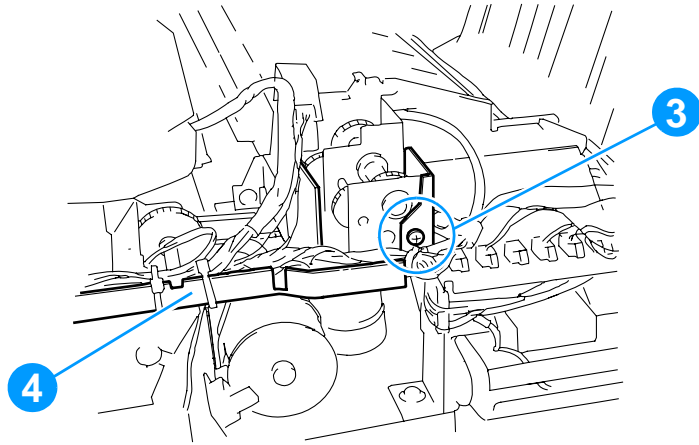


Figure 285. Pick-up motor cable guide

- 5 Disconnect the connector (callout 5) on the upper cover sensor S4.
- 6 Remove two mounting screws (callout 6), and detach the pick-up motor unit (callout 7).

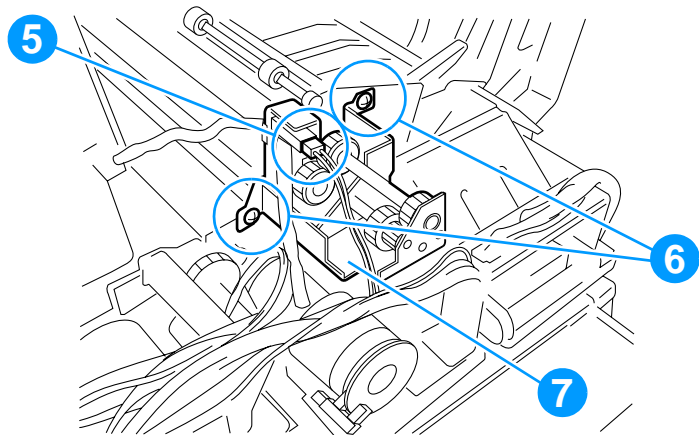


Figure 286. Detaching the pick-up motor unit

Removing the ADF motor unit

- 1 Remove the pick-up motor unit.
- 2 Remove the tie-wrap as necessary.
- 3 Disconnect the connector J11 (callout 1) from the ADF controller PCB (callout 2).

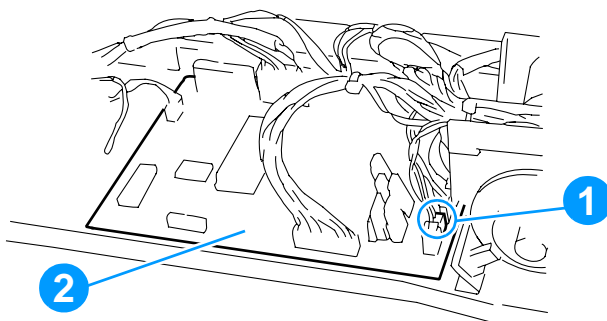


Figure 287. Feeder motor unit

- 4 Remove two screws (callout 3), and disconnect the connector (callout 4) of the ADF motor color sensor S9.

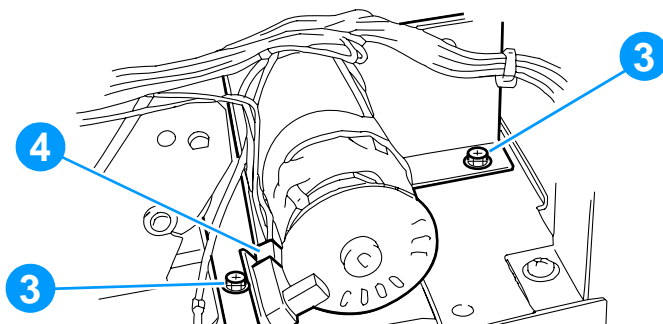


Figure 288. Feeder motor color sensor

- 5 Detach two drive belts (callout 5), and detach the ADF motor unit (callout 6).

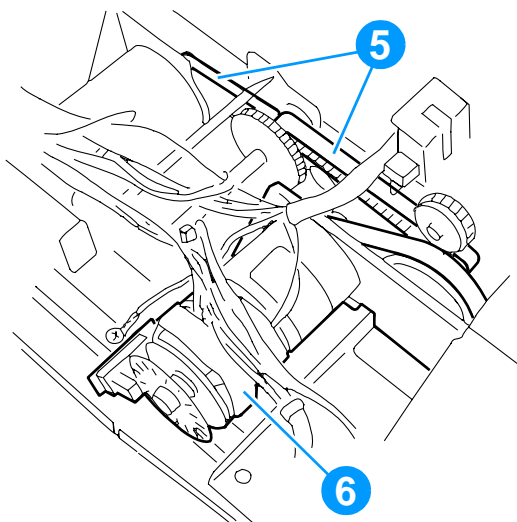


Figure 289. Feeder motor drive belts

Removing the belt motor

- 1 Remove the ADF from the copier (see page 378).
- 2 Remove the ADF motor unit (see page 387).
- 3 Remove the tie-wrap as necessary.
- 4 Disconnect connectors J6 (callout 1), J7 (callout 3), and J13 (callout 3) on the ADF controller PCB.

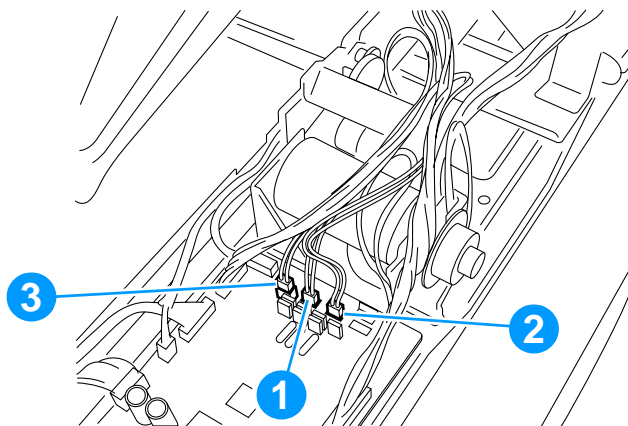


Figure 290. Belt motor

- 5 Disconnect the connector (callout 4) of the belt motor clock sensor S10.

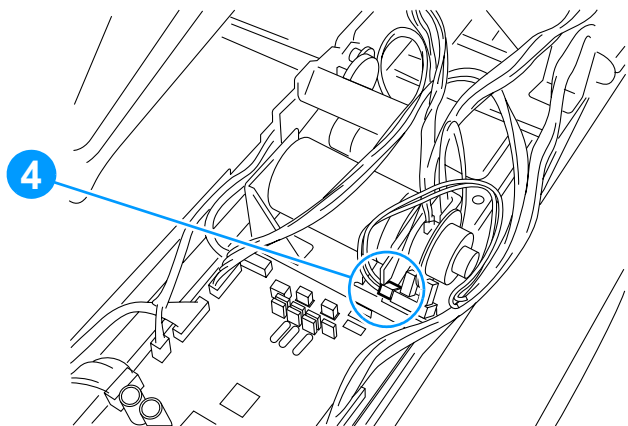


Figure 291. Belt motor clock sensor

- 6 Using a pencil, mark the position of the belt motor count (callout 5) on the ADF, and then remove three screws (callout 6).

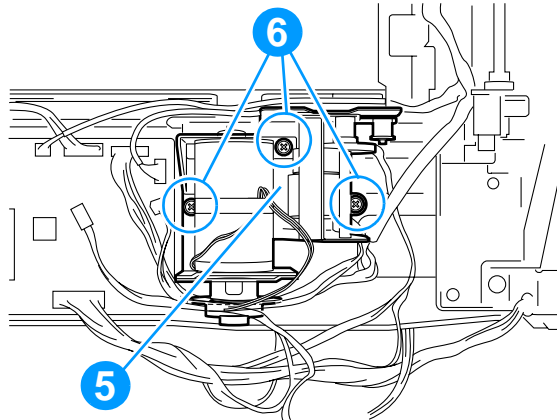


Figure 292. Belt motor count position

- 7 Detach the feeding belt drive roller side (callout 7) of the timing belt (callout 8), and detach the belt motor unit (callout 5).

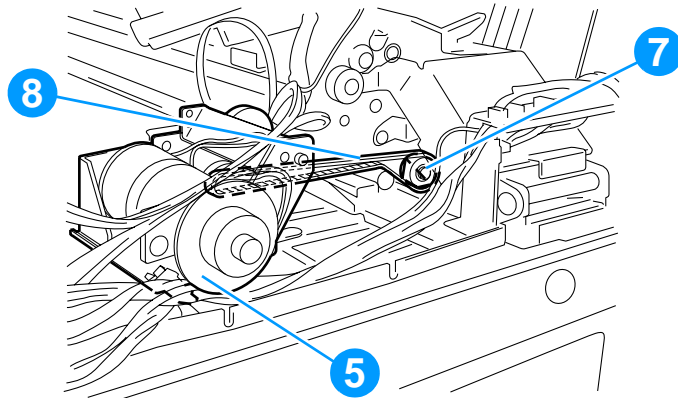


Figure 293. Feeding the belt drive roller

To make adjustments

- 1 Secure the belt motor unit (callout 1) in place with three screws (callout 2) so that the displacement is 3 ± 1 mm when the timing belt (callout 3) is pushed under a force of 3 ± 1 mm.

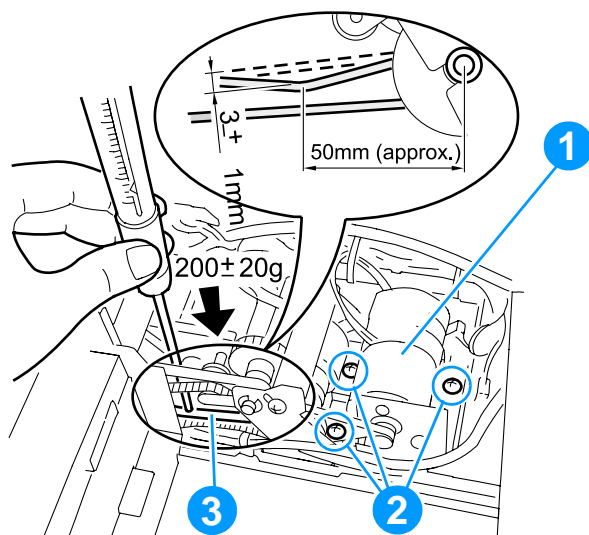


Figure 294. Replacing the belt motor

- 2 Pull the belt tensioner (callout 4) with a force of 500 g (± 50), and secure it in place with the screw (callout 5).

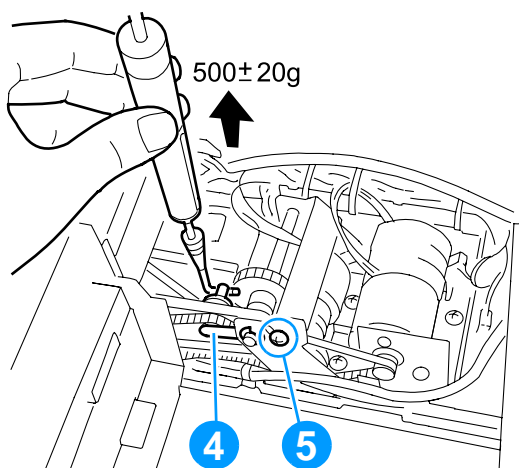


Figure 295. Adjusting belt tension

Removing the clutch unit

- 1 Remove the belt unit (callout 1).
- 2 Detach the drive belt (callout 2).

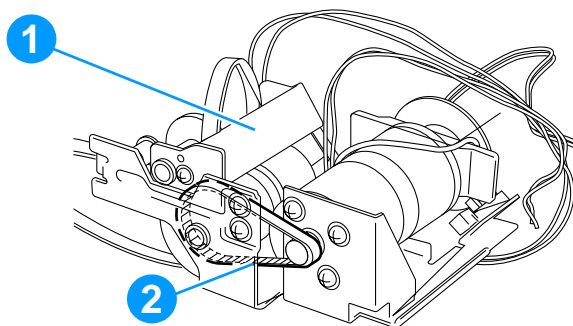


Figure 296.

Clutch unit

- 3 Remove the E-ring (callout 3).
- 4 Displace the bushing (callout 4), and remove the clutch unit (callout 5).

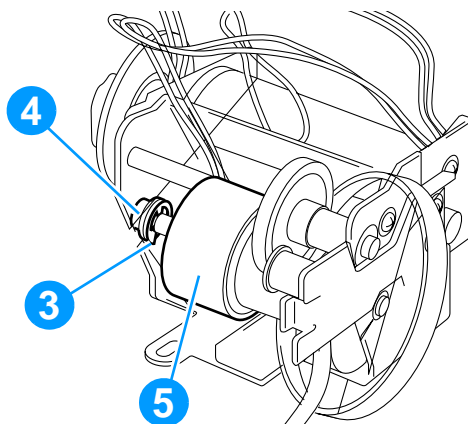


Figure 297.

E-ring and bushing

Note

When mounting the clutch unit, be sure that the slip stop (callout 6) of the clutch engages with the stopper (callout 7) of the mount.

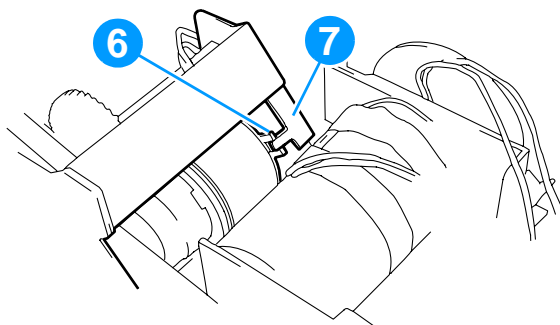


Figure 298. Clutch unit slip stop

Removing the delivery motor

- 1 Remove the body cover (see page 380).
- 2 Disconnect three connectors (callout 1).

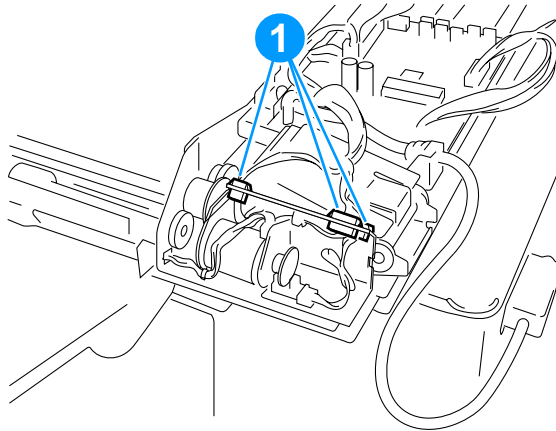


Figure 299. Delivery motor connectors

- 3 Remove two screws (callout 2), and free the cable (callout 3) from the cable retainer (callout 4).
- 4 Detach the delivery monitor unit (callout 5).

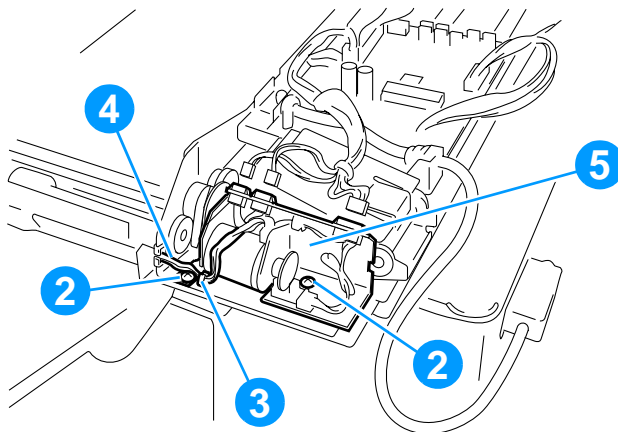


Figure 300. Delivery motor cable retainer

- 5 Disconnect the connector (callout 6), and remove two screws (callout 7).
- 6 Detach the delivery motor (callout 8).

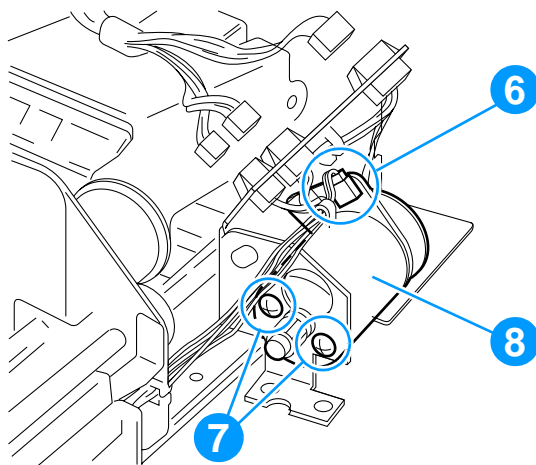


Figure 301. Detaching the delivery motor

Removing the pick-up roller

- 1 Remove the body cover (see page 380).
- 2 Remove two screws (callout 1), and detach the document tray mount (callout 2).

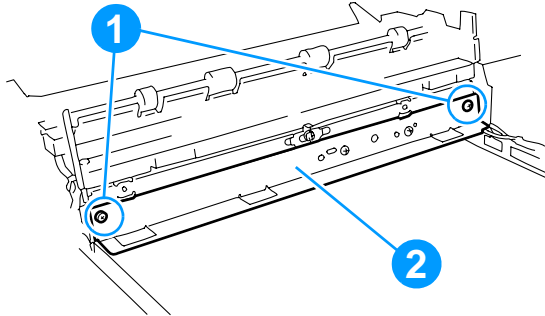


Figure 302. Document tray mount

- 3 Remove the screw (callout 3), and detach the paper-retaining solenoid (callout 4).

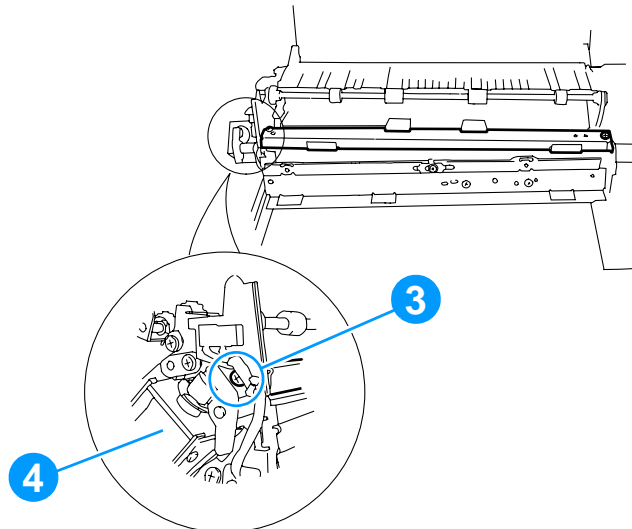


Figure 303. Paper-retaining solenoid

- 4 Remove two screws (callout 5), and detach the original inlet guide plate (callout 6).

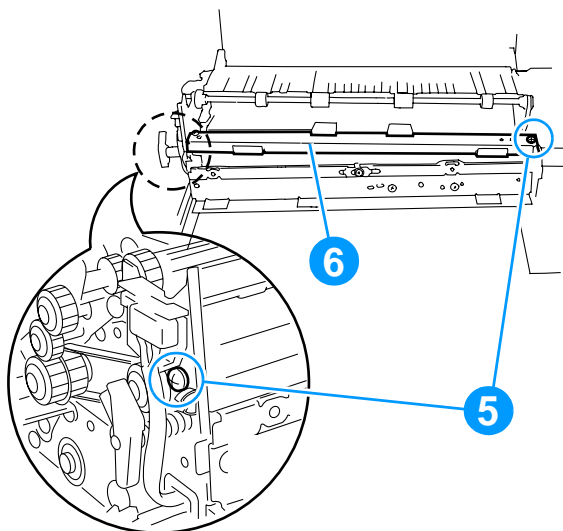


Figure 304. Inlet guide plate

- 5 Rotate the pick-up roller (callout 7) to the position shown in the figure.
- 6 Remove the screw (callout 8), and detach the pick-up roller.

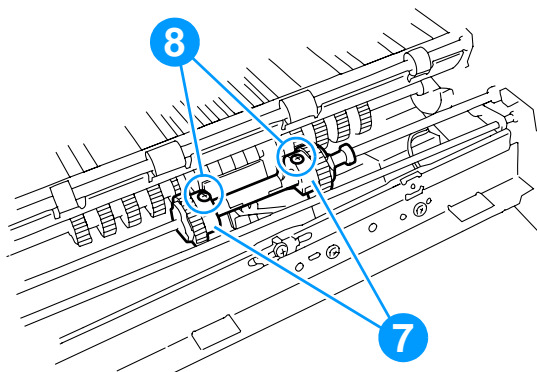


Figure 305. Pick-up roller

Removing the separation belt unit

- 1 Remove the body cover (see page 380).
- 2 Detach the reversing roller drive belt (callout 1).

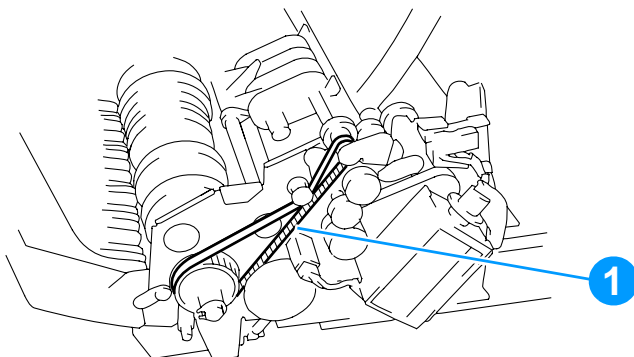


Figure 306. Reversing roller drive belt

- 3 Remove two screws (callout 2), and detach the separation belt unit (callout 3) together with the fixing plate (callout 4).

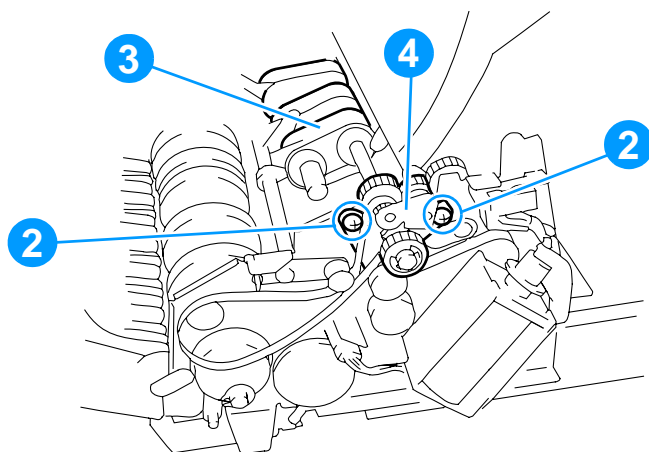


Figure 307. Separation belt unit

Removing the feeding roller unit

- 1 Remove the body cover (see page 380).
- 2 Remove the document tray mount (see page 396).
- 3 Remove the original inlet guide plate (see page 397).
- 4 Remove the separation belt unit (see page 398).
- 5 Remove four screws (callout 1), and detach the separation guide plate (callout 2).

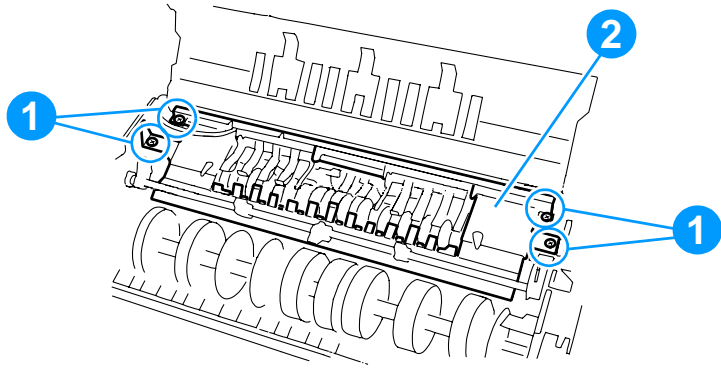


Figure 308. Separation guide plate

- 6 Remove two screws (callout 3), and detach the inside guide plate (callout 4).

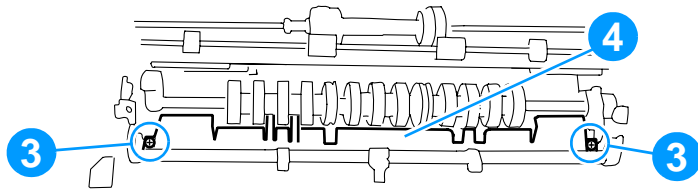


Figure 309. Inside guide plate

- 7 Remove the screw (callout 5), and detach the stopper (callout 6).

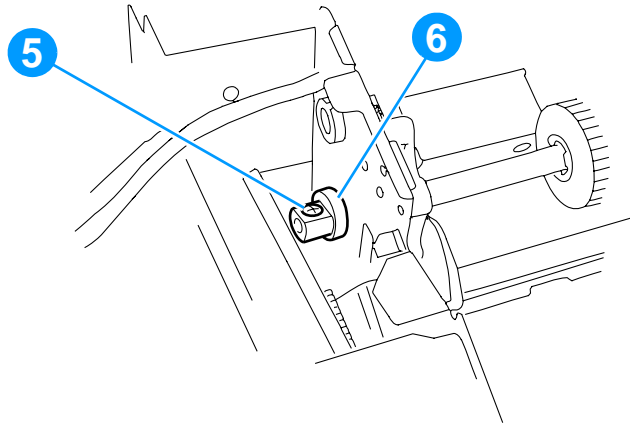


Figure 310. Roller unit stopper

- 8 Remove the E-ring (callout 7), and detach the idler gear (callout 8).
- 9 Remove the E-ring (callout 9), and detach the gear (callout 10) and the timing belt (callout 11). (Take care not to drop the pin.)

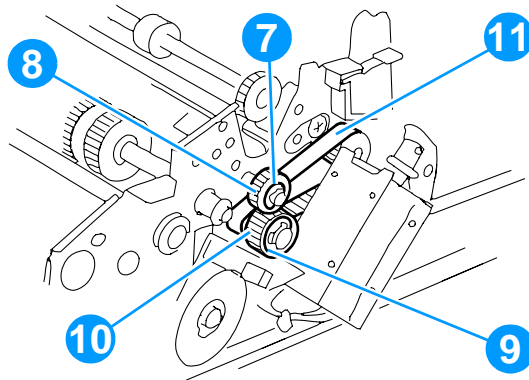


Figure 311. Roller unit E-ring, gear, and timing belt

- 10 Remove the E-ring (callout 12), and shift the arm (callout 13) and the gear (callout 14) in the direction of the arrow.

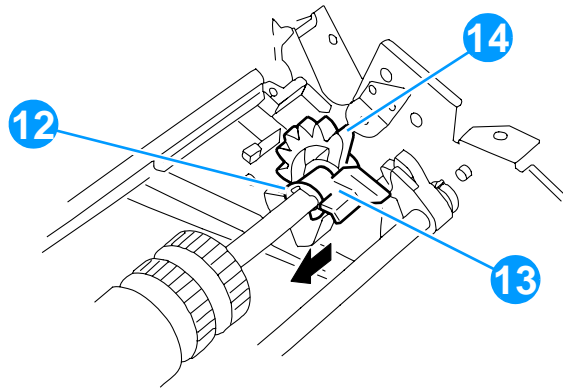


Figure 312. Removing the E-ring, arm, and gear

- 11 Remove the E-ring (callout 15), and shift the bushing (callout 16) in the direction of the arrow.
- 12 Remove the feeding roller unit (callout 17).

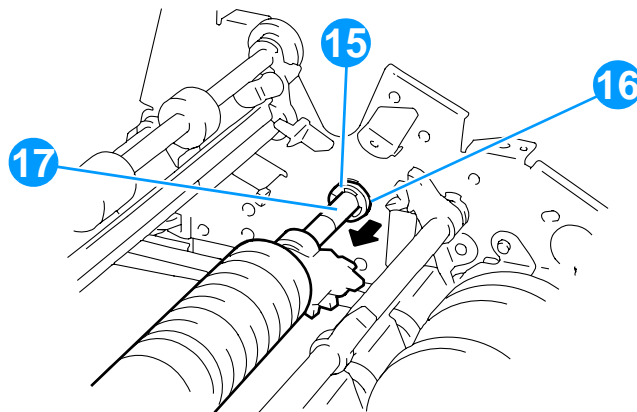


Figure 313. Removing the feeding roller unit

Removing the registration roller

- 1 Remove the ADF from the copier (see page 378).
- 2 Remove the body cover (see page 380).
- 3 Remove the feeding roller unit (see page 399).
- 4 Remove the pick-up motor unit (see page 385).
- 5 Remove four screws (callout 1), and detach the right hinge unit (callout 2).

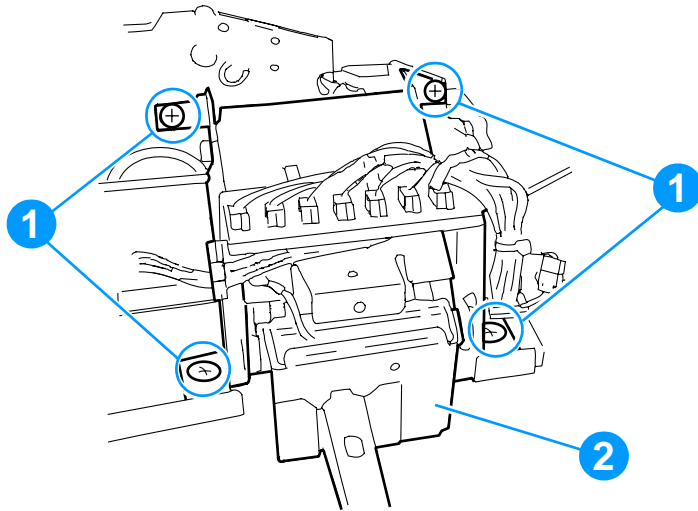


Figure 314. Right hinge unit

- 6 Remove the E-ring (callout 3), and detach the bushing (callout 4).

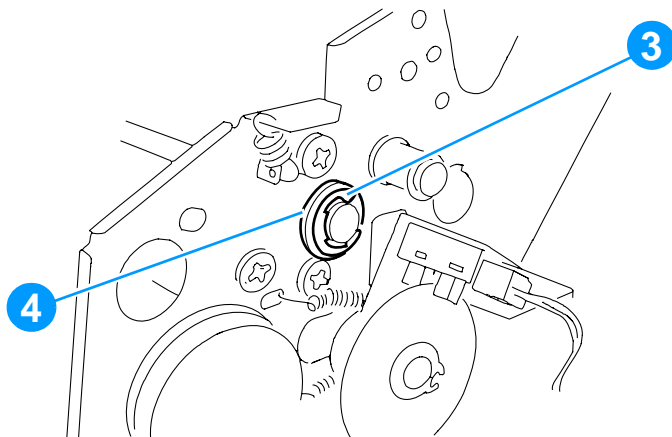


Figure 315. E-ring and bushing

- 7 Remove the screw (callout 5), and detach the solenoid mount (callout 6).

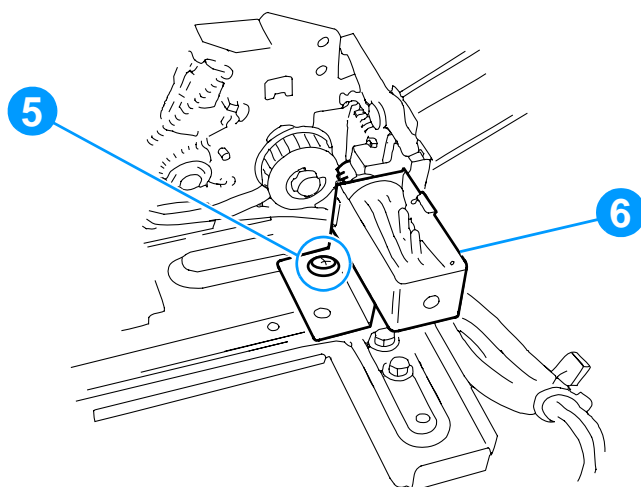


Figure 316. Solenoid mount

- 8 Remove the spring (callout 7) and the screw (callout 8).
- 9 Detach the arm (callout 9).

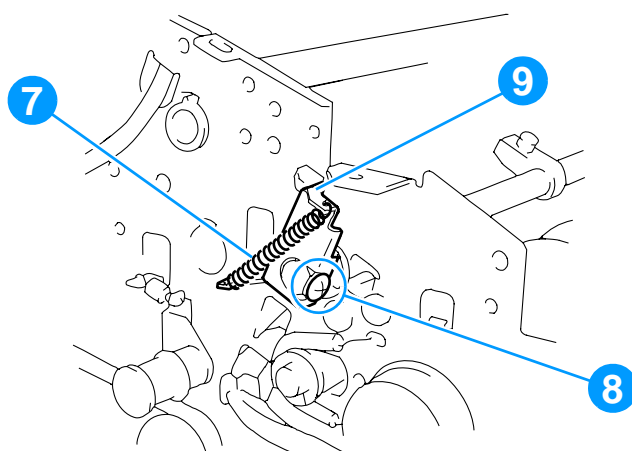


Figure 317. Detaching the spring, screw, and arm

10 Remove the E-ring (callout 10) and the bushing (callout 11).

11 Detach the link arm shaft (callout 12).

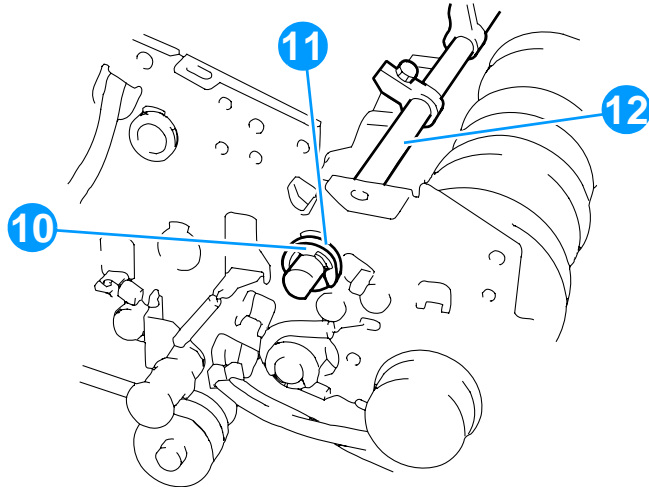


Figure 318. Link arm shaft

12 Remove two screws (callout 13), and remove the sensor mount (callout 14).

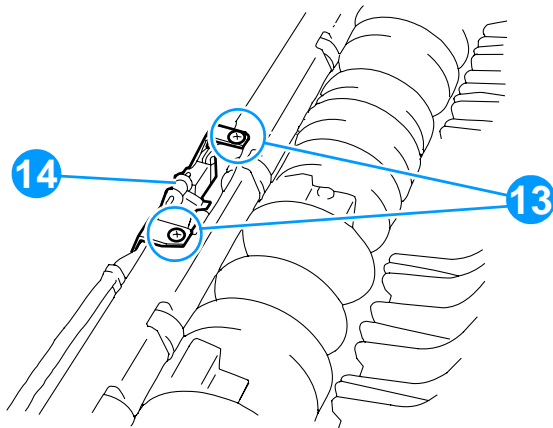


Figure 319. Sensor mount

- 13** Remove the E-ring (callout 15), tension spring (callout 16), bushing (callout 17), and two screws (callout 18).

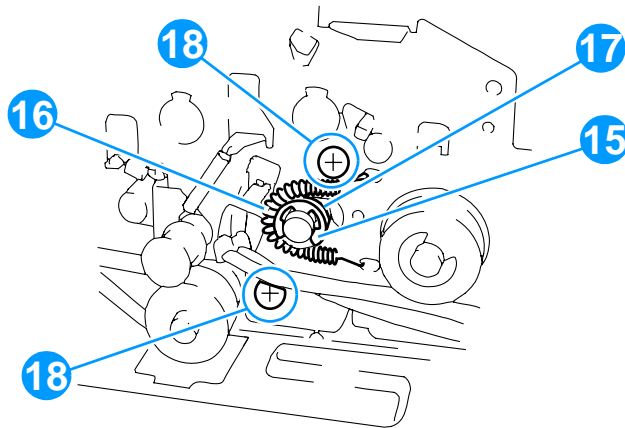


Figure 320. Tension spring

- 14** Remove the grip ring (callout 19), clock plate (callout 20), sensor mount (callout 21), and spring (callout 22).

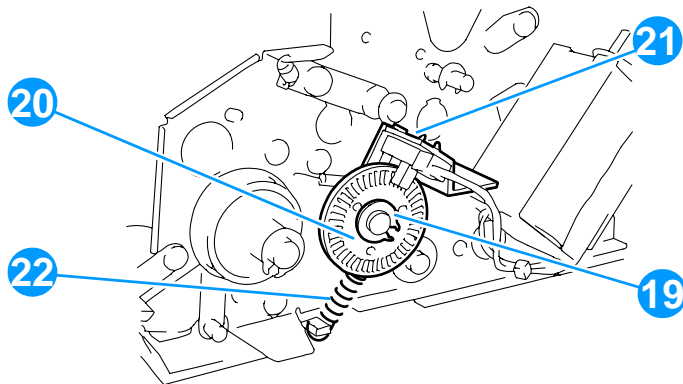


Figure 321. Grip ring, clock plate, sensor mount, and spring

- 15 Remove the grip ring (callout 23), tension spring (callout 24), bushing (callout 25), and two screws (callout 26).
- 16 Detach the registration roller (callout 27).

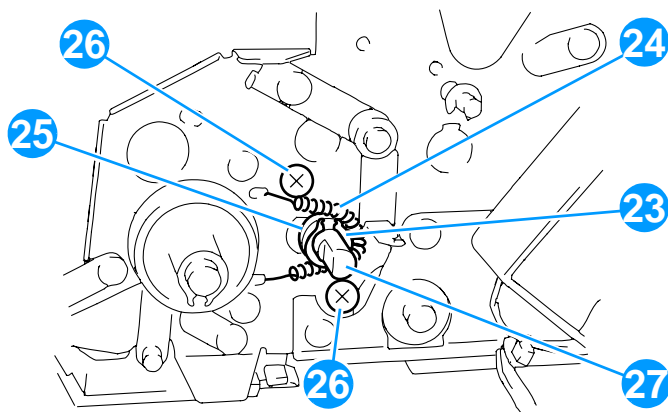


Figure 322. Registration roller

Removing the delivery/reversing roller

- 1 Remove the ADF from the copier (see page 378).
- 2 Remove the body cover (see page 380).
- 3 Remove the registration roller (see page 402).
- 4 Remove two E-rings (callout 1), gear (callout 2), timing belt (callout 3), and bushing (callout 4). (Take care not to drop the pin.)

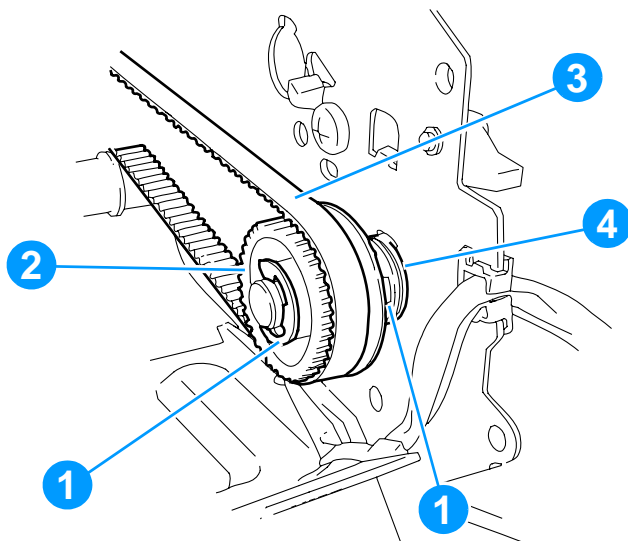


Figure 323. Timing belt

- 5 Remove the gear (callout 5). (Take care not to drop the pin.)

Note

Remove the gear while unlocking it.

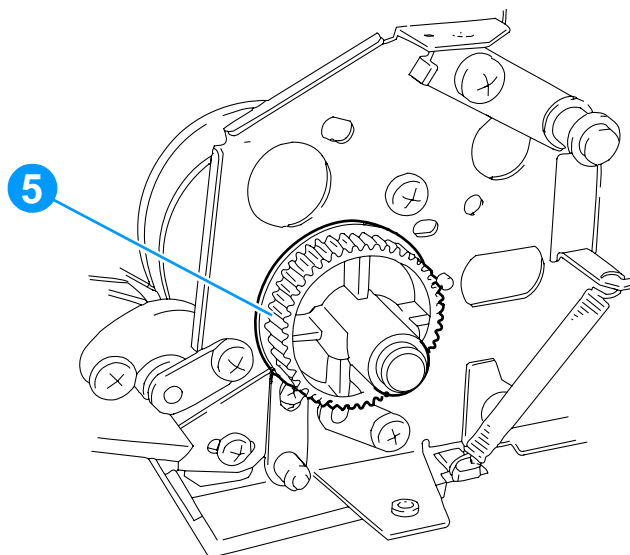


Figure 324. Gear

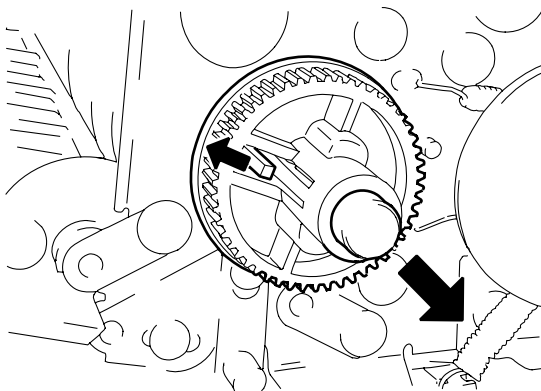


Figure 325. Unlocking and removing the gear

- 6 Remove the grip ring (callout 6), and remove the bushing (callout 7).

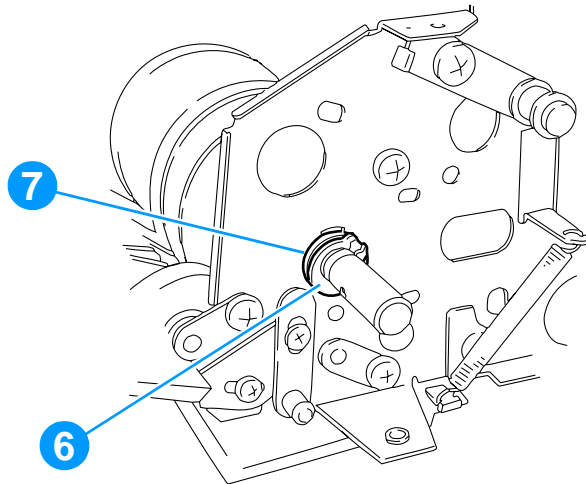


Figure 326. Grip ring and bushing

- 7 Remove the spring (callout 8) and the screw (callout 9).
- 8 Detach the lower guide stopper (callout 10).

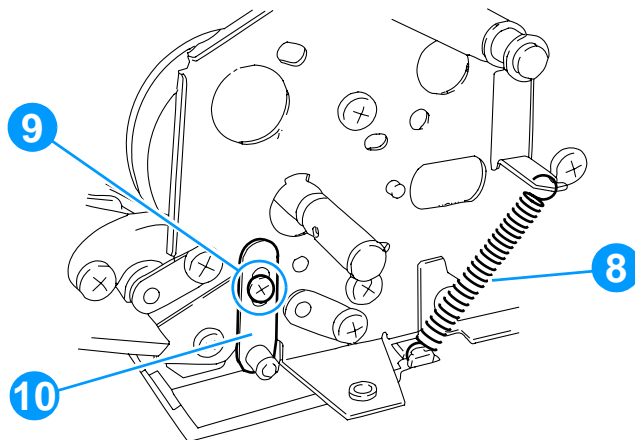


Figure 327. Detaching the lower guide stopper

- 9 Remove the spring (callout 11).

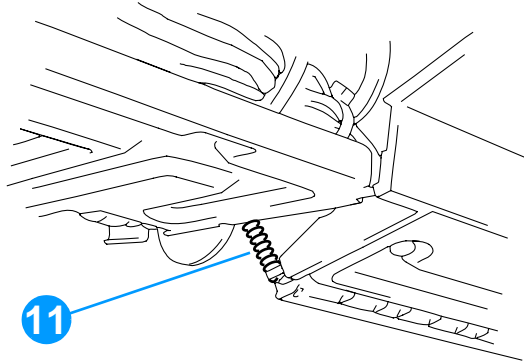


Figure 328. Removing the spring

- 10 Remove the screw (callout 12), and detach the sensor cover (callout 13).
- 11 Disconnect the sensor connector (callout 14), and remove the registration sensor (callout 15) by lifting it.

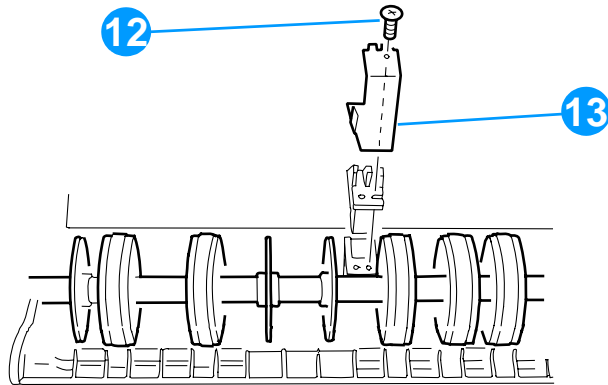


Figure 329. Registration sensor cover

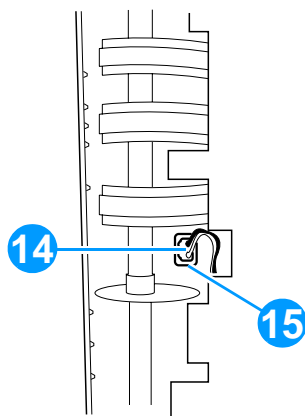


Figure 330. **Disconnecting the sensor connector**

12 Remove the paper guide (callout 16).

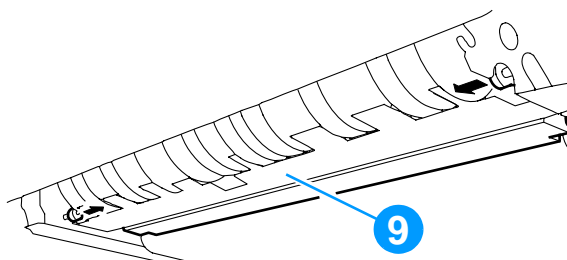


Figure 331. **Paper guide**

- 13 Remove two screws (callout 17) at the front and two screws (callout 18) at the rear.
- 14 Detach the reversing plate (callout 19) to the bottom.

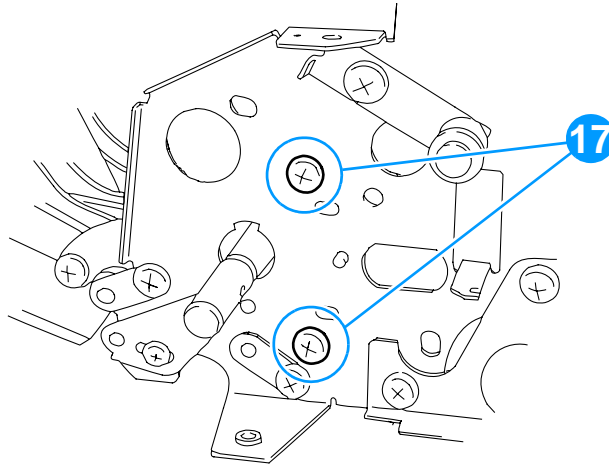


Figure 332. Reversing plate (front view)

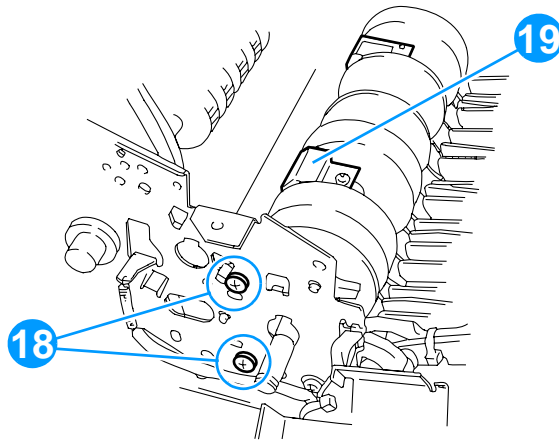


Figure 333. Detaching the reversing plate (rear view)

- 15 Remove four screws (callout 20), and remove the front plate (callout 21).

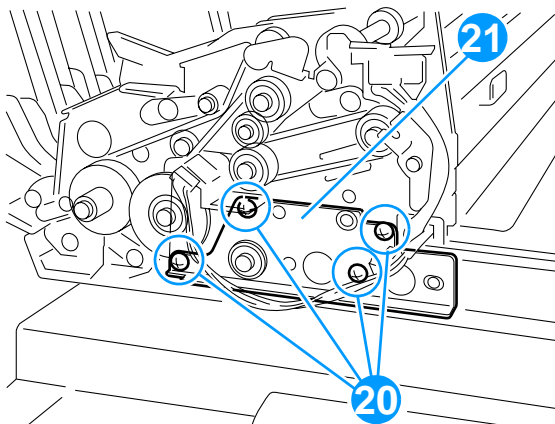


Figure 334. Front plate

- 16 Remove the delivery/reversing roller (callout 22).

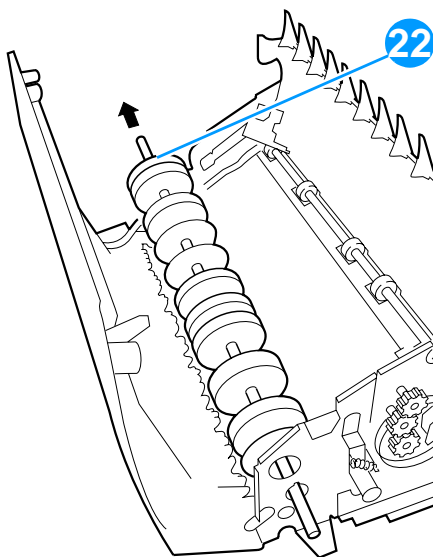


Figure 335. Delivery/reversing roller

Removing the delivery roller unit (bottom pick-up mode)

- 1 Remove the body cover (see page 380).
- 2 Remove the pick-up motor (see page 385).
- 3 Remove two screws (callout 1).

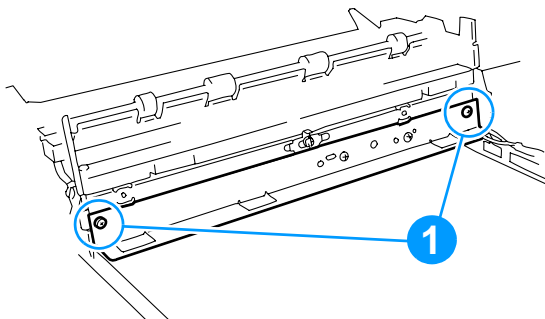


Figure 336. Body cover

- 4 Remove the E-ring (callout 2).

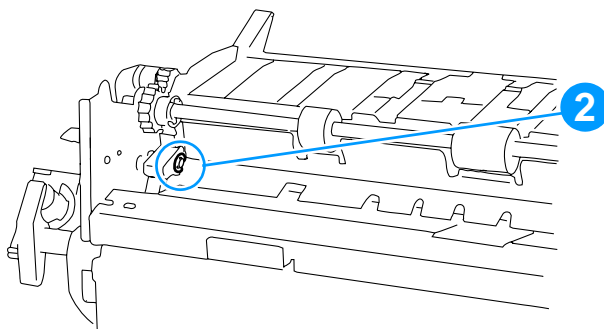


Figure 337. E-ring

- 5 Remove the screw (callout 3), and remove the fixing pin (callout 4).
- 6 Detach the delivery roller unit (callout 5).

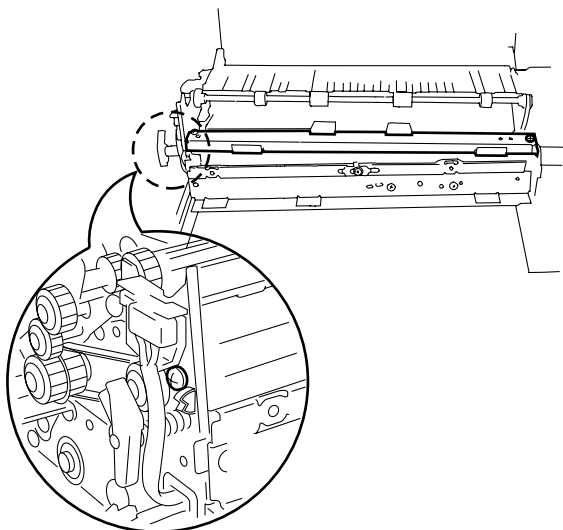


Figure 338. Delivery roller unit

Removing the delivery roller unit (top pick-up mode)

- 1 Remove the body cover (see page 380).
- 2 Remove the screw (callout 1).

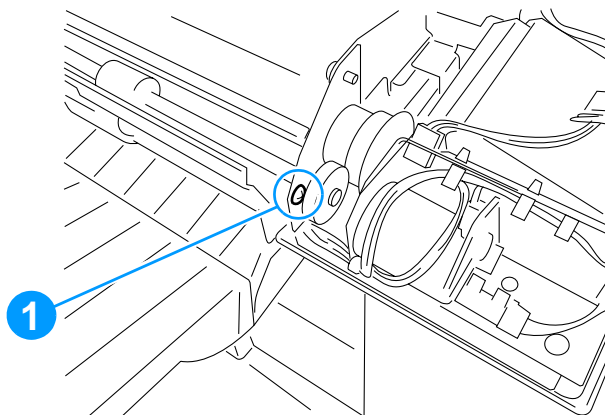


Figure 339. Removing the screw and spring

- 3 Disconnect the spring (callout 2) and the connector (callout 3).

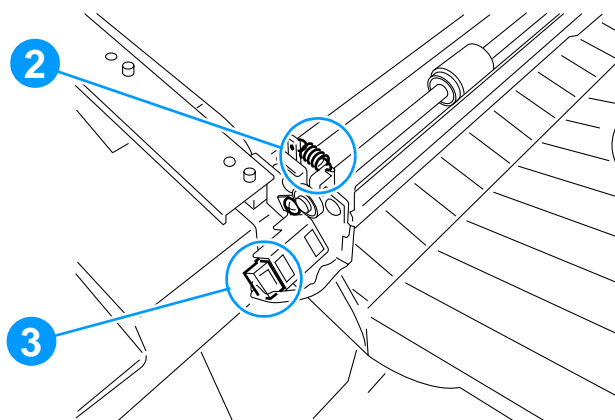


Figure 340. Disengaging the connector

- 4 Remove two screws (callout 4), and detach the timing belt (callout 5) and the motor unit (callout 6).

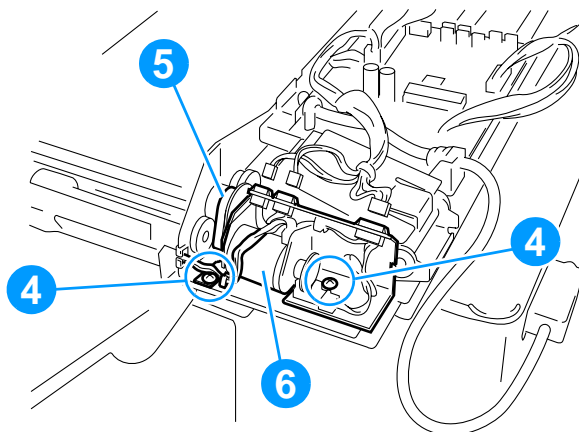


Figure 341. Detaching the timing belt and motor unit

- 5 Remove the screw (callout 7) at the front and three screws (callout 8) at the rear.
- 6 Detach the delivery roller unit (callout 9).

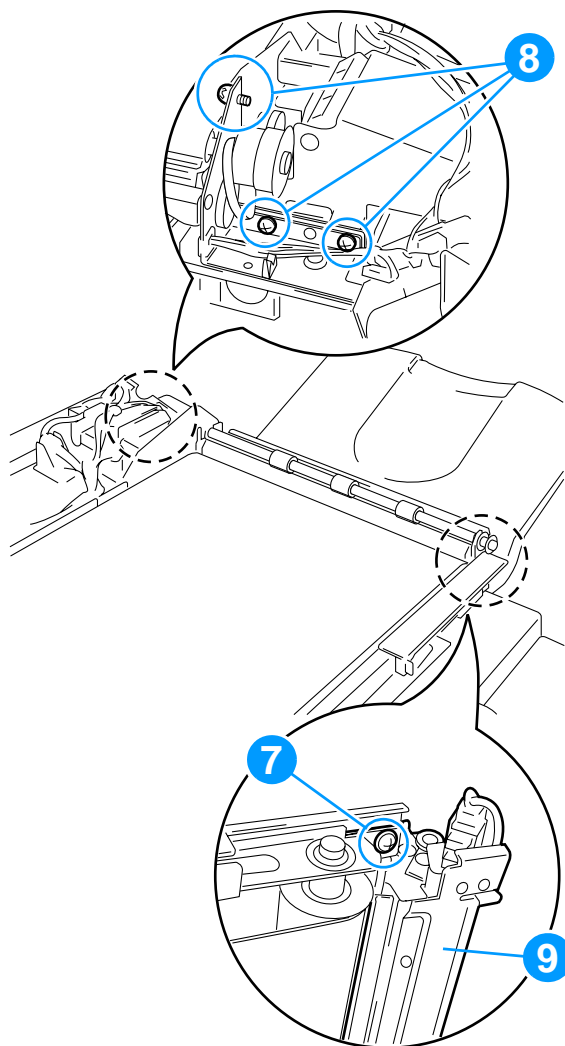


Figure 342. Detaching the delivery roller unit

Removing the reversing guide

- 1 Remove the body cover (see page 380).
- 2 Remove the gear (callout 1) and the timing belt (callout 2).

Note

Remove the gear while unlocking it.

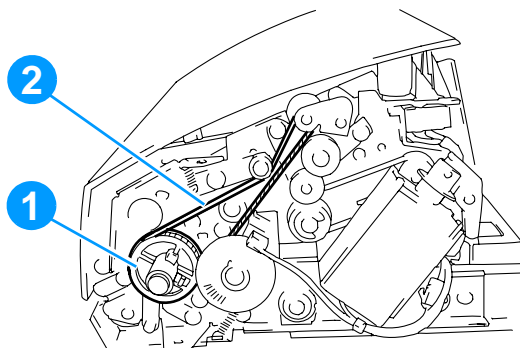


Figure 343. Gear and timing belt

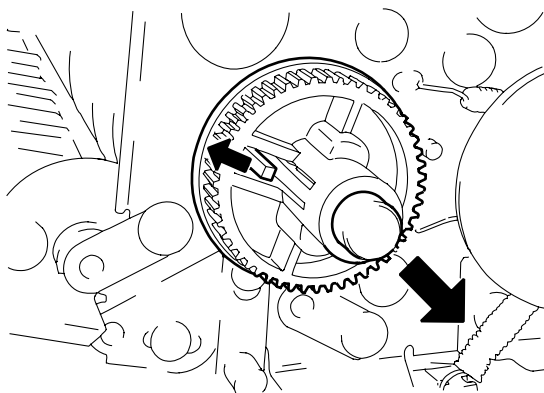


Figure 344. Unlocking and removing the gear

- 3 Disengage the reversing guide springs from the front side (callout 3) and the rear side (callout 4).

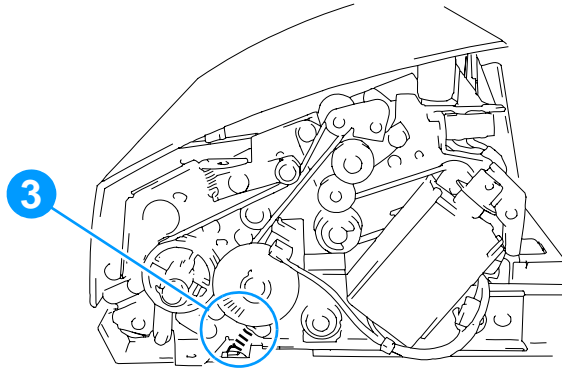


Figure 345. Reversing guide spring, front

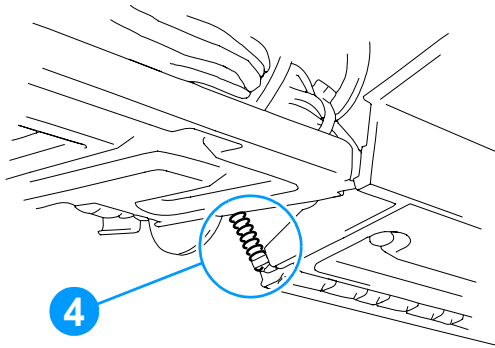


Figure 346. Reversing guide spring, rear

- 4 Remove the screw (callout 5), and detach the solenoid unit (callout 6).

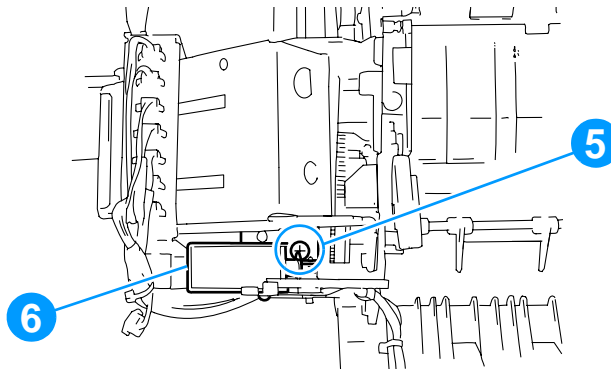


Figure 347. Detaching the solenoid unit

- 5 Remove the reversing sensor jack (callout 7), and the grounding cord (callout 8).

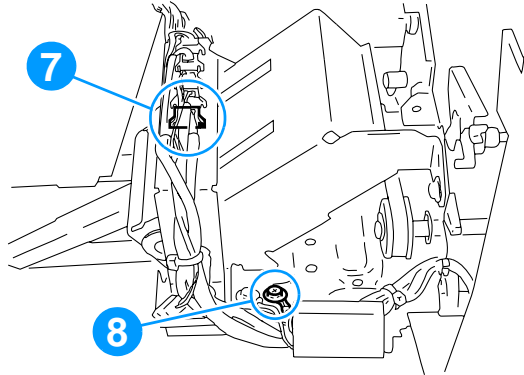


Figure 348. Reversing the sensor jack and grounding cord

- 6 Remove two screws (callout 9), the spacer (callout 10), and the fixing pin (callout 11).
- 7 Detach the reversing guide (callout 12).

Note

When mounting the fixing pin, be sure to return it to original position.

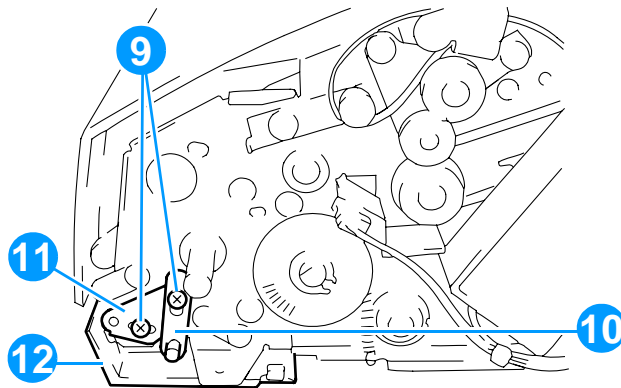


Figure 349. Detaching the reversing guide

Removing the stopper plate solenoid

- 1 Remove the body cover (see page 380).
- 2 Remove two screws (callout 1), and remove the document tray mounting plate (callout 2).

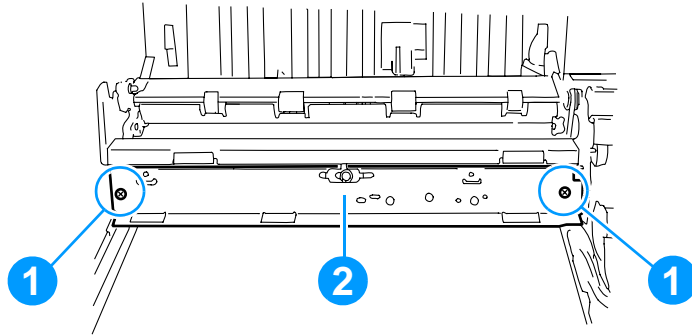


Figure 350. Document tray mounting plate

- 3 Remove two screws (callout 3), and disconnect the connector (callout 4).
- 4 Remove the stopper plate solenoid (callout 5).

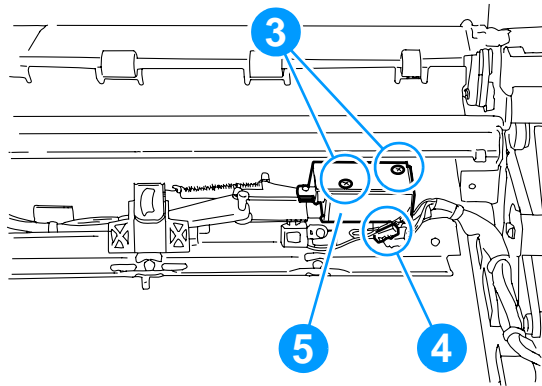


Figure 351. Stopper plate solenoid

To make adjustments

Secure the solenoid (callout 1) in place where the rubber block stopper (callout 2) butts against the rear edge of the stopper plate (callout 3) when the plunger of the solenoid (callout 1) is at the end of its stroke.

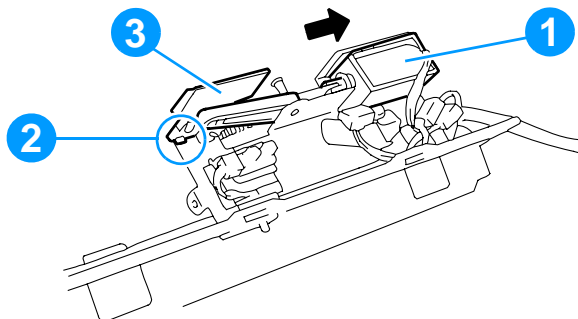


Figure 352. Solenoid positioning

Positioning the paper-retaining plate solenoid (SL2)

- 1 Prepare test strips. Cut a sheet of A4- or letter-size paper (64 g/m²) into thirds, to widths of about 70 mm each.

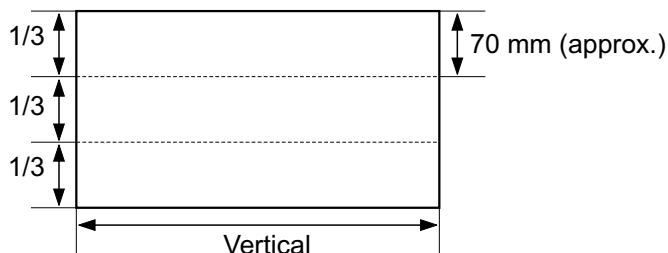


Figure 353.

Test strips

- 2 Remove the front cover and the body cover (see page 380).
- 3 Shift bits 5 and 6 of the DIP switch (DSW1) on the DADF controller to ON, and press switch SW3 one time. The pick-up roller rotates and stops at the top pick-up mode pick-up position.
- 4 When the pick-up roller has stopped, press switch SW3 on the DADF controller again one time. The motor stops.
- 5 Secure the paper-retaining solenoid in place so that the delivery roller (callout 1) (the pick-up roller for top pick-up mode) is in firm contact with the pick-up roller (callout 2) when the plunger (callout 3) of the paper-retaining solenoid is pushed in fully.

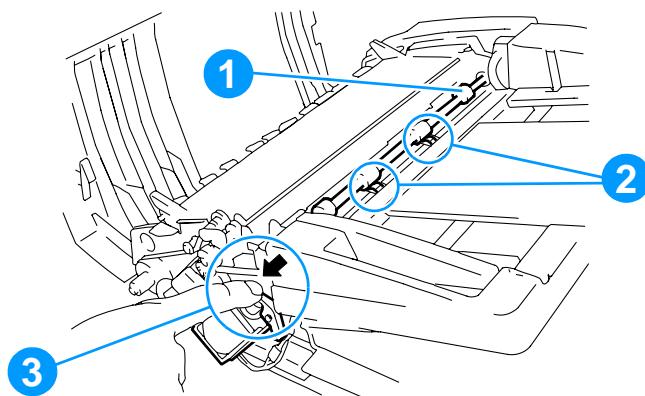


Figure 354.

Delivery roller and pick-up roll

- 6 Push the test strip prepared in step 1 in between the delivery roller and the pick-up roller while pushing the plunger of the paper-retaining solenoid. Check to make sure the delivery roller rotates as the rear and front pick-up rollers are tested.

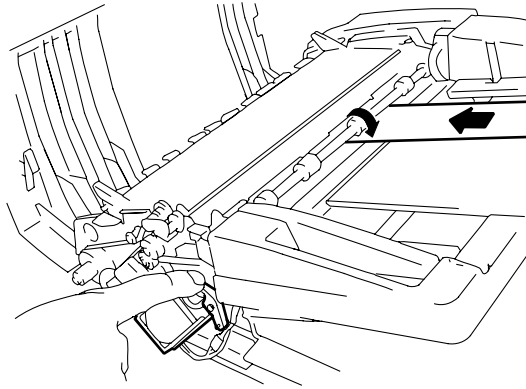


Figure 355. Inserting the test strip

Note

When pulling the test strip, the one-way clutch prevents the delivery roller from rotating.

- 7 If the delivery roller does not rotate when a test strip is pushed in, go back to step 3.
- 8 Shift the bits of the DIP switch (DSW1) on the ADF controller PCB back to their initial configuration.

Positioning the paper-deflecting solenoid (SL3)

- 1 Remove the body cover (see page 380).
- 2 Loosen the fixing screw (callout 1), and tighten it when the stroke of the solenoid (callout 2) is 4.5 mm.

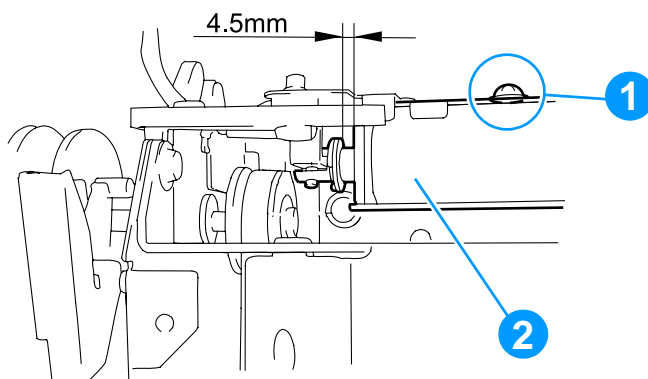


Figure 356. Paper-deflecting solenoid

Removing the stamp solenoid

- 1 Remove the delivery roller unit (top pick-up mode) (see page 416).
- 2 Remove the screw (callout 1) and spring (callout 2).
- 3 Detach the flapper plate (callout 3).

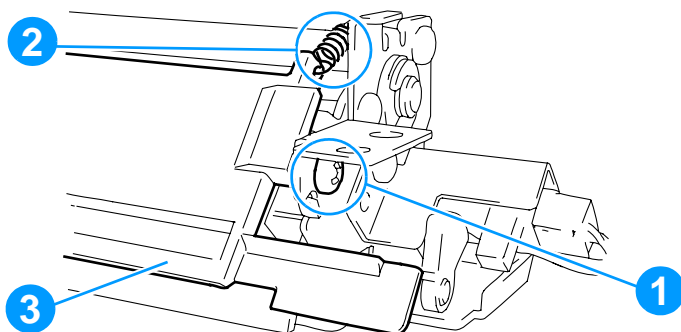


Figure 357.

Flapper plate

- 4 Remove the E-ring (callout 4) and the bushing (callout 5).

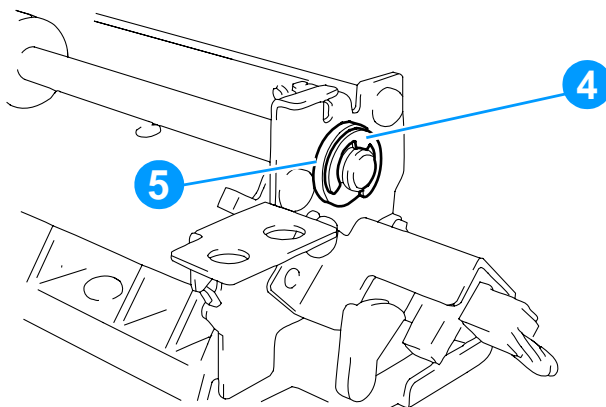


Figure 358.

E-ring and bushing

- 5 Remove two E-rings (callout 6), the gear (callout 7), and the bushing (callout 8).
- 6 Detach the delivery roller (callout 9).

Note

Take care not to drop the pin.

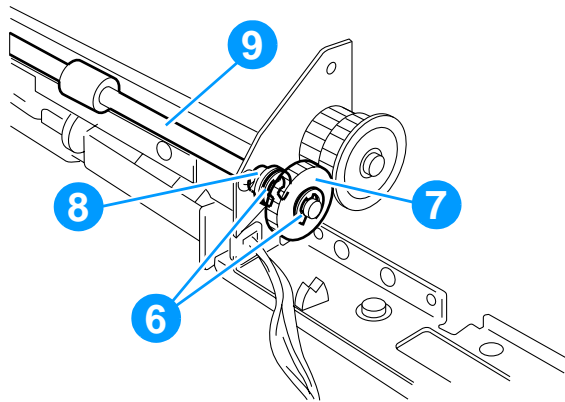


Figure 359. Delivery roller

- 7 Remove two screws (callout 10) at the front and two screws (callout 11) at the rear.
- 8 Remove the paper-guide plate (callout 12).

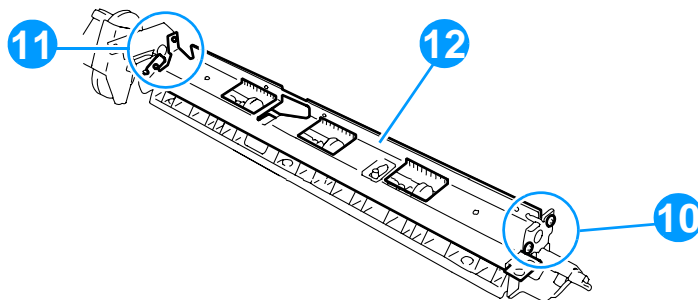


Figure 360. Paper-guide plate

- 9 Remove the sensor flag (callout 13), and disconnect the connector (callout 14).

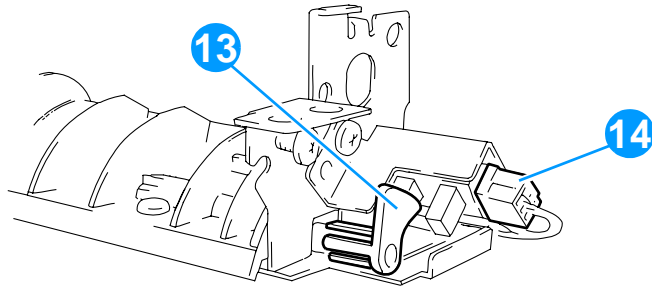


Figure 361. Sensor flag and connector

- 10 Remove three screws (callout 15), and detach the delivery roller mount (callout 16).

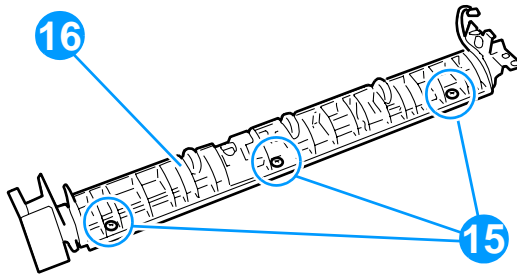


Figure 362. Delivery roller mount

- 11 Remove the delivery roller (callout 17), and detach the stamp solenoid mount (callout 18).

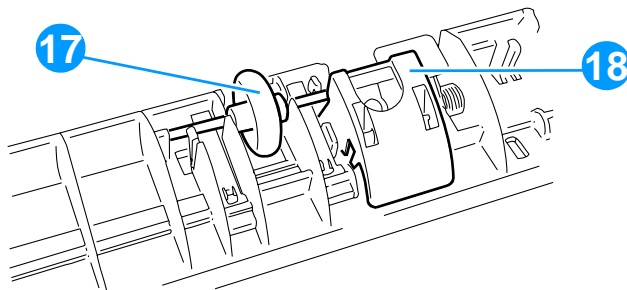


Figure 363. Delivery roller and stamp solenoid mount

- 12 Disengage two claws (callout 19) of the stamp solenoid mount (callout 18).
- 13 Detach the stamp solenoid (callout 20).

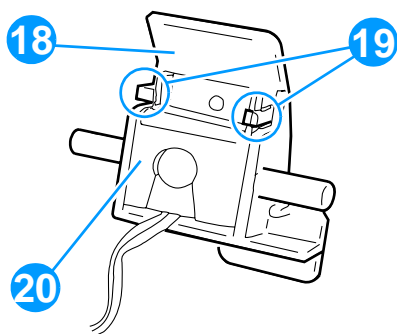


Figure 364. Stamp solenoid

Removing the feeding belt

- 1 Remove the body cover (see page 380).
- 2 Remove the spring (callout 1) at the front.

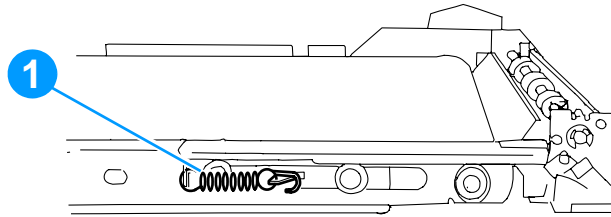


Figure 365.

Spring

- 3 Note that the rear spring has a retaining hook for temporary storage of the spring. Free the spring (callout 2) from the hook (callout 3) at the rear, and engage it on the retaining hook (callout 4).

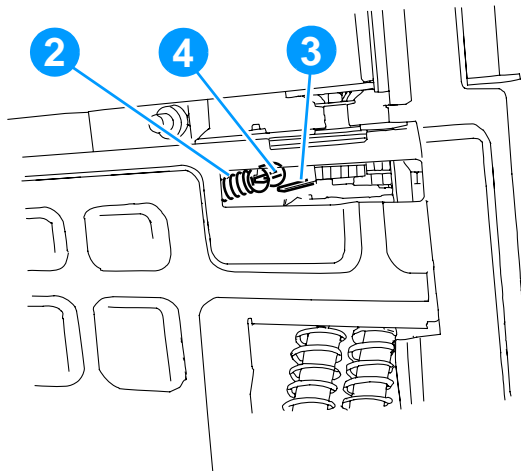


Figure 366.

Placing the spring in the temporary position on the retaining hook

- 4 Remove the screw (callout 5), and detach the solenoid and cable (callout 6).

Note

Take care not to drop the pin in the solenoid arm.

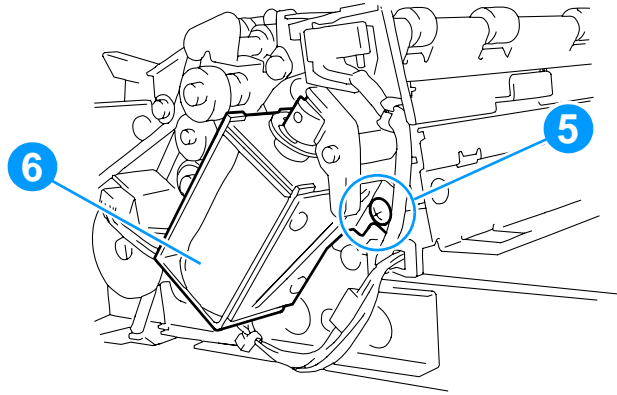


Figure 367. Detaching the solenoid

- 5 Remove four screws (callout 7), and detach the side plate (callout 8).

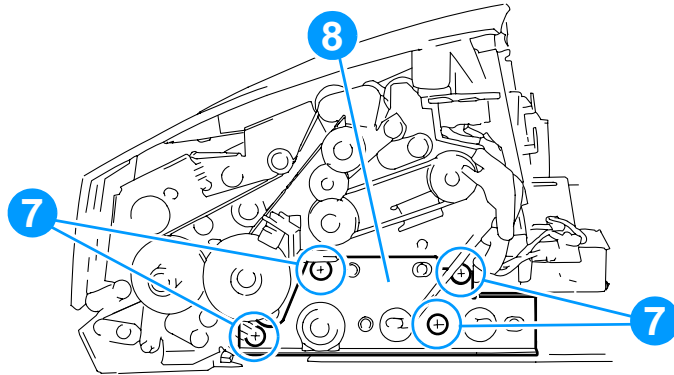


Figure 368. Detaching the side plate

- 6 Remove three screws (callout 9), and detach the delivery unit linking plate (callout 10).

Note

Figure 369 below shows the linking plate from the bottom of the plate.

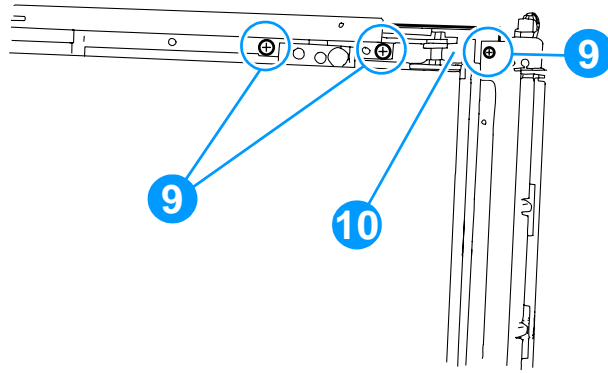


Figure 369. Delivery unit linking plate

- 7 Pull off the feeding belt (callout 11) to the front.

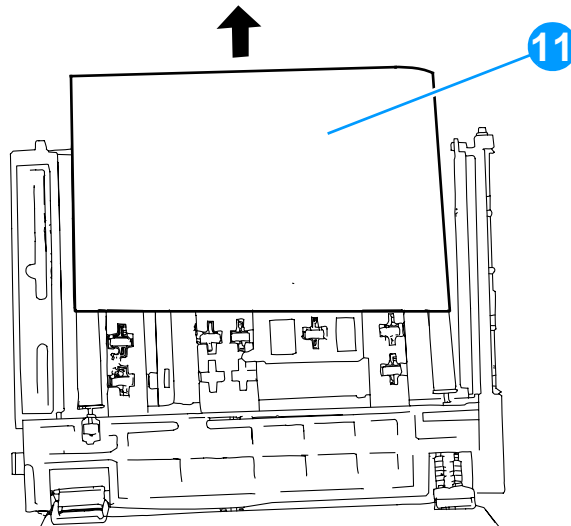


Figure 370. Removing the feeding belt

Note

When replacing the belt, take care not to rub or catch the belt on protruding sheet-metal parts. This can damage the belt.

Identifying the external covers

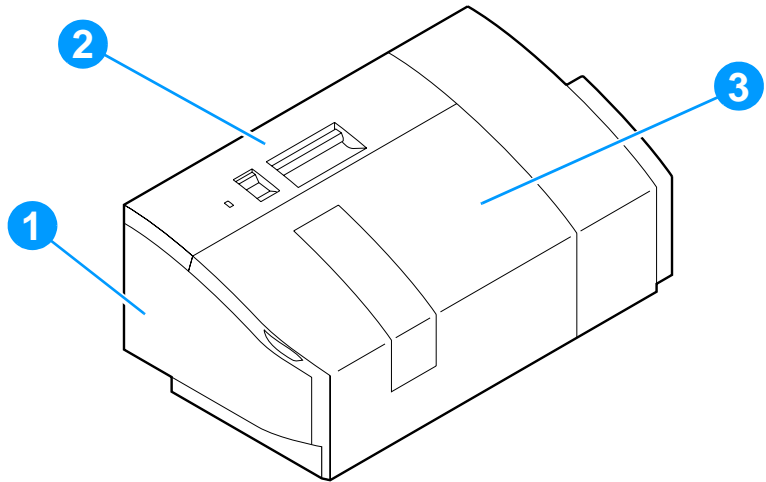


Figure 371. External covers

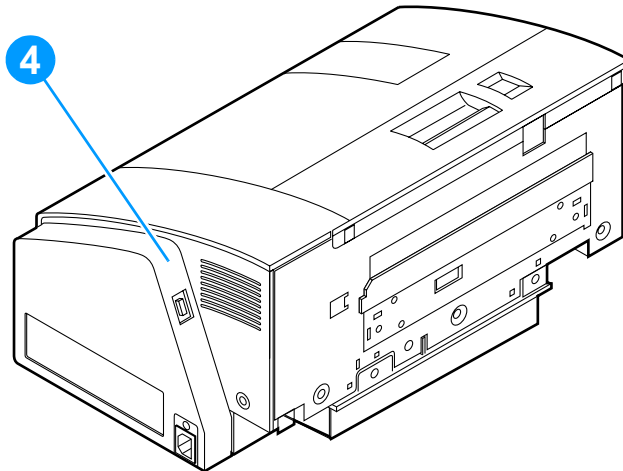


Figure 372. Rear cover

- 1 Front cover
- 2 Upper left cover
- 3 Upper right cover
- 4 Rear cover

Removing the upper left cover

Remove two screws (callout 1) and the upper left cover (callout 2).

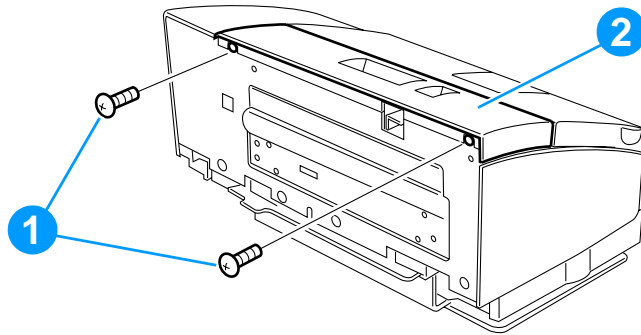


Figure 373. Upper left cover and screws

Removing the front cover

- 1 Remove the upper left cover (see above) and open the upper right cover.
- 2 Remove two screws (callout 1) and the front cover (callout 2).

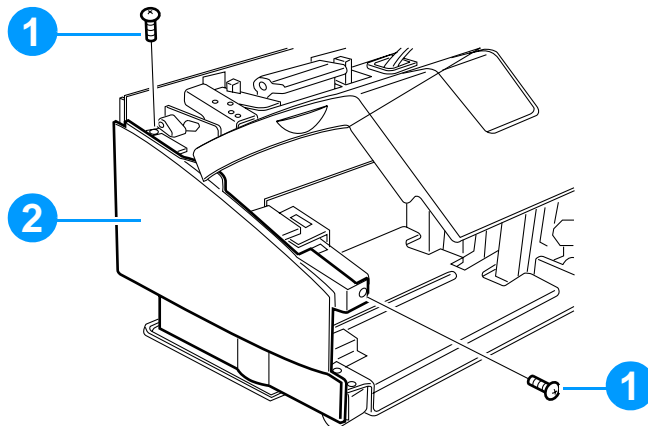


Figure 374. Front cover and screws

Removing the rear cover

- 1 Remove the upper left cover and open the upper right cover.
- 2 Remove three screws (callout 1) and the rear cover (callout 2).

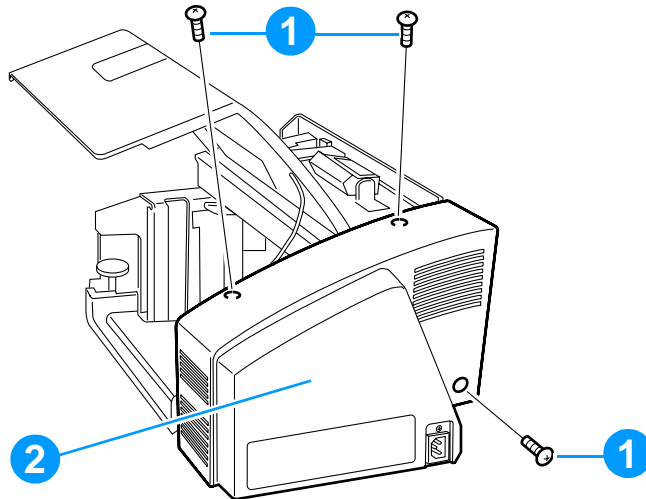


Figure 375. Rear cover and screws

Removing the upper right cover

- 1 Remove the upper left cover.
- 2 Remove two screws (callout 1) and the upper right cover (callout 2).

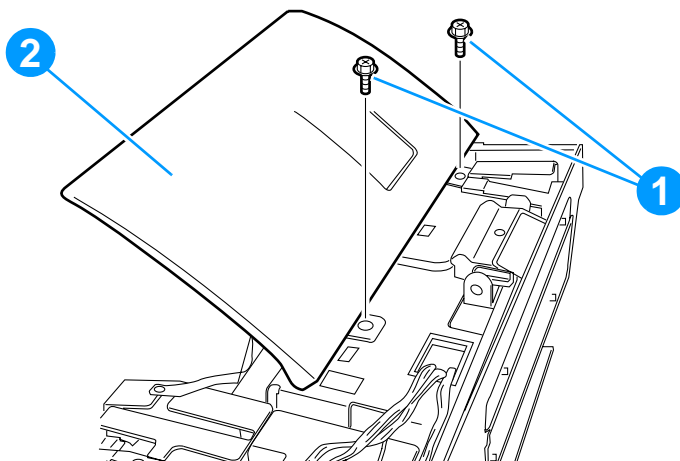


Figure 376. Upper right cover and screws

Removing the pick-up unit

- 1 Remove the upper right cover (see page 436).
- 2 Remove the front cover (see page 435).
- 3 Remove two screws (callout 1) and the paper-size limit panel (callout 2).

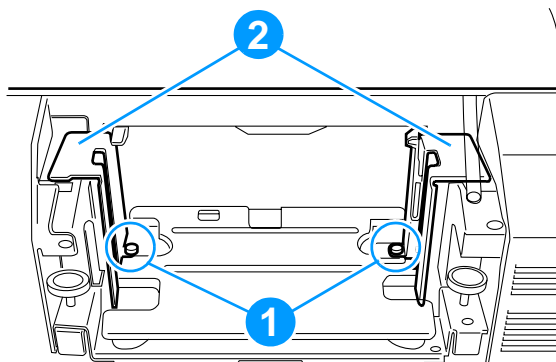


Figure 377. Paper-size limit panel

- 4 Remove two screws (callout 3), the fixing plate (callout 4), and the paper-size limit panel (callout 5).

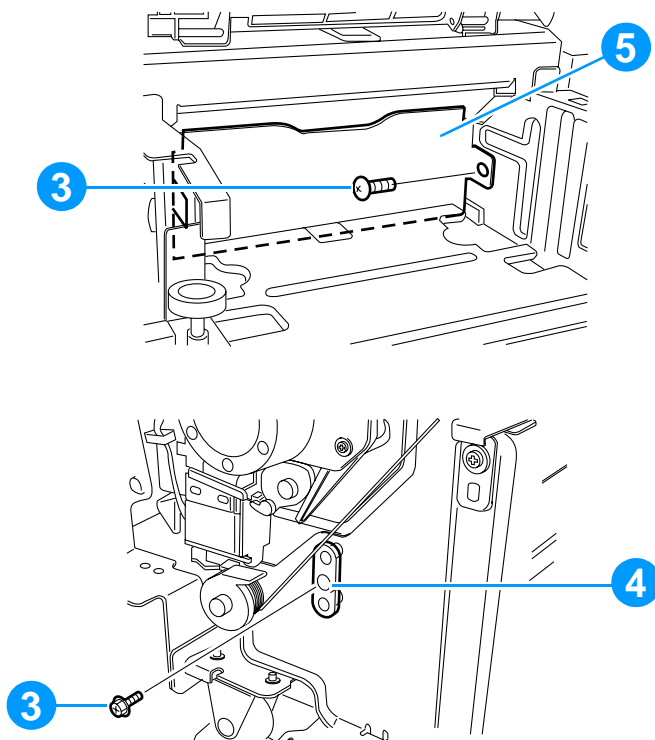


Figure 378. Fixing plate and limit panel

- 5 Remove four connectors (callout 6) to release the cable clamp (callout 7).

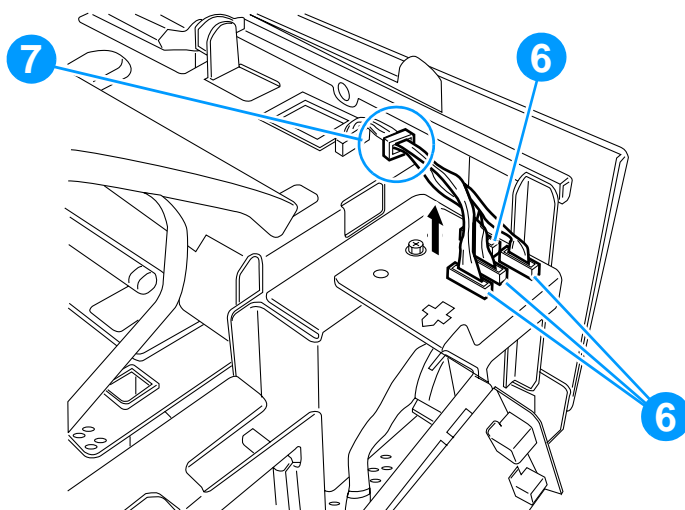


Figure 379. Connectors and cable clamps

- 6 Remove two screws (callout 8) and pull the pick-up unit (callout 9) toward you to remove it.

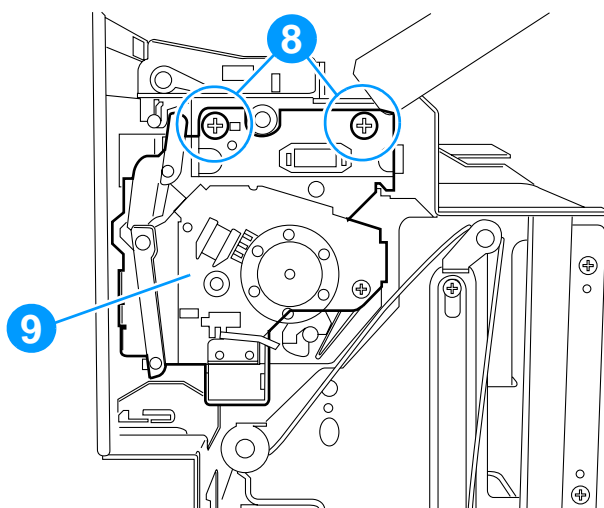


Figure 380. Pick-up unit

Removing the pick-up roller

- 1 Open the upper right cover (see page 436).
- 2 Release the claw (callout 1) and remove the pick-up roller (callout 2) from the shaft.

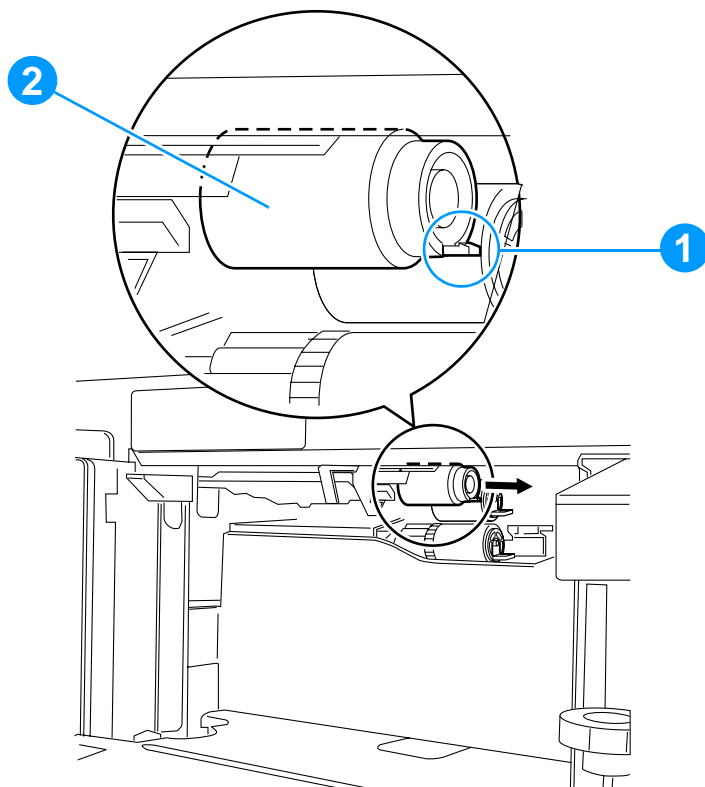


Figure 381. Pick-up roller

Removing the feed roller and separation roller

- 1 Remove the upper right cover (see page 436).
- 2 Rotate the knobs (callout 1) to remove the feed roller (callout 2) and the separation roller (callout 3).

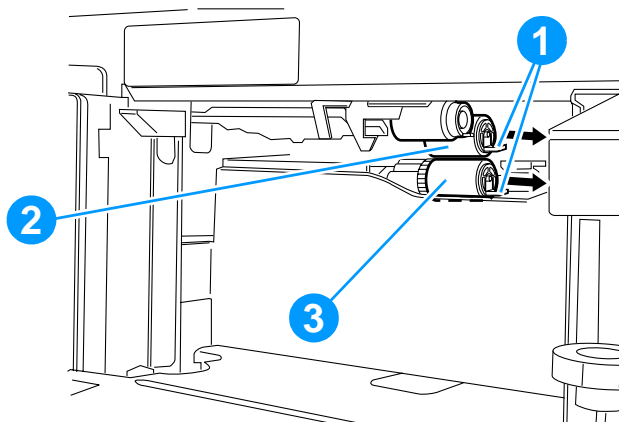


Figure 382. Feed roller and separation roller

Removing the lifter wire

To remove parts in front of the lifter wire

- 1 Remove the upper left cover and the front cover (see page 435).
- 2 Remove the screw (callout 1) and the bracket (callout 2).

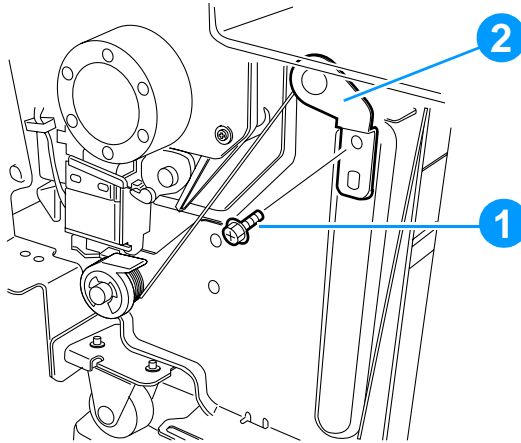


Figure 383. Preparing to remove the lifter wire

- 3 Remove the E-ring (callout 3) and the pulley cover (callout 4).

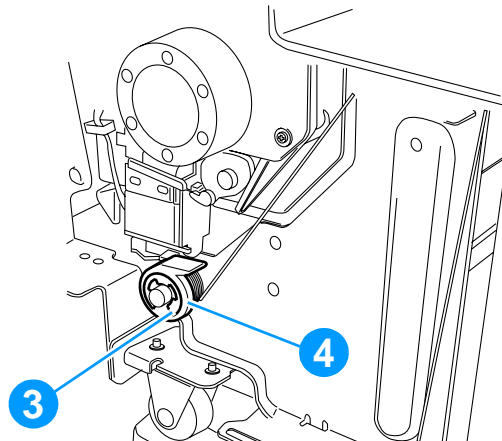


Figure 384. E-ring and pulley cover

- 4 Remove the pulley cover (callout 5).

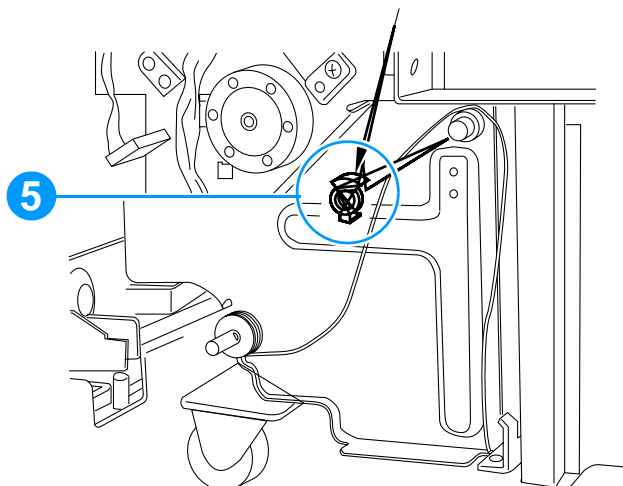


Figure 385. Pulley cover

- 5 Remove the screw (callout 6) and the lifter wire (callout 7).

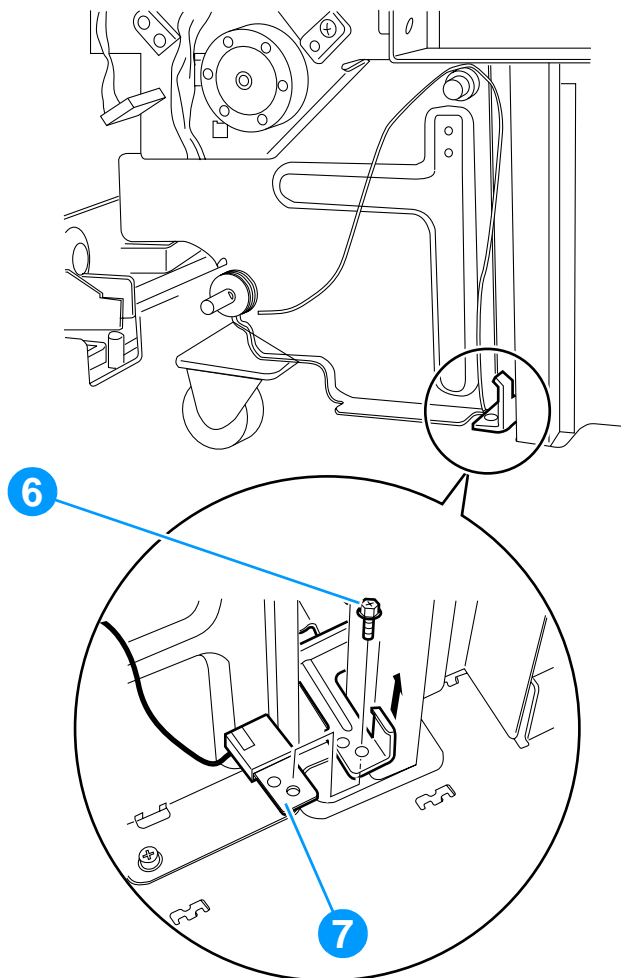


Figure 386. Screw and lifter wire

To remove parts behind the lifter wire

- 1 Remove the upper left cover (see page 435).
- 2 Remove the rear cover (see page 436).
- 3 Remove the deck controller PCB (see page 453).
- 4 Remove the power supply PCB (see page 454).
- 5 Remove three screws (callout 1) and the power supply mount (callout 2).

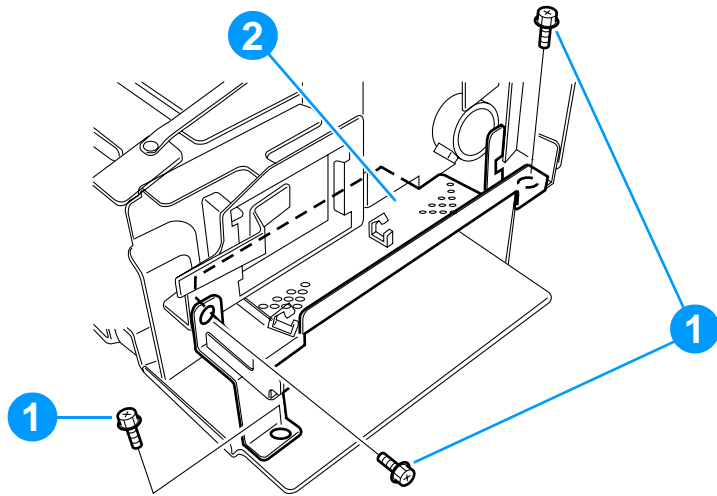


Figure 387. Parts removal behind the lifter wire

- 6 Remove four connectors (callout 3).

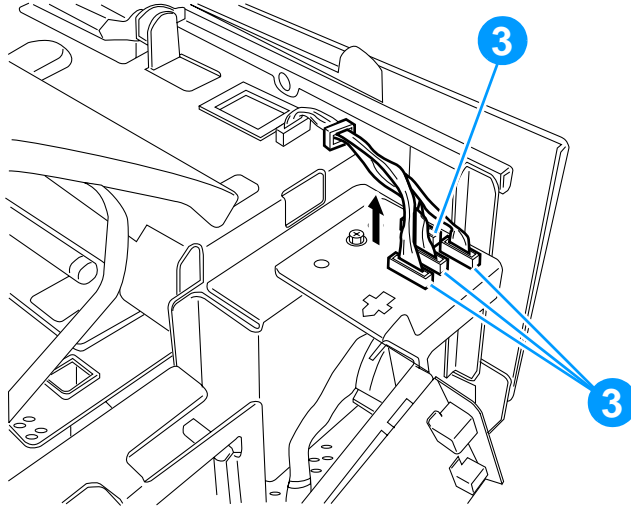


Figure 388. Connectors

- 7 Remove three screws (callout 4) and the remaining paper-detection unit (callout 5).

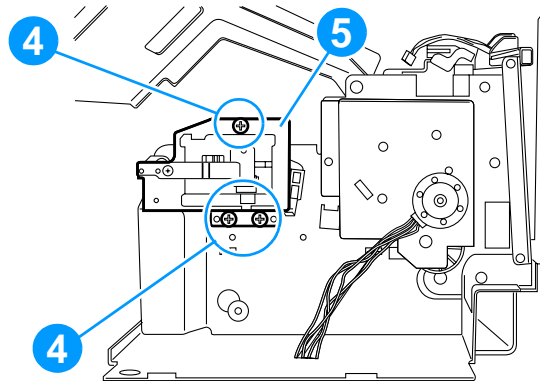


Figure 389. Paper-detection unit

- 8 Remove two screws (callout 6) and the lifter drive unit (callout 7).

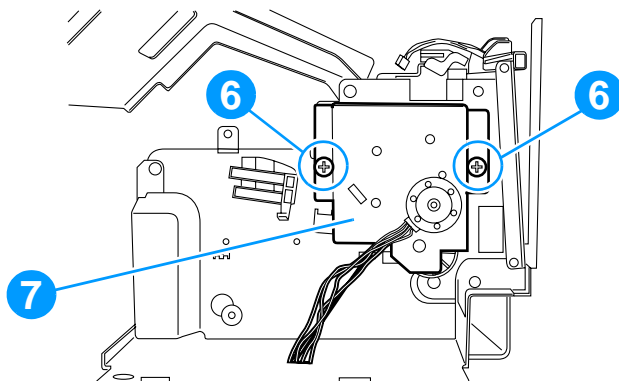


Figure 390. Lifter drive unit

- 9 Remove three screws (callout 8) and the rear panel (callout 9).

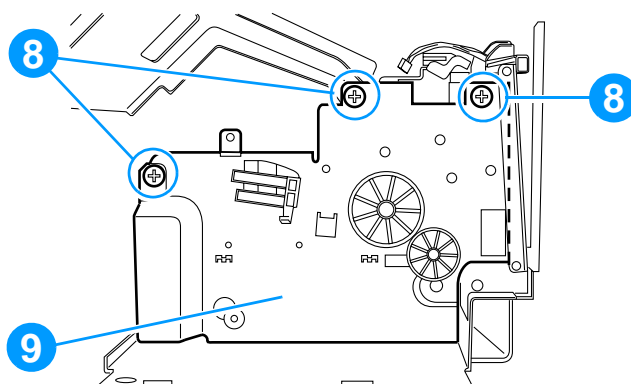


Figure 391. Rear panel

10 Remove the E-ring (callout 10) and the gear (callout 11).

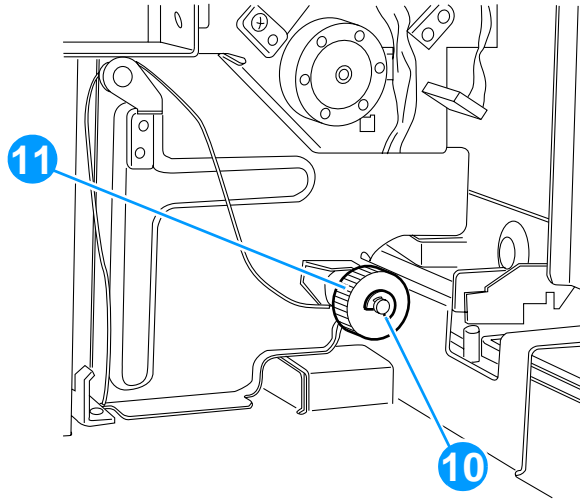


Figure 392. E-ring and gear

11 Remove the E-ring (callout 12) and the pulley cover (callout 13).

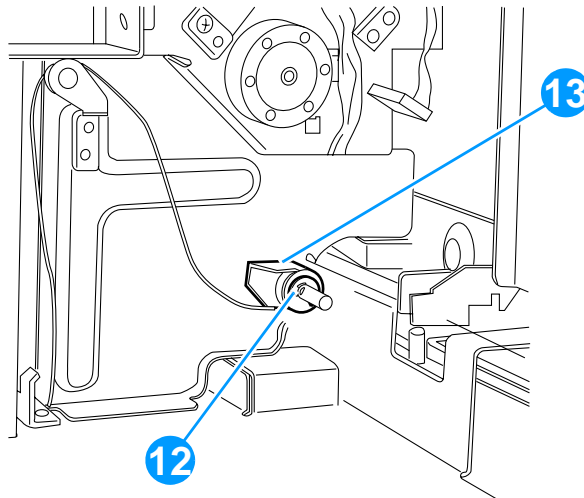


Figure 393. E-ring and pulley cover

12 Remove the screw (callout 14) and the bracket (callout 15).

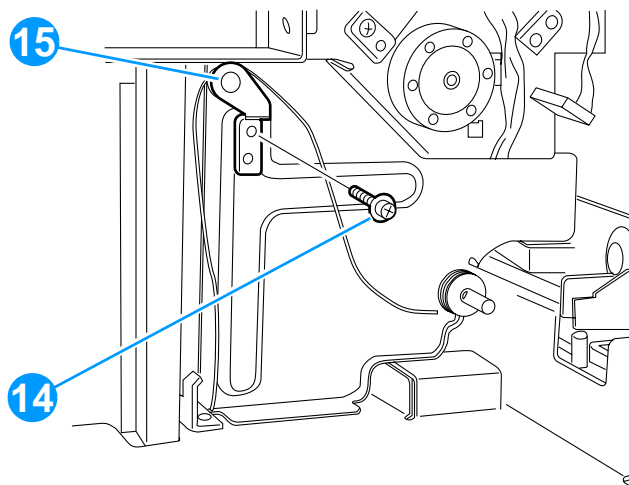


Figure 394. **Bracket removal**

13 Remove the screw (callout 16) and the lifter wire (callout 17).

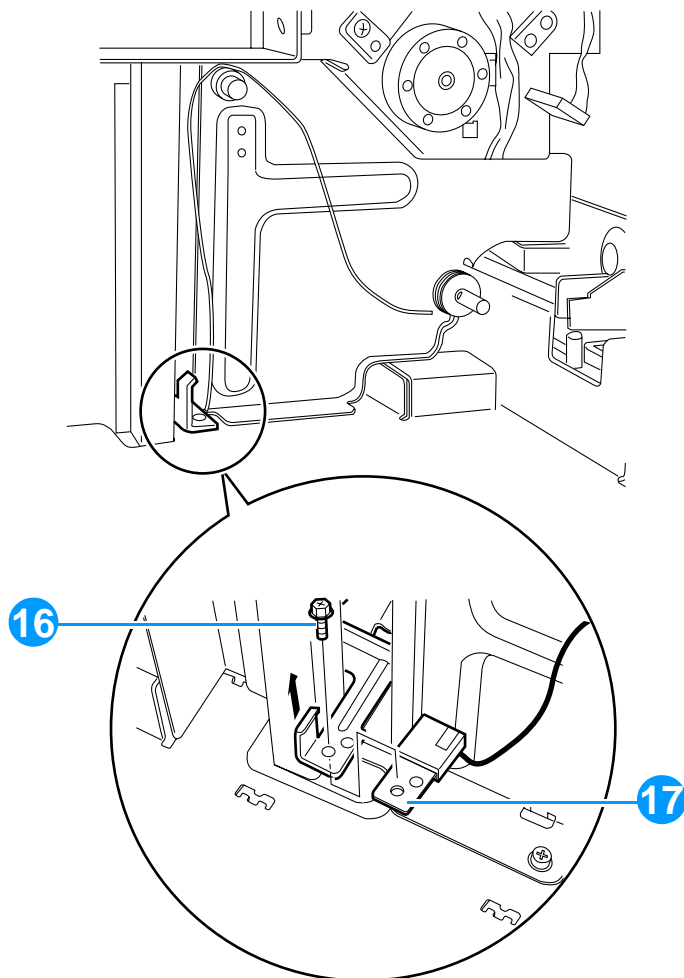


Figure 395. Lifter wire removal

To tighten the lifter wire

- 1 Secure the bracket to the lifter with two screws (callout 1).
- 2 Thread the lifter wire onto the upper pulley (callout 2).
- 3 Load the spool of the lifter wire onto the pulley (callout 3) of the lifter drive shaft, and wind the wire around the pulley groove twice, by hand.
- 4 Secure the pulley to the lifter shaft with the two set screws (callout 4).

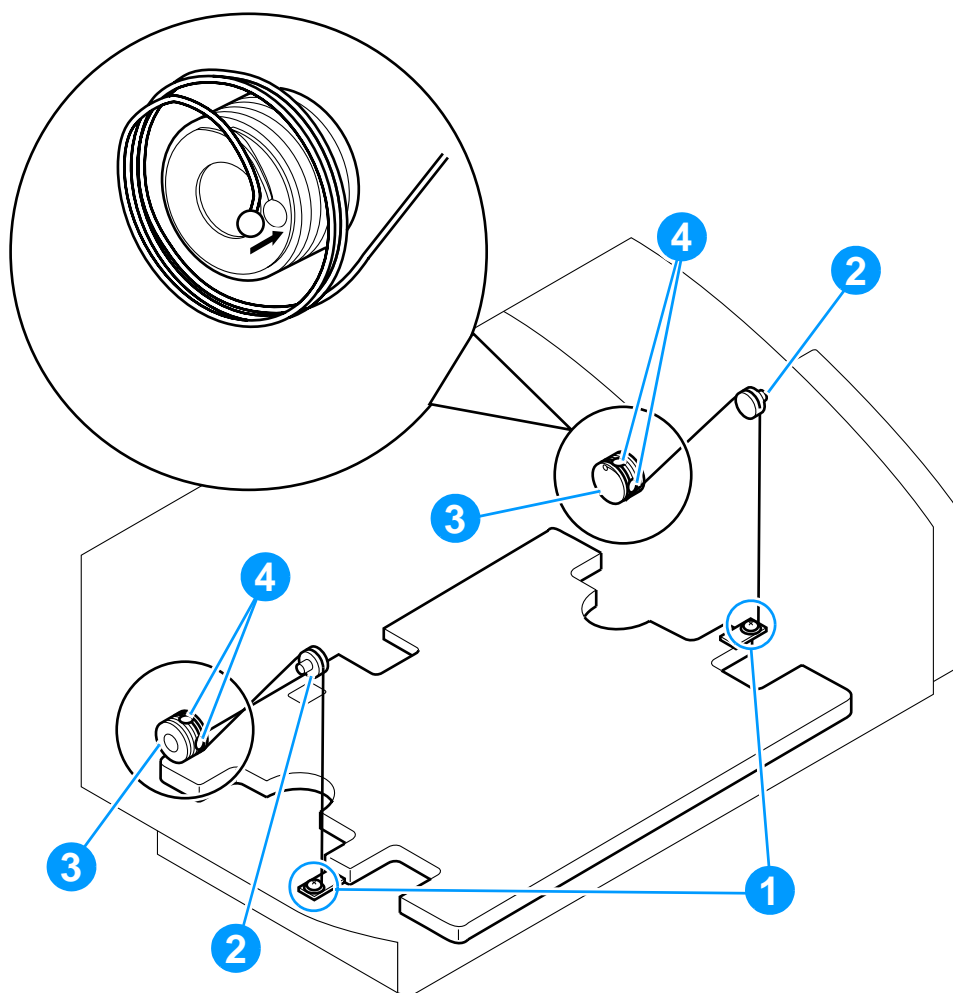


Figure 396. Tightening the lifter wire

Removing the lifter motor (M1)

- 1 Remove the upper left cover (see page 435).
- 2 Remove the rear cover (see page 436).
- 3 Remove the deck controller PCB (see page 453).
- 4 Remove two screws (callout 1) and the lifter motor (M1) (callout 2).

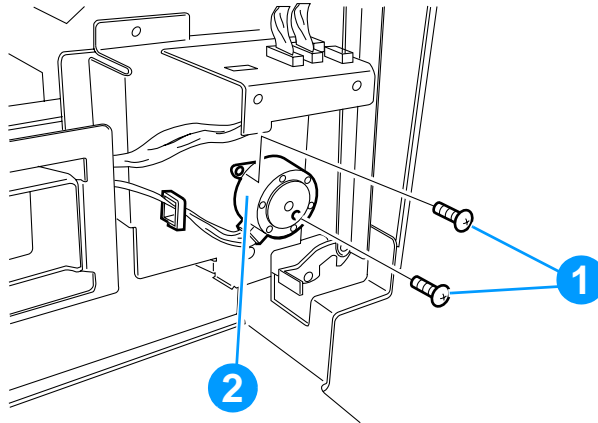


Figure 397. Lifter motor (M1)

Removing the feeder motor (M2)

- 1 Remove the pick-up unit (see page 437).
- 2 Remove two screws (callout 1) and the feeder motor (M2) (callout 2).

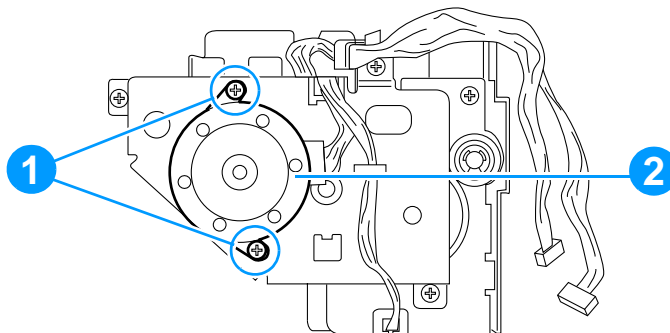


Figure 398. Feeder motor (M2)

Removing the pick-up motor (M3)

- 1 Remove the upper left cover and the front cover (see page 435).
- 2 Remove the connector (callout 1), two screws (callout 2), and the pick-up motor (M3) (callout 3).

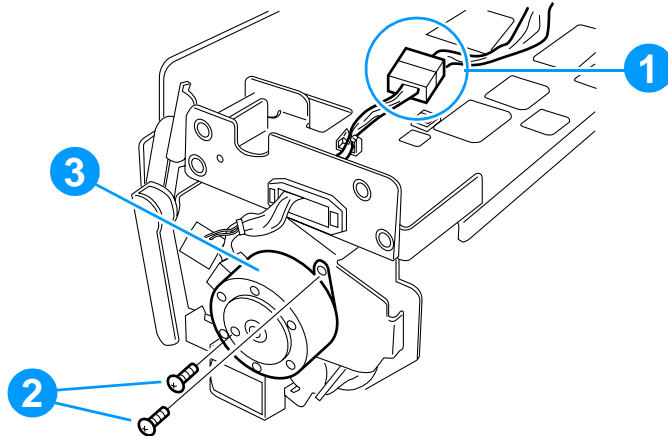


Figure 399. Pick-up motor (M3)

Removing the deck controller PCB

- 1 Remove the upper left cover (see page 435).
- 2 Remove the rear cover (see page 436).
- 3 Remove 12 connectors (callout 1), two screws (callout 2), and the deck controller PCB (callout 3).

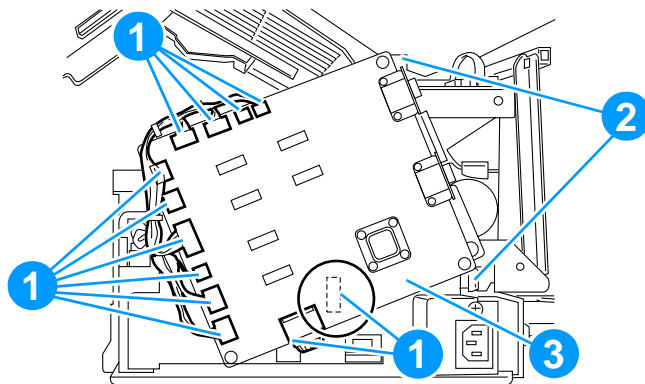


Figure 400. Deck controller PCB

Removing the power supply PCB

- 1 Remove the upper left cover (see page 435).
- 2 Remove the rear cover (see page 436).
- 3 Remove the deck controller PCB (see page 453).
- 4 Remove two screws (callout 1) and pull out the power supply PCB (callout 2) to remove it.

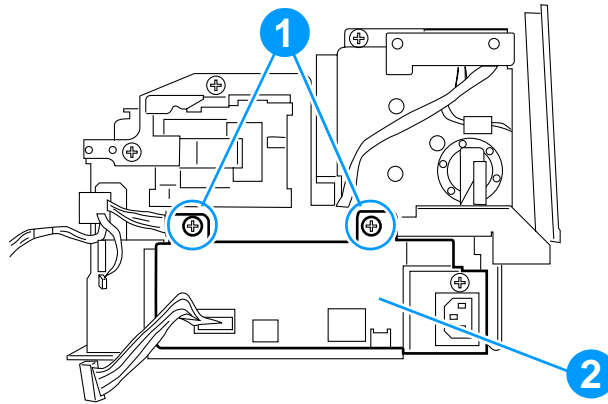


Figure 401. Power supply PCB

7 Troubleshooting

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System-to-device troubleshooting

Pre-troubleshooting checklist

Before troubleshooting any specific printer/copier problem, make sure the following conditions are met:

- The printer should be disconnected from the network before beginning troubleshooting (to make sure that the failure is associated with the printer).
- The printer driver is correct and current for the printer installed.
- The printer is being turned off with the copy module soft switch, not by unplugging the printer or by using the main switch on the copy module, so that cooling fans run through their entire cycle.
- Any overdue maintenance should be performed in advance of troubleshooting.
- The printer maintenance units are within their rated life.

Note

The customer is responsible for ensuring that the items included in the printer consumable kits are in good condition.

- The printer has been maintained on a regular basis as described in chapter 4 of the HP Color LaserJet 8500/8550 Printer Family Service Manual. Note the location of any spilled or accumulated toner before troubleshooting. Toner contamination might indicate ventilation or printer-environment problems.
- The toner catch tray is not overfull. Empty the toner catch tray, if necessary, and identify the source of excessive waste toner.
- The customer is using supported media.
- The operating environment is within the specified parameters listed in chapter 1 of this manual.
- The printer is not exposed to ammonia gas such as that produced by diazo copiers or office cleaning materials.
- The printer is never exposed to direct sunlight.
- The media are stored correctly and within environmental limits.
- The printer is installed on a solid, level surface.
- The line voltage does not vary more than 10% from the nominal rated value specified on the Power Rating Label. Suspect this problem if large motors are used near the printer, as they might cause temporary voltage changes.
- Any non-HP components (toner, memory boards, and EIO cards) should be removed from the printer.

Note

Note that the Print engine can operate independent of the copy module if the video IO connection on the printer is terminated. Installers have been instructed to leave the original terminator that ships with the printer on the stand behind the printer.

- Printer hardware or software configuration has not changed, or the problem is not associated with any specific software. Refer customers to their software vendor for software-related problems.
- If service work has been performed or parts replaced, make sure the correct adjustments have been made.
- Eliminate the host computers and all items associated with it (such as drivers, applications, spoolers, etc.) as being possible causes of the problem.

Process of elimination

Through verification, isolate the problem to the system device.

Verification step	Possible problem	Solution/location of solution
Power	No power	<ul style="list-style-type: none">• Plug a device known to work into the power outlet.• Temporarily plug the printer power cable directly into the wall outlet.• Verify that the three power switches are ON. Note: The printer switch will be covered by a plastic tab. If the plastic tab is in place, the switch underneath it is ON.• Verify that the power cables are functional and connected correctly.• Verify that the circuit breaker in the copy module has not been tripped.• Verify that the power requirements for the system have been met.
Display	The display on either the printer or the copy module is not on and showing information	<ul style="list-style-type: none">• If the control panel display on the printer is not working, see the HP Color LaserJet 8500/8550 Printer Family Service Manual.• If the control panel display on the copy module is not working, see wiring diagrams and system block diagrams ("Copy module" on page 178 of chapter 5) to locate and check for loose connections or failed parts.

Verification step	Possible problem	Solution/location of solution
Paper input devices	Not feeding	<ul style="list-style-type: none"> • If the input failure is from the multipurpose tray (tray 1), tray 2, tray 3, or tray 4, see chapter 7, Troubleshooting, in the HP Color LaserJet 8500/8550 Printer Family Service Manual. • If the input failure is from the side HCI, see troubleshooting procedures (page 535) in this chapter.
Printed and copied pages	Image defects	<ul style="list-style-type: none"> • If image defects appear in printed pages, see chapter 7, Troubleshooting, in the HP Color LaserJet 8500/8550 Printer Family Service Manual. • If image defects appear only in copied pages, eliminate the ADF as being the cause of the problem ("System-to-device troubleshooting" on page 457), and then troubleshoot the copy module (page 460) in this chapter.

Copy module troubleshooting

Overview

Copy module troubleshooting will generally proceed in the order specified in the following outline:

- 1 Replaced parts and necessary adjustments
- 2 Image fault troubleshooting
- 3 Error codes and faults not identified by error codes
- 4 Copy module service mode to test parts

Necessary adjustments for replaced parts

If any of the following parts have been replaced recently, or if service was performed on any of them, see chapter 4, "Adjustments and maintenance," to complete adjustments:

- | | |
|--|--|
| ● Printer dc controller PCB (printer part) | See "To replace the dc controller PCB" on page 120. Also see the HP Color LaserJet 8500/8550 Printer Family Service Manual for the procedure to change the dc controller PCB hardware. |
| ● ECO-2PCB (printer part) | See "To replace the ECO-2 PCB" on page 120. |
| ● Reader controller PCB | See "To replace the reader controller PCB" on page 129. |
| ● CCD unit | See "To replace the CCD Unit" on page 131. |
| ● Scanning lamp | See "To replace the scanning lamp" on page 132. |
| ● Density detection PCB | See "To replace the intensity detection PCB, or to remove and replace the same scanning lamp" on page 133. |

- Standard white plate

See “To replace the standard white plate” on page 134.

- AP-IP PCB

See “To replace the AP-IP PCB” on page 134.

Image fault troubleshooting

Initial checks

Environment

- The voltage must be $\pm 10\%$ of the requirements noted in chapter 1 of this manual.
- The copier must not be in a high-temperature and high-humidity environment (near a water faucet, water boiler, humidifier), and it must not be in a cold place. There must be no source of fire nearby, and the copier must not be subjected to excessive dust.
- The copier must not be exposed to ammonium gas.
- The copier must not be exposed to direct sunshine. As necessary, curtains must be provided for nearby windows.
- The room must be well ventilated.
- The copier must be kept level.
- The power plug of the printer unit must be connected to the copy module, and the power plug of the copy module must be connected to the power outlet.

Originals

Check whether the problem is related to the original or to the copier. A diazo (blueprint) original or an original with high transparency can produce copies that can be considered “foggy.” An original prepared in light pencil can produce copies that can be thought of as “too light.” Also, very often a “bad copy” is simply a faithful reproduction of a bad original. Note: Second- and third-generation copies (copies of copies) deteriorate rapidly in terms of copy quality.

Parts

Check the copyboard cover, copyboard glass, and standard white plate for dirt and scratches. If any are soiled, clean them with a moist cloth; if any are scratched, replace them.

Printer assemblies checks

Check the secondary pre-transfer assembly and separation static eliminator for dirt and faults (scratches, deformations).

Clean the charging wires of the secondary pre-transfer charging assembly and separation static eliminator. Further, clean the density sensor and the pre-exposure LEDs.

Check the intermediate transfer drum unit, fusing assembly, intermediate transfer drum cleaning roller, secondary transfer belt assembly, toner cartridge, and drum cartridge to make sure that they are properly mounted.

Paper

Media should meet the specifications outlined by HP. See the media guidelines on page "Supported media" on page 29. Also check the *HP Media Specifications Guide*.

Environmental factors can affect media; try some new media, fresh from its packaging.

Placement of copy paper

Copy paper must be placed in the cassette or the multi-feeder tray in an appropriate volume and in the correct orientation.

Transparencies must be placed on the multi-feeder tray with the correct orientation.

Condensation

In the winter, bringing a copier from a cold place to a warm one can cause condensation inside the printer, leading to various problems.

- Condensation in the original exposure system or the drum exposure system (six-facet mirror, reflecting mirror, lens) can produce light images.
- Condensation in the charging system can cause leakage.
- Condensation on the pick-up/feeding guide can cause feeding faults.
- When cold, the photo-conducting layer of the photosensitive drum inside the drum cartridge tends to have a high resistance, causing poor contrast on copies.
- Condensation on the surface of the intermediate transfer drum can cause ITD cleaning faults. If condensation is found, wipe the parts dry, or leave the copier turned on for 10 to 20 minutes. Opening a toner cartridge immediately after bringing it in from a cold place will also cause condensation. Instruct the user to make sure that the cartridges have reached room temperature by leaving them in the room where they will be used for one to two hours before opening them.

Note

If uneven density (difference in density between front and rear), light image, or fogging is noted, execute auto gradation correction in user mode.

Standard images

The standard image target (part number RY9-9030-020CN) is an optional tool for testing the copy abilities of this machine.

This target is professional printed on heavy card stock and shows composite and primary colors, halftone images, halftone grayscale, and text. This target provides a good baseline against which to troubleshoot. It will be particularly useful in escalated cases. While this target is very useful, it is only a sample. Any image that includes composite and primary colors, halftone images, halftone grayscale, and text will serve as a standard image.



Figure 402. Standard image sample

Test Prints

The copy module has 12 built-in test print patterns, each one enabling identification of a fault in the image. If faults on normal copies are not found on a test print, the cause can be assumed to be in the original exposure system, CCD or AP-IP system, or the copy module.

Selecting a test pattern

Set the print count, print size, and color mode (effective if TYPE=3, 4, 5, or 6).

- 1 Start service mode.
- 2 Press **COPIER**.
- 3 Press **TEST**.
- 4 Press **PG**.
- 5 Press **TYPE** and key in the Type number on the keypad.
- 6 Press **OK**.
- 7 Press the **Copy Start** button.

Table 89. Test pattern types

Type	Remarks	Type	Remarks
0	Image from the CCD (normal copying)	10	CMYK horizontal stripe (laser FF ON)
1	For R&D	11	For R&D
2	256 colors	12	CMYK 64 gradations
3	256 gradations	13	RGB 64 gradations
4	16 gradations	14	Full-color 16 gradations (CMYK)
5	Full-face halftone	15	Full-color light area 16 gradations (CMYK)
6	Grid	16	CMYK horizontal stripe (laser A0 ON)
7 to 9	For R&D		

Horizontal stripe test print (TYPE=10, 16)

Use the horizontal test print to check the dark-area density of each color, balance between colors, and white lines created during development.

- **Dark-area density of each color and balance between colors**—The density must not be appreciably low (light image). If the density of one color is low, the light-color toner cartridge is likely to be faulty. If the density of all colors is low, primary or secondary transfer is likely to be faulty.
- **White lines created by development**—If white lines are found in the cyan area of the copy, the cyan toner cartridge is likely to be faulty.
- **Uneven density between left and right**—If the right and left densities are uneven for all colors, the drum cartridge, secondary pre-transfer charging assembly, or secondary transfer belt assembly of the printer unit is likely to be faulty.
- **Left/right image position**—If the image-read start position (ADJ-X/Y) is faulty, the left and right position will be displaced, eliminating the non-image width. Such a condition can cause toner to fly astray and soil the inside of printer.

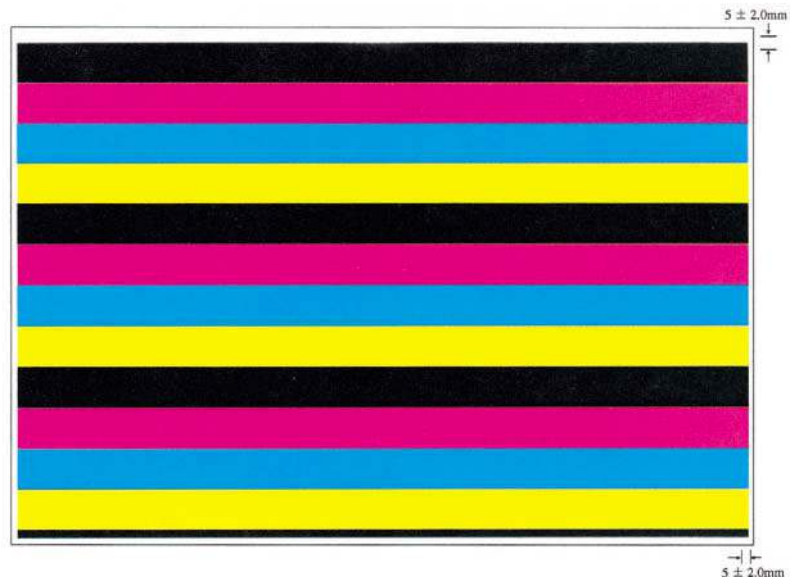


Figure 403. Horizontal stripe test print

256-color test print (TYPE=2)

Use the 256-color test print to check the hues. The 256-color test print shows 256 colors in 16x16 frames arranged from the leading edge of copier paper (the pattern is repeated).

If a hue is wrong, the toner cartridge or the drum cartridge of the printer unit is likely to have deteriorated.

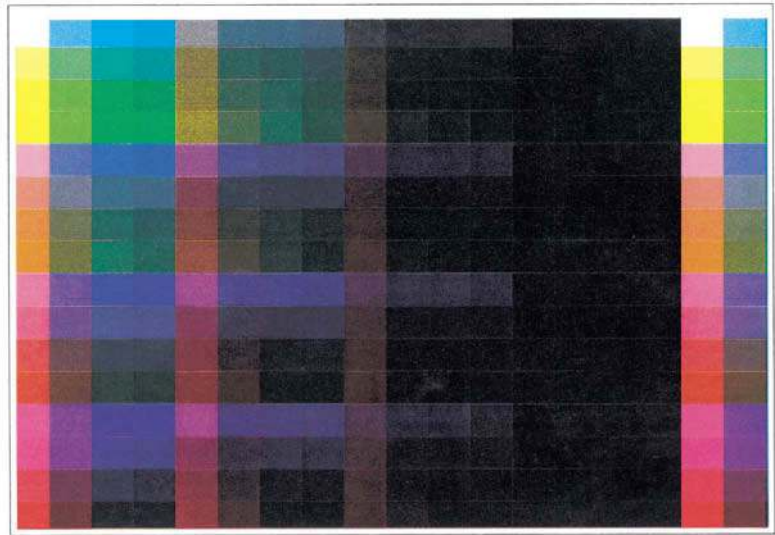


Figure 404. 256-color test print

256-gradation test print (TYPE=3)

Use the 256-gradation test print to check gradation and balance among colors.

- **Gradation**—Check the full gradation between density 0 and density 255.
- **Balance between specified colors**—Check the color balance by printing in one color or in two colors.

CAUTION

If you specify a color in service mode (**TEST** > **PG** > **COLOR-Y/M/C/K**), do not specify three colors; doing so can cause a fusing fault that would ultimately contaminate the fusing assembly.

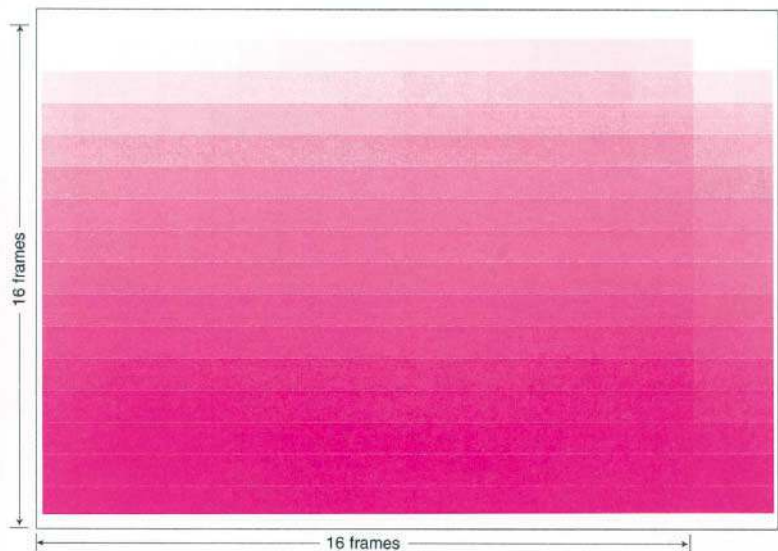


Figure 405. 256-gradation test print

16-gradation test print (TYPE=4)

Use the 16-gradation test print to check the gradation, fogging, white lines, density between left and right, and balance between colors.

- **Gradation**—If the density is not expressed in 16 gradations, the laser system of the printer unit is most likely to be faulty.
- **White lines**—If white lines occur in the image, the toner cartridge of the printer unit is likely to be faulty.
- **Uneven density between left and right**—If the density is uneven between left and right, the drum cartridge, secondary pre-transfer charging assembly, or secondary transfer belt assembly is likely to be faulty.

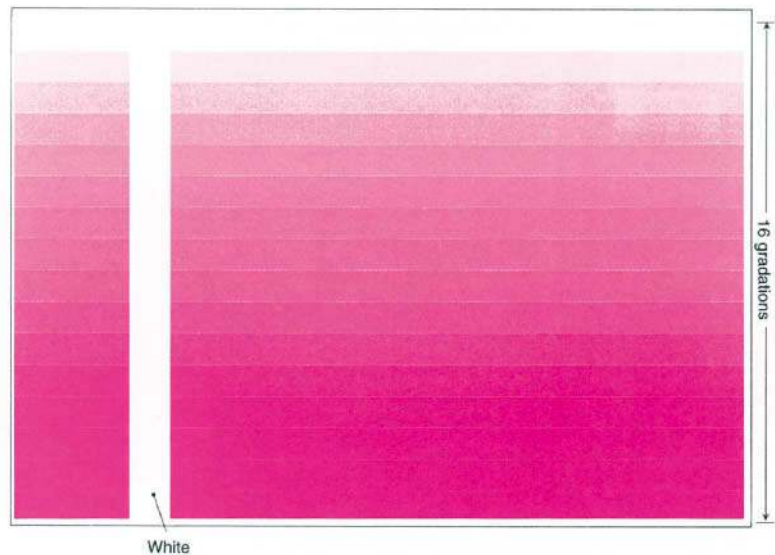


Figure 406. 16-gradation test print

Halftone test print (TYPE=5)

Use the halftone test print to check transfer faults, black lines, white lines, and uneven intervals. When using the halftone test print, set the density under **TEST** > **PG** > **DENS-Y/M/C/K**.

- **Transfer faults**—If transfer faults occur, the intermediate transfer drum unit or the secondary transfer belt assembly of the printer unit is likely to be faulty.
- **Black lines**—If black lines print on the copy, the photosensitive drum inside the drum cartridge of the printer unit is likely to have scratches, or the primary charging roller is likely to be soiled.
- **White lines**—If white lines occur at the same position in all colors, the intermediate transfer drum or the secondary belt assembly of the printer unit is likely to be faulty. If they occur at different positions or in one color, the toner cartridge of the printer unit is likely to be faulty.
- **Uneven intervals**—If uneven intervals occur, suspect the following:
 - If errors occur at 0.5 mm intervals, suspect the scanner. Scanner errors do not appear on test prints.
 - If errors occur at 66 mm intervals, suspect the developing cylinder.
 - If errors occur at about 52 mm intervals, suspect the registration roller.

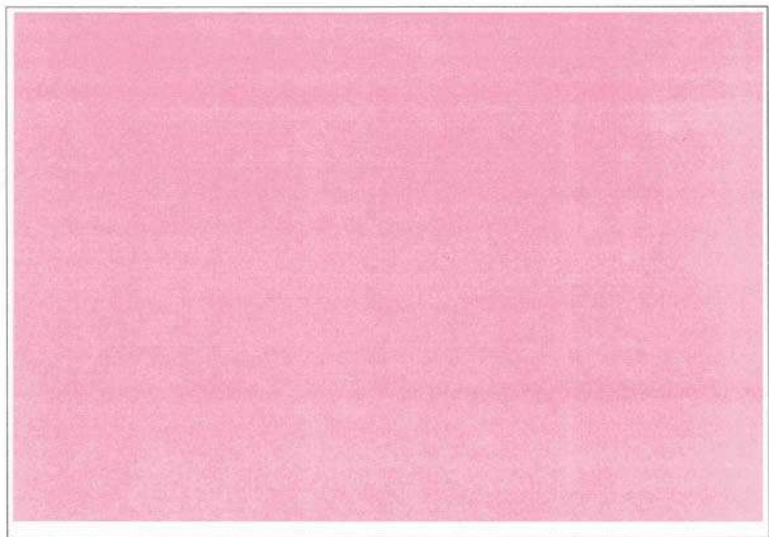


Figure 407. Halftone test print

Grid test print (TYPE=6)

Use the grid test print to check color displacement and alignment of angles and straight lines.

- **Color displacement**—If color displacement occurs, the intermediate transfer drum or the secondary transfer belt assembly of the printer unit is likely to be faulty. Often, color displacement occurs on a test print but not on ordinary copies as a result of back-test processing. If color displacement is absent on copies, the copier can be judged to be normal. Use the test print to check the position of and the color affected by displacement if the problem is noted on copies.
- **Angles and straight lines**—If angles or straight lines are not correct, the beam of the laser light or the height of the copy module is likely to be wrong. See chapter 4, "Adjustments and maintenance".

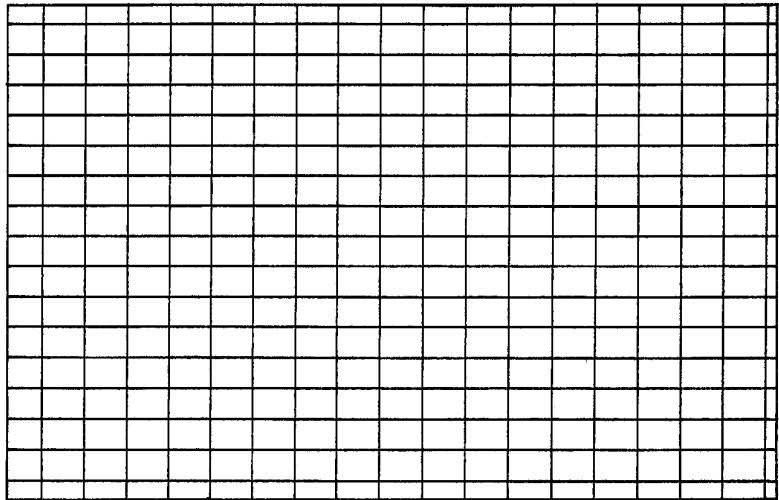


Figure 408. Grid test print

CMYK 64-gradation test print (TYPE=12)

Use the CMYK 64-gradation test print to check the gradation of all CMYK colors at a glance.

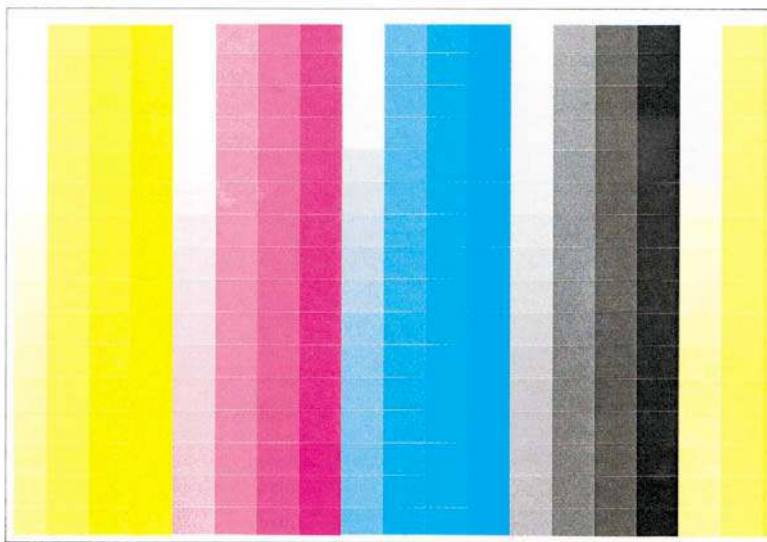


Figure 409. CMYK 64-gradation test print

RGB 64-gradation test print (TYPE=13)

Use the RGB 64-gradation test print to check the gray color balance and the gradation in two-color RGB mode.

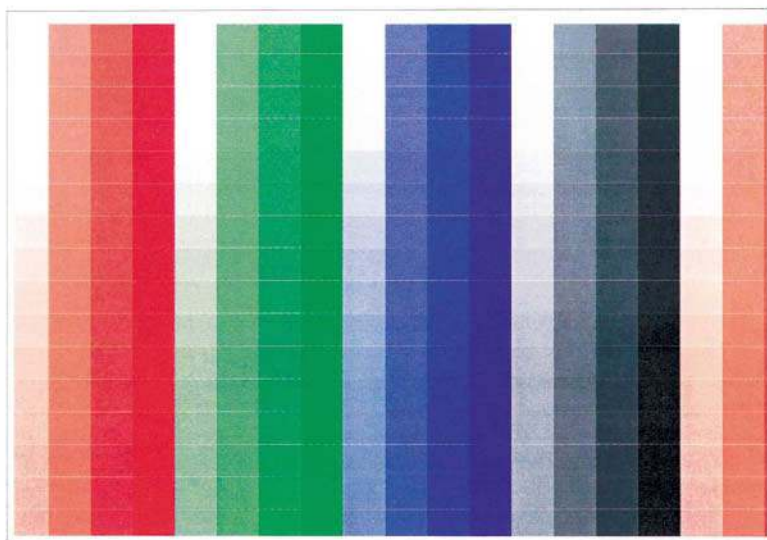


Figure 410. RGB 64-gradation test print

Full-color 16-gradation (CMYK) test print (TYPE=14)

Use the full-color 16-gradation test print to check the gray balance, gradation of each CMYK color and fogging.

- **Gray balance**—Check to find out if the gray scale is even for all colors.
- **Gradation**—Check the gradation and the difference in density of each CMYK color.
- **Fogging**—If the white area is foggy, the photosensitive drum inside the drum cartridge or the laser system of the printer unit is likely to be faulty.

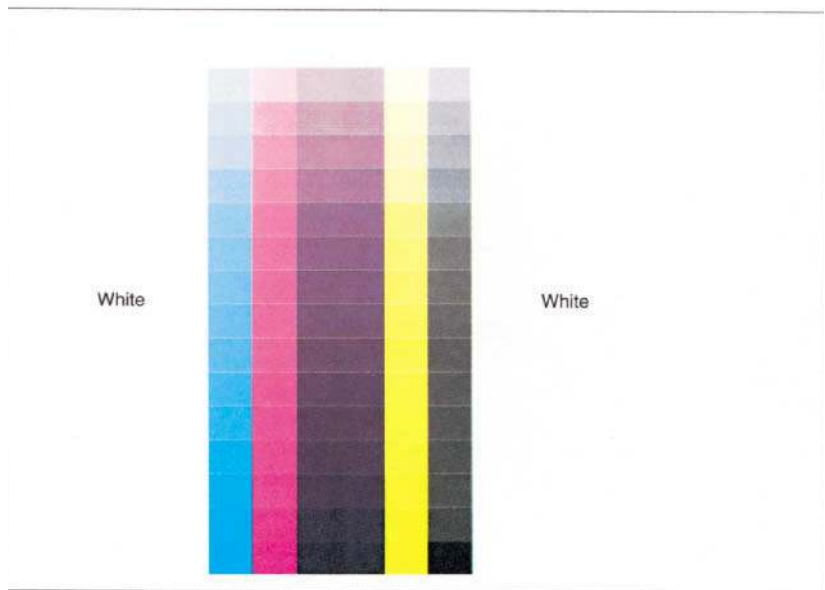


Figure 411. Full-color 16-gradation test print

Full-color light area 16-gradation (CMYK) test print (TYPE=15)

Use the full-color light area 16-gradation (CMYK) test print to check the gray balance and the gradation of each CMYK color in light areas. Gray balance and the gradation checks are easier with this test pattern than with TYPE=14 test prints.

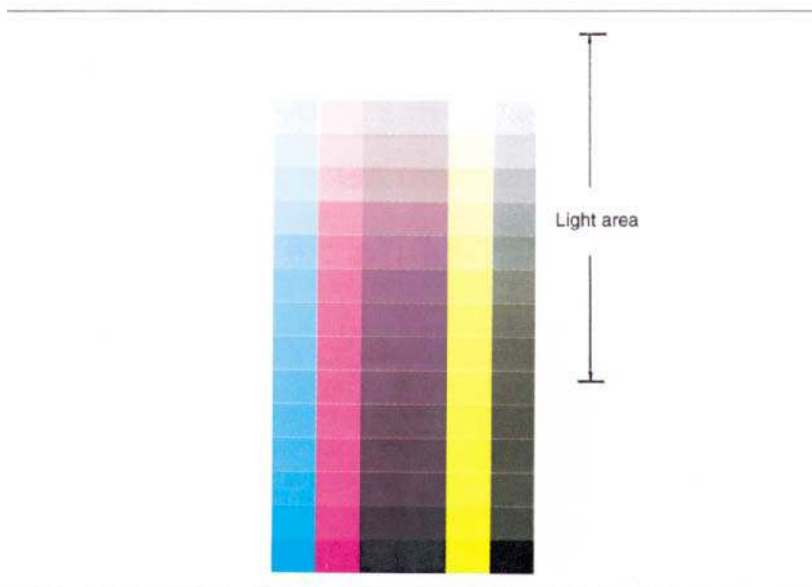


Figure 412. Full-color light area 16-gradation test print

Image faults

The table below lists common image faults and the location of the information that can be used to solve them. Many of the symptoms will be addressed by troubleshooting the print engine. Always determine if the image fault appears on printed pages (indicating a need to troubleshoot the printer) before troubleshooting the copy module or ADF.

Table 90. Common image faults

Symptom	Description	Page
Light	The output image is too light	477
Dark	The output image is too dark	479
Blank	The copier fails to generate images	479
Solid black/solid color	The copier generates a solid-black copy or an image in solid color	480
Soiled image/soiled back	The face or back of copy paper is soiled	481
Vertical band/vertical line (sub scanning direction)	The copy has vertical lines (sub-scanning direction)	483
White bands/white lines (vertical; sub scanning direction)	The copy has white vertical lines (sub-scanning direction)	484
Horizontal bands/horizontal lines (main scanning direction)	The copy has vertical lines (main scanning direction)	485
White bands/white lines (horizontal; main scanning direction)	The copy has white vertical lines (main scanning direction)	486
Absence of specific color	The copy has a specific missing color	486
White spot	The copy has white spots	487
Fusing fault	The copy has an inadequately fused toner image	488
Distorted image/displaced color	The copy has a distorted or color-displaced image	488
Uneven image	The copy has smudged or uneven image	489
Dots	The copy has an image covered with dots	490
Ghost	The copy has a (positive) ghost image	490
Soiling (double-sided copy)	The face or back of the copy paper is soiled (when made in double-sided copying mode)	491
Copy module faulty image troubleshooting	The problem is not noted on a test print, and is obviously a problem with the copy module	491

The output image is too light

Unit	Cause	Step	Checks	Yes/No	Action
Copy module		1	Make a test print in service mode (TEST > PG > TYPE=14), and find the color that is light on the copy. Does the color appear on the test print?	NO	The problem is with the copy module. Go to step 2.
				YES	If the color is black only, go to step 3.
		2	See "Image fault troubleshooting" on page 462.		
Printer	Black toner cartridge	3	Are the contacts soiled on either of the following? <ul style="list-style-type: none"> ● black toner cartridge ● black developing bias 	YES	Clean the contact. If it is damaged, replace the problem part. Also, check for a displaced contact.
	High-voltage PCB 1 (inadequate black developing- bias output)	4	Open the front cover while black toner is being developed on the photosensitive drum (about 30 seconds after the start of test printing), and take out the black toner cartridge. Then, take out the black toner cartridge and check the toner image on the photosensitive drum. Is the black toner image fully developed on the surface of the photosensitive drum?	NO	Replace the high-voltage PCB 1.
	Secondary pre-transfer charging assembly	5	Is the charging wire of the secondary pre-transfer charging assembly inside the intermediate transfer drum unit broken?	YES	Replace the secondary pre-transfer charging assembly.
	Intermediate transfer drum unit	6	Are the contacts soiled on either of the following? <ul style="list-style-type: none"> ● intermediate transfer drum unit ● secondary pre-transfer charging bias 	YES	Clean the contact. If it is soiled or damaged, replace the problem part. Also, check for a displaced contact.
	High-voltage PCB 2 (inadequate pre-transfer charging bias output)	7	Replace the high-voltage PCB. Is the problem corrected?	NO	Replace the dc controller PCB.
				YES	End.

Contact (for color developing bias)	8	Is the contact for the color developing bias for the printer unit soiled?	YES	Clean the contact. If it is damaged, replace the problem part. Also, check for a displaced contact.
High-voltage PCB 1 (inadequate color developing bias output)	9	Open the front cover while toner is being developed on the photosensitive drum (about 20 seconds after the start of test printing), and take out the black toner cartridge. Then, take out the drum cartridge, and check the toner image on the surface of the photosensitive drum. Is the color toner image fully developed on the surface of the photosensitive drum?	NO	Replace the high-voltage PCB 1.
			YES	Replace the dc controller PCB.
	10	Open the right cover of the printer unit, and fit the door switch actuator. Make a copy, and check the toner image on the surface of the intermediate transfer drum. Is the toner image fully developed on the surface of the intermediate transfer drum?	NO	Go to step 11.
			YES	Go to step 13.
Intermediate transfer drum	11	Are the contacts soiled on either of the following? ● intermediate transfer drum unit ● primary transfer bias	YES	Clean the contact. If it is defective or damaged, replace the problem part. Also, check for a displaced contact.
High-voltage PCB 1 (inadequate primary transfer bias output)	12	Replace the high voltage PCB 1. Is the problem corrected?	NO	Go to step 13.
			YES	End.
Secondary transfer belt assembly	13	Are the contacts soiled on either of the following? ● secondary transfer belt assembly ● secondary transfer bias	YES	Clean the contact. If it is defective or damaged, replace the problem part. Also, check for a displaced contact.
High-voltage PCB 2	14	Replace the high-voltage PCB 2. Is the problem corrected?	NO	Replace the dc controller PCB.
			YES	End.

The output image is too dark

Unit	Cause	Step	Checks	Yes/No	Action
Printer	Density sensor	1	Is the lens of the density sensor soiled?	YES	Clean the lens with a special brush.
	Grounding wire contact (drum cartridge)	2	Is the contact of the grounding wire of the drum cartridge or the contact of the drum grounding wire for the printer unit soiled?	YES	Clean the contact. If it is defective or damaged, replace the problem part. Also, check for a displaced contact.
	Contact (drum cartridge; for primary charging bias)	3	Are the contacts soiled on either of the following? <ul style="list-style-type: none"> ● drum cartridge ● primary charging 	YES	Clean the contact. If it is defective or damaged, replace the problem part. Also, check for a displaced contact.
	High-voltage PCB1 (inadequate primary charging bias)	4	Replace the high-voltage PCB1. Is the problem corrected?	YES NO	End. Replace the dc controller PCB.

The copier fails to generate images

Unit	Cause	Step	Checks	Yes/No	Action
Copy module		1	Make a horizontal stripe test print (TYPE=10, 16). Is the image normal?	YES	Check the connectors and wiring to the AP-IP PCB and CCD driver PCB.

The copier generates a solid-black copy or an image in solid color

Unit	Cause	Step	Checks	Yes/No	Action
Copy module	Anti-counterfeit mechanism (original exposure system)	7	Does the problem occur when an original identical to a bank note was copied?	YES	Check the exposure system (see below). If the problem is not corrected, inform the user that the anti-counterfeit mechanism has been turned on.
	Connector wiring	8	Are the connections of the connectors and wiring between the AP-IP PCB and CCD driver PCB correct?	NO	Connect them correctly.
	The dc power supply	9	Is dc power present at the following terminals of the AP-IP PCB? J502-8: +5.2V J502-6: +5V J502-5: +5V J502-1: 1+5V	NO	See "No dc power to the copy module" on page 520
	CCD unit, AP-IP PCB			YES	Try replacing the following, in sequence: CCD unit AP-IP PCB

Checking the exposure system

- 1 Make sure there are no foreign objects under the copyboard glass.
- 2 Clean the scanning lamp, the reflecting plate, the standard white plate, the copyboard glass, and mirrors 1, 2, and 3. Is the problem corrected?
- 3 On the control panel, press **FUNCTION** > **CCD** > **CCD-ADJ** in service mode. Is the problem corrected?

CAUTION

If you have replaced the scanner parts of the copy module (scanning lamp, mirror, CCD unit) be sure to execute CCD adjust in service mode (**FUNCTION** > **CCD** > **CCD-ADJ**). Further, if you have removed and replaced the scanning lamp or have replaced the intensity detection PCB, the standard white plate, or the CCD, be sure to execute intensity adjustment in service mode (**FUNCTION** > **MISC-R** > **USE-LAMP**).

The face or back of the copy paper is soiled

Unit	Cause	Step	Checks	Yes/No	Action
Printer	Cassette pick-up roller, registration roller, lower fusing roller, feeding roller	1	Does the soiling have a specific interval that matches the diameter of the cassette pick-up roller, registration roller, lower fusing roller, feeding roller?	YES	See "Repetitive image defects" on page 482. Identify the soiled roller, and clean it. If the dirt cannot be removed, replace it.
	Secondary transfer belt assembly, fusing inlet guide, fusing/separation lower guide, separation guide	2	Is the secondary transfer belt assembly, fusing assembly inlet guide, fusing/separation lower guide or separation guide soiled?	YES	Clean the soiled part. If the dirt cannot be removed, replace the part.
	ITD cleaning	3	Are there scratches or dirt in the peripheral direction of the ITD cleaning roller?	YES	Replace the ITD cleaning roller.
		4	Are the contacts soiled on either of the following? <ul style="list-style-type: none"> ● ITD cleaning roller (for ITD cleaning bias) ● ITD cleaning mechanism 	YES	Clean the contact. If it is damaged, replace the problem part. Also, check for a displaced part.
		5	Does the problem occur in a high-humidity environment?	YES	Wipe the surface of the intermediate transfer drum with a moistened flannel cloth; then, dry wipe it with lint-free paper.
	Fusing assembly	6	Are the contacts soiled on either of the following? <ul style="list-style-type: none"> ● fusing assembly ● fusing/separation bias 	YES	Clean the contact. If it is damaged, replace the problem part. Also, check for a displaced contact.
	High-voltage PCB 2 (ITD cleaning bias or fusing/separation bias output absent)	7	Replace the high-voltage PCB 2. Is the problem corrected?	YES	End
	ITD cleaning roller drive assembly	8	Is the drive gear (used to transmit locking/unlocking) of the ITD cleaning roller worn or cracked?	YES	Replace the worn or cracked part.
		9	Is the cam used to lock/unlock the ITD cleaning roller worn or cracked?	YES	Replace the worn or cracked part.

Printer	ITD cleaning roller locking/unlocking solenoid (SL1)	10	Are connector J674 on the sub-relay PCB and connector J227 on the dc controller PCB connected securely?	NO	Connect the connectors securely.
	ITD cleaning roller locking/unlocking solenoid (SL1)	11	Disconnect connector J674 of the solenoid, and measure the voltage between connectors J674-1 (CLNRON) and J674-2 (+24 UH) on the harness side. Is it about 85Ω?	NO	Replace the ITD cleaning roller locking/unlocking (SL21) solenoid.
	dc controller PCB	12		YES	Replace the dc controller PCB

The following table may be useful in isolating repetitive image defects to the appropriate print engine part. For more information about repetitive image defects for the printer, see the HP Color LaserJet 8500/8550 Printer Family Service Manual.

Table 91. Repetitive image defects

Problem part	Diameter* (mm)	Image interval* (mm)	Development			
			Soiling	White spot	Soiled back	Faulty fusing
Cassette pick-up roller	24	75			*	
Separation roller	24	75	*			
Feeding roller 1	24	75			*	
Feeding roller 2	38	119			*	
Multi-feeder pick-up roller	30	94	*			
Registration roller	16	52	*		*	
Primary charging roller	14	44		*	*	
Photosensitive drum	62	195	*	*		
Developing cylinder	21	66	*			
Upper fusing roller	46	144	*			*
Power fusing roller	46	144			*	*
ITD cleaning roller	18	57	*			

The copy has vertical lines (sub-scanning direction)

Unit	Cause	Step	Checks	Yes/ No	Action
Copy module		1	Make a halftone test print (TYPE=5). Does it have vertical bands or lines?	NO	Go to step 2.
				YES	Go to step 4.
	Optical path	2	Is the scanning lamp, reflecting plate, standard white plate, copyboard glass, or any of the mirrors soiled?	YES	Clean the soiled part. If the dirt cannot be removed, replace the part.
		3	Remove the CCD cover, and clean the surface of the CCD with a blower brush. Is the problem corrected?	YES	End.
				NO	Replace the CCD unit.
Printer	Photo-sensitive drum	4	Are there scratches in the peripheral direction (sub-scanning direction) of the photosensitive drum?	YES	Replace the photosensitive drum cartridge.
	Upper fusing roller	5	Are there scratches in the peripheral direction (sub-scanning direction) of the upper fusing roller?	YES	Replace the upper fusing roller.

The copy has white vertical lines (sub-scanning direction)

Unit	Cause	Step	Checks	Yes/ No	Action
Copy module	Optical path	1	Make a halftone test print (TYPE=5). Does it have vertical white bands or lines?	NO	Go to step 2.
				YES	Go to step 4.
		2	Is the scanning lamp, reflecting plate, standard white plate, copyboard glass, or any of the mirrors soiled?	YES	Clean the soiled part. If the dirt cannot be removed, replace the part.
		3	Remove the CCD cover, and clean the surface of the CCD with a blower brush. Is the problem corrected?	YES	End.
Printer				NO	Replace the CCD unit.
		4	Make a vertical stripe test print (TYPE=10). Do the white bands or lines occur in a specific color only?	YES	Replace the toner cartridge for the specific color.
	Fusing/separation upper guide	5	Is the fusing/separation upper guide coated with toner?	YES	Clean the fusing/separation upper guide.
	Photo-sensitive drum unit	6	Are there scratches in the peripheral direction (sub-scanning direction) of the photosensitive drum?	YES	Replace the photosensitive drum cartridge.
	Laser optical path	7	Is the laser emission opening of the printer unit coated with foreign matter?	YES	Remove the foreign matter.
	Printer unit laser scanner/scanner assembly	8	Are any of the mirrors of the laser/scanner assembly soiled?	YES	Replace the laser/scanner assembly.
	Inter-mediate transfer drum unit	9	Are there scratches in the peripheral direction (sub-scanning direction) of the intermediate transfer drum?	YES	Replace the intermediate transfer drum unit.
	Upper fusing roller	10	Are there scratches in the vertical direction (sub-scanning direction) of the upper fusing roller?	YES	Replace the upper fusing roller.

CAUTION

If you have replaced the scanner parts of the copy module (scanning lamp, mirror, CCD unit) be sure to execute CCD adjust in service mode (FUNCTION > CCD > CCD-ADJ). Further, if you have removed and replaced the scanning lamp, intensity detection PCB, standard white plate, or the CCD, be sure to execute intensity adjustment in service mode (FUNCTION > MISC-R > USE-LAMP).

The copy has vertical lines (main scanning direction)

Unit	Cause	Step	Checks	Yes/ No	Action
Copy module		1	Make a halftone test print (TYPE=5). Does it have horizontal bands or lines?	NO	Go to step 2.
				YES	Go to step 6.
	Optical path	2	Is the scanning lamp, reflecting plate, standard white plate, copyboard glass, or any of the mirrors soiled?	YES	Clean the soiled part. If the dirt cannot be removed, replace the part.
	Power supply voltage, scanning lamp, inverter PCB	3	Does the scanning lamp flicker?	YES	1. Check for fluctuation in the power supply voltage. 2. Check the scanning lamp and the inverter PCB; if faulty, replace the part.
	Original exposure system	4	Does the mount for mirror 1/2/3 move smoothly on the rail?	NO	Remove the impediment to smooth movement.
	CCD unit	5	Remove the CCD cover, and clean the surface of the CCD with a blower brush. Is the problem corrected?	YES	End.
				NO	Replace the CCD unit.

The copy has white vertical lines (main scanning direction)

Unit	Cause	Step	Checks	Yes/No	Action
Copy module		1	Make a halftone test print (TYPE=5). Does it have white bands/lines?	NO	Go to step 2.
				YES	Go to step 4.
	Optical path	2	Is the scanning lamp, reflecting plate, standard white plate, copyboard glass, or any of the mirrors soiled?	YES	Clean the soiled part. If the dirt cannot be removed, replace the part.
	Original exposure system	3	Does the mount for mirror 1/2/3 move smoothly on the rail?	NO	Remove the impediment to smooth movement.
				YES	Check the cable of the original exposure system.

CAUTION

If you have replaced the scanner parts of the copy module (scanning lamp, mirror, CCD unit) be sure to execute CCD adjust in service mode (FUNCTION > CCD > CCD-ADJ). Further, if you have removed and replaced the scanning lamp, intensity detection PCB, standard white plate, or the CCD, be sure to execute intensity adjustment in service mode (FUNCTION > MISC-R > USE-LAMP).

The copy has a specific missing color

Unit	Cause	Step	Checks	Yes/No	Action
Printer	Toner cartridge	1	Remove the toner cartridge, and turn on the power. If the printer starts up normally, check each cartridge. Does it malfunction?	YES	Replace the problem cartridge.
	Toner-level detection	2	Is the missing color black?	YES	See the printer service manual.
				No	See the printer service manual.

The print has white spots

Unit	Cause	Step	Checks	Yes/No	Action
Printer	Toner cartridge	1	Are any of the developing cylinders of the toner cartridge defective?	YES	Replace the problem cartridge.
	Photo-sensitive drum unit	2	Is the photosensitive drum or the primary charging roller defective?	YES	Replace the photosensitive drum cartridge.
	Secondary transfer belt assembly	3	Is the unlocking mechanism of the secondary transfer belt assembly defective?	YES	Replace the problem part.
	Intermediate transfer drum unit	4	Is the intermediate transfer drum unit defective or soiled?	YES	Replace the intermediate transfer drum unit.
	Secondary transfer belt assembly	5	Are the contacts soiled on either of the following? <ul style="list-style-type: none"> ● secondary transfer belt assembly ● secondary transfer bias 	YES	Clean the contact. If it is defective or damaged, replace the problem part. Also, check for a displaced contact.
	High-voltage PCB 2 (inadequate transfer bias output)/dc controller PCB	6	Replace the high-voltage PCB 2. Is the problem corrected?	YES	End
				NO	Replace the dc controller PCB.

The print has an inadequately fused toner image

Unit	Cause	Step	Checks	Yes/No	Action
Printer	Fusing assembly	1	Is the upper or lower fusing roller scratched or defective?	YES	Replace the upper or lower fusing roller or the fusing assembly.
	dc controller PCB	2	Is the upper or lower fusing thermistor soiled?	YES	Clean the upper or lower fusing thermistor.
				NO	Replace the dc controller PCB.

The copy has a distorted or color-displaced image

Unit	Cause	Step	Checks	Yes/No	Action
Printer	Drum motor drive assembly	1	Is the drive gear between the drum cartridge and the drum motor, or between the intermediate transfer drum and the drum motor, worn or cracked?	YES	Replace the worn or cracking gear.
	Laser/scanner assembly	2	Are connectors J1001, J2, and J901 of the laser/scanner assembly connected securely?	NO	Connect them securely.
		3	Replace the laser/scanner assembly. Is the problem corrected?	YES	End
	dc controller PCB	4	Are connectors J205 and J211 on the dc controller PCB connected securely?	NO	Connect them securely.
				YES	Replace the dc controller PCB.

The copy has a smudged or uneven image

Unit	Cause	Step	Checks	Yes/No	Action
Printer	Separation sensor	1	Does the lever of the separation sensor move poorly?	YES	Replace the sensor lever.
	Fusing assembly	2	Is the fusing assembly inlet guide soiled? Are the contacts soiled on either of the following? <ul style="list-style-type: none"> ● upper fusing roller ● fusing/separation bias 	YES	Clean the contact. If it is defective or damaged, replace it. Also, check for a displaced contact to place it correctly.
	High-voltage PCB 2	3	Are connectors J5005 and J5006 on the high-voltage PCB 2 connected securely?	NO	Connect them securely.
		4	Replace the high-voltage PCB 2. Is the problem corrected?	YES	End
	Fusing assembly	5	Is the upper fusing cover securely fitted to the fusing assembly?	NO	Fit the cover securely.
	Registration roller, feeding roller 2	6	Is the drive gear of the registration roller or the feeding roller itself worn?	YES	Replace the worn part.
	Separation static-eliminator	7	Is the charging wire of the separation static eliminator broken?	YES	Replace the separation static eliminator.
	Separation static-eliminating bias PCB	8	Are connectors J5600, J5601, and J5602 on the separation static-elimination bias PCB connected securely?	NO	Connect them securely.
	dc controller PCB	9	Replace the separation static eliminator PCB. Is the problem corrected?	YES	End.
				NO	Replace the dc controller PCB.

The copy has an image covered with dots

Unit	Cause	Step	Checks	Yes/No	Action
Printer	Secondary transfer belt assembly	1	Is the charging roller of the secondary transfer belt defective or worn?	YES	Replace the secondary transfer charging roller.
	Separation static eliminator	2	Is the charging wire of the separation static eliminator broken?	YES	Replace the separation static eliminator.
	Separation static-eliminator bias PCB	3	Are connectors J5600, J5601, and J5602 on the separation static-eliminating bias PCB connected securely?	NO	Connect them securely.
		4	Replace the separation static eliminating bias PCB. Is the problem corrected?	YES	End.
	dc controller PCB			NO	Replace the dc controller PCB.

The copy has a (positive) ghost image

Unit	Cause	Step	Checks	Yes/No	Action
Printer	Connector wiring	1	Are connector J681 on the pre-exposure LED assembly, relay connectors J74 and J18, connectors J645 and J647 on the main relay PCB, and connector J227 on the dc controller PCB connected securely?	NO	Connect them securely.
	Pre-exposure LED assembly/ dc controller PCB	2	Replace the pre-exposure LED assembly. Is the problem corrected?	YES	End
				NO	Replace the dc controller PCB.

The face or back of the copy paper is soiled (when made in double-sided copying mode)

Unit	Cause	Step	Checks	Yes/No	Action
Printer	Duplexing unit	1	Is the duplexing feeding roller 1 soiled?	YES	Clean the roller.
		2	Is the feeding guide soiled?	YES	Clean the guide.
		3	Is the reversing roller or the duplexing feeding roller 2 soiled?	YES	Clean the roller.
				NO	Replace the duplexing unit.

The problem is not noted on a test print and is obviously a problem with the copy module.

Unit	Cause	Step	Checks	Yes/No	Action
Copy module		1	Is there a foreign object anywhere on or under the copyboard glass?	YES	Remove the foreign object.
		2	Execute auto gradation correction in user mode. Is the problem corrected?	YES	End.
		3	Does the mount for mirror 1/2/3 move smoothly on the rail?	NO	Remove the impediment to smooth movement.
		4	Clean the standard white plate, mirror 1/2/3, reflecting plate, and copyboard glass; then, execute FUNCTION > CCD > CCD-Adj. Is the problem corrected?	YES	End.
	Missing service mode numbers	5	Compare the values listed on the service label of the copy module and to values listed under ADJUST in service mode. Are they identical?	NO	Enter the values listed on the service label.
	Scanning lamp	6	Remove the scanning lamp, and clean it. Then, remount the lamp, and execute FUNCTION > MISC-R > USE-LAMP. Is the problem corrected?	YES	End.
	CCD/CCD unit	7	Remove the CCD cover, and clean the surface of the CCD with a blower brush. Is the problem corrected?	YES	End.
		8	Are the contacts of the CCD/CCD driver corrections correct?	YES	End.

		9	Replace the CCD/CCD driver. Is the problem corrected?	NO	Check to find out if the connectors on the AP-IP PCB are connected securely; if normal, replace the AP-IP PCB.
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Numbered error codes

These error messages appear on the copy module LCD at the time they occur. A history of errors can be reviewed through the copy module service mode (**COPIER** > **DISPLAY** > **ERR**). See “Service mode” on page 60.

Note

Errors described as “printer” or “printer unit” will also appear as error messages on the printer’s LCD.

E000/E003 (printer)

E000: The fusing assembly warm-up is faulty. This error occurs when it takes longer than the reference time for the assembly to reach the standby temperature after the fusing heater has been turned on.

E003: The fusing temperature is abnormally low. This error occurs when the fusing assembly temperature drops below 120° C after it has reached the target value.

Cause	Step	Checks	Y/N	Action
Upper thermistor (open circuit)	1	Remove the fusing assembly, and measure the resistance between connectors J26F-A4 (FXTHU) and J26F-A3 (GND) on the fusing assembly side. Is it between 250 K Ω and 600 K Ω (normal temperature)?	NO	Check the wiring from connector J222 on the dc controller PCB to the upper thermistor; if it is normal, replace the fuser assembly.
Lower thermistor (open circuit)	2	Measure the resistance between connectors J26F-A2 (FXTHL) and J26F-A1 (GND) on the fusing assembly side. Is it between 250 K Ω and 600 K Ω (normal temperature)?	NO	Check the wiring from connector J222 on the dc controller PCB to the lower thermistor; if it is normal, replace the fuser assembly.
Upper fusing heater, upper thermal switch (open circuit)	3	With the fusing assembly removed, is there electrical continuity between connectors J27F-3 (HTUH) and J27F-4 (HTUC) on the fusing assembly side?	NO	Check the upper fusing heater and thermal switch. Replace the fuser assembly if any problems are found.
Lower fusing heater, lower thermal switch (open circuit)	4	Is there electrical continuity between connectors J26F-3 (HTLH) and J26F-4 (HTLC) on the fusing assembly side?	NO	Check the lower fusing heater and the lower thermal switch. Replace the fuser assembly if any problems are found.
Upper or lower thermistor	5	Is the upper or lower thermistor in even contact with the upper/lower fusing roller?	NO	Mount the thermistor properly.
Upper or lower thermistor	6	Is the upper or lower thermistor soiled?	YES	Clean the area of contact with the upper or lower fusing roller.

Connector	7	Are connector J222 on the dc controller PCB and connector J26 of the fusing assembly connected securely?	NO	Connect the connectors securely.
Power supply (printer unit)	8	Replace the power supply of the printer unit. Is the problem corrected?	YES	End.
			NO	Replace the dc controller PCB.

CAUTION

If E001 or E003 is indicated, be sure to discharge the error memory capacitor (C259) on the dc controller PCB after troubleshooting the problem, as it may contain error memory. (Short out JP201 on the dc controller PCB to discharge C259; see the Printer Unit Service Manual.)

E001 (printer)

The fusing assembly has overheated. This error occurs when the fusing temperature during standby or copying exceeds 230° C.

Cause	Step	Checks	Y/N	Action
Upper thermistor (short circuit)	1	With the fusing assembly removed, measure the resistance between connectors J26F-A4 (FXTHU) and J26F-A3 (GND) on the fusing assembly side. Is it 2 KΩ or less?	YES	Check the wiring from connector J222 on the dc controller PCB to the upper thermistor; if normal, replace the fuser assembly.
Lower thermistor (short circuit)	2	Measure the resistance between connectors J26F-A2 (FXTHL) and J26F-A1 (GND) on the fusing assembly side. Is it 2KΩ or less?	YES	Check the wiring from connector J222 on the dc controller PCB to the lower thermistor; if normal, replace the fuser assembly.
Power supply (printer unit)	3	Replace the power supply of the printer unit. Is the problem corrected?	YES	End.
			NO	Replace the dc controller PCB.

CAUTION

If E001 or E003 is indicated, be sure to discharge the error memory capacitor (C259) on the dc controller PCB after troubleshooting the problem, as it may contain error memory. (Short out JP201 on the dc controller PCB to discharge C259; see the Printer Unit Service Manual.)

E004 (printer)

The upper and lower fusing heaters have an open circuit. This error occurs when no ac current is found in the fusing heater at the start of temperature control.

Cause	Step	Checks	Y/N	Action
Upper fusing heater/upper thermal switch (open circuit)	1	With the fusing assembly removed, is there electrical continuity between connectors J27F-3 (HTUH) and J27F-4 (HTUC) on the fusing assembly side?	NO	Check the upper fusing heater and the upper thermal switch. Replace the fuser if problems are found.
Lower fusing heater, lower thermal switch (open circuit)	2	Is there electrical continuity between connectors J27F-3 (HTLH) and J26F-4 (HTLC) on the fusing assembly side?	NO	Check the lower fusing heater and the lower thermal switch. Replace the fuser assembly if problem parts are found.
Connectors	3	Are connector J222 on the dc controller PCB, connector J26 of the fusing assembly, and connector J101 of the printer unit power supply connected securely?	NO	Connect the connectors securely.
Power supply (printer unit)	4	Replace the power supply of the printer unit. Is the problem corrected?	YES	End.
			NO	Replace the dc controller PCB.

E009 (printer)

Cause	Step	Checks	Y/N	Action
Fusing assembly	1	Does the rated voltage of the fusing assembly match the printer's voltage?	NO	Check the product number of the fuser assembly; if necessary, replace the fusing assembly or the printer unit power supply.
Connectors	2	Are connector J222 on the dc controller PCB and connector J26 of the fusing assembly connected securely?	NO	Connect the connectors.
			YES	Replace the dc controller PCB.

E010/E011 (printer)

E010: The main motor start-up is faulty. This error occurs when the revolution of the main motor fails to reach a specific value.

E011: The main motor rotation is faulty. This error occurs when the revolution of the main motor fails to reach a specific value.

Cause	Step	Checks	Y/N	Action
Connector	1	Are connector J219 on the dc controller PCB and the relay connector J1 connected securely?	NO	Connect the connectors securely.
Main motor	2	Does the voltage change from about 5 to 0 V between connector J219-4 (MON) on the dc controller PCB and connector J219-5 (GND) when the power is turned on?	YES	Replace the main motor.
			NO	Replace the dc controller PCB.

E013 (printer)

A specific number of copies have been made after the waste toner case full warning has been issued ([DISPLAY](#) > [SENSOR](#) > [W-TONER](#)).

Cause	Step	Checks	Y/N	Action
Waste toner case	1	Is the photosensitive drum cartridge full of waste toner?	YES	Replace the photosensitive drum cartridge.
			NO	Replace the dc controller PCB.

E019 (printer)

At the time of power-on or while the drum motor is rotating during printer operation, the light-receiving cell of the waste toner sensor does not detect light for a specific time even when the waste toner case is not full.

Cause	Step	Checks	Y/N	Action
Waste toner detection window	1	Is the waste toner detection window of the photosensitive drum soiled?	YES	Wipe the waste toner detection window with a dry cloth.
Connectors	2	Are connector J21 on the dc controller PCB, connectors J631 and J633 of the waste toner sensor, and the relay connector J71 connected securely?	NO	Connect the connectors securely.
Waste toner detecting block (light-emitting/receiving section; printer unit)	3	Is the light-emitting/receiving section of the waste toner detection block of the printer unit soiled?	YES	Dry-wipe the light-emitting/receiving section of the waste toner detection block with a dry cloth.
Waste toner detection block (printer unit)	4	Replace the waste toner detection block of the printer unit. Is the problem corrected?	YES	End.
			NO	Replace the photosensitive drum unit. If the problem cannot be corrected, replace the dc controller PCB.

E020 (printer)

During image stabilization correction control, the LED intensity signal (LEDCNT) is weak or is not generated at all.

Cause	Step	Checks	Y/N	Action
Density sensor (light-emitting/receiving section)	1	Is the density sensor soiled?	YES	Clean the density sensor with the special brush located near the sensor.
Connector (density detection PCB)	2	Are connector J1101 on the density detection PCB, relay connectors J75 and J46, and connector J206 on the dc controller PCB connected securely?	NO	Connect the connectors securely.
Density detection PCB	3	Is the voltage 24 V between connectors J206-5 (+24 UH) on the density detection PCB and GND when the copier is turned on?	NO	Replace the density detection PCB.
			YES	Replace the dc controller PCB.

E021 (printer)

This error occurs when the developing rotary position sensor (PS3) does not detect the rotation position flag even when the developing rotary motor has rotated for a specific time. This error can also occur when the PS3 detects a faulty or wrong rotation flag width.

Cause	Step	Checks	Y/N	Action
Toner cartridge	1	Is the shutter of each toner cartridge open properly when in its proper position in the printer?	NO	Replace the toner cartridge whose shutter is not open.
Developing rotary motor drive assembly	2	Close the toner cartridge cover, and turn the power off and then on. Is the developing rotary stopper arm still holding the developing rotary assembly in place?	YES	Go to step 6.
			NO	Go to step 3.
Connector (developing rotary drive assembly)	3	Are connectors J704 and J706 on the developing rotary motor PCB and connector J220 on the dc controller PCB connected securely?	NO	Connect the connectors securely.
5-V supply line (developing rotary position sensor)	4	Are connector J43 of the developing rotary position sensor, relay connector J42, and connector J207 on the dc controller PCB connected securely?	NO	Connect the connectors securely.

Developing rotary position sensor	5	Replace the developing rotary position sensor. Is the problem corrected?	YES	End.
Developing rotary stopper	6	Is the operation of the developing rotary stopper arm normal? Disconnect connector J705 of the developing rotary stop solenoid (SL5); then, measure the resistance between connectors J605-10 and J605-12 on the harness side and between J705-11 and J705-12. Is it about 30Ω to 60Ω?	NO	Replace the developing rotary stopper solenoid.
Developing rotary motor PCB	7	Does the voltage between connectors J220-A6 (RLSROT) and J220-B5 (GND) on the dc controller PCB change from about 0 to about 3.5 V immediately after the copier is turned on?	YES	Replace the developing rotary motor PCB.
Fuse (developing rotary motor PCB)	8	Is the fuse (FU701, FU702) on the developing rotary motor PCB blown?	YES	Replace the fuse.
			NO	Replace the developing rotary motor. If the problem cannot be corrected, replace the dc controller PCB.

E032

The counter for the copy data fails to operate. This error occurs when the illegal prevention bit of the control device goes to zero (0) when the open circuit detection mechanism is not disabled.

E040 (printer)

The holding plate lifter (multi-feeder) is faulty. This error occurs during multi-feeder pick-up, when the holding plate position sensor (PS1302) does not detect the holding plate even when the dc controller PCB has generated the holding plate solenoid (SL4) ON signal.

Cause	Step	Checks	Y/N	Action
Connectors	1	Are connector J213 on the dc controller PCB; connectors J641, J642, J643, and J647 on the printer side main relay PCB; connectors J671 and J672 on the sub-relay PCB; connector J1302 of the holding plate solenoid; and connector J102 of the power supply connected securely?	NO	Connect the connectors securely.
Multi-feeder tray PCF	2	Does the voltage between connectors J1301-2 (+24 UH) and J1301-1 (GND) on the multi-feeder tray PCB change from 0 to 24 V?	YES	Replace the multi-feeder tray PCB.
+24 UH	3	Is +24 UH present on the multi-feeder tray PCB and the holding plate solenoid?	NO	See "No +24 UH (printer)" on page 523.
Holding plate solenoid	4	Disconnect connector J1302 of the holding plate solenoid from the multi-feeder tray PCB. Measure the resistance between connectors J1302-1 (MPTSLD) and J1302-2 (+24 UH) on the harness side. Is it about 160Ω?	NO	Replace the holding plate solenoid.
			YES	Replace the dc controller PCB.

E054 (printer)

Note

This error pertains to the duplexing unit, which is an accessory.

The duplexing feeding roller 1 home position sensor (PS23) does not detect the home position of the duplexing feeding roller 1 when copy paper is being fed to the duplexing unit.

Cause	Step	Checks	Y/N	Action
Duplexing feeding roller 1 home position sensor lever	1	Is the duplexing feeding roller 1 home position sensor level damaged?	YES	Replace the lever.
Duplexing feeding roller drive gear	2	Is the drive gear of the duplexing feeding roller worn or cracked?	YES	Replace the worn or cracking gear.
Duplexing driver PCB	3	Are connectors J2003, J2004, and J2007 on the duplexing driver PCB connected securely?	NO	Connect the connectors securely.
Duplexing feeding roller 1 home position sensor (PS23)	4	Replace the duplexing feeding roller 1 home position sensor. Is the problem corrected?	YES	Replace the sensor.
Duplexing feeding clutch (CL5)	5	Disconnect connector J2003 of the duplexing feeding clutch, and measure the resistance between connectors J2003-1 and J2003-2 on the harness side. Is it about 140Ω?	NO	Replace the duplexing feeding clutch.
Duplexing motor (M8)	6	Replace the duplexing motor. Is the problem corrected?	YES	Replace the duplexing motor (M8).
Duplexing driver PCB			NO	Replace the duplexing driver PCB.

E055 (printer)

The duplexing driver PCB has detected that the horizontal registration guide has moved in excess of the maximum distance from when the home position was detected.

Cause	Step	Checks	Y/N	Action
Horizontal registration guide	1	Is the horizontal registration guide mounted correctly?	NO	Mount the guide correctly.
Horizontal registration guide home position sensor (PS25) lever	2	Is the horizontal registration guide home position sensor lever damaged?	YES	Replace the lever.
Horizontal registration guide drive gear	3	Is the horizontal registration guide drive gear worn or cracked?	YES	Replace the worn or cracked gear.
Duplexing driver PCB	4	Are connectors J2006 and J2005 of the duplexing driver PCB connected securely?	NO	Connect the connectors securely.
Horizontal registration guide home position sensor (PS25)	5	Replace the horizontal registration guide home position sensor (PS25). Is the problem corrected?	YES	Replace the sensor.
Horizontal motor (M7)	6	Replace the horizontal registration motor. Is the problem corrected?	YES	Replace the horizontal registration motor (M7).
Duplexing driver PCB			NO	Replace the duplexing driver PCB.

E066 (printer)

During image stabilization control, the dc controller PCB cannot detect the temperature sensor signal (TMPSNS) or the humidity sensor signal (HUMSNS).

Cause	Step	Checks	Y/N	Action
Connector (temperature and humidity sensor)	1	Are connectors J801 on the temperature and humidity sensor and connector J206 on the dc controller PCB connected securely?	NO	Connect the connectors securely.
temperature and humidity sensor	2	Replace the temperature and humidity sensor. Is the problem corrected?	YES	End.
			NO	Replace the dc controller PCB.

E100 (printer)

The laser of the scanner unit is faulty. This error occurs when the dc controller PCB detects DBERR for 2.5 seconds or longer after the scanner motor has rotated at a specific speed.

Cause	Step	Checks	Y/N	Action
Connector (laser driver signal line)	1	Are connector J1001 on the laser driver PCB and connector J205 on the dc controller PCB connected securely?	NO	Connect the connectors securely.
Connectors (BD line)	2	Are connector J2 on the BD PCB, relay connector J40, and connector J211 on the dc controller PCB connected securely?	NO	Connect the connectors securely.
Laser scanner unit	3	Is the voltage between connectors J211-1 (+5 V) on the dc controller PCB and J211-3 (GND) 5 V immediately after the copier is turned on?	YES	Replace the laser scanner unit.
			NO	Replace the dc controller PCB.

E110 (printer)

This error occurs when the scanner motor fails to reach a specific revolution within 10 seconds after it has started to rotate. This error can also occur when the BC PCB detects an error within 2.5 seconds after the scanner motor has started to rotate.

Cause	Step	Checks	Y/N	Action
Connector	1	Are connector J901 on the laser scanner motor PC, relay connector J40, and connector J211 on the dc controller PCB connected securely?	NO	Connect the connectors securely.
Laser scanner motor	2	Does the voltage between connectors J211-7 (SCND) on the dc controller PCB and J211-6 (GND) change from 0 to 17 V or more when the copier is turned on?	YES	Replace the laser scanner motor.
			NO	Replace the dc controller PCB.

E196/E197/E198 (printer)

E196: The EEPROM (IC212) on the dc controller has an error.

E197: A machine internal communication error occurs more than once. Or, the reception interruption on the dc controller side does not occur for a specific time for internal communication.

E198: The IC on the dc controller has an error.

Cause	Step	Checks	Y/N	Action
dc controller PCB	1	Turn the copier off and then on. Is the problem corrected?	YES	End.
			NO	Replace the dc controller PCB.

E202

The scanner home position is not detected. This error occurs when the scanner does not return to the home position when it has been started.

In response to this code, the control panel keys will lock, and the "Wait" message will appear. This code is indicated only on the Error History screen in service mode.

Cause	Step	Checks	Y/N	Action
	1	Is the scanner at home position when E202 is indicated?	NO	See "The scanner motor fails to move forward or to move in reverse." on page 525.
Original scanner home position sensor (PS101)	2	Does J1609A-2 on the reader controller PCB generate 5 vdc when the scanner is at PS101?	NO	Check the wiring from the reader controller PCB to PS101; if normal, replace PS101.
Wiring	3	Is there any fault in the wiring or connectors from J1605 on the reader controller PCB to J303 and J302 on the scanner motor driver PCB?	YES	Connect the wiring correctly.
Scanner motor driver PCB	4	Replace the scanner motor driver PCB. Is the problem corrected?	YES	End.
Scanner motor (PM1)	5	Replace the scanner motor (PM1). Is the problem corrected?	YES	End.
			NO	Replace the reader controller PCB.

E203

The scanner motor driver PCB or the scanner motor is faulty. This error occurs when the scanner home position is detected during back-scanning (not requiring return to the scanner home position sensor). It can also occur if a deviation occurs during back-scanning (returning to the scanner home position sensor).

Cause	Step	Checks	Yes/No	Action
	1	Does the scanner move until "E203" is indicated?	NO	See "The scanner motor fails to move forward or to move in reverse." on page 525.
Scanner motor driver PCB/ Scanner motor	2	Does the voltage between connectors J303-B1 (RST) on the scanner motor driver PCB and J303-B4 (GND) and between connectors J303-B2 (MOVE) and J303-B4 (GND) change from 5 to 0V?	YES	Replace the scanner motor driver PCB. If the problem cannot be corrected, replace the scanner motor.
Reader controller PCB			NO	Replace the reader controller PCB.

E211, E215

E211: The scanning lamp (fluorescent lamp) thermistor has an open circuit. This error occurs when the temperature does not reach 10° C after supplying the scanning lamp heater with power for two minutes (starting at 0° C or less). It can also occur when the temperature drops to 0° C or less during temperature control.

E215: The scanning lamp (fluorescent lamp) thermistor has a short circuit. This error occurs when the scanning lamp thermistor detects 170° C or more when the fluorescent lamp ON signal (FLON) is off (including power-on).

Cause	Step	Checks	Yes/No	Action
	1	Disconnect connector J1610 of the reader controller PCB, and measure the resistance between connectors J1610-5 (GND) and J1610-6 (FL_TH) on the harness side. Is it 100 Ω or less or 100 K Ω or more?	NO	The reader controller PCB is faulty. Go to step 4.
			YES	Go to step 2.
Lamp heater	2	Disconnect connector J2039 of the lamp heater, and measure the resistance between connectors J2039-2 (GND) and J2039-3 (FL_TH). Is it 100 Ω or less or 100 K Ω or more?	YES	Replace the lamp heater.

Flat cable (between J2037 and J2015) and connectors	3	Are connector J1610, connectors J2037 and J2015 of the flat cable, and connector J2039 of the lamp heater connected securely?	NO	Connect the connectors securely.
			YES	Replace the flat cable. Or, check each of the connectors.
Reader controller PCB	4	Is the voltage 38 V between connectors J1611-1 (GNDU) and J1611-2 (+38V) on the harness side of the reader controller PCB?	NO	See "No dc power to the copy module" on page 520.
			YES	Replace the reader controller PCB.

E216, E219

E216: The scanning lamp (fluorescent lamp) fails to turn on when the power has been turned off and then on. This error occurs when the intensity sensor does not detect light from the scanning lamp in 15 seconds.

E219: The scanning lamp (fluorescent lamp) has reached the end of its life. This error occurs when the thermistor of the scanning lamp detects a temperature of 150° C or more while the scanning lamp is on.

Cause	Step	Checks	Yes/No	Action
Fluorescent lamp	1	Replace the fluorescent lamp. Is the problem corrected?	YES	End.
Inverter PCB	2	Replace the inverter PCB. Is the problem corrected?	YES	End.
Reader controller PCB			NO	Replace the reader controller PCB.

E217

The temperature does not exceed the setting when the lamp heater is powered for three minutes or more while the scanning lamp heater is going through constant temperature control.

Cause	Step	Checks	Yes/No	Action
Lamp heater, reader controller PCB	1	Replace the lamp heater. Is the problem corrected?	YES	End.
			NO	Replace the reader controller PCB.

E218

The scanning lamp (fluorescent lamp) is absent, or the inverter PCB (copy module) is faulty. This error occurs when activation is attempted and the scanning lamp is not mounted or the lamp filament is broken.

Cause	Step	Checks	Yes/No	Action
Scanning lamp	1	Is the scanning lamp mounted properly?	NO	Mount the lamp properly. (See note below.)
	2	Replace the scanning lamp. Is the problem corrected?	YES	Replace the lamp.
Inverter PCB	3	Are connectors J1002 and J1003 on the inverter PCB, and connector J1602 on the reader controller PCB connected securely?	NO	Connect the connectors securely.
			YES	Replace the inverter PCB.

Note

If you have removed and then remounted the scanning lamp, be sure to execute intensity adjustment in service mode (**FUNCTION** > **MISC-R** > **USE-LAMP**).

Note

If you have mounted a new scanning lamp, be sure to execute intensity adjustment and CCD adjustment in service mode (**FUNCTION** > **MISC-R** > **LAMP-ADJ** and **FUNCTION** > **CCD** > **CCD-ADJ**, respectively.)

E240

One of the following has occurred:

- 1 The communication between the dc controller PCB and the reader controller PCB is faulty. This error occurs when the DPPRDY signal is sent for less than 0.25 seconds from the reader controller to the dc controller PCB after power-on.
- 2 The communication between the dc controller PCB and the formatter or between the reader controller PCB and the formatter is faulty. This error occurs when the signals between the formatter and the dc controller PCB or between the formatter and the reader controller PCB cannot be exchanged for a specific time after power-on.

Cause	Step	Checks	Yes/No	Action
Interface cable	1	Is the interface cable used to connect the copy module and the printer unit connected securely? Further, are the copy module power cord and the printer unit power cord connected securely?	NO	Make the connections secure, and turn on the copy module.
Video interface PCB, reader controller PCB			YES	Replace the video interface PCB or the reader controller PCB.
PS/PCL board	2	Turn the unit off and remove the formatter, and turn on the printer unit and copy module as one (as a copier). Is E240 indicated?	NO	Replace the formatter.
dc controller PCB			YES	Replace the dc controller PCB.

E243

The communication between the control panel CPU PCB and the reader controller PCB is not possible 20 seconds or more after power-on.

Cause	Step	Checks	Yes/No	Action
Connectors	1	Are connector J901 on the control panel CPU PCB and connector J1608 on the reader controller PCB connected securely?	NO	Connect the connectors securely.
Control panel CPU PCB, reader controller PCB	2	Replace the control panel CPU PCB. Is the problem corrected?	YES	End.
			NO	Replace the reader controller PCB.

E351

Cause	Step	Checks	Yes/No	Action
Power supply	1	Are the PCBs and connectors connected securely? (If the power supply is cut abnormally, the copier can indicate "E351" when it warms up. If this occurs, turn the copier off and then on to reset.)	NO	Make the connections secure, and turn the copier off and then on.
ECO PCB/ AP-IP PCB	2	Are the CO PCB and AP-IP PCB connected securely?	NO	Connect the PCBs securely.
			YES	Replace the parts in the order indicated: ECO PCB AP-IP PCB

E353

E353 is indicated in response to a mismatch of the serial number of the reader controller PCB and that of the EEPROM while the reader controller PCB is being replaced. See "Removing the electrical unit pullout" on page 367.

E355

E355 is indicated in response to a mismatch of the serial numbers of the copy module, the reader controller PCB, and the EEPROM while the reader controller PCB is being replaced (as when the wrong serial number is entered). If this code appears, enter the correct serial number of the copy module using **OPTION > USER > SERIAL** in service mode.

E401

The error shown on the touch-screen display is in the ADF. See "ADF troubleshooting" on page 528.

This error indicates that either the pick-up motor (M1) fails to rotate or the pick-up roller sensor (S5) is faulty. In normal operation, a flag is attached to the spindle of the pick-up motor (M1), and the rotation of the motor is checked in reference to the flag blocking the pick-up roller sensor (S5). The E401 error is indicated when the sensor does not turn on and off two times or more within one second.

E402

The error shown on the touch-screen display is in the ADF. See “ADF troubleshooting” on page 528.

This error indicates that either the belt motor (M3) fails to rotate or the belt motor clock (S10) is faulty. This error occurs when the number of belt motor clock pulses within 200 ms is less than a specific value.

E403

The error shown on the touch-screen display is in the ADF. See “ADF troubleshooting” on page 528.

This error indicates that either the ADF motor (M2) fails to rotate, or the ADF motor clock sensor (S9) is faulty. This error occurs when the number of ADF motor clock pulses within 200 ms is less than a specific value.

E404

The error shown on the touch-screen display is in the ADF. See “ADF troubleshooting” on page 528.

This error indicates that either the delivery motor (M5) fails to rotate or the delivery motor clock sensor (S13) is faulty. This error occurs when the number of ADF motor clock pulses within 200 ms is less than a specific value.

E411

The error shown on the touch-screen display is in the ADF. See “ADF troubleshooting” on page 528.

This error indicates that either the document tray paper sensor (S1) or the registration sensor (S3) is faulty. This error occurs when the sensor output is 2.3 V or more in the absence of paper.

E545, E546

The error shown on the touch-screen display is in the output device.

Note

Output devices are not supported on the LJ8550 MFP.

This error indicates that the bin flapper 1 (for E545) or bin flapper 2 (for E546) of the sorter-H1 is faulty. These errors occur when the bin flapper solenoid sensor (PI12) does not detect solenoid operation even when the solenoid (SL3 for E545 or SL4 for E546) is driven during initialization or face-down delivery. This error can also occur when the bin flapper sensor remains on even when the solenoid has stopped operation.

E677, E678, E679

E677 indicates that an error has occurred during the initial communication between the ACC controller PCB and an accessory. The error occurs when the ACC controller PCB and the accessory are not ready for communication within four seconds (possibly due to a problem in the power supply), or when an initial communication error with each accessory has occurred.

E678 indicates that the communication between the ACC controller PCB and an accessory has been interrupted. The error occurs when the accessory is turned off in the middle of communication, or when the cable of the accessory has been disconnected in the middle of communication.

E679 indicates that an error has occurred in the protocol used for communication between the ACC controller PCB and an accessory. This error occurs when the read/write/parity check of data is faulty, and communication does not end within a specific time.

Cause	Step	Checks	Yes/No	Action
Accessories power, accessories	1	Are the power cables of the accessories and the communication cable to the printer unit connected securely?	NO	Turn the power off and then on.
			YES	Replace the ACC controller PCB.

E710, E711

These are IPC (initialization) errors. E710 occurs when the IPC sync register for the copy module and the copy module-related accessories fail to go to one (1) within three seconds. E711 occurs when data has been written 10 times or more to the error register within 1.5 seconds during the communication between the copy module and copy module-related accessories.

Cause	Step	Checks	Yes/No	Action
Copy module	1	Turn the copy module rear power switch off and then on; then, turn on the control panel power soft switch. Is the problem corrected?	YES	End.
Reader controller PCB, accessories (connected to the copy module)	2	Replace the reader controller PCB. Is the problem corrected?	YES	End.
			NO	Refer to the Service Manual for the reader-unit accessory in question.

E712

The error shown on the touch-screen display is in the ADF. See “ADF troubleshooting” on page 528.

This error indicates that the IC for communication on the ADF side is faulty. This error occurs when the communication with the copy module has been interrupted for five seconds or more.

E717

This error occurs when the copy module is started after disconnecting the copy data control without canceling the open circuit detection mechanism of the copy module. If this error has occurred, execute error clear and set **COPIER > OPTION > INT-FACE > B-CLR** in service mode to “0”, and then disconnect the copy data controller.

Note

The copy data controller is not available for the LJ8550 MFP.

E805 (printer)

The heat discharge fan 1 (FM, used for the fusing assembly and area near the feeding assembly) is faulty. This error occurs when the motor lock signal (FAN1LK) goes to one (1) for 1.5 seconds or more while the fan is rotating.

Cause	Step	Checks	Y/N	Action
Connectors (heat discharge fan 1 drive assembly)	1	Are connectors J702 and J706 on the developing rotary motor PCB and connector J220 on the dc controller PCB connected securely?	NO	Connect the connectors securely.
Connectors (24 V for heat discharge fan 1 drive)	2	Are connector J701 on the developing rotary motor PCB, connectors J648 and J641 on the main relay PCB, and J102 on the dc power supply connected securely?	NO	Connect the connectors securely.
Heat discharge fan 1	3	Does the voltage change to about 24 V between connectors J702-3 (FAN1ON) on the developing rotary motor PCB and J702-1 (GND)?	YES	Replace the heat discharge fan 1.
Developing rotary motor PCB	4	Does the voltage change to about 24 V between connectors J701-1 (+24 VB) and J701-2 (GND) on the developing rotary motor PCB immediately after the copier is turned on?	YES	Replace the developing rotary motor PCB.
Main relay PCB	5	Does the voltage between connectors J641-1 (+24 VB) and J641-4 (GND) on the main relay PCB change to 24 V immediately after the copier is turned on?	YES	Replace the main relay PCB.
The dc power	65	Is the dc power present?	NO	See "No dc power in the printer (+5V, +24 VB)" on page 522.
			YES	Replace the dc controller PCB.

E806 (printer)

The heat discharge fan 2 (FM2, used for the area around the intermediate transfer drum) is faulty. This error occurs when the fan motor lock signal (FAN2LK) goes to one (1) for 1.5 seconds or more while the fan is rotating.

Cause	Step	Checks	Y/N	Action
Connectors (heat discharge fan 2 drive assembly)	1	Are connectors J603 and J706 on the developing rotary motor PCB and connector J220 on the dc controller PCB connected?	NO	Connect the connectors securely.
Connectors (24 V for heat discharge fan 2 drive)	2	Is connector J701 on the developing rotary motor PCB, connectors J648 and J641 on the main relay PCB, and connector J102 on the dc power supply connected securely?	NO	Connect the connectors securely.
Heat discharge fan 2	3	Does the voltage change to about 24 V between connector J703-3 (FAN2ON) and J703-1 (GND) on the developing rotary motor PCB immediately after the copier is turned on? Does the voltage change to about 24 V for connector J702-1 (GND)?	YES	Replace the heat discharge fan 2.
Developing rotary motor PCB	4	Does the voltage change to about 24 V between connectors J701-1 (+24 VB) and J701-2 (GND) on the developing rotary motor PCB immediately after the copier is turned on?	YES	Replace the developing rotary motor PCB.
Main relay PCB	5	Does the voltage change to 24V between connectors J641-1 (+24 VB) and J641-4 (GND) on the main relay PCB immediately after the copier is turned on?	YES	Replace the main relay PCB.
The dc power (printer unit)	6	Is the dc power present in the printer unit?	NO	See "No dc power in the printer (+5V, +24 VB)" on page 522.
			YES	Replace the dc controller PCB.

E807 (printer)

The heat discharge fan (FM3, used for the area around the scanner) is faulty. This error occurs when the fan motor lock signal (FAN3LK) goes to one (1) for 1.5 seconds or more while the fan is rotating.

Cause	Step	Checks	Y/N	Action
Connectors (heat discharge fan 3 drive assembly)	1	Are connectors J681 and J682 on the pre-exposure LED relay PCB and relay connectors J18 and J17, connectors J645 and J647 on the main relay. PCB, and connector J227 on the dc controller PCB connected securely?	NO	Connect the connectors securely.
Connectors (24 V for heat discharge fan 3 drive)	2	Are connectors J641 on the main relay PCB and J102 on the dc power supply connected securely?	NO	Connect the connectors securely.
Heat discharge fan 2	3	Does the voltage change to about 24 V between connectors J645-3 (FAN3ON) on the main relay PCB and J645-1 (GND) immediately after the copier is turned on?	YES	Replace the heat discharge fan 3.
Main relay PCB	4	Does the voltage change to 24V between connectors J641-1 (+24 VB) and J641-4 (GND) on the main relay PCB immediately after the copier is turned on?	YES	Replace the main relay PCB.
The dc power (printer unit)	5	Is the dc power present in the printer unit?	NO	See "No dc power in the printer (+5V, +24 VB)" on page 522.
			YES	Replace the dc controller PCB.

E808 (printer)

The fusing drive circuit power unit is faulty. This error occurs when the fusing heater safety circuit has detected a fault in the upper and lower fusing heaters.

Cause	Step	Checks	Y/N	Action
Fusing assembly	1	Replace the fusing assembly. Is the problem corrected?	YES	End.
Power supply (printer unit)	2	Replace the power supply on the printer side. Is the problem corrected? (The fusing heater drive circuit or the fusing heater safety circuit is faulty.)	YES	End.
			NO	Replace the dc controller PCB.

E809 (printer)

The power supply cooling fan (FM4, used for the area around the copy module main power supply) is faulty. This error occurs when the fan error signal (FANERR) goes to zero (0) for 1.5 seconds or more while the fan is rotating.

Cause	Step	Checks	Y/N	Action
Connectors (power supply cooling fan drive assembly)	1	Are the relay connector J2031, connectors J7 and J8 on the copy module main power supply PCB, and connector J1602 on the reader controller PCB connected securely?	NO	Connect the connectors securely.
Power supply (cooling fan)	2	Does the voltage change to 24 V between connectors J7-3 (+24 VB) on the copy module main power supply PCB and J7-4 (GND) immediately after the copier is turned on?	YES	Replace the power supply cooling fan.
The dc power	3	Is dc power present in the copy module?	NO	See "No dc power to the copy module" on page 520.
			YES	Replace the dc controller PCB.

E810 (printer)

This error occurs when the drum cartridge detecting switch does not turn on at power-on or when the cover is opened/closed.

Cause	Step	Checks	Y/N	Action
Drum cartridge	1	Is the drum cartridge set in the copier correctly?	NO	Set the cartridge correctly, and turn the copier off and then on.
Drum cartridge switching lever	2	Check the drum cartridge switching lever on the printer side. Is it displaced or cracked?	YES	If the lever is displaced, set it to the correct position. If the lever is cracked, replace it.
Drum cartridge switching guide	3	Is the drum cartridge switching guide defective?	YES	Replace the drum cartridge.
Connector (memory inside the drum cartridge)	4	Are connector J209 on the dc controller PCB and relay connectors J47 and J48 connected securely?	NO	Connect the connectors securely.
Memory (inside the drum cartridge)	5	Replace the drum cartridge. Is the problem corrected?	YES	End.
			NO	Replace the dc controller PCB.

E812 (printer)

This error occurs when the intermediate transfer drum (ITD) home position is not detected within a specific time (about 10 seconds).

Cause	Step	Checks	Y/N	Action
Intermediate transfer drum (ITD), Density sensor	1	Is the intermediate transfer drum (ITD) set in the printer properly?	NO	Set the drum properly, and turn the power off and then on.
			YES	See "E020 (printer)" on page 498.

E813 (printer)

This error occurs when both the upper fusing roller temperature detection signal (FXTHU) and the lower fusing roller temperature detection signal (FXTHL) indicate -10° C or less.

Cause	Step	Checks	Y/N	Action
Fusing assembly	1	Is the fusing assembly set in the printer properly?	NO	Set the fusing assembly properly, and turn the power off and then on.
Connector (fusing assembly)	2	Is connector J26 of the fusing assembly connected securely?	NO	Connect the connector securely.
Connector (dc controller PCB)	3	Is connector J222 on the dc controller PCB connected securely?	NO	Connect the connector.
			YES	Replace the dc controller PCB.

E814 (printer)

A specific number of copies have been counted after the photosensitive drum end of life warning has been issued.

Cause	Step	Checks	Y/N	Action
Drum cartridge	1	Replace the drum cartridge. Is the problem corrected?	YES	End.
			NO	Replace the dc controller PCB.

E903

The error shown on the touch-screen display is in the side HCI. See “Side HCI troubleshooting” on page 535.

This error indicates one of three problems:

- 1** An error has been detected in the paper deck lifter motor.
- 2** The lifter upward movement takes longer than the specified time.
- 3** The paper level change time is in excess of a specific value while the lifter is moving up.

E999

A timing problem has occurred with the copy module. Power cycle the unit to alleviate the problem.

Faults not identified by error codes

No ac power to the copy module

Cause	Step	Checks	Yes/No	Action
Power plug	1	Is the power plug connected to the power outlet?	NO	Connect the power plug.
Main power source	2	Is the rated ac voltage present at the power outlet?	NO	Advise the user to correct the problem.
	3	Is the rated voltage present between J1101-1 and J1101-3?	YES	Go to step 7.
Leakage breaker (ELCB1)	4	Is the switch of the leakage breaker in the copy module at OFF (LOAD) position?	YES	Check the ac power system unit and line; if faulty, replace the part. If normal, shift the switch of the leakage breaker to ON (LINE) side. (See note below.)
Leakage breaker (ELCB1)	5	Is the resistance $0\ \Omega$ between both terminals of the leakage breaker (ELCB1)?	NO	Turn on and off (shifting to LINE and LOAD) the switch of the leakage breaker, and check it for electrical continuity. If it is still not $0\ \Omega$, replace the leakage breaker. See Figure 413.
Power cord, noise filter PCB	6	Replace the power cord or the noise filter PCB. Is the problem corrected?	YES	Replace the problem part.
Copy module rear power switch (MSW1), wiring	7	Connect the probes to both terminals of the copy module rear power switch (MSW1). Does the resistance change to $\infty\ \Omega$ when the switch is turned on?	NO	Replace the copy module rear power switch (MSW1).
			YES	Check the ac ac power line and connectors.

Note

The leakage breaker has two functions, serving as a circuit breaker and cutting of power in response to leakage. Be sure to make line-to-line and line-to-chassis checks for short circuits even if there is no fault in the leakage breaker.

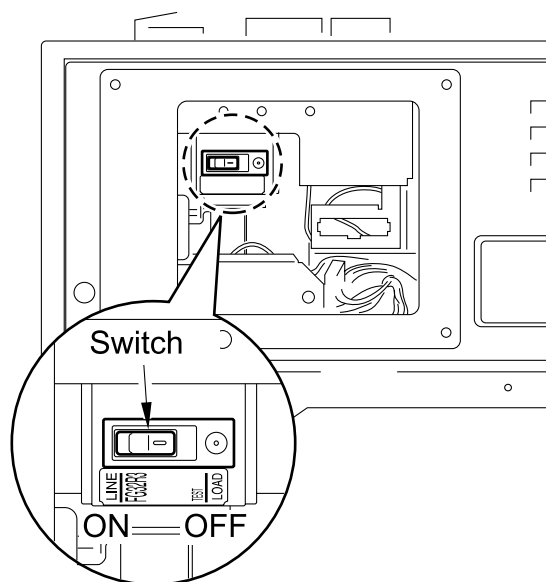


Figure 413. Leakage breaker

No dc power to the copy module

Cause	Step	Checks	Yes/No	Action
The ac power	1	Is ac power present between J1-1 and J1-9 on the copy module main power PCB?	NO	See "No ac power to the copy module" on page 519.
Overcurrent/ overvoltage (protection circuit activation), copy module main power supply PCB	2	Turn off the copy module rear power supply switch, and disconnect the power plug. After three minutes, connect the power plug to the power outlet, and turn on the copy module power switch. Does the copier operate normally?	YES	The copy module main power supply PCB is normal; however, the protection circuit on the PCB is likely to have activated. Remove the cause, and turn on the power once again.
			NO	Replace the copy module main power supply PCB.

No ac power to the printer

Cause	Step	Checks	Yes/No	Action
Copy module	1	Disconnect the power plug of the printer from copy module and connect it directly to the power outlet. Is the printer now receiving ac power?	YES	See "No ac power to the copy module" on page 519
Circuit breaker (printer)	2	Remove the printer's power supply and measure the resistance between both terminals of the circuit breaker. Is the reading 0Ω ?	NO	Press the button on the circuit breaker and check again for electrical continuity. If the reading is not 0Ω , replace the circuit breaker.
Printer power switch (SW1), printer power supply	3	Remove the printer's power supply and connect the probes to both terminals of the power supply switch. Is the resistance 0Ω when the printer power switch is on and $\infty\Omega$ when the switch is off?	NO	Replace the printer power switch.
			YES	Check the ac power line and connectors for poor contact; if normal, replace the printer unit power supply.

Note

After turning off the circuit breaker, wait 60 seconds before turning it back on. Before connecting the printer power plug to the power outlet, turn on the power switch and check the ac line for a short circuit and the condition of the circuit breaker (contact resistance and continuity) with a meter.

Note

At the time of installation, the printer power switch (SW1) is turned on and covered by a face cover. If removing or installing a printer power switch (SW1), make sure the switch is on the face cover is reattached when the switch is replaced.

No dc power in the printer (+5V, +24 VB)

Cause	Step	Checks	Yes/No	Action
Printer ac power	1	Disconnect the power plug from the printer and connect it directly to the power outlet. Is the printer now receiving ac power?	NO	See "No ac power to the printer" on page 521.
Overcurrent/ overvoltage (protection circuit activation), printer power supply fuse	2	Turn off the printer power switch (SW1) (see note on page 521) and disconnect the copy module power plug. After two minutes, reconnect the copy module power plug and turn on the printer power switch (SW1). Is the operation normal?	Yes	The copy module power supply PCB is normal. However, the protective circuit on the PCB has activated. Remove the cause of the activation and turn on the power again.
			NO	Replace the printer's power supply fuse.
Printer power switch supply, wiring and dc load, dc controller PCB	3	Turn off the printer unit power switch (see note above) and disconnect connector J204 from the dc controller PCB. Connect the printer's power plug directly to the power outlet and turn on the printer power switch. Is there dc power (+5V) at the J204-1 connector?	NO	Replace the printer power supply.
			YES	Check the wiring from the dc controller PCB. If normal, replace the dc controller PCB.

No +24 UH (printer)

Cause	Step	Checks	Yes/No	Action
Printer dc power	1	Disconnect the power plug of the printer from copy module and connect it directly to the power outlet. Is the printer now receiving dc power?	YES	See "No dc power in the printer (+5V, +24 VB)" on page 522
Connectors	2	Are connectors J641 through J643 and J6476 of the main relay PCB, connectors J671 and J673 on the sub-relay PCB, connector J102 of the power supply, and connector J227 on the dc controller PCB all connected securely?	NO	Connect the connectors securely
Right cover switch (main relay PCB)	3	Is there electrical continuity between connectors J641-1 (+24 VB) and J642-3 (PMP) on the main relay PCB when the right cover switch (SW641) is turned on?	NO	Replace the right cover switch on the sub-relay PCB.
Delivery cover and front cover switch (sub-relay PCB)	4	Is there electrical continuity between connectors J671-1 (PMP) and J671-2 (PFUFR) on the sub-relay PCB when the delivery cover/front cover switch (SW761) is turned on?	NO	Replace the delivery cover/front cover switch (SW761) on the sub-relay PCB.
Printer power supply	5	Disconnect the power plug of the printer from copy module and connect it directly to the power outlet. Turn on the printer power switch (see note on page 521) and measure the voltage between connectors J641 (+24 VB) on the main relay PCB and J641-4 (GND). Is it 24 V?	NO	Replace the printer power supply.
Main relay PCB	6	Disconnect the power plug of the printer from the copy module, and then connect it directly to the power outlet. Turn on the printer power switch (see note on page 521) and measure the voltage between connectors J647-B11 (+24 UH) on the main relay PCB and J647-A1 (GND). Is it 24 V?	NO	Replace the main relay PCB.
			YES	Replace the dc controller PCB.

No +24 VAR (printer)

Cause	Step	Checks	Yes/No	Action
Printer dc power	1	Disconnect the power plug of the printer from copy module and connect it directly to the power outlet. Is the printer now receiving dc power?	YES	See "No dc power in the printer (+5V, +24 VB)" on page 522
Connectors	2	Are connectors J701 to the developing rotary motor PCB; connectors J641, J642, J644 and J648 on the main relay PCB; connector J672 on the sub-relay PCB; and connector J102 of the power supply all connected securely?	NO	Connect the connectors securely
Right cover switch (main relay PCB)	3	Is there electrical continuity between connectors J641-1 (+24 VB) and J642-3 (PMP) on the main relay PCB when the black toner cartridge switch (SW644) is turned on?	NO	Replace the right cover switch on the main relay PCB.
Black toner cartridge switch	4	Is there electrical continuity between connectors J644-1 (PBK) and J644-2 (PMP) on the main relay PCB when the black toner cartridge detection switch (SW644) is turned on?	NO	Replace the black toner cartridge (SW644).
Toner cartridge cover switch (SW6772)	5	Is there electrical continuity between connectors J642-1 (PYMC) and J642-2 (PBK) on the sub-relay PCB when the toner cartridge cover switch (SW762) is turned on?	NO	Replace the toner cartridge cover switch (SW762) on the sub-relay PCB.
Drum cartridge switch	6	Is there electrical continuity between connectors J642-1 (PYMC) and J648-1 (+24 VAR) on the main relay PCB when the drum cartridge switch (SW642) is turned on?	NO	Replace the drum cartridge switch (SW642) on the main relay PCB.
Main relay PCB	7	Disconnect the power plug of the printer from copy module and connect it directly to the power outlet. Turn on the printer power switch (see note on page 521) and measure the voltage between the connectors J648-1 (+24 VAR) and J648-3 (GND) on the main relay PCB. Is it 24 V?	NO	Replace the main relay PCB.
			YES	Replace the dc controller PCB.

The scanner motor fails to move forward or to move in reverse.

Cause	Step	Checks	Yes/No	Action
Cable	1	Is the drive cable routed correctly?	NO	Route the cable correctly.
Rail	2	Is the rail free of dirt? Does it move smoothly when moved by hand?	NO	Check the surface of the rail for dirt and foreign matter or some other obstacle; clean, lubricate, or correct as necessary. If the rail is soiled, clean it with alcohol, and apply a small amount of lubricant.
Scanner home position sensor (PS101)	3	Is the scanner home position sensor (PS101) normal? See the instructions for how to check the photo-interrupters.	NO	Check the wiring and light-blocking plate; if normal, replace the sensor.
Connectors, wiring	4	Are connector J301 on the scanner motor driver PCB and connectors J3, J5, and J6 on the copy module main power supply PCB connected securely?	NO	Connect the connectors securely.
Copy module dc power supply		Measure the voltage between the following terminals of the scanner motor driver PCB. Is it as indicated? J301-9 and -8: about +5.2 V J301-7 and -6: about +15 V J301-5 and -6: about -12 V J301-4 and -2: about +38 V J301-3 and -1: about 38 V	NO	See "No dc power to the copy module" on page 520.
Scanner motor driver PCB	6	Replace the scanner motor driver PCB. Is the problem corrected?	YES	End.
Scanner motor (PM1)			NO	Replace the scanner motor.

Using the copy module service mode to test parts

The AP-IP PCB and the microprocessor on the dc controller PCB of the printer are equipped with a self-diagnostic mechanism that periodically checks the condition of the copy module (particularly the condition of the sensors). Upon detecting an error, the mechanism displays an error code on the copy module LCD.

Keep the following in mind:

- When the self-diagnosis mechanism has turned on, the copier can be reset by turning it off and then on. However, perform the following if E000, E001, E003, E004, E009, E808, the copier will turn off in 20 seconds after detecting the error.
 - If E001 or E003 has occurred, the error data might be retained in the error memory capacitor (C259) of the dc controller PCB for the printer unit. Be sure to discharge the capacity after removing the cause. (To do so, short out JP201 on the dc controller PCB; for details, see the Printer Unit Service Manual).
 - Select **DISPLAY** > **ERR** to check the error history.
- a Select **FUNCTION** > **CLEAR** in service mode.
 - b Press **ERR** to highlight.
 - c Press **OK**, and turn the rear power switch on and off manually; then, turn on the control panel soft switch to clear the error code.
 - d See that the message on the control panel has disappeared and the Copy Mode screen appears.

Using the copy module device to part fault isolation

The copy module can test the functionality of many of its parts from service mode. The list below shows the parts that can be tested and the service menu steps that take you to the test.

- CCD (COPIER > FUNCTION > CCD). Creates negative image of filtered in cyan.
- LCD (COPIER > FUNCTION > PANEL > LCD-CHK). Press stop key to end.
- LEDs (COPIER > FUNCTION > PANEL > LED-CHK). Press LED-OFF to end.
- Keys (COPIER > FUNCTION > PANEL > KEY-CHK). Press KEY-CHK again to end.
- Touch (COPIER > FUNCTION > PANEL > TOUCHCHK). Press TOUCHCHK again to end.
- Fan (COPIER > FUNCTION > PART-CHK > FAN-ON). Press OK to end.
- Lamp (COPIER > FUNCTION > MISC-R > SCANLAMP).
- Move scan head (COPIER > FUNCTION > MISC-R > SC-MOVE)
- P-IP PCB (COPIER > FUNCTION > MISC-P > IP-CHK).
- Power-off mechanisms (COPIER > FUNCTION > MISC-P > POWEROFF).
- Original-size photointerrupters (COPIER > I/O > R-CON, PORT 002, BIT 7, 6, 5, 4).
- Home-position photointerrupter (COPIER > DISPLAY).

To check the photointerrupters

- 1 Start service mode.
- 2 Place standard size paper on the glass.
- 3 Select COPIER > I/O > R-CON, and look at port 002, bits 7,6,5,4, when the top cover or ADF is closed.
- 4 If bits 7,6,5,4 change, the original size sensors have detected the standard size paper and are functioning correctly.
- 5 You can also use (COPIER > DISPLAY > DOC-SZ) to check functionality of the original-size detection photo sensors. Place a standard-size original on the glass and close the cover. The display will report the size detected.
- 6 To check the home-position photointerrupter, select COPIER > DISPLAY > SENSOR > SC-HP.

ADF troubleshooting

Fault isolation

ADF service involves whole-unit exchange, but only after the following procedures have been performed, if necessary:

- **Replace parts.** The only replaceable part on the ADF is the feeding belt (FC1-7815-020CN). See “Removing the feeding belt” on page 431.
- **Clean.** See “Cleaning ADF parts” on page 167.
- **Calibrate and adjust.** See “ADF adjustments” on page 140.

When a new ADF is installed, it must be calibrated and adjusted. See “ADF adjustments” on page 140.

Note

Many of these calibrations can also be performed from Service Mode on the copy module.

These procedures are also documented in the ADF installation guide that ships with the new ADF.

Numbered error codes

Note

If the table indicates replacement of a part, exchange the entire ADF.

E401

This error indicates that either the pick-up motor (M1) does not rotate or the pick-up roller sensor (S5) is faulty. In normal operation, a flag is mounted on the spindle of the pick-up motor (M1), and the rotation of the pick-up motor is mounted in reference to the flag blocking the pick-up roller sensor (S5). This error appears when the sensor does not turn on and off two times or more per second.

Cause	Step	Checks	Yes/No	Action
Pick-up roller sensor (S5)	1	Set the meter range to 20 V dc, and connect the + probe to J5-1 and the - probe to J5-2 on the DADF controller PCB. Turn the flag (light-blocking plate) on the pick-up roller shaft by hand. Is the voltage about 5 V when the flag is at the sensor and 0.15 V when the flag is not at the sensor?	NO	
Pick-up motor (M1)	2	Set the meter range to 200V dc, and connect the + probe to J12-1 and the - probe to J12-2 on the DADF controller PCB. Does the reading change to 22 V when the Copy Start key is pressed?	YES	Check the wiring from the pick-up motor (M1) to the DADF controller PCB. If normal, replace the pick-up motor.
			NO	Replace the DADF controller PCB.

E402

This error indicates that either the belt motor (M3) does not rotate or the belt motor sensor (S10) is faulty. This error occurs when the number of belt motor clock pulses per 200 ms is fewer than the specified value.

Cause	Step	Checks	Yes/No	Action
Belt motor clock sensor (S10)	1	Set the meter range to 20 V dc, and connect the + probe to J9-B4 and the - probe to J-B3 on the DADF controller PCB. Does the reading jump between 0 V and 5 V when the clock disk is turned slowly by hand?	NO	Check the wiring from the belt motor clock sensor (S10) to the DADF controller PCB. If normal, replace the belt motor clock sensor (S10).
Belt motor (M3)	2	Set the meter range to 200 V dc, and connect the + probe to J7-1 and the - probe to J7-2 on the DADF controller PCB. Does the reading change to 23 V when the Copy Start key is pressed?	YES	Check the wiring from the belt motor (M3) to the DADF controller PCB. If normal, replace the belt motor (M3).
			NO	Replace the DADF controller PCB.

E403

This error indicates that either the ADF motor (M2) does not rotate, or the ADF motor sensor (S9) is faulty. This error occurs when the number of ADF motor clock pulses per 200 msec is fewer than the specified value.

Cause	Step	Checks	Yes/No	Action
ADF motor clock sensor (S9)	1	Set the meter range to 20 V dc, and connect the + probe to J9-A11 and the - probe to J9-A10 on the DADF controller PCB. Does the reading jump between 5 V and 0 V when the clock disk is turned slowly by hand?	NO	Check the wiring from the ADF motor clock sensor (S9) to the DADF controller PCB. If normal, replace the ADF motor clock sensor (S9).
ADF motor (M2)	2	Set the meter range to 200 V dc, and connect the + probe to J11-1 and the - probe to J11-2 on the DADF controller PCB. Does the reading change to 23 V when the Copy Start key is pressed?	YES	Check the wiring from the ADF motor (M2) to the DADF controller PCB. If normal, replace the ADF motor (M3).
			NO	Replace the DADF controller PCB.

E404

This error indicates that either the delivery motor (M5) does not rotate, or the delivery motor sensor (S13) is faulty. This error occurs when the number of delivery motor clock pulses per 200 msec is fewer than the specified value.

Cause	Step	Checks	Yes/No	Action
Delivery motor clock sensor (S13)	1	Set the meter range to 20 V dc, and connect the - probe to J14-1 on the DADF controller PCB. Does the reading jump between 0 V and 5V when the clock disk is turned slowly by hand?	NO	Check the wiring from the delivery motor clock sensor (S13) to the DADF controller PCB. If normal, replace the belt motor clock sensor (S13).
Delivery motor (M5)	2	Set the meter range to 200 V dc, and connect the + probe to J14-8 and the - probe to J14-7 on the DADF controller PCB. Does the reading change to 23 V when the Copy Start key is pressed?	YES	Check the wiring from the delivery motor (M5) to the DADF controller PCB. If normal, replace the delivery motor (M5).
			NO	Replace the DADF controller PCB.

E411

This error indicates that either the document tray paper sensor (S1) or the registration sensor (S3) is faulty. This error occurs when the output of the sensor is 2.3 V or higher when there is no paper in the document tray.

Cause	Step	Checks	Yes/No	Action
Document tray paper sensor (S1) Registration sensor (S3)	1	Adjust the levels of the document tray paper sensor and the registration sensor. Is the problem corrected?	YES	Adjust the levels of every sensor.
	2	Is the light-receiving section of each sensor soiled with paper lint.	YES	Clean the light-receiving side of the sensor with a cotton swab.
Document tray paper sensor (S1) Registration sensor (light-receiving) (LED3)	3	For the document tray paper sensor, measure the voltage between connectors J5-7 and J5-9 of the DADF controller PCB. For the registration sensor on the light-receiving side, measure the voltage between connectors J9-B10 and J9-B9 of the DADF controller PCB. Is the voltage between 0.6 V and 1.1 V?	NO	Check the wiring. If normal, replace the document tray paper sensor (S1) or the registration (light-receiving) sensor (LED3).

Document tray paper sensor (S1)	4	Measure the voltage between connectors J5-8 and J5-9 of the DADF controller PCB. Is the reading 1.5 V or less when paper is in the document tray and 4 V or more when there is no paper in the document tray.	YES	Replace the document tray paper sensor (S1).
			NO	Replace the DADF controller PCB.
Registration sensor (S3)	5	Measure the voltage between connectors J9-B12 and J9-B11 of the DADF controller PCB. Is the reading 4.5 V or more when paper is in the document tray and 1.3 V or less when there is no paper in the document tray.	YES	Replace the registration sensor (S1).
			NO	Replace the DADF controller PCB.

E712

The communications IC on the ADF side is faulty. This error occurs when communication with the printer is disrupted for five seconds or more.

Cause	Step	Checks	Yes/No	Action
	1	Turn the power switch off and then on. Is the problem corrected?	YES	Check the wiring from the printer's dc controller PCB and the DADF controller PCB.
Wiring	2	Set the meter range to 200 V dc. Connect a + probe to connector J2-1 and a - probe to connector J2-2. Measure the voltage. Connect a + probe to connector J1-6 and a - probe to connector J2-2. Is the reading 24 V in both cases?	NO	Make sure the ADF is receiving power from the printer.
DADF controller PCB	2	Replace the DADF controller PCB. Is the problem corrected?	YES	End.
			NO	Replace the printer's dc controller PCB.

Self-diagnosis

The microprocessor on the DADF controller PCB checks the state of the ADF and, upon detecting an error, displays one of the numbered error messages in the copy module's LCD.

CAUTION

The copy module might reset itself (turning itself off and on) when the self-diagnosis begins.

Note

If the ADF is out of order, copies can still be made by placing originals on the copyboard glass.

Check the output of the DADF controller PCB

- 1 Power off the copier.
- 2 Shift bit 4 of the DIP switch (DSW) on the DADF controller PCB to ON.

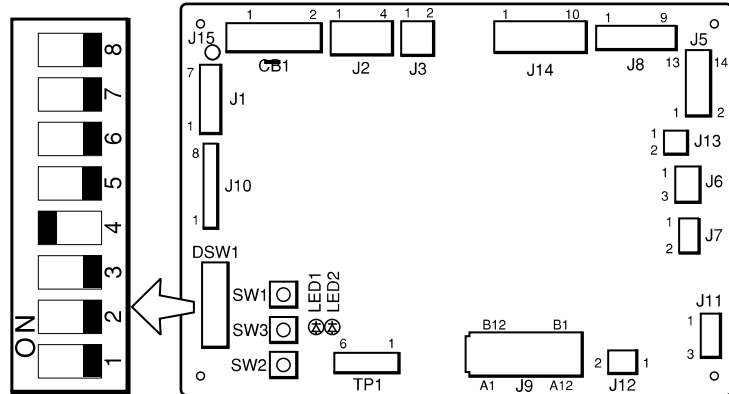


Figure 414. DIP switch on the DADF controller PCB

- 3 Turn on the copier.
- 4 With no original in the ADF, press the push switch SW3 on the DADF controller PCB one time.
- 5 Check to make sure that LED1 and LED2 on the DADF controller PCB light up, and the voltage of TP2-1 and TP2-2 is 1.1 ± 0.1 V.

If the voltage of either TP1-1 or TP1-2 is not as indicated, suspect displacement of the light-emitting/-receiving unit of the sensor that corresponds to the meter probe. Check the position of the sensor.

Side HCI troubleshooting

Overview

When a breakdown or jam occurs in the side HCI, the condition of the unit can be checked by the user LED (LED1: green and orange 2-color light) on the LED PCB and the service LED (LED201: red light) on the deck driver PCB. These LEDs, used in combination with the DIP switches (SW201) on the paper deck driver PCB, will help to troubleshoot the side HCI effectively.

- 1 User LED
- 2 Service LED
- 3 DIP switch bank

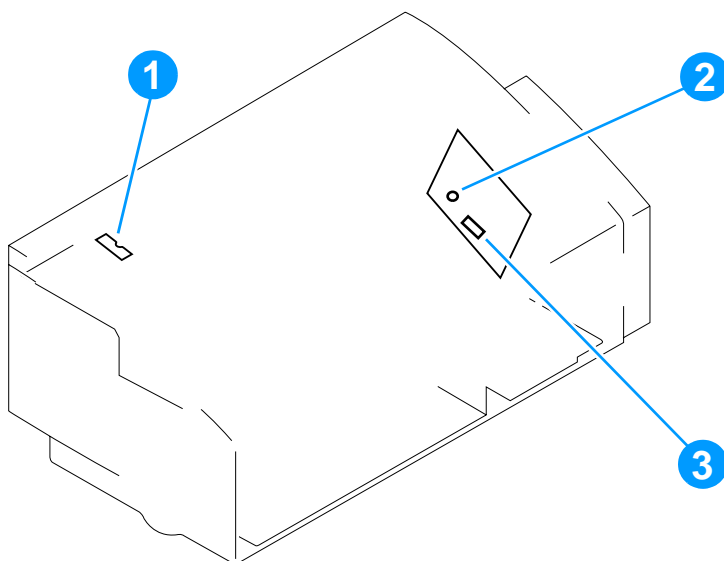


Figure 415.

Figure 5-101

User and service LEDs

User LED

The condition of the user LED (LED1) in the unit enables you to check operational conditions.

- **Continuous green light**—the unit and the printer assembly are communicating normally.
- **Flashing orange light**—a paper jam has occurred, a door is open, or another condition requiring operator intervention has occurred.
- **Continuous orange light**—breakdown.

The user LEDs operate only when the DIP switches are all off or in the factory default position for normal operation.

Service LEDs

The combination of DIP switch settings and service LED (LED202) lighting makes it possible to check the operational condition of the side HCI.

During normal operation the DIP switches are in the following state:

SW201-1	Off
SW201-2	Off
SW201-3	Off
SW201-4	Off

The service LED repeats a cycle consisting of 0.5 seconds on and 0.3 seconds off when the unit is operating normally. When an error occurs, the service LED flashes in the cycle shown below: header (1.0 seconds on, 0.2 seconds off), detected error details (0.3 seconds on, 0.2 seconds off), and pause (2.0 seconds off).

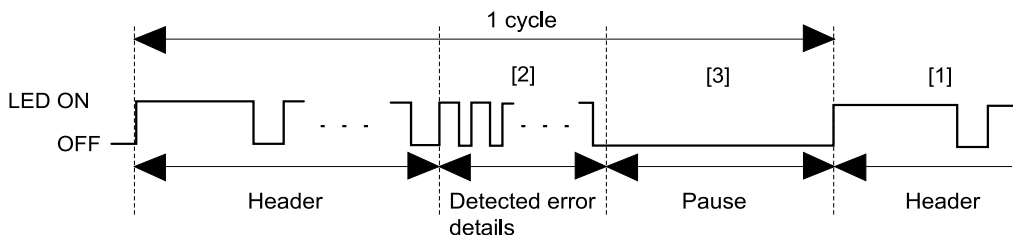


Figure 416. **Figure 5-102**

Use the information in table 92 to identify errors based on the service LED lighting cycle. For example, if the service LED flashes twice in the header section, and once in the error detection section, this indicates a feeder sensor jam.

Table 92. Errors based on LED lighting cycle

Header	Detection details	Error description
2	1	Feeder sensor delay jam
2	2	Feeder sensor initial jam
2	4	Feeder sensor stationary jam
1	1	Deck open
1	2	Upper right cover open, lifter being raised
1	3	Out of paper

Sensor and switch tests

To enter the sensor check mode, set the DIP switches to the following settings:

SW201-1	Off
SW201-2	Off
SW201-3	On
SW201-4	On

Then, turn on the side HCI.

Using the sensor check mode, check the state of the five sensors and five switches listed below.

Sensors	Switches
<ul style="list-style-type: none">• Upper cover open detection sensor (PS1)• Second-sheet detection sensor (PS2)• Paper detection (PS3)• Lifter upper limit detection sensor (PS4)• Feed sensor (PS5)	<ul style="list-style-type: none">• Deck set detection switch (MS1)• Lifter lower limit detection switch (MS2)• Paper-size detection switch (MS3)• Remaining paper detection switch 1 (SW601)• Remaining paper detection switch 2 (SW602)

Run sensor or switch test

- 1 Turn off the HP Color LaserJet 8550 (use the power switch on the copy module).
- 2 Remove the rear cover.
- 3 Set the DIP switches as follows:

SW201-1	Off
SW201-2	Off
SW201-3	On
SW201-4	On

- 4 Pull the side HCI away from the printer.
- 5 Open the upper right cover.
- 6 Turn on the HP Color LaserJet 8550 (use power switch on the copy module).

- 7 Press each of the sensor levers or switches and note whether or not the LEDs light up. A change in the status of the LEDs indicates a properly functioning sensor or switch.

Because it is not possible to check which sensor is malfunctioning when two sensor levers are pressed, press one at a time.

- 8 If an LED does not light up, this indicates that the corresponding switch or LED is malfunctioning.

Test pick-up

Use the side HCI test pick-up mode to watch the side HCI's operation and spot malfunctioning components.

A test pick-up starts when the C-link is connected, the side HCI interlock switch (MS1) is pressed (see note below), the power is turned on, and the DIP switches are set as follows:

SW201-1	On
SW201-2	Off
SW201-3	On
SW201-4	Off

Note

The side HCI interlock switch is also referred to as the Deck Set Detection Switch.

This test continues as long as there is paper in the side HCI.

- 1 Power the system off.
- 2 Connect a C-link cable between the printer and side HCI.
- 3 Remove the rear cover.
- 4 Set the DIP switches as follows:

SW201-1	On
SW201-2	Off
SW201-3	On
SW201-4	Off

- 5 Defeat the side HCI interlock switch so that the side HCI reads that it is attached to the printer.

Note

The side HCI interlock switch is also referred to as the Deck Set Detection Switch.

- 6 Load paper in the side HCI.

- 7** Turn on the system. Paper feeds continuously until the paper runs out or the test is terminated.

The pick-up mode can be interrupted by turning off SW201-1. The test pick-up can be resumed by setting SW201-1 to ON.

When testing with the pick-up mode is complete, turn off all DIP switches.

Faults not identified by error codes

No power

Cause	Step	Checks	Y/N	Action
Poor interface between side HCI and printer (C-link interface)	1	Is the power on signal being input?	NO	Inspect both ends of connectors for damage. Connector the connectors securely.
Defective power switch	2	Remove the power supply assembly and place the tester lead pins across the power switch terminals. Check if the tester gives a reading of 0Ω when the switch is set to ON and a reading of $\infty\Omega$ when it is set to OFF.	NO	Replace the power supply assembly.
Blown power supply fuse, overcurrent/ overvoltage detection circuit triggered	3	Turn off the power switch and wait two minutes before turning it on again. Does the unit now operate normally?	NO	Remove the power supply assembly and replace the blown fuse or replace the power supply. Note: Inspect the side HCI for blown fuses before replacing.
			YES	Disconnect the power supply connector and connect it again. If this does not help, correct the cause that triggered the overcurrent/ overvoltage detection circuits in the power supply assembly and turn on the power again.
Defective power supply unit, wiring, dc load, deck controller PCB	4	Turn off the printer assembly power switch and disconnect connector J203 on the deck controller PCB. Turn on the unit power switch and measure the dc power supply output of cable connector J203. (Be sure not to short-circuit any components at this time.) Does the J203 connector put out the measured dc power supply?	NO	Replace the power supply assembly.
			YES	Check the wiring and dc load ahead of the deck controller PCB. If the wiring and the dc load are OK, replace the deck controller PCB.

Lifter motor failure

Cause	Step	Checks	Y/N	Action
Poor contact in motor drive signal line connector	1	Is J206 on the paper deck drive printed circuit board correctly connected?	NO	Correct the connection.
Defective lift motor	2	Can the error condition be remedied by replacing the motor?	YES	Replace the motor.
Deck controller PCB	3	Can the error condition be remedied by replacing the deck controller PCB?	YES	Replace the deck controller PCB.

Feed motor failure

Cause	Step	Checks	Y/N	Action
Poor contact in feed motor drive signal line connector	1	Are connector J207 and feed motor connector J315 on the deck controller PCB correctly connected?	NO	Correct the connection.
Defective feed motor	2	Can the error condition be remedied by replacing the feed motor?	YES	Replace the feed motor.
Deck controller PCB	3	Can the error condition be remedied by replacing the deck controller PCB?	YES	Replace the deck controller PCB.

Pick-up motor failure

Cause	Step	Checks	Y/N	Action
Poor contact in pick-up motor drive signal line connector	1	Are connector J210 on the deck controller PCB and connectors J305 and J319 on the pick-up correctly connected?	NO	Correct the connection.
Defective pick-up motor	2	Can the error condition be remedied by replacing the pick-up motor?	YES	Replace the pick-up motor.
Deck controller PCB	3	Can the error condition be remedied by replacing the deck controller PCB?	YES	Replace the deck controller PCB.

Paper size identified incorrectly

Cause	Step	Checks	Y/N	Action
Paper size selection tab is set incorrectly	1			Correctly install the tab.
Paper size selection tab fails to actuate switch (usually detects letter size as A4)				Adjust the metal springs to provide more tension to actuate the switch.
Detection switch is faulty				Test the detection switch. If faulty, replace.

Pick-up jams

Cause	Step	Checks	Y/N	Action
Pick-up roller, feed roller 1	1	Is the cassette pick-up roller or feed roller worn or defective?	YES	Replace both the separation roller and feed roller at the same time.
Gears	2	Remove the pick-up assembly and check drive gears and springs. Are there any worn or damaged parts? Are there any loose springs?	YES	Replace worn or damaged parts. Correct springs.
Poor contact in pick-up motor drive connectors	3	Are connector J210 on the paper deck drive printed circuit board?	NO	Correct the connection.
Pick-up motor breakdown, deck controller PCB	4	Can the error condition be remedied by replacing the pick-up motor?	YES	Replace the pick-up motor.
			NO	Replace the deck controller PCB.

Feed assembly jams

Cause	Step	Checks	Y/N	Action
Feed sensor	1	Open the feed assembly after the test pick-up. Did the leading edge of the paper reach the feed sensor?	YES	Go to step 10.
Defective detection mechanism in feed paper sensor	2	Is the registration paper sensor lever or spring worn or defective? Are there any loose springs?	YES	Replace if damaged or defective. Correct spring position.
Feed paper sensor breakdown	3	Can the error condition be corrected by replacing the registration paper sensor?	YES	Replace the feed paper sensor.

Cause	Step	Checks	Y/N	Action
Registration roller	4	Is the registration roller worn, defective, or dirty?	YES	Replace if worn or defective. Clean to remove dirt.
Gears	5	Remove the feed assembly and check drive gears and springs. Are there any worn or damaged parts? Are there any loose parts?	YES	Replace if damaged or defective. Correct spring position.
Poor contact in feed motor drive connectors	6	Are connector J205 and relay connector J302 on the paper deck drive printed circuit board correctly connected?	NO	Correct the connection.
Feed motor breakdown	7	Can the error condition be corrected by replacing the feed motor?	YES	Replace the feed motor.
Feed sensor	8	Are the feed sensor lever and springs damaged or defective? Is the sensor lever spring loose?	YES	Replace if damaged or defective. Correct spring position.
Feed sensor breakdown	9	Can the error condition be corrected by replacing the feed sensor?	YES	Replace.
Feed roller 2	10	Is feed roller 2 worn, defective, or dirty?	YES	Replace if worn or defective. Clean to remove dirt.
Deck controller PCB	11	Can the error condition be corrected by replacing the deck controller PCB?	YES	Replace the deck controller PCB.

Multi-feed jams

Cause	Step	Checks	Y/N	Action
Separation roller	1	Is the separation roller worn or defective?	YES	Replace the separation roller.
Springs	2	Is the spring that holds the separation roller functioning correctly?	NO	Replace the spring if it is damaged. Correct its position if it is loose.

Wrinkled paper

Cause	Step	Checks	Y/N	Action
Rollers	1	Check the pick-up assembly and feed assembly rollers. Are they worn or defective?	YES	Replace rollers if they are worn or defective.

Leading edge is folding

Cause	Step	Checks	Y/N	Action
Feed guide	1	Check the feed path. Are the feed guides damaged or defective?	YES	Replace damaged or defective feed guides.

Skewed feed

Cause	Step	Checks	Y/N	Action
Feed roller, separation guide, pick-up assembly / feed assembly rollers	1	Has paper dust or dirt accumulated in the feed roller and separation roller guides?	YES	Clean to remove dirt.
Pick-up assembly/feed assembly rollers	2	Are there any damaged or defective pick-up assembly and feed assembly rollers?	YES	Replace any damaged or defective rollers.

8 Parts and diagrams

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How to use this chapter

Please note that some parts are listed without a part number, and some list a kit description instead of a part number.

Parts listed without a part number are for reference only and will not be replaced in the field. These parts will not be available to order from HP.

Parts that have a kit description instead of a part number are available to order as a part of a kit. All screws and fasteners may also be obtained locally.

Because of HP's whole-unit exchange policy, ADF parts are listed for reference only. Except for the feed belt (FCI-7815-020CN), ADF parts will not be required in the field.

Printer parts unique to the HP Color LaserJet 8550MFP

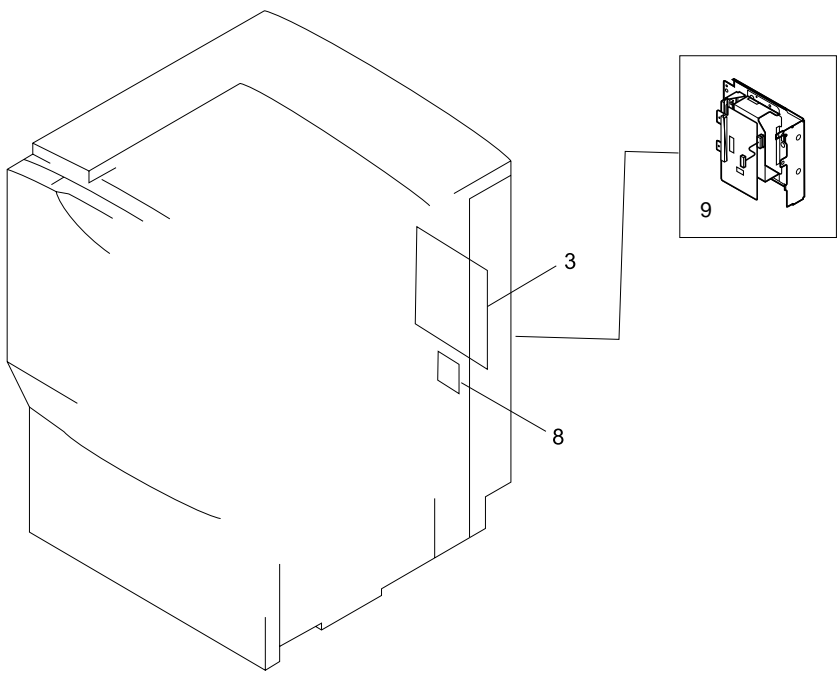


Figure 417. **Interface assembly location**

Table 93. Interface assembly location

Key	Part number	Quantity	Description
	FH2-6455-000CN	1	Connector, short (terminator)
3	FG2-9470-000CN	1	Dc controller PCB assembly
8	FG6-3597-000CN	1	ECO-2 PCB assembly
9		1	Interface assembly

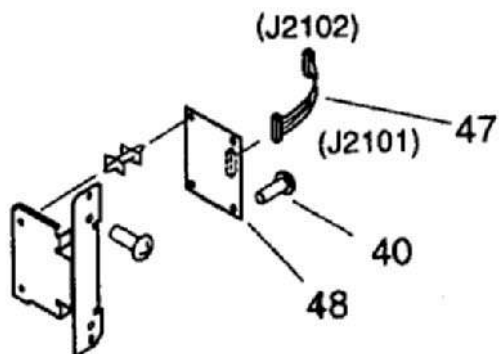


Figure 418. ECO-2 PCB Assembly

Table 94. ECO-2 PCB Assembly

Key	Part number	Quantity	Description
40		2	Screw, TP, M4X8
47		1	ECO-2 cable (J2101, J2102)
48		1	ECO-2 PCB assembly (see Figure 419)

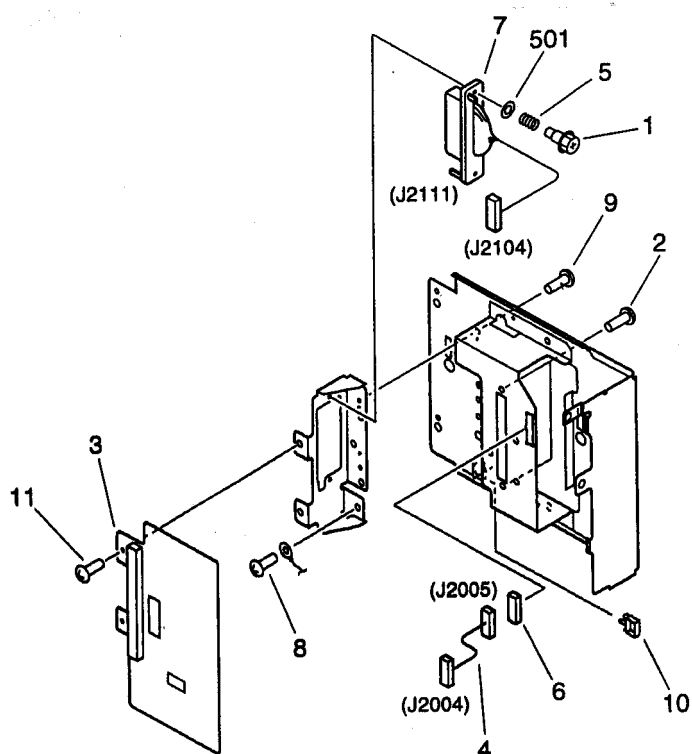


Figure 419. Interface assembly

Table 95. Interface assembly

Key	Part number	Quantity	Description
1		2	Screw, stepped
2		2	Screw, M3X4
3		1	Interface PCB assembly
4		1	IOT cable
5		2	Spring, compression
6		1	Connector, snap tight
7		1	Interface cable
8		1	Screw with washer, truss head
9		4	Screw with washer, M3X6
10		1	Clip, cable
11		2	Screw, TP, M3X6
501		2	Shim

Screw/ring kit

Table 96. Stand screw/ring kit

Part number	Quantity	Description
C7838-67901	1 kit	Stand screw/ring kit
	1	Screw, M6X6
	2	Screw, M6X6
	8	Screw, Allen head, M8X8
	4	Screw, M4X8
	2	Ring, E
	2	Washer, plain
	8	Screw, TP, M4X8
	8	Ring, E
	4	Washer, plain
	8	Washer, spring
	8	Screw, allen head, M6X10
	4	Washer, spring

Stand assembly

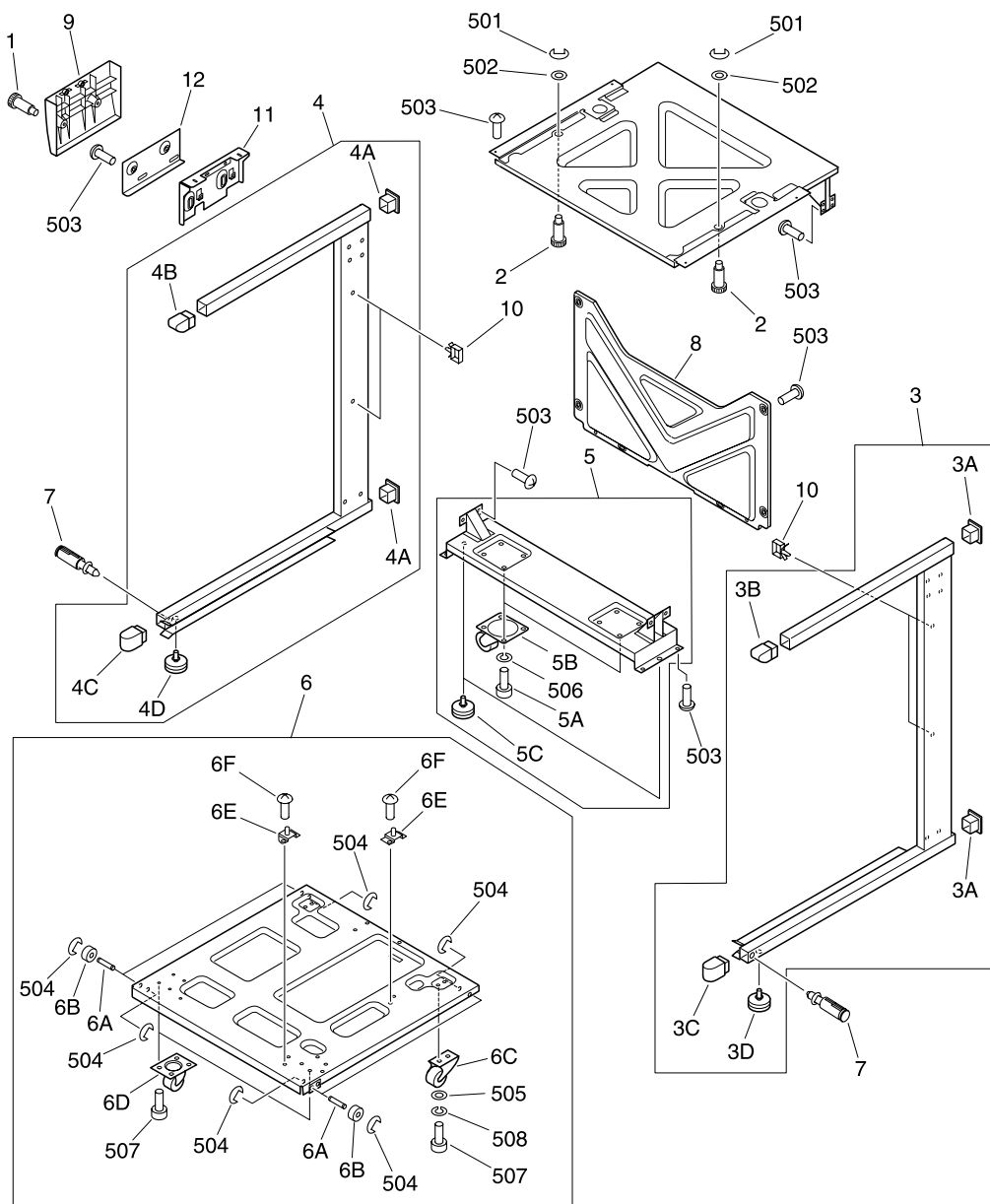


Figure 420. Stand assembly

Table 97. Stand assembly

Key	Part number	Quantity	Description
1	Stand screw/ring kit	1	Screw, M6X6
2	Stand screw/ring kit	2	Screw, M6X6
3		1	Right frame assembly
3A		2	Cap
3B		1	Cap, front upper
3C	FB4-2689-000CN	1	Cap, front lower
3D	XZ9-0491-000CN	1	Adjuster
4		1	Left frame assembly
4A		2	Cap
4B		1	Cap, front upper
4C	FB4-2689-000CN	1	Cap, front lower
4D	XZ9-0491-000CN	1	Adjuster
5		1	Lower crossmember assembly
5A	Stand screw/ring kit	8	Screw, allen head,M8X8
5B	XZ9-0367-000CN	2	Caster
5C	XZ9-0491-000CN	2	Adjuster
6		1	Lower plate assembly
6A	FB4-2675-000CN	4	Shaft, roller
6B	XG9-0304-000CN	4	Bearing
6F	Stand screw/ring kit	4	Screw, M4X8
6C	XZ9-0446-000CN	2	Caster
6D	XZ9-0457-000CN	2	Caster
6E		2	Pin, positioning
7	FG6-0394-000CN	2	Lock pin assembly
8		1	Plate, reinforcement, rear
9	FB4-2686-000CN	1	Cover, mount plate
10		4	Clamp, cable
11		1	Plate, mount, 1
12		1	Plate, mount, 2
501	Stand screw/ring kit	2	Ring, E
502	Stand screw/ring kit	2	Washer, plain
503	Stand screw/ring kit	32	Screw, TP, M4X8
504	Stand screw/ring kit	8	Ring, E
505	Stand screw/ring kit	4	Washer, plain
506	Stand screw/ring kit	8	Washer, spring
507	Stand screw/ring kit	12	Screw, allen head, M6X10
508	Stand screw/ring kit	4	Washer, spring

Screw/ring kit

Table 98. Screw/ring kit

Part number	Quantity	Description
C7836-67901	1 kit	Copy module screw/ring kit
	4	Screw with washer, M4X6
	2	Screw with washer, M3X6
	*	Screw, mach., truss head, M4X6
	1	Screw, mach., C.S. head, M4X8
	4	Screw, M4X6
	4	Screw, TP, M3X4
	6	Ring, E
	*	Screw, mach., truss head, M4X6
	1	Screw, mach., truss head, M4X10
	4	Screw with washer, M3X8
	*	Screw, TP, M4X6
	*	Screw, mach., truss head, M4X6
	2	Screw, stepped, M4
	2	Screw, stepped
	2	Screw, stepped, M4
	*	Screw, mach., truss head, M4X6
	2	Screw, mach., truss head, M3X12
	8	Screw, TP, M3X6
	1	Screw, stepped, M4
	8	Screw, mach., truss head, M4X5
	*	Screw, mach., truss head, M4X6
	*	Screw, TP, M4X6
	2	Screw, tapping, pan head, M2.6X8
	4	Screw, mach., truss head, M3X6
	2	Washer, toothed lock
	5	Screw, mach., truss head, M4X6
	2	Screw, mach., truss head, M4X20
	2	Screw, mach., truss head, M5X6
	1	Screw with washer, M3X6
	8	Screw, M3X8
	2	Screw, mach., truss head, M3X6
*Several used		

Table 98. Screw/ring kit (continued)

Part number	Quantity	Description
	4	Screw with washer, M4X6
	4	Screw, mach., truss head, M4X16
	8	Screw, tapping, truss head, M4X12
	1	Screw, M3X6
	1	Screw, mach., truss head, M3X4
	2	Screw, mach., truss head, M3X12
	4	Screw with washer, M3X6
	4	Screw with washer, M3X8
	8	Screw, TP, M3X6
	1	Screw with washer, M4X6
	2	Screw, mach., truss head, M4X6
	8	Screw, mach., truss head, M4X6
	2	Screw, mach., truss head, M4X30
	8	Screw, TP, M3X6
	2	Screw, mach., truss head, M4X6
	2	Screw, mach., truss head, M3X6
	1	Screw with washer, M4X6
*Several used		

Belt kit

Table 99. Belt kit

Part number	Quantity	Description
C7836-67902	1 kit	Copy module belt kit
	1	Flat belt, timing, 100T

Gear/pulley kit

Table 100. Gear/pulley kit

Part number	Quantity	Description
C7836-67903	1 kit	Copy module gear/pulley kit
	1	Spacer, pulley
	1	Pulley, 66T
	2	Pulley
	4	Pulley
	2	Pulley, tension

Spring kit

Table 101. Spring kit

Part number	Quantity	Description
C7836-67904	1 kit	Copy module spring kit
	2	Spring, leaf
	1	Spring, leaf
	2	Spring, tension
	1	Spring, tension
	1	Spring, compression

Assembly location diagram

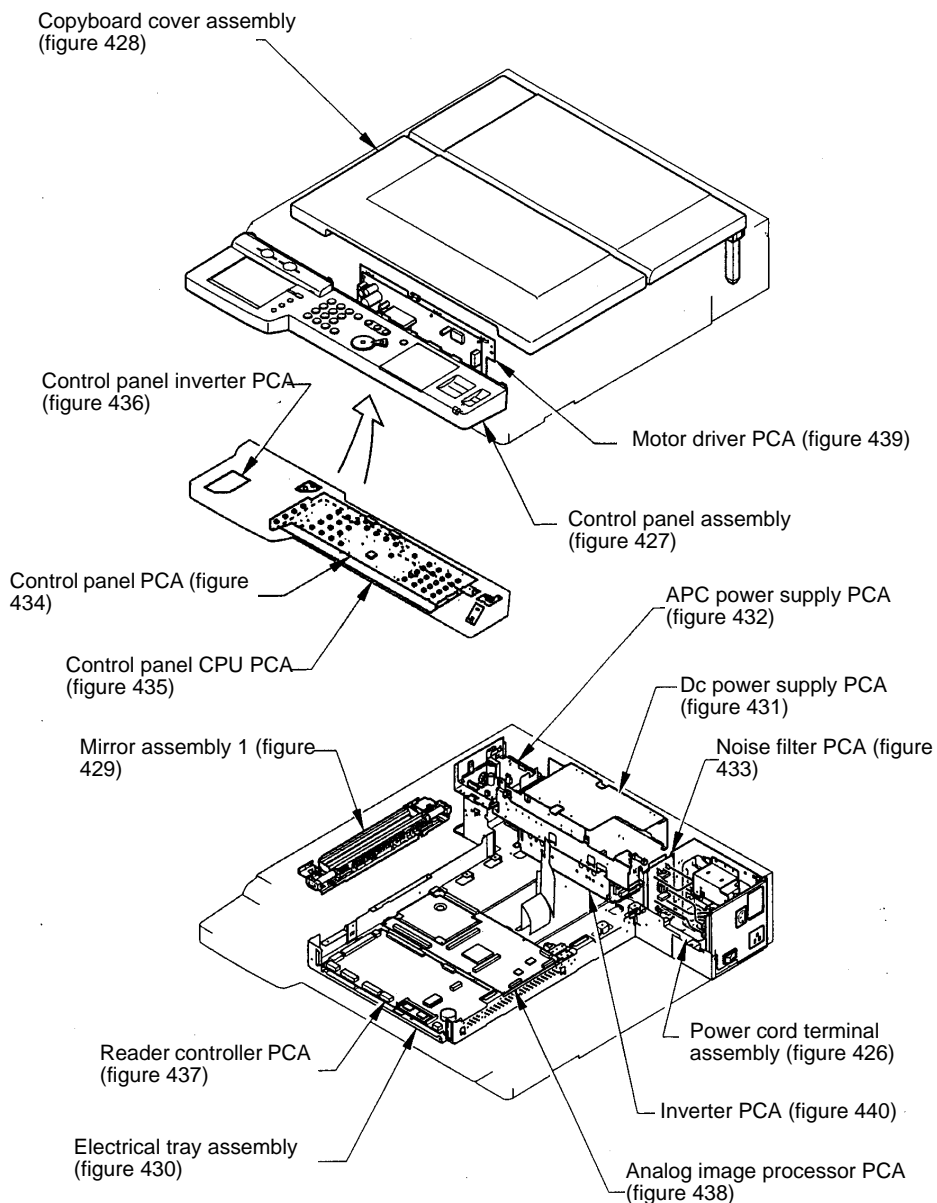


Figure 421. Assembly location diagram

External covers and panels

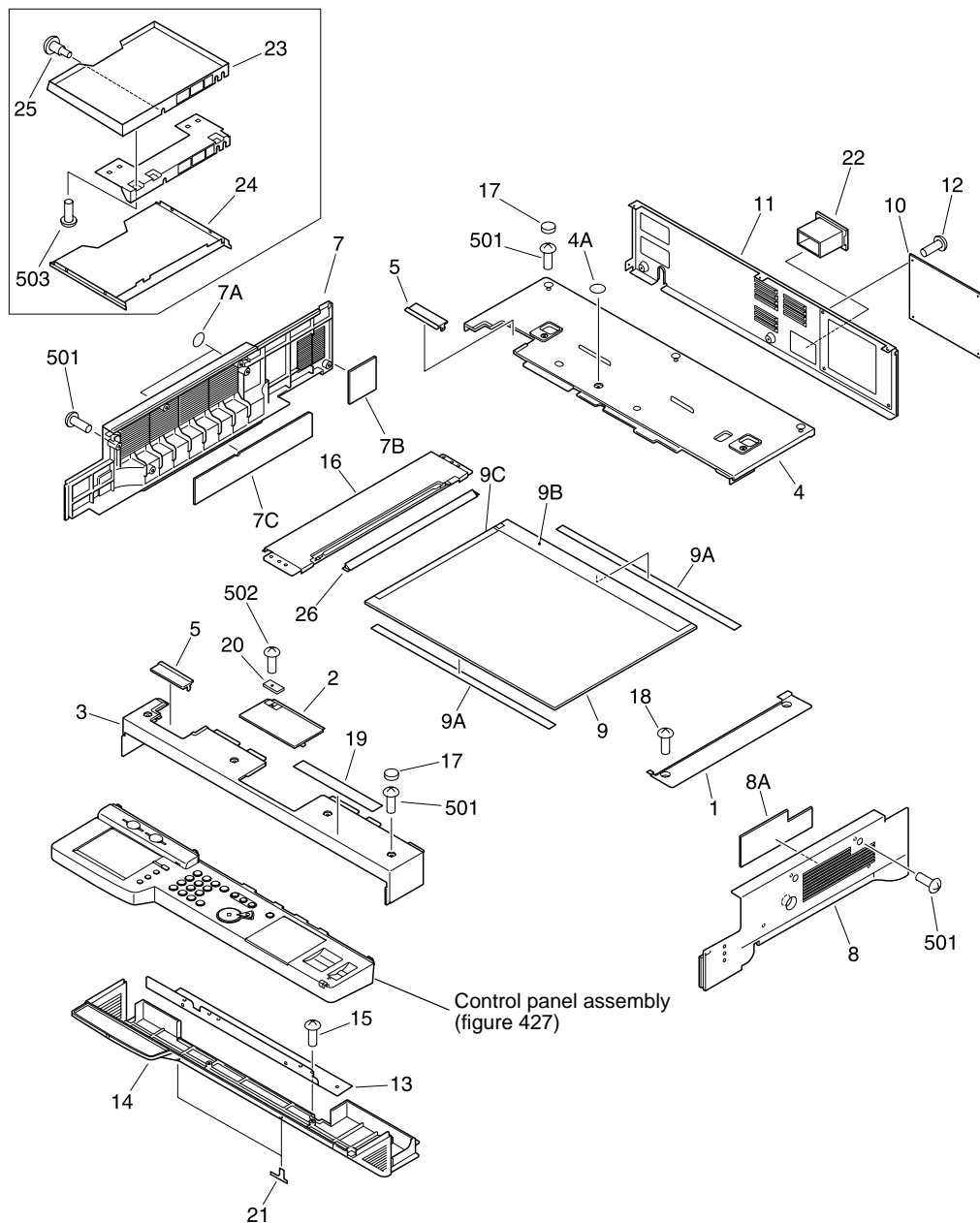


Figure 422. External covers and panels

Table 102. External covers and panels

Key	Part number	Quantity	Description
1		1	Retainer, glass, right
2	FB5-5318-000CN	1	Cover, upper
3	FB5-5317-000CN	1	Cover, upper, front
4	FF6-0284-000CN	1	Cover, upper, rear
4A		1	Seal, cover
5	FB5-5324-000CN	2	Cover, upper, small
6	FB5-5334-000CN	1	Cover, main switch
7	FF6-0285-000CN	1	Cover, left
7A		2	Seal, cover
7B	FB4-0834-000CN	1	Air filter, 3
7C	FB4-0888-000CN	1	Air filter, 1
8	FF6-0286-000CN	1	Cover, right
8A	FB4-0889-000CN	1	Air filter, 2
9	FF5-8662-000CN	1	Glass, copyboard (inch/A size)
9		1	Glass, copyboard (A size)
9A		2	Tape, glass protective
9B	FS6-8499-000CN	1	Plate, length index (inch/A size)
9B		1	Plate, length index (A size)
10	FB5-5321-000CN	1	Cover, blanking, rear
11	FB5-5320-000CN	1	Panel, rear
12	Copy module screw/ring kit	4	Screw with washer, M4X6
13	FF6-0288-000CN	1	Holder, jump (inch/A size)
13		1	Holder, jump (A size)
13A	FS6-8920-000CN	1	Plate, size index (inch/A size)
13A		1	Plate, size index (A size)
14	FB5-5315-000CN	1	Cover, front, lower
15		1	Cover, connector
16		1	Left glass retainer assembly
17	FB5-5325-000CN	7	Cover, rubber
18	Copy module screw/ring kit	2	Screw with washer, M3X6
19		1	Label, "Legal Limitations" (USA)
19		1	Label, "Legal Limitations" (France)
19		1	Label, "Legal Limitations" (Germany)
19		1	Label, "Legal Limitations" (English)
19		1	Label, "Legal Limitations" (Italy)
19		1	Label, "Legal Limitations" (Other)
19		1	Label, "Legal Limitations" (Spain)
20	FA3-9315-000CN	1	Plate, cover
21	FB5-5316-000CN	2	Cap, front lower
501	Copy module screw/ring kit	*	Screw, mach., truss head,M4X6
502	Copy module screw/ring kit	1	Screw, mach., C.S. head,M4X8
*Several used			

Internal components

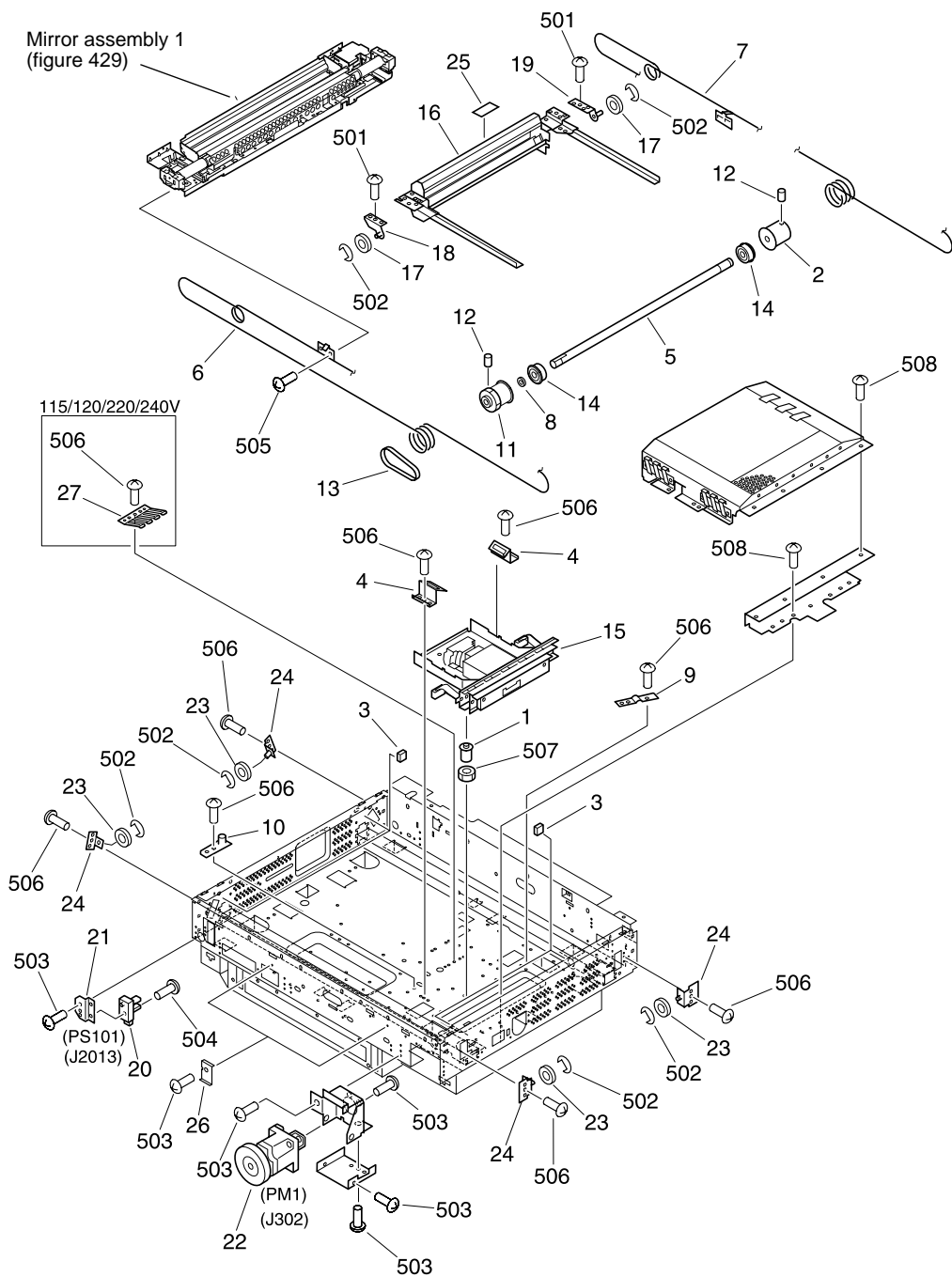


Figure 423. Internal components (1 of 3)

Table 103. Internal components (1 of 3)

Key	Part number	Quantity	Description
1		3	Screw, adjusting
2		1	Pulley
3		4	Damper
4	Copy module spring kit	2	Spring, leaf
5		1	Shaft, drive, mirror mounting
6	FB4-0740-000CN	1	Wire, scanner, front
7	FB4-0741-000CN	1	Wire, scanner, rear
8	Copy module gear/pulley kit	1	Spacer, pulley
9		1	Plate, grounding, 3
10		1	Plate, lens mounting
11	Copy module gear/pulley kit	1	Pulley, 66T
12	Copy module screw/ring kit	4	Screw, M4X6
13	Copy module belt kit	1	Flat belt, timing, 100T
14		2	Bearing, ball
15	FG5-9837-000CN	1	CCD unit
16	FG5-9839-000CN	1	Mirror assembly 2
17	Copy module gear/pulley kit	2	Pulley
18		1	Mount, pulley, front
19		1	Mount, pulley, rear
20	FH7-7306-000CN	1	Photo-interrupter, S7G37 (PS101 J2013)
21	FB4-0745-000CN	1	Plate, home position sensor
22	FH6-1461-000CN	1	Motor, stepping (PM1 J302)
23	Copy module gear/pulley kit	4	Pulley
24		4	Retainer, pulley
25		1	Label, "Warning"
26		2	Plate, adjusting
27		1	Spring, leaf
501	Copy module screw/ring kit	4	Screw, TP, M3X4
502	Copy module screw/ring kit	6	Ring, E
503	Copy module screw/ring kit	*	Screw, mach., truss head,M4X6
504	Copy module screw/ring kit	1	Screw, mach., truss head,M4X10
505	Copy module screw/ring kit	4	Screw with washer, M3X8
506	Copy module screw/ring kit	*	Screw, TP, M4X6
507	XB7-2100-409CN	3	Nut, hex, M4
508	Copy module screw/ring kit	*	Screw, mach., truss head,M4X6
*Several used			

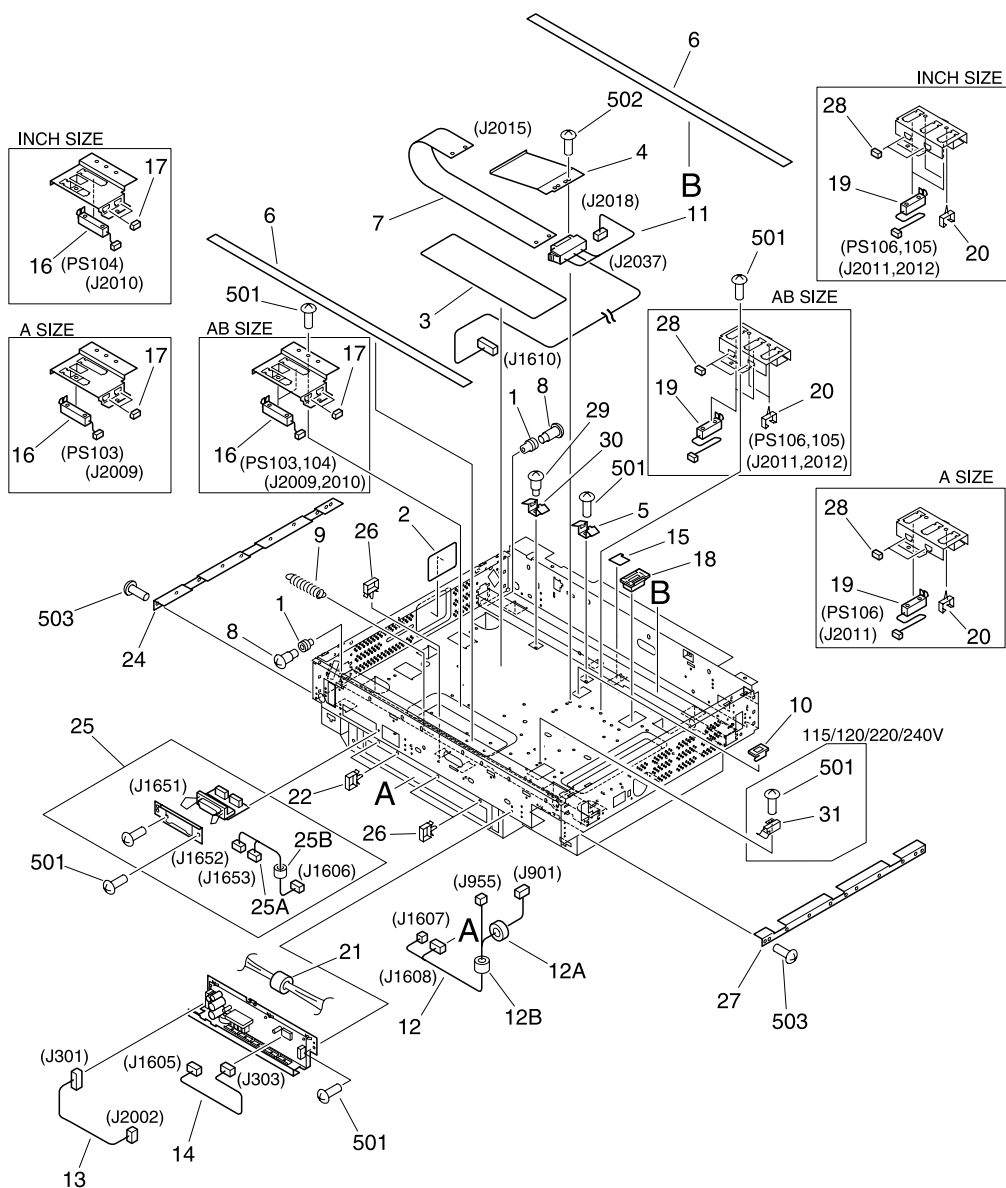


Figure 424. Internal components (2 of 3)

Table 104. Internal components (2 of 3)

Key	Part number	Quantity	Description
1	Copy module gear/pulley kit	2	Pulley, tension
2		1	Sheet, protect, A
*Several used			

Table 104. Internal components (2 of 3) (continued)

Key	Part number	Quantity	Description
3		1	Sheet, protect, B
4	FB4-0752-000CN	1	Sheet, back-up
5		1	Spring, leaf
6	FB4-0705-000CN	2	Plate, rail
7	FH2-6452-000CN	1	Film, fluorescent (J2015, 2037)
8	Copy module screw/ring kit	2	Screw, stepped, M4
9	Copy module spring kit	2	Spring, tension
10		3	Clamp, cable
11		1	Cable, fluorescent (J1610, 2018, 2037)
12		1	Control panel connector cable (J901, 955, 1607, 1608)
12A		1	Core, ferrite
12B		1	Core, ferrite
13		1	Motor driver power cable (J301, 2002)
14		1	Motor driver signal cable (J303, 1605)
15		1	Sheet, blanking
16	FH7-7424-000CN	1	Sensor, document size (A size PS103 J2009)
16	FH7-7388-000CN	1	Sensor, document size (inch size PS104 J2010)
17		2	Connector, 3P (J2009, 2010)
18		3	Support, cable
19	FH7-7423-000CN	1	Sensor, document size (A size PS106 J2011)
19	FH7-7386-000CN	2	Sensor, document size (inch size PS105, 106 J2011, 2012)
20		1	Clip, cable (A size)
20		2	Clip, cable (inch size)
21		1	Ferrite core
22		2	Clip, cable
23		2	Screw, stepped
24		1	Spring, leaf
25	FG5-9856-000CN	1	Connector mounting assembly (J1651)
25A		1	Cable, connector mounting (J1606, 1652, 1653)
25B		1	Ferrite core
26		15	Clip, cable
27		1	Spring, leaf
28		2	Connector, 3P (J2011, 2012)
29		2	Screw, stepped, M4
30		1	Spring, leaf
31		1	Spring, leaf
501	Copy module screw/ring kit	*	Screw, mach., truss head,M4X6
502	Copy module screw/ring kit	2	Screw, mach., truss head,M3X12
503	Copy module screw/ring kit	17	Screw, TP, M3X6
*Several used			

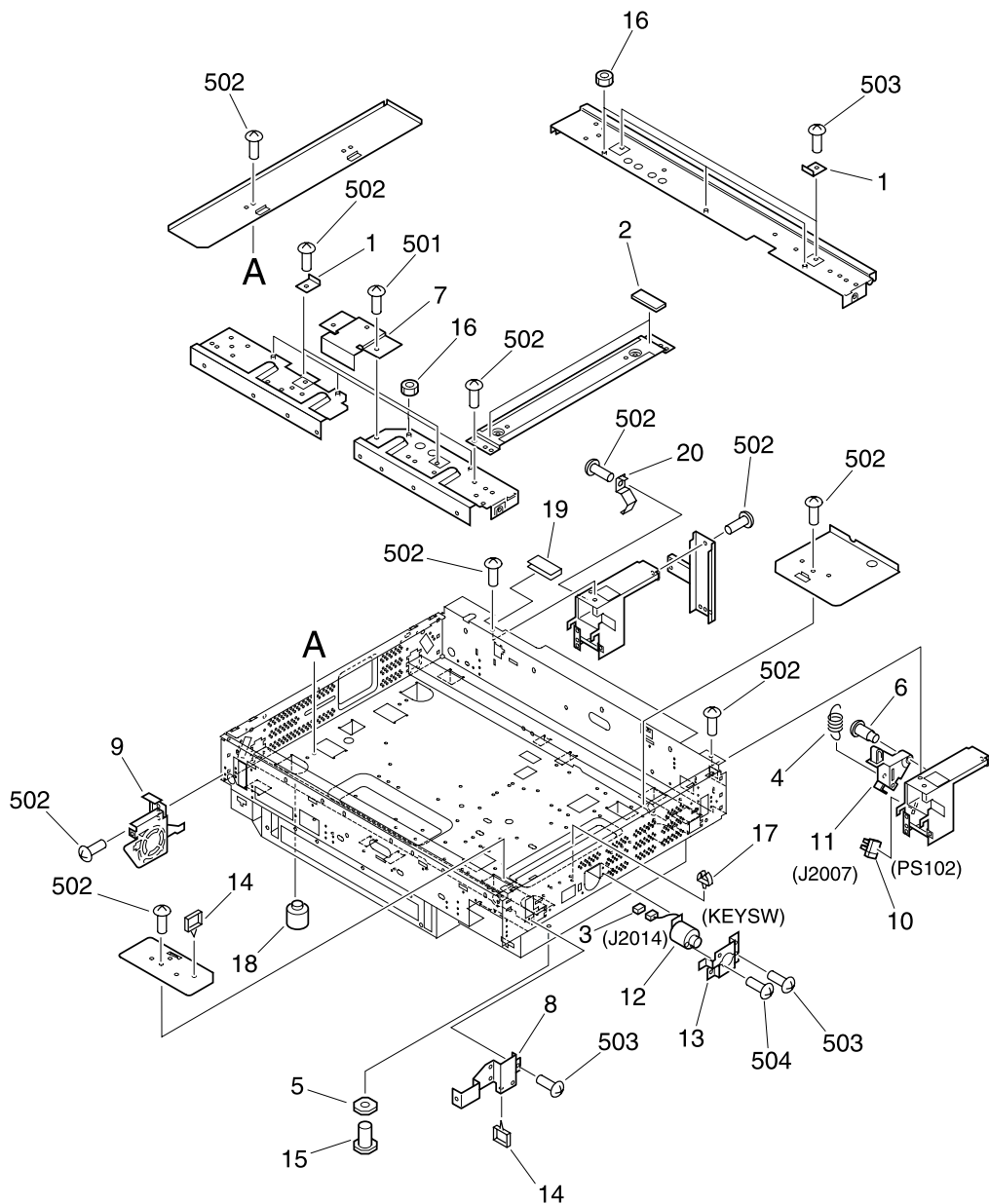


Figure 425. Internal components (3 of 3)

Table 105. Internal components (3 of 3)

Key	Part number	Quantity	Description
1		4	Plate, glass retaining
2		1	Support, glass, right
3		1	Connector, 2P (J2014)
4	Copy module spring kit	1	Spring, tension
5		1	Nut
6	Copy module screw/ring kit	1	Screw, stepped, M4
7		1	Cover, lower
8		1	Bracket, control card
9		1	Bracket, fan
10	FH7-7312-000CN	1	Photo-interrupter (PS102 J2007)
11		1	Mount, sensing
12	FH7-6139-000CN	1	Switch, key (KEY SW J2014)
13		1	Mount, key switch
14		2	Clamp, cable
15	XZ9-0444-000CN	1	Adjuster
16		7	Nut, hex, M6
17		9	Clip, cable
18	XH9-0105-000CN	3	Foot, rubber
19		1	Sheet, protect
20		1	Spring, leaf
501	Copy module screw/ring kit	28	Screw, mach., truss head,M4X5
502	Copy module screw/ring kit	*	Screw, mach., truss head,M4X6
503	Copy module screw/ring kit	*	Screw, TP, M4X6
504	Copy module screw/ring kit	2	Screw, tapping, pan head,M2.6X8
*Several used			

Power cord terminal assembly

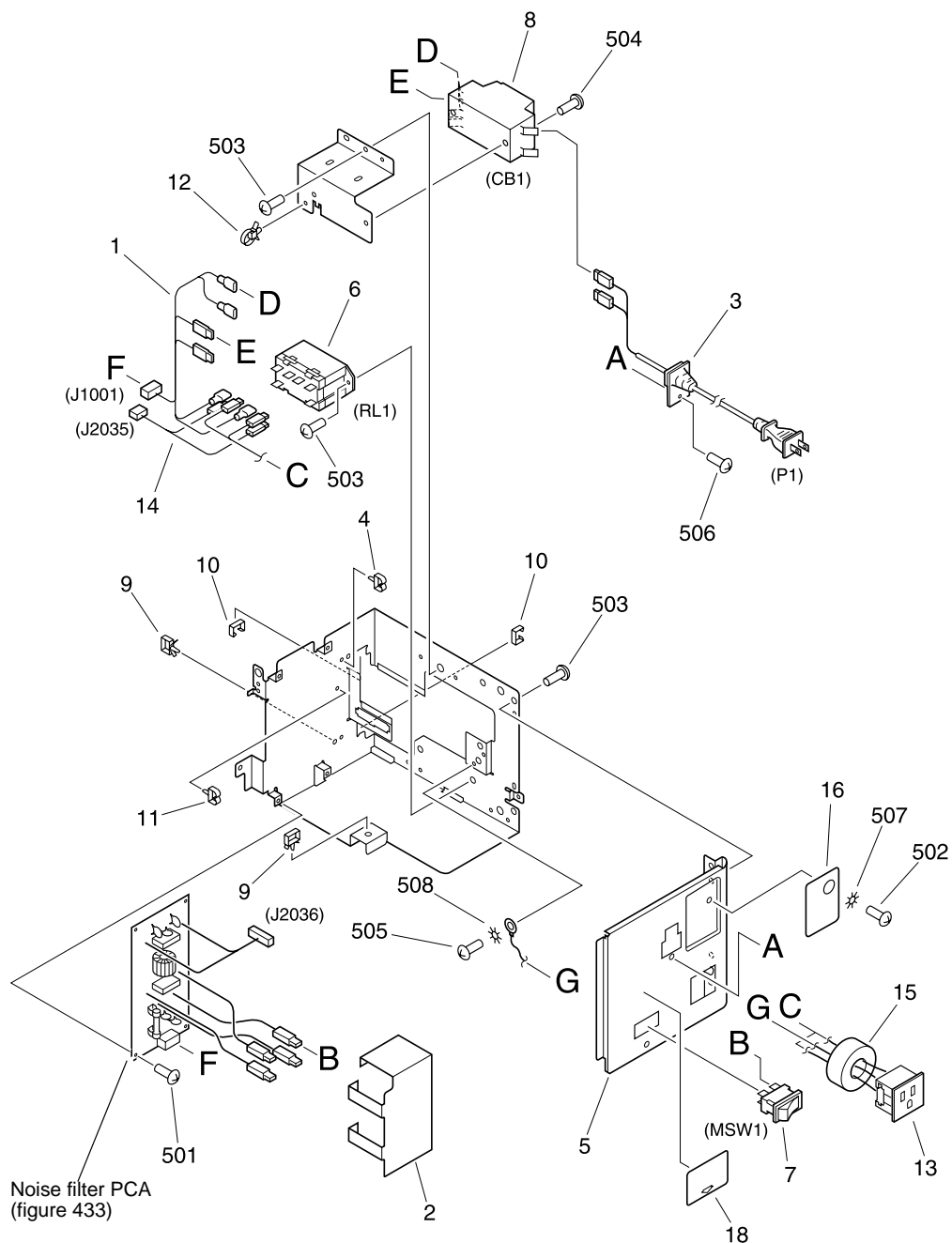


Figure 426. Power cord terminal assembly

Table 106. Power cord terminal assembly

Key	Part number	Quantity	Description
1		1	Cable, relay breaker (J1001)
2		1	Sheet, protective
3		1	Sheet, blanking
4		1	Clip, cable
5	FB5-5330-000CN	1	Cover, power supply
6	FH7-6208-000CN	1	Relay, AC 250 V (RL1)
7	FH7-6254-000CN	1	Switch, main (MSW1)
8	FH7-7457-000CN	1	Breaker, circuit (CB1), 100/127 V
	FH7-7458-000CN	1	Breaker, circuit (CB1), 220/240V
9		2	Clip, cable
10		2	Clip, cable
11		1	Clip, cable
12		2	Clamp, cable
13		1	Cable, outlet
14		1	Cable, relay dc (J2035)
15		2	Ferrite core
16		1	Label, connecting
17		1	Cable, inlet
18		1	Label, "Switch off caution"
501	Copy module screw/ring kit	4	Screw, mach., truss head, M3X6
502	Copy module screw/ring kit	2	Washer, toothed lock
503	Copy module screw/ring kit	5	Screw, mach., truss head, M4X6
504	Copy module screw/ring kit	2	Screw, mach., truss head, M4X20
505	Copy module screw/ring kit	2	Screw, mach., truss head, M5X6

Control panel assembly

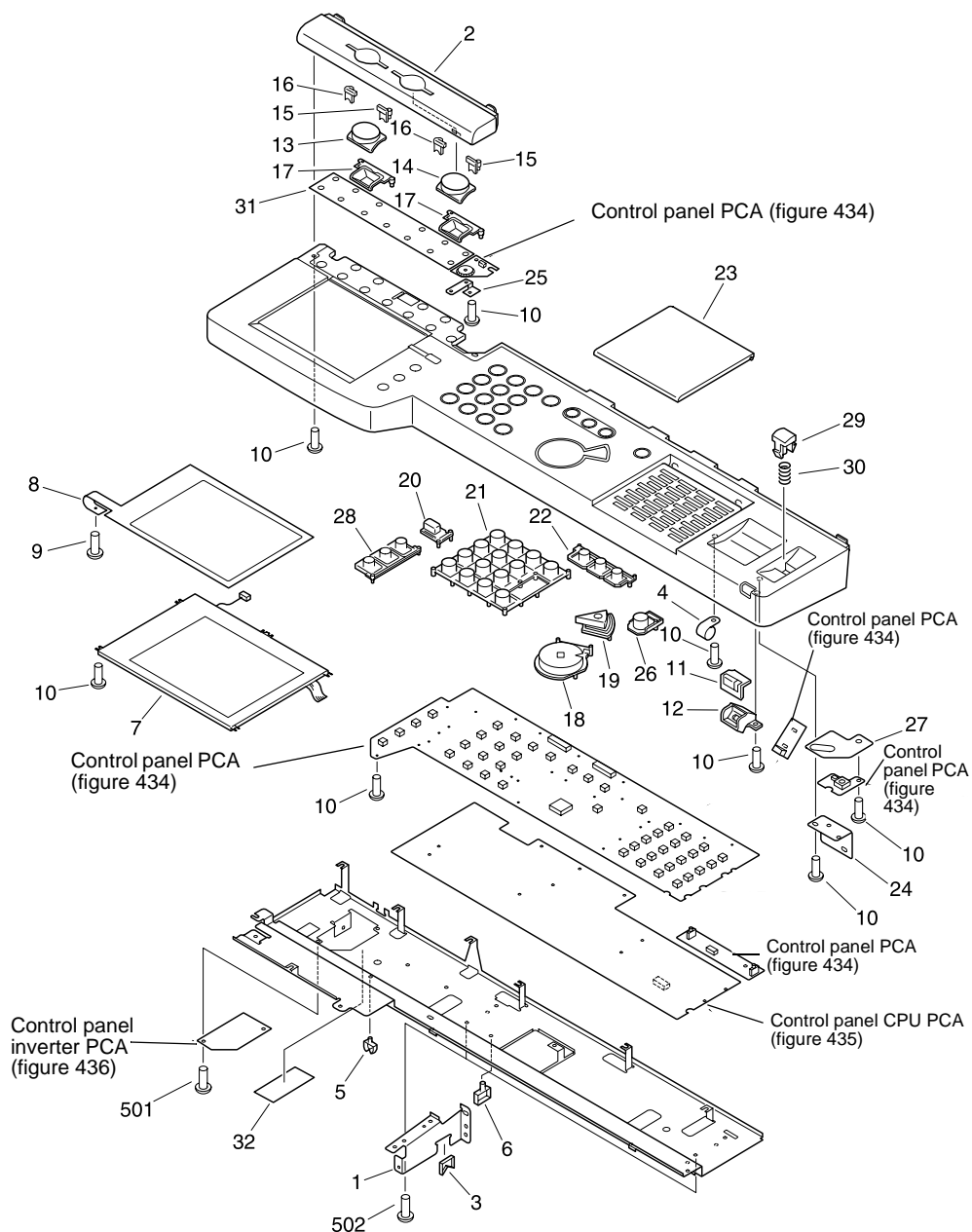


Figure 427. Control panel assembly

Table 107. Control panel assembly

Key	Part number	Quantity	Description
	FG6-5843-000CN	1	Control panel assembly
1		2	Bracket, control panel
2		1	Cover, function
3		2	Clip, cable
4		2	Clamp, cable
5		1	Clamp, cable
6		3	Clip, cable
7	FG6-0365-000CN	1	LCD panel unit
8	FB4-6704-000CN	1	Sheet, grounding
9	Copy module screw/ring kit	1	Screw with washer, M3X6
10	Copy module screw/ring kit	54	Screw, M3X8
11	FB2-4243-000CN	1	Cover, lamp filter
12	FB2-4244-000CN	1	Support exposure light
13	FB4-3142-000CN	1	Key top, function, 1
14	FB4-7871-000CN	1	Key top, function, 3
15		2	Cover, led panel, right
16		2	Cover, led panel, left
17		2	Reflector
18	FB4-2581-000CN	1	Key top, start
19	FB4-2582-000CN	1	Key top, stop
20	FB4-2583-000CN	1	Key top, reset
21	FB4-2584-000CN	1	Key top, number
22	FB4-2585-000CN	1	Key top, 1
23	FB5-5313-000CN	1	Cover, one-touch, 3
24		1	Support, right
25		1	Plate, grounding
26	FB4-2594-000CN	1	Key top, standby
27		1	Sheet, insulating
28	FB4-2597-000CN	1	Key top, user guide
29	FB4-6703-000CN	1	Button, switch
30	Copy module spring kit	1	Spring, compression
31	FH6-0734-000CN	1	Function switch PCB unit
32		1	Label, "Warning, High Voltage"
501	Copy module screw/ring kit	2	Screw, mach., truss head, M3X6
502	Copy module screw/ring kit	4	Screw with washer, M4X6

Copyboard cover assembly

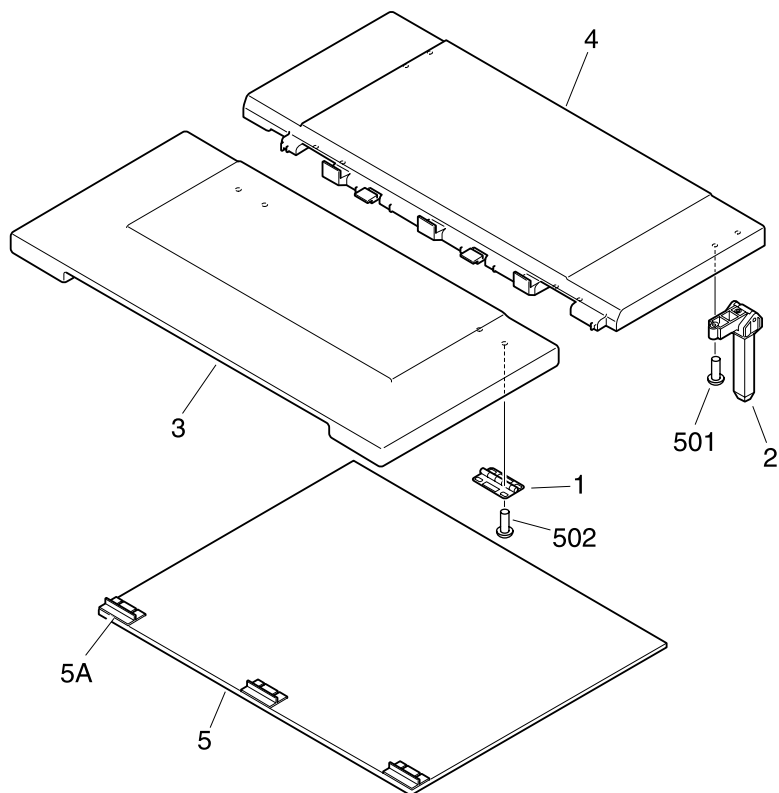


Figure 428. Copyboard cover assembly

Table 108. Copyboard cover assembly

Key	Part number	Quantity	Description
	FG6-5851-000CN	1	Copyboard cover assembly
1		2	Plate, reinforcement
2		2	Hinge, copyboard cover
3		1	Cover, copyboard, front
4		1	Cover, copyboard, rear
5	FF9-1694-020CN	1	Copyboard cover cushion assembly
5A		3	Plate, cushion mounting
6		2	Plate, auxiliary, rear
7		2	Plate, auxiliary, front
8		3	Sheet, rubber
501	Copy module screw/ring kit	4	Screw, mach., truss head, M4X16
502	Copy module screw/ring kit	8	Screw, tapping, truss head, M4X12

Mirror assembly 1

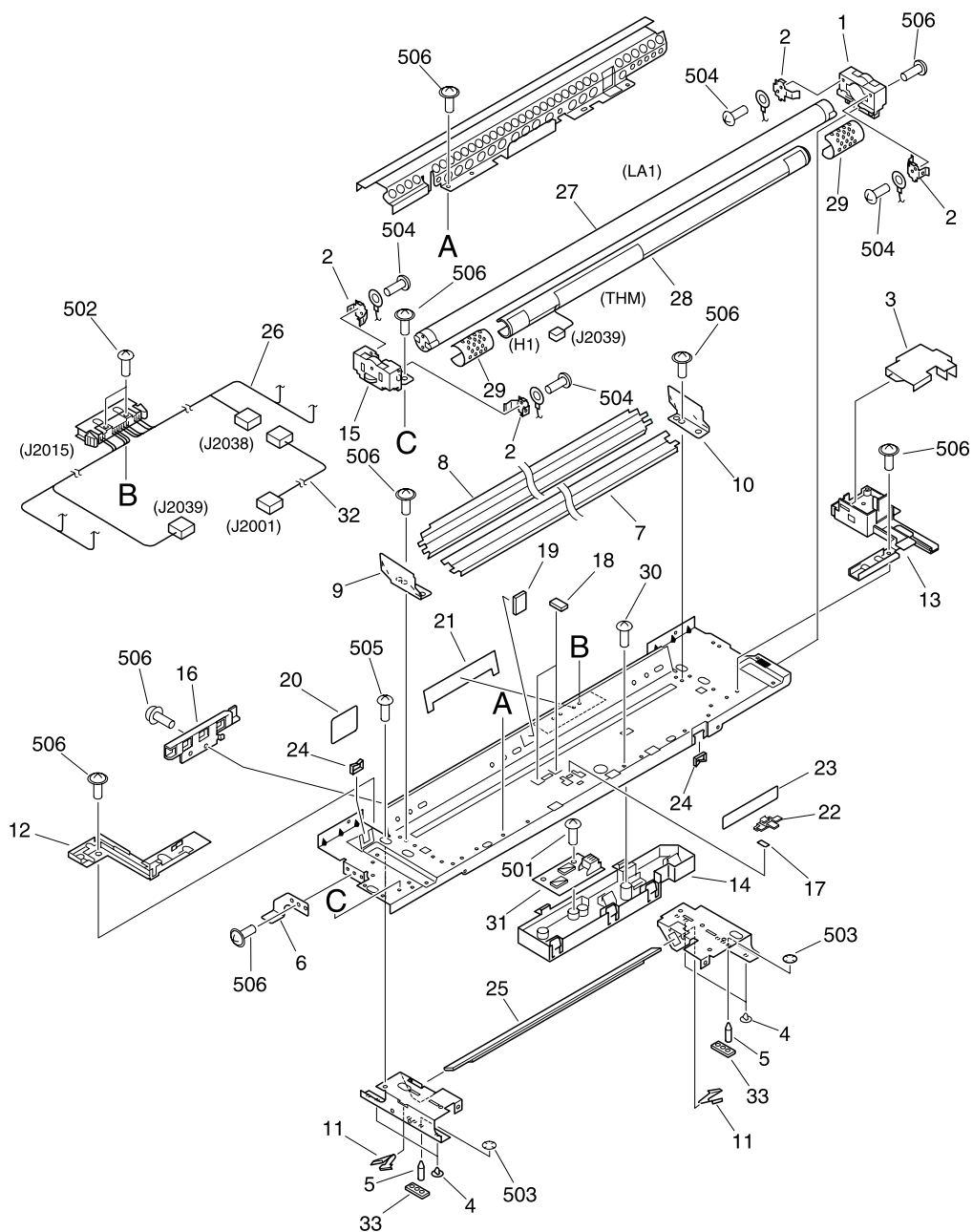


Figure 429. Mirror assembly 1

Table 109. Mirror assembly 1

Key	Part number	Quantity	Description
	FG5-9838-000CN	1	Mirror assembly 1
1		1	Mount, terminal, rear
2		4	Plate, contact
3		1	Cover, cable guide
4	FB3-2411-000CN	4	Pin, slide
5	FB3-7692-000CN	4	Pin, pad, 2
6		1	Flag, HP sensor
7		1	Reflector, lower
8		1	Reflector, auxiliary
9		1	Reflector, front
10		1	Reflector, rear
11		2	Spring, leaf, mirror
12		1	Holder, cable, front
13		1	Holder, cable, rear
14		1	Mount, sensor
15		1	Mount, terminal, front
16		3	Guide, cord
17		1	Exposure filter
18		2	Damper, 1
19		1	Damper, 2
20		1	Seal, insulation, 1
21		1	Seal, insulation, 2
22		1	Cap, sensor
23		1	Plate, light blocking
24		2	Clamp, cable
25		1	Mirror 1
26		1	Cable, fluorescent lamp (J2015, 2038, 2039)
27	FH7-3336-000CN	1	Lamp, fluorescent (LA1)
28	FH7-4559-000CN	1	Heater, fluorescent lamp (H1 THM J2039)
29		2	Cover, heater
30	Copy module screw/ring kit	1	Screw, M3X6
31	FG2-9439-000CN	1	Light sensor PCB assembly
32		1	Cable, exposure control (J2001, 2038)
33	FB4-0802-000CN	2	Pad, oil
501	Copy module screw/ring kit	1	Screw, mach., truss head, M3X4
502	Copy module screw/ring kit	2	Screw, mach., truss head, M3X12
503		4	Ring, toothed lock
504		4	Screw with washer, M3X6
505	Copy module screw/ring kit	4	Screw with washer, M3X8
506	Copy module screw/ring kit	15	Screw, TP, M3X6

Electrical tray assembly

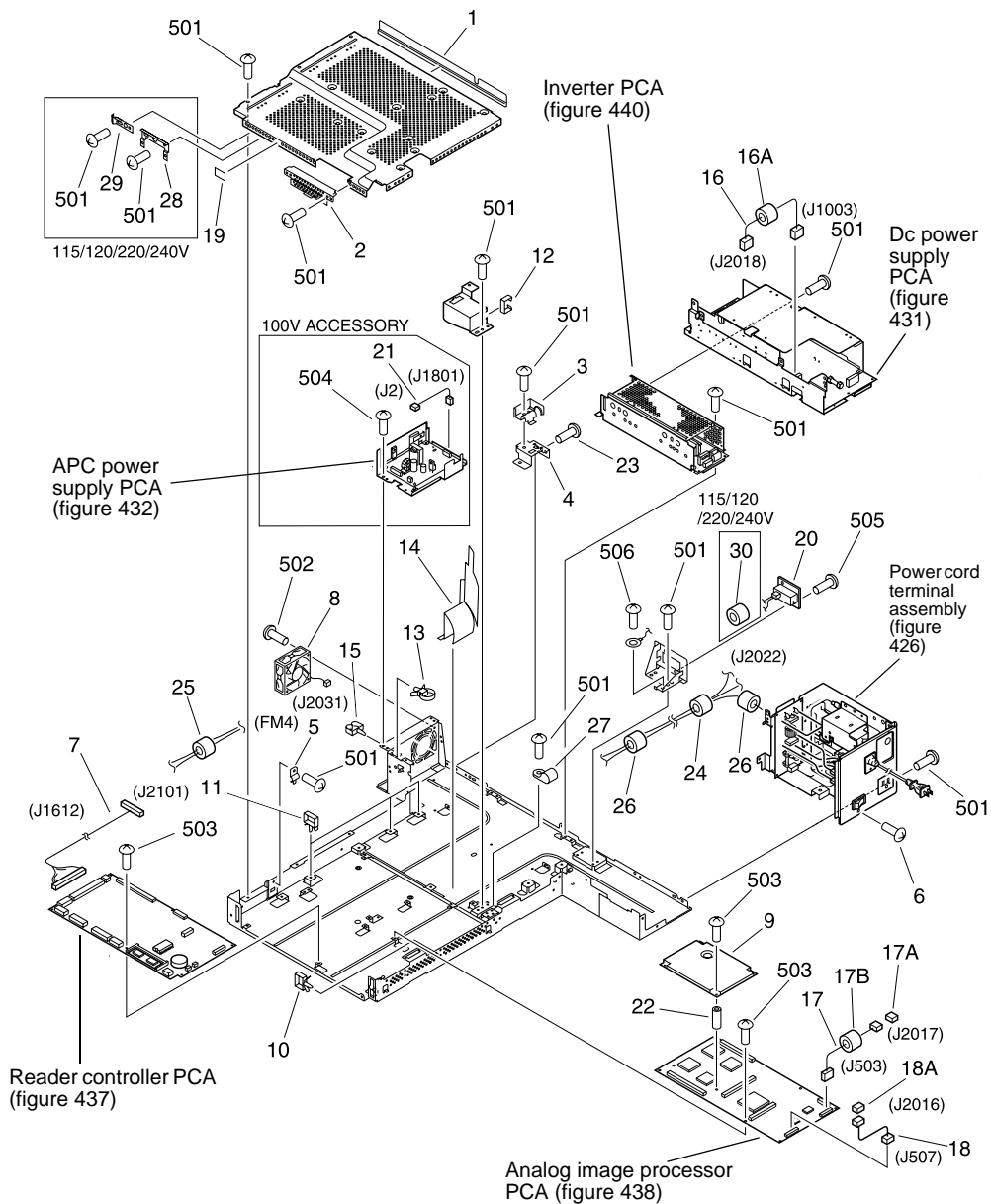


Figure 430. Electrical tray assembly

Table 110. Electrical tray assembly

Key	Part number	Quantity	Description
1		1	Sheet, PCB
2		1	Cover, ROM
3		1	Plate, grounding
4		1	Mount, cord
5		1	Plate, grounding
6	Copy module screw/ring kit	1	Screw with washer, M4X6
7	FG2-9539-000CN	1	Cable, interface R-P (J1612, 2101)
8	FH6-1463-000CN	1	Fan (FM4 J2031)
9	FH6-3844-000CN	1	ECO-O board PCB unit
10		7	Clip, cable
11		11	Clip, cable (100/127 V)
		9	Clip, cable (220/240 V)
12		1	Clip, cable
13		1	Clamp, cable
14		1	Sheet, partition
15		1	Clip, cable
16		1	Cable, inverter lamp (J1003, 2018)
16A		1	Clamp, ferrite
17		1	Cable 2, CCD (J503, 2017)
17A		1	Connector, snap tight (J2017)
17B		1	Ferrite core
18		1	Cable 1, CCD (J507, 2016)
18A		1	Connector, snap tight (J2016)
19		1	Label, "Copy load"
20	FH2-6480-000CN	1	Connector, female (J2022)
21		1	Cable, AC (J2, 1801)
22		4	Support, PCB
23	Copy module screw/ring kit	2	Screw, mach., truss head, M4X6
24		1	Ferrite clamp
25		1	Core, ferrite, SFC-10
26		2	Core, ferrite
27		1	Clip, cable
28		1	Spring, leaf
29		1	Spring, leaf
30		1	Ferrite core
501	Copy module screw/ring kit	25	Screw, mach., truss head, M4X6
502	Copy module screw/ring kit	2	Screw, mach., truss head, M4X30
503	Copy module screw/ring kit	17	Screw, TP, M3X6
504	Copy module screw/ring kit	2	Screw, mach., truss head, M4X6
505	Copy module screw/ring kit	2	Screw, mach., truss head, M3X6
506	Copy module screw/ring kit	1	Screw with washer, M4X6

Dc power supply PCA

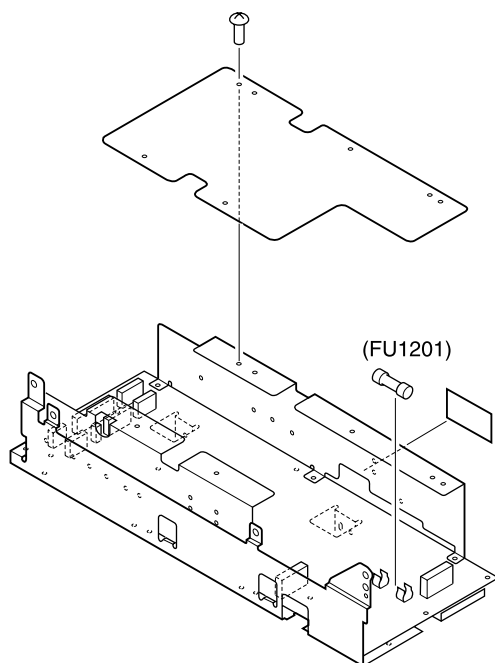


Figure 431. Dc power supply PCA

Table 111. Dc power supply PCA

Key	Part number	Quantity	Description
	FG5-9845-000CN	1	Dc power supply PCB assembly (100/127 V)
	FG5-9858-000CN	1	Dc power supply PCB assembly (220/240 V)
CT1301		1	Transformer (100/127 V)
CT1301		1	Current transformer (220/240 V)
FU1201		1	Fuse, AC125V, 10A (100/127 V)
FU1201		1	Fuse, 250V, 5A (220/240 V)
FU1501		1	Fuse, 60V, 1A
FU1502		1	Fuse, 60V, 400MA
FU1503		1	Fuse, 60V, 400MA
FU1504		1	Fuse, 60V, 400MA
FU1505		1	Fuse, 60V, 1A
FU1506		1	Fuse, 60V, 2A
FU1507		1	Fuse, 60V, 4A
FU1508		1	Fuse, 60V, 7A
FU1509		1	Fuse, 60V, 630MA
FU1511		1	Fuse, 60V, 5A
FU1512		1	Fuse, 60V, 2A
FU1513		1	Fuse, 60V, 5A
FU1514		1	Fuse, 60V, 1A
FU1515		1	Fuse, 60V, 500MA
FU1516		1	Fuse, 60V, 250MA
FU1517		1	Fuse, 60V, 250MA
FU1518		1	Fuse, 60V, 2A
FU1519		1	Fuse, 60V, 400MA
L 1202		1	Coil, 1MH, 10A (100/127 V)
L 1202		1	Coil, 8MH, 4A (220/240 V)
L 1203		1	Coil, 1MH, 10A (100/127 V)
L 1203		1	Coil, 8MH, 4A (220/240 V)
L 1301		1	Choke coil
Q 1301		1	IC, HX-3019, hybrid
T 1201		1	Transformer (100/127 V)
T 1201		1	Transformer (220/240 V)
T 1301		1	Transformer (100/127 V)
T 1301		1	Transformer (220/240 V)

APC power supply PCA

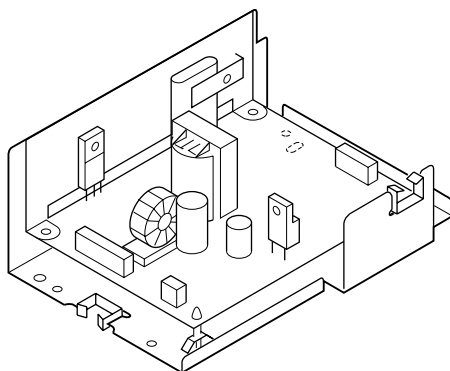


Figure 432. APC power supply PCA

Table 112. APC power supply PCA

Key	Part number	Quantity	Description
	FG5-9847-000CN	1	APC power supply PCB assembly (100/127 V)
	FG5-9861-000CN	1	APC power supply PCB assembly (220/240 V)
FU1801		1	Fuse, 60V, 10A
FU1802		1	Fuse, 60V, 1A
L 1801		1	Coil, choke
T 1801		1	Transformer (100/127 V)
T 1802		1	Transformer (220/240 V)

Noise filter PCA

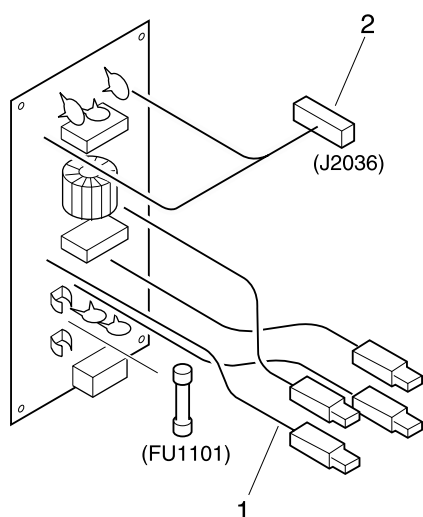


Figure 433. Noise filter PCA

Table 113. Noise filter PCA

Key	Part number	Quantity	Description
	FG2-9463-000CN	1	Noise filter PCB assembly (100/127 V)
	FG2-9541-000CN	1	Noise filter PCB assembly (220/240 V)
1		1	Cable, noise filter, 1
2		1	Cable, noise filter, 2 (J2036)
FU1101		1	Fuse, 8 A, 125 V (100/127 V)
FU2501		1	Fuse, 250 V, 5 A (220/240 V)
L 1101		1	Coil (100/127 V)
L 2501		1	Coil (220/240 V)

Control panel PCA

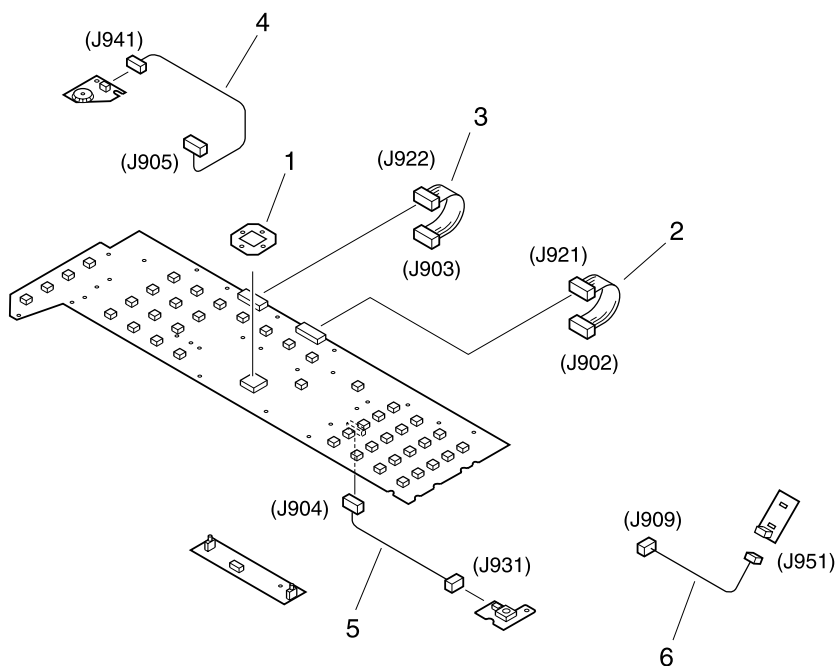


Figure 434. Control panel PCA

Table 114. Control panel PCA

Key	Part number	Quantity	Description
	FG6-0366-000CN	1	Control panel PCB assembly*
1		1	Holder, LED
2		1	Cable, control, 1 (J902, 921)
3		1	Cable, control, 2 (J903, 922)
4		1	Cable, control, VR (J905, 941)
5		1	Cable, control, MSW (J904, 931)
6		1	Cable, control, PL (J909, 951)
LED907		1	LED unit
LED908		1	LED unit
LED909		1	LED unit
LED910		1	LED unit
VR 941		1	Switch, VR
* Control panel PCB assembly is included in the assembly shown in Figure 427.			

Control panel CPU PCA

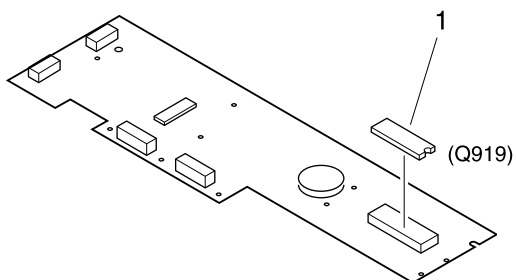


Figure 435. Control panel CPU PCA

Table 115. Control panel CPU PCA

Key	Part number	Quantity	Description
	FG6-0364-000CN	1	Control panel CPU PCB assembly*
1		1	IC, MB89P637, M-PRO (Q919)
* Control panel CPU PCB assembly is included in the assembly shown in Figure 427.			

Control panel inverter PCA

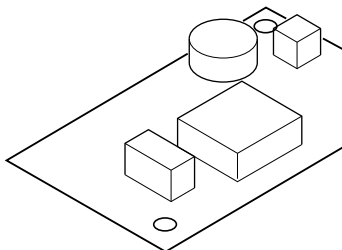


Figure 436. Control panel inverter PCA

Table 116. Control panel inverter PCA

Key	Part number	Quantity	Description
	FG9-3515-000CN	1	Control inverter PCB assembly*
F 1		1	Fuse, 1A, 125V
T 1		1	Transformer, inverter
* Control panel inverter PCB assembly is included in the assembly shown in Figure 427.			

Reader controller PCA

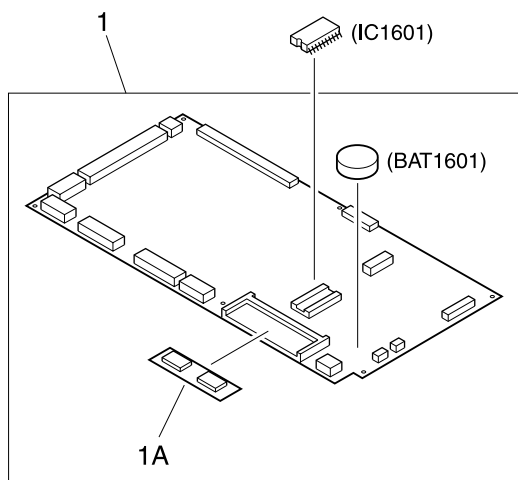


Figure 437. Reader controller PCA

Table 117. Reader controller PCA

Key	Part number	Quantity	Description
1	FG2-9443-060CN	1	Reader controller PCB (USA)
1	FG3-0215-000CN	1	Reader controller PCB (Europe)
1A	FG2-9448-080CN	1	R-CON extension DIMM assembly (USA)
1A	FG3-0220-000CN	1	R-CON extension DIMM assembly (Europe)
BAT1601	WK1-5019-000CN	1	Battery, lithium, CR2477-HE4H, 3V
F 1601		1	Fuse, 60V, 2A
F 1603		1	Fuse, 60V, 1A
F 1604		1	Fuse, 60V, 200MA
IC1602		1	IC, HG62G027S61F, gate array
IC1604		1	IC, HD6432653BA12F, CPU
IC1605		1	IC, M38881M2-010GP, IPC
IC1608		1	IC, FH4-5851, hybrid
IC1609		1	IC, UPD65625GB-Y04-9EU
IC1610		1	IC, UPD65636GB-Y18-9EU, G array

Analog image processor PCA

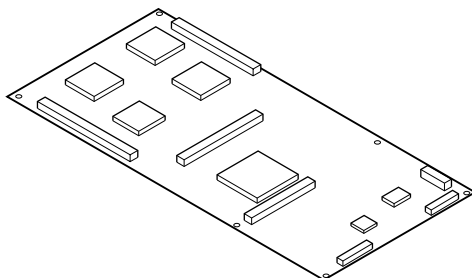


Figure 438. Analog image processor PCA

Table 118. Analog image processor PCA

Key	Part number	Quantity	Description
	FG3-0315-000CN	1	Analog IP PCB assembly
Q501		1	IC, KZ3S113E11CFP, C-MOS
Q502		1	IC, HG72C006FD, C-MOS
Q508		1	IC, KZ3S157311CFP, C-MOS
Q509		1	IC, KZ3S113831CFP, C-MOS
Q512		1	IC, JSC05KR517AJ40, gate array
Q513		1	IC, LF9008, ASIC
Q514		1	IC, KZ3S157211CFP, C-MOS

Motor driver PCA

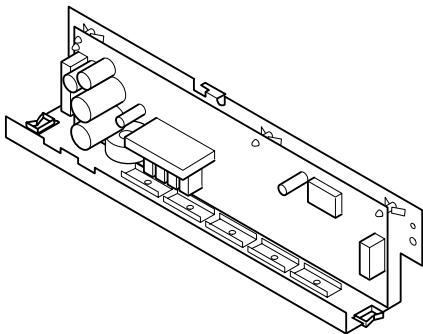


Figure 439. Motor driver PCA

Table 119. Motor driver PCA

Key	Part number	Quantity	Description
	FG5-9842-000CN	1	Motor driver PCB assembly

Inverter PCA

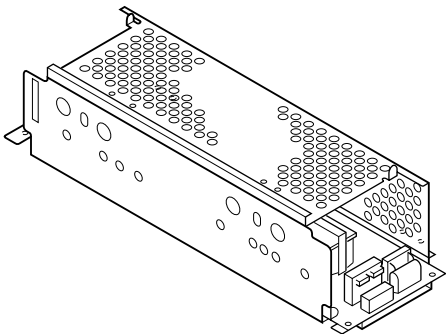


Figure 440. Inverter PCA

Table 120. Inverter PCA

Key	Part number	Quantity	Description
	FG5-9849-000CN	1	Inverter PCB assembly
FU1001		1	Fuse, 60V, 4A
FU1002		1	Fuse, 60V, 1A
L 1001		1	Inductor
L 1002		1	Inductor
T 1001		1	Transformer
T 1002		1	Current transformer
T 1003		1	Transformer

Connectors

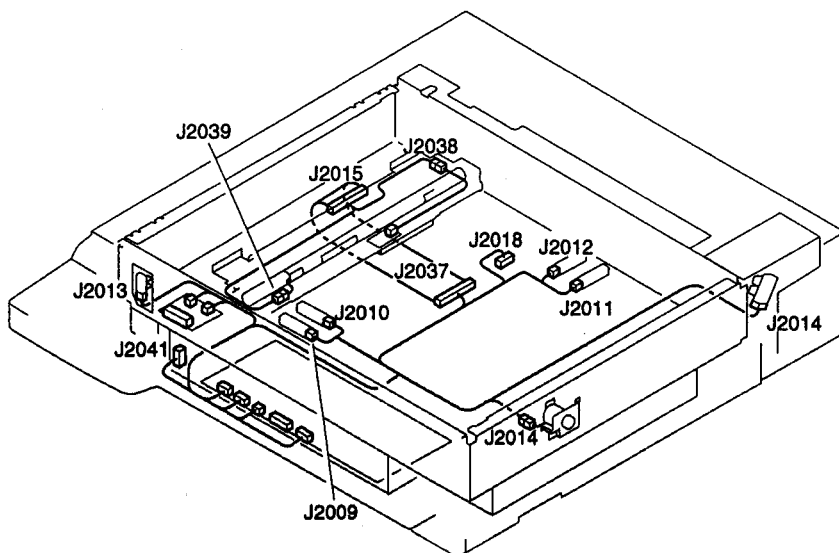


Figure 441. Connectors (1 of 3)

Table 121. Connectors (1 of 3)

Key	Quantity	Description
J 1	—	Dc power supply
J 1	1	Connector, 9P, female
J 1	2	Socket contact, 18-24AWG
J 2	—	Dc power supply
J 2	1	Connector, 5P, female
J 2	2	Socket contact, 18-24AWG
J 3	—	Dc power supply
J 3	1	Connector, 10P, female
J 3	10	Socket contact, 18-24AWG
J 4	—	Dc power supply
J 4	1	Connector, 6P, female
J 4	6	Socket contact, 18-24AWG
J 5	—	Dc power supply
J 5	1	Connector, 8P, female
J 5	5	Socket contact, 18-24AWG

Table 121. Connectors (1 of 3) (continued)

Key	Quantity	Description
J 6	—	Dc power supply
J 6	1	Connector, 9P, female
J 6	8	Socket contact, 18-24AWG
J 7	—	Dc power supply
J 7	1	Connector, 5P, female
J 8	—	Dc power supply
J 8	1	Connector, 4P, female
J 9	—	Dc power supply
J 9	1	Connector, 2P, female
J 001	1	Connector, 4P, female
J 001	3	Socket contact, 18-24AWG
J 101	—	CCD driver
J 101	1	Connector, 15P, female
J 102	—	CCD driver
J 102	1	Connector, 14P, female
J 301	—	Optical motor driver
J 301	1	Connector, 9P, female
J 301	9	Socket contact, 18-24AWG
J 302	—	Optical motor (PM1)
J 302	—	Optical motor driver
J 303	—	Optical motor driver
J 303	1	Connector, 8P, female
J 303	1	Connector, 8P, female
J 303	1	Holder, connector, 16P
J 502	—	Analog image processor
J 502	1	Connector, 8P, female
J 502	8	Socket contact, 18-24AWG
J 503	—	Analog image processor
J 503	1	Connector, 15P, female
J 506	—	Analog image processor
J 506	—	Reader controller
J 507	—	Analog image processor
J 507	1	Connector, 12P, female
J 902	—	Control panel
J 902	1	Connector, 12P, female
J 903	—	Control panel
J 903	1	Connector, 11P, female
J 904	—	Control panel

Table 121. Connectors (1 of 3) (continued)

Key	Quantity	Description
J 904	1	Connector, 4P, female
J 905	—	Control panel
J 905	1	Connector, 4P, female
J 909	—	Control panel
J 909	1	Connector, 2P, female
J 921	—	Control panel
J 921	1	Connector, 12P, female
J 922	—	Control panel
J 922	1	Connector, 11P, male
J 931	—	Control panel
J 931	1	Connector, 4P, male
J 941	—	Control panel
J 941	1	Connector, 4P, male
J 951	—	Control panel
J 951	1	Connector, 2P, male
J1001	—	Inverter
J1001	1	Connector, 2P, female
J1001	2	Socket contact, 18-24AWG
J1002	—	Inverter
J1002	1	Connector, 8P, female
J1003	—	Inverter
J1003	1	Connector, 5P, female
J1003	4	Socket contact, 18-24AWG
J1101	—	Noise filter
J1101	1	Connector, 3P, male
J1101	2	Socket contact
J1601	—	Reader controller
J1601	1	Connector, 5P, female
J1602	—	Reader controller
J1602	1	Connector, 13P, female
J1604	—	Reader controller
J1604	1	Connector, 6P
J1605	—	Reader controller
J1605	1	Connector, 8P, female
J1605	1	Connector, 8P, female
J1605	1	Holder, connector, 16P
J1606	—	Reader controller
J1606	1	Connector, 11P, female

Table 121. Connectors (1 of 3) (continued)

Key	Quantity	Description
J1606	1	Connector, 11P, female
J1606	1	Holder, connector, 22P
J1607	—	Reader controller
J1607	1	Connector, 2P, female
J1608	—	Reader controller
J1608	1	Connector, 15P, female
J1608	1	Connector, 15P, female
J1608	1	Holder, connector, 30P
J1609	—	Reader controller
J1609	1	Connector, 12P, female
J1609	1	Connector, 12P, female
J1609	1	Holder, connector, 24P
J1610	—	Reader controller
J1610	1	Cable, fluorescent
J1611	—	Reader controller
J1611	1	Connector, 7P, female
J1611	7	Socket contact, 18-24AWG
J1612	—	Reader controller
J1612	1	Holder, connector, 100P
J1613	—	Reader controller
J1613	1	Connector, 4P, female
J1614	—	Reader controller
J1614	—	Analog image processor
J1615	—	Reader controller
J1615	1	Connector, 2P, female
J1615	2	Socket contact, 22-26AWG
J1616	—	Reader controller
J1616	—	Reader control DIMM
J1651	—	To printer
J1651	—	Connector stage unit
J1652	—	Connector stage unit
J1652	1	Connector, 11P, female
J1653	—	Connector stage unit
J1653	1	Connector, 10P
J1801	—	APC power supply
J1801	1	Connector, 5P, female
J1801	2	Socket contact, 18-24AWG
J1802	—	APC power supply

Table 121. Connectors (1 of 3) (continued)

Key	Quantity	Description
J1802	1	Connector, 6P, female
J1802	6	Socket contact, 18-24AWG
J1804	—	APC power supply
J1804	1	Connector, 2P, female
J2000	1	Connector, 4P
J2000	1	Connector, 4P, female
J2000	4	Pin contact, 30-26AWG
J2001	—	Light sensor
J2001	1	Connector, 3P, female
J2001	3	Socket contact, AWG22-28
J2006	1	Connector, 9P, female
J2006	1	Connector, 9P
J2007	—	Cover sensor (PS102)
J2007	1	Connector, 3P
J2009	—	Size sensor 0 (PS103)
J2009	1	Connector, 3P
J2010	—	Size sensor 1 (PS104)
J2010	1	Connector, 3P
J2011	—	Size sensor 2 (PS105)
J2011	1	Connector, 3P
J2012	—	Size sensor 6 (PS106)
J2012	1	Connector, 3P
J2013	—	Home position sensor (PS101)
J2013	1	Connector, 3P
J2014	—	Key switch (KEY SW)
J2014	1	Connector, 2P, female
J2014	1	Connector, 2P
J2015	1	Film, fluorescent
J2015	1	Cable, fluorescent lamp
J2018	1	Cable, fluorescent
J2018	1	Connector, 5P, male
J2018	4	Pin contact
J2020	—	To copydata controller
J2020	1	Connector, 8P, female
J2021	2	Connector, 9P, female
J2021	1	Connector, 9P
J2024	1	Connector, 2P
J2024	1	Connector, 2P

Table 121. Connectors (1 of 3) (continued)

Key	Quantity	Description
J2024	2	Socket, contact
J2024	2	Pin, contact, 18-22AWG
J2030	2	Connector, 2P, female
J2030	1	Connector, 2P
J2034	—	Reader controller
J2034	1	Connector, 2P, female
J2035	1	Connector, 2P
J2035	1	Connector, 2P
J2035	2	Socket, contact, 22-26AWG
J2035	2	Pin, contact, 22-26AWG
J2036	—	Noise filter
J2036	1	Connector, 9P, female
J2036	2	Socket contact, 18-24AWG
J2037	1	Cable, fluorescent
J2037	1	Film, fluorescent
J2038	1	Cable, fluorescent lamp
J2038	1	Connector, 3P, female
J2038	3	Pin contact, 22-28AWG
J2039	—	Scanning lamp heater (H1)
J2039	1	Cable, fluorescent lamp
J2041	2	Connector, 13P, female
J2041	1	Connector, snap tight

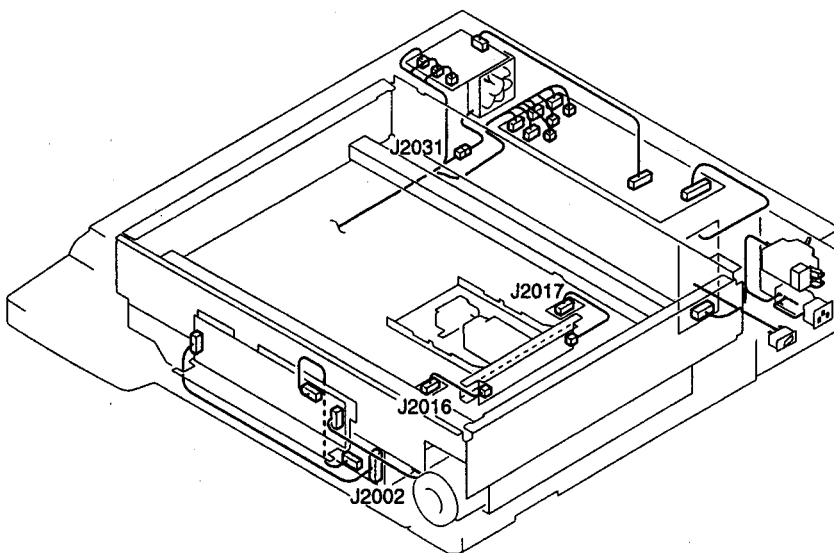


Figure 442. Connectors (2 of 3)

Table 122. Connectors (2 of 3)

Key	Quantity	Description
J2002	1	Connector, 9P, male
J2002	1	Connector, 9P, female
J2002	9	Socket contact, 18-24AWG
J2002	9	Pin contact
J2016	2	Connector, 13P, female
J2016	1	Connector, snap tight
J2017	2	Connector, 15P, female
J2017	1	Connector, snap tight
J2031	—	Power supply cooling fan
J2031	1	Connector, 3P (FM1)
J2031	1	Connector, 3P

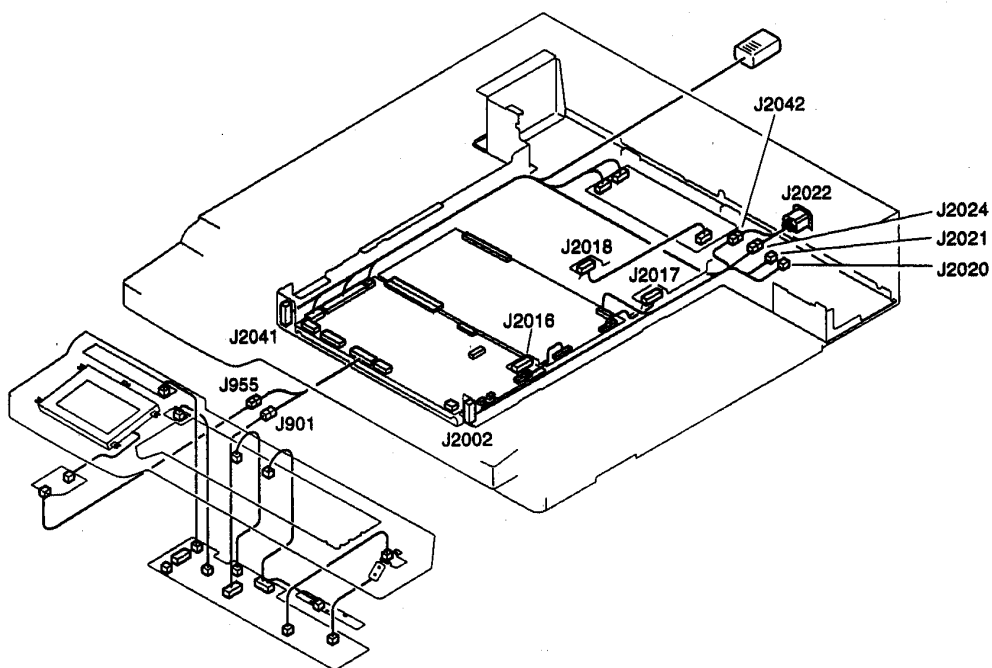


Figure 443. Connectors (3 of 3)

Table 123. Connectors (3 of 3)

Key	Quantity	Description
J 901	—	Control panel
J 901	1	Connector, 15P, female
J 901	1	Connector, 15P, female
J 901	1	Holder, connector, 30P
J 955	—	Control panel
J 955	1	Connector, 2P, female
J2002	1	Connector, 9P, male
J2002	1	Connector, 9P, female
J2002	9	Socket contact, 18-24AWG
J2002	9	Pin contact
J2016	2	Connector, 13P, female
J2016	1	Connector, snap tight
J2017	2	Connector, 15P, female

Table 123. Connectors (3 of 3) (continued)

Key	Quantity	Description
J2017	1	Connector, snap tight
J2018	1	Cable, fluorescent
J2018	1	Connector, 5P, male
J2018	4	Pin contact
J2022	—	To document feeder
J2022	1	Connector, female
J2022	1	Connector, 7P, female
J2022	3	Pin contact, 18-24AWG
J2041	2	Connector, 13P, female
J2041	1	Connector, snap tight
J2042	1	Connector, 2P, female
J2042	1	Connector, 2P
J2042	1	Connector, 2P, male
J2042	2	Terminal

Note

The only part that can be serviced on the ADF is the large white feeding belt (part number FC1-7815-020CN). (See “Removing the feeding belt” on page 431.) The remainder of the ADF will be serviced via adjustment/calibration (see “ADF adjustments” on page 140), cleaning (see “Cleaning ADF parts” on page 167), and then whole-unit exchange.

The exchange part number for the ADF is C7837-69053. The replacement product number for the ADF is C7837A.

Belt kit

Table 124. Belt kit

Part number	Quantity	Description
C7837-67903		ADF belt kit
	2	Roller, feed belt drive
	2	Roller, feed belt drive
	2	Guide, belt
	1	Belt, timing, 80T
	1	Belt, timing, 140T
	1	Belt, timing, 44T
	1	Belt, timing, 53T
	1	Belt, timing, 92T
	1	Flat belt, timing, 89T
	1	Belt, timing, 100T
	1	Belt, timing, 170T
	1	Belt, timing, 132T
FC2-1827-000CN	8	Belt, separation
FB3-5702-000CN	4	Belt, separation

Bushing kit

Table 125. Bushing kit

Part number	Quantity	Description
C7837-67904		ADF bushing kit
	1	Bushing
	3	Bushing
	1	Bushing
	2	Bushing
	2	Bushing
	2	Bushing
	1	Bushing
	1	Bushing
	2	Bushing
	1	Bushing

Gear/pulley kit

Table 126. Gear/pulley kit

Part number	Quantity	Description
C7837-67905		ADF gear/pulley kit
	1	Pulley, 32T
	1	Gear, 16T
	1	Gear, 32T
	1	Pulley, roller, reverse
	1	Pulley, 40T
	1	Pulley F, 28T
	1	Gear, 18T
	1	Gear, 22T/pulley, 28T
	1	Gear, 20T
	1	Gear, 15T
	1	Gear, 16T/pulley, 20T
	1	Pulley, 20T
	1	Gear, 16T
	1	Pulley
	2	Washer, pulley
	1	Gear, 40T/pulley, 16T
	1	Pulley, idler
	1	Gear, 25T
	1	Gear, 20T
	1	Gear, 16T/pulley, 15T

Pin kit

Table 127. Pin kit

Part number	Quantity	Description
C7837-67902		ADF pin kit
	1	Pin, spring
	2	Pin, dowel
	6	Pin, dowel
	1	Pin, spring
	6	Pin, dowel
	1	Pin, spring
	1	Pin, spring
	1	Pin, dowel
	1	Pin, dowel
	1	Pin, dowel
	1	Pin, dowel
	2	Pin, spring

Screw/ring kit

Table 128. Screw/ring kit

Part number	Quantity	Description
C7837-67901		ADF screw/ring kit
	4	Screw, stepped, M3X1.4
	2	Screw, mach., flat head, M3X4
	2	Bolt, M5X20
	2	Screw, mach., truss head, M4X30
	4	Screw, TP, M4X6
	2	Nut, hex, M5
	6	Screw, mach., truss head, M4X6
	1	Screw, tapping, truss head, M4X6
	3	Screw, TP, M4X6
	1	Screw, mach., truss head, M3X4
	2	Screw, M4X8
	1	Screw, stepped, M4
	2	Screw, stepped, M4
	1	Screw, M4X6
	6	Screw, stepped, M3
	1	Screw, mach., truss head, M3X4
	2	Setscrew, M4X8
	1	Screw, tapping, truss head, M4X6
*Several used		

Table 128. Screw/ring kit (continued)

Part number	Quantity	Description
	4	Screw, mach., truss head, M4X6
	8	Screw, TP, M4X6
	1	Screw, TP, M4X6
	1	Screw, TP, M3X4
	1	Screw, mach., truss head, M3X12
	2	Screw, TP, M3X6
	2	Screw, mach., washer head, M4X10
	1	Screw, mach., truss head, M3X4
	1	Screw, tapping, truss head, M3X6
	3	Screw, tapping, truss head, M3X8
	3	Screw, tapping, truss head, M3X8
	2	Screw, mach., truss head, M2X3
	1	Screw, mach., truss head, M3X6
	1	Screw, mach., truss head, M3X6
	4	Screw, tapping, truss head, M3X10
	1	Screw, stepped, M4
	2	Screw, stepped, M4
	1	Screw, stepped, M3
	1	Screw, stepped, M3
	2	Screw, M3X2.5
	1	Screw, stepped, M4
	2	Screw, mach., truss head, M4X5
	2	Screw, stepped, M3
	1	Screw, M2X12
	*	Screw, mach., truss head, M3X6
	1	Screw, tapping, truss head, M3X6
	*	Screw, mach., truss head, M3X4
	8	Screw, mach., truss head, M4X6
	7	Ring, E
	3	Ring, grip
	*	Ring, E
	1	Screw, mach., truss head, M3X3
	1	Screw, mach., truss head, M4X4
	1	Screw, TP, M3X4
	5	Ring, E
	3	Ring, E
	3	Screw, mach., truss head, M3X10
	1	Screw, TP, M4X6
	3	Screw, mach., truss head, M3X5
	2	Screw, flat head, M3X8
*Several used		

Table 128. Screw/ring kit (continued)

Part number	Quantity	Description
	3	Screw, TP, M4X8
	3	Screw, tapping, truss head, M2X5
	2	Setscrew, M4X4
	1	Screw, TP, M3X5
	4	Screw, TP, M4X6
	1	Ring, E
	2	Ring, E
	1	Ring, E
	2	Screw, TP, M4X6
	8	Ring, E
	1	Screw, mach., truss head, M3X6
	1	Ring, E
	1	Ring, E
*Several used		

Spring kit

Table 129. Spring kit

Part number	Quantity	Description
C7837-67906		ADF spring kit
	1	Spring, tension
	4	Spring, tension
	6	Spring, tension
	2	Spring, tension
	4	Spring, tension
	6	Spring, compression
	1	Spring, compression
	2	Spring, tension
	1	Spring, tension
	2	Spring, tension
	1	Spring, tension
	1	Spring, tension
	2	Spring, tension
	1	Spring, tension
	1	Spring, tension
	4	Spring, tension
	2	Spring, tension

Assembly locations

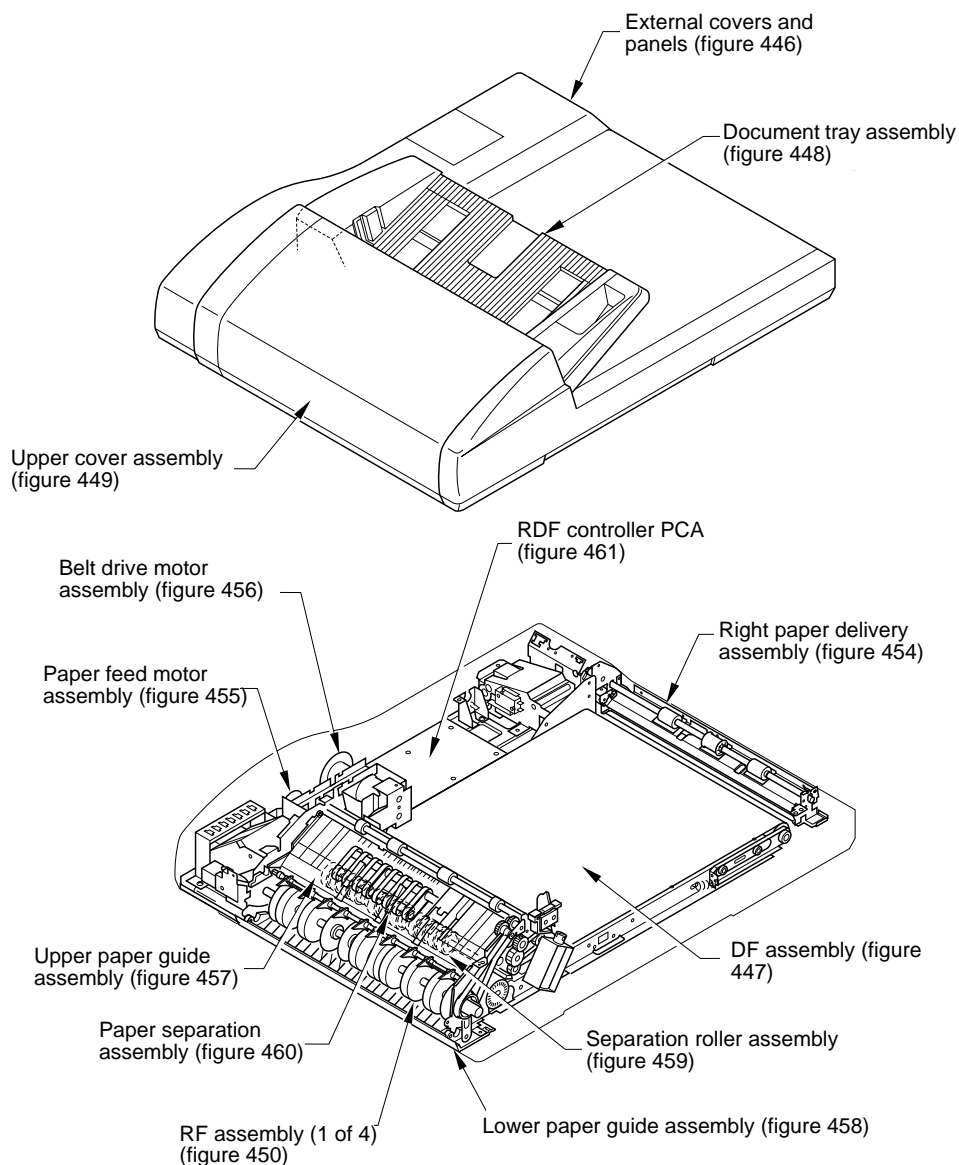


Figure 444. Assembly locations

Mounting hardware

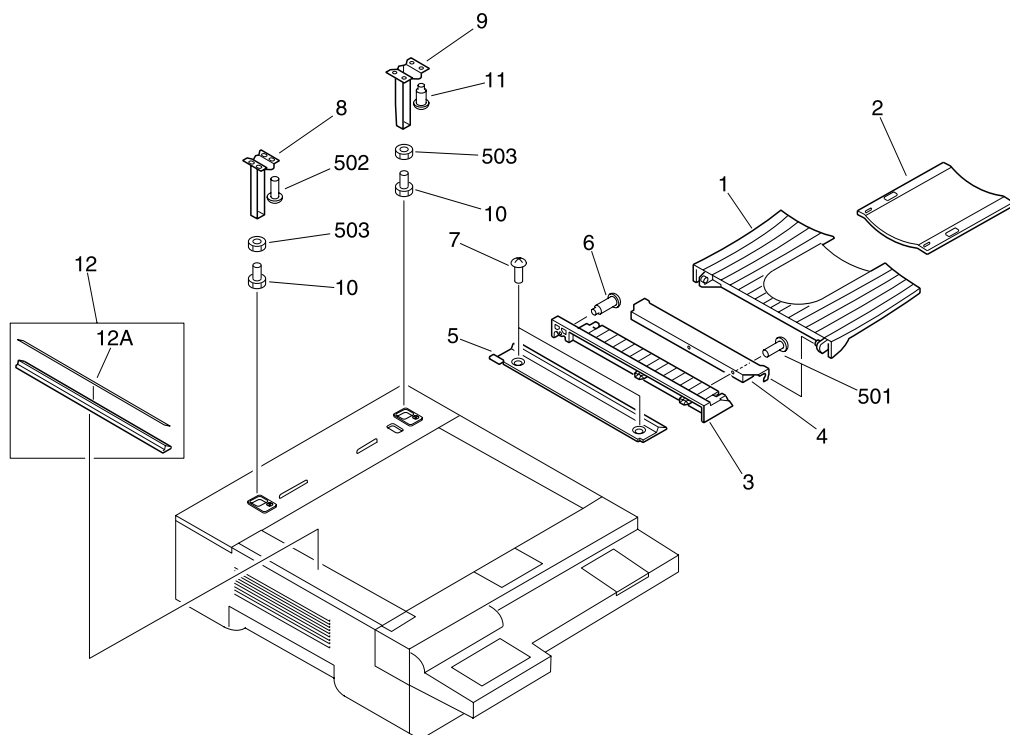


Figure 445. Mounting hardware

Table 130. Mounting hardware

Key	Part number	Quantity	Description
1	FB3-2141-000CN	1	Tray 3, copy
2	FB3-3143-020CN	1	Tray 2, copy
3	FB4-7021-000CN	1	Mount, tray
4	FB4-7022-000CN	1	Plate, tray
5	FB5-5328-000CN	1	Guide, paper right
6	ADF screw/ring kit	4	Screw, stepped, M3X1.4
7	ADF screw/ring kit	2	Screw, mach., flat head, M3X4
8	FF5-7814-000CN	1	Pillar, left
9	FF5-7815-000CN	1	Pillar, right
10	ADF screw/ring kit	2	Bolt, M5X20
501	ADF screw/ring kit	2	Screw, mach., truss head, M4X30
502	ADF screw/ring kit	4	Screw, TP, M4X6
503	ADF screw/ring kit	2	Nut, hex, M5

External covers and panels

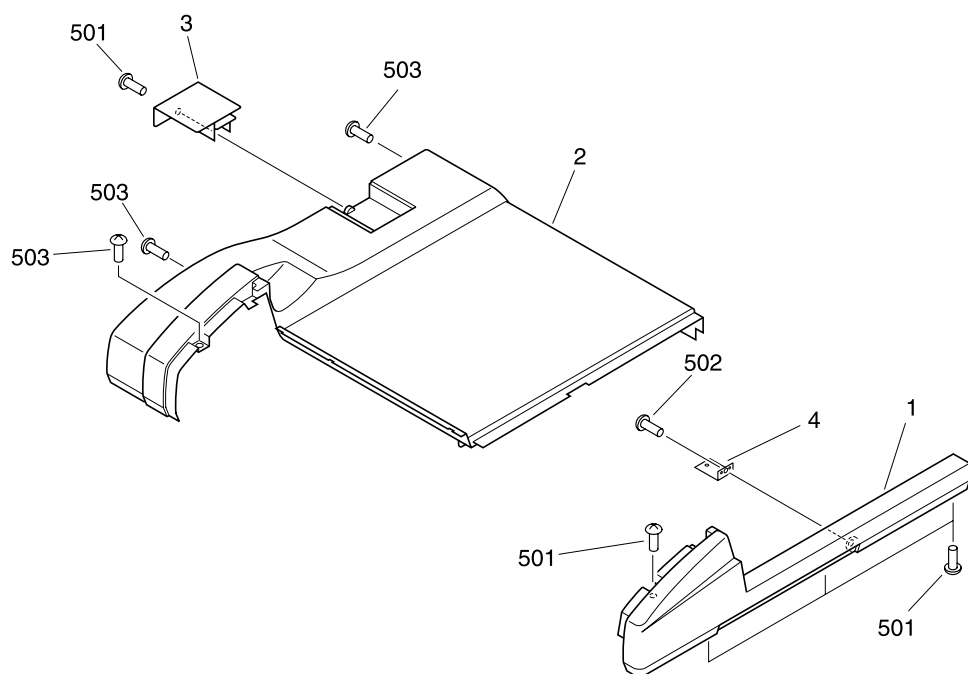


Figure 446. External covers and panels

Table 131. External covers and panels

Key	Part number	Quantity	Description
1	FB5-5309-000CN	1	Cover, front
2	FB5-5302-000CN	1	Cover, upper
3	FB5-5303-000CN	1	Cover
4		1	Plate, cover
501	ADF screw/ring kit	6	Screw, mach., truss head, M4X6
502	ADF screw/ring kit	1	Screw, tapping, truss head, M4X6
503	ADF screw/ring kit	3	Screw, TP, M4X6

DF assembly

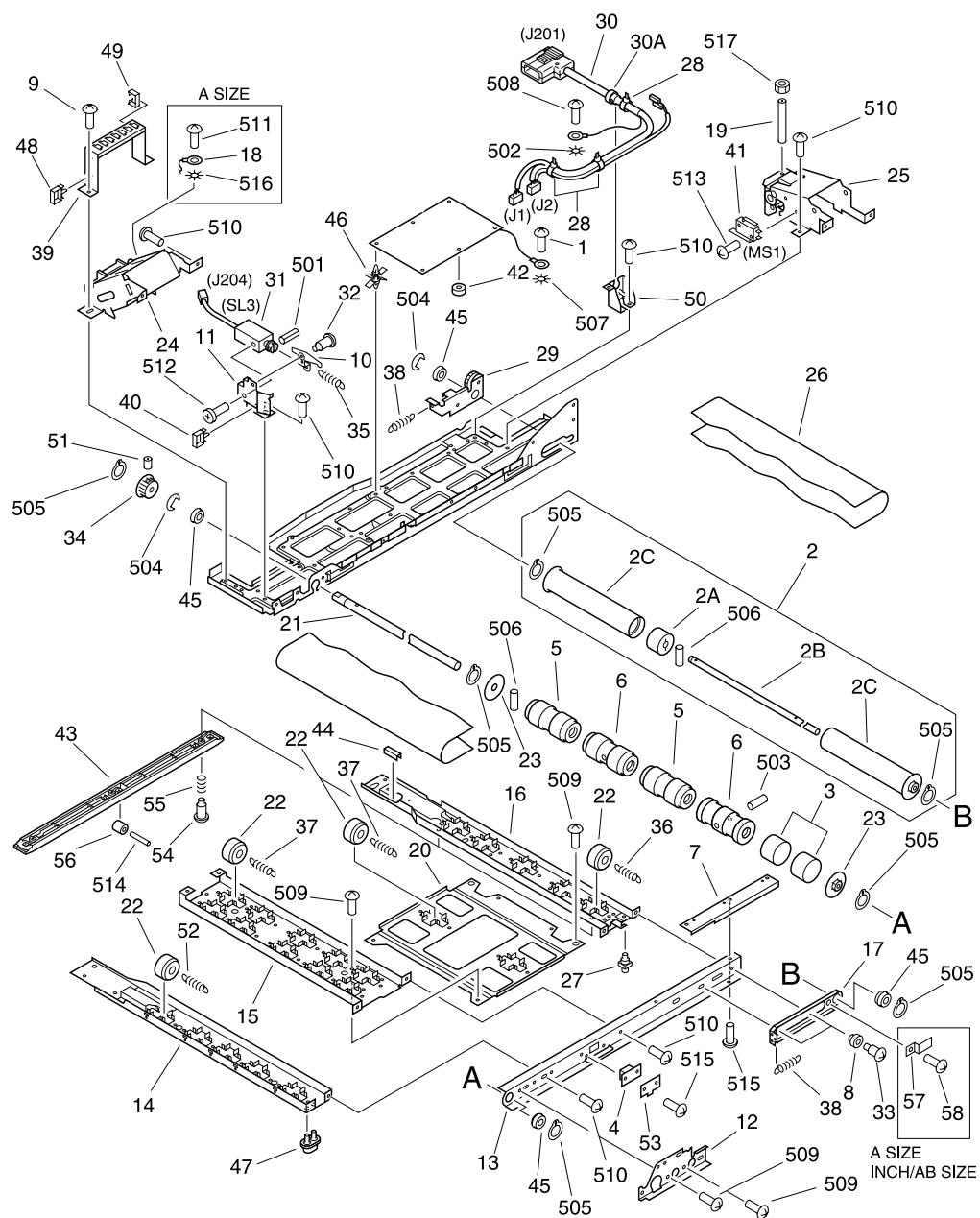


Figure 447. DF assembly

Table 132. DF assembly

Key	Part number	Quantity	Description
1	ADF screw/ring kit	1	Screw, mach., truss head, M3X4
2	FM6-2145-000CN	1	Turn roller assembly
2A		1	Bushing, idler roller
2B		1	Shaft, idler roller
2C		2	Roller, feed belt idler
3	FA3-4509-000CN	8	Band, roller
4		1	Catch, magnet
5	ADF belt kit	2	Roller, feed belt drive
6	ADF belt kit	2	Roller, feed belt drive
7		1	Plate, joint
8		2	Spacer
9	ADF screw/ring kit	2	Screw, M4X8
10	FC1-1279-000CN	1	Lever 2, deflector
11		1	Holder, solenoid
12		1	Plate, joint paper pick-up
13		1	Plate
14		1	Crossmember, left
15		1	Crossmember, center
16		1	Crossmember, right
17		1	Plate, guide, front
18		1	Wire, grounding
19		1	Screw, adjusting
20		1	Mount, roller
21		1	Shaft, feed belt
22	FC1-1334-030CN	14	Roller
23	FC1-1336-000CN	2	Flange
24	FB3-5757-000CN	1	Hinge, left
25	FB3-5758-000CN	1	Hinge, right
26	FC1-7815-020CN	1	Feed belt
27	FA5-4732-000CN	3	Foot, rubber
28		4	Tie, cable
29	FF5-7816-000CN	1	Plate, slide, rear
30	FG2-9558-000CN	1	Interface cable (J1, 2, 201)
30A		1	Bushing
31	FH7-5843-000CN	1	Solenoid, dc 24 V (SL3 J204)
32	ADF screw/ring kit	1	Screw, stepped, M4
33	ADF screw/ring kit	2	Screw, stepped, M4

Table 132. DF assembly (continued)

Key	Part number	Quantity	Description
34	ADF gear/pulley kit	1	Pulley, 32T
35	ADF spring kit	1	Spring, tension
36	ADF spring kit	4	Spring, tension
37	ADF spring kit	6	Spring, tension
38	ADF spring kit	2	Spring, tension
39		1	Bracket, connector
40		3	Clip, cable
41	WC4-5030-000CN	1	Microswitch (MS1)
42		2	Spacer, PCB
43	ADF belt kit	2	Guide, belt
44	FE9-0117-000CN	1	Grommet
45	XG9-0237-000CN	4	Bearing, ball
46		4	Spacer, PCB
47	FC1-3044-000CN	1	Foot, rubber, front
48		2	Clip, cable
49		3	Clip, cable
50		1	Retainer, cord
51	ADF screw/ring kit	1	Screw, M4X6
52	ADF screw/ring kit	4	Spring, tension
53		1	Plate, grounding
54	ADF screw/ring kit	6	Screw, stepped, M3
55	ADF spring kit	6	Spring, compression
56	FB4-7004-000CN	6	Roller
57		1	Spring, grounding
58	ADF screw/ring kit	1	Screw, mach., truss head, M3X4
59	FB4-7024-000CN	1	Sheet, sensor lever
501	ADF pin kit	1	Pin, spring
502	ADF screw/ring kit	1	Washer, toothed lock
503	ADF screw/ring kit	2	Setscrew, M4X8
504	ADF screw/ring kit	2	Ring, E
505	ADF screw/ring kit	7	Ring, grip
506	ADF pin kit	2	Pin, dowel
507	ADF screw/ring kit	1	Washer, toothed lock
508	ADF screw/ring kit	1	Screw, tapping truss head, M4X6
509	ADF screw/ring kit	4	Screw, mach., truss head, M4X6
510	ADF screw/ring kit	10	Screw, TP, M4X6
511	ADF screw/ring kit	1	Screw, TP, M4X6
512	ADF screw/ring kit	1	Screw, TP, M3X4

Table 132. DF assembly (continued)

Key	Part number	Quantity	Description
513	ADF screw/ring kit	1	Screw, mach., truss head, M3X12
514	ADF pin kit	6	Pin, dowel
515	ADF screw/ring kit	2	Screw, TP, M3X6
516	ADF screw/ring kit	1	Washer, toothed lock
517	ADF screw/ring kit	1	Nut, hex, M4
518	ADF pin kit	1	Pin, spring

Document tray assembly

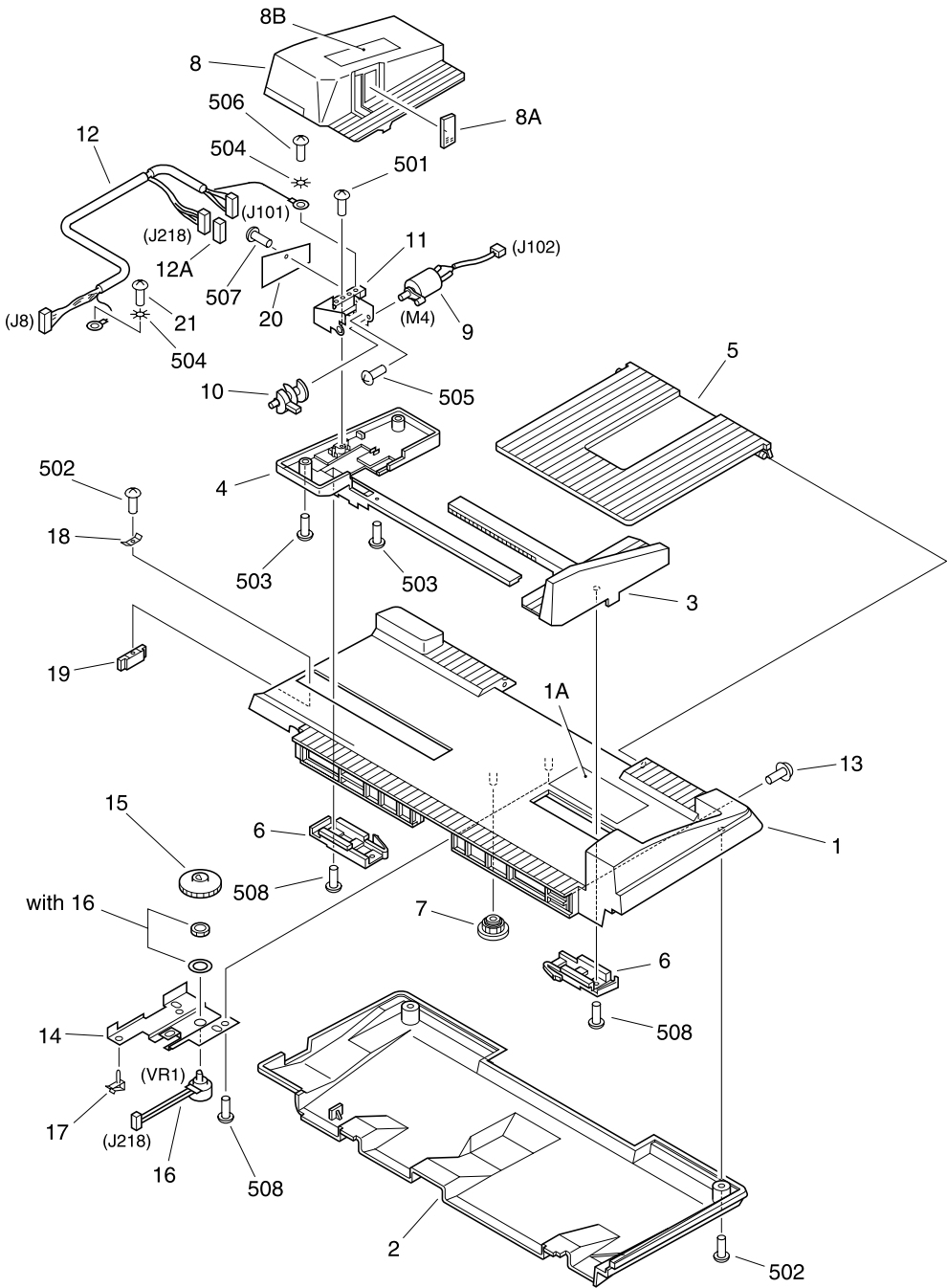


Figure 448. Document tray assembly

Table 133. Document tray assembly

Key	Part number	Quantity	Description
1	FF6-0276-000CN	1	Tray, document
1A		1	Label, paper size
2	FB5-5293-000CN	1	Cover, rear, tray
3	FB5-5294-000CN	1	Guide, slide
4	FB5-5295-000CN	1	Base guide
5	FB5-5296-000CN	1	Tray, auxiliary
6	FC1-6179-000CN	2	Clamp, guide
7	ADF gear/pulley kit	1	Gear, 16T
8	FF6-0277-000CN	1	Guide, slide, rear
8A		1	Plate
8B		1	Label, warning
9	FF2-5903-030CN	1	Motor, dc 6 V (M4 J102)
10	FC1-1311-000CN	1	Lever, recycle
11		1	Mount, recycle motor
12		1	Tray cable assembly (J8, 101, 218)
12A		1	Connector, 3P (J218)
13	ADF screw/ring kit	2	Screw, mach., washer head, M4X10
14		1	Mount, volume
15	ADF gear/pulley kit	1	Gear, 32T
16	FG2-7569-000CN	1	Rotary VR assembly (VR1 J218)
17		1	Clamp, cable
18		1	Spring, leaf
19	FB3-5666-000CN	1	Block, tray
20	FG2-5001-030CN	1	Indicator PCB assembly
21	ADF screw/ring kit	1	Screw, mach., truss head, M3X4
501	ADF screw/ring kit	1	Screw, tapping, truss head, M3X6
502	ADF screw/ring kit	3	Screw, tapping, truss head, M3X8
503	ADF screw/ring kit	3	Screw, tapping, truss head, M3X8
504	ADF screw/ring kit	2	Washer, toothed lock
505	ADF screw/ring kit	2	Screw, mach., truss head, M2X3
506	ADF screw/ring kit	1	Screw, mach., truss head, M3X6
507	ADF screw/ring kit	1	Screw, mach., truss head, M3X6
508	ADF screw/ring kit	4	Screw, tapping, truss head, M3X10

Upper cover assembly

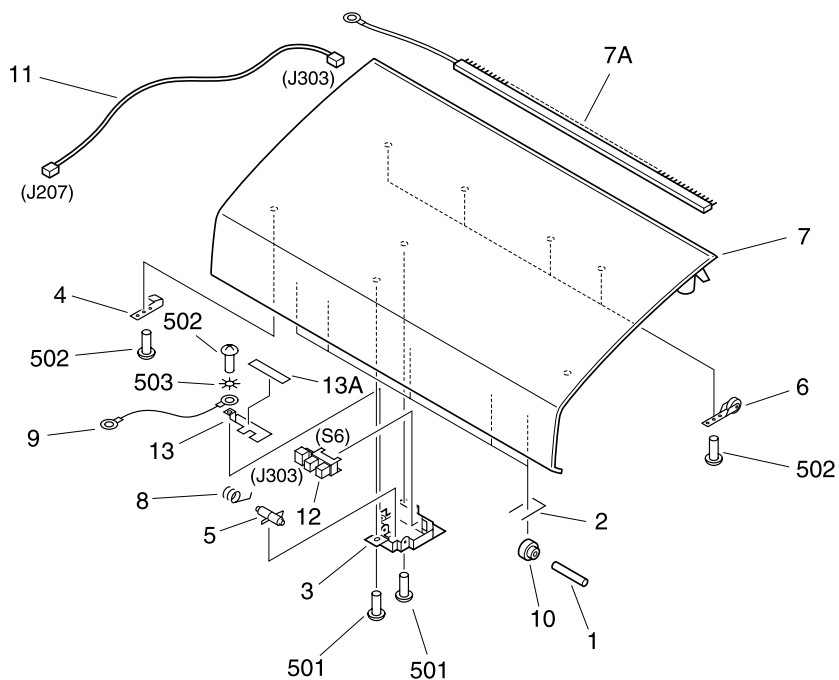


Figure 449. Upper cover assembly

Table 134. Upper cover assembly

Key	Part number	Quantity	Description
	FG6-5836-000CN	1	Upper cover assembly
1		5	Rod
2		5	Spring, leaf
3		1	Cover, sensor
4		2	Spring, leaf
5		1	Flag, sensor
6		4	Roller, delivery
7		1	Cover, upper
7A		1	Eliminator, static charge
8		1	Spring, torsion
9		1	Wire
10		5	Roller
11		1	Sensor connecting cable (J207,303)
12		1	IC, TLP1242, photo-interrupter (S6 J303)
13		1	Plate, sensor guard
13A		1	Sheet, guard
501		2	Screw, tapping, truss head, M4X8
502	ADF screw/ring kit	7	Screw, tapping, truss head, M3X6
503	ADF screw/ring kit	1	Washer, toothed lock

RF assembly

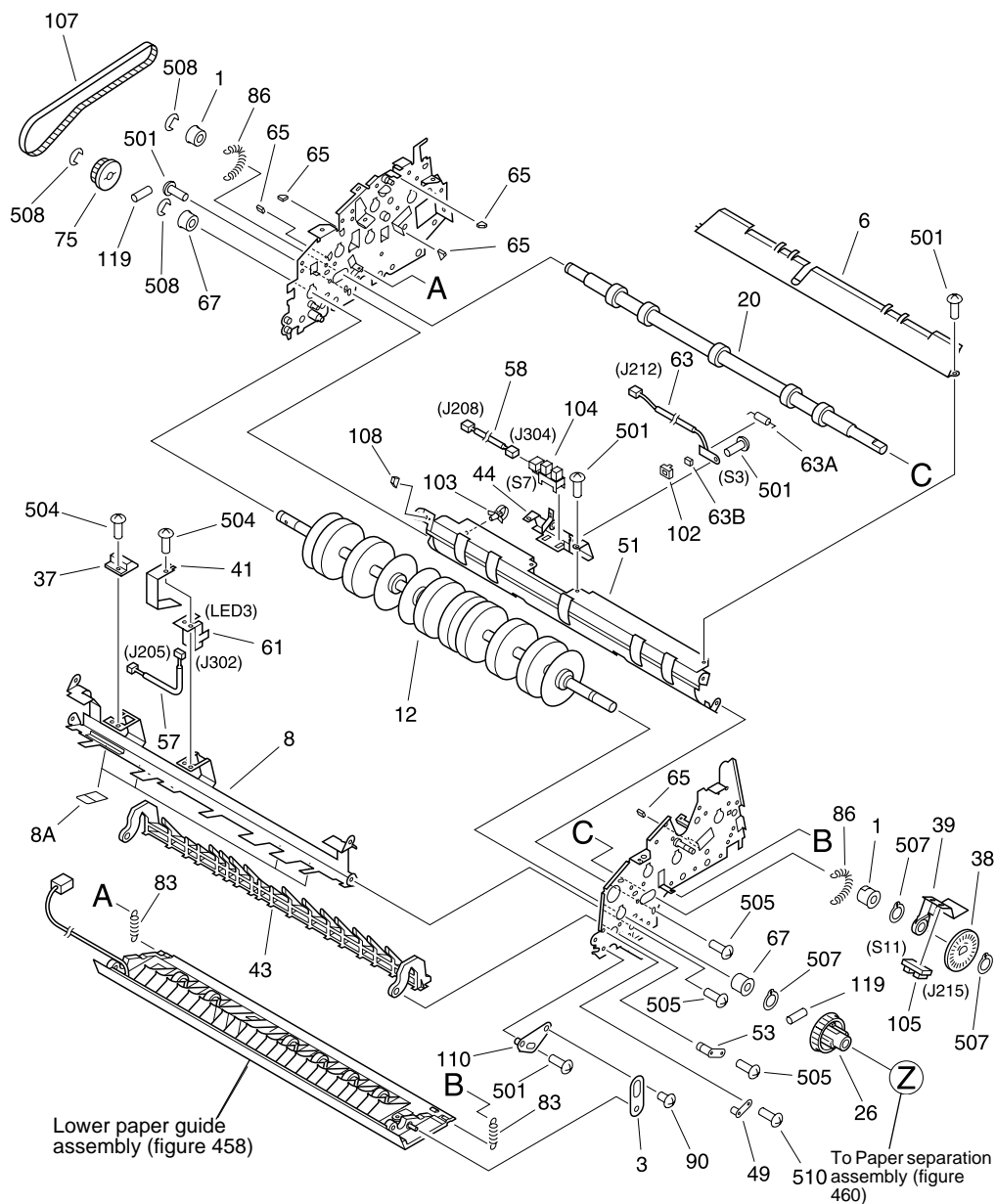


Figure 450. RF assembly (1 of 4)

Table 135. RF assembly (1 of 4)

Key	Part number	Quantity	Description
1		2	Bushing
3		1	Stopper, lower guide
6		1	Guide A, inner
8		1	Plate, reverse
8A	FC2-3246-000CN	4	Sheet
12	FF5-9581-000CN	1	Roller, reverse
20	FB4-7018-000CN	1	Roller, registration
26	ADF gear/pulley kit	1	Pulley, roller, reverse
37	FB4-6994-000CN	1	Cover
38		1	Disk, clock
39		1	Holder, sensor registration
41		1	Cover, sensor
43	FF2-5771-000CN	1	Guide, paper
44		1	Plate, sensor, separation
49		1	Plate, positioning
51		1	Guide B, inner
52C		1	Sheet, 3
52D		1	Sheet, 4
53		1	Plate, positioning
54	FG2-9554-000CN	1	EMP sensing PCB assembly (S1 J203)
57		1	Sensor connecting cable (J205, 302)
58		1	Cable, separation sensing (J208, 304)
61	FG2-3394-000CN	1	Registration sensor H assembly (LED3 J302)
63	FG2-7570-000CN	1	ENT sensing LED PCB assembly (S3 J212)
63A		1	Diode, 1SS81
63B		1	Photo-transistor
65		5	Cap, rubber
67	ADF bushing kit	3	Bushing
75	ADF gear/pulley kit	1	Pulley, 40T
83	ADF spring kit	2	Spring, tension
86	ADF spring kit	2	Spring, tension
90	ADF screw/ring kit	2	Screw, mach., truss head, M4X5
102	FF3-0434-000CN	1	Holder J, sensing
103		4	Tie, cable
104	WG8-5206-000CN	2	Photo-interrupter, SG206 (S4,7 J214, 304)
105	FH7-7326-000CN	1	IC, TLP1225, photo-interrupter (S11 J215)
*Several used			

Table 135. RF assembly (1 of 4) (continued)

Key	Part number	Quantity	Description
107	ADF belt kit	1	Belt, timing, 140T
108		1	Rail, guide
110		1	Plate
119	ADF pin kit	6	Pin, dowel
121	ADF bushing kit	1	Bushing
122	ADF bushing kit	1	Bushing
501	ADF screw/ring kit	*	Screw, mach., truss head, M3X6
504	ADF screw/ring kit	*	Screw, mach., truss head, M3X4
505	ADF screw/ring kit	17	Screw, mach., truss head, M4X6
507	ADF screw/ring kit	3	Ring, grip
508	ADF screw/ring kit	*	Ring, E
510	ADF screw/ring kit	1	Screw, mach., truss head, M4X4
*Several used			

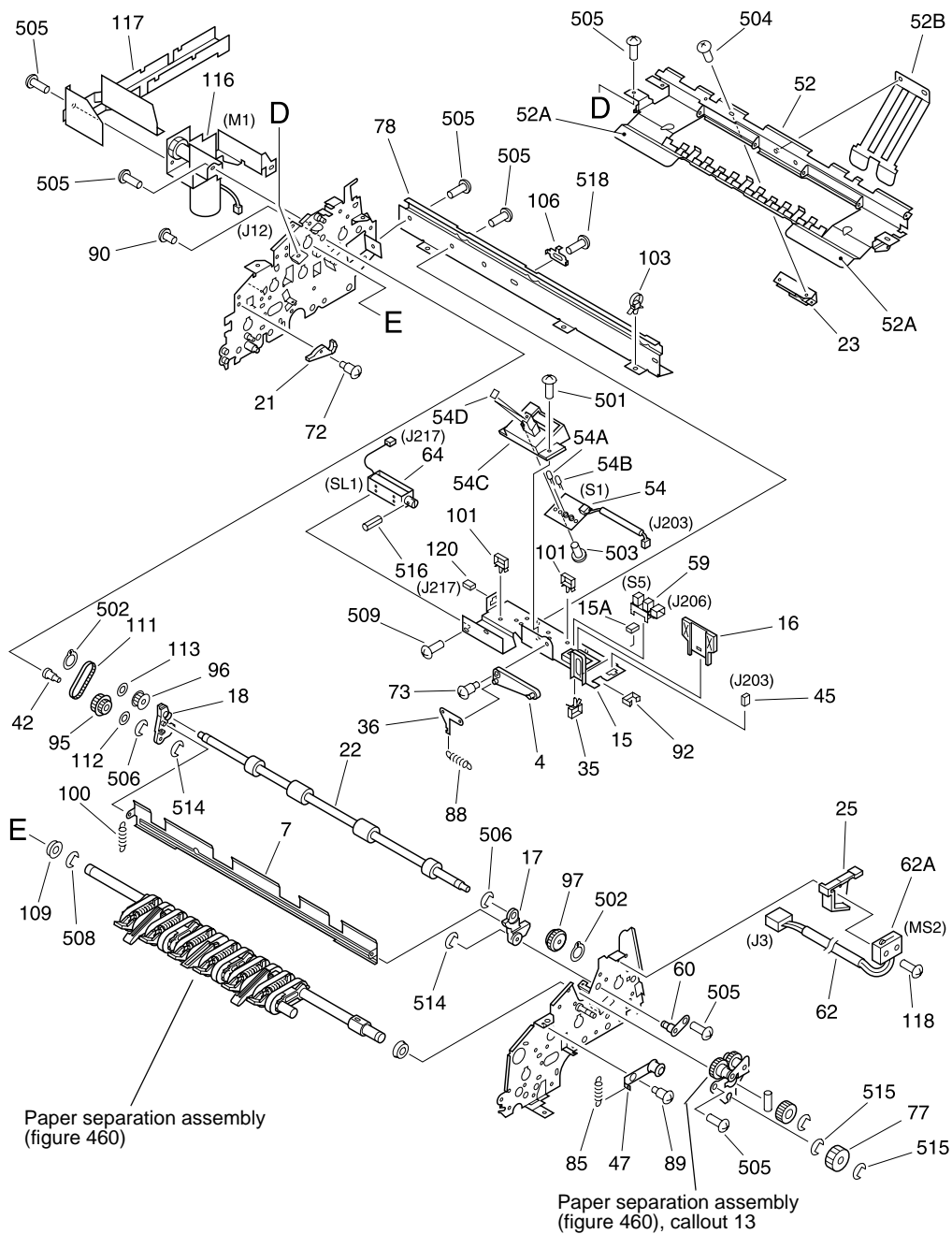


Figure 451. RF assembly (2 of 4)

Table 136. RF assembly (2 of 4)

Key	Part number	Quantity	Description
4		1	Arm, shutter
7		1	Weight
15		1	Plate, shutter holding
15A		1	Cushion
16		1	Shutter
17	FB3-5640-000CN	1	Arm, pick-up, front
18	FB3-5641-000CN	1	Arm, pick-up, rear
21	FB3-5660-000CN	1	Lever 1, deflector
22	FB3-5637-000CN	1	Roller, paper delivery
23		1	Reflector
25	FC1-1294-020CN	1	Holder, switch
35		1	Clip, cable
36	FC1-6184-000CN	1	Link, shutter
42		1	Shaft, arm, pick-up rear
45		1	Connector, 4P (J203)
47		1	Plate, belt tension, front
52	FF5-9582-000CN	1	Limit plate, separation
52A		2	Sheet, 1
52B		1	Sheet, 2
52C		1	Sheet, 3
52D		1	Sheet, 4
54	FG2-9554-000CN	1	EMP sensing PCB assembly (S1 J203)
54A		1	LED, TLN119B
54B		1	Photo-transistor TPS616C
54C		1	Cover, sensor
54D		1	Sheet
59	WG8-5362-000CN	1	IC, TLP1241, photo-interrupter (S5 J206)
60		1	Plate, pick-up
62	FG2-9925-000CN	1	Cover switch assembly (MS2 J3)
62A		1	Microswitch (MS2)
64	FH7-5653-000CN	1	Solenoid, dc 24 V (SL1 J217)
72	ADF screw/ring kit	1	Screw, stepped, M3
73	ADF screw/ring kit	1	Screw, stepped, M3
77	ADF gear/pulley kit	1	Gear, 18T
78		1	Plate P, shutter
85	ADF spring kit	1	Spring, tension
88	ADF spring kit	1	Spring, tension
*Several used			

Table 136. RF assembly (2 of 4) (continued)

Key	Part number	Quantity	Description
89	ADF screw/ring kit	1	Screw, stepped, M4
90	ADF screw/ring kit	2	Screw, mach., truss head, M4X5
92		3	Clamp, cable
95	ADF gear/pulley kit	1	Gear, 16T/pulley, 20T
96	ADF gear/pulley kit	1	Pulley, 20T
97	ADF gear/pulley kit	1	Gear, 16T
100	ADF spring kit	1	Spring, tension
101		3	Clip, cable
103		4	Tie, cable
106		1	Plate, tray positioning
109	ADF bushing kit	2	Bushing
111	ADF belt kit	1	Belt, timing, 44T
112		1	Flange C
113		1	Flange D
116	FH6-1266-000CN	1	Motor, dc 23 V (M1 J12)
117		1	Guide, cable
118	ADF screw/ring kit	1	Screw, M2X12
120		2	Connector, 2P (J216, 217)
121	ADF bushing kit	1	Bushing
122	ADF bushing kit	1	Bushing
501	ADF screw/ring kit	*	Screw, mach., truss head, M3X6
502	ADF screw/ring kit	1	Screw, mach., truss head, M3X6
503	ADF screw/ring kit	1	Screw, tapping, truss head, M3X6
504	ADF screw/ring kit	*	Screw, mach., truss head, M3X4
505	ADF screw/ring kit	17	Screw, mach., truss head, M4X6
506	ADF screw/ring kit	7	Ring, E
508	ADF screw/ring kit	*	Ring, E
509	ADF screw/ring kit	1	Screw, mach., truss head, M3X3
514	ADF screw/ring kit	5	Ring, E
515	ADF screw/ring kit	3	Ring, E
516	ADF pin kit	1	Pin, spring
518	ADF screw/ring kit	1	Screw, TP, M4X6
*Several used			

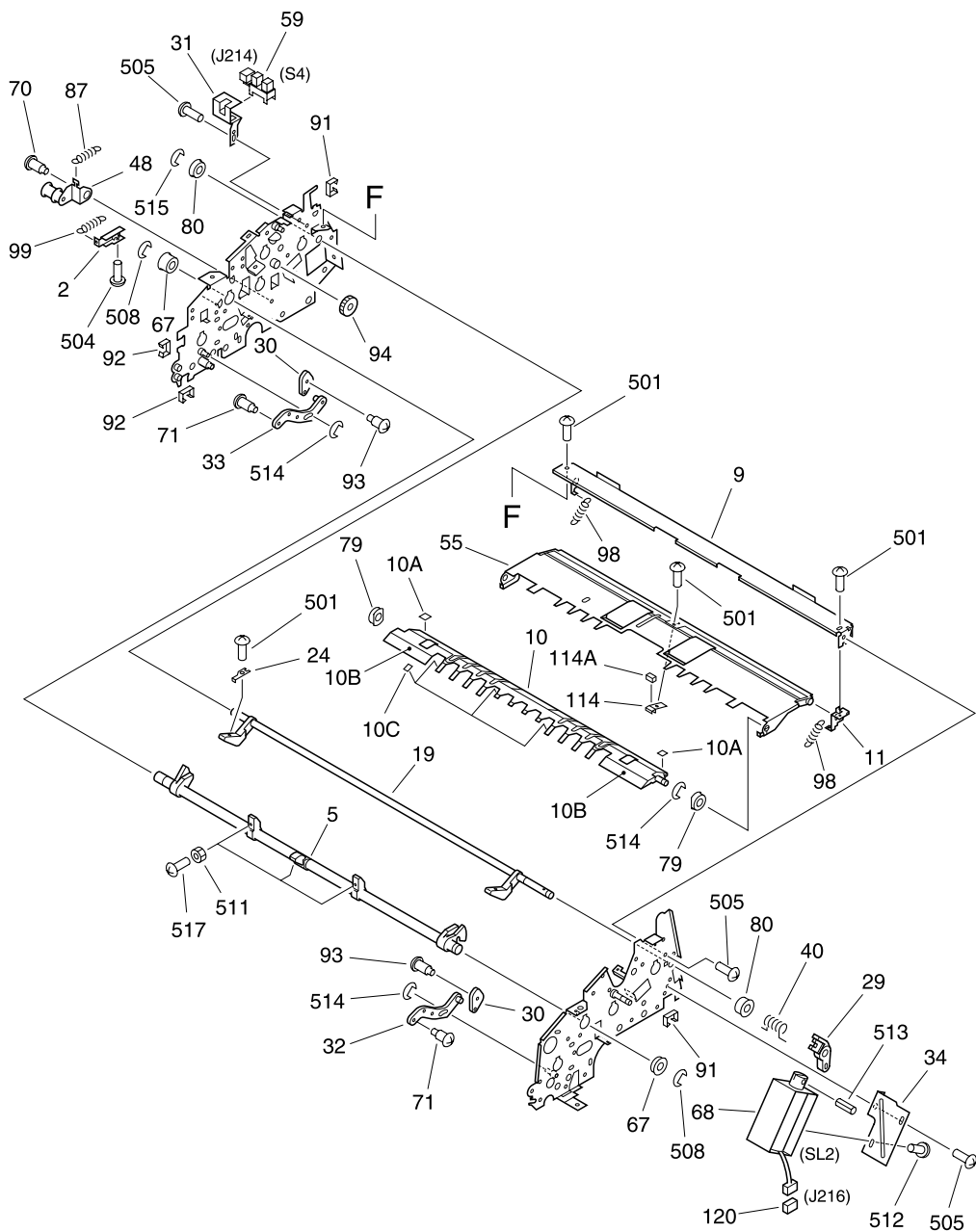


Figure 452. RF assembly (3 of 4)

Table 137. RF assembly (3 of 4)

Key	Part number	Quantity	Description
2		1	Plate, lifting, cam
5		1	Shaft, cam
9		1	Crossmember, guide, upper
10	FF5-5201-020CN	1	Guide, front, separation
10A		2	Rubber
10B		2	Sheet, A
10C		8	Sheet, B
11		1	Plate, tray
19	FB3-5642-000CN	1	Shaft, pressure, pick-up
24		1	Plate, pressure pick-up
29	FB3-5649-000CN	1	Hook, solenoid
30	FC1-1300-000CN	2	Cam
31		1	Plate, sensing
32	FC1-1302-000CN	1	Arm, front
33	FC1-1303-000CN	1	Arm, rear
34		1	Mount, solenoid
40	FB3-5669-000CN	1	Spring, torsion
48		1	Plate, belt tension, rear
52C		1	Sheet, 3
52D		1	Sheet, 4
55		1	Tray, pick-up
59	WG8-5362-000CN	1	IC, TLP1241, photo-interrupter (S5 J206)
66	ADF bushing kit	1	Bushing
67	ADF bushing kit	3	Bushing
68	FH7-5709-000CN	1	Solenoid, dc 24 V (SL2, J216)
70	ADF screw/ring kit	1	Screw, stepped, M4
71	ADF screw/ring kit	2	Screw, stepped, M4
79	ADF bushing kit	2	Bushing
80	ADF bushing kit	2	Bushing
87	ADF spring kit	1	Spring, tension
91		2	Clip, cable
92		3	Clamp, cable
93	ADF screw/ring kit	2	Screw, stepped, M3
94	ADF gear/pulley kit	1	Gear, 15T
98	ADF spring kit	2	Spring, tension
99	ADF spring kit	1	Spring, tension
114	FF5-5198-000CN	1	Plate, stop, woodruff
*Several used			

Table 137. RF assembly (3 of 4) (continued)

Key	Part number	Quantity	Description
114A		1	Sponge, damper
115		1	Collar 2, retaining
120		2	Connector, 2P (J216, 217)
121	ADF bushing kit	1	Bushing
122	ADF bushing kit	1	Bushing
501	ADF screw/ring kit	*	Screw, mach., truss head, M3X6
504	ADF screw/ring kit	*	Screw, mach., truss head, M3X4
505	ADF screw/ring kit	17	Screw, mach., truss head, M4X6
508	ADF screw/ring kit	*	Ring, E
511	ADF screw/ring kit	3	Nut, hex, M3
512	ADF screw/ring kit	1	Screw, TP, M3X4
513	ADF pin kit	1	Pin, spring
514	ADF screw/ring kit	5	Ring, E
515	ADF screw/ring kit	3	Ring, E
517	ADF screw/ring kit	3	Screw, mach., truss head, M3X10
*Several used			

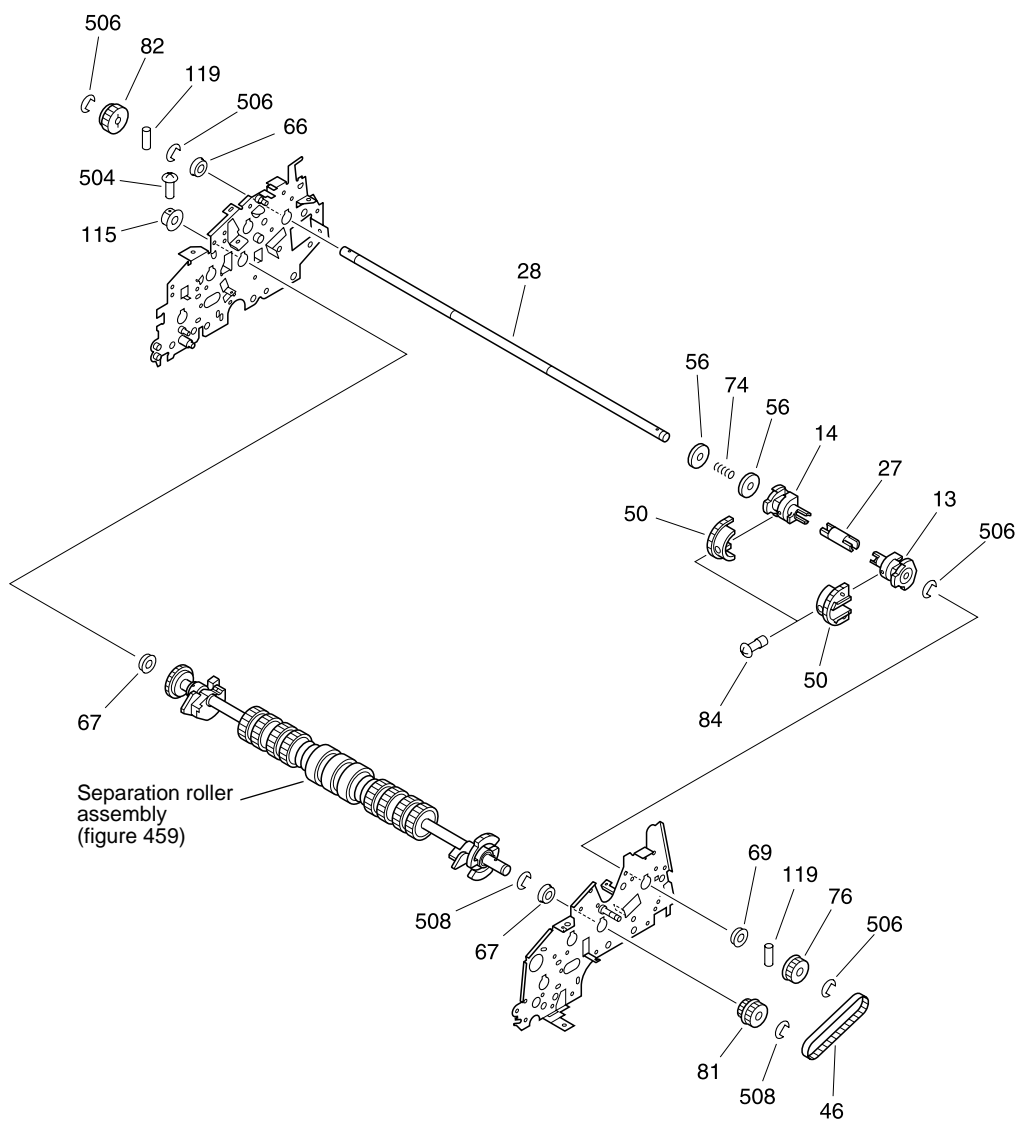


Figure 453. RF assembly (4 of 4)

Table 138. RF assembly (4 of 4)

Key	Part number	Quantity	Description
13	FB3-5638-000CN	1	Roller, front
14	FB3-5639-000CN	1	Roller, rear
27	FB4-6988-000CN	1	Joint
28		1	Shaft, roller
46	ADF belt kit	1	Belt, timing, 80T
50	FF5-5191-000CN	2	Roller, pick-up
52C		1	Sheet, 3
52D		1	Sheet, 4
56	FA6-2513-000CN	2	Washer
66	ADF bushing kit	1	Bushing
67	ADF bushing kit	3	Bushing
69	ADF bushing kit	1	Bushing
74	ADF spring kit	1	Spring, compression
76	ADF gear/pulley kit	1	Pulley F, 28T
81	ADF gear/pulley kit	1	Gear, 22T/pulley, 28T
82	ADF gear/pulley kit	1	Gear, 20T
84	ADF screw/ring kit	2	Screw, M3X2.5
119	ADF pin kit	6	Pin, dowel
121	ADF bushing kit	1	Bushing
122	ADF bushing kit	1	Bushing
504	ADF screw/ring kit	*	Screw, mach., truss head, M3X4
506	ADF screw/ring kit	7	Ring, E
508	ADF screw/ring kit	*	Ring, E
*Several used			

Right paper delivery assembly

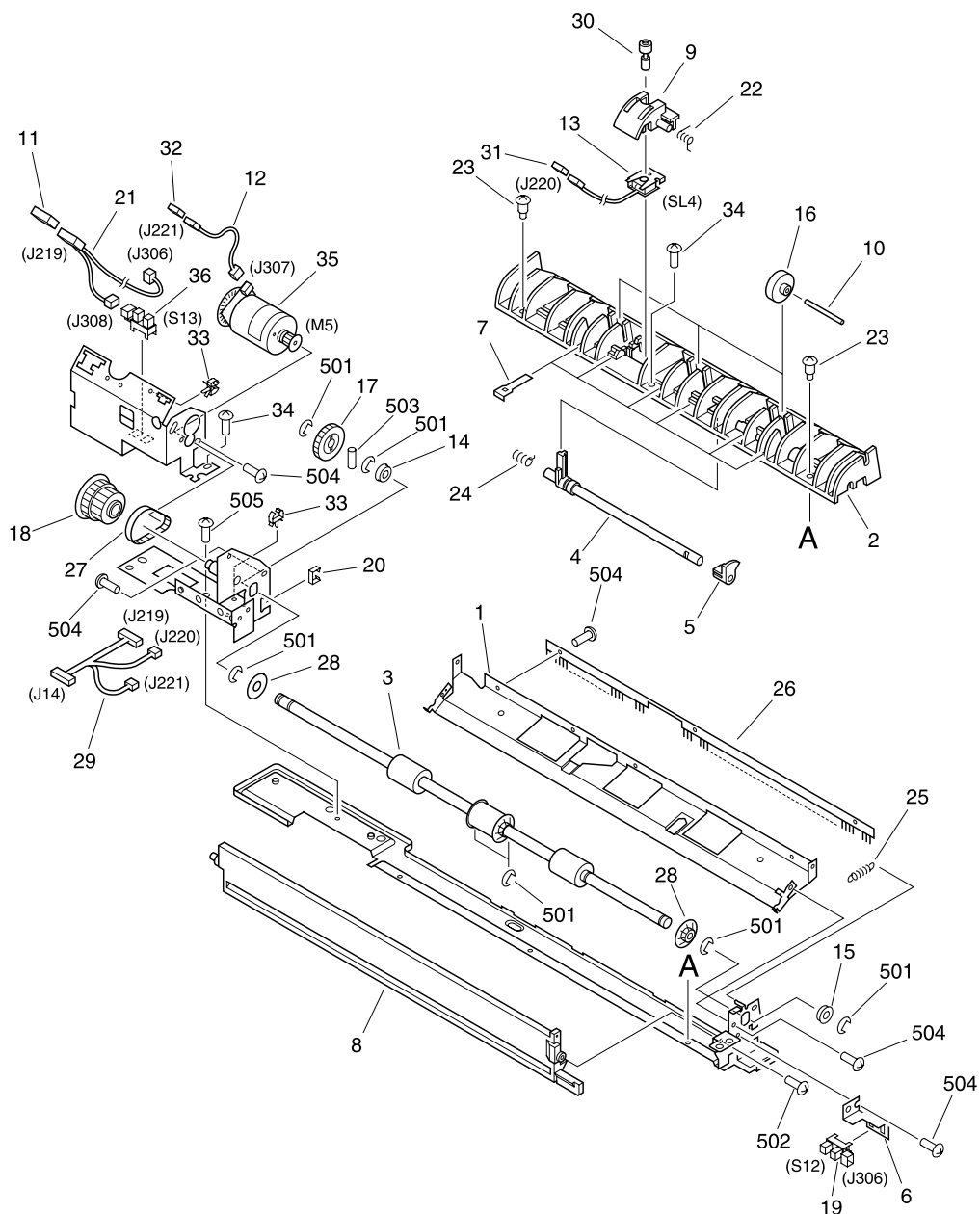


Figure 454. Right paper delivery assembly

Table 139. Right paper delivery assembly

Key	Part number	Quantity	Description
	FG6-5838-000CN	1	Right paper delivery assembly
1		1	Guide, upper, delivery
2		1	Guide, lower, delivery
3	FB4-6990-000CN	1	Roller, delivery
4		1	Lever, delivery sensor
5		1	Flag, sensor
6		1	Mount, sensor
7		6	Spring, leaf
8		1	Scraper
9		1	Cover, stamp
10		3	Rod
11		1	Connector, 6P (J219)
12		1	Cable, motor (J221, 307)
13		1	Solenoid, dc 24 V (SL4 J220)
14		1	Bushing
15		1	Bushing
16		3	Roller, delivery
17		1	Gear, 21T
18		1	Gear, 21T/pulley, 42T
19	WG8-5362-000CN	1	IC, TLP1241, photo-interrupter (S12 J306)
20		2	Clamp, cable
21		1	Cable, sensor (J219, 306, 308)
22		1	Spring, torsion
23		2	Screw, stepped
24		1	Spring, torsion
25		1	Spring, tension
26		1	Eliminator, static charge, F
27	ADF belt kit	1	Belt, timing, 53T
28		2	Flange
29		1	Cable, delivery (J14, 219, 220, 221)
30		1	Stamp ¹
31		1	Connector, 2P (J220)
32		1	Connector, 3P (J221)
33		5	Clamp, cable
34	ADF screw/ring kit	2	Screw, mach., truss head, M3X4
35		1	Motor, dc 24 V (M5 J307)
36	FH7-7326-000CN	1	IC, TLP1225, photo-interrupter (S13 J308)
501	ADF screw/ring kit	7	Ring, E
502	ADF screw/ring kit	1	Screw, mach., truss head, M3X6
503	ADF pin kit	1	Pin, dowel
504	ADF screw/ring kit	12	Screw, mach., truss head, M3X4
505	ADF screw/ring kit	1	Screw, mach., truss head, M4X6
1 Right paper delivery assembly does not include the part shown in key number 30.			

Paper feed motor assembly

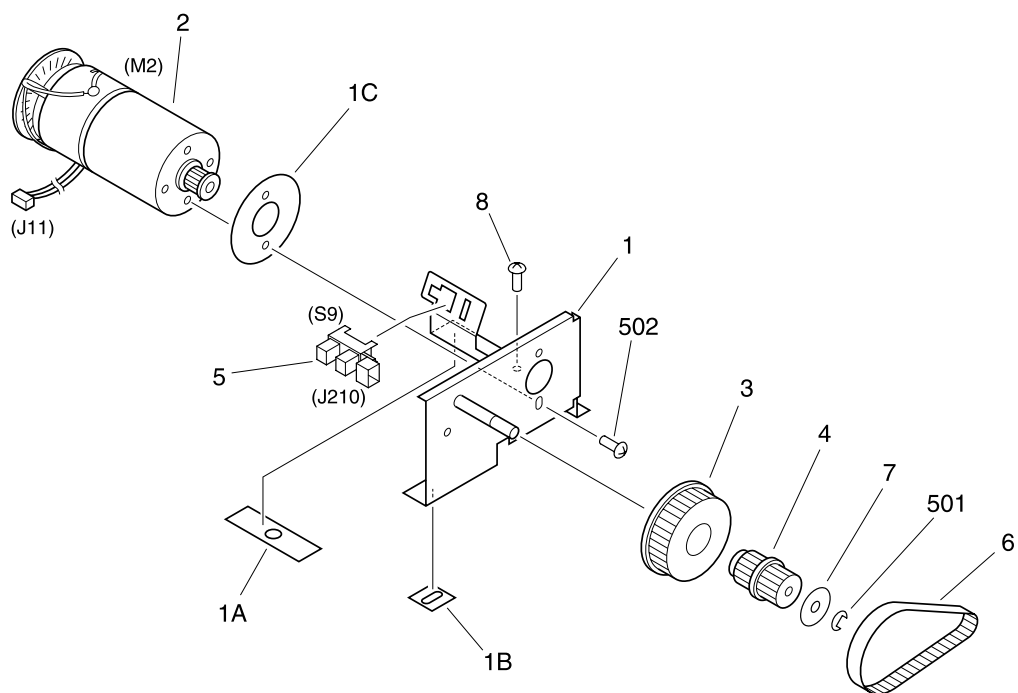


Figure 455. Paper feed motor assembly

Table 140. Paper feed motor assembly

Key	Part number	Quantity	Description
	FG6-2173-000CN	1	Paper feed motor assembly
1		1	Mount, motor
1A		1	Sheet, 1
1B		1	Sheet, rubber 2
1C		1	Sheet, rubber, 3
2		1	Motor, dc 24 V (M2 J11)
3		1	Pulley, 1
4		1	Pulley, 2
5	FH7-7236-000CN	1	Photo-interrupter, GP1A34A1 (S9 J210)
6	ADF belt kit	1	Belt, timing, 92T
7	FC1-6220-000CN	1	Washer, pulley
8	ADF gear/pulley kit	2	Screw, mach. truss head, M3x4 ²
501	ADF screw/ring kit	1	Ring, E
9		2	Screw, with washer, M4x8
2 Paper feed motor assembly does not include the part shown with key number 8.			

Belt drive motor assembly

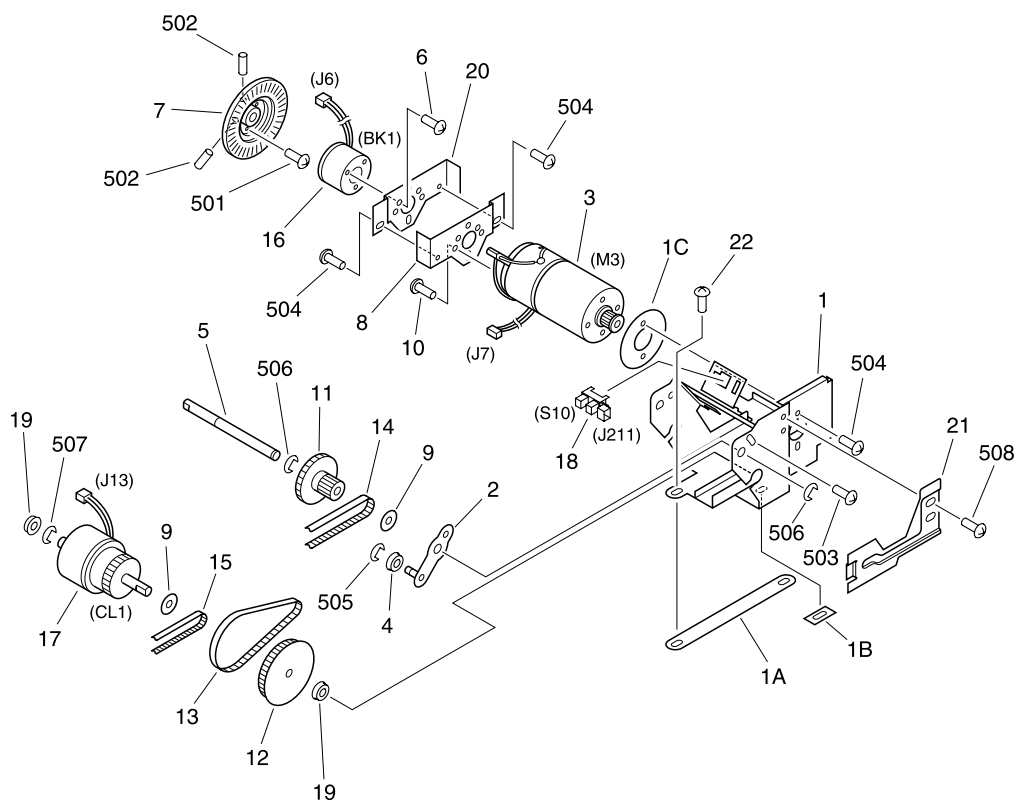


Figure 456. Belt drive motor assembly

Table 141. Belt drive motor assembly

Key	Part number	Quantity	Description
1		1	Mount, motor
1A		1	Damper
1B		1	Sheet, rubber 2
1C		1	Sheet, rubber, 3
2		1	Plate, clutch tensioning
3	FH6-1603-000CN	1	Motor, dc 24 V (M3 J7)
4	ADF gear/pulley kit	1	Pulley
5		1	Shaft, clutch
6	ADF screw/ring kit	3	Screw, mach., truss head, M3X5
7		1	Disk, clock
8		1	Mount, brake, 1
9	ADF gear/pulley kit	2	Washer, pulley
10	ADF screw/ring kit	2	Screw, flat head, M3X8
11	ADF screw/ring kit	1	Gear, 40T/pulley, 16T
12	ADF screw/ring kit	1	Pulley, idler
13	ADF belt kit	1	Flat belt, timing, 89T
14	ADF belt kit	1	Belt, timing, 100T
15	ADF belt kit	1	Belt, timing, 170T
16	FH7-5363-000CN	1	Brake, electromagnetic (BK1 J6)
17	FH7-5403-000CN	1	Clutch, electromagnetic (CL1 J13)
18	FH7-7236-000CN	1	Photo-interrupter, GP1A34A1 (S10 J211)
19	ADF bushing kit	2	Bushing
20		1	Mount, brake, 2
21		1	Plate ³
22	ADF screw/ring kit	3	Screw, TP, M4X8 ³
501	ADF screw/ring kit	3	Screw, tapping, truss head, M2X5
502	ADF screw/ring kit	2	Setscrew, M4X4
503	ADF screw/ring kit	1	Screw, TP, M3X5
504	ADF screw/ring kit	4	Screw, TP, M4X6
505	ADF screw/ring kit	1	Ring, E
506	ADF screw/ring kit	2	Ring, E
507	ADF screw/ring kit	1	Ring, E
508	ADF screw/ring kit	2	Screw, TP, M4X6 ³
3 Belt drive motor assembly does not include the part shown with key numbers 21, 22, and 508.			

Upper paper guide assembly

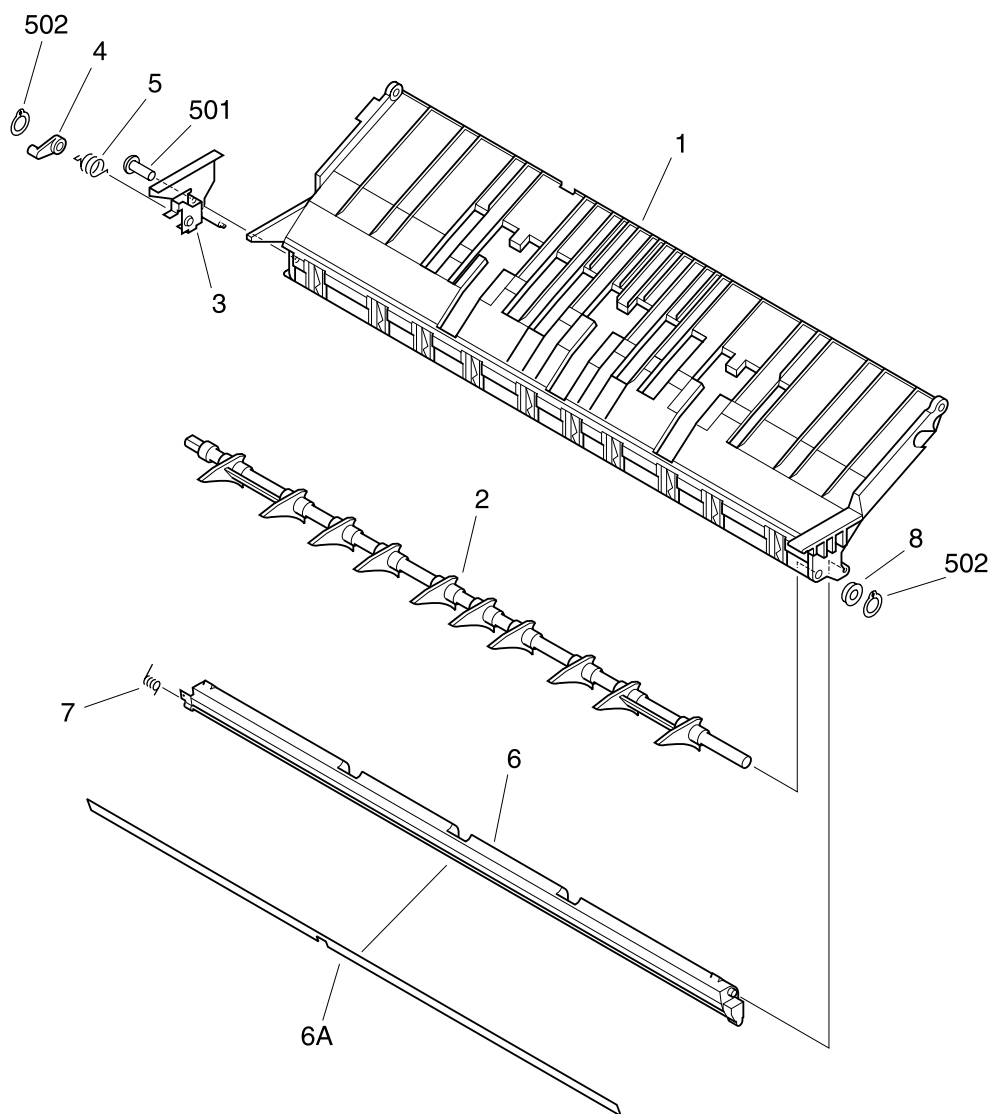


Figure 457. Upper paper guide assembly

Table 142. Upper paper guide assembly

Key	Part number	Quantity	Description
	FG5-7273-000CN	1	Upper paper guide assembly
1		1	Guide, upper
2		1	Flapper, reverse
3		1	Plate, flapper, mounting
4		1	Arm, flapper
5		1	Spring, torsion
6		1	Guide, front registration
6A		1	Mylar, registration guide front
7		1	Spring, torsion
8	ADF bushing kit	1	Bushing
501	ADF screw/ring kit	1	Screw, tapping, truss head, M3X6
502		2	Ring, grip

Lower paper guide assembly

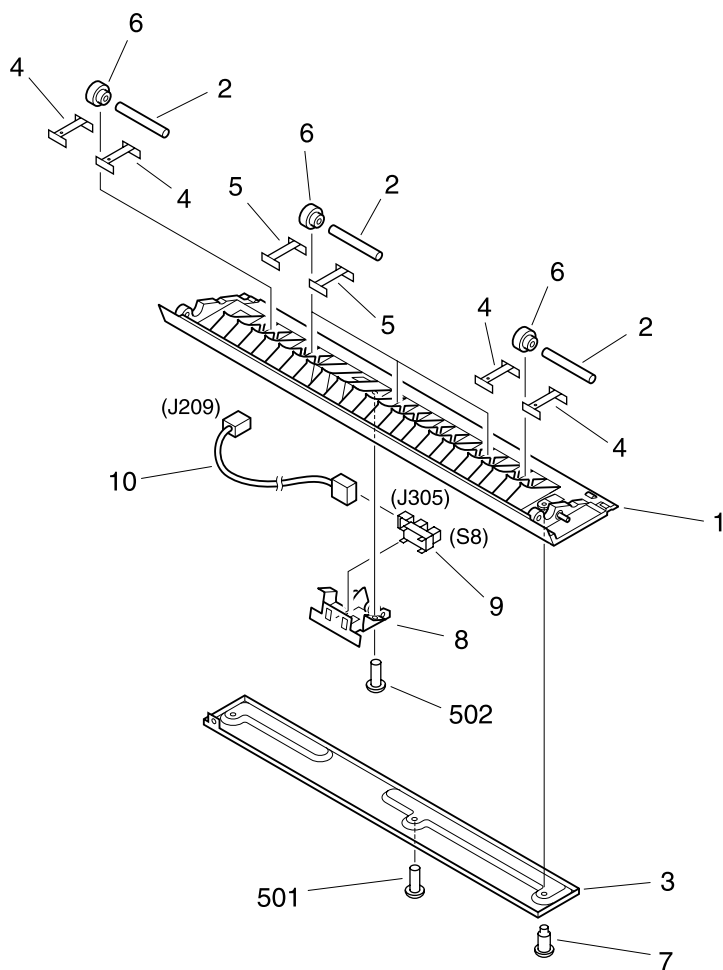


Figure 458. Lower paper guide assembly

Table 143. Lower paper guide assembly

Key	Part number	Quantity	Description
	FG6-5837-000CN	1	Lower paper guide assembly
1		1	Guide, paper, lower
2		5	Rod
3		1	Plate, guide
4		4	Spring, leaf, 1
5		6	Spring, leaf, 2
6		5	Roller
7		2	Screw,stepped,M3X1.4
8		1	Sensor lever unit
9		1	Photo-interrupter, SG206 (S8 J305)
10		1	Sensor connecting cable (J209, 305)
501		1	Screw, tapping, truss head, M3X6
502	ADF screw/ring kit	1	Screw, tapping, truss head, M3X6

Separation roller assembly

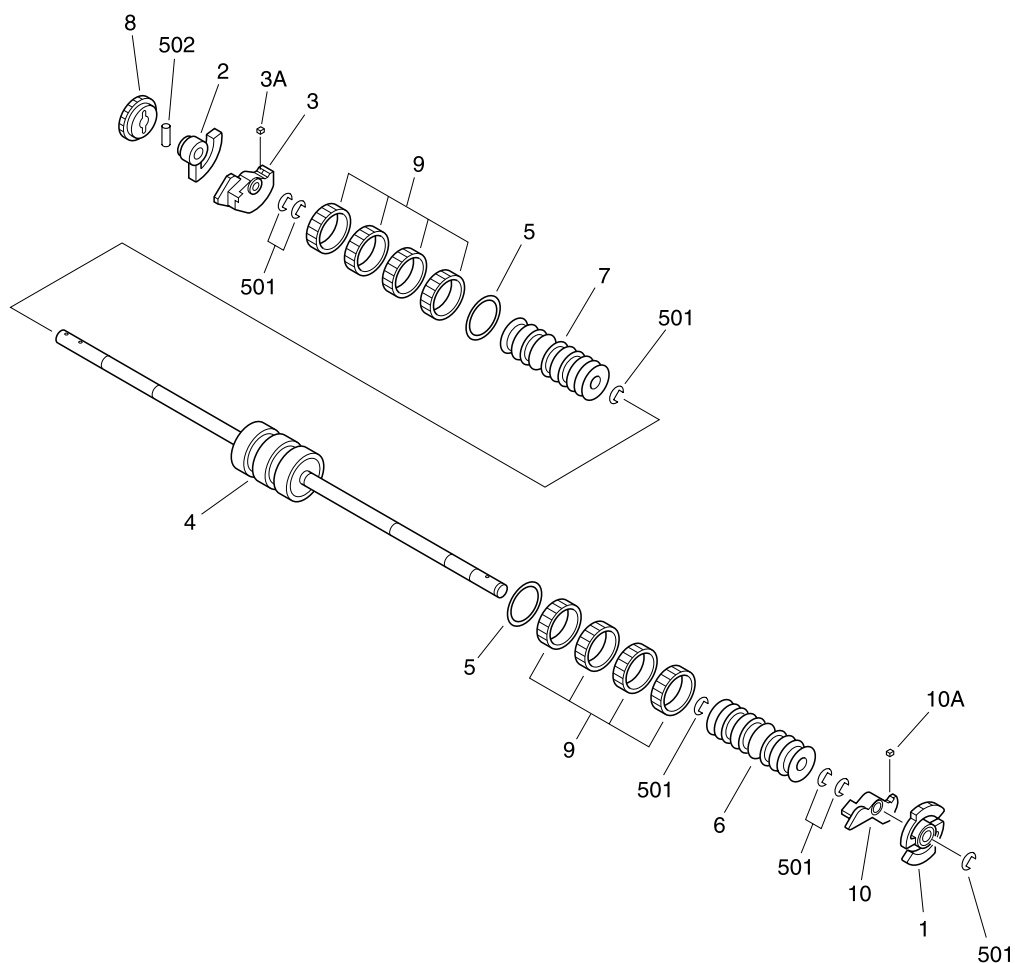


Figure 459. Separation roller assembly

Table 144. Separation roller assembly

Key	Part number	Quantity	Description
	FG6-2176-000CN	1	Separation roller assembly
1		1	Gear, 8T
2		1	Gear, 6T
3		1	Arm, guide rear
3A		1	Damper
4	FF5-5207-000CN	1	Roller, separation
5		2	Roller, 2
6		1	Roller, drive, 1
7		1	Roller, drive, 2
8	ADF gear/pulley kit	1	Gear, 25T
9	FB4-6991-000CN	8	Roller
10		1	Arm, guide front
10A		1	Damper
501	ADF screw/ring kit	8	Ring, E
502	ADF pin kit	1	Pin, dowel

Paper separation assembly

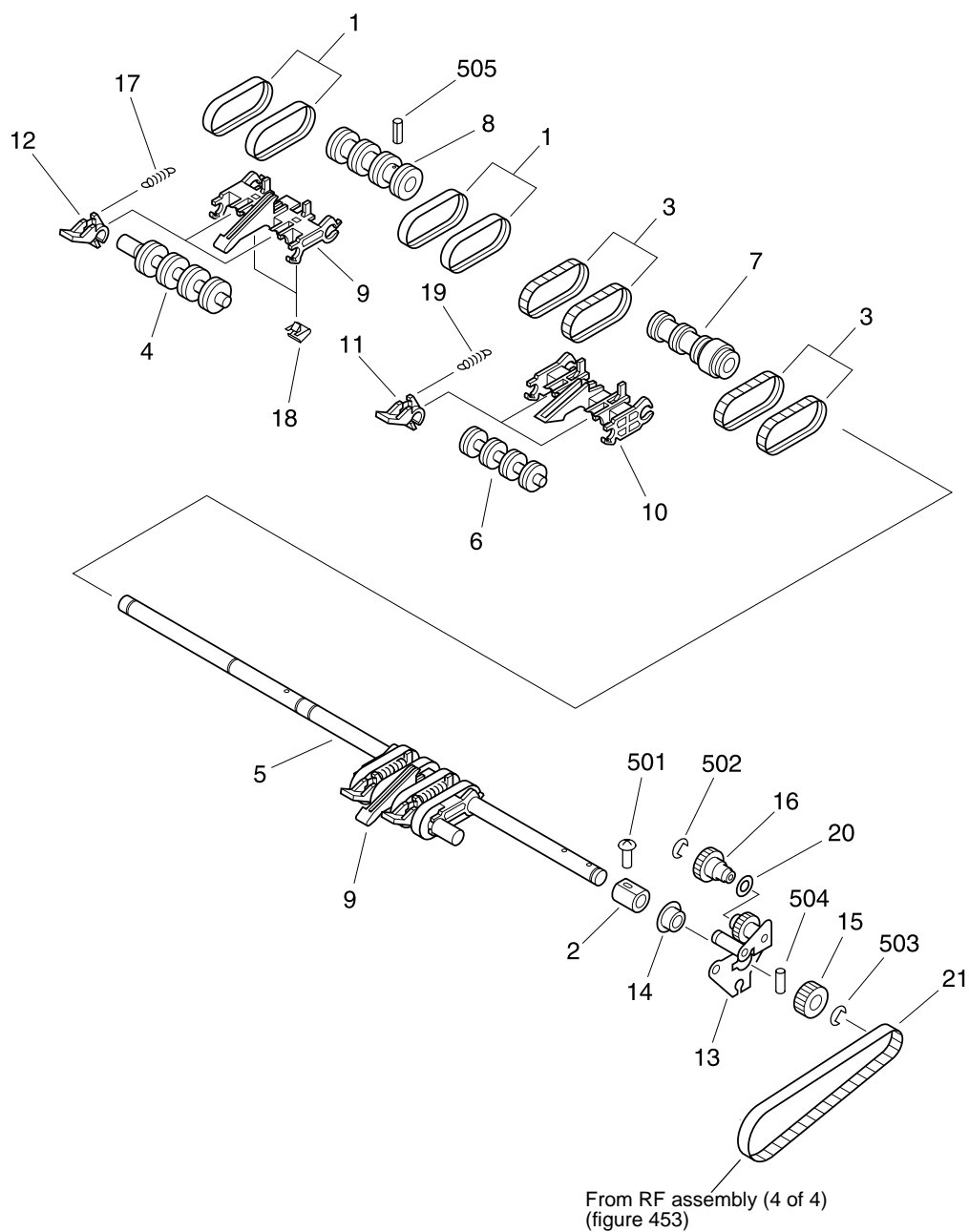


Figure 460. Paper separation assembly

Table 145. Paper separation assembly

Key	Part number	Quantity	Description
	FG6-4442-000CN	1	Paper separation assembly
1	ADF belt kit	8	Belt, separation
2		1	Collar, retaining
3	ADF belt kit	4	Belt, separation
4		2	Roller, belt, side
5		1	Shaft, drive, belt separation
6		1	Roller, belt, center
7		1	Pulley, drive separation, center
8		2	Pulley, drive separation, side
9		2	Bracket, separation, side
10		1	Bracket, separation, center
11		2	Arm, bracket, center
12		4	Arm, bracket, side
13	FF5-5188-000CN	1	Side plate, separation
14	ADF bushing kit	1	Bushing
15	ADF gear/pulley kit	1	Gear, 20T
16	ADF gear/pulley kit	1	Gear, 16T/pulley, 15T
17	ADF spring kit	4	Spring, tension
18		4	Spring, leaf
19	ADF spring kit	2	Spring, tension
20		1	Flange
21	ADF belt kit	1	Belt, timing, 132T
501	ADF screw/ring kit	1	Screw, mach., truss head, M3X6
502	ADF screw/ring kit	1	Ring, E
503	ADF screw/ring kit	1	Ring, E
504	ADF pin kit	1	Pin, dowel
505	ADF pin kit	2	Pin, spring

RDF controller PCA

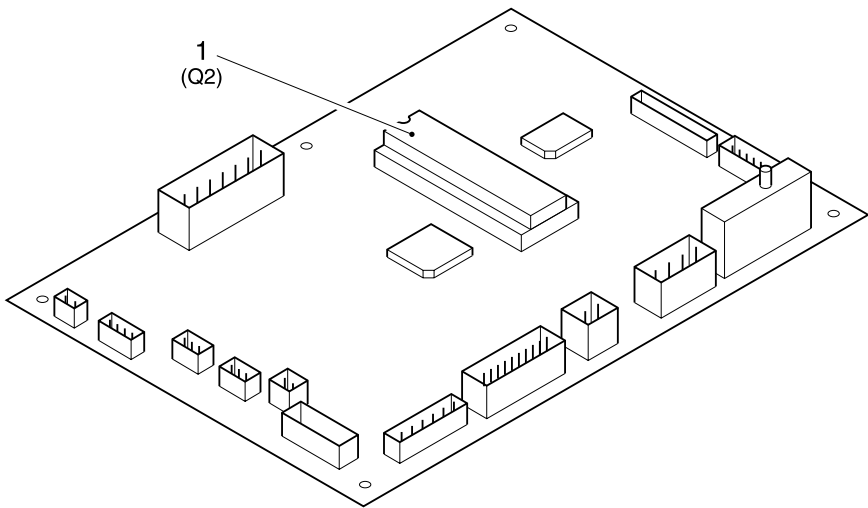


Figure 461. RDF controller PCA

Table 146. RDF controller PCA

Key	Part number	Quantity	Description
	FG2-9927-000CN	1	RDF controller PCB assembly
1		1	IC, M27C1001-80XF1, EP-ROM (Q2)

Connectors

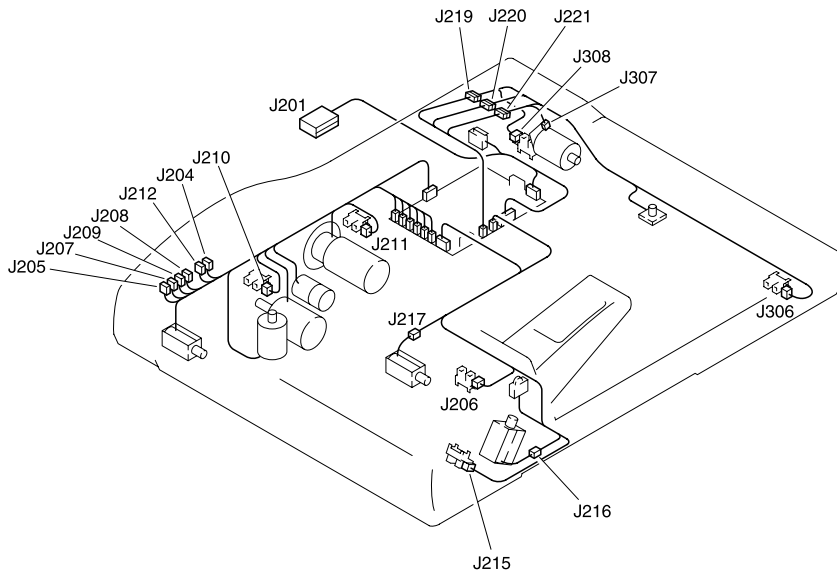


Figure 462. Connectors (1 of 2)

Table 147. Connectors (1 of 2)

Key	Quantity	Description
J 1		RDF controller
J 1	1	Connector, 7P, female
J 1	7	Terminal
J 2		RDF controller
J 2	1	Connector, 4P, female
J 2	4	Socket, contact, 18-24AWG
J 3		RDF controller
J 3	1	Connector, 2P
J 3	2	Socket, contact, 18-24AWG
J 5		RDF controller
J 5	1	Connector, 14P
J 5	13	Socket contact, DF11-2428SCF
J 6		Belt motor brake (BK1)
J 6		RDF controller
J 7		Belt motor (M3)
J 7		RDF controller
J 8		RDF controller

Table 147. Connectors (1 of 2) (continued)

Key	Quantity	Description
J 8	1	Connector, 9P
J 8	9	Socket contact
J 9		RDF controller
J 9	1	Connector, 24P
J 9	24	Socket contact, DF11-2428SCF
J 11		Feeder motor (M2)
J 11		RDF controller
J 12		Separation motor (M1)
J 12		RDF controller
J 13		Clutch (CL1)
J 13		RDF controller
J 14		RDF controller
J 14	1	Connector, 10P
J101		Indicator
J101	1	Connector, 6P, female
J101	6	Socket contact
J102		Indicator
J102	1	Connector, 2P, female
J102	2	Socket contact
J201	1	Copier
J201	1	Housing
J201	7	Terminal
J201	3	Terminal
J204		Deflector solenoid (SL3)
J204	2	Connector, 2P, female
J204	1	Connector, 2P
J205	2	Connector, 4P, female
J205	1	Connector, 4P
J206		Paper pick-up roller sensor (S5)
J206	1	Connector, 3P
J207	2	Connector, 3P
J207	1	Connector, 3P
J208	2	Connector, 3P, female
J208	1	Connector, snap tight
J209	2	Connector, 3P, female
J209	1	Connector, 3P
J210		Feeder motor clock sensor (S9)
J210	1	Connector, 3P

Table 147. Connectors (1 of 2) (continued)

Key	Quantity	Description
J211		Belt motor clock sensor (S10)
J211	1	Connector, 3P, female
J212	2	Connector, 2P, female
J212	1	Connector, snap tight
J215		Register roller clock sensor (S11)
J215	1	Connector, 3P
J216		Paper retainer plate solenoid (SL2)
J216	1	Connector, 2P, female
J216	1	Connector, 2P
J217		Stopper plate solenoid (SL1)
J217	1	Connector, 2P, female
J217	1	Connector, snap tight
J219	2	Connector, 6P
J219	1	Connector, 6P
J220		Stamp solenoid (SL4)
J220	1	Connector, 2P, female
J220	1	Connector, 2P
J221	2	Connector, 3P
J221	1	Connector, 3P
J306		Delivery sensor 2 (S12)
J306	1	Connector, 3P
J307		Paper delivery motor (M5)
J307	1	Connector, 2P, female
J307	2	Contact
J308		Delivery motor sensor (S13)
J308	1	Connector, 3P

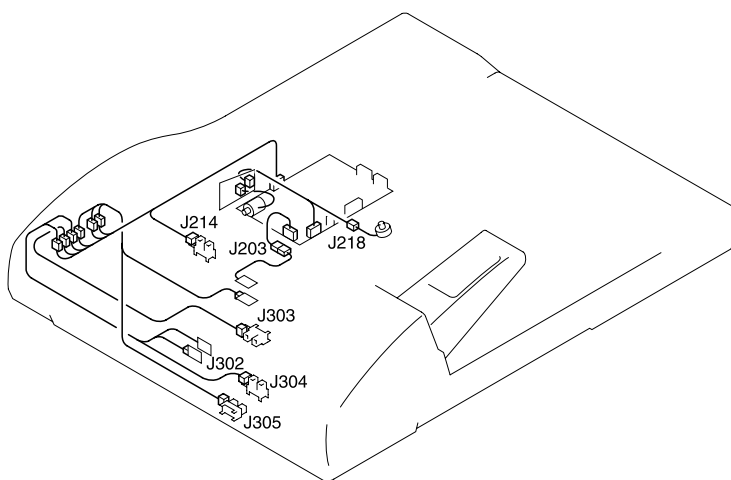


Figure 463. Connectors (2 of 2)

Table 148. Connectors (2 of 2)

Key	Quantity	Description
J203	2	Connector, 4P, female
J203	1	Connector, 4P
J214		Upper cover sensor (S4)
J214	1	Connector, 3P
J218	2	Connector, 3P
J218	1	Connector, 3P
J302	1	Connector, 2P, female
J302	1	Pin assembly, 2P
J302	2	Contact
J303		Delivery sensor 1 (S6)
J303	1	Connector, 3P
J304		Paper pick-up sensor (S7)
J304	1	Connector, 3P
J305		Reversing sensor (S8)
J305	1	Connector, 3P

Bushing kit

Table 149. Bushing kit

Part number	Quantity	Description
C7839-67902		Side HCI bushing kit
	2	Bushing
	2	Bushing
	2	Bushing
	2	Bushing
	1	Bushing
	8	Bushing
	1	Bushing

Gear/pulley kit

Table 150. Gear/pulley kit

Part number	Quantity	Description
C7839-67903		Side HCI gear/pulley kit
	1	Gear, 28T/41T
	1	Gear, 58T
	1	Gear, 28T
	2	Gear, 16T
	1	Gear, 19T
	1	One-way gear, 71T
	1	Gear, 18T
	1	Gear, 36T
	1	Gear, 14T/42T/32T
	1	Gear, 47T
	1	Gear, 35T

Screw/ring kit

Table 151. Screw/ring kit

Part number	Quantity	Description
C7839-67901		Side HCI screw/ring kit
	2	Spring, torsion
	4	Screw, M4X6
	2	Screw, M4X6
	2	Screw, TP, M4X6
	4	Ring, E
	2	Screw, TP, M4X6
	*	Screw, RS, M4X8
	2	Screw, w/washer, M4
	*	Screw, TP, M4X4
	2	Screw, mach., truss head, M3X4
	3	Screw, TP, M4X6
	2	Screw, M4X10
	*	Screw, RS, M4X8
	*	Screw, TP, M4X4
	5	Ring, E
	2	Setscrew, M3X4
	*	Screw, RS, M4X8
	1	Screw, stepped
	1	Screw, M3X8
	8	Screw, TP, M4X6
	3	Screw, mach., truss head, M2.3X10
	6	Ring, E
	*	Screw, TP, M4X4
	1	Screw, tapping, truss head, M4X6
	2	Screw, w/washer, M3X8
	8	Screw, TP, M3X6
	8	Ring, E
	4	Screw, w/washer, M3X6
	8	Ring, E
	2	Ring, E
XD3-1200-122CN	5	Pin, spring
XD3-2200-102CN	3	Pin, dowel
XD3-2200-122CN	2	Pin, dowel
*Several used		

Spring kit

Table 152. Spring kit

Part number	Quantity	Description
C7839-67904		Side HCl spring kit
	1	Spring, tension
	1	Spring, tension
	1	Spring, compression
	1	Spring, compression
	2	Spring, compression
	1	Spring, tension
	1	Spring, tension
	1	Spring, tension
	1	Spring, tension
	1	Spring, tension
	1	Spring, tension

Assembly locations

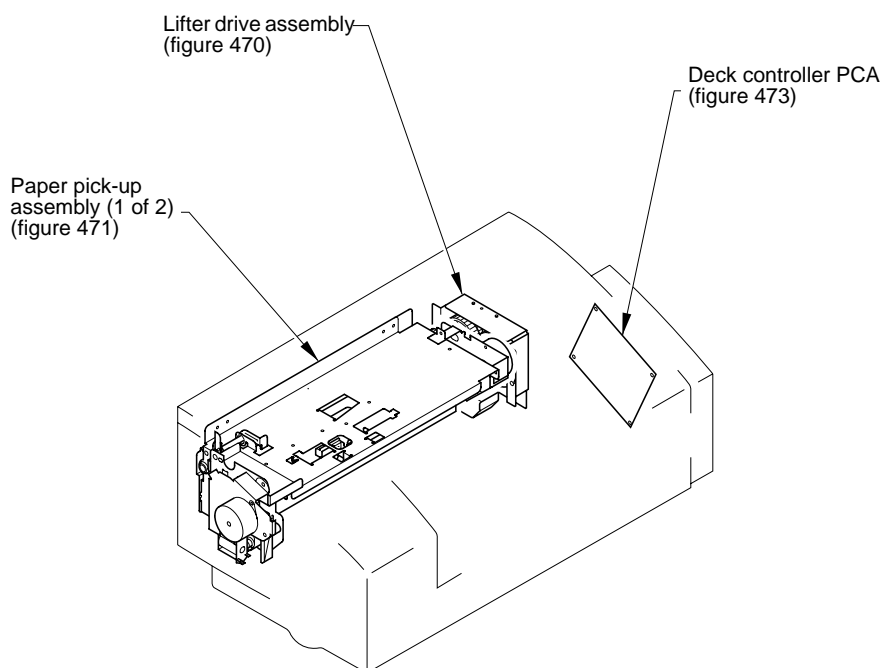


Figure 464. Assembly locations

Mounting hardware

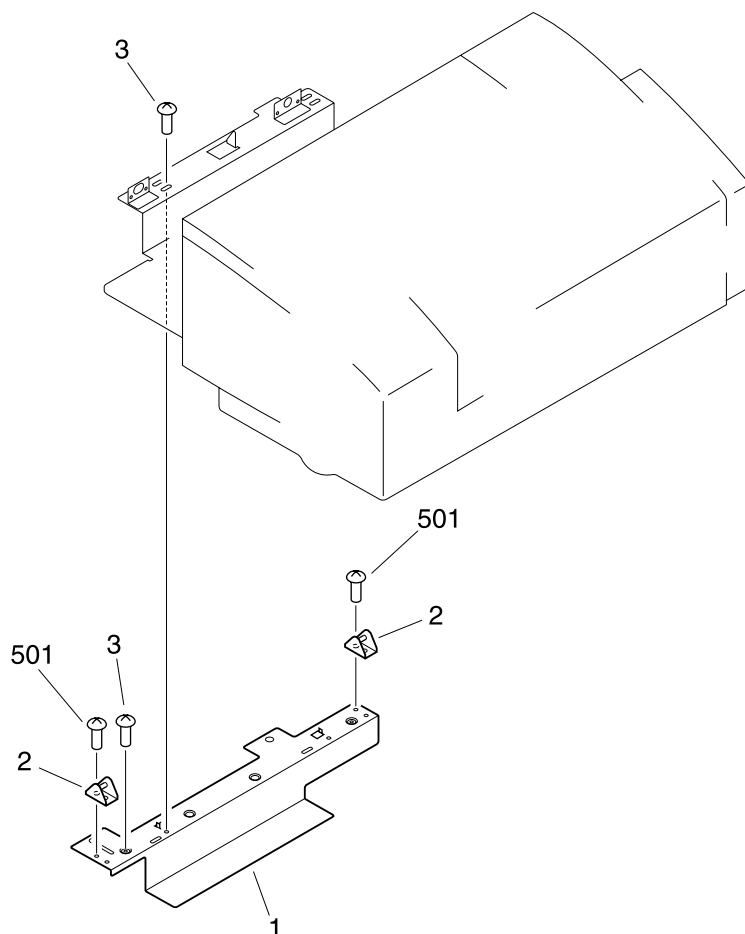


Figure 465. Mounting hardware

Table 153. Mounting hardware

Key	Part number	Quantity	Description
1		1	Plate, mount
2		2	Plate, latch
501		8	Screw, TP, M4X4

External covers and panels

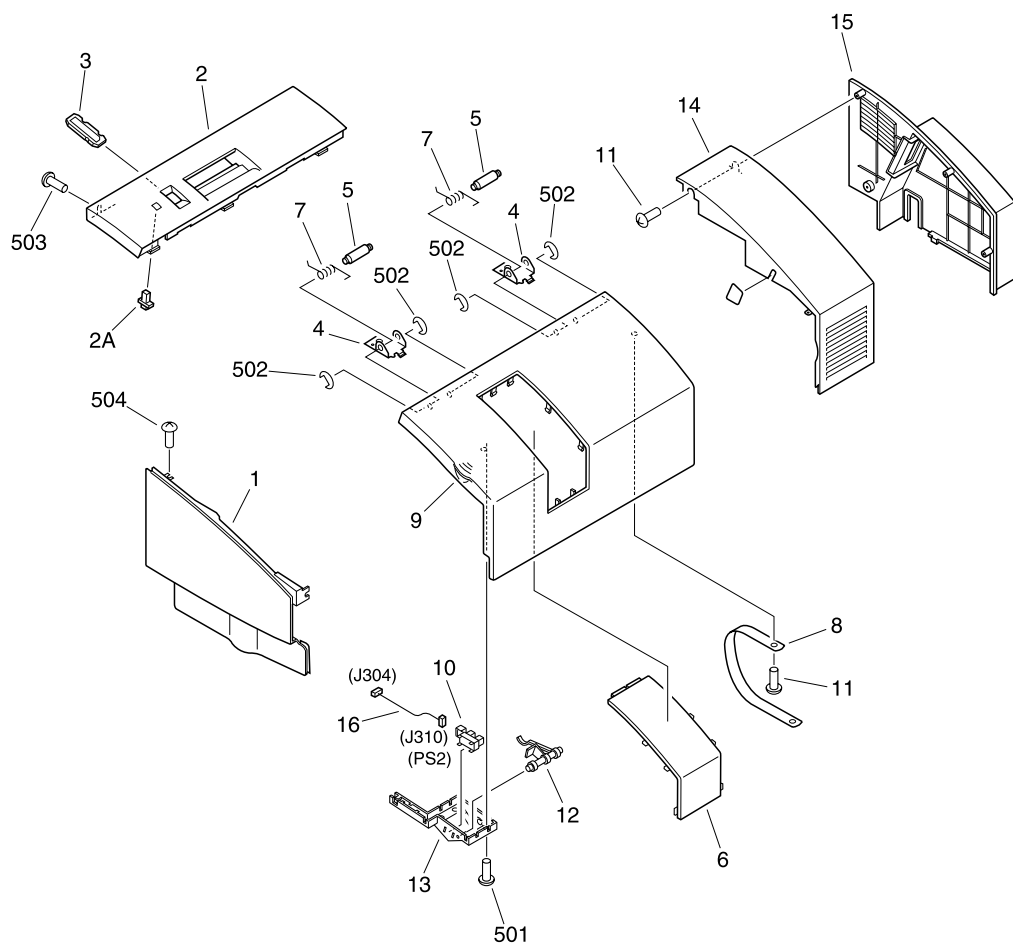


Figure 466. External covers and panels

Table 154. External covers and panels

Key	Part number	Quantity	Description
1	FB4-7441-000CN	1	Panel, front
2	FF5-9140-000CN	1	Panel, upper
2A		1	Guide, LED
3	FF5-9141-000CN	1	Size plate
4		2	Plate, shaft support
5		2	Shaft, cover
6	FB4-7413-000CN	1	Cover, window
7	FB4-7425-000CN	2	Spring, torsion
8	FB4-7438-000CN	1	Tape, door cover
9	FF5-9142-000CN	1	Deck cover
10	WG8-5362-000CN	1	IC, TLP1241, photo-interrupter (PS2 J310)
11	Side HCl screw/ring kit	4	Screw, M4X6
12	FB4-7381-000CN	1	Flag, sensor
13		1	Cover, sensor
14	FB4-7444-000CN	1	Cover, deck, rear
15	FB4-7445-000CN	1	Cover, dc controller
16		1	Sensor, cable (J304, 310)
17	Side HCl screw/ring kit	2	Screw, M4X6
501	Side HCl screw/ring kit	2	Screw, TP, M4X6
502	Side HCl screw/ring kit	4	Ring, E
503	Side HCl screw/ring kit	2	Screw, TP, M4X6

Internal components

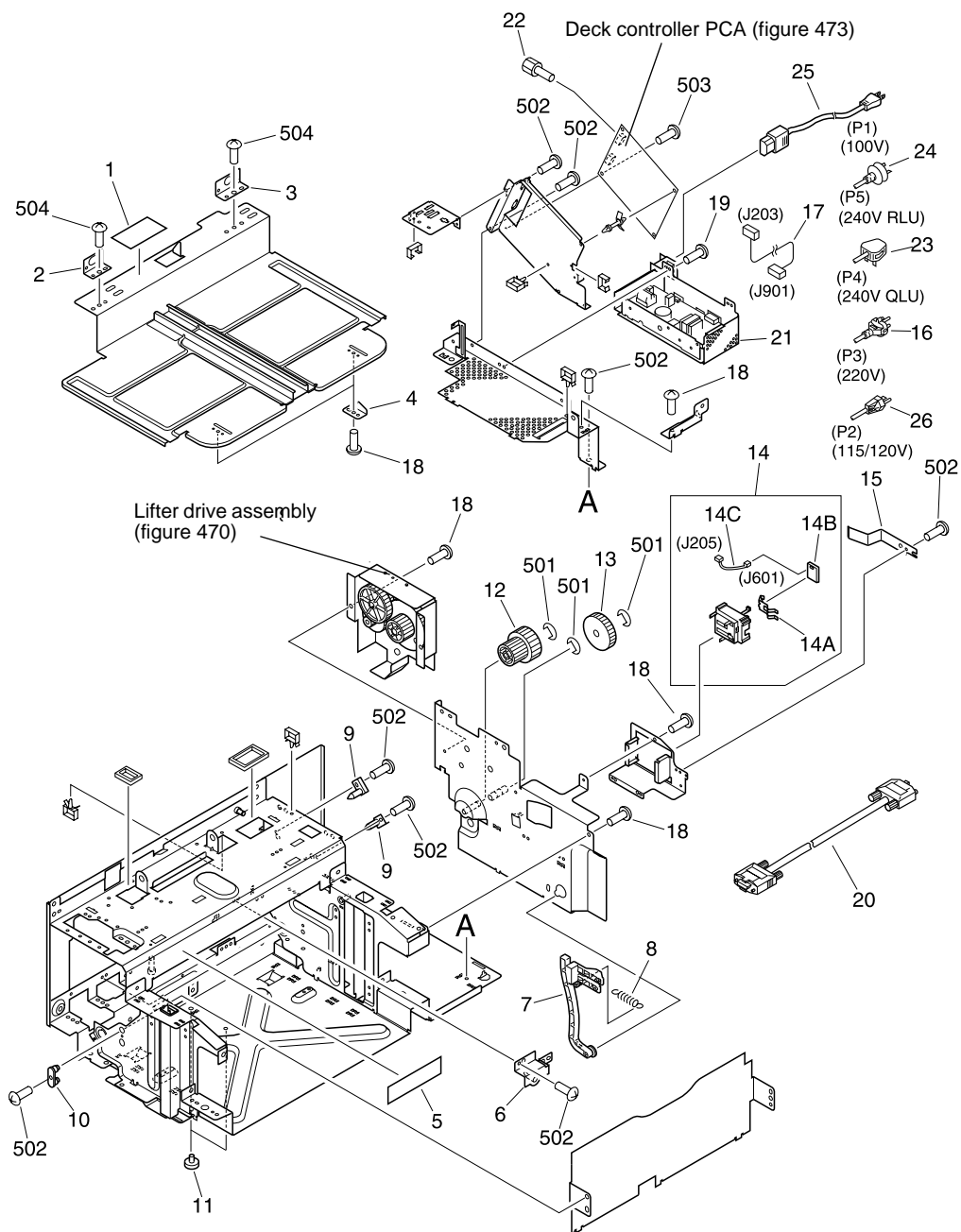


Figure 467. Internal components (1 of 3)

Table 155. Internal components (1 of 3)

Key	Part number	Quantity	Description
1		1	Label, adjusting
2		1	Plate, pin holder
3		1	Plate, pin holder
4		2	Plate, deck stop
5		1	Label, paper supply
6		1	Pin, positioning
7	FB4-7387-000CN	1	Arm, paper sensor
8	Side HCl spring kit	1	Spring, tension
9		2	Pin, positioning
10		1	Pin, guide, 2
11	XG9-0402-000CN	2	Roller
12	Side HCl gear/pulley kit	1	Gear, 28T/41T
13	Side HCl gear/pulley kit	1	Gear, 58T
14	RG5-2166-000CN	1	Paper sensing assembly
14A		1	Spring, leaf
14B		1	Paper sensing PCB assembly
14C		1	Paper-volume cable (J205, 601)
15		1	Spring, leaf
16	FH2-6719-000CN	1	Power cord (100/127 V P2)
17		1	PSU cable (J203, 901)
18	Side HCl screw/ring kit	*	Screw, RS, M4X8
19	FH2-5762-000CN	1	Power cord (220/240 V P2)
20	FH2-6464-000CN	1	Cable, interface
21	FH3-2509-000CN	1	Switching regulator PCB unit
22	WT2-5526-000CN	2	Hexagon bolt, M4
23	Side HCl screw/ring kit	2	Screw, with washer, M4
501	Side HCl screw/ring kit	3	Ring, E
502	Side HCl screw/ring kit	*	Screw, TP, M4X4
503	Side HCl screw/ring kit	2	Screw, mach., truss head, M3X4
504	Side HCl screw/ring kit	3	Screw, TP, M4X6
*Several used			

Table 156. Internal components (2 of 3)

Key	Part number	Quantity	Description
1	RB1-6872-000CN	1	Sheet, separation, leather
2	FB4-7371-000CN	1	Plate, wire hook
3	FC1-5054-000CN	1	Hook, wire
4	FC1-5049-000CN	2	Bracket
5	FF5-9125-000CN	1	Side guide plate, front
5A		1	Sheet, protective, small
5B		1	Coupler, standard
6	Side HCI screw/ring kit	2	Screw, M4X10
7	FG6-3921-000CN	1	Side guide plate, rear
7A		1	Plate, paper holder
7B		1	Coupler, panel limit
7C		1	Sheet, protective, small
8	FC1-5052-000CN	1	Wire, rear
9	FC1-5051-000CN	1	Wire, front
10		1	Holder, cable, front
11		1	Holder, cable, rear
12		2	Flange, idler
13		1	Plate, pulley support, front
14		1	Plate, pulley support, rear
15	FB2-8465-000CN	2	Pulley, lifting
16	FA6-9988-020CN	1	Flange, lifter
17	FA9-2112-000CN	2	Bushing
18	FA6-9971-000CN	2	Pulley, idler
19	FB4-7379-000CN	1	Shaft, lifter wire
20		1	Plate, limit, wire
21	FC1-5081-000CN	1	Flange, rear
22	Side HCI gear/pulley kit	1	Gear, 28T
23	Side HCI screw/ring kit	*	Screw, RS, M4X8
501		2	Washer, retaining
502	Side HCI screw/ring kit	*	Screw, TP, M4X4
503		2	Ring, toothed lock
504	Side HCI screw/ring kit	5	Ring, E
505	Side HCI screw/ring kit	2	Setscrew, M3X4
506	Side HCI pin kit	1	Pin, dowel
*Several used			

Table 157. Internal components (3 of 3)

Key	Part number	Quantity	Description
1	FB3-9198-000CN	1	Handle, upper guide
2	FB4-7372-000CN	1	Latch, front
3		1	Shaft, latch
4		1	Lever, plate
5		1	Link, latch
6		1	Shaft, lever
7		1	Arm, handle
8	FB4-7423-000CN	1	Plate, latch front
9	FB4-7424-000CN	1	Plate, latch rear
10	FF5-9122-000CN	1	Latch, rear
11		1	Arm
11A	FB3-2411-000CN	1	Pin, slide
12	Side HCl spring kit	1	Spring, tension
13	FA9-2112-000CN	2	Bushing
14	Side HCl screw/ring kit	*	Screw, RS, M4X8
15	Side HCl spring kit	1	Spring, tension
16	XZ9-0401-000CN	2	Caster
17	FG6-3913-000CN	2	Caster, unit
18		1	Mount, switch
19		1	Plate, switch
20	Side HCl screw/ring kit	1	Screw, stepped
21		1	Spring, tension
22	WC4-0153-000CN	1	Microswitch (MS1 J326)
23		1	Mount, switch
24	FB4-7391-000CN	1	Spring, leaf
25	WC4-0153-000CN	1	Microswitch (MS2 J327)
26		1	Arm, releasing
27	FB4-7420-000CN	1	Lever, releasing
28	FB4-7426-000CN	1	Shaft, arm
29	FF5-9121-000CN	1	Mount, releasing
30	Side HCl spring kit	1	Spring, compression
31	WG8-5362-000CN	1	IC, TLP1241, photo-interrupter (PS1 J309)
32		1	Spring, leaf
33	WC4-0153-000CN	1	Microswitch (MS3 J328)
34	Side HCl screw/ring kit	1	Screw, M3X8
35		1	LED cable (J301, 303)
*Several used			

Table 157. Internal components (3 of 3)

Key	Part number	Quantity	Description
36	RG5-4199-000CN	1	LED PCB assembly
37		1	Size sensor cable (J325, 328)
38		1	Switch cable (J321, 322, 326, 327)
39		1	Holder, LED
40		1	Plate, shield
41	XZ9-0459-000CN	2	Wing,nut,M8
42	XA9-1109-000CN	2	Wing,nut,M8
43		1	Arm, latch
501	Side HCl screw/ring kit	8	Screw, TP, M4X6
502	Side HCl screw/ring kit	3	Screw, mach., truss head, M2.3X10
503	Side HCl screw/ring kit	5	Ring, E
504	Side HCl screw/ring kit	6	Ring, E
505	Side HCl screw/ring kit	*	Screw, TP, M4X4
506	Side HCl screw/ring kit	1	Screw, tapping, truss head, M4X6
*Several used			

Lifter drive assembly

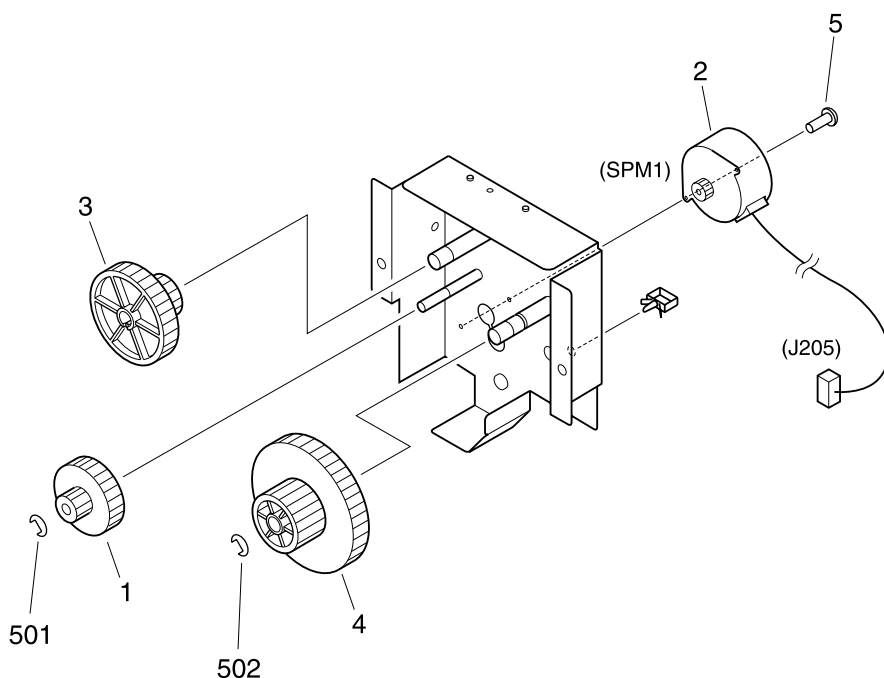


Figure 470. Lifter drive assembly

Table 158. Lifter drive assembly

Key	Part number	Quantity	Description
	FG6-3919-000CN	1	Lifter drive assembly
1		1	Gear, 65T/17T (SPM1 J205)
2		1	Motor, stepping
3		1	Gear, 20T/63T
4		1	Gear, 32T/68T
5	Side HCl screw/ring kit	2	Screw, with washer, M3X8
501	Side HCl screw/ring kit	1	Ring, E
502		2	Ring, E

Paper pick-up assembly

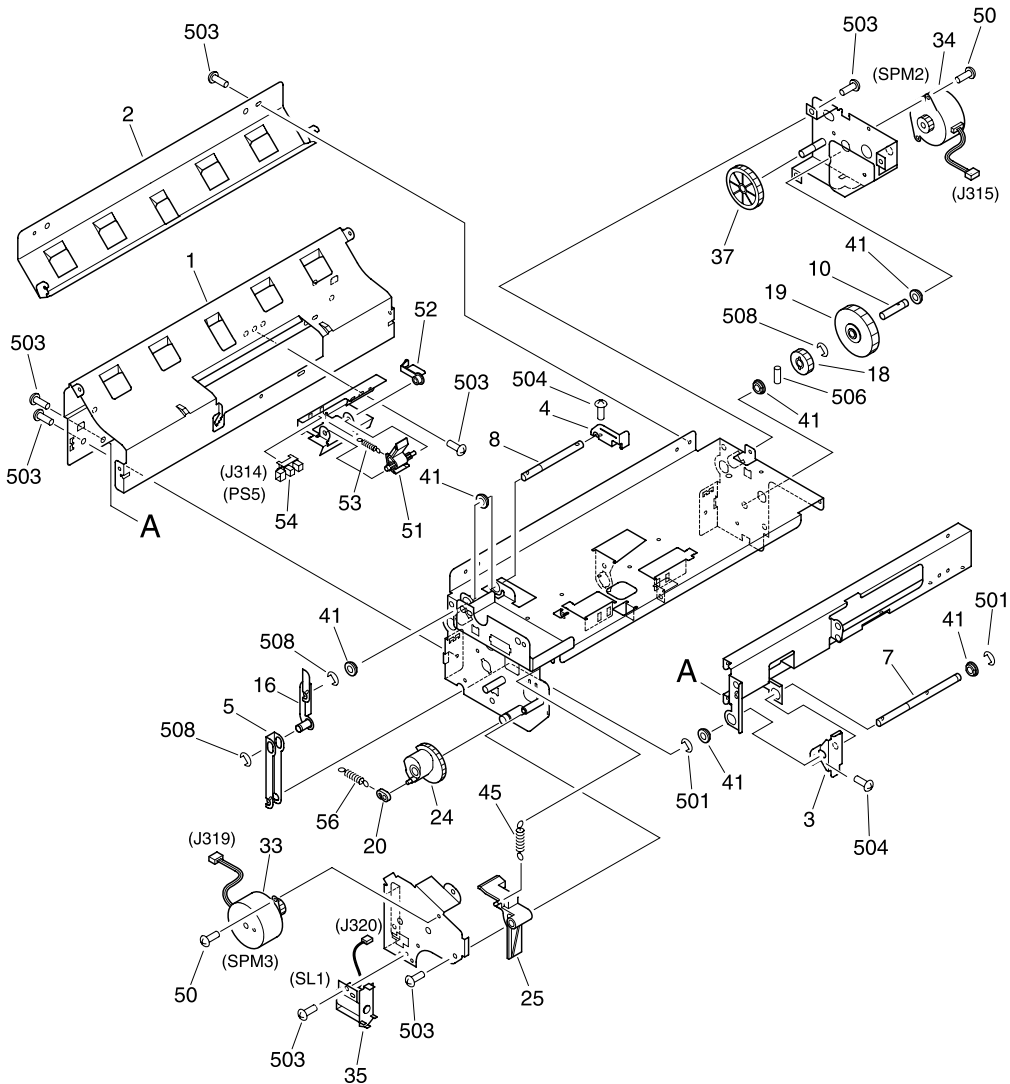


Figure 471. Paper pick-up assembly (1 of 2)

Table 159. Paper pick-up assembly (1 of 2)

Key	Part number	Quantity	Description
	FG6-3922-000CN	1	Paper pick-up assembly
1		1	Crossmember, lower guide
2		1	Guide, sensor
3		1	Lever, release
4		1	Lever, pick-up release
5		1	Link, retard
7		1	Shaft, release
8		1	Shaft, pick-up release
10		1	Shaft
16	FF5-9131-000CN	1	Link, pick-up
18	Side HCl gear/pulley kit	1	Gear, 19T
19	Side HCl gear/pulley kit	1	One-way gear, 71T
20		1	Collar, spring
24	RB2-2470-000CN	1	Cam, roller
25	RB2-2471-000CN	1	Arm, roller
33	RH7-1367-000CN	1	Motor, stepping (SPM3 J319)
34	RH7-1368-000CN	1	Motor, stepping (SPM2 J315)
35	RH7-5202-000CN	1	Solenoid (SL1 J320)
37	Side HCl gear/pulley kit	1	Gear, 36T
41	Side HCl bushing kit	8	Bushing
45	Side HCl spring kit	1	Spring, tension
50	Side HCl screw/ring kit	25	Screw, TP, M3X6
51	RB1-7813-000CN	1	Lever, registration sensor
52	Side HCl bushing kit	1	Bushing
53	Side HCl spring kit	1	Spring, tension
54	WG8-5362-000CN	1	IC, TLP1241, photo-interrupter (PS5 J314)
56	Side HCl spring kit	1	Spring, tension
501	Side HCl screw/ring kit	9	Ring, E
503	Side HCl screw/ring kit	4	Screw, with washer, M3X6
504	Side HCl screw/ring kit	9	Ring, E
506	Side HCl pin kit	3	Pin, dowel
508	Stand screw/ring kit	4	Washer, spring

Figure 472. Paper pick-up assembly (2 of 2)

Table 160. Paper pick-up assembly (2 of 2)

Key	Part number	Quantity	Description
6	FB4-7348-000CN	1	Arm, pick-up
9	FB4-7421-000CN	1	Flag, paper position
11	FB4-7347-000CN	1	Arm, rear
12		1	Shaft, rear
13		1	Joint
14		1	Joint
15	FF5-9129-000CN	1	Shaft, front
17	Side HCI gear/pulley kit	2	Gear, 16T
21	RB1-6588-000CN	1	Limiter, torque
22		2	Shaft, positioning
23	RB1-7818-000CN	4	Roller, feed
26	RB2-2475-000CN	1	Arm, paper sensor
27		1	Shaft, paper sensor
28	RB2-2511-000CN	1	Roller, feed
29	RB2-2512-000CN	1	Shaft, roller
30	RF5-1834-000CN	2	Roller, feed
31	RF5-1835-000CN	1	Roller, pick-up
32	RF5-2558-000CN	1	Shaft, gear
36	Side HCI gear/pulley kit	1	Gear, 18T
38	Side HCI bushing kit	2	Bushing
39	Side HCI bushing kit	2	Bushing
40	Side HCI bushing kit	1	Bushing
41	Side HCI bushing kit	8	Bushing
42	Side HCI spring kit	1	Spring, compression
43	Side HCI spring kit	2	Spring, compression
44	Side HCI spring kit	1	Spring, tension
46	Side HCI gear/pulley kit	1	Gear, 14T/42T/32T
47	Side HCI gear/pulley kit	1	Gear, 47T
48	Side HCI gear/pulley kit	1	Gear, 35T
49	WG8-5362-000CN	2	IC, TLP1241, photo-interrupter (PS3,4 J312, 313)
55		1	Cable, pick-up (J311-314, 317-320)
57	Side HCI spring kit	1	Spring, tension
501	Side HCI screw/ring kit	9	Ring, E
502	Side HCI pin kit	5	Pin, spring
503	Side HCI screw/ring kit	4	Screw, with washer, M3X6
505	Side HCI screw/ring kit	2	Ring, E
506	Side HCI pin kit	3	Pin, dowel
507	Side HCI pin kit	2	Pin, dowel
508	Stand screw/ring kit	4	Washer, spring

Deck controller PCA

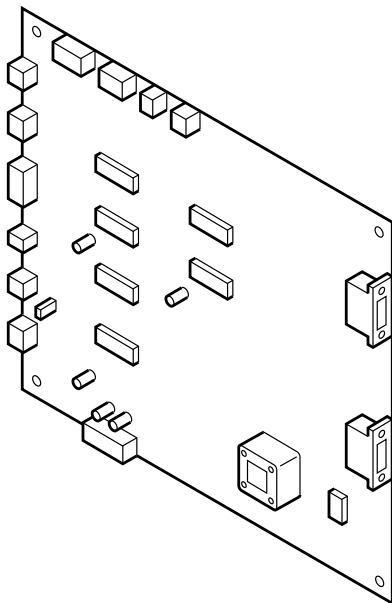


Figure 473. Deck controller PCA

Table 161. Deck controller PCA

Key	Part number	Quantity	Description
	FG2-9550-000CN	1	Deck controller PCB assembly
FU201		1	Fuse, 60V, 1A
FU202		1	Fuse, 60V, 1.25A
FU203		1	Fuse, 60V, 1A

Connectors

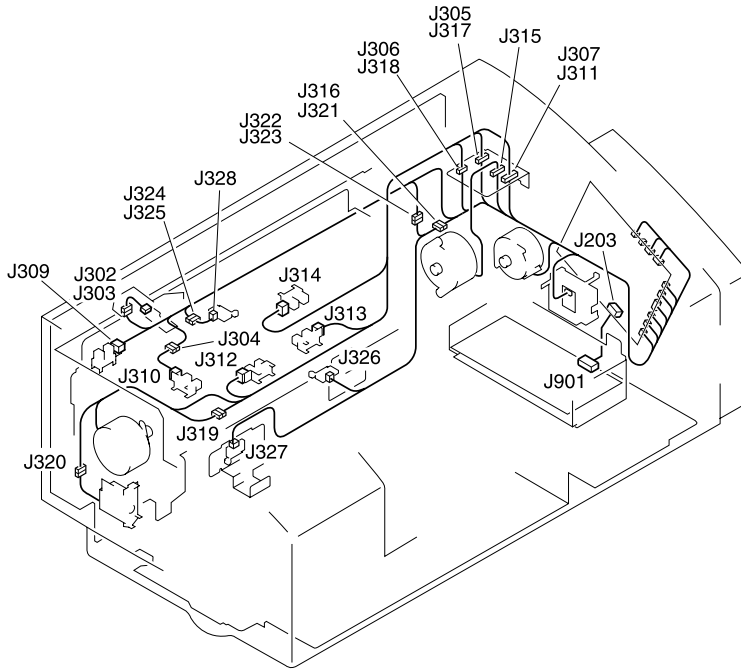


Figure 474. Connectors

Table 162. Connectors

Key	Quantity	Description
J201		To option controller
J201		Deck controller
J203		Deck controller
J203	1	Connector, 6P, female
J203	6	Socket contact, 18-24AWG
J204		Deck controller
J204	1	Connector, 5P, female
J205		Deck controller
J205	1	Connector, 3P, female
J206		Lifter motor (SPM1)
J206		Deck controller
J207		Deck controller
J207	1	Connector, 5P, female
J208		Deck controller
J209		Deck controller

Table 162. Connectors (continued)

Key	Quantity	Description
J209	1	Connector, 6P
J210		Deck controller
J210	1	Connector, 4P, female
J211		Deck controller
J211	1	Connector, 2P, female
J212		Deck controller
J212	1	Connector, 9P, female
J213		Deck controller
J213	1	Connector, 3P, female
J301		LED
J301	1	Connector, 3P, female
J304	2	Connector, 3P
J304	1	Connector, 3P
J305	1	Connector, 4P, female
J305	1	Connector, 4P
J306	1	Connector, 2P, female
J306	1	Connector, 2P
J307	1	Connector, 9P, female
J307	1	Connector, 9P
J309		Registration sensor (PS1)
J309	1	Connector, 3P
J310		Jam sensor (PS2)
J310	1	Connector, 3P
J311	1	Connector, 9P, female
J312		Paper exit sensor (PS3)
J312	1	Connector, 3P
J313		Paper high sensor (PS4)
J313	1	Connector, 3P
J314		Door open sensor (PS5)
J314	1	Connector, 3P
J315		Pick-up motor 1 (SPM2)
J315	1	Connector, 5P, female
J315	1	Connector, 5P
J316	1	Connector, 5P, female
J317	1	Connector, 4P, female
J318	1	Connector, 2P, female
J319		Pick-up motor 2 (SPM3)
J319	1	Connector, 4P, female

Table 162. Connectors (continued)

Key	Quantity	Description
J319	1	Connector, 4P
J320		Pick-up solenoid (SL1)
J320	1	Connector, 2P, female
J320	1	Connector, 2P
J321	1	Connector, 5P, female
J321	1	Connector, 5P
J322	1	Connector, 4P, female
J323	1	Connector, 4P, female
J323	1	Connector, 4P
J324	1	Connector, 2P, female
J324	1	Connector, 2P
J325	1	Connector, 2P, female
J326		Deck set switch (MS1)
J326	1	Connector, 2P, female
J326	2	Socket contact, 22-26AWG
J327		Lower limit switch (MS2)
J327	1	Connector, 2P, female
J327	2	Socket contact, 22-26AWG
J328		Size sensing switch (MS3)
J328	1	Connector, 2P, female
J328	2	Socket contact, 22-26AWG
J601		Paper volume
J601	1	Connector, 3P, female
J901		Power supply
J901	1	Connector, 6P, female
J901	6	Socket contact, 18-24AWG

Numerical parts list

Table 163. Numerical parts list

Part number	Description	Figure	Key
	ADF paper separation belt kit	—	—
	Side HCl pin kit	—	—
C7837-67901	ADF screw/ring kit	—	—
C7836-67901	Copy module screw/ring kit	—	—
C7836-67902	Copy module belt kit	—	—
C7836-67903	Copy module gear/pulley kit	—	—
C7836-67904	Copy module spring kit	—	—
C7837-67902	ADF pin kit	—	—
C7837-67903	ADF belt kit	—	—
C7837-67904	ADF bushing kit	—	—
C7837-67905	ADF gear/pulley	—	—
C7837-67906	ADF spring kit	—	—
C7838-67901	Stand screw/ring kit	—	—
C7839-67901	Side HCl screw/ring kit	—	—
C7839-67902	Side HCl bushing kit	—	—
C7839-67903	Side HCl gear/pulley kit	—	—
C7839-67904	Side HCl spring kit	—	—
FA3-4509-000CN	Band, roller	447	3
FA3-9315-000CN	Plate, cover	422	20
FA5-4732-000CN	Foot, rubber	447	27
FA6-2513-000CN	Washer	450–453	56
FA6-9971-000CN	Pulley, idler	468	18
FA6-9988-020CN	Flange, lifter	468	16
FA9-2112-000CN	Bushing	468	17
FA9-2112-000CN	Bushing	469	13
FB2-4243-000CN	Cover, lamp filter	427	11
FB2-4244-000CN	Support exposure light	427	12
FB2-8465-000CN	Pulley, lifting	468	15
FB3-2141-000CN	Tray 3, copy	445	1
FB3-2411-000CN	Pin, slide	469	11A
FB3-2411-000CN	Pin, slide	429	4
FB3-3143-020CN	Tray 2, copy	445	2
FB3-5637-000CN	Roller, paper delivery	450–453	22
FB3-5638-000CN	Roller, front	450–453	13

Table 163. Numerical parts list (continued)

Part number	Description	Figure	Key
FB3-5639-000CN	Roller, rear	450–453	14
FB3-5640-000CN	Arm, pick-up, front	450–453	17
FB3-5641-000CN	Arm, pick-up, rear	450–453	18
FB3-5642-000CN	Shaft, pressure, pick-up	450–453	19
FB3-5649-000CN	Hook, solenoid	450–453	29
FB3-5660-000CN	Lever 1, deflector	450–453	21
FB3-5666-000CN	Block, tray	448	19
FB3-5669-000CN	Spring, torsion	450–453	40
FB3-5702-000CN	Belt, separation	—	—
FB3-5757-000CN	Hinge, left	447	24
FB3-5758-000CN	Hinge, right	447	25
FB3-7692-000CN	Pin, pad, 2	429	5
FB3-9198-000CN	Handle, upper guide	469	1
FB4-0705-000CN	Plate, rail	424	6
FB4-0740-000CN	Wire, scanner, front	423	6
FB4-0741-000CN	Wire, scanner, rear	423	7
FB4-0745-000CN	Plate, home position sensor	423	21
FB4-0752-000CN	Sheet, back-up	424	4
FB4-0802-000CN	Pad, oil	429	33
FB4-0834-000CN	Air filter, 3	422	7B
FB4-0888-000CN	Air filter, 1	422	7C
FB4-0889-000CN	Air filter, 2	422	8A
FB4-2581-000CN	Key top, start	427	18
FB4-2582-000CN	Key top, stop	427	19
FB4-2583-000CN	Key top, reset	427	20
FB4-2584-000CN	Key top, number	427	21
FB4-2585-000CN	Key top, 1	427	22
FB4-2594-000CN	Key top, standby	427	26
FB4-2597-000CN	Key top, user guide	427	28
FB4-2675-000CN	Shaft, roller	420	6A
FB4-2686-000CN	Cover, mount plate	420	9
FB4-2689-000CN	Cap, front lower	420	3C
FB4-2689-000CN	Cap, front lower	420	4C
FB4-3142-000CN	Key top, function, 1	427	13
FB4-6703-000CN	Button, switch	427	29
FB4-6704-000CN	Sheet, grounding	427	8
FB4-6988-000CN	Joint	450–453	27
FB4-6990-000CN	Roller, delivery	454	3

Table 163. Numerical parts list (continued)

Part number	Description	Figure	Key
FB4-6991-000CN	Roller	459	9
FB4-6994-000CN	Cover	450–453	37
FB4-7004-000CN	Roller	447	56
FB4-7018-000CN	Roller, registration	450–453	20
FB4-7021-000CN	Mount, tray	445	3
FB4-7022-000CN	Plate, tray	445	4
FB4-7024-000CN	Sheet, sensor lever	447	59
FB4-7347-000CN	Arm, rear	471–472	11
FB4-7348-000CN	Arm, pick-up	471–472	6
FB4-7371-000CN	Plate, wire hook	468	2
FB4-7372-000CN	Latch, front	469	2
FB4-7379-000CN	Shaft, lifter wire	468	19
FB4-7381-000CN	Flag, sensor	466	12
FB4-7387-000CN	Arm, paper sensor	467	7
FB4-7391-000CN	Spring, leaf	469	24
FB4-7413-000CN	Cover, window	466	6
FB4-7420-000CN	Lever, releasing	469	27
FB4-7421-000CN	Flag, paper position	471–472	9
FB4-7423-000CN	Plate, latch front	469	8
FB4-7424-000CN	Plate, latch rear	469	9
FB4-7425-000CN	Spring, torsion	466	7
FB4-7426-000CN	Shaft, arm	469	28
FB4-7438-000CN	Tape, door cover	466	8
FB4-7441-000CN	Panel, front	466	1
FB4-7444-000CN	Cover, deck, rear	466	14
FB4-7445-000CN	Cover, dc controller	466	15
FB4-7871-000CN	Key top, function, 3	427	14
FB5-5293-000CN	Cover, rear, tray	448	2
FB5-5294-000CN	Guide, slide	448	3
FB5-5295-000CN	Base guide	448	4
FB5-5296-000CN	Tray, auxiliary	448	5
FB5-5302-000CN	Cover, upper	446	2
FB5-5303-000CN	Cover	446	3
FB5-5309-000CN	Cover, front	446	1
FB5-5313-000CN	Cover, one-touch, 3	427	23
FB5-5315-000CN	Cover, front, lower	422	14
FB5-5316-000CN	Cap, front lower	422	21
FB5-5317-000CN	Cover, upper, front	422	3

Table 163. Numerical parts list (continued)

Part number	Description	Figure	Key
FB5-5318-000CN	Cover, upper	422	2
FB5-5320-000CN	Panel, rear	422	11
FB5-5321-000CN	Cover, blanking, rear	422	10
FB5-5324-000CN	Cover, upper, small	422	5
FB5-5325-000CN	Cover, rubber	422	17
FB5-5328-000CN	Guide, paper right	445	5
FB5-5330-000CN	Cover, power supply	426	5
FB5-5334-000CN	Cover, main switch	422	6
FC1-1279-000CN	Lever 2, deflector	447	10
FC1-1294-020CN	Holder, switch	450–453	25
FC1-1300-000CN	Cam	450–453	30
FC1-1302-000CN	Arm, front	450–453	32
FC1-1303-000CN	Arm, rear	450–453	33
FC1-1311-000CN	Lever, recycle	448	10
FC1-1334-030CN	Roller	447	22
FC1-1336-000CN	Flange	447	23
FC1-3044-000CN	Foot, rubber, front	447	47
FC1-5049-000CN	Bracket	468	4
FC1-5051-000CN	Wire, front	468	9
FC1-5052-000CN	Wire, rear	468	8
FC1-5054-000CN	Hook, wire	468	3
FC1-5081-000CN	Flange, rear	468	21
FC1-6179-000CN	Clamp, guide	448	6
FC1-6184-000CN	Link, shutter	450–453	36
FC1-6220-000CN	Washer, pulley	455	7
FC1-7815-020CN	Feed belt	447	26
FC2-1827-000CN	Belt, separation	—	—
FC2-3246-000CN	Sheet	450–453	8A
FE9-0117-000CN	Grommet	447	44
FF2-5771-000CN	Guide, paper	450–453	43
FF2-5903-030CN	Motor, dc 6 V (M4 J102)	448	9
FF3-0434-000CN	Holder J, sensing	450–453	102
FF5-5188-000CN	Side plate, separation	460	13
FF5-5191-000CN	Roller, pick-up	450–453	50
FF5-5198-000CN	Plate, stop, woodruff	450–453	114
FF5-5201-020CN	Guide, front, separation	450–453	10
FF5-5207-000CN	Roller, separation	459	4
FF5-7814-000CN	Pillar, left	445	8

Table 163. Numerical parts list (continued)

Part number	Description	Figure	Key
FF5-7815-000CN	Pillar, right	445	9
FF5-7816-000CN	Plate, slide, rear	447	29
FF5-8662-000CN	Glass, copyboard (inch/A size)	422	9
FF5-9121-000CN	Mount, releasing	469	29
FF5-9122-000CN	Latch, rear	469	10
FF5-9125-000CN	Side guide plate, front	468	5
FF5-9129-000CN	Shaft, front	471–472	15
FF5-9131-000CN	Link, pick-up	471–472	16
FF5-9140-000CN	Panel, upper	466	2
FF5-9141-000CN	Size plate	466	3
FF5-9142-000CN	Deck cover	466	9
FF5-9581-000CN	Roller, reverse	450–453	12
FF5-9582-000CN	Limit plate, separation	450–453	52
FF6-0276-000CN	Tray, document	448	1
FF6-0277-000CN	Guide, slide, rear	448	8
FF6-0284-000CN	Cover, upper, rear	422	4
FF6-0285-000CN	Cover, left	422	7
FF6-0286-000CN	Cover, right	422	8
FF6-0288-000CN	Holder, jump (inch/A size)	422	13
FF9-1694-020CN	Copyboard cover cushion assembly	428	5
FG2-3394-000CN	Registration sensor H assembly (LED3 J302)	450–453	61
FG2-5001-030CN	Indicator PCB assembly	448	20
FG2-7569-000CN	Rotary VR assembly (VR1 J218)	448	16
FG2-7570-000CN	ENT sensing LED PCB assembly (S3 J212)	450–453	63
FG2-9439-000CN	Light sensor PCB assembly	429	31
FG2-9443-060CN	Reader controller PCB (USA)	437	1
FG2-9448-080CN	R-CON. extension DIMM assembly (USA)	437	1A
FG2-9463-000CN	Noise filter PCB assembly (100/127 V)	433	—
FG2-9539-000CN	Cable, interface R-P (J1612, 2101)	430	7
FG2-9541-000CN	Noise filter PCB assembly (220/240 V)	433	—
FG2-9550-000CN	Deck controller PCB assembly	473	—
FG2-9554-000CN	EMP sensing PCB assembly (S1 J203)	450–453	54
FG2-9558-000CN	Interface cable (J1, 2, 201)	447	30
FG2-9925-000CN	Cover switch assembly (MS2 J3)	450–453	62
FG2-9927-000CN	RDF controller PCB assembly	461	—
FG3-0215-000CN	Reader controller PCB (Europe)	437	1
FG3-0220-000CN	R-CON. extension DIMM assembly (Europe)	437	1A
FG3-0315-000CN	Analog IP PCB assembly	438	—

Table 163. Numerical parts list (continued)

Part number	Description	Figure	Key
FG5-7273-000CN	Upper paper guide assembly	457	—
FG5-9837-000CN	CCD unit	423	15
FG5-9838-000CN	Mirror assembly 1	429	—
FG5-9839-000CN	Mirror assembly 2	423	16
FG5-9842-000CN	Motor driver PCB assembly	439	—
FG5-9845-000CN	Dc power supply PCB assembly (100/127 V)	431	—
FG5-9847-000CN	APC power supply PCB assembly (100/127 V)	432	—
FG5-9849-000CN	Inverter PCB assembly	440	—
FG5-9856-000CN	Connector mounting assembly (J1651)	424	25
FG5-9858-000CN	Dc power supply PCB assembly (220/240 V)	431	—
FG5-9861-000CN	APC power supply PCB assembly (220/240 V)	432	—
FG6-0364-000CN	Control panel CPU PCB assembly ²	435	—
FG6-0365-000CN	LCD panel unit	427	7
FG6-0366-000CN	Control panel PCB assembly ¹	434	—
FG6-0394-000CN	Lock pin assembly	420	7
FG6-2173-000CN	Paper feed motor assembly	455	—
FG6-2176-000CN	Separation roller assembly	459	—
FG6-3913-000CN	Caster, unit	469	17
FG6-3919-000CN	Lifter drive assembly	470	—
FG6-3921-000CN	Side guide plate, rear	468	7
FG6-4442-000CN	Paper separation assembly	460	—
FG6-5836-000CN	Upper cover assembly	449	—
FG6-5837-000CN	Lower paper guide assembly	458	—
FG6-5838-000CN	Right paper delivery assembly	454	—
FG9-3515-000CN	Control inverter PCB assembly (See note 3)	436	—
FH2-5762-000CN	Power cord (220/240 V P2)	467	19
FH2-6452-000CN	Film, fluorescent (J2015, 2037)	424	7
FH2-6464-000CN	Cable, interface	467	20
FH2-6480-000CN	Connector, female (J2022)	430	20
FH2-6719-000CN	Power cord (100/127 V P2)	467	16
FH3-2509-000CN	Switching regulator PCB unit	467	21
FH6-0734-000CN	Function switch PCB unit	427	31
FH6-1266-000CN	Motor, dc 23 V (M1 J12)	450–453	116
FH6-1461-000CN	Motor, stepping (PM1 J302)	423	22
FH6-1463-000CN	Fan (FM4 J2031)	430	8
FH6-1603-000CN	Motor, dc 24 V (M3 J7)	456	3
FH6-3844-000CN	ECO-O board PCB unit	430	9
FH7-3336-000CN	Lamp, fluorescent (LA1)	429	27

Table 163. Numerical parts list (continued)

Part number	Description	Figure	Key
FH7-4559-000CN	Heater, fluorescent lamp (H1 THM J2039)	429	28
FH7-5363-000CN	Brake, electromagnetic (BK1 J6)	456	16
FH7-5403-000CN	Clutch, electromagnetic (CL1 J13)	456	17
FH7-5653-000CN	Solenoid, dc 24 V (SL1 J217)	450–453	64
FH7-5709-000CN	Solenoid, dc 24 V (SL2, J216)	450–453	68
FH7-5843-000CN	Solenoid, dc 24 V (SL3 J204)	447	31
FH7-6139-000CN	Switch, key (KEY SW J2014)	425	12
FH7-6208-000CN	Relay, AC 250 V (RL1)	426	6
FH7-6254-000CN	Switch, main (MSW1)	426	7
FH7-7236-000CN	Photo-interrupter, GP1A34A1 (S10 J211)	456	18
FH7-7236-000CN	Photo-interrupter, GP1A34A1 (S9 J210)	455	5
FH7-7306-000CN	Photo-interrupter, S7G37 (PS101 J2013)	423	20
FH7-7312-000CN	Photo-interrupter (PS102 J2007)	425	10
FH7-7326-000CN	IC, TLP1225, photo-interrupter (S11 J215)	450–453	105
FH7-7326-000CN	IC, TLP1225, photo-interrupter (S13 J308)	454	36
FH7-7386-000CN	Sensor, document size (inch size PS105, 106 J2011, 2012)	424	19
FH7-7388-000CN	Sensor, document size (inch size PS104 J2010)	424	16
FH7-7423-000CN	Sensor, document size (A size PS106 J2011)	424	19
FH7-7424-000CN	Sensor, document size (A size PS103 J2009)	424	16
FH7-7457-000CN	Breaker, circuit (CB1), 100/127 V	426	8
FH7-7458-000CN	Breaker, circuit (CB1), 220/240V	426	—
FM6-2145-000CN	Turn roller assembly	447	2
FS6-8499-000CN	Plate, length index (inch/A size)	422	9B
FS6-8920-000CN	Plate, size index (inch/A size)	422	13A
RB1-6588-000CN	Limiter, torque	471–472	21
RB1-6872-000CN	Sheet, separation, leather	468	1
RB1-7813-000CN	Lever, registration sensor	471–472	51
RB1-7818-000CN	Roller, feed	471–472	23
RB2-2470-000CN	Cam, roller	471–472	24
RB2-2471-000CN	Arm, roller	471–472	25
RB2-2475-000CN	Arm, paper sensor	471–472	26
RB2-2511-000CN	Roller, feed	471–472	28
RB2-2512-000CN	Shaft, roller	471–472	29
RF5-1834-000CN	Roller, feed	471–472	30
RF5-1835-000CN	Roller, pick-up	471–472	31
RF5-2558-000CN	Shaft, gear	471–472	32
RG5-2166-000CN	Paper sensing assembly	467	14

Table 163. Numerical parts list (continued)

Part number	Description	Figure	Key
RG5-4199-000CN	LED PCB assembly	469	36
RH7-1367-000CN	Motor, stepping (SPM3 J319)	471–472	33
RH7-1368-000CN	Motor, stepping (SPM2 J315)	471–472	34
RH7-5202-000CN	Solenoid (SL1 J320)	471–472	35
WC4-0153-000CN	Microswitch (MS1 J326)	469	22
WC4-0153-000CN	Microswitch (MS2 J327)	469	25
WC4-0153-000CN	Microswitch (MS3 J328)	469	33
WC4-5030-000CN	Microswitch (MS1)	447	41
WG8-5206-000CN	Photo-interrupter, SG206 (S4,7 J214, 304)	450–453	104
WG8-5362-000CN	IC, TLP1241, photo-interrupter (PS1 J309)	469	31
WG8-5362-000CN	IC, TLP1241, photo-interrupter (PS2 J310)	466	10
WG8-5362-000CN	IC, TLP1241, photo-interrupter (PS3,4 J312, 313)	471–472	49
WG8-5362-000CN	IC, TLP1241, photo-interrupter (PS5 J314)	471–472	54
WG8-5362-000CN	IC, TLP1241, photo-interrupter (S12 J306)	454	19
WG8-5362-000CN	IC, TLP1241, photo-interrupter (S5 J206)	450–453	59
WK1-5019-000CN	Battery,lithium,CR2477-HE4H,3V	437	BAT160 1
WT2-5526-000CN	Hexagon bolt, M4	467	22
XA9-1109-000CN	Wing,nut,M8	469	42
XB7-2100-409CN	Nut, hex, M4	423	507
XG9-0237-000CN	Bearing, ball	447	45
XG9-0304-000CN	Bearing	420	6B
XG9-0402-000CN	Roller	467	11
XH9-0105-000CN	Foot, rubber	425	18
XZ9-0367-000CN	Caster	420	5B
XZ9-0401-000CN	Caster	469	16
XZ9-0444-000CN	Adjuster	425	15
XZ9-0446-000CN	Caster	420	6C
XZ9-0457-000CN	Caster	420	6D
XZ9-0459-000CN	Wing,nut,M8	469	41
XZ9-0491-000CN	Adjuster	420	3D
XZ9-0491-000CN	Adjuster	420	4D
XZ9-0491-000CN	Adjuster	420	5C

Alphabetical parts list

Table 164. Alphabetical parts list

Description	Part number	Figure	Key
ADF belt kit	C7837-67903	—	—
ADF bushing kit	C7837-67904	—	—
ADF gear/pulley kit	C7837-67905	—	—
ADF paper separation belt kit		—	—
ADF pin kit	C7837-67902	—	—
ADF screw/ring kit	C7837-67901	—	—
ADF spring kit	C7837-67906	—	—
Adjuster	XZ9-0444-000CN	425	15
Adjuster	XZ9-0491-000CN	420	3D
Adjuster	XZ9-0491-000CN	420	4D
Adjuster	XZ9-0491-000CN	420	5C
Air filter, 1	FB4-0888-000CN	422	7C
Air filter, 2	FB4-0889-000CN	422	8A
Air filter, 3	FB4-0834-000CN	422	7B
Analog IP PCB assembly	FG3-0315-000CN	438	—
APC power supply PCB assembly (100/127 V)	FG5-9847-000CN	432	—
APC power supply PCB assembly (220/240 V)	FG5-9861-000CN	432	—
Arm		469	11
Arm, bracket, center		460	11
Arm, bracket, side		460	12
Arm, flapper		457	4
Arm, front	FC1-1302-000CN	450–453	32
Arm, guide front		459	10
Arm, guide rear		459	3
Arm, handle		469	7
Arm, latch		469	43
Arm, paper sensor	FB4-7387-000CN	467	7
Arm, paper sensor	RB2-2475-000CN	471–472	26
Arm, pick-up	FB4-7348-000CN	471–472	6
Arm, pick-up, front	FB3-5640-000CN	450–453	17
Arm, pick-up, rear	FB3-5641-000CN	450–453	18
Arm, rear	FB4-7347-000CN	471–472	11
Arm, rear	FC1-1303-000CN	450–453	33
Arm, releasing		469	26

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Arm, roller	RB2-2471-000CN	471–472	25
Arm, shutter		450–453	4
Band, roller	FA3-4509-000CN	447	3
Base guide	FB5-5295-000CN	448	4
Battery, lithium, CR2477-HE4H, 3V	WK1-5019-000CN	437	BAT1601
Bearing	XG9-0304-000CN	420	6B
Bearing, ball		423	14
Bearing, ball	XG9-0237-000CN	447	45
Belt, separation	ADF belt kit	460	1
Belt, separation	ADF belt kit	460	3
Belt, separation	FB3-5702-000CN	—	—
Belt, separation	FC2-1827-000CN	—	—
Belt, timing, 100T	ADF belt kit	456	14
Belt, timing, 132T	ADF belt kit	460	21
Belt, timing, 140T	ADF belt kit	450–453	107
Belt, timing, 170T	ADF belt kit	456	15
Belt, timing, 44T	ADF belt kit	450–453	111
Belt, timing, 53T	ADF belt kit	454	27
Belt, timing, 80T	ADF belt kit	450–453	46
Belt, timing, 92T	ADF belt kit	455	6
Block, tray	FB3-5666-000CN	448	19
Bolt, M5X20	ADF screw/ring kit	445	10
Bracket	FC1-5049-000CN	468	4
Bracket, connector		447	39
Bracket, control card		425	8
Bracket, control panel		427	1
Bracket, fan		425	9
Bracket, separation, center		460	10
Bracket, separation, side		460	9
Brake, electromagnetic (BK1 J6)	FH7-5363-000CN	456	16
Breaker, circuit (CB1), 100/127 V	FH7-7457-000CN	426	8
Breaker, circuit (CB1), 220/240V	FH7-7458-000CN	426	—
Bushing		454	14
Bushing		454	15
Bushing		447	30A
Bushing		450–453	1
Bushing	ADF bushing kit	456	19
Bushing	ADF bushing kit	457	8

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Bushing	ADF bushing kit	460	14
Bushing	ADF bushing kit	450–453	66
Bushing	ADF bushing kit	450–453	67
Bushing	ADF bushing kit	450–453	69
Bushing	ADF bushing kit	450–453	79
Bushing	ADF bushing kit	450–453	80
Bushing	ADF bushing kit	450–453	109
Bushing	ADF bushing kit	450–453	121
Bushing	ADF bushing kit	450–453	122
Bushing	FA9-2112-000CN	468	17
Bushing	FA9-2112-000CN	469	13
Bushing	Side HCI bushing kit	471–472	38
Bushing	Side HCI bushing kit	471–472	39
Bushing	Side HCI bushing kit	471–472	40
Bushing	Side HCI bushing kit	471–472	41
Bushing	Side HCI bushing kit	471–472	52
Bushing, idler roller		447	2A
Button, switch	FB4-6703-000CN	427	29
Cable 1, CCD (J507, 2016)		430	18
Cable 2, CCD (J503, 2017)		430	17
Cable, AC (J2, 1801)		430	21
Cable, connector mounting (J1606, 1652, 1653)		424	25A
Cable, control, 1 (J902, 921)		434	2
Cable, control, 2 (J903, 922)		434	3
Cable, control, MSW (J904, 931)		434	5
Cable, control, PL (J909, 951)		434	6
Cable, control, VR (J905, 941)		434	4
Cable, delivery (J14, 219, 220, 221)		454	29
Cable, exposure control (J2001, 2038)		429	32
Cable, fluorescent (J1610, 2018, 2037)		424	11
Cable, fluorescent lamp (J2015, 2038, 2039)		429	26
Cable, inlet		426	17
Cable, interface	FH2-6464-000CN	467	20
Cable, interface R-P (J1612, 2101)	FG2-9539-000CN	430	7
Cable, inverter lamp (J1003, 2018)		430	16
Cable, motor (J221, 307)		454	12
Cable, noise filter, 1		433	1
Cable, noise filter, 2 (J2036)		433	2

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Cable, outlet		426	13
Cable, pick-up (J311-314, 317-320)		471–472	55
Cable, relay breaker (J1001)		426	1
Cable, relay dc (J2035)		426	14
Cable, sensor (J219, 306, 308)		454	21
Cable, separation sensing (J208, 304)		450–453	58
Cam	FC1-1300-000CN	450–453	30
Cam, roller	RB2-2470-000CN	471–472	24
Cap		420	3A
Cap		420	4A
Cap, front lower	FB4-2689-000CN	420	3C
Cap, front lower	FB4-2689-000CN	420	4C
Cap, front lower	FB5-5316-000CN	422	21
Cap, front upper		420	3B
Cap, front upper		420	4B
Cap, rubber		450–453	65
Cap, sensor		429	22
Caster	XZ9-0367-000CN	420	5B
Caster	XZ9-0401-000CN	469	16
Caster	XZ9-0446-000CN	420	6C
Caster	XZ9-0457-000CN	420	6D
Caster, unit	FG6-3913-000CN	469	17
Catch, magnet		447	4
CCD unit	FG5-9837-000CN	423	15
Choke coil		431	L 1301
Clamp, cable		454	20
Clamp, cable		454	33
Clamp, cable		448	17
Clamp, cable		424	10
Clamp, cable		420	10
Clamp, cable		425	14
Clamp, cable		426	12
Clamp, cable		427	4
Clamp, cable		427	5
Clamp, cable		429	24
Clamp, cable		430	13
Clamp, cable		450–453	92
Clamp, ferrite		430	16A

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Clamp, guide	FC1-6179-000CN	448	6
Clip, cable		447	40
Clip, cable		447	48
Clip, cable		447	49
Clip, cable		424	22
Clip, cable		424	26
Clip, cable		425	17
Clip, cable		426	4
Clip, cable		426	9
Clip, cable		426	10
Clip, cable		426	11
Clip, cable		427	3
Clip, cable		427	6
Clip, cable		430	10
Clip, cable		430	12
Clip, cable		430	15
Clip, cable		430	27
Clip, cable		450–453	35
Clip, cable		450–453	91
Clip, cable		450–453	101
Clip, cable (100/127 V)		430	11
Clip, cable (220/240 V)		430	11
Clip, cable (A size)		424	20
Clip, cable (inch size)		424	20
Clutch, electromagnetic (CL1 J13)	FH7-5403-000CN	456	17
Coil (100/127 V)		433	L 1101
Coil (220/240 V)		433	L 2501
Coil, 1MH, 10A (100/127 V)		431	L 1202
Coil, 1MH, 10A (100/127 V)		431	L 1203
Coil, 8MH, 4A (220/240 V)		431	L 1202
Coil, 8MH, 4A (220/240 V)		431	L 1203
Coil, choke		432	L 1801
Collar 2, retaining		450–453	115
Collar, retaining		460	2
Collar, spring		471–472	20
Connector mounting assembly (J1651)	FG5-9856-000CN	424	25
Connector, 2P (J2014)		425	3
Connector, 2P (J216, 217)		450–453	120

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Connector, 2P (J220)		454	31
Connector, 3P (J2009, 2010)		424	17
Connector, 3P (J2011, 2012)		424	28
Connector, 3P (J218)		448	12A
Connector, 3P (J221)		454	32
Connector, 4P (J203)		450–453	45
Connector, 6P (J219)		454	11
Connector, female (J2022)	FH2-6480-000CN	430	20
Connector, snap tight (J2016)		430	18A
Connector, snap tight (J2017)		430	17A
Control inverter PCB assembly (See note 3)	FG9-3515-000CN	436	—
Control panel connector cable (J901, 955, 1607, 1608)		424	12
Control panel CPU PCB assembly ²	FG6-0364-000CN	435	—
Control panel PCB assembly ¹	FG6-0366-000CN	434	—
Copy module belt kit	C7836-67902	—	—
Copy module gear/pulley kit	C7836-67903	—	—
Copy module screw/ring kit	C7836-67901	—	—
Copy module spring kit	C7836-67904	—	—
Copyboard cover cushion assembly	FF9-1694-020CN	428	5
Core, ferrite		424	12A
Core, ferrite		424	12B
Core, ferrite		430	26
Core, ferrite, SFC-10		430	25
Coupler, panel limit		468	7B
Coupler, standard		468	5B
Cover	FB4-6994-000CN	450–453	37
Cover	FB5-5303-000CN	446	3
Cover switch assembly (MS2 J3)	FG2-9925-000CN	450–453	62
Cover, blanking, rear	FB5-5321-000CN	422	10
Cover, cable guide		429	3
Cover, connector		422	15
Cover, copyboard, front		428	3
Cover, copyboard, rear		428	4
Cover, dc controller	FB4-7445-000CN	466	15
Cover, deck, rear	FB4-7444-000CN	466	14
Cover, front	FB5-5309-000CN	446	1
Cover, front, lower	FB5-5315-000CN	422	14

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Cover, function		427	2
Cover, heater		429	29
Cover, lamp filter	FB2-4243-000CN	427	11
Cover, led panel, left		427	16
Cover, led panel, right		427	15
Cover, left	FF6-0285-000CN	422	7
Cover, lower		425	7
Cover, main switch	FB5-5334-000CN	422	6
Cover, mount plate	FB4-2686-000CN	420	9
Cover, one-touch, 3	FB5-5313-000CN	427	23
Cover, power supply	FB5-5330-000CN	426	5
Cover, rear, tray	FB5-5293-000CN	448	2
Cover, right	FF6-0286-000CN	422	8
Cover, ROM		430	2
Cover, rubber	FB5-5325-000CN	422	17
Cover, sensor		449	3
Cover, sensor		466	13
Cover, sensor		450–453	41
Cover, sensor		450–453	54C
Cover, stamp		454	9
Cover, upper		449	7
Cover, upper	FB5-5302-000CN	446	2
Cover, upper	FB5-5318-000CN	422	2
Cover, upper, front	FB5-5317-000CN	422	3
Cover, upper, rear	FF6-0284-000CN	422	4
Cover, upper, small	FB5-5324-000CN	422	5
Cover, window	FB4-7413-000CN	466	6
Crossmember, center		447	15
Crossmember, guide, upper		450–453	9
Crossmember, left		447	14
Crossmember, lower guide		471–472	1
Crossmember, right		447	16
Current transformer		440	T 1002
Current transformer (220/240 V)		431	CT1301
Cushion		450–453	15A
Damper		423	3
Damper		456	1A
Damper		459	3A

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Damper		459	10A
Damper, 1		429	18
Damper, 2		429	19
Dc power supply PCB assembly (100/127 V)	FG5-9845-000CN	431	—
Dc power supply PCB assembly (220/240 V)	FG5-9858-000CN	431	—
Deck controller PCB assembly	FG2-9550-000CN	473	—
Deck cover	FF5-9142-000CN	466	9
Diode, 1SS81		450–453	63A
Disk, clock		456	7
Disk, clock		450–453	38
ECO-O board PCB unit	FH6-3844-000CN	430	9
Eliminator, static charge		449	7A
Eliminator, static charge, F		454	26
EMP sensing PCB assembly (S1 J203)	FG2-9554-000CN	450–453	54
ENT sensing LED PCB assembly (S3 J212)	FG2-7570-000CN	450–453	63
Exposure filter		429	17
Fan (FM4 J2031)	FH6-1463-000CN	430	8
Feed belt	FC1-7815-020CN	447	26
Ferrite clamp		430	24
Ferrite core		424	21
Ferrite core		424	25B
Ferrite core		426	15
Ferrite core		430	17B
Ferrite core		430	30
Film, fluorescent (J2015, 2037)	FH2-6452-000CN	424	7
Flag, HP sensor		429	6
Flag, paper position	FB4-7421-000CN	471–472	9
Flag, sensor		454	5
Flag, sensor		449	5
Flag, sensor	FB4-7381-000CN	466	12
Flange		454	28
Flange		460	20
Flange	FC1-1336-000CN	447	23
Flange C		450–453	112
Flange D		450–453	113
Flange, idler		468	12
Flange, lifter	FA6-9988-020CN	468	16
Flange, rear	FC1-5081-000CN	468	21

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Flapper, reverse		457	2
Flat belt, timing, 100T	Copy module belt kit	423	13
Flat belt, timing, 89T	ADF belt kit	456	13
Foot, rubber	FA5-4732-000CN	447	27
Foot, rubber	XH9-0105-000CN	425	18
Foot, rubber, front	FC1-3044-000CN	447	47
Function switch PCB unit	FH6-0734-000CN	427	31
Fuse, 1A, 125V		436	F 1
Fuse, 250 V, 5 A (220/240 V)		433	FU2501
Fuse, 250V, 5A (220/240 V)		431	FU1201
Fuse, 60V, 1.25A		473	FU202
Fuse, 60V, 10A		432	FU1801
Fuse, 60V, 1A		431	FU1501
Fuse, 60V, 1A		431	FU1505
Fuse, 60V, 1A		431	FU1514
Fuse, 60V, 1A		432	FU1802
Fuse, 60V, 1A		437	F 1603
Fuse, 60V, 1A		440	FU1002
Fuse, 60V, 1A		473	FU201
Fuse, 60V, 1A		473	FU203
Fuse, 60V, 200MA		437	F 1604
Fuse, 60V, 250MA		431	FU1516
Fuse, 60V, 250MA		431	FU1517
Fuse, 60V, 2A		431	FU1506
Fuse, 60V, 2A		431	FU1512
Fuse, 60V, 2A		431	FU1518
Fuse, 60V, 2A		437	F 1601
Fuse, 60V, 400MA		431	FU1502
Fuse, 60V, 400MA		431	FU1503
Fuse, 60V, 400MA		431	FU1504
Fuse, 60V, 400MA		431	FU1519
Fuse, 60V, 4A		431	FU1507
Fuse, 60V, 4A		440	FU1001
Fuse, 60V, 500MA		431	FU1515
Fuse, 60V, 5A		431	FU1511
Fuse, 60V, 5A		431	FU1513
Fuse, 60V, 630MA		431	FU1509
Fuse, 60V, 7A		431	FU1508

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Fuse, 8 A, 125 V (100/127 V)		433	FU1101
Fuse, AC125V, 10A (100/127 V)		431	FU1201
Gear, 14T/42T/32T	Side HCl gear/pulley kit	471–472	46
Gear, 15T	ADF gear/pulley kit	450–453	94
Gear, 16T	ADF gear/pulley kit	448	7
Gear, 16T	ADF gear/pulley kit	450–453	97
Gear, 16T	Side HCl gear/pulley kit	471–472	17
Gear, 16T/pulley, 15T	ADF gear/pulley kit	460	16
Gear, 16T/pulley, 20T	ADF gear/pulley kit	450–453	95
Gear, 18T	ADF gear/pulley kit	450–453	77
Gear, 18T	Side HCl gear/pulley kit	471–472	36
Gear, 19T	Side HCl gear/pulley kit	471–472	18
Gear, 20T	ADF gear/pulley kit	460	15
Gear, 20T	ADF gear/pulley kit	450–453	82
Gear, 20T/63T		470	3
Gear, 21T		454	17
Gear, 21T/pulley, 42T		454	18
Gear, 22T/pulley, 28T	ADF gear/pulley kit	450–453	81
Gear, 25T	ADF gear/pulley kit	459	8
Gear, 28T	Side HCl gear/pulley kit	468	22
Gear, 28T/41T	Side HCl gear/pulley kit	467	12
Gear, 32T	ADF gear/pulley kit	448	15
Gear, 32T/68T		470	4
Gear, 35T	Side HCl gear/pulley kit	471–472	48
Gear, 36T	Side HCl gear/pulley kit	471–472	37
Gear, 40T/pulley, 16T	ADF screw/ring kit	456	11
Gear, 47T	Side HCl gear/pulley kit	471–472	47
Gear, 58T	Side HCl gear/pulley kit	467	13
Gear, 65T/17T (SPM1 J205)		470	1
Gear, 6T		459	2
Gear, 8T		459	1
Glass, copyboard (A size)		422	9
Glass, copyboard (inch/A size)	FF5-8662-000CN	422	9
Grommet	FE9-0117-000CN	447	44
Guide A, inner		450–453	6
Guide B, inner		450–453	51
Guide, belt	ADF belt kit	447	43
Guide, cable		450–453	117

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Guide, cord		429	16
Guide, front registration		457	6
Guide, front, separation	FF5-5201-020CN	450–453	10
Guide, LED		466	2A
Guide, lower, delivery		454	2
Guide, paper	FF2-5771-000CN	450–453	43
Guide, paper right	FB5-5328-000CN	445	5
Guide, paper, lower		458	1
Guide, sensor		471–472	2
Guide, slide	FB5-5294-000CN	448	3
Guide, slide, rear	FF6-0277-000CN	448	8
Guide, upper		457	1
Guide, upper, delivery		454	1
Handle, upper guide	FB3-9198-000CN	469	1
Heater, fluorescent lamp (H1 THM J2039)	FH7-4559-000CN	429	28
Hexagon bolt, M4	WT2-5526-000CN	467	22
Hinge, copyboard cover		428	2
Hinge, left	FB3-5757-000CN	447	24
Hinge, right	FB3-5758-000CN	447	25
Holder J, sensing	FF3-0434-000CN	450–453	102
Holder, cable, front		429	12
Holder, cable, front		468	10
Holder, cable, rear		429	13
Holder, cable, rear		468	11
Holder, jump (A size)		422	13
Holder, jump (inch/A size)	FF6-0288-000CN	422	13
Holder, LED		434	1
Holder, LED		469	39
Holder, sensor registration		450–453	39
Holder, solenoid		447	11
Holder, switch	FC1-1294-020CN	450–453	25
Hook, solenoid	FB3-5649-000CN	450–453	29
Hook, wire	FC1-5054-000CN	468	3
IC, FH4-5851, hybrid		437	IC1608
IC, HD6432653BA12F, CPU		437	IC1604
IC, HG62G027S61F, gate array		437	IC1602
IC, HG72C006FD, C-MOS		438	Q502
IC, HX-3019, hybrid		431	Q 1301

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
IC, JSC05KR517AJ40, gate array		438	Q512
IC, KZ3S113831CFP, C-MOS		438	Q509
IC, KZ3S113E11CFP, C-MOS		438	Q501
IC, KZ3S157211CFP, C-MOS		438	Q514
IC, KZ3S157311CFP, C-MOS		438	Q508
IC, LF9008, ASIC		438	Q513
IC, M27C1001-80XF1, EP-ROM (Q2)		461	1
IC, M38881M2-010GP, IPC		437	IC1605
IC, MB89P637, M-PRO (Q919)		435	1
IC, TLP1225, photo-interrupter (S11 J215)	FH7-7326-000CN	450–453	105
IC, TLP1225, photo-interrupter (S13 J308)	FH7-7326-000CN	454	36
IC, TLP1241, photo-interrupter (PS1 J309)	WG8-5362-000CN	469	31
IC, TLP1241, photo-interrupter (PS2 J310)	WG8-5362-000CN	466	10
IC, TLP1241, photo-interrupter (PS3,4 J312, 313)	WG8-5362-000CN	471–472	49
IC, TLP1241, photo-interrupter (PS5 J314)	WG8-5362-000CN	471–472	54
IC, TLP1241, photo-interrupter (S12 J306)	WG8-5362-000CN	454	19
IC, TLP1241, photo-interrupter (S5 J206)	WG8-5362-000CN	450–453	59
IC, TLP1242, photo-interrupter (S6 J303)		449	12
IC, UPD65625GB-Y04-9EU		437	IC1609
IC, UPD65636GB-Y18-9EU, G. array		437	IC1610
Indicator PCB assembly	FG2-5001-030CN	448	20
Inductor		440	L 1001
Inductor		440	L 1002
Interface cable (J1, 2, 201)	FG2-9558-000CN	447	30
Inverter PCB assembly	FG5-9849-000CN	440	—
Joint		471–472	13
Joint		471–472	14
Joint	FB4-6988-000CN	450–453	27
Key top, 1	FB4-2585-000CN	427	22
Key top, function, 1	FB4-3142-000CN	427	13
Key top, function, 3	FB4-7871-000CN	427	14
Key top, number	FB4-2584-000CN	427	21
Key top, reset	FB4-2583-000CN	427	20
Key top, standby	FB4-2594-000CN	427	26
Key top, start	FB4-2581-000CN	427	18
Key top, stop	FB4-2582-000CN	427	19
Key top, user guide	FB4-2597-000CN	427	28

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Label, "Copy load"		430	19
Label, "Legal Limitations" (English)		422	19
Label, "Legal Limitations" (France)		422	19
Label, "Legal Limitations" (Germany)		422	19
Label, "Legal Limitations" (Italy)		422	19
Label, "Legal Limitations" (Other)		422	19
Label, "Legal Limitations" (Spain)		422	19
Label, "Legal Limitations" (USA)		422	19
Label, "Switch off caution"		426	18
Label, "Warning"		423	25
Label, "Warning, High Voltage"		427	32
Label, adjusting		467	1
Label, connecting		426	16
Label, paper size		448	1A
Label, paper supply		467	5
Label, warning		448	8B
Lamp, fluorescent (LA1)	FH7-3336-000CN	429	27
Latch, front	FB4-7372-000CN	469	2
Latch, rear	FF5-9122-000CN	469	10
LCD panel unit	FG6-0365-000CN	427	7
LED cable (J301, 303)		469	35
LED PCB assembly	RG5-4199-000CN	469	36
LED unit		434	LED907
LED unit		434	LED908
LED unit		434	LED909
LED unit		434	LED910
LED, TLN119B		450–453	54A
Left frame assembly		4201	4
Left glass retainer assembly		422	16
Lever 1, deflector	FB3-5660-000CN	450–453	21
Lever 2, deflector	FC1-1279-000CN	447	10
Lever, delivery sensor		454	4
Lever, pick-up release		471–472	4
Lever, plate		469	4
Lever, recycle	FC1-1311-000CN	448	10
Lever, registration sensor	RB1-7813-000CN	471–472	51
Lever, release		471–472	3
Lever, releasing	FB4-7420-000CN	469	27

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Lifter drive assembly	FG6-3919-000CN	470	—
Light sensor PCB assembly	FG2-9439-000CN	429	31
Limit plate, separation	FF5-9582-000CN	450–453	52
Limiter, torque	RB1-6588-000CN	471–472	21
Link, latch		469	5
Link, pick-up	FF5-9131-000CN	471–472	16
Link, retard		471–472	5
Link, shutter	FC1-6184-000CN	450–453	36
Lock pin assembly	FG6-0394-000CN	420	7
Lower crossmember assembly		420	5
Lower paper guide assembly	FG6-5837-000CN	458	—
Lower plate assembly		420	6
Microswitch (MS1 J326)	WC4-0153-000CN	469	22
Microswitch (MS1)	WC4-5030-000CN	447	41
Microswitch (MS2 J327)	WC4-0153-000CN	469	25
Microswitch (MS2)		450–453	62A
Microswitch (MS3 J328)	WC4-0153-000CN	469	33
Mirror 1		429	25
Mirror assembly 1	FG5-9838-000CN	429	—
Mirror assembly 2	FG5-9839-000CN	423	16
Motor driver PCB assembly	FG5-9842-000CN	439	—
Motor driver power cable (J301, 2002)		424	13
Motor driver signal cable (J303, 1605)		424	14
Motor, dc 23 V (M1 J12)	FH6-1266-000CN	450–453	116
Motor, dc 24 V (M2 J11)		455	2
Motor, dc 24 V (M3 J7)	FH6-1603-000CN	456	3
Motor, dc 24 V (M5 J307)		454	35
Motor, dc 6 V (M4 J102)	FF2-5903-030CN	448	9
Motor, stepping		470	2
Motor, stepping (PM1 J302)	FH6-1461-000CN	423	22
Motor, stepping (SPM2 J315)	RH7-1368-000CN	471–472	34
Motor, stepping (SPM3 J319)	RH7-1367-000CN	471–472	33
Mount, brake, 1		456	8
Mount, brake, 2		456	20
Mount, cord		430	4
Mount, key switch		425	13
Mount, motor		455	1
Mount, motor		456	1

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Mount, pulley, front		423	18
Mount, pulley, rear		423	19
Mount, recycle motor		448	11
Mount, releasing	FF5-9121-000CN	469	29
Mount, roller		447	20
Mount, sensing		425	11
Mount, sensor		454	6
Mount, sensor		429	14
Mount, solenoid		450–453	34
Mount, switch		469	18
Mount, switch		469	23
Mount, terminal, front		429	15
Mount, terminal, rear		429	1
Mount, tray	FB4-7021-000CN	445	3
Mount, volume		448	14
Mylar, registration guide front		457	6A
Noise filter PCB assembly (100/127 V)	FG2-9463-000CN	433	—
Noise filter PCB assembly (220/240 V)	FG2-9541-000CN	433	—
Nut		425	5
Nut, hex, M3	ADF screw/ring kit	450–453	511
Nut, hex, M4	ADF screw/ring kit	447	517
Nut, hex, M4	XB7-2100-409CN	423	507
Nut,hex,M5	ADF screw/ring kit	445	503
Nut,hex,M6		425	16
One-way gear, 71T	Side HCl gear/pulley kit	471–472	19
Pad, oil	FB4-0802-000CN	429	33
Panel, front	FB4-7441-000CN	466	1
Panel, rear	FB5-5320-000CN	422	11
Panel, upper	FF5-9140-000CN	466	2
Paper feed motor assembly	FG6-2173-000CN	455	—
Paper sensing assembly	RG5-2166-000CN	467	14
Paper sensing PCB assembly		467	14B
Paper separation assembly	FG6-4442-000CN	460	—
Paper-volume cable (J205, 601)		467	14C
Photo-interrupter (PS102 J2007)	FH7-7312-000CN	425	10
Photo-interrupter, GP1A34A1 (S10 J211)	FH7-7236-000CN	456	18
Photo-interrupter, GP1A34A1 (S9 J210)	FH7-7236-000CN	455	5
Photo-interrupter, S7G37 (PS101 J2013)	FH7-7306-000CN	423	20

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Photo-interrupter, SG206 (S4,7 J214, 304)	WG8-5206-000CN	450–453	104
Photo-interrupter, SG206 (S8 J305)		458	9
Photo-transistor		450–453	63B
Photo-transistor TPS616C		450–453	54B
Pillar, left	FF5-7814-000CN	445	8
Pillar, right	FF5-7815-000CN	445	9
Pin, dowel	ADF pin kit	454	503
Pin, dowel	ADF pin kit	447	506
Pin, dowel	ADF pin kit	447	514
Pin, dowel	ADF pin kit	459	502
Pin, dowel	ADF pin kit	460	504
Pin, dowel	ADF pin kit	450–453	119
Pin, dowel	Side HCl pin kit	468	506
Pin, dowel	Side HCl pin kit	471–472	506
Pin, dowel	Side HCl pin kit	471–472	507
Pin, guide, 2		467	10
Pin, pad, 2	FB3-7692-000CN	429	5
Pin, positioning		420	6E
Pin, positioning		467	6
Pin, positioning		467	9
Pin, slide	FB3-2411-000CN	429	4
Pin, slide	FB3-2411-000CN	469	11A
Pin, spring	ADF pin kit	447	501
Pin, spring	ADF pin kit	447	518
Pin, spring	ADF pin kit	460	505
Pin, spring	ADF pin kit	450–453	513
Pin, spring	ADF pin kit	450–453	516
Pin, spring	Side HCl pin kit	471–472	502
Plate		447	13
Plate		448	8A
Plate		450–453	110
Plate (see note3)		456	21
Plate P, shutter		450–453	78
Plate, adjusting		423	26
Plate, auxiliary, front		428	7
Plate, auxiliary, rear		428	6
Plate, belt tension, front		450–453	47
Plate, belt tension, rear		450–453	48

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Plate, clutch tensioning		456	2
Plate, contact		429	2
Plate, cover		446	4
Plate, cover	FA3-9315-000CN	422	20
Plate, cushion mounting		428	5A
Plate, deck stop		467	4
Plate, flapper, mounting		457	3
Plate, glass retaining		425	1
Plate, grounding		447	53
Plate, grounding		427	25
Plate, grounding		430	3
Plate, grounding		430	5
Plate, grounding, 3		423	9
Plate, guide		458	3
Plate, guide, front		447	17
Plate, home position sensor	FB4-0745-000CN	423	21
Plate, joint		447	7
Plate, joint paper pick-up		447	12
Plate, latch		465	2
Plate, latch front	FB4-7423-000CN	469	8
Plate, latch rear	FB4-7424-000CN	469	9
Plate, length index (A size)		422	9B
Plate, length index (inch/A size)	FS6-8499-000CN	422	9B
Plate, lens mounting		423	10
Plate, lifting, cam		450–453	2
Plate, light blocking		429	23
Plate, limit, wire		468	20
Plate, mount		465	1
Plate, mount, 1		420	11
Plate, mount, 2		420	12
Plate, paper holder		468	7A
Plate, pick-up		450–453	60
Plate, pin holder		467	2
Plate, pin holder		467	3
Plate, positioning		450–453	49
Plate, positioning		450–453	53
Plate, pressure pick-up		450–453	24
Plate, pulley support, front		468	13

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Plate, pulley support, rear		468	14
Plate, rail	FB4-0705-000CN	424	6
Plate, reinforcement		428	1
Plate, reinforcement, rear		420	8
Plate, reverse		450–453	8
Plate, sensing		450–453	31
Plate, sensor guard		449	13
Plate, sensor, separation		450–453	44
Plate, shaft support		466	4
Plate, shield		469	40
Plate, shutter holding		450–453	15
Plate, size index (A size)		422	13A
Plate, size index (inch/A size)	FS6-8920-000CN	422	13A
Plate, slide, rear	FF5-7816-000CN	447	29
Plate, stop, woodruff	FF5-5198-000CN	450–453	114
Plate, switch		469	19
Plate, tray		450–453	11
Plate, tray	FB4-7022-000CN	445	4
Plate, tray positioning		450–453	106
Plate, wire hook	FB4-7371-000CN	468	2
Power cord (100/127 V P2)	FH2-6719-000CN	467	16
Power cord (220/240 V P2)	FH2-5762-000CN	467	19
PSU cable (J203, 901)		467	17
Pulley		423	2
Pulley	ADF gear/pulley kit	456	4
Pulley	Copy module gear/pulley kit	423	17
Pulley	Copy module gear/pulley kit	423	23
Pulley F, 28T	ADF gear/pulley kit	450–453	76
Pulley, 1		455	3
Pulley, 2		455	4
Pulley, 20T	ADF gear/pulley kit	450–453	96
Pulley, 32T	ADF gear/pulley kit	447	34
Pulley, 40T	ADF gear/pulley kit	450–453	75
Pulley, 66T	Copy module gear/pulley kit	423	11
Pulley, drive separation, center		460	7
Pulley, drive separation, side		460	8
Pulley, idler	ADF screw/ring kit	456	12
Pulley, idler	FA6-9971-000CN	468	18

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Pulley, lifting	FB2-8465-000CN	468	15
Pulley, roller, reverse	ADF gear/pulley kit	450–453	26
Pulley, tension	Copy module gear/pulley kit	424	1
Rail, guide		450–453	108
R-CON. extension DIMM assembly (Europe)	FG3-0220-000CN	437	1A
R-CON. extension DIMM assembly (USA)	FG2-9448-080CN	437	1A
RDF controller PCB assembly	FG2-9927-000CN	461	—
Reader controller PCB (Europe)	FG3-0215-000CN	437	1
Reader controller PCB (USA)	FG2-9443-060CN	437	1
Reflector		427	17
Reflector		450–453	23
Reflector, auxiliary		429	8
Reflector, front		429	9
Reflector, lower		429	7
Reflector, rear		429	10
Registration sensor H assembly (LED3 J302)	FG2-3394-000CN	450–453	61
Relay, AC 250 V (RL1)	FH7-6208-000CN	426	6
Retainer, cord		447	50
Retainer, glass, right		422	1
Retainer, pulley		423	24
Right frame assembly		420	3
Right paper delivery assembly	FG6-5838-000CN	454	—
Ring, E		470	502
Ring, E	ADF screw/ring kit	454	501
Ring, E	ADF screw/ring kit	447	504
Ring, E	ADF screw/ring kit	455	501
Ring, E	ADF screw/ring kit	456	505
Ring, E	ADF screw/ring kit	456	506
Ring, E	ADF screw/ring kit	456	507
Ring, E	ADF screw/ring kit	459	501
Ring, E	ADF screw/ring kit	460	502
Ring, E	ADF screw/ring kit	460	503
Ring, E	ADF screw/ring kit	450–453	506
Ring, E	ADF screw/ring kit	450–453	508
Ring, E	ADF screw/ring kit	450–453	514
Ring, E	ADF screw/ring kit	450–453	515
Ring, E	Copy module screw/ring kit	423	502
Ring, E	Side HCI screw/ring kit	466	502

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Ring, E	Side HCl screw/ring kit	467	501
Ring, E	Side HCl screw/ring kit	468	504
Ring, E	Side HCl screw/ring kit	469	503
Ring, E	Side HCl screw/ring kit	469	504
Ring, E	Side HCl screw/ring kit	470	501
Ring, E	Side HCl screw/ring kit	471–472	501
Ring, E	Side HCl screw/ring kit	471–472	504
Ring, E	Side HCl screw/ring kit	471–472	505
Ring, E	Stand screw/ring kit	420	501
Ring, E	Stand screw/ring kit	420	504
Ring, grip		457	502
Ring, grip	ADF screw/ring kit	447	505
Ring, grip	ADF screw/ring kit	450–453	507
Ring, toothed lock		429	503
Ring, toothed lock		468	503
Rod		454	10
Rod		449	1
Rod		458	2
Roller		449	10
Roller		458	6
Roller	FB4-6991-000CN	459	9
Roller	FB4-7004-000CN	447	56
Roller	FC1-1334-030CN	447	22
Roller	XG9-0402-000CN	467	11
Roller, 2		459	5
Roller, belt, center		460	6
Roller, belt, side		460	4
Roller, delivery		454	16
Roller, delivery		449	6
Roller, delivery	FB4-6990-000CN	454	3
Roller, drive, 1		459	6
Roller, drive, 2		459	7
Roller, feed	RB1-7818-000CN	471–472	23
Roller, feed	RB2-2511-000CN	471–472	28
Roller, feed	RF5-1834-000CN	471–472	30
Roller, feed belt drive	ADF belt kit	447	5
Roller, feed belt drive	ADF belt kit	447	6
Roller, feed belt idler		447	2C

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Roller, front	FB3-5638-000CN	450–453	13
Roller, paper delivery	FB3-5637-000CN	450–453	22
Roller, pick-up	FF5-5191-000CN	450–453	50
Roller, pick-up	RF5-1835-000CN	471–472	31
Roller, rear	FB3-5639-000CN	450–453	14
Roller, registration	FB4-7018-000CN	450–453	20
Roller, reverse	FF5-9581-000CN	450–453	12
Roller, separation	FF5-5207-000CN	459	4
Rotary VR assembly (VR1 J218)	FG2-7569-000CN	448	16
Rubber		450–453	10A
Scraper		454	8
Screw, adjusting		447	19
Screw, adjusting		423	1
Screw, allen head, M6X10	Stand screw/ring kit	420	507
Screw, allen head,M8X8	Stand screw/ring kit	420	5A
Screw, flat head, M3X8	ADF screw/ring kit	456	10
Screw, M2X12	ADF screw/ring kit	450–453	118
Screw, M3X2.5	ADF screw/ring kit	450–453	84
Screw, M3X6	Copy module screw/ring kit	429	30
Screw, M3X8	Copy module screw/ring kit	427	10
Screw, M3X8	Side HCI screw/ring kit	469	34
Screw, M4X10	Side HCI screw/ring kit	468	6
Screw, M4X6	ADF screw/ring kit	447	51
Screw, M4X6	Copy module screw/ring kit	423	12
Screw, M4X6	Side HCI screw/ring kit	466	11
Screw, M4X6	Side HCI screw/ring kit	466	17
Screw, M4X8	ADF screw/ring kit	447	9
Screw, M4X8	Stand screw/ring kit	420	6F
Screw, M6X6	Stand screw/ring kit	420	2
Screw, M6X6	Stand screw/ring kit	420	1
Screw, mach. truss head, M3x4 (see note 2)	ADF gear/pulley kit	455	8
Screw, mach., C.S. head,M4X8	Copy module screw/ring kit	422	502
Screw, mach., flat head, M3X4	ADF screw/ring kit	445	7
Screw, mach., truss head, M2.3X10	Side HCI screw/ring kit	469	502
Screw, mach., truss head, M2X3	ADF screw/ring kit	448	505
Screw, mach., truss head, M3X10	ADF screw/ring kit	450–453	517
Screw, mach., truss head, M3X12	ADF screw/ring kit	447	513
Screw, mach., truss head, M3X12	Copy module screw/ring kit	429	502

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Screw, mach., truss head, M3X3	ADF screw/ring kit	450–453	509
Screw, mach., truss head, M3X4	ADF screw/ring kit	454	34
Screw, mach., truss head, M3X4	ADF screw/ring kit	454	504
Screw, mach., truss head, M3X4	ADF screw/ring kit	447	1
Screw, mach., truss head, M3X4	ADF screw/ring kit	447	58
Screw, mach., truss head, M3X4	ADF screw/ring kit	448	21
Screw, mach., truss head, M3X4	ADF screw/ring kit	450–453	504
Screw, mach., truss head, M3X4	Copy module screw/ring kit	429	501
Screw, mach., truss head, M3X4	Side HCI screw/ring kit	467	503
Screw, mach., truss head, M3X5	ADF screw/ring kit	456	6
Screw, mach., truss head, M3X6	ADF screw/ring kit	454	502
Screw, mach., truss head, M3X6	ADF screw/ring kit	448	506
Screw, mach., truss head, M3X6	ADF screw/ring kit	448	507
Screw, mach., truss head, M3X6	ADF screw/ring kit	460	501
Screw, mach., truss head, M3X6	ADF screw/ring kit	450–453	501
Screw, mach., truss head, M3X6	Copy module screw/ring kit	426	501
Screw, mach., truss head, M3X6	Copy module screw/ring kit	427	501
Screw, mach., truss head, M3X6	Copy module screw/ring kit	430	505
Screw, mach., truss head, M4X16	Copy module screw/ring kit	428	501
Screw, mach., truss head, M4X20	Copy module screw/ring kit	426	504
Screw, mach., truss head, M4X30	ADF screw/ring kit	445	501
Screw, mach., truss head, M4X30	Copy module screw/ring kit	430	502
Screw, mach., truss head, M4X4	ADF screw/ring kit	450–453	510
Screw, mach., truss head, M4X5	ADF screw/ring kit	450–453	90
Screw, mach., truss head, M4X6	ADF screw/ring kit	454	505
Screw, mach., truss head, M4X6	ADF screw/ring kit	447	509
Screw, mach., truss head, M4X6	ADF screw/ring kit	446	501
Screw, mach., truss head, M4X6	ADF screw/ring kit	450–453	505
Screw, mach., truss head, M4X6	Copy module screw/ring kit	426	503
Screw, mach., truss head, M4X6	Copy module screw/ring kit	430	23
Screw, mach., truss head, M4X6	Copy module screw/ring kit	430	501
Screw, mach., truss head, M4X6	Copy module screw/ring kit	430	504
Screw, mach., truss head, M5X6	Copy module screw/ring kit	426	505
Screw, mach., truss head, M3X12	Copy module screw/ring kit	424	502
Screw, mach., truss head, M4X10	Copy module screw/ring kit	423	504
Screw, mach., truss head, M4X5	Copy module screw/ring kit	425	501
Screw, mach., truss head, M4X6	Copy module screw/ring kit	423	503
Screw, mach., truss head, M4X6	Copy module screw/ring kit	423	508

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Screw, mach., truss head,M4X6	Copy module screw/ring kit	422	501
Screw, mach., truss head,M4X6	Copy module screw/ring kit	424	501
Screw, mach., truss head,M4X6	Copy module screw/ring kit	425	502
Screw, mach., washer head, M4X10	ADF screw/ring kit	448	13
Screw, RS, M4X8	Side HCI screw/ring kit	467	18
Screw, RS, M4X8	Side HCI screw/ring kit	468	23
Screw, RS, M4X8	Side HCI screw/ring kit	469	14
Screw, stepped		454	23
Screw, stepped		424	23
Screw, stepped	Side HCI screw/ring kit	469	20
Screw, stepped, M3	ADF screw/ring kit	447	54
Screw, stepped, M3	ADF screw/ring kit	450–453	72
Screw, stepped, M3	ADF screw/ring kit	450–453	73
Screw, stepped, M3	ADF screw/ring kit	450–453	93
Screw, stepped, M3X1.4	ADF screw/ring kit	445	6
Screw, stepped, M4		424	29
Screw, stepped, M4	ADF screw/ring kit	447	32
Screw, stepped, M4	ADF screw/ring kit	447	33
Screw, stepped, M4	ADF screw/ring kit	450–453	70
Screw, stepped, M4	ADF screw/ring kit	450–453	71
Screw, stepped, M4	ADF screw/ring kit	450–453	89
Screw, stepped, M4	Copy module screw/ring kit	424	8
Screw, stepped, M4	Copy module screw/ring kit	425	6
Screw, tapping truss head, M4X6	ADF screw/ring kit	447	508
Screw, tapping, pan head,M2.6X8	Copy module screw/ring kit	425	504
Screw, tapping, truss head, M2X5	ADF screw/ring kit	456	501
Screw, tapping, truss head, M3X10	ADF screw/ring kit	448	508
Screw, tapping, truss head, M3X6		458	501
Screw, tapping, truss head, M3X6	ADF screw/ring kit	448	501
Screw, tapping, truss head, M3X6	ADF screw/ring kit	449	502
Screw, tapping, truss head, M3X6	ADF screw/ring kit	457	501
Screw, tapping, truss head, M3X6	ADF screw/ring kit	458	502
Screw, tapping, truss head, M3X6	ADF screw/ring kit	450–453	503
Screw, tapping, truss head, M3X8	ADF screw/ring kit	448	502
Screw, tapping, truss head, M3X8	ADF screw/ring kit	448	503
Screw, tapping, truss head, M4X12	Copy module screw/ring kit	428	502
Screw, tapping, truss head, M4X6	ADF screw/ring kit	446	502
Screw, tapping, truss head, M4X6	Side HCI screw/ring kit	469	506

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Screw, tapping, truss head, M4X8		449	501
Screw, TP, M3X4	ADF screw/ring kit	447	512
Screw, TP, M3X4	ADF screw/ring kit	450–453	512
Screw, TP, M3X4	Copy module screw/ring kit	423	501
Screw, TP, M3X5	ADF screw/ring kit	456	503
Screw, TP, M3X6	ADF screw/ring kit	447	515
Screw, TP, M3X6	Copy module screw/ring kit	424	503
Screw, TP, M3X6	Copy module screw/ring kit	429	506
Screw, TP, M3X6	Copy module screw/ring kit	430	503
Screw, TP, M3X6	Side HCI screw/ring kit	471–472	50
Screw, TP, M4X4		465	501
Screw, TP, M4X4	Side HCI screw/ring kit	467	502
Screw, TP, M4X4	Side HCI screw/ring kit	468	502
Screw, TP, M4X4	Side HCI screw/ring kit	469	505
Screw, TP, M4X6	ADF screw/ring kit	447	510
Screw, TP, M4X6	ADF screw/ring kit	447	511
Screw, TP, M4X6	ADF screw/ring kit	456	504
Screw, TP, M4X6	ADF screw/ring kit	445	502
Screw, TP, M4X6	ADF screw/ring kit	446	503
Screw, TP, M4X6	ADF screw/ring kit	450–453	518
Screw, TP, M4X6	Copy module screw/ring kit	423	506
Screw, TP, M4X6	Copy module screw/ring kit	425	503
Screw, TP, M4X6	Side HCI screw/ring kit	466	501
Screw, TP, M4X6	Side HCI screw/ring kit	466	503
Screw, TP, M4X6	Side HCI screw/ring kit	467	504
Screw, TP, M4X6	Side HCI screw/ring kit	469	501
Screw, TP, M4X6 (see note3)	ADF screw/ring kit	456	508
Screw, TP, M4X8	Stand screw/ring kit	420	503
Screw, with washer, M3X6		429	504
Screw, with washer, M3X6	Copy module screw/ring kit	422	18
Screw, with washer, M3X6	Copy module screw/ring kit	427	9
Screw, with washer, M3X6	Side HCI screw/ring kit	471–472	503
Screw, with washer, M3X8	Copy module screw/ring kit	423	505
Screw, with washer, M3X8	Copy module screw/ring kit	429	505
Screw, with washer, M3X8	Side HCI screw/ring kit	470	5
Screw, with washer, M4	Side HCI screw/ring kit	467	23
Screw, with washer, M4X6	Copy module screw/ring kit	422	12
Screw, with washer, M4X6	Copy module screw/ring kit	427	502

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Screw, with washer, M4X6	Copy module screw/ring kit	430	6
Screw, with washer, M4X6	Copy module screw/ring kit	430	506
Screw, with washer, M4x8		455	9
Screw,stepped,M3X1.4		458	7
Screw,TP,M4X8 (see note3)	ADF screw/ring kit	456	22
Seal, cover		422	4A
Seal, cover		422	7A
Seal, insulation, 1		429	20
Seal, insulation, 2		429	21
Sensor connecting cable (J205, 302)		450–453	57
Sensor connecting cable (J207,303)		449	11
Sensor connecting cable (J209, 305)		458	10
Sensor lever unit		458	8
Sensor, cable (J304, 310)		466	16
Sensor, document size (A size PS103 J2009)	FH7-7424-000CN	424	16
Sensor, document size (A size PS106 J2011)	FH7-7423-000CN	424	19
Sensor, document size (inch size PS104 J2010)	FH7-7388-000CN	424	16
Sensor, document size (inch size PS105, 106 J2011, 2012)	FH7-7386-000CN	424	19
Separation roller assembly	FG6-2176-000CN	459	—
Setscrew, M3X4	Side HCI screw/ring kit	468	505
Setscrew, M4X4	ADF screw/ring kit	456	502
Setscrew, M4X8	ADF screw/ring kit	447	503
Shaft		471–472	10
Shaft, arm	FB4-7426-000CN	469	28
Shaft, arm, pick-up rear		450–453	42
Shaft, cam		450–453	5
Shaft, clutch		456	5
Shaft, cover		466	5
Shaft, drive, belt separation		460	5
Shaft, drive, mirror mounting		423	5
Shaft, feed belt		447	21
Shaft, front	FF5-9129-000CN	471–472	15
Shaft, gear	RF5-2558-000CN	471–472	32
Shaft, idler roller		447	2B
Shaft, latch		469	3
Shaft, lever		469	6
Shaft, lifter wire	FB4-7379-000CN	468	19

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Shaft, paper sensor		471–472	27
Shaft, pick-up release		471–472	8
Shaft, positioning		471–472	22
Shaft, pressure, pick-up	FB3-5642-000CN	450–453	19
Shaft, rear		471–472	12
Shaft, release		471–472	7
Shaft, roller		450–453	28
Shaft, roller	FB4-2675-000CN	420	6A
Shaft, roller	RB2-2512-000CN	471–472	29
Sheet		450–453	54D
Sheet	FC2-3246-000CN	450–453	8A
Sheet, 1		455	1A
Sheet, 1		450–453	52A
Sheet, 2		450–453	52B
Sheet, 3		450–453	52C
Sheet, 4		450–453	52D
Sheet, A		450–453	10B
Sheet, B		450–453	10C
Sheet, back-up	FB4-0752-000CN	424	4
Sheet, blanking		424	15
Sheet, blanking		426	3
Sheet, grounding	FB4-6704-000CN	427	8
Sheet, guard		449	13A
Sheet, insulating		427	27
Sheet, partition		430	14
Sheet, PCB		430	1
Sheet, protect		425	19
Sheet, protect, A		424	2
Sheet, protect, B		424	3
Sheet, protective		426	2
Sheet, protective, small		468	5A
Sheet, protective, small		468	7C
Sheet, rubber		428	8
Sheet, rubber 2		455	1B
Sheet, rubber 2		456	1B
Sheet, rubber, 3		455	1C
Sheet, rubber, 3		456	1C
Sheet, sensor lever	FB4-7024-000CN	447	59

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Sheet, separation, leather	RB1-6872-000CN	468	1
Shutter		450–453	16
Side guide plate, front	FF5-9125-000CN	468	5
Side guide plate, rear	FG6-3921-000CN	468	7
Side HCl bushing kit	C7839-67902	—	—
Side HCl gear/pulley kit	C7839-67903	—	—
Side HCl pin kit		—	—
Side HCl screw/ring kit	C7839-67901	—	—
Side HCl spring kit	C7839-67904	—	—
Side plate, separation	FF5-5188-000CN	460	13
Size plate	FF5-9141-000CN	466	3
Size sensor cable (J325, 328)		469	37
Solenoid (SL1 J320)	RH7-5202-000CN	471–472	35
Solenoid, dc 24 V (SL1 J217)	FH7-5653-000CN	450–453	64
Solenoid, dc 24 V (SL2, J216)	FH7-5709-000CN	450–453	68
Solenoid, dc 24 V (SL3 J204)	FH7-5843-000CN	447	31
Solenoid, dc 24 V (SL4 J220)		454	13
Spacer		447	8
Spacer, PCB		447	42
Spacer, PCB		447	46
Spacer, pulley	Copy module gear/pulley kit	423	8
Sponge, damper		450–453	114A
Spring, compression	ADF spring kit	447	55
Spring, compression	ADF spring kit	450–453	74
Spring, compression	Copy module spring kit	427	30
Spring, compression	Side HCl spring kit	469	30
Spring, compression	Side HCl spring kit	471–472	42
Spring, compression	Side HCl spring kit	471–472	43
Spring, grounding		447	57
Spring, leaf		454	7
Spring, leaf		448	18
Spring, leaf		449	2
Spring, leaf		449	4
Spring, leaf		423	27
Spring, leaf		424	5
Spring, leaf		424	24
Spring, leaf		424	27
Spring, leaf		424	30

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Spring, leaf		424	31
Spring, leaf		425	20
Spring, leaf		430	28
Spring, leaf		430	29
Spring, leaf		460	18
Spring, leaf		467	14A
Spring, leaf		467	15
Spring, leaf		469	32
Spring, leaf	Copy module spring kit	423	4
Spring, leaf	FB4-7391-000CN	469	24
Spring, leaf, 1		458	4
Spring, leaf, 2		458	5
Spring, leaf, mirror		429	11
Spring, tension		454	25
Spring, tension		469	21
Spring, tension	ADF screw/ring kit	447	52
Spring, tension	ADF spring kit	447	35
Spring, tension	ADF spring kit	447	36
Spring, tension	ADF spring kit	447	37
Spring, tension	ADF spring kit	447	38
Spring, tension	ADF spring kit	460	17
Spring, tension	ADF spring kit	460	19
Spring, tension	ADF spring kit	450–453	83
Spring, tension	ADF spring kit	450–453	85
Spring, tension	ADF spring kit	450–453	86
Spring, tension	ADF spring kit	450–453	87
Spring, tension	ADF spring kit	450–453	88
Spring, tension	ADF spring kit	450–453	98
Spring, tension	ADF spring kit	450–453	99
Spring, tension	ADF spring kit	450–453	100
Spring, tension	Copy module spring kit	424	9
Spring, tension	Copy module spring kit	425	4
Spring, tension	Side HCI spring kit	467	8
Spring, tension	Side HCI spring kit	469	12
Spring, tension	Side HCI spring kit	469	15
Spring, tension	Side HCI spring kit	471–472	44
Spring, tension	Side HCI spring kit	471–472	45
Spring, tension	Side HCI spring kit	471–472	53

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Spring, tension	Side HCl spring kit	471–472	56
Spring, tension	Side HCl spring kit	471–472	57
Spring, torsion		454	22
Spring, torsion		454	24
Spring, torsion		449	8
Spring, torsion		457	5
Spring, torsion		457	7
Spring, torsion	FB3-5669-000CN	450–453	40
Spring, torsion	FB4-7425-000CN	466	7
Stamp (see note1)		454	30
Stand screw/ring kit	C7838-67901	—	—
Stopper, lower guide		450–453	3
Support exposure light	FB2-4244-000CN	427	12
Support, cable		424	18
Support, glass, right		425	2
Support, PCB		430	22
Support, right		427	24
Switch cable (J321, 322, 326, 327)		469	38
Switch, key (KEY SW J2014)	FH7-6139-000CN	425	12
Switch, main (MSW1)	FH7-6254-000CN	426	7
Switch, VR		434	VR 941
Switching regulator PCB unit	FH3-2509-000CN	467	21
Tape, door cover	FB4-7438-000CN	466	8
Tape, glass protective		422	9A
Tie, cable		447	28
Tie, cable		450–453	103
Transformer		440	T 1001
Transformer		440	T 1003
Transformer (100/127 V)		431	CT1301
Transformer (100/127 V)		431	T 1201
Transformer (100/127 V)		431	T 1301
Transformer (100/127 V)		432	T 1801
Transformer (220/240 V)		431	T 1201
Transformer (220/240 V)		431	T 1301
Transformer (220/240 V)		432	T 1802
Transformer, inverter		436	T 1
Tray 2, copy	FB3-3143-020CN	445	2
Tray 3, copy	FB3-2141-000CN	445	1

Table 164. Alphabetical parts list (continued)

Description	Part number	Figure	Key
Tray cable assembly (J8, 101, 218)		448	12
Tray, auxiliary	FB5-5296-000CN	448	5
Tray, document	FF6-0276-000CN	448	1
Tray, pick-up		450–453	55
Turn roller assembly	FM6-2145-000CN	447	2
Upper cover assembly	FG6-5836-000CN	449	—
Upper paper guide assembly	FG5-7273-000CN	457	—
Washer	FA6-2513-000CN	450–453	56
Washer, plain	Stand screw/ring kit	420	502
Washer, plain	Stand screw/ring kit	420	505
Washer, pulley	ADF gear/pulley kit	456	9
Washer, pulley	FC1-6220-000CN	455	7
Washer, retaining		468	501
Washer, spring	Stand screw/ring kit	420	506
Washer, spring	Stand screw/ring kit	420	508
Washer, toothed lock	ADF screw/ring kit	447	502
Washer, toothed lock	ADF screw/ring kit	447	507
Washer, toothed lock	ADF screw/ring kit	447	516
Washer, toothed lock	ADF screw/ring kit	448	504
Washer, toothed lock	ADF screw/ring kit	449	503
Washer, toothed lock	Copy module screw/ring kit	426	502
Weight		450–453	7
Wing,nut,M8	XA9-1109-000CN	469	42
Wing,nut,M8	XZ9-0459-000CN	469	41
Wire		449	9
Wire, front	FC1-5051-000CN	468	9
Wire, grounding		447	18
Wire, rear	FC1-5052-000CN	468	8
Wire, scanner, front	FB4-0740-000CN	423	6
Wire, scanner, rear	FB4-0741-000CN	423	7

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Jumpboard

(2) flathead screws, no washers

Scanning lamp cover

(1) tapered-head screw
(1) metal clamp

Metal plate

(2) gold screws

Antireflecting plate

(2) black screws with washers

Lamp

(2) black screws with washers

Lamp intensity detector

(1) self-tapping screw

CCD cage

(9) M4x6 screws with washers

CCD hold down

(2) M4x6 screws with washers

Standard white plate

(4) gold screws, no washers

Lower front cover

(2) M4x6 screws, no washers
(2) plastic covers

Control panel

(5) M4x6 screws with washers

Scan motor driver PCB

(2) M4x6 screws with washers

DIMM cover

(2) M4x6 screws, no washers

Upper front cover skin

(4) M4x6 screws,
no washers
(4) rubber covers

Left skin

(5) screws, no
washers

Top rear skin

(3) rubber covers
(5) screws, no
washers

Metal back cover

(3) screws with
star washers

Upper right cover skin

(2) M4x6 screws,
no washers

Electrical unit pullout tray

from front: (2)
shoulder screws
from back: (7)
screws with
washers
from glass: (2)
large shoulder
screws and (2)
metal clamps

Metal chassis plates (3)

(20) brass
screws, no
washers:

(5) on each
smaller front
plate

(6) on back plate

(4) on vertical
plate

Electrical unit pullout—RFI cover

(7) screws

ADF document output tray

(2) long black
screws



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