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# **FS-9130DN**

# **FS-9530DN**

## **SERVICE**

## **MANUAL**

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Revision	Date	Replaced pages	Remarks



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# Safety precautions


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This booklet provides safety warnings and precautions for our service personnel to ensure the safety of their customers, their machines as well as themselves during maintenance activities. Service personnel are advised to read this booklet carefully to familiarize themselves with the warnings and precautions described here before engaging in maintenance activities.

## Safety warnings and precautions

Various symbols are used to protect our service personnel and customers from physical danger and to prevent damage to their property. These symbols are described below:

 **DANGER:** High risk of serious bodily injury or death may result from insufficient attention to or incorrect compliance with warning messages using this symbol.

 **WARNING:** Serious bodily injury or death may result from insufficient attention to or incorrect compliance with warning messages using this symbol.

 **CAUTION:** Bodily injury or damage to property may result from insufficient attention to or incorrect compliance with warning messages using this symbol.

### Symbols

The triangle (△) symbol indicates a warning including danger and caution. The specific point of attention is shown inside the symbol.



General warning.



Warning of risk of electric shock.



Warning of high temperature.

⊘ indicates a prohibited action. The specific prohibition is shown inside the symbol.



General prohibited action.



Disassembly prohibited.

● indicates that action is required. The specific action required is shown inside the symbol.



General action required.



Remove the power plug from the wall outlet.



Always ground the copier.

## 1. Installation Precautions

### WARNING

- Do not use a power supply with a voltage other than that specified. Avoid multiple connections to one outlet: they may cause fire or electric shock. When using an extension cable, always check that it is adequate for the rated current. ....
- Connect the ground wire to a suitable grounding point. Not grounding the copier may cause fire or electric shock. Connecting the earth wire to an object not approved for the purpose may cause explosion or electric shock. Never connect the ground cable to any of the following: gas pipes, lightning rods, ground cables for telephone lines and water pipes or faucets not approved by the proper authorities. ....



### CAUTION:

- Do not place the copier on an infirm or angled surface: the copier may tip over, causing injury. ....
- Do not install the copier in a humid or dusty place. This may cause fire or electric shock. ....
- Do not install the copier near a radiator, heater, other heat source or near flammable material.



This may cause fire. ....



- Allow sufficient space around the copier to allow the ventilation grills to keep the machine as cool as possible. Insufficient ventilation may cause heat buildup and poor copying performance. ....



- Always handle the machine by the correct locations when moving it. ....
- Always use anti-toppling and locking devices on copiers so equipped. Failure to do this may cause the copier to move unexpectedly or topple, leading to injury. ....
- Avoid inhaling toner or developer excessively. Protect the eyes. If toner or developer is accidentally ingested, drink a lot of water to dilute it in the stomach and obtain medical attention immediately. If it gets into the eyes, rinse immediately with copious amounts of water and obtain medical attention. ....













- Advise customers that they must always follow the safety warnings and precautions in the copier's instruction handbook. ....







## 2.Precautions for Maintenance

### WARNING

- Always remove the power plug from the wall outlet before starting machine disassembly. .... 
- Always follow the procedures for maintenance described in the service manual and other related brochures. .... 
- Under no circumstances attempt to bypass or disable safety features including safety mechanisms and protective circuits. .... 
- Always use parts having the correct specifications. .... 
- Always use the thermostat or thermal fuse specified in the service manual or other related brochure when replacing them. Using a piece of wire, for example, could lead to fire or other serious accident. .... 
- When the service manual or other serious brochure specifies a distance or gap for installation of a part, always use the correct scale and measure carefully. .... 
- Always check that the copier is correctly connected to an outlet with a ground connection. .... 
- Check that the power cable covering is free of damage. Check that the power plug is dust-free. If it is dirty, clean it to remove the risk of fire or electric shock. .... 
- Never attempt to disassemble the optical unit in machines using lasers. Leaking laser light may damage eyesight. .... 
- Handle the charger sections with care. They are charged to high potentials and may cause electric shock if handled improperly. .... 

### CAUTION

- Wear safe clothing. If wearing loose clothing or accessories such as ties, make sure they are safely secured so they will not be caught in rotating sections. .... 
- Use utmost caution when working on a powered machine. Keep away from chains and belts. .... 
- Handle the fixing section with care to avoid burns as it can be extremely hot. .... 
- Check that the fixing unit thermistor, heat and press rollers are clean. Dirt on them can cause abnormally high temperatures. .... 

• Do not remove the ozone filter, if any, from the copier except for routine replacement. ....



• Do not pull on the AC power cord or connector wires on high-voltage components when removing them; always hold the plug itself. ....



• Do not route the power cable where it may be stood on or trapped. If necessary, protect it with a cable cover or other appropriate item. ....



• Treat the ends of the wire carefully when installing a new charger wire to avoid electric leaks. ....



• Remove toner completely from electronic components. ....



• Run wire harnesses carefully so that wires will not be trapped or damaged. ....



• After maintenance, always check that all the parts, screws, connectors and wires that were removed, have been refitted correctly. Special attention should be paid to any forgotten connector, trapped wire and missing screws. ....



• Check that all the caution labels that should be present on the machine according to the instruction handbook are clean and not peeling. Replace with new ones if necessary. ....



• Handle greases and solvents with care by following the instructions below: ....



- Use only a small amount of solvent at a time, being careful not to spill. Wipe spills off completely.
- Ventilate the room well while using grease or solvents.
- Allow applied solvents to evaporate completely before refitting the covers or turning the power switch on.
- Always wash hands afterwards.

• Never dispose of toner or toner bottles in fire. Toner may cause sparks when exposed directly to fire in a furnace, etc. ....



• Should smoke be seen coming from the copier, remove the power plug from the wall outlet immediately. ....



### 3.Miscellaneous

#### WARNING

• Never attempt to heat the drum or expose it to any organic solvents such as alcohol, other than the specified refiner; it may generate toxic gas. ....







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## 1-1-1 Specifications

Type .....	Desktop
Printing system .....	Indirect electrostatic system
Printing paper .....	Weight
	Cassette: 60 - 105 g/m <sup>2</sup>
	MP tray: 45 - 200 g/m <sup>2</sup>
	Types
	Cassette: Plain, Preprinted, Bond, Recycled, Rough, Letterhead, Color, Prepunched, High quality, and Custom
	MP tray: Plain, Transparency, Preprinted, Labels, Bond, Recycled, Vellum, Rough, Letterhead, Color, Prepunched, Envelope, Cardstock, Thick, High quality, and Custom
Paper sizes .....	Cassette
	Maximum: A3/Ledger
	Minimum: A5R/Statement
	MP tray
	Maximum: A3/Ledger
	Minimum: A6R/Statement
Printing speed .....	40 ppm model
	A3/Ledger: 23 sheets/min.
	B4/Legal: 23 sheets/min.
	A4/Letter: 40 sheets/min.
	A4R/Letter R: 27 sheets/min.
	B5: 40 sheets/min.
	B5R: 22 sheets/min.
	A5R/Statement: 40 sheets/min.
	A6R: 40 sheets/min.
	50 ppm model
	A3/Ledger: 26 sheets/min.
	B4/Legal: 26 sheets/min.
	A4/Letter: 51 sheets/min.
	A4R/Letter R: 31 sheets/min.
	B5: 51 sheets/min.
	B5R: 24 sheets/min.
	A5R/Statement: 51 sheets/min.
	A6R: 51 sheets/min.
First print time .....	3.5 s or less
Warm-up time .....	60 s (room temperature 22°C/71.6°F, 60% RH)
	Recovery from sleep mode: 60 s (room temperature 22°C/71.6°F, 60% RH)
Paper feed system .....	Automatic feed
	Capacity:
	Cassette: 500 sheets (80 g/m <sup>2</sup> )
	Manual feed
	Capacity:
	MP tray: 200 sheets (80 g/m <sup>2</sup> )
Paper eject system .....	Output tray: 500 sheets (75 g/m <sup>2</sup> )
Photoconductor .....	a-Si (drum diameter 40 mm)
Charging system .....	Single positive corona charging
Recording system .....	Semiconductor laser
Developing system .....	Dry, reverse developing (single component system)
	Developer: 1-component, magnetism toner
	Toner replenishing: automatic from a toner container
Transfer system .....	Transfer roller
Separation system .....	Separation electrode
Fusing system .....	Heat roller
	Heat source: halogen heaters
	Abnormally high temperature protection devices: thermostats
Charge erasing system .....	Exposure by cleaning lamp
Cleaning system .....	Cleaning blade and roller

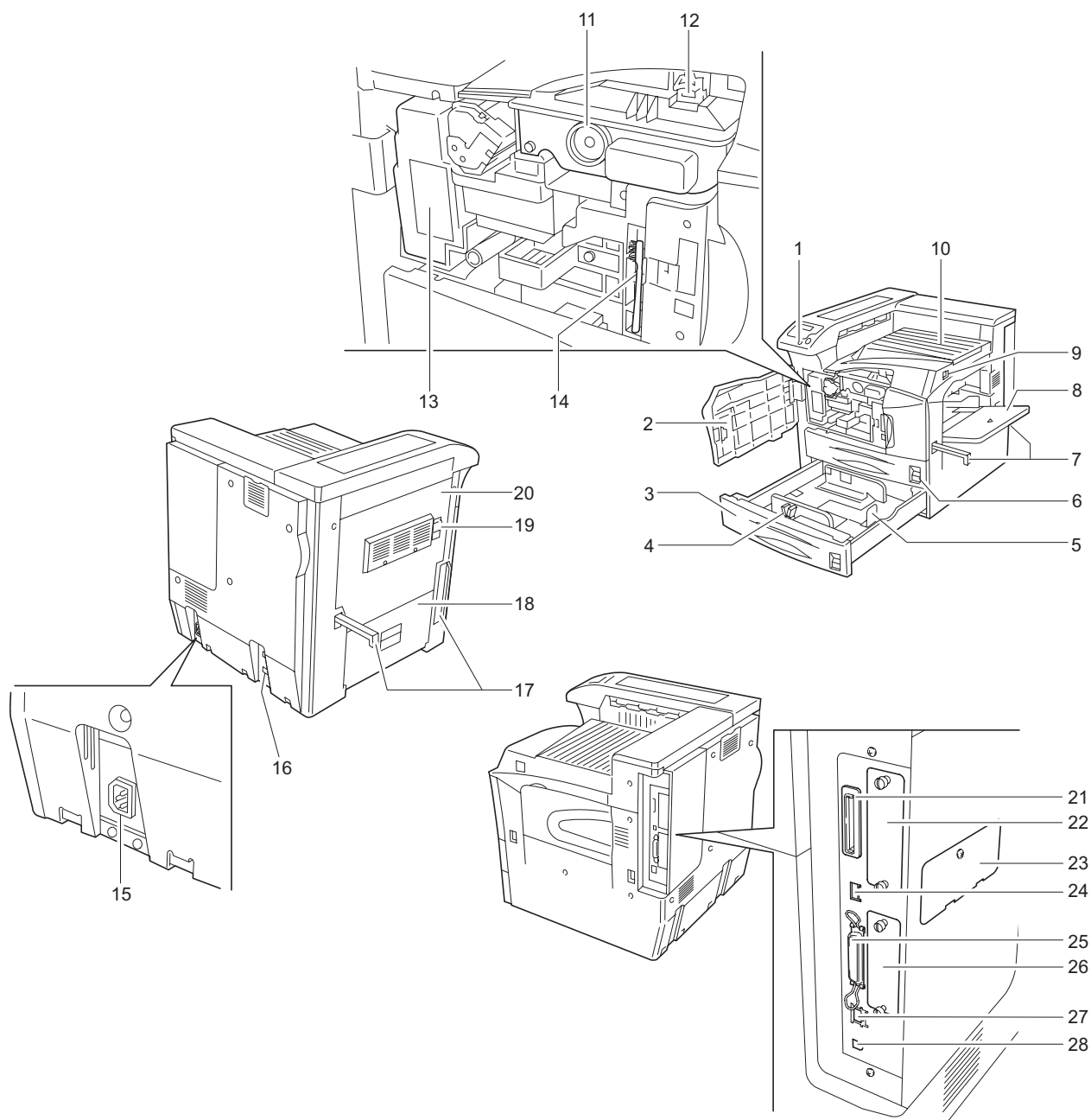
## 2GZ/2G1

Controller .....	PowerPC 750 FL (600MHz) Code ROM: 8 MB Font ROM: 4 MB Interface: 2 slots (100pin DDR-SDRAM DIMM) Memory: Standard 128 MB/Maximum 1024 MB Memory card: 1 slot (CompactFlash card)
Applicable OS .....	Microsoft Windows 95/98/Me/2000/XP Microsoft Windows NT4.0 Microsoft Windows Server 2003 Apple Macintosh OS 9 Apple Macintosh OS X
Interface .....	Parallel: Bi-directional parallel (IEEE 1284 Nibble/ECP mode) High-speed USB (USB2.0) USB host interface Optional interface: 2 slots (KUIO-LV, RS-232C) Network interface: 10Base-T/100Base-TX
PDL .....	PRESCRIBE
Emulation .....	PCL6, KPDL3, KC-GL, Line Printer, IBM Proprinter X24E, Epson LQ-850, Diablo 630
Resolution .....	Fast 1200 mode/600 dpi/300 dpi
Dimensions .....	599 (W) x 646 (D) x 615 (H) mm 23 5/8" (W) x 25 1/8" (D) x 24 1/2" (H)
Weight .....	Approx. 68 kg/150 lbs
Floor requirements .....	1290 (W) x 646 (D) mm 50 3/4" (W) x 25 1/8" (D)
Power source .....	120 V AC, 60 Hz, max. 11.4A 220 to 240 V AC, 50/60 Hz, max. 6.1 A
Options .....	Paper feeder, 3000-sheet paper feeder, document finisher, 3000-sheet document finisher and data security kit

NOTE: These specifications are subject to change without notice.

## 1-1-2 Parts names

### (1) Body



**Figure 1-1-1**

- |                            |                                   |                                      |
|----------------------------|-----------------------------------|--------------------------------------|
| 1. Operation panel         | 11. Toner container               | 21. Memory card slot                 |
| 2. Front cover             | 12. Toner container release lever | 22. Option interface slot (OPT)      |
| 3. Cassette 2              | 13. Waste toner box               | 23. Option memory slot cover         |
| 4. Paper guide             | 14. Cleaning brush                | 24. USB Memory slot (A1)             |
| 5. Paper stopper           | 15. Power cord connector          | 25. Parallel interface connector     |
| 6. Cassette 1              | 16. Option unit connector         | 26. Option hard disk unit Slot (HDD) |
| 7. Handles for transport   | 17. Handles for transport         | 27. Network interface connector      |
| 8. MP (Multi-Purpose) tray | 18. Left cover 2                  | 28. USB interface connector (B1)     |
| 9. Main Switch             | 19. Lock lever                    |                                      |
| 10. Top tray               | 20. Left cover 1                  |                                      |

(2) Operation panel

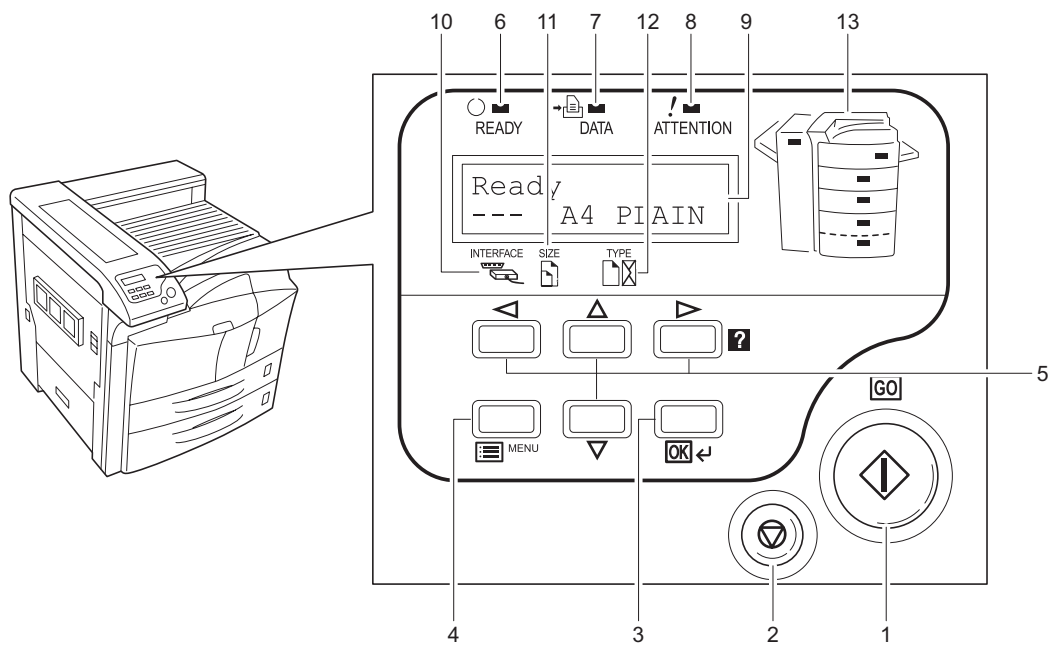


Figure 1-1-2

- |                    |                          |
|--------------------|--------------------------|
| 1. GO key          | 8. Attention indicator   |
| 2. CANCEL key      | 9. Message display       |
| 3. OK key          | 10. Interface indicator  |
| 4. MENU key        | 11. Paper size indicator |
| 5. Cursor keys     | 12. Paper type indicator |
| 6. Ready indicator | 13. Paper jam indicator  |
| 7. Data indicator  |                          |

## 1-1-3 Machine cross section

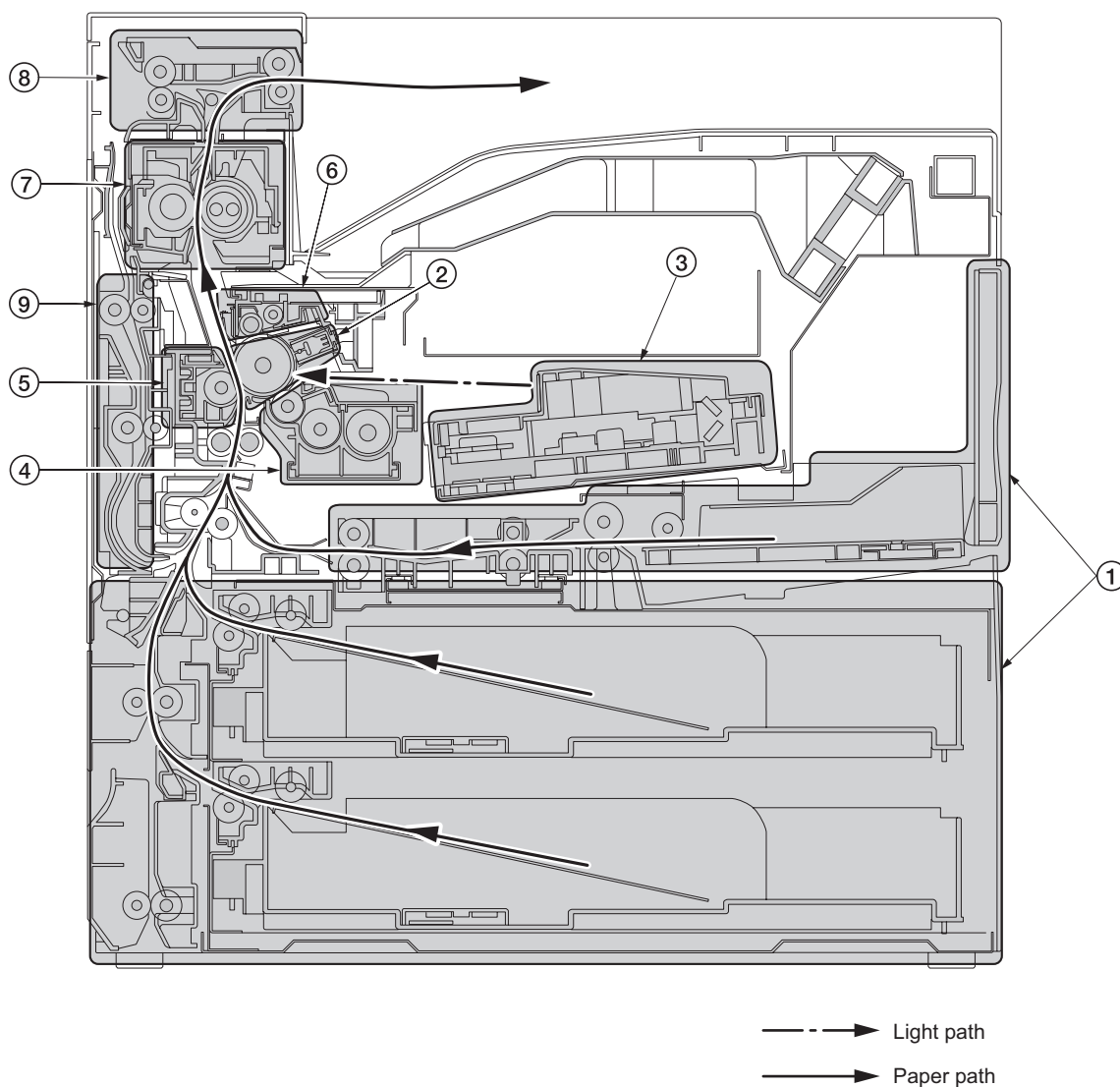


Figure 1-1-3 Machine cross section

1. Paper feed section
2. Main charging section
3. Laser scanner unit
4. Developing section
5. Transfer and separation section
6. Cleaning and charge erasing section
7. Fuser section
8. Eject and switchback section
9. Duplex section

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### 1-2-1 Installation environment

1. Temperature: 10 to 32.5°C/50 to 90.5°F
2. Humidity: 15 to 80%RH
3. Power supply: 120 V AC, max. 11.4 A  
220 to 240 V AC, max. 6.1 A
4. Power source frequency: 50 Hz  $\pm$  0.3%/60 Hz  $\pm$  0.3%
5. Installation location
 

Avoid direct sunlight or bright lighting. Ensure that the photoconductor will not be exposed to direct sunlight or other strong light when removing paper jams.

Avoid extremes of temperature and humidity, abrupt ambient temperature changes, and hot or cold air directed onto the machine.

Avoid dust and vibration.

Choose a surface capable of supporting the weight of the machine.

Place the machine on a level surface (maximum allowance inclination: 1°).

Avoid air-borne substances that may adversely affect the machine or degrade the photoconductor, such as mercury, acidic or alkaline vapors, inorganic gasses, NOx, SOx gases and chlorine-based organic solvents.

Select a room with good ventilation.
6. Allow sufficient access for proper operation and maintenance of the machine.  
Machine front: 1000 mm/39 3/8"    Machine rear: 100 mm/3 15/16"  
Machine right: 300 mm/11 13/16"    Machine left: 300 mm/11 13/16"

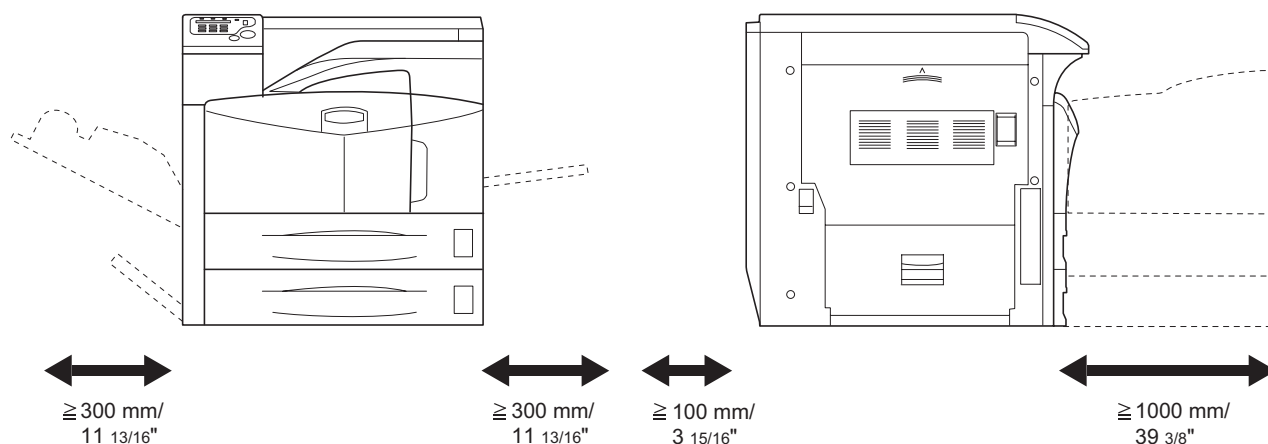
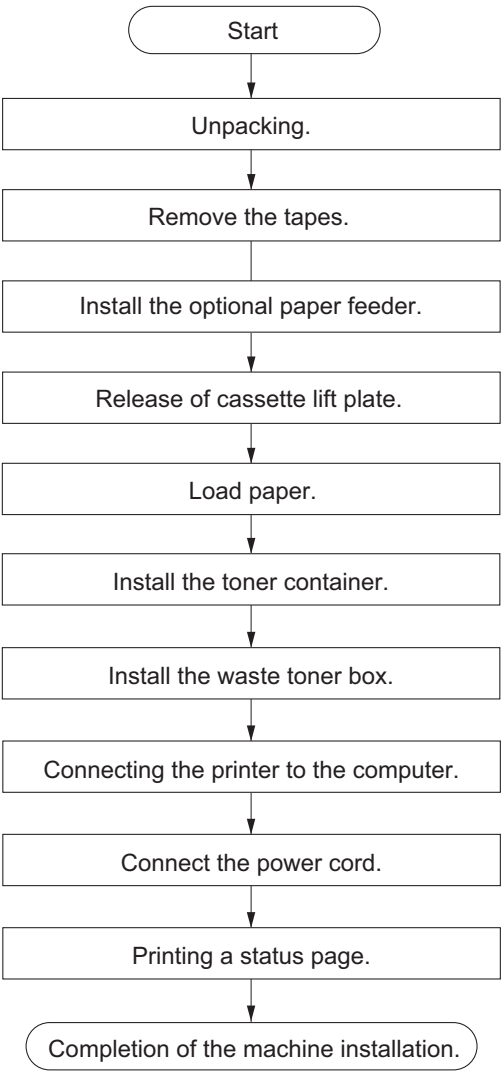


Figure 1-2-1 Installation dimensions

1-2-2    Unpacking and installation

(1) Installation procedure



## Unpacking.

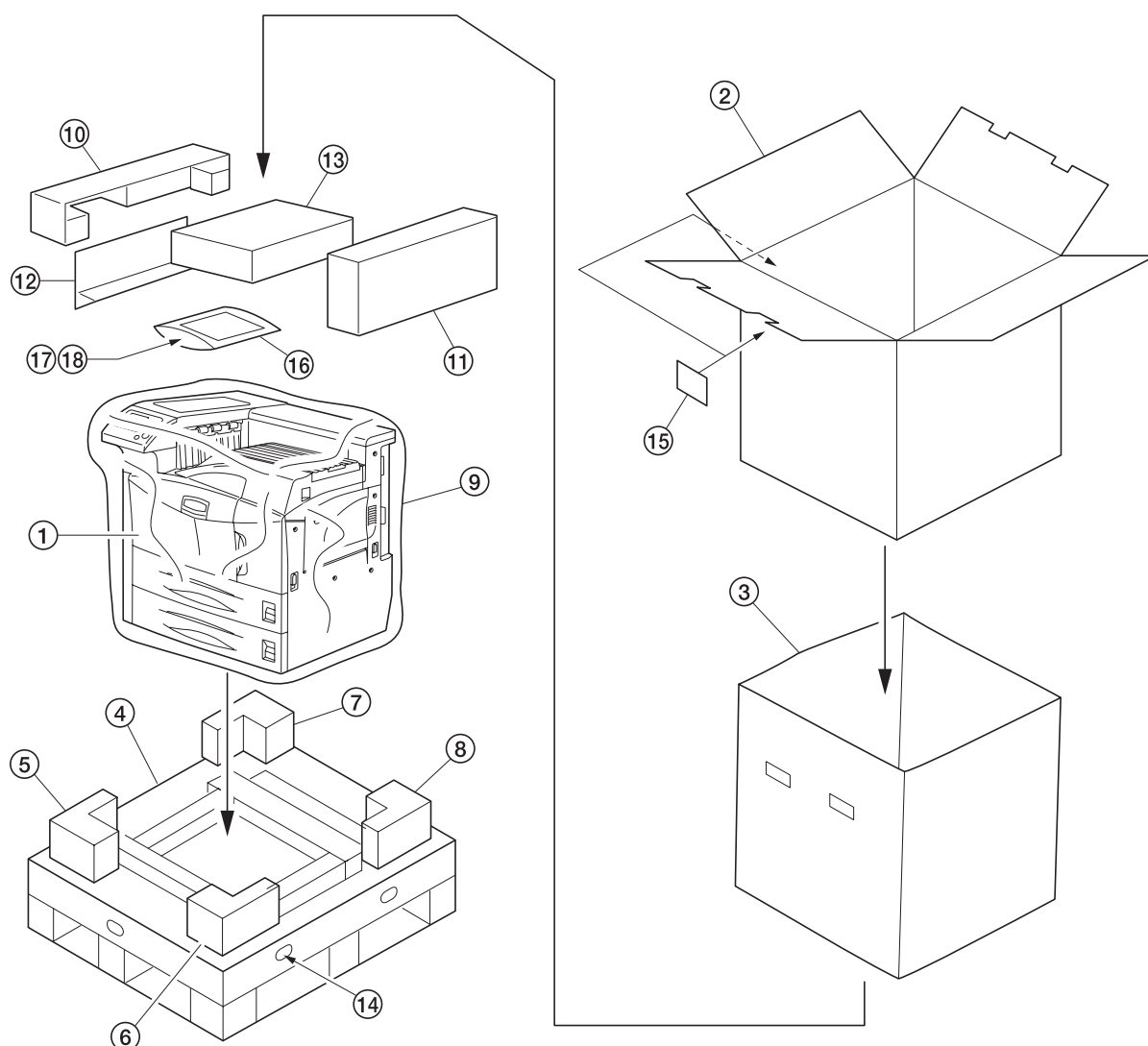


Figure 1-2-2 Unpacking

- |                           |                       |
|---------------------------|-----------------------|
| 1. Printer                | 10. Upper left pad    |
| 2. Outer case             | 11. Upper right pad   |
| 3. Inner frame            | 12. Spacer            |
| 4. Skid                   | 13. Toner container   |
| 5. Bottom front left pad  | 14. Hinge joints      |
| 6. Bottom front right pad | 15. Bar code labels   |
| 7. Bottom rear left pad   | 16. Plastic bag       |
| 8. Bottom rear right pad  | 17. Paper size plates |
| 9. Machine cover          | 18. Operation guide   |

Caution: Place the machine on a level surface.

Remove the tapes.

1. Remove three tapes.

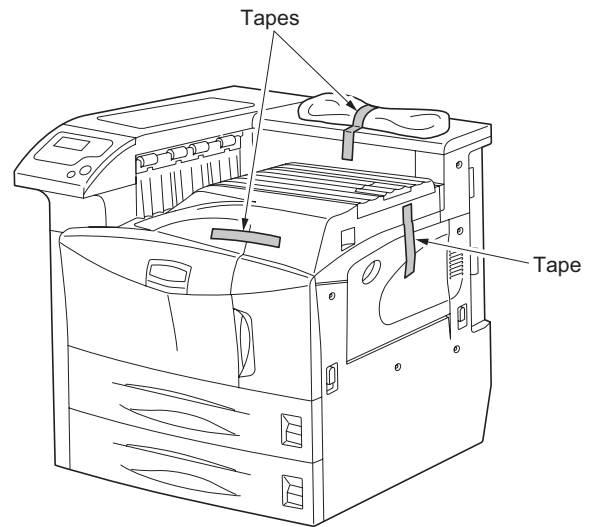


Figure 1-2-3

Install the optional paper feeder.

1. Install the optional paper feeder as necessary.

Release of cassette lift plate.

1. Pull cassette 1 and 2 out.  
Remove the lift plate stopper from each cassette and attach it to the storage location.  
When moving the machine, attach the lift plate in original position.

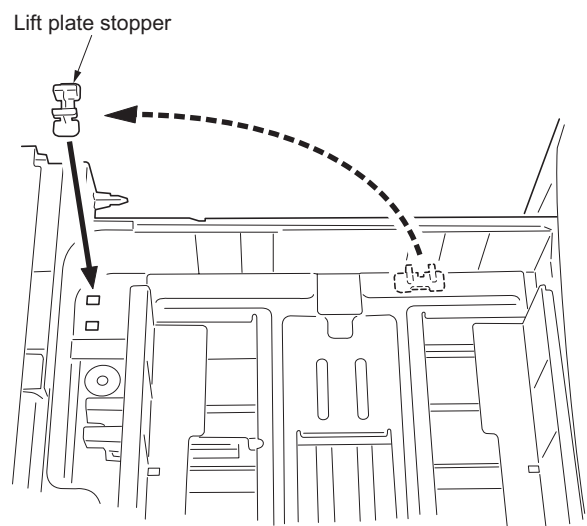
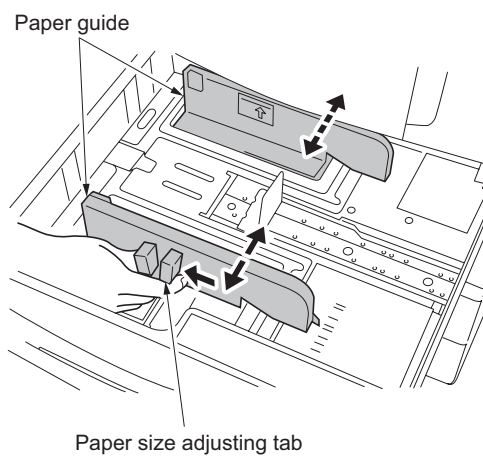


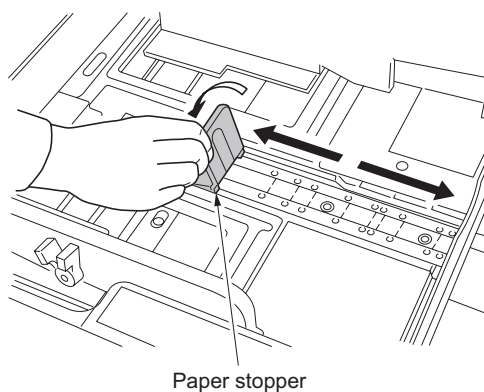
Figure 1-2-4

**Load paper.**

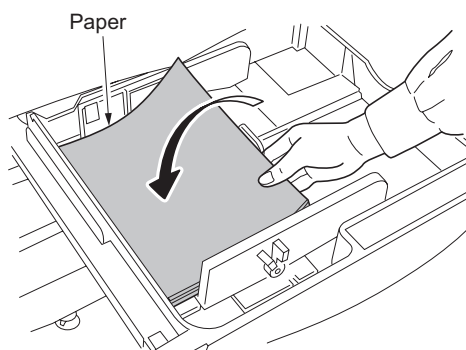
1. Pull the cassette out.
2. Holding the paper size adjusting tab both ends, move the paper guide to fit the paper.

**Figure 1-2-5**

3. Adjust the paper stopper to fit the paper size.

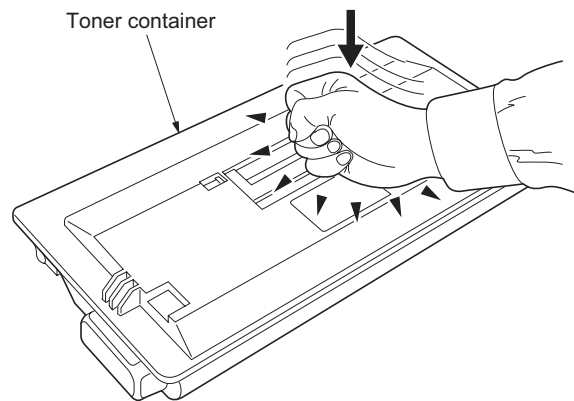
**Figure 1-2-6**

4. Align the paper flush against the left side of the cassette.

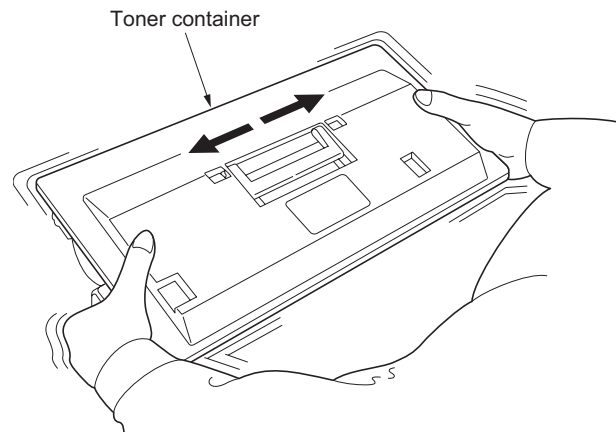
**Figure 1-2-7**

**Install the toner container.**

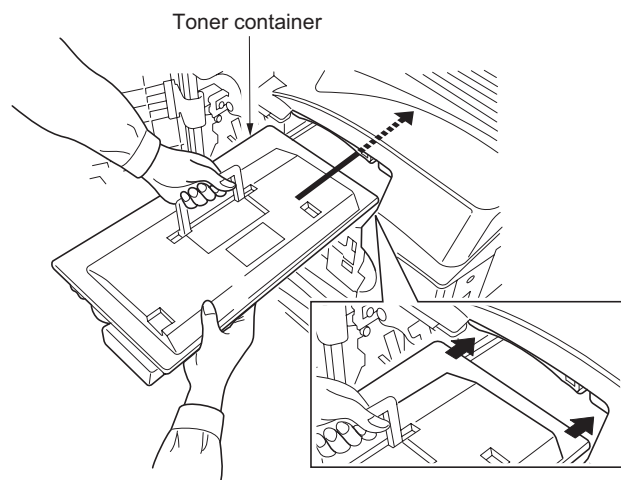
1. Open the front cover.
2. Lightly tap the top of the toner container five to six times.

**Figure 1-2-8**

3. Thoroughly shake the toner container (in the direction of the arrows) ten times or more to loosen and mix the toner inside.

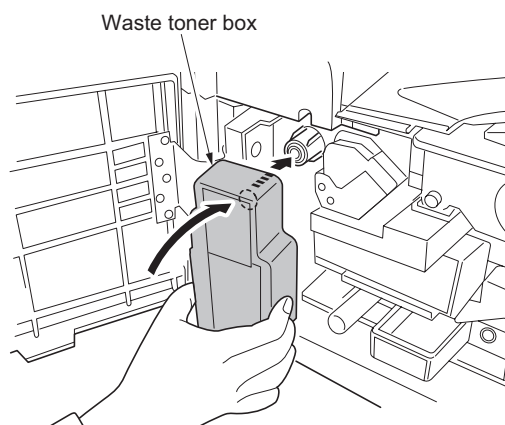
**Figure 1-2-9**

4. Gently push the toner container into the machine along the rails. Push the container all the way into the machine until it locks in place.

**Figure 1-2-10**

### Install the waste toner box.

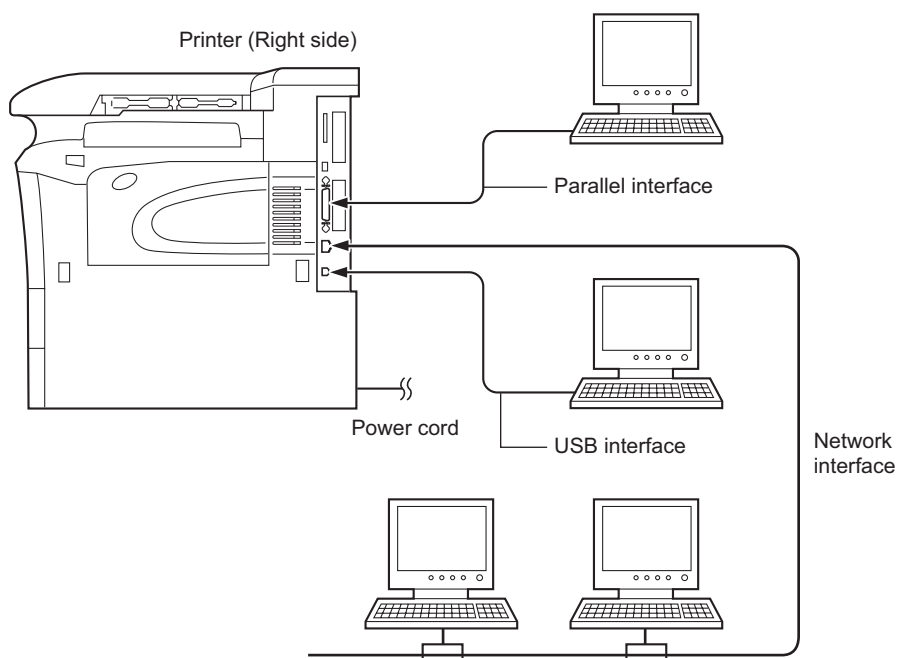
1. Install the waste toner box in the machine.
2. Close the front cover.



**Figure 1-2-11**

### Connecting the printer to the computer.

1. There are various ways of connecting the printer to the computer, such as through the parallel interface connector, USB interface connector, or through the network interface connector.



**Figure 1-2-12**

Connect the power cord.

1. Connect the power cord to the connector at the rear side of the machine.
2. Insert the power plug into the wall outlet.

Printing a status page.

1. Turn the main switch on and the toner is supplied to the development unit.
2. Press MENU key.
3. Display [Print Status page] using cursor up/down keys.
4. Press the OK key twice. A status page is printed.

Completion of the machine installation.



### 1-2-3 Installing the network interface card (option)

#### <Procedure>

1. Remove two screws and remove the interface slot cover (OPT).

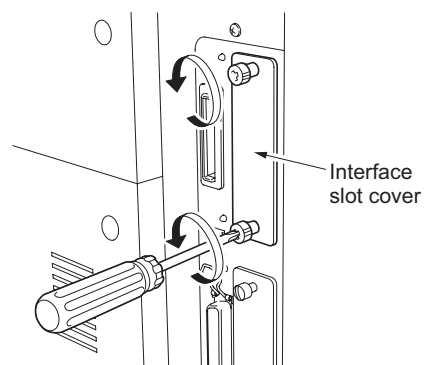


Figure 1-2-13

2. Insert the network interface card and secure it with the screws removed in step 1.

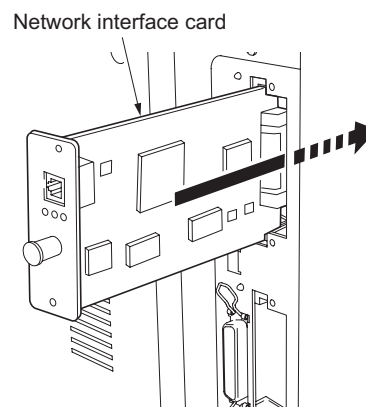


Figure 1-2-14

3. Connect the network cable.

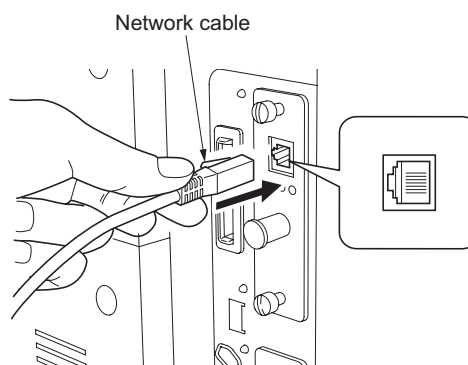


Figure 1-2-15

#### 1-2-4 Installing the hard disk unit (option)

##### <Procedure>

1. Remove two screws and remove the slot cover (HDD).

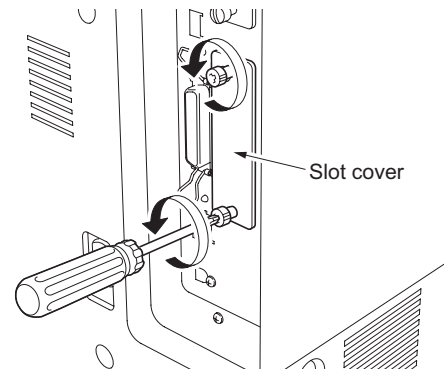


Figure 1-2-16

2. Insert the hard disk unit into the slot.

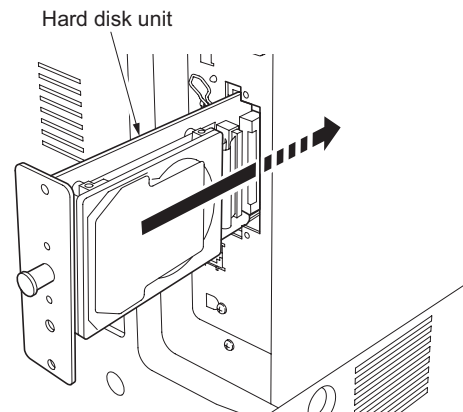


Figure 1-2-17

3. Tighten two screws to secure the hard disk unit.

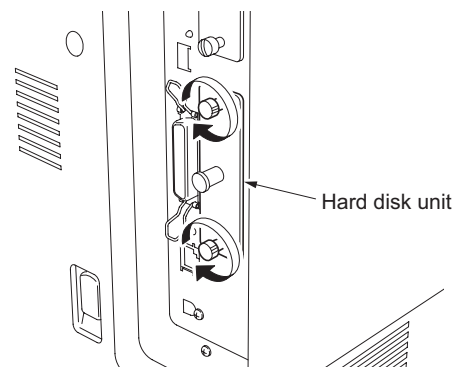


Figure 1-2-18

### 1-2-5 Installing the CompactFlash card (option)

#### <Procedure>

1. Turn the main switch off.  
Note: Do not insert or remove a CF card while power is on. If the CF card is removed while the machine is on, damage could result in the machine's electronics or the CF card.
2. Insert the CF card in the slot. Insert it as its label surface facing toward outside, connector end first. Push it in all the way.

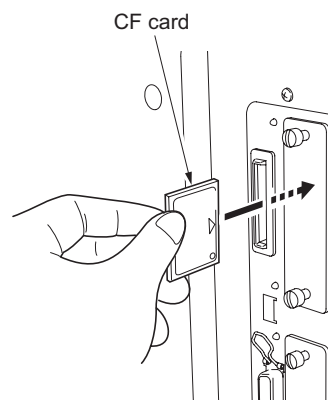


Figure 1-2-19

### 1-2-6 Installing the USB memory (option)

#### <Procedure>

1. Insert the USB memory in the USB memory slot.

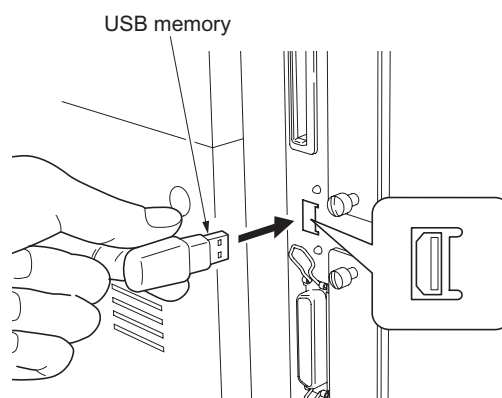


Figure 1-2-20

### 1-2-7 Installing the expansion memory (option)

#### <Procedure>

1. Remove the screw at the rear side of the machine and remove the memory slot cover.

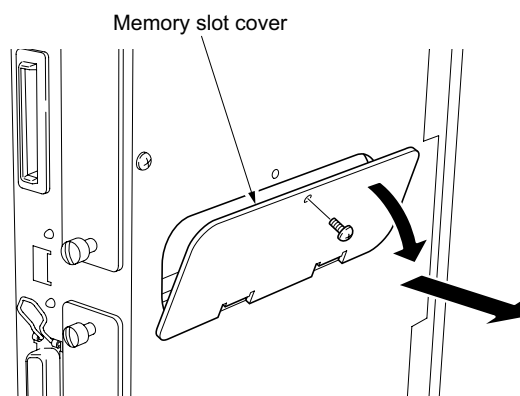


Figure 1-2-21

2. Open the clips on both ends of the DIMM socket.
3. Insert the DIMM into the socket, so that the notches on the DIMM align with the corresponding protrusions in the socket.
4. Close the clips of the DIMM socket to secure the DIMM.
5. Refit the memory slot cover.

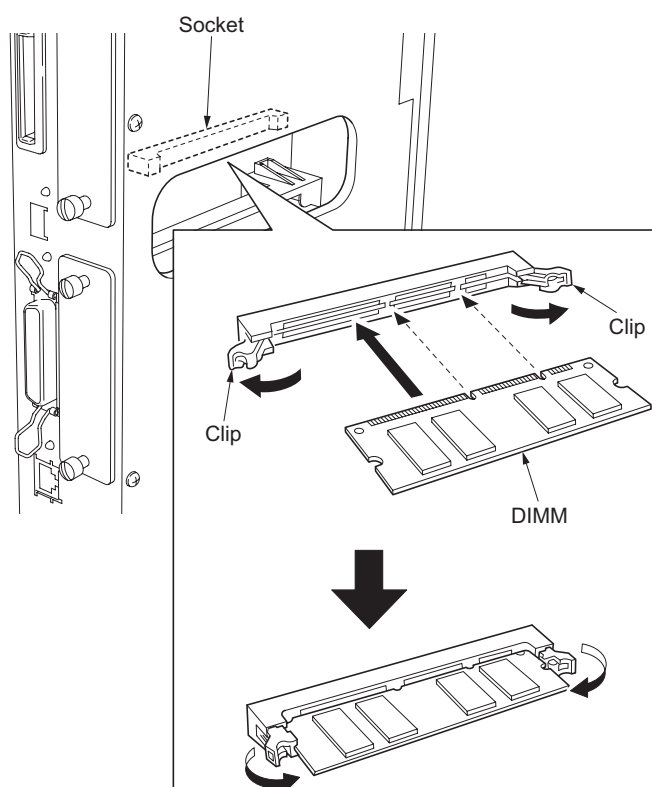


Figure 1-2-22

## 1-3-1 Maintenance mode

### (1) Maintenance mode

The printer is equipped with a maintenance function which can be used to maintain and service the machine.

To run the maintenance mode, Insert a compact flash card to which the maintenance program has been written into the printer and load the maintenance mode program to the printer using either method.

\* Turn off and on the printer. The maintenance program will be automatically loaded into the printer.

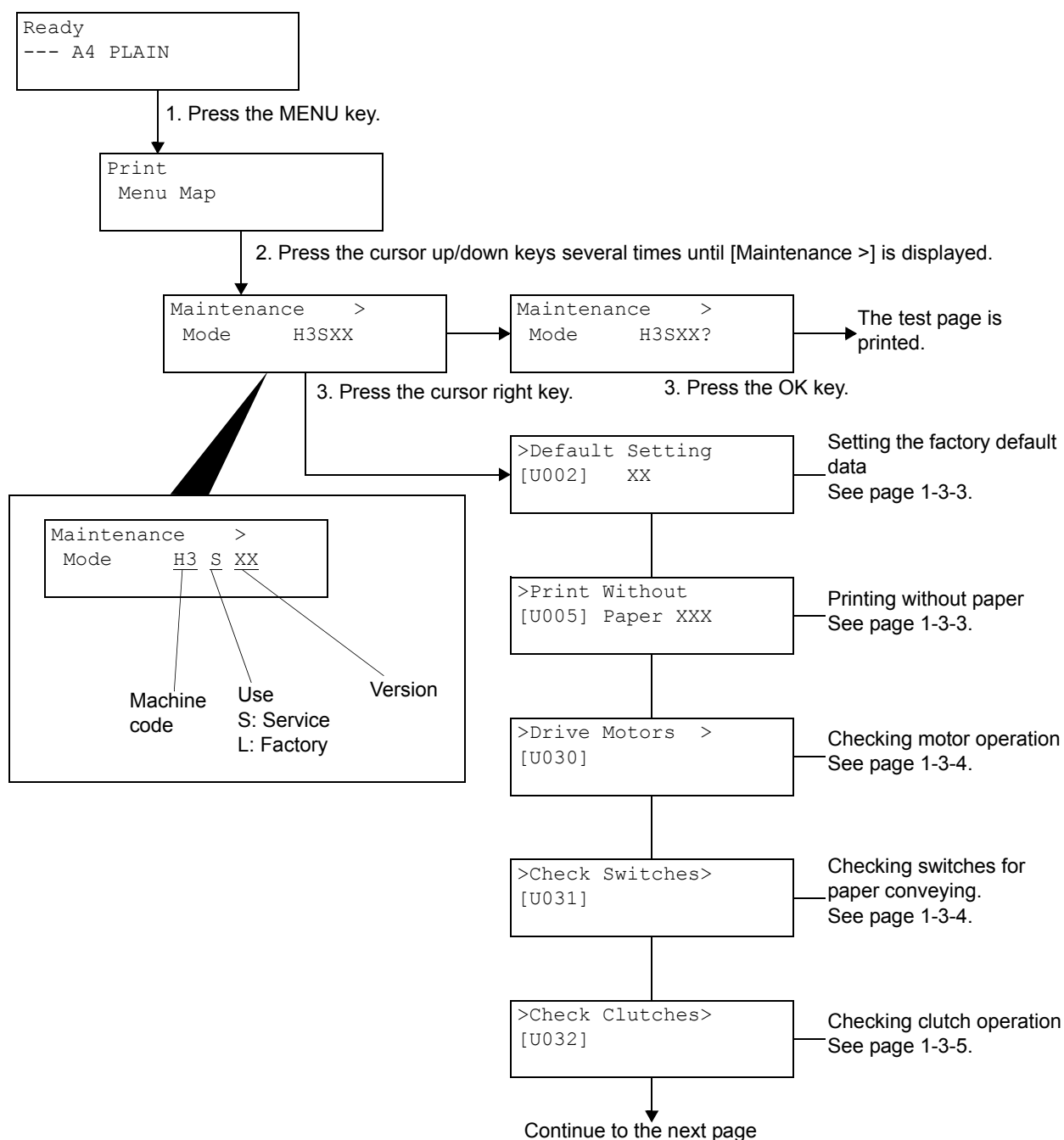
\* Load the maintenance mode program with read program.

\* Enter the MENU mode and display [>>Maintenance] in the [Memory Card>], then press the OK key.

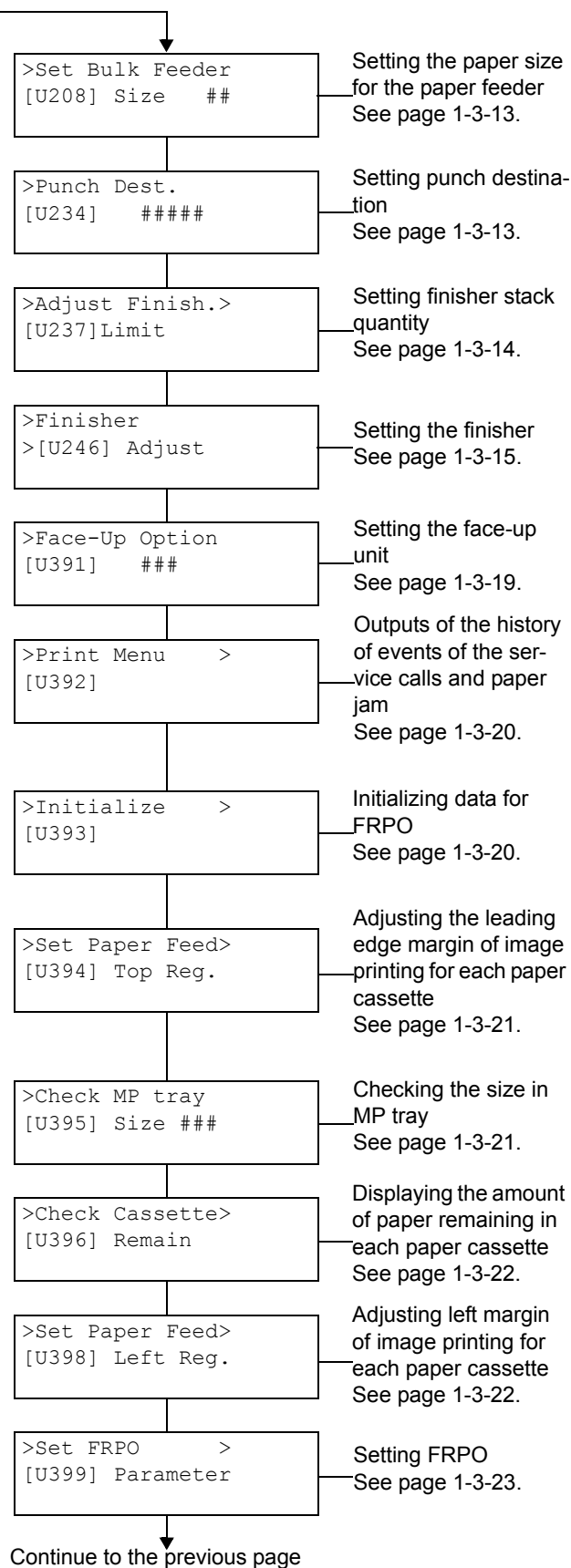
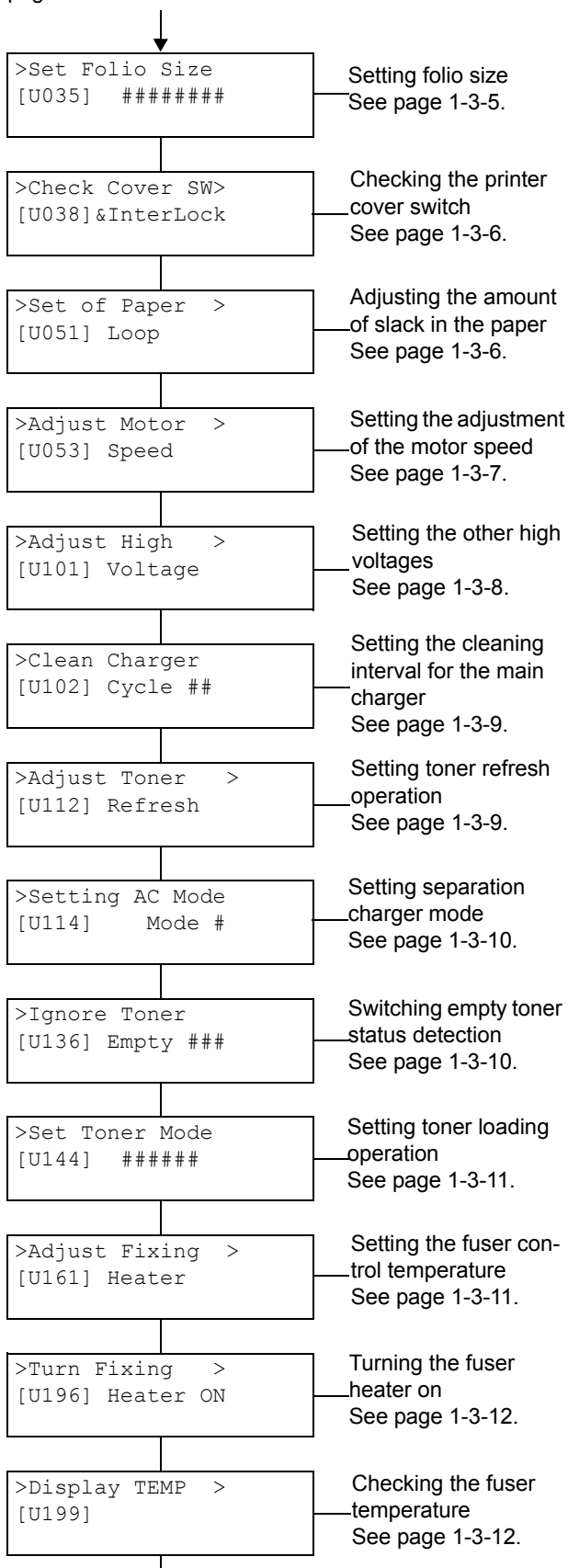
The maintenance mode can be executed from the MENU mode.

If the compact flash card is removed from the printer and then the printer is turned off and on, the maintenance mode program will be deleted from the printer and the maintenance mode will be deleted from the MENU mode.

### (2) Executing a maintenance item



Continue from the previous page



Continue to the previous page

## (3) Contents of maintenance mode items

Maintenance item No.	Description
U002	<p><b>Setting the factory default data</b></p> <p><b>Description</b> Restore the machine conditions to the factory default settings.</p> <p><b>Purpose</b> To return the machine settings to initial settings.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Enter the maintenance mode and press the cursor right key to display [U002].</li> <li>2. Press the OK key. [ ? ] will be displayed.</li> </ol> <div data-bbox="331 544 668 638" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <pre>&gt;Default Setting [U002] ? JP</pre> </div> <ol style="list-style-type: none"> <li>3. Press the cursor up/down keys to select [JP], [US], [EU] or [AP]. Initial setting: JP (Japanese specifications)</li> <li>4. Press the OK key. Each setting will be initialized. To keep the setting, press the CANCEL key.</li> </ol>
U005	<p><b>Printing without paper</b></p> <p><b>Description</b> Switches to the machine operation control without paper</p> <p><b>Purpose</b> To check the overall operation of the machine.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Enter the maintenance mode and press the cursor up/down keys to display [U005].</li> <li>2. Press the OK key. [ ? ] will be displayed.</li> </ol> <div data-bbox="331 1014 668 1108" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <pre>&gt;Print Without [U005] Paper?Off</pre> </div> <ol style="list-style-type: none"> <li>3. Press the cursor up/down keys to turn [On] or [Off] printing without paper. Initial setting: Off</li> <li>4. Press the OK key. The setting is set. To keep the setting, press the CANCEL key.</li> </ol>

Maintenance item No.	Description																		
<b>U030</b>	<p><b>Checking motor operation</b></p> <p><b>Description</b> Drives each motor.</p> <p><b>Purpose</b> To check the operation of each motor.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>Enter the maintenance mode and press the cursor up/down keys to display [U030].  <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> &gt;Drive Motors &gt; [U030] </div> </li> <li>Press the cursor right key to display the submenu screen.</li> <li>Press the cursor up/down keys to select the motor to activate.</li> </ol> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Submenu display</th><th style="text-align: left;">Motor</th></tr> </thead> <tbody> <tr> <td>&gt;&gt;FEED Motor</td><td>Paper feed motor (PFM)</td></tr> <tr> <td>&gt;&gt;MAIN Motor</td><td>Drive motor (DM)</td></tr> <tr> <td>&gt;&gt;EJECT MT (FW)</td><td>Eject motor (EM) rotates forward</td></tr> <tr> <td>&gt;&gt;EJECT MT (REW)</td><td>Eject motor (EM) rotates in reverse</td></tr> </tbody> </table> <ol style="list-style-type: none"> <li>Press the OK key. [Execute] will be displayed and operation will start.  <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> &gt;&gt;FEED Motor [030.1] </div> </li> <li>To stop operation, press the OK key or the CANCEL key.</li> </ol>	Submenu display	Motor	>>FEED Motor	Paper feed motor (PFM)	>>MAIN Motor	Drive motor (DM)	>>EJECT MT (FW)	Eject motor (EM) rotates forward	>>EJECT MT (REW)	Eject motor (EM) rotates in reverse								
Submenu display	Motor																		
>>FEED Motor	Paper feed motor (PFM)																		
>>MAIN Motor	Drive motor (DM)																		
>>EJECT MT (FW)	Eject motor (EM) rotates forward																		
>>EJECT MT (REW)	Eject motor (EM) rotates in reverse																		
<b>U031</b>	<p><b>Checking switches for paper conveying</b></p> <p><b>Description</b> Displays the on-off status of each paper detection switch on the paper path.</p> <p><b>Purpose</b> To check if the switches for paper conveying operate correctly.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>Enter the maintenance mode and press the cursor up/down keys to display [U031].  <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> &gt;Check Switches&gt; [U031] </div> </li> <li>Press the cursor right key to display the submenu screen.</li> <li>Press the cursor up/down keys to select the switch to check.</li> </ol> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Submenu display</th><th style="text-align: left;">Switches</th></tr> </thead> <tbody> <tr> <td>&gt;&gt;Check SW F1</td><td>Feed switch 1 (FSW1)</td></tr> <tr> <td>SW F2</td><td>Feed switch 2 (FSW2)</td></tr> <tr> <td>&gt;&gt;Check SW F3</td><td>Feed switch 3 (FSW3)</td></tr> <tr> <td>SW MP</td><td>MP feed switch (MPFSW)</td></tr> <tr> <td>&gt;&gt;Check SW RES</td><td>Registration switch (RSW)</td></tr> <tr> <td>SW EJE</td><td>Eject switch (ESW)</td></tr> <tr> <td>&gt;&gt;Check SW BRA</td><td>Feedshift switch (FSSW)</td></tr> <tr> <td>SW DUP</td><td>Duplex paper conveying switch (DUPPCSW)</td></tr> </tbody> </table> <ol style="list-style-type: none"> <li>Turn on or off the switch manually to check the switch status. 0: Off 1: On  <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> &gt;&gt;Check SW F1 :1 [031.1] SW F2 :1 </div> </li> </ol>	Submenu display	Switches	>>Check SW F1	Feed switch 1 (FSW1)	SW F2	Feed switch 2 (FSW2)	>>Check SW F3	Feed switch 3 (FSW3)	SW MP	MP feed switch (MPFSW)	>>Check SW RES	Registration switch (RSW)	SW EJE	Eject switch (ESW)	>>Check SW BRA	Feedshift switch (FSSW)	SW DUP	Duplex paper conveying switch (DUPPCSW)
Submenu display	Switches																		
>>Check SW F1	Feed switch 1 (FSW1)																		
SW F2	Feed switch 2 (FSW2)																		
>>Check SW F3	Feed switch 3 (FSW3)																		
SW MP	MP feed switch (MPFSW)																		
>>Check SW RES	Registration switch (RSW)																		
SW EJE	Eject switch (ESW)																		
>>Check SW BRA	Feedshift switch (FSSW)																		
SW DUP	Duplex paper conveying switch (DUPPCSW)																		



Maintenance item No.	Description																				
U032	<p><b>Checking clutch operation</b></p> <p><b>Description</b> Turns each clutch on.</p> <p><b>Purpose</b> To check the operation of each clutch.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Enter the maintenance mode and press the cursor up/down keys to display [U032].  <div data-bbox="331 477 668 568" style="border: 1px solid black; padding: 2px; margin: 5px 0;"> &gt;Check Clutches&gt;  [U032] </div> </li> <li>2. Press the cursor right key to display the submenu screen.</li> <li>3. Press the cursor up/down keys to select the clutch to operate.  <table border="1" data-bbox="331 647 1398 1025"> <thead> <tr> <th>Submenu display</th><th>Clutches</th></tr> </thead> <tbody> <tr><td>&gt;&gt;PF1 Clutch</td><td>Upper paper feed clutch (PFCL-U)</td></tr> <tr><td>&gt;&gt;PF2 Clutch</td><td>Lower paper feed clutch (PFCL-L)</td></tr> <tr><td>&gt;&gt;PFMP Clutch</td><td>MP paper feed clutch (MPPFCL)</td></tr> <tr><td>&gt;&gt;FEED1 Clutch</td><td>Feed clutch 1 (FCL1)</td></tr> <tr><td>&gt;&gt;FEED2 Clutch</td><td>Feed clutch 2 (FCL2)</td></tr> <tr><td>&gt;&gt;FEED3 Clutch</td><td>Feed clutch 3 (FCL3)</td></tr> <tr><td>&gt;&gt;MPTF Clutch</td><td>MP feed clutch (MPFCL)</td></tr> <tr><td>&gt;&gt;RES Clutch</td><td>Registration clutch (RCL)</td></tr> <tr><td>&gt;&gt;DUPF Clutch</td><td>Duplex feed clutch (DUPFCL)</td></tr> </tbody> </table> </li> <li>4. Press the OK key. [Execute] will be displayed and operation will start.  <div data-bbox="331 1072 668 1164" style="border: 1px solid black; padding: 2px; margin: 5px 0;"> &gt;&gt;PF1 Clutch  [032.1] Execute </div> </li> <li>5. To stop operation, press the OK key or the CANCEL key.</li> </ol>	Submenu display	Clutches	>>PF1 Clutch	Upper paper feed clutch (PFCL-U)	>>PF2 Clutch	Lower paper feed clutch (PFCL-L)	>>PFMP Clutch	MP paper feed clutch (MPPFCL)	>>FEED1 Clutch	Feed clutch 1 (FCL1)	>>FEED2 Clutch	Feed clutch 2 (FCL2)	>>FEED3 Clutch	Feed clutch 3 (FCL3)	>>MPTF Clutch	MP feed clutch (MPFCL)	>>RES Clutch	Registration clutch (RCL)	>>DUPF Clutch	Duplex feed clutch (DUPFCL)
Submenu display	Clutches																				
>>PF1 Clutch	Upper paper feed clutch (PFCL-U)																				
>>PF2 Clutch	Lower paper feed clutch (PFCL-L)																				
>>PFMP Clutch	MP paper feed clutch (MPPFCL)																				
>>FEED1 Clutch	Feed clutch 1 (FCL1)																				
>>FEED2 Clutch	Feed clutch 2 (FCL2)																				
>>FEED3 Clutch	Feed clutch 3 (FCL3)																				
>>MPTF Clutch	MP feed clutch (MPFCL)																				
>>RES Clutch	Registration clutch (RCL)																				
>>DUPF Clutch	Duplex feed clutch (DUPFCL)																				
U035	<p><b>Setting folio size</b></p> <p><b>Description</b> Sets the type of paper when using Folio or Oficioll.</p> <p><b>Purpose</b> To prevent image loss that occurs depending on the difference of paper type.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Enter the maintenance mode and press the cursor up/down keys to display [U035].</li> <li>2. Press the OK key. [ ? ] will be displayed.</li> <li>3. Press the cursor up/down keys to select folio or oficioll.  <div data-bbox="331 1482 668 1574" style="border: 1px solid black; padding: 2px; margin: 5px 0;"> &gt;Set Folio Size  [035] ?Folio </div> </li> <li>4. Press the OK key. The setting is set. To keep the setting, press the CANCEL key.</li> </ol>																				

Maintenance item No.	Description																				
U038	<p><b>Checking the printer cover switch</b></p> <p><b>Description</b> Displays the on-off status of each cover switch.</p> <p><b>Purpose</b> To check if the switches of covers operate correctly.</p> <p><b>Method</b></p> <div><div>1. Enter the maintenance mode and press the cursor up/down keys to display [U038].</div><div><div>&gt;Check Cover SW&gt; [038]&amp;InterLock</div></div><div><div>2. Press the cursor left key to display the submenu screen.</div><div>3. Press the cursor up/down keys to select the switch to check.</div></div><table><tr><th>Submenu display</th><th>Switches</th></tr><tr><td>&gt;&gt;Left Cover 1</td><td>Left cover 1 switch (LC1SW)</td></tr><tr><td>2</td><td>Left cover 2 switch (LC2SW)</td></tr><tr><td>&gt;&gt;Front Cover</td><td>Front cover switch (FRCSW)</td></tr><tr><td>Int.Lck</td><td>Safety switch 1,2 (SSW1,2)</td></tr></table><div><div>4. Open and close the cover to check the switch status. 0: Off 1: On</div><div><div>&gt;&gt;Left Cover 1:1 [038.1] 2:1</div></div></div></div>	Submenu display	Switches	>>Left Cover 1	Left cover 1 switch (LC1SW)	2	Left cover 2 switch (LC2SW)	>>Front Cover	Front cover switch (FRCSW)	Int.Lck	Safety switch 1,2 (SSW1,2)										
Submenu display	Switches																				
>>Left Cover 1	Left cover 1 switch (LC1SW)																				
2	Left cover 2 switch (LC2SW)																				
>>Front Cover	Front cover switch (FRCSW)																				
Int.Lck	Safety switch 1,2 (SSW1,2)																				
U051	<p><b>Adjusting the amount of slack in the paper</b></p> <p><b>Description</b> Adjusts the amount of slack in the paper.</p> <p><b>Purpose</b> Make the adjustment if the leading edge of the copy image is missing or varies randomly, or if the copy paper is Z-folded.</p> <p><b>Method</b></p> <div><div>1. Enter the maintenance mode and press the cursor up/down keys to display [U051].</div><div><div>&gt;Set of Paper &gt; [U051] Loop</div></div><div><div>2. Press the cursor right key to display the submenu screen.</div><div>3. Press the cursor up/down keys to select the item for which the preset value is to be changed.</div></div><table><tr><th>Submenu display</th><th>Description</th><th>Setting range</th><th>Initial setting</th></tr><tr><td>&gt;&gt;RES FEEDER</td><td>Paper feed from cassette</td><td>-30 to 20</td><td>0</td></tr><tr><td>&gt;&gt;RES MPT</td><td>Paper feed from MP tray</td><td>-30 to 20</td><td>0</td></tr><tr><td>&gt;&gt;RES DUP</td><td>Duplex mode (second)</td><td>-30 to 20</td><td>0</td></tr><tr><td>&gt;&gt;RES MPT (THICK)</td><td>Paper feed from MP tray using thick paper</td><td>-30 to 20</td><td>0</td></tr></table><div><div>4. Press the OK key. [ _ ] will blink.</div><div><div>&gt;&gt;RES FEEDER [051.1] ##</div></div><div><div>5. Press the cursor right/left keys to move [ _ ] to the digit position at which the value is to be changed and press the cursor up/down keys to change the preset value. The greater the value, the larger the amount of slack; the smaller the value, the smaller the amount of slack.</div><div>6. Press the OK key. The value is set. To keep the preset value, press the CANCEL key.</div></div></div></div>	Submenu display	Description	Setting range	Initial setting	>>RES FEEDER	Paper feed from cassette	-30 to 20	0	>>RES MPT	Paper feed from MP tray	-30 to 20	0	>>RES DUP	Duplex mode (second)	-30 to 20	0	>>RES MPT (THICK)	Paper feed from MP tray using thick paper	-30 to 20	0
Submenu display	Description	Setting range	Initial setting																		
>>RES FEEDER	Paper feed from cassette	-30 to 20	0																		
>>RES MPT	Paper feed from MP tray	-30 to 20	0																		
>>RES DUP	Duplex mode (second)	-30 to 20	0																		
>>RES MPT (THICK)	Paper feed from MP tray using thick paper	-30 to 20	0																		

Maintenance item No.	Description																
U053	<p><b>Setting the adjustment of the motor speed</b></p> <p><b>Description</b> Performs fine adjustment of the speeds of the motors.</p> <p><b>Purpose</b> To adjust the speed of the respective motors when the magnification is not correct.</p> <p><b>Method</b></p> <p>1. Enter the maintenance mode and press the cursor up/down keys to display [U053].</p> <div><pre>&gt;Adjust Motor  &gt; [U053] Speed</pre></div> <p>2. Press the cursor left key to display the submenu screen.</p> <p>3. Press the cursor up/down keys to select an item for which the preset value is to be changed.</p> <table><tr><th>Submenu display</th><th>Description</th><th>Setting range</th><th>Initial setting</th></tr><tr><td>&gt;&gt;Main Motor</td><td>Drive motor speed adjustment</td><td>-40 to 40</td><td>0</td></tr><tr><td>&gt;&gt;Eject Motor</td><td>Eject motor speed adjustment</td><td>-7 to 15</td><td>0</td></tr><tr><td>&gt;&gt;Polygon Motor</td><td>Polygon motor speed adjustment</td><td>-20 to 20</td><td>0</td></tr></table> <p>4. Press the OK key. [ _ ] will blink.</p> <div><pre>&gt;&gt;Main Motor [053.1]    ##</pre></div> <p>5. Press the cursor right/left keys to move [ _ ] to the digit position at which the value is to be changed and press the cursor up/down keys to change the preset value.</p> <p>MAIN MOTOR Increasing the setting makes the image longer in the auxiliary scanning direction, and decreasing it makes the image shorter in the auxiliary scanning direction.</p> <p>POLYGON MOTOR Increasing the setting makes the image shorter in the main scanning direction and longer in the auxiliary scanning direction; decreasing the setting makes the image longer in the main scanning direction and shorter in the auxiliary scanning direction.</p> <p>EJECT MOTOR Normally no change is necessary but this can be used as countermeasures against wrinkles (waving) of paper.</p> <p>6. Press the OK key. The value is set. To keep the preset value, press the CANCEL key.</p>	Submenu display	Description	Setting range	Initial setting	>>Main Motor	Drive motor speed adjustment	-40 to 40	0	>>Eject Motor	Eject motor speed adjustment	-7 to 15	0	>>Polygon Motor	Polygon motor speed adjustment	-20 to 20	0
Submenu display	Description	Setting range	Initial setting														
>>Main Motor	Drive motor speed adjustment	-40 to 40	0														
>>Eject Motor	Eject motor speed adjustment	-7 to 15	0														
>>Polygon Motor	Polygon motor speed adjustment	-20 to 20	0														

Maintenance item No.	Description																								
U101	<p><b>Setting the other high voltages</b></p> <p><b>Description</b> Sets the developing bias control voltage, the transfer control voltage, and the separation control voltage or checks the output of these voltages.</p> <p><b>Purpose</b> To check the developing bias, the transfer voltage and the separation voltage or to take measures against drop of image density or background fog.</p> <p><b>Method</b></p> <p>1. Enter the maintenance mode and press the cursor up/down keys to display [U101].</p> <div><div>&gt;Adjust High &gt; [U101] Voltage</div></div> <p>2. Press the cursor right key to display the submenu screen.</p> <p>3. Press the cursor up/down keys to select an item for which the preset value is to be changed.</p> <table><tr><th>Submenu display</th><th>Description</th><th>Setting range</th><th>Initial setting</th></tr><tr><td>&gt;&gt;DEV BIAS</td><td>Developing bias AC component frequency at image formation</td><td>20 to 32</td><td>28</td></tr><tr><td>&gt;&gt;DEV SBIAS</td><td>Developing shift bias potential at image formation</td><td>0 to 3</td><td>1</td></tr><tr><td>&gt;&gt;DEV DUTY</td><td>Developing bias AC component duty at image formation</td><td>0 to 100</td><td>50</td></tr><tr><td>&gt;&gt;TC DATA</td><td>Transfer control voltage</td><td>0 to 300</td><td>130</td></tr><tr><td>&gt;&gt;SC DATA</td><td>Separation control voltage</td><td>0 to 60</td><td>20</td></tr></table> <p>Increasing the DEV BIAS setting makes the image darker; decreasing it makes the image lighter. Increasing the DEV SBIAS setting makes the image darker. Increasing the DEV DUTY setting makes the image lighter; decreasing it makes the image darker. Increasing the TC DATA setting makes the transfer voltage higher, and decreasing it makes the voltage lower. Increasing the SC DATA setting makes the separation voltage higher, and decreasing it makes the voltage lower.</p> <p>4. Press the OK key. [ _ ] will blink.</p> <div><div>&gt;&gt;DEV BIAS [101.1]      ##</div></div> <p>5. Press the cursor left/right keys to move [ _ ] to the digit position at which the value is to be changed and press the cursor up/down keys to change the preset value.</p> <p>6. Press the OK key. The value is set. To keep the preset value, press the CANCEL key.</p>	Submenu display	Description	Setting range	Initial setting	>>DEV BIAS	Developing bias AC component frequency at image formation	20 to 32	28	>>DEV SBIAS	Developing shift bias potential at image formation	0 to 3	1	>>DEV DUTY	Developing bias AC component duty at image formation	0 to 100	50	>>TC DATA	Transfer control voltage	0 to 300	130	>>SC DATA	Separation control voltage	0 to 60	20
Submenu display	Description	Setting range	Initial setting																						
>>DEV BIAS	Developing bias AC component frequency at image formation	20 to 32	28																						
>>DEV SBIAS	Developing shift bias potential at image formation	0 to 3	1																						
>>DEV DUTY	Developing bias AC component duty at image formation	0 to 100	50																						
>>TC DATA	Transfer control voltage	0 to 300	130																						
>>SC DATA	Separation control voltage	0 to 60	20																						

Maintenance item No.	Description														
U102	<p><b>Setting the cleaning interval for the main charger</b></p> <p><b>Description</b> Changes the intervals at which the main charger is cleaned.</p> <p><b>Purpose</b> To change the setting when the background is visible.</p> <p><b>Setting</b></p> <div><div>1. Enter the maintenance mode and press the cursor up/down keys to display [U102].</div><div>2. Press the OK key. [ ? ] will be displayed.</div><div><div>&gt;Clean Charger [U102] Cycle ? 05</div></div><div>3. Change the setting using the cursor up/down keys.</div></div> <table><tr><th>Description</th><th>Setting range</th><th>Initial setting</th></tr><tr><td>Main charger cleaning operation intervals</td><td>00 to 20 (unit: 1000 pages)</td><td>5</td></tr></table> <div>When set to 0, the cleaning for the main charger is not operated.</div> <div><div>4. Press the OK key. Each setting will be initialized.</div><div>To keep the setting, press the CANCEL key.</div></div>			Description	Setting range	Initial setting	Main charger cleaning operation intervals	00 to 20 (unit: 1000 pages)	5						
Description	Setting range	Initial setting													
Main charger cleaning operation intervals	00 to 20 (unit: 1000 pages)	5													
U112	<p><b>Setting toner refresh operation</b></p> <p><b>Description</b> Sets the toner refresh operation time and the developing bias on time at power on and after printing.</p> <p><b>Purpose</b> To change the toner refresh operation time and the developing bias on time at power on and after printing if image flow level is low.</p> <p><b>Setting</b></p> <div><div>1. Enter the maintenance mode and press the cursor up/down keys to display [U112].</div><div><div>&gt;Adjust Toner &gt; [U112] Refresh</div></div><div>2. Press the cursor right key to display the submenu screen.</div><div>3. Press the cursor up/down keys to select an item for which the preset value is to be changed.</div></div> <table><tr><th>Submenu display</th><th>Description</th><th>Setting range</th><th>Initial setting</th></tr><tr><td>&gt;&gt;ON TIME</td><td>Toner refresh operation time</td><td>50 to 150 (sec)</td><td>120</td></tr><tr><td>&gt;&gt;BIAS TIME</td><td>Developing bias on time</td><td>500 to 1000 (msec)</td><td>540</td></tr></table> <div><div>4. Press the OK key. [ _ ] will blink.</div><div><div>&gt;&gt;ON TIME [112.1] ###Sec.</div></div><div>5. Press the cursor right/left keys to move [ _ ] to the digit position at which the value is to be changed and press the cursor up/down keys to change the preset value.</div><div>6. Press the OK key. The value is set.</div><div>To keep the preset value, press the CANCEL key.</div></div>			Submenu display	Description	Setting range	Initial setting	>>ON TIME	Toner refresh operation time	50 to 150 (sec)	120	>>BIAS TIME	Developing bias on time	500 to 1000 (msec)	540
Submenu display	Description	Setting range	Initial setting												
>>ON TIME	Toner refresh operation time	50 to 150 (sec)	120												
>>BIAS TIME	Developing bias on time	500 to 1000 (msec)	540												

Maintenance item No.	Description								
U114	<p><b>Setting separation charger mode</b></p> <p><b>Description</b> Sets the separation charger mode.</p> <p><b>Purpose</b> If the fuser offset occurs, change the setting.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Enter the maintenance mode and press the cursor up/down keys to display [U114].</li> </ol> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <pre>&gt;Setting AC Mode [U114]      Mode 1</pre> </div> <ol style="list-style-type: none"> <li>2. Press the OK key. [ ? ] will be displayed.</li> <li>3. Press the cursor up/down keys to select the mode.</li> </ol> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Display</th><th style="text-align: left;">Description</th></tr> </thead> <tbody> <tr> <td>MODE0</td><td>Complete separation mode</td></tr> <tr> <td>MODE1</td><td>Edging separation mode</td></tr> <tr> <td>MODE2</td><td>Switches complete and edging separation mode with environmental temperature.</td></tr> </tbody> </table> <p>Initial setting: MODE1</p> <ol style="list-style-type: none"> <li>4. Press the OK key. The setting is set. To keep the preset value, press the CANCEL key.</li> </ol>	Display	Description	MODE0	Complete separation mode	MODE1	Edging separation mode	MODE2	Switches complete and edging separation mode with environmental temperature.
Display	Description								
MODE0	Complete separation mode								
MODE1	Edging separation mode								
MODE2	Switches complete and edging separation mode with environmental temperature.								
U136	<p><b>Switching empty toner status detection</b></p> <p><b>Description</b> Sets whether empty toner status detection is performed when the amount of toner remaining in the toner container is small.</p> <p><b>Purpose</b> If this item is set to OFF, when the amount of toner remaining in the toner container is small, printing can be continued using the toner in the developer unit.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Enter the maintenance mode and press the cursor up/down keys to display [U136].</li> <li>2. Press the OK key. [ ? ] will be displayed.</li> <li>3. Press the cursor up/down keys to turn on or off empty toner status detection.</li> </ol> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <pre>&gt;Ignore Toner [U136] Empty?Off</pre> </div> <p>Initial setting: Off</p> <ol style="list-style-type: none"> <li>4. Press the OK key. The setting is set. To keep the preset value, press the CANCEL key.</li> </ol>								

Maintenance item No.	Description																
U144	<p><b>Setting toner loading operation</b></p> <p><b>Description</b> Sets toner loading operation after completion of printing.</p> <p><b>Purpose</b> To set whether or not toner is loaded on the drum after low density printing. Normally no change is necessary from the initial setting.</p> <p><b>Setting</b></p> <p>1. Enter the maintenance mode and press the cursor up/down keys to display [U144].</p> <div><pre>&gt;Set Toner Mode [U144] Mode 2</pre></div> <p>2. Press the OK key. [ ? ] will be displayed.</p> <p>3. Select the item to be set using the cursor up/down keys.</p> <table><tr><th>Display</th><th>Description</th></tr><tr><td>Mode 0</td><td>Toner not loaded</td></tr><tr><td>Mode 1</td><td>Toner loaded after simplex or duplex printing</td></tr><tr><td>Mode 2</td><td>Toner loaded after simplex printing</td></tr></table> <p>Initial setting: Mode 2</p> <p>4. Press the OK key. The setting is set. To keep the preset value, press the CANCEL key.</p>	Display	Description	Mode 0	Toner not loaded	Mode 1	Toner loaded after simplex or duplex printing	Mode 2	Toner loaded after simplex printing								
Display	Description																
Mode 0	Toner not loaded																
Mode 1	Toner loaded after simplex or duplex printing																
Mode 2	Toner loaded after simplex printing																
U161	<p><b>Setting the fuser control temperature</b></p> <p><b>Description</b> Changes the fuser control temperature.</p> <p><b>Purpose</b> Normally no change is necessary. However, can be used to prevent curling or creasing of paper, or solve a fuser problem on thick paper.</p> <p><b>Method</b></p> <p>1. Enter the maintenance mode and press the cursor up/down keys to display [U161].</p> <div><pre>&gt;Adjust Fixing &gt; [U161] Heater</pre></div> <p>2. Press the cursor right key to display the submenu screen.</p> <p>3. Press the cursor up/down keys to select the item for which the preset value is to be changed.</p> <table><tr><th>Submenu display</th><th>Description</th><th>Setting range</th><th>Initial setting</th></tr><tr><td>&gt;&gt;Drive St. TEMP</td><td>Driving start temperature when warm-up starts</td><td>0 to 255 (°C)</td><td>185</td></tr><tr><td>&gt;&gt;Ready TEMP (C)</td><td>Control temperature for displaying [Ready for printing.]</td><td>0 to 255 (°C)</td><td>200</td></tr><tr><td>&gt;&gt;Print TEMP (C)</td><td>Control temperature during printing</td><td>0 to 255 (°C)</td><td>200</td></tr></table> <p>4. Press the OK key. [ _ ] will blink.</p> <div><pre>&gt;&gt;Drive St. TEMP [161.1] ###</pre></div> <p>5. Press the cursor right/left keys to move [ _ ] to the digit position at which the value is to be changed and press the cursor up/down keys to change the preset value.</p> <p>6. Press the OK key. The value is set. To keep the preset value, press the CANCEL key.</p>	Submenu display	Description	Setting range	Initial setting	>>Drive St. TEMP	Driving start temperature when warm-up starts	0 to 255 (°C)	185	>>Ready TEMP (C)	Control temperature for displaying [Ready for printing.]	0 to 255 (°C)	200	>>Print TEMP (C)	Control temperature during printing	0 to 255 (°C)	200
Submenu display	Description	Setting range	Initial setting														
>>Drive St. TEMP	Driving start temperature when warm-up starts	0 to 255 (°C)	185														
>>Ready TEMP (C)	Control temperature for displaying [Ready for printing.]	0 to 255 (°C)	200														
>>Print TEMP (C)	Control temperature during printing	0 to 255 (°C)	200														

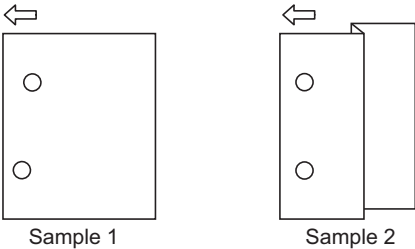
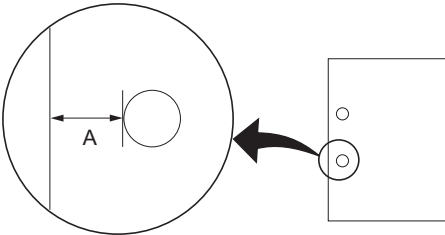
Maintenance item No.	Description										
<b>U196</b>	<p><b>Turning the fuser heater on</b></p> <p><b>Description</b> Turns the fuser heater M or S on.</p> <p><b>Purpose</b> To check fuser heaters turning on.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>Enter the maintenance mode and press the cursor up/down keys to display [U196]. <div> <div>&gt;Turn Fixing &gt;</div> <div>[U196] Heater ON</div> </div> </li> <li>Press the cursor right key to display the submenu screen.</li> <li>Press the cursor up/down keys to select the heater to turn on. <table border="1"> <thead> <tr> <th>Submenu display</th><th>Description</th></tr> </thead> <tbody> <tr> <td>&gt;&gt;Main Heater ON</td><td>Fuser heater M (FH-M)</td></tr> <tr> <td>&gt;&gt;Sub Heater ON</td><td>Fuser heater S (FH-S)</td></tr> </tbody> </table> </li> <li>Press the OK key. [Execute] will be displayed and the heater will be turned on for three seconds.</li> </ol> <p><b>Note</b> Do not open or close the cover when the heater is on. Either do not turn on the heater continuously.</p> <div> <div>&gt;&gt;Main Heater ON</div> <div>[196.1] Execute</div> </div> <ol style="list-style-type: none"> <li>To turn off the heater, press the OK key or the CANCEL key.</li> </ol>	Submenu display	Description	>>Main Heater ON	Fuser heater M (FH-M)	>>Sub Heater ON	Fuser heater S (FH-S)				
Submenu display	Description										
>>Main Heater ON	Fuser heater M (FH-M)										
>>Sub Heater ON	Fuser heater S (FH-S)										
<b>U199</b>	<p><b>Checking the fuser temperature</b></p> <p><b>Description</b> Displays the fuser temperature, the ambient temperature and the absolute humidity.</p> <p><b>Purpose</b> To check the fuser temperature, the ambient temperature and the absolute humidity.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>Enter the maintenance mode and press the cursor up/down keys to display [U199]. <div> <div>&gt;Display TEMP &gt;</div> <div>[U199]</div> </div> </li> <li>Press the cursor right key to display the submenu screen. <div> <div>&gt;&gt;FIX CENT. TEMP</div> <div>[U199.1] ###</div> </div> </li> <li>Press the cursor up/down keys to select the item to check. <table border="1"> <thead> <tr> <th>Submenu display</th><th>Description</th></tr> </thead> <tbody> <tr> <td>&gt;&gt;FIX CENT. TEMP</td><td>Fuser center temperature (°C)</td></tr> <tr> <td>&gt;&gt;FIX EDGE TEMP</td><td>Fuser edge temperature (°C)</td></tr> <tr> <td>&gt;&gt;SURROUND TEMP</td><td>Ambient temperature (°C)</td></tr> <tr> <td>&gt;&gt;HUMIDITY</td><td>Absolute humidity (%)</td></tr> </tbody> </table> </li> </ol>	Submenu display	Description	>>FIX CENT. TEMP	Fuser center temperature (°C)	>>FIX EDGE TEMP	Fuser edge temperature (°C)	>>SURROUND TEMP	Ambient temperature (°C)	>>HUMIDITY	Absolute humidity (%)
Submenu display	Description										
>>FIX CENT. TEMP	Fuser center temperature (°C)										
>>FIX EDGE TEMP	Fuser edge temperature (°C)										
>>SURROUND TEMP	Ambient temperature (°C)										
>>HUMIDITY	Absolute humidity (%)										



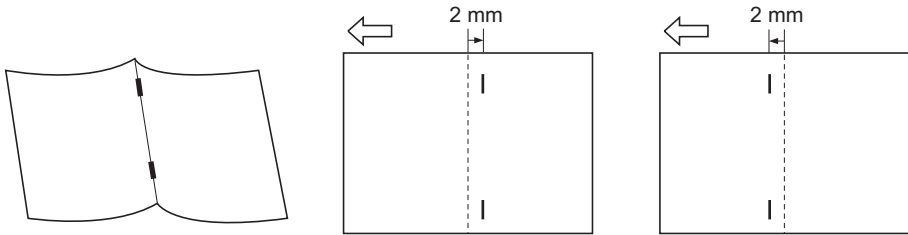
Maintenance item No.	Description										
U208	<p><b>Setting the paper size for the paper feeder</b></p> <p><b>Description</b> Sets the size of paper used in optional 3000-sheet paper feeder.</p> <p><b>Purpose</b> To change the setting when the size of paper used in the paper feeder is changed.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Enter the maintenance mode and press the cursor up/down keys to display [U208].</li> <li>2. Press the OK key. [ ? ] will be displayed.</li> </ol> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;">         &gt;Set Bulk Feeder          [U208] Size ? A4       </div> <ol style="list-style-type: none"> <li>3. Press the cursor up/down keys to change the setting.</li> </ol> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Display</th><th style="text-align: left;">Description</th></tr> </thead> <tbody> <tr> <td>A4</td><td>A4 size</td></tr> <tr> <td>B5</td><td>B5 size</td></tr> <tr> <td>LT</td><td>Letter size</td></tr> </tbody> </table> <ol style="list-style-type: none"> <li>4. Press the OK key. The setting is set. To keep the setting, press the CANCEL key.</li> </ol>	Display	Description	A4	A4 size	B5	B5 size	LT	Letter size		
Display	Description										
A4	A4 size										
B5	B5 size										
LT	Letter size										
U234	<p><b>Setting punch destination</b></p> <p><b>Description</b> Sets the destination of optional punch unit of document finisher.</p> <p><b>Purpose</b> To be set when installing a different punch unit from the destination of the machine.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Enter the maintenance mode and press the cursor up/down keys to display [U234].</li> <li>2. Press the OK key. [ ? ] will be displayed.</li> </ol> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;">         &gt;Punch Dest.          [U234] ? Nothing       </div> <ol style="list-style-type: none"> <li>3. Press the cursor up/down keys to change the setting.</li> </ol> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Display</th><th style="text-align: left;">Description</th></tr> </thead> <tbody> <tr> <td>Nothing</td><td>With no punch unit</td></tr> <tr> <td>Japan</td><td>Metric (Japan) specifications</td></tr> <tr> <td>Inch</td><td>Inch (North America) specifications</td></tr> <tr> <td>Europe</td><td>Metric (Europe) specifications</td></tr> </tbody> </table> <p>Initial setting: Nothing</p> <ol style="list-style-type: none"> <li>4. Press the OK key. The setting is set. To keep the setting, press the CANCEL key.</li> </ol>	Display	Description	Nothing	With no punch unit	Japan	Metric (Japan) specifications	Inch	Inch (North America) specifications	Europe	Metric (Europe) specifications
Display	Description										
Nothing	With no punch unit										
Japan	Metric (Japan) specifications										
Inch	Inch (North America) specifications										
Europe	Metric (Europe) specifications										

Maintenance item No.	Description												
U237	<p><b>Setting finisher stack quantity</b></p> <p><b>Description</b> Sets the number of sheets of each stack on the main tray and on the internal tray in the optional finisher.</p> <p><b>Purpose</b> To change the setting when a stack malfunction has occurred.</p> <p><b>Method</b></p> <p>1. Enter the maintenance mode and press the cursor up/down keys to display [U237].</p> <div><div>&gt;Adjust Finish.&gt; [U237]Limit</div></div> <p>2. Press the cursor right key to display the submenu screen.</p> <p>3. Press the cursor up/down keys to select the item for which the preset value is to be changed.</p> <table><tr><th>Submenu display</th><th>Description</th><th>Setting range</th><th>Initial setting</th></tr><tr><td>&gt;&gt;Main Tray</td><td>Number of sheets of stack on the main tray</td><td>3000/1500</td><td>3000</td></tr><tr><td>&gt;&gt;Middle Tray</td><td>Number of sheets of stack on the internal tray for sort or staple printing</td><td>50/30</td><td>50</td></tr></table> <p>4. Press the OK key. [ ? ] will blink.</p> <div><div>&gt;&gt;Main Tray [237.1] ? 3000</div></div> <p>5. Press the cursor up/down keys to change the setting.</p> <p>6. Press the OK key. The value is set. To keep the setting, press the CANCEL key.</p>	Submenu display	Description	Setting range	Initial setting	>>Main Tray	Number of sheets of stack on the main tray	3000/1500	3000	>>Middle Tray	Number of sheets of stack on the internal tray for sort or staple printing	50/30	50
Submenu display	Description	Setting range	Initial setting										
>>Main Tray	Number of sheets of stack on the main tray	3000/1500	3000										
>>Middle Tray	Number of sheets of stack on the internal tray for sort or staple printing	50/30	50										

Maintenance item No.	Description																														
U246	<p><b>Setting the finisher</b></p> <p><b>Description</b> Provides various settings for the optional finisher, if furnished.</p> <p><b>Purpose</b></p> <p><b>Adjustment of registration stop timing in punch mode</b> Adjust if skewed paper conveying occurs or if the copy paper is Z-folded in punch mode.</p> <p><b>Adjustment of paper stop timing in the punch mode</b> To adjust this item when the position of a punch hole is different from the specified one.</p> <p><b>Adjustment of front/rear side registration home position of internal tray</b> Provides optimization when paper jam occurs due to an inferior fitting of the internal tray adjuster guides to paper.</p> <p><b>Adjusting of front and back/slanted stapling home position</b> Adjusts the stapling position in the staple mode if the position is not proper. Provides adjustment of slanted stapling.</p> <p><b>Adjustment of upper/lower side registration home position of centerfold unit</b> Provides optimization when paper jam occurs due to an inferior fitting of the centerfold adjuster guides to paper.</p> <p><b>Adjustment of booklet stapling position</b> Adjusts the booklet stapling position in the stitching mode if the position is not proper.</p> <p><b>Adjustment of center folding position</b> Adjusts the center folding position in the stitching mode if the position is not proper.</p> <p><b>Start</b></p> <ol style="list-style-type: none"> <li>Enter the maintenance mode and press the cursor up/down keys to display [U246].</li> </ol> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <pre>&gt;Finisher &gt;[U246] Adjust</pre> </div> <ol style="list-style-type: none"> <li>Press the cursor right key to display the submenu screen.</li> </ol> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Submenu display</th><th style="text-align: left;">Description</th></tr> </thead> <tbody> <tr> <td>&gt;&gt;Punch Reg</td><td>Adjustment of registration stop timing in punch mode</td></tr> <tr> <td>&gt;&gt;Punch Pos</td><td>Adjustment of the paper stop timing in punch mode</td></tr> <tr> <td>&gt;&gt;Width F HP</td><td>Adjustment of front side registration home position</td></tr> <tr> <td>&gt;&gt;Width R HP</td><td>Adjustment of rear side registration home position</td></tr> <tr> <td>&gt;&gt;Staple HP</td><td>Adjustment of front and back stapling home position</td></tr> <tr> <td>&gt;&gt;T-Staple HP</td><td>Adjustment of slanted stapling home position</td></tr> <tr> <td>&gt;&gt;Width U HP</td><td>Adjustment of upper side registration home position</td></tr> <tr> <td>&gt;&gt;Width L HP</td><td>Adjustment of lower side registration home position</td></tr> <tr> <td>&gt;&gt;Staple Pos 1</td><td>Adjustment of booklet stapling position for A4/letter size</td></tr> <tr> <td>&gt;&gt;Staple Pos 2</td><td>Adjustment of booklet stapling position for B4/legal size</td></tr> <tr> <td>&gt;&gt;Staple Pos 3</td><td>Adjustment of booklet stapling position for A3/ledger size</td></tr> <tr> <td>&gt;&gt;Booklet Pos 1</td><td>Adjustment of center folding position for A4/letter size</td></tr> <tr> <td>&gt;&gt;Booklet Pos 2</td><td>Adjustment of center folding position for B4/legal size</td></tr> <tr> <td>&gt;&gt;Booklet Pos 3</td><td>Adjustment of center folding position for A3/ledger size</td></tr> </tbody> </table> <ol style="list-style-type: none"> <li>Press the cursor up/down keys to select the item for which the preset value is to be changed.</li> </ol>	Submenu display	Description	>>Punch Reg	Adjustment of registration stop timing in punch mode	>>Punch Pos	Adjustment of the paper stop timing in punch mode	>>Width F HP	Adjustment of front side registration home position	>>Width R HP	Adjustment of rear side registration home position	>>Staple HP	Adjustment of front and back stapling home position	>>T-Staple HP	Adjustment of slanted stapling home position	>>Width U HP	Adjustment of upper side registration home position	>>Width L HP	Adjustment of lower side registration home position	>>Staple Pos 1	Adjustment of booklet stapling position for A4/letter size	>>Staple Pos 2	Adjustment of booklet stapling position for B4/legal size	>>Staple Pos 3	Adjustment of booklet stapling position for A3/ledger size	>>Booklet Pos 1	Adjustment of center folding position for A4/letter size	>>Booklet Pos 2	Adjustment of center folding position for B4/legal size	>>Booklet Pos 3	Adjustment of center folding position for A3/ledger size
Submenu display	Description																														
>>Punch Reg	Adjustment of registration stop timing in punch mode																														
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>>Staple HP	Adjustment of front and back stapling home position																														
>>T-Staple HP	Adjustment of slanted stapling home position																														
>>Width U HP	Adjustment of upper side registration home position																														
>>Width L HP	Adjustment of lower side registration home position																														
>>Staple Pos 1	Adjustment of booklet stapling position for A4/letter size																														
>>Staple Pos 2	Adjustment of booklet stapling position for B4/legal size																														
>>Staple Pos 3	Adjustment of booklet stapling position for A3/ledger size																														
>>Booklet Pos 1	Adjustment of center folding position for A4/letter size																														
>>Booklet Pos 2	Adjustment of center folding position for B4/legal size																														
>>Booklet Pos 3	Adjustment of center folding position for A3/ledger size																														

Maintenance item No.	Description
U246	<p><b>Setting: adjustment of registration stop timing</b></p> <ol style="list-style-type: none"><li>1. Select [&gt;&gt;Punch Reg].</li><li>2. Press the OK key. [ _ ] will blink.</li><li>3. Press the cursor right/left keys to move [ _ ] to the digit position at which the value is to be changed and press the cursor up/down keys to change the preset value. Setting range: -20 to 20 Initial setting: 0 Change in value per step: 1ms If skewed paper conveying occurs (sample 1), increase the preset value. If the copy paper is Z-folded (sample 2), decrease the preset value.</li></ol> <div></div> <p style="text-align: center;"><b>Figure 1-3-1</b></p> <ol style="list-style-type: none"><li>4. Press the OK key. The value is set. To keep the preset value, press the CANCEL key.</li></ol> <p><b>Setting: adjustment of the paper stop timing</b></p> <ol style="list-style-type: none"><li>1. Select [&gt;&gt;Punch Pos].</li><li>2. Press the OK key. [ _ ] will blink.</li><li>3. Press the cursor right/left keys to move [ _ ] to the digit position at which the value is to be changed and press the cursor up/down keys to change the preset value. Setting range: -10 to 10 Initial setting: 0 Change in value per step: 0.49mm If the distance of the position of a punch hole is smaller than the specified value A, increase the preset value. If the distance is larger than the value A, decrease the preset value.</li></ol> <div></div> <p style="text-align: right;">Preset value A: 5.5 ± 2 mm (inch) 9.5 ± 2 mm (metric)</p> <p style="text-align: center;"><b>Figure 1-3-2</b></p> <ol style="list-style-type: none"><li>4. Press the OK key. The value is set. To keep the preset value, press the CANCEL key.</li></ol>

Maintenance item No.	Description
U246	<p><b>Setting: adjustment of front/rear side registration home position</b></p> <ol style="list-style-type: none"> <li>1. Select [ &gt;&gt;Width F HP] or [ &gt;&gt;Width R HP].</li> <li>2. Press the OK key. [ _ ] will blink.</li> <li>3. Press the cursor right/left keys to move [ _ ] to the digit position at which the value is to be changed and press the cursor up/down keys to change the preset value. Setting range: -10 to 10 Initial setting: 0 Change in value per step: 0.31 ms</li> <li>4. Press the OK key. The value is set. To keep the preset value, press the CANCEL key.</li> </ol> <p><b>Setting: adjustment of front and back stapling home position</b></p> <ol style="list-style-type: none"> <li>1. Select [ &gt;&gt;Staple HP].</li> <li>2. Press the OK key. [ _ ] will blink.</li> <li>3. Press the cursor right/left keys to move [ _ ] to the digit position at which the value is to be changed and press the cursor up/down keys to change the preset value. Setting range: -10 to 10 Initial setting: 0 Change in value per step: 0.32 ms When staple positions are off toward the front side of the machine (sample 1), increase the preset value. When staple positions are off toward the rear side of the machine (sample 2), decrease the preset value.</li> </ol> <div data-bbox="555 929 1152 1187"> <p style="text-align: center;">Sample 1                      Sample 2</p> </div> <p style="text-align: center;"><b>Figure 1-3-3</b></p> <ol style="list-style-type: none"> <li>4. Press the OK key. The value is set. To keep the preset value, press the CANCEL key.</li> </ol> <p><b>Setting: adjustment of slanted stapling home position</b></p> <ol style="list-style-type: none"> <li>1. Select [ &gt;&gt;T-Staple HP].</li> <li>2. Press the OK key. [ _ ] will blink.</li> <li>3. Press the cursor right/left keys to move [ _ ] to the digit position at which the value is to be changed and press the cursor up/down keys to change the preset value. Setting range: -10 to 10 Initial setting: 0 Change in value per step: 0.99° To increase the angle for slanted stapling (sample 1), decrease the preset value. To decrease the angle for slanted stapling (sample 2), increase the preset value.</li> </ol> <div data-bbox="470 1653 1233 1877"> <p style="text-align: center;">Sample 1                      Sample 2</p> </div> <p style="text-align: center;"><b>Figure 1-3-4</b></p> <ol style="list-style-type: none"> <li>4. Press the OK key. The value is set. To keep the preset value, press the CANCEL key.</li> </ol>

Maintenance item No.	Description
U246	<p><b>Setting: adjustment of upper/lower side registration home position</b></p> <ol style="list-style-type: none"><li>1. Select [&gt;&gt;Width U HP] or [&gt;&gt;Width L HP].</li><li>2. Press the OK key. [ _ ] will blink.</li><li>3. Press the cursor right/left keys to move [ _ ] to the digit position at which the value is to be changed and press the cursor up/down keys to change the preset value. Adjustment of upper side registration home position Setting range: -20 to 20 Initial setting: 0 Change in value per step: 0.1 mm Adjustment of lower side registration home position Setting range: -46 to 46 Initial setting: 0 Change in value per step: 0.1 mm</li><li>4. Press the OK key. The value is set. To keep the preset value, press the CANCEL key.</li></ol> <p><b>Setting: adjustment of booklet stapling position</b></p> <ol style="list-style-type: none"><li>1. Select [&gt;&gt;Staple Pos 1], [&gt;&gt;Staple Pos 2] or [&gt;&gt;Staple Pos 3].</li><li>2. Press the OK key. [ _ ] will blink.</li><li>3. Press the cursor right/left keys to move [ _ ] to the digit position at which the value is to be changed and press the cursor up/down keys to change the preset value. Setting range: -10 to 10 Initial setting: 0 Change in value per step: 0.55 mm When staples are placed too far right (sample 1), decrease the preset value. When staples are placed too far left (sample 2), increase the preset value. Reference value: within <math>\pm 2</math> mm</li></ol> <div><p>Sample 1</p><p>Sample 2</p></div> <p><b>Figure 1-3-5</b></p> <ol style="list-style-type: none"><li>4. Press the OK key. The value is set. To keep the preset value, press the CANCEL key.</li></ol>

Maintenance item No.	Description
U246	<p><b>Setting: adjustment of center folding position</b></p> <ol style="list-style-type: none"> <li>1. Select [ &gt;&gt;Booklet Pos 1], [ &gt;&gt;Booklet Pos 2] or [ &gt;&gt;Booklet Pos 3].</li> <li>2. Press the OK key. [ _ ] will blink.</li> <li>3. Press the cursor right/left keys to move [ _ ] to the digit position at which the value is to be changed and press the cursor up/down keys to change the preset value.  Setting range: -10 to 10  Initial setting: 0  Change in value per step: 0.55 mm  When the centerfold position too far right (sample 1), increase the preset value. When the centerfold position too far left (sample 2), decrease the setting value.  Reference value: within <math>\pm 3</math> mm</li> </ol> <div data-bbox="432 611 1262 909"> </div> <p style="text-align: center;"><b>Figure 1-3-6</b></p> <ol style="list-style-type: none"> <li>4. Press the OK key. The value is set.  To keep the preset value, press the CANCEL key.</li> </ol>
U391	<p><b>Setting the face-up unit</b></p> <p><b>Description</b>  Sets whether or not to perform face-up output through the optional face-up unit.</p> <p><b>Purpose</b>  To set this mode for special users who install only the face-up unit to perform face-up output. For users who use both the finisher and the face-up unit, do not set this mode.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Enter the maintenance mode and press the cursor up/down keys to display [U391].</li> <li>2. Press the OK key. [ ? ] will be displayed.</li> </ol> <div data-bbox="331 1303 668 1395" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <pre>&gt;Face-Up Option [U391] ? Off</pre> </div> <ol style="list-style-type: none"> <li>3. Press the cursor up/down keys to select the item.  Initial setting: Off</li> <li>4. Press the OK key. The value is set.  To keep the preset value, press the CANCEL key.</li> </ol>

Maintenance item No.	Description
U392	<p><b>Outputs of the history of events of the service calls and paper jam</b></p> <p><b>Description</b> Outputs the history of events conditions of the service calls and paper jam.</p> <p><b>Purpose</b> To check the event conditions of the service calls and paper jam.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Enter the maintenance mode and press the cursor up/down keys to display [U392].  <div data-bbox="331 477 668 568" style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <pre>&gt;Print Menu    &gt; [U392]</pre> </div> </li> <li>2. Press the cursor right key to display the submenu screen.</li> <li>3. Press the OK key. [ ? ] will be displayed.  <div data-bbox="331 642 668 734" style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <pre>&gt;&gt;Print Event [392.1] Log?</pre> </div> </li> <li>4. Press the OK key. History output starts. If it will not start, press the CANCEL key.</li> </ol>
U393	<p><b>Initializing data for FRPO</b></p> <p><b>Description</b> Initializes each preset value of FRPO.</p> <p><b>Purpose</b> To reset each preset value of FRPO to the initial values.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Enter the maintenance mode and press the cursor up/down keys to display [U393].  <div data-bbox="331 1021 668 1113" style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <pre>&gt;Initialize    &gt; [U393]</pre> </div> </li> <li>2. Press the cursor right key to display the submenu screen.</li> <li>3. Press the OK key. [ ? ] will be displayed.  <div data-bbox="331 1187 668 1279" style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <pre>&gt;FRPO INIT ? [393.3]</pre> </div> </li> <li>4. Press the OK key. Each setting will be initialized. To keep the setting, press the CANCEL key.</li> </ol>



Maintenance item No.	Description																								
U394	<p><b>Adjusting the leading edge margin of image printing for each paper cassette</b></p> <p><b>Description</b> Adjusts the leading edge margin of image printing for each paper cassette.</p> <p><b>Purpose</b> To adjust the leading edge margin if it is displaced depending on the paper cassette.</p> <p><b>Method</b></p> <p>1. Enter the maintenance mode and press the cursor up/down keys to display [U394].</p> <div><pre>&gt;Set Paper Feed&gt; [U394] Top Reg.</pre></div> <p>2. Press the cursor right/left keys to display the submenu screen.</p> <p>3. Press the cursor up/down keys to select the item for which the preset value is to be changed.</p> <table><tr><th>Submenu display</th><th>Description</th><th>Setting range</th></tr><tr><td>&gt;&gt;Cassette 2</td><td>Leading edge margin for lower cassette of the printer</td><td>-128 to +127</td></tr><tr><td>&gt;&gt;Cassette 3</td><td>Leading edge margin for upper cassette of optional paper feeder</td><td>-128 to +127</td></tr><tr><td>&gt;&gt;Cassette 4</td><td>Leading edge margin for lower cassette of optional paper feeder</td><td>-128 to +127</td></tr><tr><td>&gt;&gt;MP</td><td>Leading edge margin for MP tray</td><td>-128 to +127</td></tr><tr><td>&gt;&gt;Duplex</td><td>Leading edge margin for duplex printing</td><td>-128 to +127</td></tr></table> <p>4. Press the OK key. [ _ ] will blink.</p> <div><pre>&gt;&gt;Cassette 2 [394.1]      ###</pre></div> <p>5. Press the cursor up/down keys to move [ _ ] to the digit position at which the value is to be changed and press the cursor up/down keys to change the preset value. If the preset value is increased, the margin will be larger. If the preset value is decreased, the margin will be smaller.</p> <p>6. Press the OK key. The value is set. To keep the preset value, press the CANCEL key.</p>	Submenu display	Description	Setting range	>>Cassette 2	Leading edge margin for lower cassette of the printer	-128 to +127	>>Cassette 3	Leading edge margin for upper cassette of optional paper feeder	-128 to +127	>>Cassette 4	Leading edge margin for lower cassette of optional paper feeder	-128 to +127	>>MP	Leading edge margin for MP tray	-128 to +127	>>Duplex	Leading edge margin for duplex printing	-128 to +127						
Submenu display	Description	Setting range																							
>>Cassette 2	Leading edge margin for lower cassette of the printer	-128 to +127																							
>>Cassette 3	Leading edge margin for upper cassette of optional paper feeder	-128 to +127																							
>>Cassette 4	Leading edge margin for lower cassette of optional paper feeder	-128 to +127																							
>>MP	Leading edge margin for MP tray	-128 to +127																							
>>Duplex	Leading edge margin for duplex printing	-128 to +127																							
U395	<p><b>Checking the size in MP tray</b></p> <p><b>Description</b> Displays the size of paper set in the MP tray.</p> <p><b>Purpose</b> To check to see if the size switch of the MP tray operates correctly.</p> <p><b>Method</b></p> <p>1. Enter the maintenance mode and press the cursor up/down keys to display [U395]. The size of paper set in the MP tray will be displayed.</p> <div><pre>&gt;Check MP tray [U395] Size ###</pre></div> <table><tr><th>Paper size</th><th>Display</th><th>Paper size</th><th>Display</th></tr><tr><td>A3/Ledger</td><td>010</td><td>B4</td><td>011</td></tr><tr><td>A4R/Letter-R</td><td>008</td><td>B5R</td><td>009</td></tr><tr><td>A4/Letter</td><td>108</td><td>B5</td><td>109</td></tr><tr><td>A5</td><td>013</td><td>B6</td><td>015</td></tr><tr><td>A6</td><td>014</td><td>Folio/Legal</td><td>51</td></tr></table>	Paper size	Display	Paper size	Display	A3/Ledger	010	B4	011	A4R/Letter-R	008	B5R	009	A4/Letter	108	B5	109	A5	013	B6	015	A6	014	Folio/Legal	51
Paper size	Display	Paper size	Display																						
A3/Ledger	010	B4	011																						
A4R/Letter-R	008	B5R	009																						
A4/Letter	108	B5	109																						
A5	013	B6	015																						
A6	014	Folio/Legal	51																						

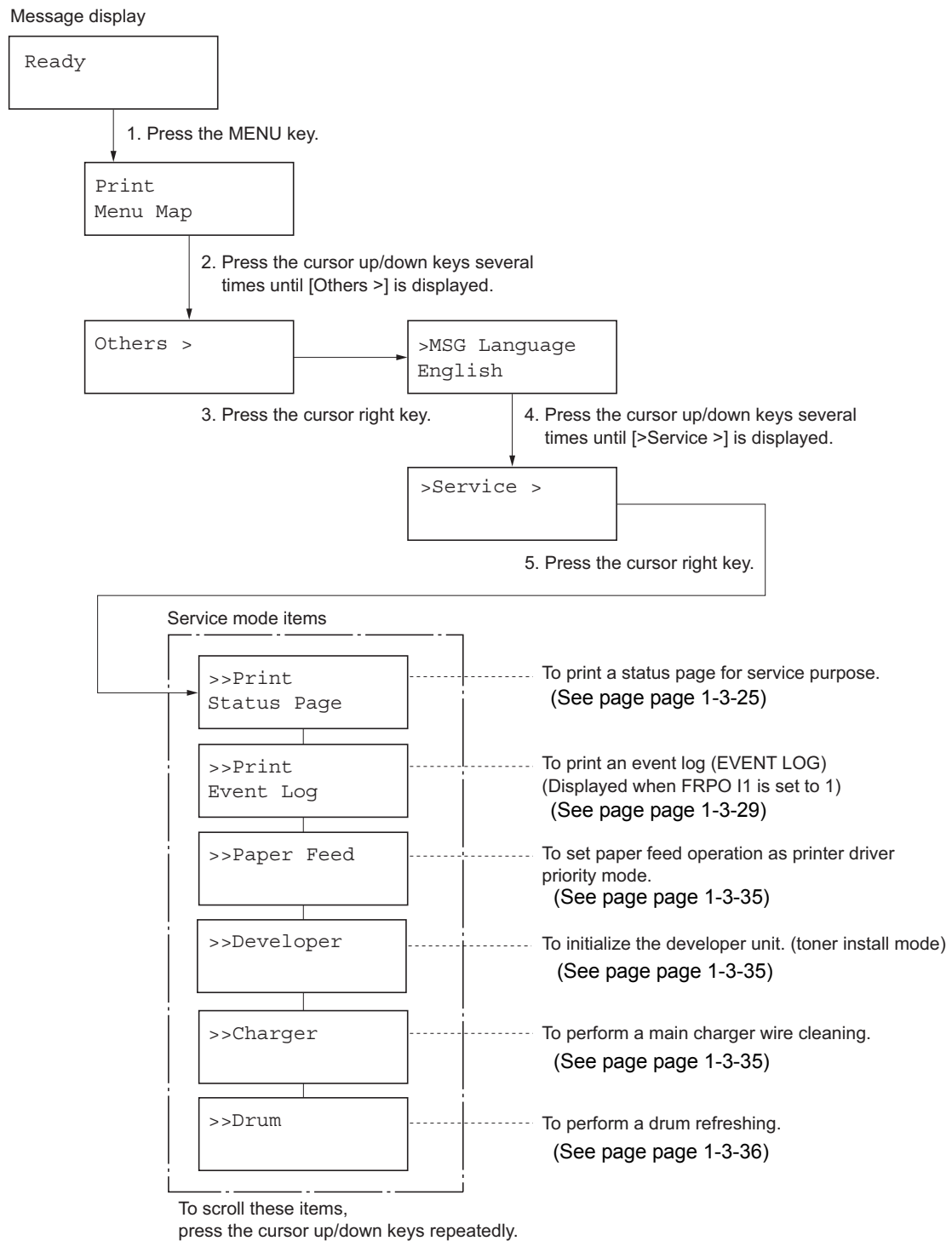
Maintenance item No.	Description																		
U396	<p><b>Displaying the amount of paper remaining in each paper cassette</b></p> <p><b>Description</b> Displays the amount of paper remaining in each paper cassette.</p> <p><b>Purpose</b> To check the amount of paper remaining in each paper cassette.</p> <p><b>Method</b></p> <p>1. Enter the maintenance mode and press the cursor up/down keys to display [U396].</p> <div><pre>&gt;Check Cassette&gt; [U396] Remain</pre></div> <p>2. Press the cursor right key to display the submenu screen.</p> <p>3. Press the cursor up/down keys to select the item to check.</p> <table><tr><th>Submenu display</th><th>Description</th></tr><tr><td>&gt;&gt;Cassette 1</td><td>Amount of paper remaining in cassette 1 (%)</td></tr><tr><td>&gt;&gt;Cassette 2</td><td>Amount of paper remaining in cassette 2 (%)</td></tr><tr><td>&gt;&gt;Cassette 3</td><td>Amount of paper remaining in optional cassette 3 (%)</td></tr><tr><td>&gt;&gt;Cassette 4</td><td>Amount of paper remaining in optional cassette 4 (%)</td></tr></table> <div><pre>&gt;&gt;Cassette 1 [396.1]      ###%</pre></div> <p>Display range: 0 - 100% (0: no paper / 100: full)</p>	Submenu display	Description	>>Cassette 1	Amount of paper remaining in cassette 1 (%)	>>Cassette 2	Amount of paper remaining in cassette 2 (%)	>>Cassette 3	Amount of paper remaining in optional cassette 3 (%)	>>Cassette 4	Amount of paper remaining in optional cassette 4 (%)								
Submenu display	Description																		
>>Cassette 1	Amount of paper remaining in cassette 1 (%)																		
>>Cassette 2	Amount of paper remaining in cassette 2 (%)																		
>>Cassette 3	Amount of paper remaining in optional cassette 3 (%)																		
>>Cassette 4	Amount of paper remaining in optional cassette 4 (%)																		
U398	<p><b>Adjusting left margin of image printing for each paper cassette</b></p> <p><b>Description</b> Adjusts the left margin of image printing for each paper cassette.</p> <p><b>Purpose</b> To adjust the left margin if it is displaced depending on the paper cassette.</p> <p><b>Method</b></p> <p>1. Enter the maintenance mode and press the cursor up/down keys to display [U398].</p> <div><pre>&gt;Set Paper Feed&gt; [U398] Left Reg.</pre></div> <p>2. Press the cursor right key to display the submenu screen.</p> <p>3. Press the cursor up/down keys to select the item for which the preset value is to be changed.</p> <table><tr><th>Submenu display</th><th>Description</th><th>Setting range</th></tr><tr><td>&gt;&gt;Cassette 2</td><td>Left margin for cassette 2</td><td>-600 to +600</td></tr><tr><td>&gt;&gt;Cassette 3</td><td>Left margin for optional cassette 3</td><td>-600 to +600</td></tr><tr><td>&gt;&gt;Cassette 4</td><td>Left margin for optional cassette 4</td><td>-600 to +600</td></tr><tr><td>&gt;&gt;MP</td><td>Left margin for MP tray</td><td>-600 to +600</td></tr><tr><td>&gt;&gt;Duplex</td><td>Left margin for duplex printing</td><td>-600 to +600</td></tr></table> <p>4. Press the OK key. [ _ ] will blink.</p> <div><pre>&gt;&gt;Cassette 2 [398.1]      ###_</pre></div> <p>5. Press the cursor right/left keys to move [ _ ] to the digit position at which the value is to be changed and press the cursor up/down keys to change the preset value. If the preset value is increased, the margin will be larger. If the preset value is decreased, the margin will be smaller.</p> <p>6. Press the OK key. The value is set. To keep the preset value, press the CANCEL key.</p>	Submenu display	Description	Setting range	>>Cassette 2	Left margin for cassette 2	-600 to +600	>>Cassette 3	Left margin for optional cassette 3	-600 to +600	>>Cassette 4	Left margin for optional cassette 4	-600 to +600	>>MP	Left margin for MP tray	-600 to +600	>>Duplex	Left margin for duplex printing	-600 to +600
Submenu display	Description	Setting range																	
>>Cassette 2	Left margin for cassette 2	-600 to +600																	
>>Cassette 3	Left margin for optional cassette 3	-600 to +600																	
>>Cassette 4	Left margin for optional cassette 4	-600 to +600																	
>>MP	Left margin for MP tray	-600 to +600																	
>>Duplex	Left margin for duplex printing	-600 to +600																	

Maintenance item No.	Description
U399	<p><b>Setting FRPO</b></p> <p><b>Description</b> Set the firmware again.</p> <p><b>Purpose</b> To change the preset values of firmware.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Enter the maintenance mode and press the cursor up/down keys to display [U399].</li> </ol> <div data-bbox="331 477 668 568" style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <pre>&gt;Set FRPO      &gt; [U399] Parameter</pre> </div> <ol style="list-style-type: none"> <li>2. Press the cursor right key to display the submenu screen.</li> <li>3. Press the cursor up/down keys to select the item for which the preset value is to be changed.</li> <li>4. Press the OK key. [ _ ] will blink.</li> </ol> <div data-bbox="331 669 668 761" style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <pre>&gt;&gt;FRPO  HO [399.1]</pre> </div> <ol style="list-style-type: none"> <li>5. Press the cursor right/left keys to move [ _ ] to the digit position at which the value is to be changed and press the cursor up/down keys to change the preset value.</li> <li>6. Press the OK key. The value is set. To keep the preset value, press the CANCEL key.</li> </ol>

### 1-3-2 Service mode

The printer is equipped with a maintenance function which can be used to maintain and service the machine.

#### (1) Executing a service item



**(2) Description of service mode**

Service items	Description
<div>&gt;&gt;Print Status Page</div>	<p><b>Printing a status page for service purpose</b></p> <p><b>Description</b> Prints a status page for service purpose. The status page includes various printing settings and service cumulative.</p> <p><b>Purpose</b> To acquire the current printing environmental parameters and cumulative information.</p> <p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Enter the service mode [&gt;&gt;Print Status Page].</li> <li>2. Press the OK key. [Print Status Page?] will be displayed.</li> <li>3. Press the OK key. Two pages will be printed. (The second page includes service information).</li> </ol>

Service information  
(Refer to next page)

Main PWB firmware version

Firmware release date

Figure 1-3-7 Service status page

Service items	Description												
	<div><div>Service information</div><div><div>Service information</div><div><div>[XXXXXXXX/XXXXXXXX] [XXXXXXXX] [XXXXXXXX] [01/00]</div><div>Printed Page(s) 9690</div><div>① ② ③ ④ ⑤</div><div>/t/P00/S00/U00/F00/N00/D50:DM0301.DAN:0002001001210052</div><div>⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫</div><div>/0020/0020/1061/0811/ 0/ 0/ 0/ 0/ 0/ 0/ 0/ 0/ 0/ 0/ 0/ 0/</div><div>⑬ ⑭ ⑮ ⑯</div><div>⑰/AAAAAA/AAAAAA/AAAAAA/</div><div>⑱/AAAAAA/AAAAAA/AAAAAA/</div><div>㉑/AAAAAA/</div><div>㉒/AAAAAA/</div><div>㉓/AAAAAA/AAAAAA/AAAAAA/</div><div>㉔/AAAAAA/AAAAAA/AAAAAA/AAAAAA/</div><div>㉕/0000/0000/0000/0000/0000/</div><div>㉖/0000/</div><div>/RS2/FF/ [0003-0003] /81/31/50/0</div><div>㉗ ㉘ ㉙ ㉚ ㉛ ㉜ ㉝ ㉞</div><div>㉟00.00.00.00.00.00</div><div>㊱A:1234567890123456</div><div>㊲/03030303/03030303/03030303/03000000/00000000/03030303/03030303/</div><div>㊳SPD1:0203040508090A0B0C0D0F101112131415161718191A1B1C1D1E1F202122235E</div><div>㊴/00000000/00000000/00000000000000000000000000000000/00000000000000000000000000000000/0000/00/00</div><div>㊵/0000000000000000/0000000000000000/0000000000000000/0000000000000000/</div><div>/0000000000000000/0000000000000000/0000000000000000/0000000000000000/</div><div>/0000000000000000/0000000000000000/0000000000000000/0000000000000000/</div><div>/0000000000000000/0000000000000000/0000000000000000/0000000000000000/</div><div>DN:SPL9200007 SN:SPL9200010</div><div>㊶ ㊷</div></div></div></div> <div>Detail of service information</div> <table border="1"><thead><tr><th>No.</th><th>Items</th><th>Description</th></tr></thead><tbody><tr><td>1</td><td>Engine ROM information</td><td>[Mask ROM version/Flash ROM version]</td></tr><tr><td>2</td><td>Operation panel ROM information</td><td>[Operation panel mask ROM version]</td></tr><tr><td>3</td><td>Boot ROM information</td><td>[Boot ROM version]</td></tr></tbody></table>	No.	Items	Description	1	Engine ROM information	[Mask ROM version/Flash ROM version]	2	Operation panel ROM information	[Operation panel mask ROM version]	3	Boot ROM information	[Boot ROM version]
No.	Items	Description											
1	Engine ROM information	[Mask ROM version/Flash ROM version]											
2	Operation panel ROM information	[Operation panel mask ROM version]											
3	Boot ROM information	[Boot ROM version]											

Service items		Description	
No.	Items	Description	
4	Software jumper switch information (hexadecimal)	[First byte/second byte] First byte bit 0 = 1: (Fixed) bit 1 = 0: Overseas, 1: Domestic (Japan) bit 2, 3 (Not used) bit 4 = 0: Kyocera, 1: OEM bit 5 = 0: For Europe, 1: For US bit 6 = 0: Non MICR mode, 1: MICR mode bit 7 (Not used) Second byte: Displayed in OEM mode only.	
5	Total page	-	
6	Toner install information	-	
7	Parallel I/O information	-	
8	Serial information	00: Not connected bit0: Framing error	bit1: Overrun error bit2: Parity error
9	USB information	00: Not connected 01: Full-Speed 02: Hi-Speed	
10	Operation panel lock status (displayed only when locked)	01: Partial lock 02: Full lock	
11	NVRAM error (displayed only when any error has occurred)	01: ID error 02: Version error	03: Checksum error 04: NVRAM crush error
12	NVRAM download	00: Normal bit0: Font data bit1: Host data bit2: Macro data bit3: Program data bit4: Operation panel message data download (file name displayed) bit5: OEM data bit6: Web template data (version displayed) bit7: Error occurred	
13	Printable area setting	/Top offset/Left offset/Page length/Page width	
14	Left offset for each paper source	/MP tray/Cassette 1/Cassette 2/Cassette 3/Cassette 4/Cassette 5/Duplex (1/600 inches unit)	
15	Top offset for each paper source	/MP tray/Cassette 2/Cassette 3/Cassette 4/Cassette 5/Duplex (1/600 inches unit)	
16	Offset for rotation	/Top offset/Left offset/ (1/600 inches unit)	
17	Paper cassette life counter	/Total counter (large)/Total counter (small)/MP tray/	
18	Paper cassette life counter	/Cassette 1 total/Cassette 2 total/Cassette 3 total/	
19	Paper cassette life counter	/Cassette 4 total/	

Service items		Description																					
No.	Items	Description																					
20	Paper source position counter	/Duplex/																					
21	Life counter of each unit	/Drum unit/Developer unit/Fuser unit/																					
22	Document finisher counter	/Document finisher total/Main tray total/Centerfold unit/Punch unit/Stapler/																					
23	Version of each unit	/3000-sheet paper feeder/Document finisher (software)/Mail box/Centerfold unit/Internal tray (3000-sheet document finisher)																					
24	Drum ID	-																					
25	Serial interface information	RS2: RS-232C RS4: RS-422A																					
26	Drum sensitivity information	-																					
27	Optional paper feeder/stacker information	[First 2 bytes - Second 2 bytes] First 2 bytes bit0: MP tray bit1 to 4: Cassette 1 to 4 bit5 to 6: Reserved bit7: Duplex bit8: 3000-sheet paper feeder bit9: Reserved bit10: Paper feeder bit11 to 15: Reserved Second 2 bytes bit0: Face up bit1: Face down bit2: Reserved bit3: Mail box bit4: Document finisher bit5 to 15: Reserved																					
28	Operation panel message language	PMSG command setting (decimal)																					
29	Current temperature	0 to 100 °C/32 to 212 °F (in 1 °C/1.8 °F increment, “-” = Temperature/humidity sensor is abnormal.)																					
30	Current humidity	0 to 100% RH (in 1% increment)																					
31	Number of rebooting for vertical distortion check	-																					
32	MAC address	-																					
33	Fixed asset number	(maximum 16 characters)																					
34	Media type attributes	Media type setting value from 1 to 28 (paper weight) (unused media type (18 to 20) are always 0x00.)																					
35	Memory SPD information (slot 1)	2 to 6 bytes, 8 to 36 bytes, 94 to 95 bytes (total 32 bytes)																					
36	Toner container information	-																					
37	Parameters of maintenance mode	-																					
38	Drum serial number	-																					
39	Machine serial number	-																					
NOTE:																							
Code conversion																							
<table><tr><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td><td>G</td><td>H</td><td>I</td><td>J</td></tr><tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr></table>				A	B	C	D	E	F	G	H	I	J	0	1	2	3	4	5	6	7	8	9
A	B	C	D	E	F	G	H	I	J														
0	1	2	3	4	5	6	7	8	9														



### Figure 1-3-8 Event log

Service items		Description		
		Detail of event log (EVENT LOG) information		
No.	Items	Description		
(1)	Engine PWB mask version	[Engine mask version/Engine software version]		
(2)	Operation panel PWB mask version	-		
(3)	BROM version	-		
(4)	Software jumper switch information (hexadecimal)	[First byte/Second byte]  First byte bit 0 = 1: (Fixed) bit 1 = 0: Overseas, 1: Domestic (Japan) bit 2, 3 (Not used) bit 4 = 0: Kyocera, 1: OEM bit 5 = 0: For Europe, 1: For US bit 6 = 0: Non MICR mode, 1: MICR mode bit 7 (Not used)  Second byte: Displayed in OEM mode only		
(5)	Main PWB firmware mask version	-		
(6)	Main PWB firmware release date	-		
(7)	Total page counter	-		
(8)	Drum serial number	-		
(9)	Machine serial number	-		
(10)	Paper Jam Log	<u>#</u>  Remembers 1 to 16 of occurrence. If the occurrence of the previous paper jam is less than 16, all of the paper jams are logged. When the occurrence exceeded 16, the oldest occurrence is removed.	<u>Count.</u>  The total page count at the time of the paper jam.	<u>Event</u>  Log code (2 digit, hexadecimal, 6 categories)  (a) Cause of a paper jam (b) Position of paper jam (c) Paper source (d) Paper size (e) Paper type (f) Paper exit  Refer to the next page for the details of each log code.

Service items		Description
(10) cont.		<p>(a) Cause of paper jam (Hexadecimal)</p> <p>04: Cover opened. [00]</p> <p>05: Memory read ready time-out (secondary paper feed does not start). [4D]</p> <p>09: Sequence error (3000-sheet paper feeder). [33]</p> <p>10: No paper feed (cassette 1). [31]</p> <p>11: No paper feed (cassette 2). [32]</p> <p>12: No paper feed (cassette 3: paper feeder/3000-sheet paper feeder). [33]</p> <p>13: No paper feed (cassette 4: paper feeder). [34]</p> <p>14: No paper feed (MP tray). [42]</p> <p>15: Jam in horizontal paper conveying section. Paper path sensor 3 (PPSENS3) non-arrival jam (3000-sheet paper feeder). [33]</p> <p>16: Jam in horizontal paper conveying section. Paper path sensor 2 (PPSENS2) non-arrival jam (3000-sheet paper feeder). [33]</p> <p>17: Jam in horizontal paper conveying section. Paper path sensor 1 (PPSENS1) non-arrival jam (3000-sheet paper feeder). [33]</p> <p>18: Jam in vertical paper feed section. [4D]</p> <p>19: Jam in vertical paper feed section (paper feeder). [43]</p> <p>20: Jam in MP tray paper conveying section. [48]</p> <p>21: Multiple sheets in paper feed section. [4D]</p> <p>22: Multiple sheets in vertical paper conveying section. [4D]</p> <p>23: Multiple sheets in MP tray paper conveying section. [48]</p> <p>30: Jam in registration/transfer section. [4D]</p> <p>40: Jam in fuser section (paper feed from MP tray). [4D]</p> <p>41: Jam in fuser section (paper feed from cassette 1). [4D]</p> <p>42: Jam in fuser section (paper feed from cassette 2). [4D]</p> <p>43: Jam in fuser section (paper feed from cassette 3: paper feeder). [4D]</p> <p>44: Jam in fuser section (paper feed from cassette 4: paper feeder). [4D]</p> <p>45: Jam in fuser section (paper feed from 3000-sheet paper feeder). [4D]</p> <p>46: Jam in fuser section (paper refeed from duplex section). [4D]</p> <p>50: Jam in eject section. [4D]</p> <p>52: Jam in feedshift section. [4D]</p> <p>60: Jam in duplex paper conveying section 1. [4D]</p> <p>61: Jam in duplex paper conveying section 2. [4D]</p> <p>80: Jam between the printer and 3000-sheet document finisher. [46]</p> <p>81: Paper entry sensor (PES) non-arrival jam (3000-sheet document finisher). [46] Paper entry sensor1/2 (PES1/PES2) non-arrival jam (document finisher). [46]</p> <p>82: Jam in stapler (3000-sheet document finisher/document finisher). [46]</p> <p>83: Exit sensor (ESW1) stay jam (3000-sheet document finisher). [46] Exit sensor (EXS) stay jam (document finisher). [46]</p> <p>84: Jam in eject section of right sub tray (3000-sheet paper feeder). [46]</p> <p>85: Jam in eject section of left sub tray (3000-sheet paper feeder). [46]</p> <p>86: Jam in eject section of internal tray 1 (3000-sheet paper feeder). [46]</p> <p>87: Jam in eject section of internal tray 2 (3000-sheet paper feeder). [46]</p> <p>88: Jam in eject section of main tray (3000-sheet paper feeder). [46]</p> <p>89: Jam in centerfold unit (3000-sheet document finisher). [50]</p> <p>90: Jam in mailbox (3000-sheet document finisher). [51]</p> <p>91: Document finisher cover opened. [46]</p> <p>92: Exit sensor (EXS) non-arrival jam (document finisher). [46]</p> <p>93: Reverse sensor (REVS) jam (document finisher). [46]</p> <p>94: Paper entry sensor (PES) stay/remaining jam (document finisher). [46]</p> <p>95: Paper conveying sensor (PCS) jam (document finisher). [46]</p> <p>Note: Values (hexadecimal) within [ ] indicate paper misfeed locations, see next page.</p>



Service items		Description		
No.	Items	Description		
(10) cont.		(d) Detail of paper size (Hexadecimal)		
		01: Monarch	0C: Ledger	23: Special 2
		02: Business	0D: A5R	24: A3 wide
		03: International DL	8D: A5E	25: Ledger wide
		04: International C5	0E: A6	26: Full bleed paper
		05: Executive	0F: B6	(12 × 8)
		06: Letter-R	10: Commercial #9	27: 8K
		86: Letter-E	11: Commercial #6	28: 16K-R
		07: Legal	12: ISO B5	A8: 16K-E
		08: A4R	13: Custom size	32: Statement-R
88: A4E	1E: C4	B2: Statement-E		
09: B5R	1F: Postcard	33: Folio		
89: B5E	20: Reply-paid postcard	34: Western type 2		
0A: A3	21: Oficio II	35: Western type 4		
0B: B4	22: Special 1			
		(e) Detail of paper type (Hexadecimal)		
		00: (Not specified)	09: Letter head	15: Custom 1
		01: Plain	0A: Color	16: Custom 2
		02: Transparency	0B: Prepunched	17: Custom 3
		03: Preprint	0C: Envelope	18: Custom 4
		04: Labels	0D: Cardstock	19: Custom 5
		05: Bond	0E: Coated	1A: Custom 6
		06: Recycle	0F: 2nd side	1B: Custom 7
		07: Vellum	10: Media 16	1C: Custom 8
		08: Rough	11: High quality	
		(f) Detail of paper exit location (Hexadecimal)		
		01: Face down (FD)		15: Mail box tray 2 (FD)
		02: Face up (FU)/		16: Mail box tray 2 (FU)
		Document finisher face up (FU)/		1F: Mail box tray 3 (FD)
		3000-sheet document finisher left sub tray (FU)		20: Mail box tray 3 (FU)
		03: Document finisher face-down (FD)		29: Mail box tray 4 (FD)
		04: Document finisher sub tray (FD)		2A: Mail box tray 4 (FU)
		05: Reserved		33: Mail box tray 5 (FD)
		0B: Mail box tray 1 (FD)		34: Mail box tray 5 (FU)
		0C: Mail box tray 1 (FU)		3D: Mail box tray 6 (FD)
		0D: Mail box all tray (FD)		3E: Mail box tray 6 (FU)
		0E: Mail box all tray (FU)		47: Mail box tray 7 (FD)
				48: Mail box tray 7 (FU)

Service items		Description		
No.	Items	Description		
(11)	Service Call (Self diagnostic error) Log	<p><u>#</u></p> <p>Remembers 1 to 8 of occurrence of self diagnostics error. If the occurrence of the previous diagnostics error is less than 8, all of the diagnostics errors are logged.</p>	<p><u>Count.</u></p> <p>The total page count at the time of the self diagnostics error.</p>	<p><u>Self diagnostic error code</u></p> <p>(See page 1-4-18)</p>
(12)	Maintenance Log	<p><u>#</u></p> <p>Remembers 1 to 8 of occurrence of replacement. If the occurrence of the previous replacement of toner container is less than 8, all of the occurrences of replacement are logged.</p>	<p><u>Count.</u></p> <p>The total page count at the time of the replacement of the toner container.</p> <p>This is virtually logged as the occurrence of the Toner Empty condition since the replacement of the toner container is not precisely detectable.</p>	<p><u>Item</u></p> <p>Code of maintenance replacing item (1 byte, 2 categories)</p> <p>First byte (Replacing item) 01: Toner container 02: Maintenance kit</p> <p>Second byte (Type of replacing item) 00: (fixed)</p>
(13)	Counter Log	<p>(g) Jam</p> <p>Indicates the log counter of paper jams depending on location.</p> <p>Refer to Paper Jam Log.</p> <p>All instances including those are not occurred are displayed.</p>	<p>(h) Self diagnostic error</p> <p>Indicates the log counter of self diagnostics errors depending on cause. (See page 1-4-18)</p> <p>Example: C6000: 4</p> <p>Self diagnostics error 6000 has happened four times.</p>	<p>(i) Maintenance item replacing</p> <p>Indicates the log counter depending on the maintenance item for maintenance.</p> <p>T: Toner container 00: Black</p> <p>M: Maintenance kit 00: (fixed)</p> <p>Example: T00: 1 The (black) toner container has been replaced once.</p>

Service items	Description				
<div data-bbox="169 286 414 371" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">&gt;&gt;Paper Feed</div>	<p><b>Setting the paper feed operation (printer driver priority mode)</b></p> <p><b>Description</b>          With printer driver priority mode, when selecting the specific paper feed location (a cassette or MP tray) with the printer driver (it is not automatic selection), paper is fed from the selected location. Message "Add Paper" is displayed when there is no paper in that location. When selecting the MP tray as the paper feed location, paper is fed with the timing of maximum size. As for the setting media type (setting the paper type), setting of the printer driver is notified to the engine PWB. Duplex printing operation is still the ordinary operation, and paper jam occurs if paper size is different from the setting of the printer.</p> <p><b>Purpose</b>          To set the printer driver priority mode which priority is given to the setup of a printer driver when the ordinary paper feed operation mode is not suitable for the usage condition of the user.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Enter the service mode [&gt;&gt;Paper feed].</li> <li>2. Press the OK key. Message [Paper feed?] will be displayed.</li> <li>3. Select the mode (Normal? or Special?) pressing the cursor up/down keys.</li> </ol> <table border="1" data-bbox="512 779 1189 871" style="margin-left: 40px;"> <tr> <td>Normal</td><td>Ordinary paper feed operation mode</td></tr> <tr> <td>Special</td><td>Printer driver priority mode</td></tr> </table> <ol style="list-style-type: none"> <li>4. Press the OK key.</li> </ol> <p><b>Completion</b></p>	Normal	Ordinary paper feed operation mode	Special	Printer driver priority mode
Normal	Ordinary paper feed operation mode				
Special	Printer driver priority mode				
<div data-bbox="169 1010 414 1095" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">&gt;&gt;Developer</div>	<p><b>Initializing the developer unit (toner install mode)</b></p> <p><b>Description</b>          The new developer unit is shipped from the factory with no toner contained. The developer can be automatically replete with toner when a toner container is installed onto it and the printer is turned on. However, because the toner reservoir in the developer has a large capacity, it requires a lengthy period of time until a substantial amount of toner has been fed to get the printer ready. (A new developer needs approximately 200 g for triggering the sensor inside.)</p> <p><b>Purpose</b>          To execute when the developer unit has been replaced.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Enter the service mode [&gt;&gt;Developer].</li> <li>2. Press the OK key. [&gt;&gt;Developer?] will be displayed.</li> <li>3. Press the OK key. [Ready] will be displayed.</li> <li>4. Turn off and on the main switch. [Self test] [Please wait (Adding toner)] will displayed. The printer continually engages in this mode for a period of approximately 10 minutes, after which the printer reverts to the [Ready] state. [Ready] will displayed. Developer initialization is finished.</li> </ol> <p><b>Completion</b></p>				
<div data-bbox="169 1585 414 1671" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">&gt;&gt;Charger</div>	<p><b>Main charger wire cleaning</b></p> <p><b>Description</b>          The main charger wire cleaning system is operated to remove oxide developed on the main charger wire.</p> <p><b>Purpose</b>          To execute when black streaks are printed lengthwise.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Enter the service mode [&gt;&gt;Charger].</li> <li>2. Press the OK key. [&gt;&gt;Charger?] will be displayed.</li> <li>3. Press the OK key. The message display shows [Please wait], and then the main charger wire cleaning starts and stops after approx.45 seconds. The printer reverts to [Ready], main charger wire cleaning is finished.</li> </ol> <p><b>Completion</b></p>				

Service items	Description
<div data-bbox="167 286 416 371" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">&gt;&gt;Drum</div>	<p><b>Drum surface refreshing</b></p> <p><b>Description</b> Rotates the drum approximately 3 minutes with toner lightly on the overall drum using the high-voltage output control of the engine PWB. The cleaning blade in the drum unit scrapes toner off the drum surface to clean it.</p> <p><b>Purpose</b> To clean the drum surface when image failure occurs due to the drum. This mode is effective when dew condensation on the drum occurs.</p> <p><b>Method</b> 1. Enter the service mode [&gt;&gt;Drum]. 2. Press the OK key. [&gt;&gt;Drum?] will be displayed. 3. Press the OK key. Drum surface refreshing will start and finish after approximately 3 minutes, after which the printer reverts to the [Ready] state. [Ready] will displayed. Drum surface refreshing is finished.</p> <p><b>Completion</b></p>



## 1-4-1 Paper misfeed detection

### (1) Paper misfeed indication

When a paper misfeed occurs, the machine immediately stops printing and displays the jam location on the operation panel.

To remove paper jammed in the machine, open the front cover, left cover or pull the cassette out.

To remove the jammed paper in optional document finisher, detach the finisher from the machine.

Paper misfeed detection can be reset by opening and closing the respective covers to turn safety switch off and on.

### (2) Paper misfeed detection conditions

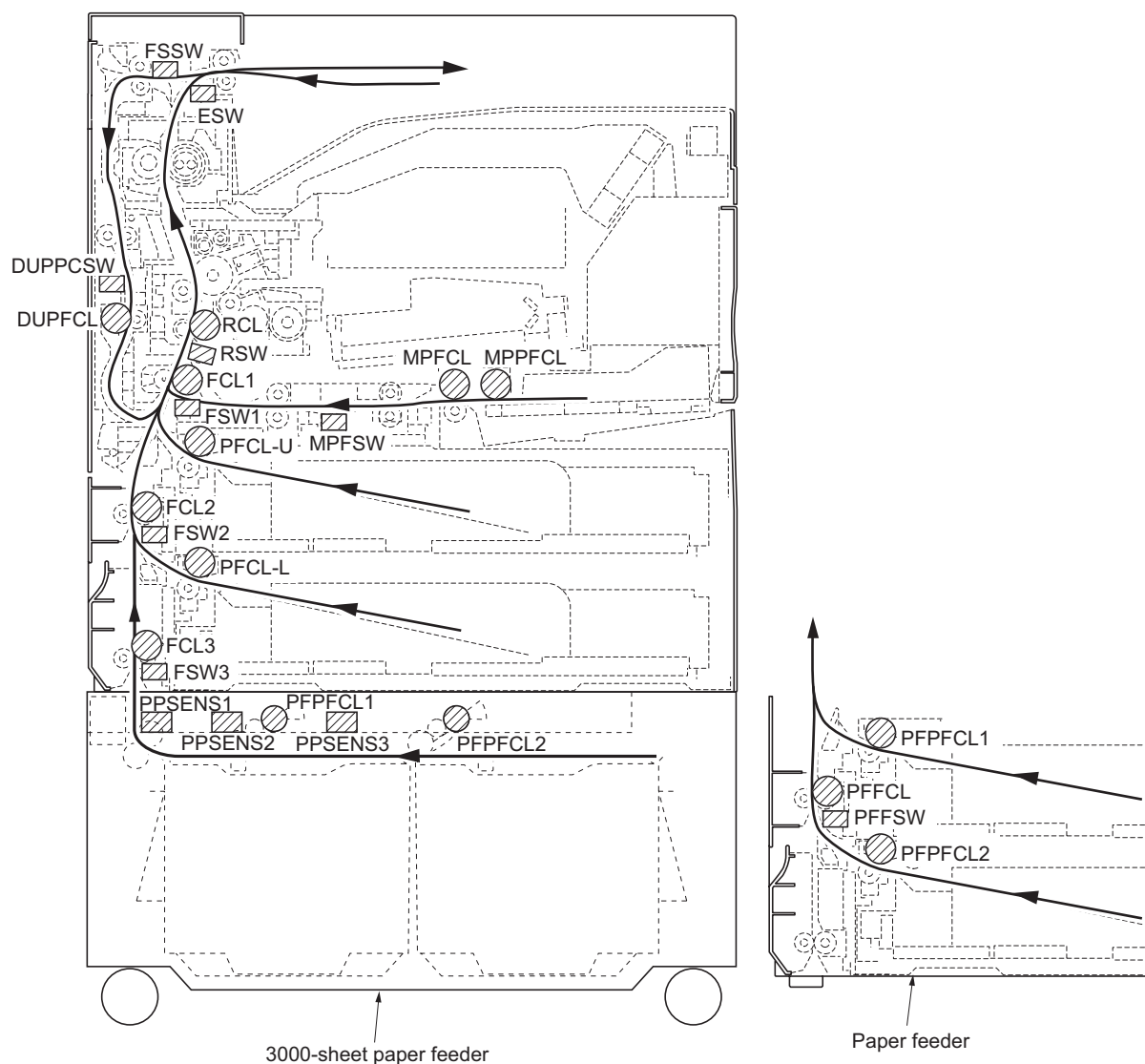


Figure 1-4-1

Section	Description	Conditions	Specified time
System	04 Cover open	Cover is open during copying.	-
	05 Secondary paper feed does not start	Secondary paper feed does not start within specified time of arrival of paper at the registration section.	30 s
	09 3000-sheet paper feeder sequence error jam	A communication sequence error occurs between the machine and the 3000-sheet paper feeder.	-
Paper feed section	10 No paper feed from cassette 1	Feed switch 1 (FSW1) does not turn on within the specified time of upper paper feed clutch (PFCL-U) turning on; the clutch is then successively turned off for 1 s and turned back on, but the switch again fails to turn on within the specified time.	1152 ms
	11 No paper feed from cassette 2	Feed switch 2 (FSW2) does not turn on within the specified time of lower paper feed clutch (PFCL-L) turning on; the clutch is then successively turned off for 1 s and turned back on, but the switch again fails to turn on within the specified time.	1209 ms
	12 No paper feed from optional cassette 3	Feed switch 3 (FSW3) does not turn on within the specified time of paper feeder paper feed clutch 1 (PFPFCL1) turning on; the clutch is then successively turned off for 1 s and turned back on, but the switch again fails to turn on within the specified time (paper feed from optional paper feeder).	1209 ms
		Feed switch 3 (FSW3) does not turn on within the specified time of paper feeder paper feed clutch 1 (PFPFCL1) turning on; the clutch is then successively turned off for 1 s and turned back on, but the switch again fails to turn on within the specified time (paper feed from optional 3000-sheet paper feeder).	1582 ms
	13 No paper feed from optional cassette 4	The paper feeder feed switch (PFFSW) does not turn on within the specified time of paper feeder paper feed clutch 2 (PFPFCL2) turning on; the clutch is then successively turned off for 1 s and turned back on, but the switch again fails to turn on within the specified time (paper feed from optional paper feeder).	1209 ms
	14 No paper feed from MP tray	The MP feed switch (MPPFSW) does not turn on within the specified time of the MP paper feed clutch (MPPFCL) turning on; the clutch is then successively turned off for 1 s and turned back on, but the switch again fails to turn on within the specified time.	3913 ms
	15 Jam in paper feeder horizontal paper conveying section 1	Paper path sensor 3 (PPSENS3) does not turn on within specified time of paper feeder paper feed clutch 2 (PFPFCL2) turning on (paper feed from optional 3000-sheet paper feeder).	637 ms
	16 Jam in paper feeder horizontal paper conveying section 2	Paper path sensor 2 (PPSENS2) does not turn on within specified time of the paper path sensor 3 (PPSENS3) turning on (paper feed from optional 3000-sheet paper feeder).	681 ms
	17 Jam in paper feeder horizontal paper conveying section 3	Paper path sensor 1 (PPSENS1) does not turn on within specified time of the paper path sensor 2 (PPSENS2) turning on (paper feed from optional 3000-sheet paper feeder).	417 ms

Section	Description	Conditions	Specified time
Paper feed section	18 Misfeed in vertical paper conveying section	The registration switch (RSW) does not turn on within specified time of feed switch 1 (FSW1) turning on.	1283 ms
		Feed switch 1 (FSW1) does not turn on within specified time of feed switch 2 (FSW2) turning on.	1478 ms
		Feed switch 2 (FSW2) does not turn on within specified time of feed switch 3 (FSW3) turning on.	1474 ms
	19 Misfeed in paper feeder vertical paper conveying section	Feed switch 3 (FSW3) does not turn on within specified time of the paper feeder feed switch (PFFSW) turning on.	1217 ms
	20 Misfeed in MP tray vertical paper conveying section	The registration switch (RSW) does not turn on within specified time of the MP feed switch (MPFSW) turning on.	3043 ms
	21 Multiple sheets in paper feed section	The feed switch 1 (FSW1) does not turn off within specified time of its turning on.	3357 ms - paper length
		The feed switch 2 (FSW2) does not turn off within specified time of its turning on.	3357 ms - paper length
		The feed switch 3 (FSW3) does not turn off within specified time of its turning on (paper feed from optional paper feeder).	2617 ms
		The feed switch 3 (FSW3) does not turn off within specified time of its turning on (paper feed from optional 3000-sheet paper feeder).	1234ms
		The paper feeder feed switch (PFFSW) does not turn off within specified time of its turning on.	2617 ms
		The MP feed switch (MPFSW) does not turn off within specified time of its turning on.	3357 ms - paper length
		The feed switch 1 (FSW1) does not turn off within specified time of the upper paper feed clutch (PFCL-U) turning on.	1152 ms
		The feed switch 2 (FSW2) does not turn off within specified time of the lower paper feed clutch (PFCL-L) turning on.	1209 ms
		The feed switch 3 (FSW3) does not turn off within specified time of the paper feeder paper feed clutch 1 (PFPFCL1) turning on.	2643 ms
		The paper feeder feed switch (PFFSW) does not turn off within specified time of the paper feeder paper feed clutch 2 (PFPFCL2) turning on.	3913 ms
		The MP feed switch (MPFSW) does not turn off within specified time of the MP paper feed clutch (MPPFCL) turning on.	3913 ms

Section	Description	Conditions	Specified time
Paper feed section	22 Multiple sheets in vertical conveying section	The feed switch 1 (FSW1) does not turn off within specified time of the feed switch 2 (FSW2) turning off.	1478 ms
		The feed switch 2 (FSW2) does not turn off within specified time of the feed switch 3 (FSW3) turning off.	1539 ms
		The feed switch 1 (FSW1) does not turn off within specified time of the feed switch 2 (FSW2) turning on	1478 ms
		The feed switch 2 (FSW2) does not turn off within specified time of the feed switch 3 (FSW3) turning on.	1474 ms
	23 Multiple sheets in MP tray conveying section	The registration switch (RSW) does not turn off within specified time of the MP feed switch (MPFSW) turning off.	2739 ms
		The registration switch (RSW) does not turn off within specified time of the MP feed switch (MPFSW) turning on.	3043 ms
Paper conveying section	30 Misfeed in registration/transfer section	The registration switch (RSW) does not turn off within specified time of the feed switch 1 (FSW1) turning off.	1170 ms
		The registration switch (RSW) does not turn off within specified time of the feed switch 1 (FSW1) turning on.	1278 ms
Fuser section	40 Misfeed in fuser section (MP tray) 41 Misfeed in fuser section (cassette 1) 42 Misfeed in fuser section (cassette 2) 43 Misfeed in fuser section (optional cassette 3) 44 Misfeed in fuser section (optional cassette 4) 45 Misfeed in fuser section (optional 3000-sheet paper feeder) 46 Misfeed in fuser section (duplex section)	The eject switch (ESW) does not turn on within specified time of the registration clutch (RCL) turning on.	2243 ms
		The feedshift switch (FSSW) does not turn on within specified time of the registration clutch (RCL) turning on.	2243 ms
Eject section	50 Misfeed in eject section	The eject switch (ESW) does not turn off within specified time of the registration switch (RSW) turning off.	2243 ms
		The eject switch (ESW) does not turn off within specified time of the registration clutch (RCL) turning on.	2243 ms

Section	Description	Conditions	Specified time
Feedshift section	52 Misfeed in feedshift section	The feedshift switch (FSSW) does not turn on within specified time of the start of eject motor (EM) reverse rotation.	1196 ms
		During paper switchback operation, the feedshift switch (FSSW) does not turn off within specified time of the its turning on.	2313 ms
		The feedshift switch (FSSW) does not turn off within specified time of the registration switch (RSW) turning off.	2243 ms
		The feedshift switch (FSSW) does not turn off within specified time of the registration clutch (RCL) turning on.	2243 ms
Duplex section	60 Duplex paper conveying section 1	The duplex paper conveying switch (DUPPCSW) does not turn on within specified time of the feedshift switch (FSSW) turning on.	2196 ms
		The duplex paper conveying switch (DUPPCSW) does not turn off within specified time of the feedshift switch (FSSW) turning off.	2196 ms
	61 Duplex paper conveying section 2	The feed switch 1 (FSW1) does not turn on within specified time of the duplex paper conveying switch (DUPPCSW) turning on.	1543 ms
		The feed switch 1 (FSW1) does not turn off within specified time of the duplex paper conveying switch (DUPPCSW) turning off.	1543 ms
Optional finisher	80 Jam between the finisher and machine (3000-sheet document finisher only)	Paper ejection is not output from the machine to the document finisher within specified time of the paper entry sensor (PES) turning on.	15 s
	81 Paper entry sensor non arrival jam	(3000-sheet document finisher) The paper entry sensor (PES) is not turned off even if a specified time has elapsed after the machine eject signal was received.	1052 ms
		The paper entry sensor (PES) is not turned on even if a specified time has elapsed after the machine eject signal was received.	1052 ms
		The paper entry sensor (PES) does not turn off within specified time of its turning on.	2313 ms
		(Document finisher) The paper entry sensor (PES) is not turned on even if a specified time has elapsed after the machine eject signal was received.	2627 ms
	82 Jam in stapler	(3000-sheet document finisher) The home position is not detected within the specified time when driving the staple motor.	600 ms
		(Document finisher) The staple home position sensor (STSPS) is not turned on within the specified time when driving the staple motor (STM).	1000 ms

Section	Description	Conditions	Specified time
Optional finisher	83 Exit sensor stay jam	(3000-sheet document finisher) Eject switch 1 (ESW1) is not turned off within specified time of its turning on.	1182 ms
		(Document finisher) In the straight mode, the exit sensor (EXS) is not turned off within specified time of its turning on.	1680ms
		(Document finisher) In the offset or staple mode, the exit sensor (EXS) is not turned off within specified time of its turning on.	5375ms
	84 Jam in eject section of right sub tray (3000-sheet document finisher only)	Eject switch 2 (ESW2) is not turned off even if a specified time has elapsed after the machine eject signal was received.	1209 ms
		Eject switch 2 (ESW2) is not turned on even if a specified time has elapsed after the machine eject signal was received.	1209 ms
		Eject switch 2 (ESW2) is not turned off within specified time of its turning on.	2313 ms
	85 Jam in eject section of left sub tray (3000-sheet document finisher only)	Eject switch 3 (ESW3) does not turn off within specified time of paper entry sensor (PES) turning on.	1426 ms
		Eject switch 3 (ESW3) does not turn on within specified time of paper entry sensor (PES) turning on.	1426 ms
		Eject switch 3 (ESW3) is not turned off within specified time of its turning on.	2313 ms
	86 Jam in eject section of internal tray 1 (3000-sheet document finisher only)	Internal tray entry sensor 1 (ITPES1) is not turned on even if a specified time has elapsed after the eject signal was received.	2070 ms
	87 Jam in eject section of internal tray 2 (3000-sheet document finisher only)	Internal tray entry sensor 2 (ITPES2) does not turn on within specified time of internal tray entry sensor 1 (ITPES1) turning on.	1322 ms
		Internal tray entry sensor 2 (ITPES2) does not turn off within specified time of internal tray entry sensor 1 (ITPES1) turning off.	676 ms
	88 Jam in eject section of main tray (3000-sheet document finisher only)	Eject switch 1 (ESW1) is not turned on within specified time.	1324 ms
		Side registration home position sensor 1 (SRHPS1) is not turned off within specified time of its turning on.	500 ms
		Side registration home position sensor 2 (SRHPS2) is not turned off within specified time of its turning on.	500 ms
		The paper conveying belt detection sensor (PCBDS) is not turned off within specified time.	2000 ms

Section	Description	Conditions	Specified time
Optional finisher	89 Jam in centerfold unit (3000-sheet document finisher only)	The centerfold paper entry sensor (CPES) does not turn off within specified time of centerfold paper detection sensor (CPDS) turning on.	1370 ms
		The centerfold paper entry sensor (CPES) does not turn on within specified time of centerfold paper detection sensor (CPDS) turning on.	1370 ms
		The centerfold paper entry sensor (CPES) is not turned off within specified time of its turning on.	2313 ms
		The centerfold eject switch (CESW) is not turned on within specified time.	3040 ms
		The centerfold eject switch (CESW) is not turned off within specified time of its turning on.	4213 ms
		Centerfold side registration sensor 1 (CSRS1) is not turned on within specified time.	600 ms
		Centerfold side registration sensor 2 (CSRS2) is not turned on within specified time.	600 ms
		The home position is not detected within the specified time after driving the centerfold staple motor (CSTM).	1000 ms
		The centerfold paper detection sensor (CPDS) is not turned off within specified time.	3504 ms
		The centerfold paper detection sensor (CPDS) is not turned on within specified time.	3504 ms
		The centerfold paper detection sensor (CPDS) is not turned off within specified time of its turning on.	2313 ms
	90 Jam in mail box (3000-sheet document finisher only)	The mail paper entry switch (MPESW) is not turned on within specified time.	1017 ms
		The mail paper entry switch (MPESW) is not turned off within specified time of its turning on.	2313 ms
		The tray eject sensor (TEJS) does not turn on within specified time of mail paper entry switch (MPESW) turning on.	Tray 1 to 4 2026 ms Tray 5 to 7 1148 ms
		The tray eject sensor (TEJS) is not turned off within specified time of its turning on.	2313 ms
	91 Finisher cover open	(3000-sheet document finisher) The front cover, top cover or right sub tray is opened when starting the finisher operation. The centerfold unit top cover is opened when starting the centerfold operation. The mail box cover is opened when starting the operation.	-
		(Document finisher) The finisher cover becomes open during paper is running. Paper is remaining in paths at power on.	-
	92 Exit sensor non-arrival jam (document finisher only)	In the straight mode, the exit sensor (EXS) is not turned on even if a specified time has elapsed after the paper entry sensor (PES) was turned on.	1770 ms

Section	Description	Conditions	Specified time
Optional finisher	93 Reverse sensor jam (document finisher only)	The reverse sensor (REVS) does not turn on within specified time of paper entry sensor (PES) turning on.	1071 ms
		The reverse sensor (REVS) is not turned on within specified time.	435 ms
		The reverse sensor (REVS) does not turn off within specified time of paper entry sensor (PES) turning off.	622 ms
		The reverse sensor (REVS) is not turned off within specified time its turning on.	Depends on paper size
	94 Paper entry sensor stay/remaining jam (document finisher only)	The paper entry sensor (PES) is not turned off within specified time its turning on.	Depends on paper size
	95 Paper conveying sensor jam (document finisher only)	The paper conveying sensor (PCS) does not turn on within specified time of reverse sensor (REVS) turning on.	735 ms
		The paper conveying sensor (PCS) does not turn off within specified time of reverse sensor (REVS) turning off.	1004 ms



**(3) Paper misfeeds**

Problem	Causes/check procedures	Corrective measures
(1) A paper jam in the paper feed, conveying or eject section is indicated as soon as the main power switch is turned on.	A piece of paper torn from copy paper is caught around feed switch 1/2/3, registration switch, eject switch or feedshift switch.	Check visually and remove it, if any.
	Defective switch.	Run maintenance item U031 and turn switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse. Feed switch 1/2/3, registration switch, eject switch, feedshift switch
(2) A paper jam in the paper feed section is indicated during copying (no paper feed from cassette 1). Jam code 10	Paper is extremely curled.	Change the paper.
	Check if the upper paper feed pulley, separation pulley or forwarding pulley of the cassette 1 are deformed.	Check visually and replace any deformed pulleys.
	Broken feed switch 1 actuator.	Check visually and replace switch.
	Defective feed switch 1.	Run maintenance item U031 and turn feed switch 1 on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse.
	Check if the upper paper feed clutch malfunctions.	Run maintenance item U032 and select the upper paper feed clutch on the touch panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the upper paper feed clutch.	Check (see page 1-4-38).
(3) A paper jam in the paper feed section is indicated during copying (no paper feed from cassette 2). Jam code 11	Paper is extremely curled.	Change the paper.
	Check if the lower paper feed pulley, separation pulley or forwarding pulley of the cassette 2 are deformed.	Check visually and replace any deformed pulleys.
	Broken feed switch 2 actuator.	Check visually and replace switch.
	Defective feed switch 2.	Run maintenance item U031 and turn feed switch 2 on and off manually. Replace feed switch 2 if indication of the corresponding switch on the touch panel is not displayed in reverse.
	Check if the lower paper feed clutch malfunctions.	Run maintenance item U032 and select the lower paper feed clutch on the touch panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the lower paper feed clutch.	Check (see page 1-4-38).

Problem	Causes/check procedures	Corrective measures
(4) A paper jam in the paper feed section is indicated during copying (no paper feed from optional cassette 3). Jam code 12	Optional paper feeder	
	Paper is extremely curled.	Change the paper.
	Check if the paper feed pulley, forwarding pulley and separation pulley of optional cassette 3 are deformed.	Check visually and replace any deformed pulleys.
	Broken feed switch 3 actuator.	Check visually and replace switch.
	Defective feed switch 3.	Run maintenance item U031 and turn feed switch 3 on and off manually. Replace feed switch 3 if indication of the corresponding switch on the touch panel is not displayed in reverse.
	Electrical problem with paper feeder paper feed clutch 1.	Check (see service manual of paper feeder).
	Optional 3000-sheet paper feeder	
	Paper is extremely curled.	Change the paper.
	Broken feed switch 3 actuator.	Check visually and replace switch.
	Defective feed switch 3.	Run maintenance item U031 and turn feed switch 3 on and off manually. Replace feed switch 3 if indication of the corresponding switch on the touch panel is not displayed in reverse.
	Electrical problem with paper feeder paper feed clutch 1/2 and paper feeder paper conveying clutch.	Check (see service manual of 3000-sheet paper feeder).
(5) A paper jam in the paper feed section is indicated during copying (no paper feed from optional cassette 4). Jam code 13	Paper is extremely curled.	Change the paper.
	Check if the paper feed pulley, forwarding pulley and separation pulley of optional cassette 4 are deformed.	Check visually and replace any deformed pulleys.
	Broken paper feeder feed switch actuator.	Check visually and replace switch.
	Defective paper feeder feed switch.	With 5 V DC present at CN2-8 on the paper feeder main PWB, check if CN2-7 on the paper feeder main PWB remains low when the paper feeder feed switch is turned on and off. If it does, replace the paper feeder feed switch.
	Electrical problem with paper feeder paper feed clutch 2.	Check (see service manual of paper feeder).

Problem	Causes/check procedures	Corrective measures
(6) A paper jam in the paper feed section is indicated during copying (no paper feed from MP tray). Jam code 14	Paper is extremely curled.	Change the paper.
	Check if the MP paper feed pulley, MP forwarding pulley and MP separation pulley are deformed.	Check visually and replace any deformed pulleys.
	Broken MP feed switch actuator.	Check visually and replace switch.
	Defective MP feed switch.	Run maintenance item U031 and turn MP feed switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse.
	Check if the MP paper feed clutch malfunctions.	Run maintenance item U032 and select MP paper feed clutch on the touch panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the MP paper feed clutch.	Check (see page 1-4-38).
(7) A paper jam in the paper feed section is indicated during copying (jam in 3000-sheet paper feeder horizontal paper conveying section). Jam code 15	Paper is extremely curled.	Change the paper.
	Check if the paper side guides are deformed.	Check visually and replace.
	Defective paper path sensor 3.	With 5 V DC present at CN6-12 on the paper feeder main PWB, check if CN6-11 on the paper feeder main PWB remains low when paper path sensor 3 is turned on and off. If it does, replace paper path sensor 3.
	Electrical problem with paper feeder paper feed clutch 2.	Check (see service manual of 3000-sheet paper feeder).
(8) A paper jam in the paper feed section is indicated during copying (jam in 3000-sheet paper feeder horizontal paper conveying section). Jam code 16	Paper is extremely curled.	Change the paper.
	Check if the paper side guides are deformed.	Check visually and replace.
	Defective paper path sensor 2.	With 5 V DC present at CN6-9 on the paper feeder main PWB, check if CN6-8 on the paper feeder main PWB remains low when paper path sensor 2 is turned on and off. If it does, replace paper path sensor 2.
	Electrical problem with paper feeder paper feed clutch 1.	Check (see service manual of 3000-sheet paper feeder).
(9) A paper jam in the paper feed section is indicated during copying (jam in 3000-sheet paper feeder horizontal paper conveying section). Jam code 17	Paper is extremely curled.	Change the paper.
	Check if the paper side guides are deformed.	Check visually and replace.
	Defective paper path sensor 1.	With 5 V DC present at CN6-6 on the paper feeder main PWB, check if CN6-5 on the paper feeder main PWB remains low when paper path sensor 1 is turned on and off. If it does, replace paper path sensor 1.
	Electrical problem with paper feeder paper conveying clutch.	Check (see service manual of 3000-sheet paper feeder).

Problem	Causes/check procedures	Corrective measures
(10) A paper jam in the paper feed section is indicated during copying (jam in vertical paper conveying section). Jam code 18	Broken feed switch 1/2/3 actuator.	Check visually and replace switch.
	Defective switch.	Run maintenance item U031 and turn following switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse. Feed switch 1/2/3, registration switch
	Defective feed pulleys or feed rollers.	Check visually and replace.
(11) A paper jam in the paper feed section is indicated during copying (jam in optional paper feeder vertical paper conveying section). Jam code 19	Broken feed switch 3 actuator.	Check visually and replace switch.
	Defective feed switch 3.	Run maintenance item U031 and turn feed switch 3 on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse.
	Broken paper feeder feed switch actuator.	Check visually and replace switch.
	Defective paper feeder feed switch.	With 5 V DC present at CN2-8 on the paper feeder main PWB, check if CN2-7 on the paper feeder main PWB remains low when the paper feeder feed switch is turned on and off. If it does, replace the paper feeder feed switch.
(12) A paper jam in the paper feed section is indicated during copying (jam in MP tray vertical paper conveying section). Jam code 20	Broken MP feed switch actuator.	Check visually and replace switch.
	Defective switch.	Run maintenance item U031 and turn following switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse. MP feed switch, registration switch
(13) A paper jam in the paper feed section is indicated during copying (multiple sheets in paper feed section). Jam code 21	Broken feed switch 1/2/3 or MP feed switch actuator.	Check visually and replace switch.
	Defective switch.	Run maintenance item U031 and turn switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse. Feed switch 1/2/3, MP feed switch
	Broken paper feeder feed switch actuator.	Check visually and replace switch.
	Defective paper feeder feed switch.	With 5 V DC present at CN2-8 on the paper feeder main PWB, check if CN2-7 on the paper feeder main PWB remains low when the paper feeder feed switch is turned on and off. If it does, replace the paper feeder feed switch.
	Check if the clutch malfunctions.	Run maintenance item U032 and select following clutch on the touch panel to be turned on and off. Check the status and remedy if necessary. Upper paper feed clutch, lower paper feed clutch, MP paper conveying clutch
	Electrical problem with clutch.	Check (see page 1-4-38).
	Defective feed pulleys or feed rollers.	Check visually and replace.

Problem	Causes/check procedures	Corrective measures
(14) A paper jam in the paper feed section is indicated during copying (multiple sheets in vertical conveying section). Jam code 22	Broken feed switch 1/2/3 actuator.	Check visually and replace switch.
	Defective switch.	Run maintenance item U031 and turn switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse. Feed switch 1/2/3
	Defective feed pulleys or feed rollers.	Check visually and replace.
(15) A paper jam in the paper feed section is indicated during copying (multiple sheets in bypass conveying section). Jam code 23	Broken MP feed switch actuator.	Check visually and replace switch.
	Defective switch.	Run maintenance item U031 and turn switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse. MP feed switch, registration switch
(16) A paper jam in the paper conveying section is indicated during copying (jam in registration/transfer section). Jam code 30	Broken feed switch 1 actuator.	Check visually and replace switch.
	Defective switch.	Run maintenance item U031 and turn switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse. Feed switch 1, registration switch
	The contact between the right and left registration rollers is not correct.	Check visually and replace.
(17) A paper jam in the fuser section is indicated during copying (jam in fuser section). Jam codes 40 to 44, 46 and 47	Broken eject switch or feed-shift switch actuator.	Check visually and replace switch.
	Defective switch.	Run maintenance item U031 and turn switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse. Eject switch, feedshift switch
	Check if the registration clutch malfunctions.	Run maintenance item U032 and select the registration clutch on the touch panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the registration clutch.	Check (see page 1-4-38).
(18) A paper jam in the eject section is indicated during copying (jam in eject section). Jam code 50	Broken eject switch actuator.	Check visually and replace switch.
	Defective switch.	Run maintenance item U031 and turn switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse. Registration switch, eject switch
	Check if the registration clutch malfunctions.	Run maintenance item U032 and select the registration clutch on the touch panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the registration clutch.	Check (see page 1-4-38).

Problem	Causes/check procedures	Corrective measures
(19) A paper jam in the feedshift section is indicated during copying (jam in feedshift section). Jam code 52	Electrical problem with the feedshift solenoid.	Check (see page 1-4-38).
	Broken feedshift switch actuator.	Check visually and replace switch.
	Defective switch.	Run maintenance item U031 and turn switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse. Feedshift switch, registration switch
	Check if the registration clutch malfunctions.	Run maintenance item U032 and select the registration clutch on the touch panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the registration clutch.	Check (see page 1-4-38).
(20) A paper jam in the duplex section is indicated during copying (jam in duplex paper conveying section 1). Jam code 60	Broken feedshift switch or duplex paper conveying switch actuator.	Check visually and replace switch.
	Defective switch.	Run maintenance item U031 and turn switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse. Feedshift switch, duplex paper conveying switch
(21) A paper jam in the duplex section is indicated during copying (jam in duplex paper conveying section 2). Jam code 61	Broken duplex paper conveying switch or feed switch 1 actuator.	Check visually and replace switch.
	Defective switch.	Run maintenance item U031 and turn switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse. Duplex paper conveying switch, feed switch 1
(22) A paper jam in optional document finisher is indicated during copying (jam between finisher and machine). Jam code 80	Defective paper entry sensor.	With 5 V DC present at YC19-6 on the finisher main PWB, check if YC19-7 on the finisher main PWB remains low or high when the paper entry sensor is turned on and off. If it does, replace the paper entry sensor.
(23) A paper jam in optional document finisher is indicated during copying (paper jam during paper insertion to the finisher). Jam code 81	Extremely curled paper.	Change the paper.
	Defective paper entry sensor.	(3000-sheet document finisher) With 5 V DC present at YC19-6 on the finisher main PWB, check if YC19-7 on the finisher main PWB remains low or high when the paper entry sensor is turned on and off. If it does, replace the paper entry sensor.
		(Document finisher) With 5 V DC present at CN14-1 and CN14-3 on the finisher main PWB, check if CN14-2 and CN14-4 on the finisher main PWB remains low or high when the paper entry sensor is turned on and off. If it does, replace the paper entry sensor.
	Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.

Problem	Causes/check procedures	Corrective measures
(24) A paper jam in optional document finisher is indicated during copying (finisher stapler jam). Jam code 82	Defective staple home position sensor.	With 5 V DC present at YC22-6 on the finisher main PWB, check if YC22-5 on the finisher main PWB remains low or high when the staple home position sensor is turned on and off. If it does, replace the staple home position sensor.
(25) A paper jam in optional document finisher is indicated during copying (eject sensor stay jam). Jam code 83	3000-sheet document finisher	
	Defective eject switch 1.	With 5 V DC present at YC16-A7 on the finisher main PWB, check if YC16-A6 on the finisher main PWB remains low or high when the eject switch 1 is turned on and off. If it does, replace the eject switch 1.
	Document finisher	
	Defective eject sensor.	With 5 V DC present at CN5-4 on the finisher main PWB, check if CN5-6 on the finisher main PWB remains low or high when the eject sensor is turned on and off. If it does, replace the eject sensor.
	Check if the paper conveying motor malfunctions.	Check and remedy.
	Check if the eject roller and eject pulley contact each other.	Check and remedy.
	Check if the eject guide is deformed.	Check and remedy.
	Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
(26) A paper jam in optional document finisher is indicated during copying (sub tray eject jam). Jam code 84	Defective eject switch 2.	With 5 V DC present at YC19-3 on the finisher main PWB, check if YC19-2 on the finisher main PWB remains low or high when the eject switch 2 is turned on and off. If it does, replace the eject switch 2.
(27) A paper jam in optional document finisher is indicated during copying (sub tray eject jam). Jam code 85	Defective eject switch 3.	With 5 V DC present at YC16-A4 on the finisher main PWB, check if YC16-A3 on the finisher main PWB remains low or high when the eject switch 3 is turned on and off. If it does, replace the eject switch 3.
(28) A paper jam in optional document finisher is indicated during copying (internal tray paper entry sensor 1 jam). Jam code 86	Defective internal tray paper entry sensor 1.	With 5 V DC present at YC11-1 on the internal tray PWB, check if YC11-2 on the internal tray PWB remains low or high when the internal tray paper entry sensor 1 is turned on and off. If it does, replace the internal tray paper entry sensor 1.

Problem	Causes/check procedures	Corrective measures
(29) A paper jam in optional document finisher is indicated during copying (internal tray paper entry sensor 2 jam). Jam code 87	Defective internal tray paper entry sensor 2.	With 5 V DC present at YC11-4 on the internal tray PWB, check if YC11-5 on the internal tray PWB remains low or high when the internal tray paper entry sensor 2 is turned on and off. If it does, replace the internal tray paper entry sensor 2.
(30) A paper jam in optional document finisher is indicated during copying (main tray eject jam). Jam code 88	Defective eject switch 1.	With 5 V DC present at YC16-A7 on the finisher main PWB, check if YC16-A6 on the finisher main PWB remains low or high when the eject switch 1 is turned on and off. If it does, replace the eject switch 1.
	Defective side registration home position sensor 1/2.	With 5 V DC present at YC12-6 and YC10-3 on the internal tray PWB, check if YC12-5 and YC10-2 on the internal tray PWB remains low or high when the side registration home position sensor 1/2 is turned on and off. If it does, replace the side registration home position sensor 1/2.
	Defective paper conveying belt position detection sensor.	With 5 V DC present at YC12-9 on the internal tray PWB, check if YC12-8 on the internal tray PWB remains low or high when the paper conveying belt position detection sensor is turned on and off. If it does, replace the paper conveying belt position detection sensor.
(31) A paper jam in optional document finisher is indicated during copying (centerfold unit jam). Jam code 89	Defective centerfold paper entry sensor.	With 5 V DC present at YC13-3 on the centerfold main PWB, check if YC13-2 on the centerfold main PWB remains low or high when the centerfold paper entry sensor is turned on and off. If it does, replace the centerfold paper entry sensor.
	Defective centerfold eject switch.	With 5 V DC present at YC4-6 on the centerfold main PWB, check if YC4-5 on the centerfold main PWB remains low or high when the centerfold eject switch is turned on and off. If it does, replace the centerfold eject switch.
	Defective centerfold paper detection switch.	With 5 V DC present at YC5-3 on the centerfold main PWB, check if YC5-2 on the centerfold main PWB remains low or high when the centerfold paper detection switch is turned on and off. If it does, replace the centerfold paper detection switch.
(32) A paper jam in optional document finisher is indicated during copying (mail box jam). Jam code 90	Defective mail paper entry switch.	With 5 V DC present at YC4-30 on the mail box main PWB, check if YC4-21 on the mail box main PWB remains low or high when the mail paper entry switch is turned on and off. If it does, replace the mail paper entry switch.
	Defective tray eject sensor.	With 5 V DC present at YC4-19 on the mail box main PWB, check if YC4-17 on the mail box main PWB remains low or high when the tray eject sensor is turned on and off. If it does, replace the tray eject sensor.



Problem	Causes/check procedures	Corrective measures
(33) A paper jam in optional document finisher is indicated during copying (eject sensor non-arrival jam). Jam code 92	Defective eject sensor.	With 5 V DC present at CN5-4 on the finisher main PWB, check if CN5-6 on the finisher main PWB remains low or high when the eject sensor is turned on and off. If it does, replace the eject sensor.
	Check if the paper conveying motor malfunctions.	Check.
	Check if the eject roller and eject pulley contact each other.	Check and remedy.
	Check if the eject guide is deformed.	Check and remedy.
	Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
(34) A paper jam in optional document finisher is indicated during copying (reverse sensor jam). Jam code 93	Defective reverse sensor.	With 5 V DC present at CN14-5 on the finisher main PWB, check if CN14-7 on the finisher main PWB remains low or high when the reverse sensor is turned on and off. If it does, replace the reverse sensor.
	Check if the reverse motor malfunctions.	Check.
	Check if the reverse roller and reverse pulley contact each other.	Check and remedy.
	Check if the reverse guide is deformed.	Check and remedy.
	Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
(35) A paper jam in optional document finisher is indicated during copying (paper entry sensor stay jam). Jam code 94	Extremely curled paper.	Change the paper.
	Defective paper entry sensor.	With 5 V DC present at CN14-1 and CN14-3 on the finisher main PWB, check if CN14-2 and CN14-4 on the main PCB remains low or high when the paper entry sensor is turned on and off. If it does, replace the paper entry sensor.
	Check if the paper entry guide is deformed.	Check and remedy.
	Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
(36) A paper jam in optional document finisher is indicated during copying (paper conveying sensor jam). Jam code 95	Defective paper conveying sensor.	With 5 V DC present at CN4-4 on the finisher main PWB, check if CN4-6 on the finisher main PWB remains low or high when the paper conveying sensor is turned on and off. If it does, replace the paper conveying sensor.
	Check if the paper conveying motor malfunctions.	Check.
	Check if the paper conveying roller and paper conveying pulley contact each other.	Check and remedy.
	Check if the paper conveying guide is deformed.	Check and remedy.
	Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.

## 1-4-2 Self-diagnosis

### (1) Self-diagnostic function

This unit is equipped with a self-diagnostic function. When a problem is detected, printing is disabled and the problem displayed a number, indicating the nature of the problem.

A message is also displayed requesting the user to call for service.

After removing the problem, the self-diagnostic function can be reset by turning safety switches off and back on.

### (2) Self diagnostic codes

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
0150	<b>Backup memory device problem (Engine PWB)</b> Reading from or writing to EEPROM cannot be performed.	Defective engine PWB.	Replace the engine PWB and check for correct operation.
		Device damage of EEPROM.	Contact the Service Administrative Division.
0160	<b>Backup memory data problem (Engine PWB)</b> Reading data from EEPROM is abnormal. Read and write data does not match five times continuously.	Defective engine PWB.	Replace the engine PWB and check for correct operation.
		Device damage of EEPROM.	Contact the Service Administrative Division.
1010	<b>Upper lift motor error</b> When cassette 1 is inserted, upper lift limit switch does not turn on within 12 s of upper lift motor turning on.	Poor contact in the connector terminals.	Check the connection of connector of upper lift motor and the connector YC13 on the engine PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Broken gears or couplings of upper lift motor.	Replace upper lift motor.
		Defective upper lift motor.	Check for continuity across the coil. If none, replace upper lift motor.
		Defective upper lift limit switch.	Check if YC13-B9 on the engine PWB goes low when upper lift limit switch is turned off. If not, replace upper lift limit switch.
		Poor contact in the connector terminals.	Check the connection of connector of upper lift limit switch and the connector YC13 on the engine PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective engine PWB.	Replace the engine PWB and check for correct operation.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
1020	<b>Lower lift motor error</b> When cassette 2 is inserted, lower lift limit switch does not turn on within 12 s of lower lift motor turning on.	Poor contact in the connector terminals.	Check the connection of connector of lower lift motor and the connector YC13 on the engine PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Broken gears or couplings of lower lift motor.	Replace lower lift motor.
		Defective lower lift motor.	Check for continuity across the coil. If none, replace lower lift motor.
		Defective lower lift limit switch.	Check if YC13-B15 on the engine PWB goes low when lower lift limit switch is turned off. If not, replace lower lift limit switch.
		Poor contact in the connector terminals.	Check the connection of connector of lower lift limit switch and the connector YC13 on the engine PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective engine PWB.	Replace the engine PWB and check for correct operation.
1030	<b>Paper feeder lift motor 1 error (optional paper feeder)</b> When optional cassette 3 is inserted, paper feeder lift switch 1 does not turn on within 12 s of paper feeder lift motor 1 turning on.	Poor contact in the connector terminals.	Check the connection of connector on the engine PWB and the connector on the paper feeder main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Broken gears or couplings of paper feeder lift motor 1.	Replace paper feeder lift motor 1.
		Defective paper feeder lift motor 1.	Check for continuity across the coil. If none, replace paper feeder lift motor 1.
		Defective paper feeder lift switch 1.	Check if YC1-5 on the paper feeder main PWB goes low when paper feeder lift switch 1 is turned off. If not, replace paper feeder lift switch 1.
1040	<b>Paper feeder lift motor 2 error (optional paper feeder)</b> When optional cassette 4 is inserted, paper feeder lift switch 2 does not turn on within 12 s of paper feeder lift motor 2 turning on.	Poor contact in the connector terminals.	Check the connection of connector on the engine PWB and the connector on the paper feeder main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Broken gears or couplings of paper feeder lift motor 2.	Replace paper feeder lift motor 2.
		Defective paper feeder lift motor 2.	Check for continuity across the coil. If none, replace paper feeder lift motor 2.
		Defective paper feeder lift switch 2.	Check if YC1-7 on the paper feeder main PWB goes low when paper feeder lift switch 2 is turned off. If not, replace paper feeder lift switch 2.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
1100	<b>Paper feeder lift motor 1 error (optional 3000-sheet paper feeder)</b> A motor over-current signal is detected continuously for 1 s or longer.	Poor contact in the connector terminals.	Check the connection of connector on the engine PWB and the connector on the paper feeder main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Paper feeder lift motor 1 does not rotate correctly (the motor is over-loaded).	Check the gears and remedy if necessary.
1110	<b>Paper feeder lift motor 2 error (optional 3000-sheet paper feeder)</b> A motor over-current signal is detected continuously for 1 s or longer.	Poor contact in the connector terminals.	Check the connection of connector on the engine PWB and the connector on the paper feeder main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Paper feeder lift motor 2 does not rotate correctly (the motor is over-loaded).	Check the gears and remedy if necessary.
1120	<b>Paper feeder left lift position problem (optional 3000-sheet paper feeder)</b> Paper feeder switch 2 does not turn on within 30 s of paper feeder lift motor 1 turning on.	Poor contact in the connector terminals.	Check the connection of connector on the engine PWB and the connector on the paper feeder main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective paper feeder lift switch 2.	Check if YC5-7 on the paper feeder main PWB goes low when paper feeder lift switch 2 is turned off. If not, replace paper feeder lift switch 2.
		Defective paper feeder lift motor 1.	Check for continuity across the coil. If none, replace paper feeder lift motor 1.
		The paper feeder left lift does not rise properly.	Check the gears and belts, and remedy if necessary.
1130	<b>Paper feeder right lift position problem (optional 3000-sheet paper feeder)</b> Paper feeder switch 1 does not turn on within 30 s of paper feeder lift motor 2 turning on.	Poor contact in the connector terminals.	Check the connection of connector on the engine PWB and the connector on the paper feeder main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective paper feeder lift switch 1.	Check if YC5-4 on the paper feeder main PWB goes low when paper feeder lift switch 1 is turned off. If not, replace paper feeder lift switch 1.
		Defective paper feeder lift motor 2.	Check for continuity across the coil. If none, replace paper feeder lift motor 2.
		The paper feeder right lift does not rise properly.	Check the gears and belts, and remedy if necessary.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
1800	<b>Paper feeder unit communication problem (optional paper feeder/3000-sheet paper feeder)</b> No communication: there is no reply after 5 retries. Abnormal communication: a communication error (parity or checksum error) is detected five times in succession.	Poor contact in the connector terminals.	Check the connection of connector on the engine PWB and the connector on the paper feeder main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective engine PWB.	Replace the engine PWB and check for correct operation.
		Defective paper feeder main PWB.	Replace the paper feeder main PWB and check for correct operation.
1900	<b>Paper feeder EEPROM error (optional paper feeder)</b> When writing the data, the write data and the read data is not continuously in agreement three times.	Poor contact in the connector terminals.	Check the connection of connector on the engine PWB and the connector on the paper feeder main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective engine PWB.	Replace the engine PWB and check for correct operation.
		Defective paper feeder.	Replace the paper feeder with another unit and check the operation. If the operation is normal, replace or repair optional paper feeder.
2000	<b>Drive motor problem</b> Stable OFF is detected for 1 s continuously after drive motor stability.	Poor contact in the connector terminals.	Check the connection of connector YC11 on the engine PWB and the connector on the drive motor, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective drive transmission system.	Check if the rollers and gears rotate smoothly. If not, grease the bushings and gears. Check for broken gears and replace if any.
		Defective engine PWB.	Replace the engine PWB and check for correct operation.
		Defective drive motor.	Replace the drive motor.
2250	<b>Main charger cleaning motor error</b> The lock signal is detected.	Poor contact in the connector terminals.	Check the connection of connector YC9 on the engine PWB and the connector on the main charger cleaning motor, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective drive transmission system.	Check if the rollers and gears rotate smoothly. If not, grease the bushings and gears. Check for broken gears and replace if any.
		Defective engine PWB.	Replace the engine PWB and check for correct operation.
		Defective main charger cleaning motor.	Replace the main charger cleaning motor.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
2500	<b>Paper feed motor error</b> Stable OFF is detected for 1 s continuously after paper feed motor stability.	Poor contact in the connector terminals.	Check the connection of connector YC11 on the engine PWB and the connector on the paper feed motor, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective drive transmission system.	Check if the rollers and gears rotate smoothly. If not, grease the bushings and gears. Check for broken gears and replace if any.
		Defective engine PWB.	Replace the engine PWB and check for correct operation.
		Defective paper feed motor.	Replace the paper feed motor.
2600	<b>Paper feeder paper conveying motor error (optional 3000-sheet paper feeder)</b> The lock signal of the motor is detected for 450 ms continuously. <b>Paper feeder drive motor error (optional paper feeder)</b> The lock signal of the motor is detected for 500 ms continuously.	Poor contact in the connector terminals.	Check the connection of connector on the engine PWB and the connector on the paper feeder main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Paper feeder paper conveying motor / paper feeder drive motor does not rotate correctly (the motor is overloaded).	Check the gears and remedy if necessary.
		Defective PWB.	Replace the paper feeder main PWB or engine PWB and check for correct operation.
		Defective motor.	Replace the paper feeder paper conveying motor / paper feeder drive motor.
4000	<b>Polygon motor synchronization problem</b> The polygon motor does not reach the stable speed within 20 s of the START signal turning on.	Poor contact in the connector terminals.	Check the connection of connector YC8 on the engine PWB and laser scanner unit, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective polygon motor.	Replace the laser scanner unit.
		Defective engine PWB.	Replace the engine PWB and check for correct operation.
4010	<b>Polygon motor steady-state problem</b> The polygon motor rotation is not stable for 20 s after the polygon motor rotation has been stabilized.	Poor contact in the connector terminals.	Check the connection of connector YC8 on the engine PWB and laser scanner unit, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective polygon motor.	Replace the laser scanner unit.
		Defective engine PWB.	Replace the engine PWB and check for correct operation.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
4200	<b>BD steady-state problem</b> ASIC detects a BD error A for 2 s after the polygon motor rotation has been stabilized.	Poor contact in the connector terminals.	Check the connection of connector YC8 on the engine PWB and laser scanner unit, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective laser scanner unit.	Replace the laser scanner unit.
		Defective engine PWB.	Replace the engine PWB and check for correct operation.
5300	<b>Broken cleaning lamp wire</b> While the cleaning lamp is on, the broken cleaning lamp wire detection signal is detected for 2 s continuously.	Defective cleaning lamp.	Replace the cleaning lamp.
		Defective engine PWB.	Replace the engine PWB and check for correct operation.
6000	<b>Fuser heater break</b> Fuser thermistor 1 is detected 40°C/ 104°F below with 10 s continuously during warm-up and ready in.	Defective fuser heater M or S.	Replace the fuser heater M or S.
		Installation defectiveness on fuser thermistor 1.	Check the mounting state of the fuser thermistor 1. If any problem is found, repair it.
		Defective fuser thermostat.	Replace the fuser thermostat.
		Defective PWB.	Replace the power source PWB or engine PWB and check for correct operation.
6020	<b>Abnormally high fuser thermistor temperature</b> Fuser thermistor 1 or 2 is detected 230°C/446°F or more for 40 ms.	Installation defectiveness on fuser thermistor 1 or 2.	Check the mounting state of the fuser thermistor 1 or 2. If any problem is found, repair it.
		Defective fuser thermistor 1 or 2.	Replace the fuser thermistor 1 or 2.
		Defective engine PWB.	Replace the engine PWB and check for correct operation.
6030	<b>Fuser thermistor break error</b> The thermistor break signal is detected continuously for 500 ms.	Installation defectiveness on fuser thermistor 1 or 2.	Check the mounting state of the fuser thermistor 1 or 2. If any problem is found, repair it.
		Defective fuser thermistor 1 or 2.	Replace the fuser thermistor 1 or 2.
		Defective engine PWB.	Replace the engine PWB and check for correct operation.
6050	<b>Abnormally low fuser thermistor 3 temperature</b> Fuser thermistor 1 is detected 100°C/ 212°F less than 1 s continuously during copying.	Defective fuser heater M or S.	Replace the fuser heater M or S.
		Installation defectiveness on fuser thermistor 1.	Check the mounting state of the fuser thermistor 1. If any problem is found, repair it.
		Defective PWB.	Replace the power source PWB or engine PWB and check for correct operation.
6400	<b>Zero-cross signal error</b> While fuser heater ON/OFF control is performed, the zero-cross signal is not input within 3 s.	Defective PWB.	Replace the engine PWB or power source PWB and check for correct operation.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
6410	<b>Fuser unit connector insertion problem</b> Absence of the fuser unit is detected.	Fuser unit connector inserted incorrectly.	Reinsert the fuser unit connector if necessary.
		Defective fuser unit connector.	Replace the fuser unit.
6420	<b>Fuser unit fuse cut problem</b>	Poor contact in the connector terminals.	Check the connection of connector YC10 on the engine PWB and the continuity across the connector terminals. Repair or replace if necessary.
		Fuser unit connector inserted incorrectly.	Reinsert the fuser unit connector if necessary.
7400	<b>Developing unit connector insertion problem</b> Absence of the developing unit is detected.	Developing unit connector inserted incorrectly.	Reinsert the developing unit connector if necessary.
		Defective developing unit connector.	Replace the developing unit.
7410	<b>Drum unit connector insertion problem</b> Absence of the drum unit is detected.	Drum unit connector inserted incorrectly.	Reinsert the drum unit connector if necessary.
		Defective drum unit connector.	Replace the drum unit.
7800	<b>Broken external thermistor wire</b> The thermistor output value is 4.5 V or more.	Poor contact in the connector terminals.	Check the connection of connector YC14 on the engine PWB and the continuity across the connector terminals. Repair or replace if necessary.
		Defective humidity sensor.	Replace the humidity sensor.
7810	<b>Short-circuited external thermistor</b> The thermistor input value is 0.5 V or less.	Poor contact in the connector terminals.	Check the connection of connector YC14 on the engine PWB and the continuity across the connector terminals. Repair or replace if necessary.
		Defective humidity sensor.	Replace the humidity sensor.
7900	<b>Drum EEPROM error</b> Reading from or writing to EEPROM cannot be performed.	Poor contact in the connector terminals.	Check the connection of connector on the engine PWB and the continuity across the connector terminals. Repair or replace if necessary.
		Defective drum unit.	Replace the drum unit.
7910	<b>Developing unit EEPROM error</b> Reading from or writing to EEPROM cannot be performed.	Poor contact in the connector terminals.	Check the connection of connector on the engine PWB and the continuity across the connector terminals. Repair or replace if necessary.
		Defective developing unit.	Replace the developing unit.



Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
8020	<b>Punch motor problem (optional 3000-sheet document finisher)</b> The LOCK signal of the punch motor is detected for more than 500 ms while the punch motor is operating.	Poor contact in the connector terminals.	Check the connection of connector on the punch PWB and the continuity across the connector terminals. Repair or replace if necessary.
		Defective punch motor.	Replace the punch motor.
		Defective PWB.	Replace the punch PWB or finisher main PWB and check for correct operation.
8030	<b>Tray upper limit detection problem (optional document finisher)</b> When the tray elevation motor raises a tray, the ON status of the tray upper limit sensor is detected.	The tray upper limit sensor/push paper sensor/surface view sensor connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		Defective tray upper limit sensor/push paper sensor/surface view sensor.	Replace the sensor.
		Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
8050	<b>Paper conveying belt motor 1 problem (optional 3000-sheet document finisher)</b> Paper conveying belt home position sensor 1 does not turn off within 1.5 s. Paper conveying belt home position sensor 1 does not turn on within 2.5 s. Jam 88 is indicated.	Poor contact in the connector terminals.	Check the connection of connector YC2 on the internal tray PWB and the connector on paper conveying belt motor 1, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective paper conveying belt home position sensor 1.	Replace paper conveying belt home position sensor 1.
		Defective paper conveying belt motor 1.	Replace paper conveying belt motor 1.
		Defective PWB.	Replace the internal tray PWB or finisher main PWB and check for correct operation.
8060	<b>Paper conveying belt motor 2 problem (optional 3000-sheet document finisher)</b> Paper conveying belt home position sensor 2 does not turn off within 1.5 s. Paper conveying belt home position sensor 2 does not turn on within 2.5 s.	Poor contact in the connector terminals.	Check the connection of connector YC6 on the internal tray PWB and the connector on paper conveying belt motor 2, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective paper conveying belt home position sensor 2.	Replace paper conveying belt home position sensor 2.
		Defective paper conveying belt motor 2.	Replace paper conveying belt motor 2.
		Defective PWB.	Replace the internal tray PWB or finisher main PWB and check for correct operation.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
8070	<b>Internal tray communication error (optional 3000-sheet document finisher)</b> Communication with the internal tray is not possible although the connection is detected.	Poor contact in the connector terminals.	Check the connection of connector YC6 on the finisher main PWB and the connector YC1 on the internal tray PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective PWB.	Replace the internal tray PWB or finisher main PWB and check for correct operation.
8140	<b>Main tray problem (optional 3000-sheet document finisher)</b> The main tray is not detected by the main tray top limit detection sensor or the main tray capacity detection sensor within 20s since the tray has started ascending. The main tray upper limit detection sensor to the main tray load detection sensor is not detected to be turned off in 20 seconds after the main tray has descended. The main tray low limit detection sensor is not detected to be turned on in 20 seconds after the main tray has descended. During main tray ascent, the main tray upper limit detection sensor or the main tray load detection sensor stays on for more than 2 s.	Poor contact in the connector terminals.	Check the connection of connector YC6 on the finisher main PWB and the connector on the main tray motor, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective main tray motor.	Replace the main tray motor.
		Defective main tray upper limit detection sensor/main tray load detection sensor/main tray lower limit detection sensor.	Replace the sensor.
		Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
	<b>Tray elevation motor problem (optional document finisher)</b> When the tray elevation motor is driving, the ON status of the tray lower limit sensor or surface view sensor cannot be detected even if a specified time has elapsed.	The tray elevation motor connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		The tray elevation motor malfunctions.	Replace the tray elevation motor.
		The tray lower limit sensor/push paper sensor/surface view sensor connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		Defective tray lower limit sensor/push paper sensor/surface view sensor.	Replace the sensor.
		Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
8170	<b>Side registration motor 1 problem (optional 3000-sheet document finisher)</b> When operation returned to a home position is performed at the time of initial operation and a home position is not detected even if 3 s passed. Jam 88 is indicated.	Poor contact in the connector terminals.	Check the connection of connector YC2 on the internal tray PWB and the connector on side registration motor 1, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective side registration motor 1.	Replace side registration motor 1.
		Defective PWB.	Replace the internal tray PWB or finisher main PWB and check for correct operation.
	<b>Adjustment motor problem (optional document finisher)</b> When the adjustment motor is driving, the ON status of the adjustment home position sensor cannot be detected even if a specified time has elapsed. When adjustment operation starts, the ON status of the adjustment home position sensor is not detected.	The adjustment motor connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		Defective adjustment motor.	Replace adjustment motor.
		The adjustment home position sensor connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		Defective adjustment home position sensor.	Replace the adjustment home position sensor.
		Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
8180	<b>Side registration motor 2 problem (optional 3000-sheet document finisher)</b> When operation returned to a home position is performed at the time of initial operation and a home position is not detected even if 3 s passed. Jam 88 is indicated.	Poor contact in the connector terminals.	Check the connection of connector YC8 on the internal tray PWB and the connector of side registration motor 2, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective side registration motor 2.	Replace side registration motor 2.
		Defective PWB.	Replace the internal tray PWB or finisher main PWB and check for correct operation.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
8210	<b>Stapler shift motor 1 error (optional 3000-sheet document finisher)</b> When operation returned to a home position is performed at the time of initial operation and a home position is not detected even if 1.5 s passed.	Poor contact in the connector terminals.	Check the connection of connector YC9 on the finisher main PWB and the connector of stapler shift motor 1, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective stapler shift motor 1.	Replace stapler shift motor 1.
		Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
	<b>Stapler problem (optional document finisher)</b> When the stapler motor is driving, the ON status of the stapler home position sensor cannot be detected even if a specified time has elapsed.	The stapler connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		The stapler is blocked with a staple.	Remove the stapler cartridge, and check the cartridge and the stapling section of the stapler.
		The stapler is broken.	Replace the stapler and check for correct operation.
		Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
8220	<b>Stapler shift motor 2 error (optional 3000-sheet document finisher)</b> When operation returned to a home position is performed at the time of initial operation and a home position is not detected even if 3.5 s passed.	Poor contact in the connector terminals.	Check the connection of connector YC10 on the finisher main PWB and the connector of stapler shift motor 2, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective stapler shift motor 2.	Replace stapler shift motor 2.
		Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
8230	<b>Stapler motor problem (optional 3000-sheet document finisher)</b> Jam 82 is indicated.	Poor contact in the connector terminals.	Check the connection of connector YC10 on the finisher main PWB and the connector of stapler motor, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective stapler motor.	Replace the stapler motor.
		Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
8300	<b>Centerfold unit communication error (optional centerfold unit of 3000-sheet document finisher)</b> Communication with the centerfold unit is not possible although the connection is detected.	Poor contact in the connector terminals.	Check the connection of connector YC22 on the finisher main PWB and the continuity across the connector terminals. Repair or replace if necessary.
		Defective centerfold unit set switch.	Replace the centerfold unit set switch.
		Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.

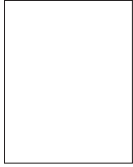
Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
8310	<b>Centerfold side registration motor 1 problem (optional centerfold unit of 3000-sheet document finisher)</b> The home position is not detected when initial operation even if 1000 ms passed.	Poor contact in the connector terminals.	Check the connection of connector YC6 on the centerfold main PWB and the connector of centerfold side registration motor 1, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective centerfold side registration motor 1.	Replace centerfold side registration motor 1.
		Defective PWB.	Replace the centerfold main PWB or finisher main PWB and check for correct operation.
8320	<b>Centerfold paper conveying belt motor problem (optional centerfold unit of 3000-sheet document finisher)</b> The home position is not detected when initial operation even if 2500 ms passed.	Poor contact in the connector terminals.	Check the connection of connector YC6/ YC7 on the centerfold main PWB and the connector of centerfold paper conveying belt motor 1/2, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective centerfold paper conveying belt motor 1/2.	Replace centerfold paper conveying belt motor 1/2.
		Defective PWB.	Replace the centerfold main PWB or finisher main PWB and check for correct operation.
8330	<b>Blade motor problem (optional centerfold unit of 3000-sheet document finisher)</b> The home position is not detected when initial operation even if 1500 ms passed.	Poor contact in the connector terminals.	Check the connection of connector YC8 on the centerfold main PWB and the connector of the blade motor, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective blade motor.	Replace the blade motor.
		Defective PWB.	Replace the centerfold main PWB or finisher main PWB and check for correct operation.
8340	<b>Centerfold staple motor problem (optional centerfold unit of 3000-sheet document finisher)</b> Jam89 is indicated.	Poor contact in the connector terminals.	Check the connection of connector YC9 on the centerfold main PWB and the connector of the centerfold staple motor, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective centerfold staple motor.	Replace the centerfold staple motor.
		Defective PWB.	Replace the centerfold main PWB or finisher main PWB and check for correct operation.
8350	<b>Centerfold side registration motor 2 problem (optional centerfold unit of 3000-sheet document finisher)</b> The home position is not detected when initial operation even if 1000 ms passed.	Poor contact in the connector terminals.	Check the connection of connector YC7 on the centerfold main PWB and the connector of centerfold side registration motor 2, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective centerfold side registration motor 2.	Replace centerfold side registration motor 1.
		Defective PWB.	Replace the centerfold main PWB or finisher main PWB and check for correct operation.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
8360	<b>Centerfold main motor problem (optional centerfold unit of 3000-sheet document finisher)</b> The motor lock signal is detected above 1000 ms during driving the centerfold main motor.	Poor contact in the connector terminals.	Check the connection of connector YC12 on the centerfold main PWB and the connector of the centerfold main motor, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective centerfold main motor.	Replace the centerfold main motor.
		Defective PWB.	Replace the centerfold main PWB or finisher main PWB and check for correct operation.
8440	<b>Sensor adjusting problem (optional document finisher)</b> The sensor cannot be adjusted within the specified range.	The paper entry sensor connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		Defective paper entry sensor.	Replace the paper entry sensor and check for correct operation.
		The optical path of the paper entry sensor is blocked by foreign matter.	Remove the foreign matter.
		Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
8460	<b>EEPROM problem (optional document finisher)</b> Reading from or writing to EEPROM cannot be performed.	Defective EEPROM or finisher main PWB.	Replace the finisher main PWB and check for correct operation.
8500	<b>Mail box communication error (optional mail box of 3000-sheet document finisher)</b> Communication with the mail box is not possible although the connection is detected.	Poor contact in the connector terminals.	Check the connection of the connector of the mail box and the connector YC7 on the finisher main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective PWB.	Replace the mail box main PWB or finisher main PWB and check for correct operation.
8510	<b>Mail box drive motor problem (optional mail box of 3000-sheet document finisher)</b> The motor lock signal is detected above 500 ms during driving the mail box drive motor.	Poor contact in the connector terminals.	Check the connection of connector YC2 on the mail box main PWB and the connector of the mail box drive motor, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective mail box drive motor.	Replace the mail box drive motor.
		Defective PWB.	Replace the mail box main PWB or finisher main PWB and check for correct operation.
8800	<b>Document finisher communication problem (optional 3000-sheet document finisher)</b> No communication: there is no reply after 5 retries. Abnormal communication: a communication error (parity or checksum error) is detected five times in succession.	Poor contact in the connector terminals.	Check the connection of connector on the finisher main PWB and the connector on the engine PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective PWB.	Replace the finisher main PWB or engine PWB and check for correct operation.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
8900	<b>Backup memory data problem (optional 3000-sheet document finisher)</b> Read and write data does not match.	Poor contact in the connector terminals.	Check the connection of connector on the finisher main PWB and the connector on the engine PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
8910	<b>Backup memory data problem (optional 3000-sheet document finisher)</b> Read and write data does not match.	Poor contact in the connector terminals.	Check the connection of connector on the punch PWB and the connector YC4 on the finisher main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective punch PWB.	Replace the punch PWB and check for correct operation.
8920	<b>Backup memory data problem (optional mail box of 3000-sheet document finisher)</b> Read and write data does not match.	Poor contact in the connector terminals.	Check the connection of connector on the mail box main PWB and the connector YC7 on the finisher main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective mail box main PWB.	Replace the mail box main PWB and check for correct operation.
8930	<b>Backup memory data problem (optional centerfold unit of 3000-sheet document finisher)</b> Read and write data does not match.	Poor contact in the connector terminals.	Check the connection of connector on the centerfold main PWB and the connector YC5 on the finisher main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective centerfold main PWB.	Replace the centerfold main PWB and check for correct operation.
F000	<b>Operation panel PWB communication error</b>	Defective main PWB.	Replace the main PWB and check for correct operation.
		Defective operation panel PWB.	Replace the operation panel PWB and check for correct operation.
F010	<b>Main PWB checksum error</b>	Defective main PWB.	Replace the main PWB and check for correct operation.
F020	<b>Memory checksum error</b>	Defective main PWB.	Replace the main PWB and check for correct operation.
		Defective expansion memory.	Replace the expansion memory and check for correct operation.
F030	<b>Main PWB system error</b>	Defective main PWB.	Replace the main PWB and check for correct operation.
F040	<b>Engine PWB communication error</b>	Defective main PWB.	Replace the main PWB and check for correct operation.
		Defective engine PWB.	Replace the engine PWB and check for correct operation.
F226	<b>VIDEO output error</b>	Defective main PWB.	Replace the main PWB and check for correct operation.

### 1-4-3 Image formation problems

(1) No image appears (entirely white).



See page 1-4-33.

(2) No image appears (entirely black).



See page 1-4-33.

(3) Image is too light.



See page 1-4-34.

(4) Background is visible.



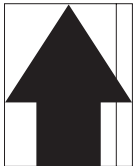
See page 1-4-34.

(5) A white line appears longitudinally.



See page 1-4-34.

(6) A black line appears longitudinally.



See page 1-4-34.

(7) A black line appears laterally.



See page 1-4-35.

(8) One side of the copy image is darker than the other.



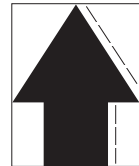
See page 1-4-35.

(9) Black dots appear on the image.



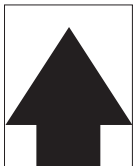
See page 1-4-35.

(10) Image is blurred.



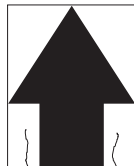
See page 1-4-35.

(11) The leading edge of the image is sporadically misaligned.



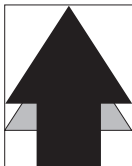
See page 1-4-36.

(12) Paper creases.



See page 1-4-36.

(13) Offset occurs.



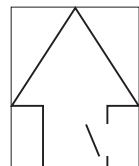
See page 1-4-36.

(14) Image is partly missing.



See page 1-4-36.

(15) Fusing is poor.



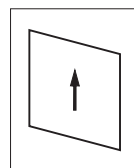
See page 1-4-37.

(16) Image is out of focus.



See page 1-4-37.


(17) Image is not square.




See page 1-4-37.




**(1) No image appears (entirely white).**

Copy example	Causes		Check procedures/corrective measures
	No transfer charging.	The connector terminals of the high voltage PWB make poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		Defective engine PWB.	Check if YC7-10 on the engine PWB goes low when maintenance item U101 is run. If not, replace the engine PWB.
		Defective high voltage PWB.	Check if transfer charging takes place when CN1-5 on the high voltage PWB goes low while maintenance item U101 is run. If not, replace the high voltage PWB.
	No LSU laser is output.	Defective laser scanner unit.	Replace the laser scanner unit (see page 1-5-11).
		Defective main PWB.	Replace the main PWB.
	No developing bias output.	The connector terminals of the high voltage PWB make poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		Defective engine PWB.	Check if YC7-1 on the engine PWB goes low when maintenance item U101 is run. If not, replace the engine PWB.
		Defective high voltage PWB.	Check if developing bias is output when CN1-14 on the high voltage PWB goes low while maintenance item U101 is run. If not, replace the high voltage PWB.

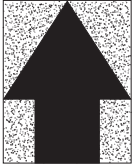
**(2) No image appears (entirely black).**

Copy example	Causes		Check procedures/corrective measures
	No main charging.	Broken main charger wire.	Replace the main charger unit (see page 1-5-15).
		Leaking main charger housing.	Clean the main charger wire and grid.
		The connector terminals of the high voltage PWB make poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		Defective engine PWB.	Check if YC7-4 on the engine PWB goes low when maintenance item U100 is run. If not, replace the engine PWB.
		Defective high voltage PWB.	Check if main charging takes place when CN1-11 on the high voltage PWB goes low while maintenance item U100 is run. If not, replace the high voltage PWB.
	Video data problem.	Defective main PWB.	Replace the main PWB.


**(3) Image is too light.**

Copy example	Causes		Check procedures/corrective measures
	Insufficient toner.		If the display shows the message requesting toner replenishment, replace the container.
	Deteriorated toner.		Perform the drum refresh operation.
	Defective transfer charging output.	The connector terminals of the high voltage PWB make poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		Defective engine PWB.	Check if YC7-10 on the engine PWB goes low when maintenance item U101 is run. If not, replace the engine PWB.
	Defective high voltage PWB.		Check if transfer charging takes place when CN1-5 on the high voltage PWB goes low while maintenance item U101 is run. If not, replace the high voltage PWB.

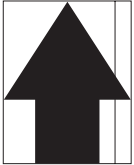
**(4) Background is visible.**

Copy example	Causes	Check procedures/corrective measures
	Deteriorated toner.	Perform the drum refresh operation.
	Dirty main charger wire.	Clean the wire or, if it is extremely dirty, replace it (see page 1-5-15).


**(5) A white line appears longitudinally.**

Copy example	Causes	Check procedures/corrective measures
	Foreign matter in the developing unit.	Check if the magnetic brush is formed uniformly. Replace the developing unit if any foreign matter (see page 1-5-16).
	Defective laser beam output.	Replace the laser scanner unit.

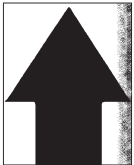
**(6) A black line appears longitudinally.**

Copy example	Causes	Check procedures/corrective measures
	Dirty or flawed drum.	Perform the drum refresh operation. If the drum is flawed, replace the drum unit (see page 1-5-14).
	Deformed or worn cleaning blade.	Replace the drum unit (see page 1-5-14).
	Dirty main charger wire.	Clean the wire or, if it is extremely dirty, replace it (see page 1-5-15).


**(7) A black line appears laterally.**

Copy example	Causes	Check procedures/corrective measures
	Flawed drum.	Replace the drum unit (see page 1-5-14).
	Dirty developing section.	Clean any part contaminated with toner in the developing section.
	Leaking main charger housing.	Clean the main charger wire and grid.
	Leaking separation electrode.	Clean the separation electrode.

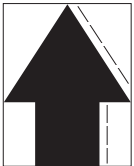
**(8) One side of the copy image is darker than the other.**

Copy example	Causes	Check procedures/corrective measures
	Dirty main charger wire.	Clean the wire or, if it is extremely dirty, replace it (see page 1-5-15).


**(9) Black dots appear on the image.**

Copy example	Causes	Check procedures/corrective measures
	Dirty or flawed drum.	Perform the drum refresh operation. If the drum is flawed, replace the drum unit (see page 1-5-14).
	Deformed or worn cleaning blade.	Replace the drum unit (see page 1-5-14).
	Dirty drum separation claws.	Clean the drum separation claws.
	Dirty the heat roller separation claws.	Clean the heat roller separation claws.

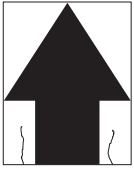
**(10) Image is blurred.**

Copy example	Causes	Check procedures/corrective measures
	Deformed press roller.	Replace the press roller (see page 1-5-20).
	Paper conveying section drive problem.	Check the gears and belts and, if necessary, grease them.

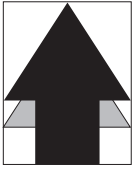
**(11) The leading edge of the image is sporadically misaligned**

Copy example	Causes	Check procedures/corrective measures
	Feed clutch, paper feed clutch, MP paper feed clutch or registration clutch installed or operating incorrectly.	Check the installation position and operation of each clutch. If any of them operates incorrectly, replace it.

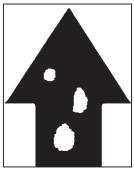
**(12) Paper creases.**

Copy example	Causes	Check procedures/corrective measures
	Paper curled.	Check the paper storage conditions.
	Paper damp.	Check the paper storage conditions.
	Defective pressure springs.	Replace the pressure springs.
	Defective separation.	Check the drum separation claws and heat roller separation claws.

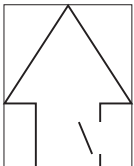
**(13) Offset occurs.**

Copy example	Causes	Check procedures/corrective measures
	Defective cleaning blade.	Replace the drum unit (see page 1-5-14).
	Defective fuser unit.	Check the heat roller and press roller.
	Wrong types of paper.	Check if the paper meets specifications. Replace paper.


**(14) Image is partly missing.**

Copy example	Causes	Check procedures/corrective measures
	Paper damp.	Check the paper storage conditions.
	Paper creased.	Change the paper.
	Drum condensation.	Perform the drum refresh operation.
	Dirty or flawed drum.	Perform the drum refresh operation. If the drum is flawed, replace the drum unit (see page 1-5-14).

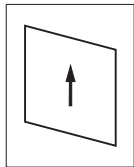
**(15) Fusing is poor.**

Copy example	Causes	Check procedures/corrective measures
	Wrong types of paper.	Check if the paper meets specifications. Replace paper.
	Defective pressure springs.	Replace the pressure springs.
	Flawed press roller.	Replace the press roller (see page 1-5-20).
	Flawed fuser heater.	Replace the fuser heater (see page 1-5-21).

**(16) Image is out of focus.**

Copy example	Causes	Check procedures/corrective measures
	Drum condensation.	Perform the drum refresh operation.

**(17) Image is not square.**

Copy example	Causes	Check procedures/corrective measures
	Laser scanner unit positioned incorrectly.	Adjust the installation position of the laser scanner unit (see page 1-5-13).

### 1-4-4 Electric problems

Troubleshooting to each failure must be in the order of the numbered symptoms.

Problem	Causes	Check procedures/corrective measures
(1) The machine does not operate when the main power switch is turned on.	1. The power cord is not plugged in properly.	Check the contact between the power plug and the outlet.
	2. No electricity at the power outlet.	Measure the input voltage.
	3. Broken power cord.	Check for continuity. If none, replace the cord.
	4. Defective main power switch.	Check for continuity across the contacts. If none, replace the main power switch.
	5. Defective power source PWB.	With AC present, check for 24 V DC at YC1-7 on the power source PWB, 5 V DC at YC1-6 and 3.3 V DC at YC1-5. If none, replace the power source PWB.
(2) The eject motor does not operate.	1. Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	2. Defective drive transmission system.	Check if the rollers and gears rotate smoothly. If not, grease the bushings and gears. Check for broken gears and replace if any.
	3. Defective eject motor.	Run maintenance item U030 and check if the eject motor operates. If not, replace the eject motor.
	4. Defective engine PWB.	Run maintenance item U030 and check if the eject motor operates. If not, replace the engine PWB.
(3) The scanner motor or cooling fan motor 1 to 10 does not operate.	1. Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	2. Broken motor coil.	Check for continuity across the coil. If none, replace the motor.
(4) The upper/lower paper feed clutch, feed clutch 1/2/3, MP paper feed clutch, MP feed clutch, registration clutch or duplex feed clutch does not operate.	1. Broken clutch coil.	Check for continuity across the coil. If none, replace the clutch.
	2. Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	3. Defective engine PWB.	Run maintenance item U032 and check if following terminals on the engine PWB goes low. If not, replace the engine PWB. Upper paper feed clutch: YC14-B1 on the engine PWB Lower paper feed clutch: YC14-B4 on the engine PWB Feed clutch 1: YC11-14 on the engine PWB Feed clutch 2: YC13-A12 on the engine PWB Feed clutch 3: YC13-A5 on the engine PWB MP paper feed clutch: YC6-A9 on the engine PWB MP feed clutch: YC6-A11 on the engine PWB Registration clutch: YC14-B6 on the engine PWB Duplex feed clutch: YC10-B2 on the engine PWB
(5) The feedshift solenoid or toner feed solenoid does not operate.	1. Broken solenoid coil.	Check for continuity across the coil. If none, replace the solenoid.
	2. Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	3. Defective engine PWB.	Replace the engine PWB.

Problem	Causes	Check procedures/corrective measures
(6) Main charging is not performed.	1. Broken main charger wire.	(See page 1-4-33.)
	2. Leaking main charger housing.	
	3. The connector terminals of the high voltage PWB make poor contact.	
	4. Defective engine PWB.	
	5. Defective high voltage PWB.	
(7) No developing bias is output.	1. The connector terminals of the high voltage PWB make poor contact.	(See page 1-4-33.)
	2. Defective engine PWB.	
	3. Defective high voltage PWB.	
(8) Transfer charging is not performed.	1. The connector terminals of the high voltage PWB make poor contact.	(See page 1-4-33.)
	2. Defective engine PWB.	
	3. Defective high voltage PWB.	
(9) The message requesting paper to be loaded is shown when paper is present on the cassette 1/2 or MP tray.	1. Poor contact in the connector terminals of upper/lower paper switch or MP paper switch.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	2. Defective upper/lower paper switch or MP paper switch.	If the level of following terminal on PWB does not go low when the switch is turned on and off, replace the switch. Upper paper switch: YC13-B12 on the engine PWB Lower paper switch: YC13-B18 on the engine PWB MP paper switch: YC6-A6 on the engine PWB
(10) The size of paper on the cassette 1/2 or MP tray is not displayed correctly.	1. Poor contact in the connector terminals of upper/lower paper size length switch, upper/lower paper size width switch, MP paper size length switch or MP paper size width switch.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	2. Defective upper/lower paper size length switch or MP paper size length switch.	If the level of following terminal on PWB does not go low when the switch is turned on and off, replace the switch. Upper paper size length switch: YC13-B2 on the engine PWB Lower paper size length switch: YC13-A19 on the engine PWB MP paper size length switch: YC6-B11 on the engine PWB
	3. Defective upper/lower paper size width switch or MP paper size width switch.	If the level of following terminal on PWB does not change when the width guide in the cassette 1/2 or insert guide on the MP tray is moved, replace the switch. Upper paper size width switch: YC12-3, 4, 5 on the engine PWB Lower paper size width switch: YC12-9, 10, 11 on the engine PWB MP paper size width switch: YC6-A1, A2, A3 on the engine PWB

Problem	Causes	Check procedures/corrective measures
(11) A paper jam in the paper feed, paper conveying, fuser, eject or duplex section is indicated when the main power switch is turned on.	1. A piece of paper torn from copy paper is caught around feed switch 1/2/3, registration switch, feedshift switch, eject switch or duplex paper conveying switch.	Check visually and remove it, if any.
	2. Defective feed switch 1/2/3, registration switch, feedshift switch, eject switch or duplex paper conveying switch.	Run maintenance item U031 and turn each switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse.
(12) The message requesting cover to be closed is displayed when the front cover or left cover 1/2 is closed.	1. Poor contact in the connector terminals of front cover switch, left cover 1 switch or left cover 2 switch.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	2. Defective front cover switch, left cover 1 switch or left cover 2 switch.	Check for continuity across each switch. If there is no continuity when the switch is on, replace it.
(13) Others.	1. Wiring is broken, shorted or makes poor contact.	Check for continuity. If none, repair.



## 1-4-5 Mechanical problems

Problem	Causes/check procedures	Corrective measures
(1) No primary paper feed.	Check if the surfaces of the following rollers or pulleys are dirty with paper powder: upper/lower forwarding pulleys, upper/lower paper feed pulleys, upper/lower separation pulleys, feed rollers, registration rollers, MP forwarding pulley, MP paper feed pulley and MP separation pulley.	Clean with isopropyl alcohol.
	Check if the upper/lower forwarding pulleys, upper/lower paper feed pulleys or upper/lower separation pulleys is deformed.	Replace the pulley if it is deformed (see page 1-5-2).
	Check if the MP forwarding pulley, MP paper feed pulley or MP separation pulley is deformed.	Replace the pulley if it is deformed (see page 1-5-4).
	Electrical problem with the following clutches: upper/lower paper feed clutches, feed clutches 1/2/3, MP paper feed clutch and MP feed clutch.	See page 1-4-38.
(2) No secondary paper feed.	Check if the surfaces of the right and left registration rollers are dirty with paper powder.	Clean with isopropyl alcohol.
	Electrical problem with the registration clutch.	See page 1-4-38.
(3) Skewed paper feed.	Width guide in a cassette installed incorrectly.	Check the width guide visually and correct or replace if necessary.
	Deformed width guide in a cassette.	Check visually and replace any deformed guide.
	Check if a pressure spring along the paper conveying path is deformed or out of place.	Repair or replace.
(4) Multiple sheets of paper are fed at one time.	Paper is extremely curled.	Change the paper.
	Check if the upper or lower separation pulley is worn.	Replace the upper or lower separation pulley if it is worn (see page 1-5-2).
	Check if the MP separation pulley is worn.	Replace the MP separation pulley if it is worn (see page 1-5-4).
(5) Paper jams.	Paper is extremely curled.	Change the paper.
	Deformed guides along the paper conveying path.	Check visually and replace any deformed guides.
	Check if the contact between the right and left registration rollers is correct.	Check visually and remedy if necessary.
	Check if the contact between the feed roller and feed pulley is correct.	Check visually and remedy if necessary.
	Check if the press roller is extremely dirty or deformed.	Clean or replace the press roller.
	Check if the contact between the heat roller and its separation claws is correct.	Repair if any springs are off the separation claws.
	Check if the contact between the eject roller and pulley is correct.	Check visually and remedy if necessary.
	The feedshift solenoid malfunctions.	See page 1-4-38.
	Check if the duplex feed pulley, upper duplex feed roller or lower duplex feed roller is deformed.	Check visually and replace the pulley or roller if deformed.

Problem	Causes/check procedures	Corrective measures
(6) Toner drops on the paper conveying path.	Check if the developing unit is extremely dirty.	Clean the developing unit.
(7) Abnormal noise is heard.	Check if the pulleys, rollers and gears operate smoothly.	Grease the bearings and gears.
	Check if the following clutches are installed correctly: upper/lower paper feed clutches, feed clutches 1/2/3, MP paper feed clutch and MP feed clutch.	Correct.

## **1-5-1 Precautions for assembly and disassembly**

### **(1) Precautions**

Be sure to turn the main switch off and disconnect the power plug before starting disassembly.

When handling PWBs (printed wiring boards), do not touch parts with bare hands.

The PWBs are susceptible to static charge. Do not touch any PWB containing ICs with bare hands or any object prone to static charge.

Use only the specified parts to replace the fuser unit thermostat. Never substitute electric wires, as the machine may be seriously damaged.

When replacing battery on a PWB, dispose properly according to laws and regulations.

When removing the hook of the connector, be sure to release the hook.

### **(2) Drum**

Note the following when handling or storing the drum.

When removing the drum unit, never expose the drum surface to strong direct light.

Keep the drum at an ambient temperature between 0°C/32°F and 35°C/95°F and at a relative humidity not higher than 85% RH. Avoid abrupt changes in temperature and humidity.

Avoid exposure to any substance which is harmful to or may affect the quality of the drum.

Do not touch the drum surface with any object. Should it be touched by hands or stained with oil, clean it.

### **(3) Toner**

Store the toner container in a cool, dark place.

Avoid direct light and high humidity.

## 1-5-2 Paper feed section

### (1) Detaching and refitting the forwarding, paper feed and separation pulleys

Follow the procedure below to replace the forwarding, paper feed and separation pulleys.

#### Procedure

##### Removing the primary paper feed units

1. Open the front cover and pull out the cassettes 1 and 2.
2. Remove the screw and remove the primary paper feed unit.

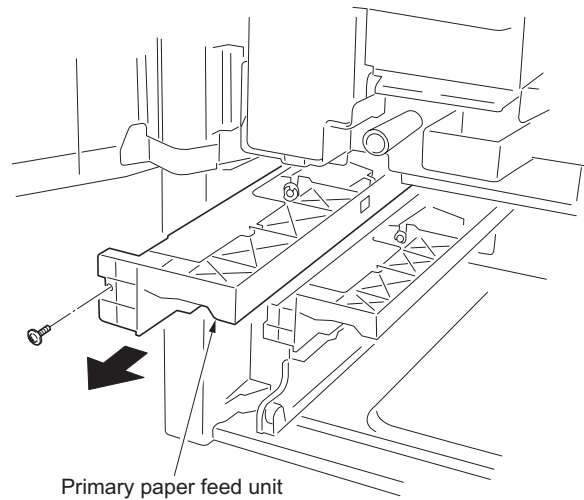


Figure 1-5-1

##### Removing the forwarding pulley

3. Remove the stopper from the primary paper feed unit.
4. Raise the forwarding pulley retainer in the direction the arrow, and remove from the primary paper feed unit.

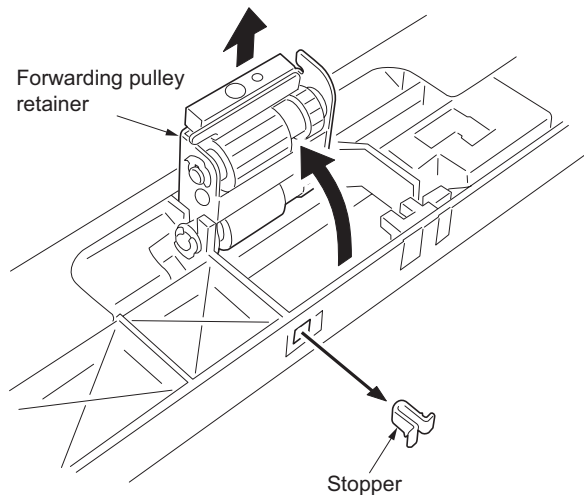


Figure 1-5-2

5. Remove the stop ring from the forwarding pulley retainer.
6. Remove the forwarding pulley from the forwarding pulley shaft.

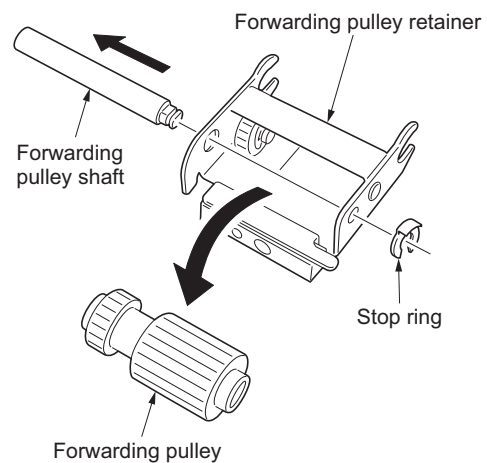
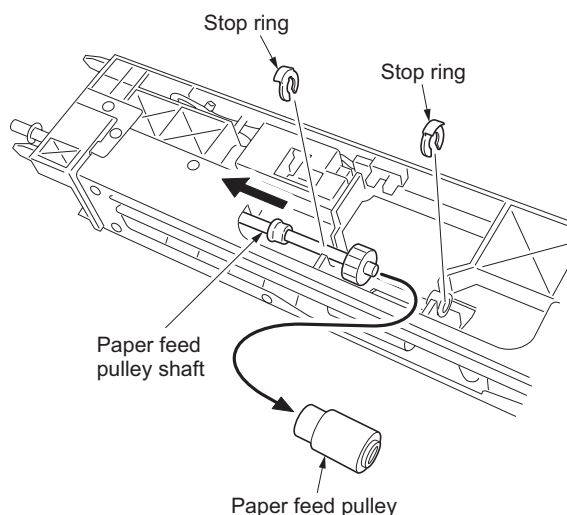


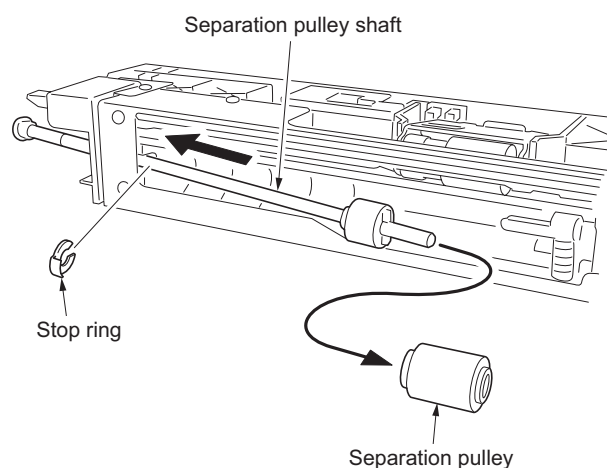
Figure 1-5-3

**Removing the paper feed pulley**

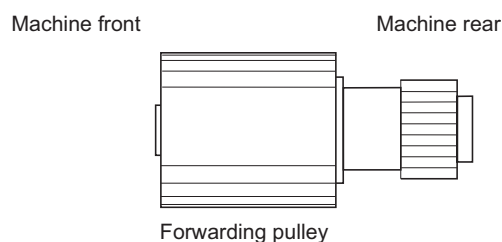
7. Remove two stop rings from the primary paper feed unit.
8. Pull the paper feed pulley shaft in the direction of the arrow and remove the paper feed pulley.

**Figure 1-5-4****Removing the separation pulley**

9. Remove the stop ring from the primary paper feed unit.
10. Pull the separation pulley shaft in the direction of the arrow and remove the separation pulley.

**Figure 1-5-5**

11. Replace the forwarding, paper feed and separation pulleys.
12. Install the separation and paper feed pulleys to the primary paper feed unit.
13. Install the forwarding pulley to the forwarding pulley retainer.  
When refitting the forwarding pulley, orient it correctly as shown in Figure 1-5-6.
14. Refit the forwarding pulley retainer to the primary paper feed unit.
15. Refit the primary paper feed unit.

**Figure 1-5-6**

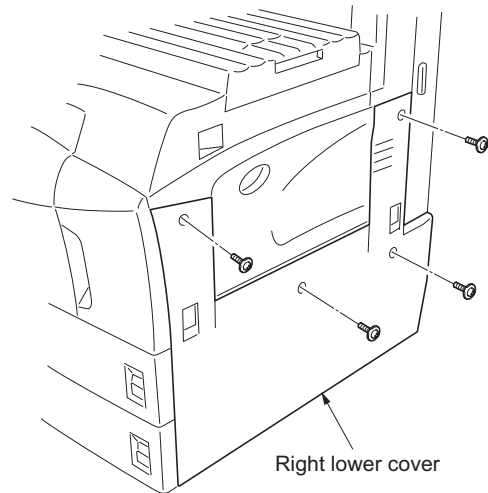
## (2) Detaching and refitting the MP separation, MP paper feed and MP forwarding pulleys

Follow the procedure below to replace the MP separation, MP paper feed and MP forwarding pulleys.

### Procedure

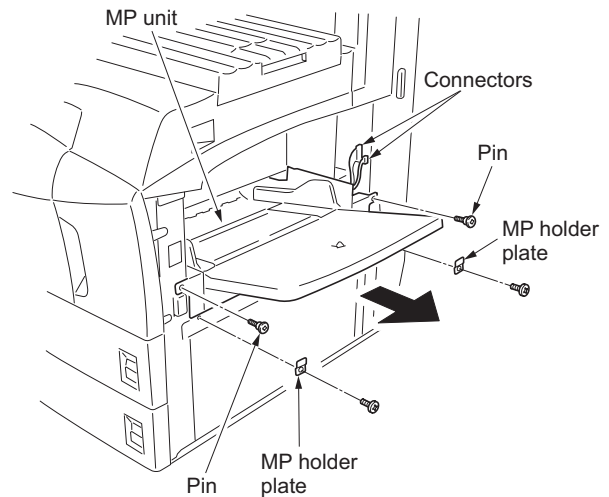
#### Removing the MP unit

1. Remove four screws and remove the right lower cover.



**Figure 1-5-7**

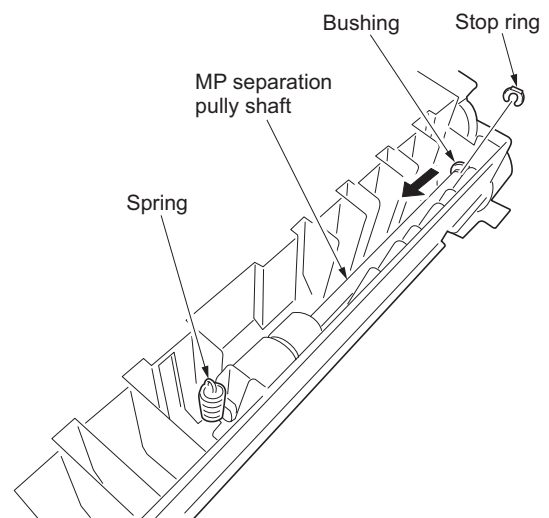
2. Remove two screws and two MP holder plates.
3. Remove two pins, two screws and two connectors, and then remove the MP unit.



**Figure 1-5-8**

#### Removing the MP separation pulley

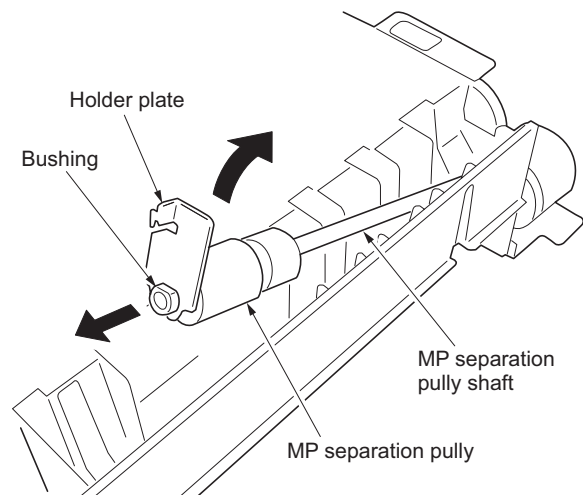
4. Reverse the MP unit and remove the spring and stop ring from the MP separation pulley shaft and move the bushing inside.



**Figure 1-5-9**

5. Raise the MP separation shaft as shown in the figure, remove the holder plate and the bushing, and then remove the MP separation pulley.

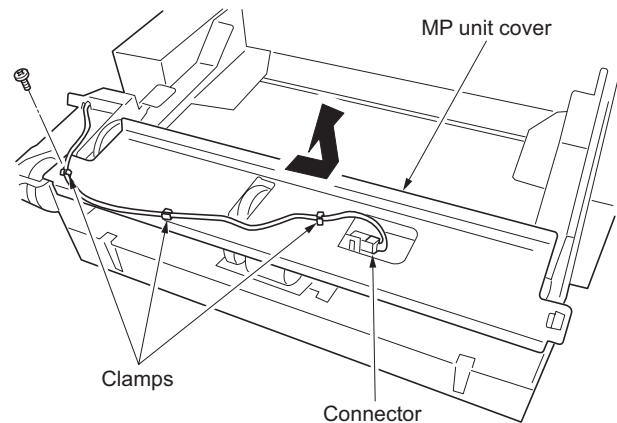
Take care not to remove the spring pin of the gear at the rear of the MP separation pulley shaft. If it is removed, refit it to its original position.



**Figure 1-5-10**

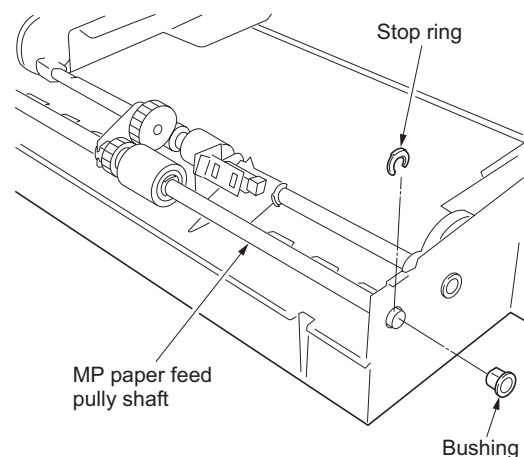
#### **Removing the MP paper feed pulley**

6. Remove the connector of the MP paper switch and remove the wire from the three clamps.
7. Remove the screw and remove the MP unit cover.



**Figure 1-5-11**

8. Remove the stop ring and bushing on the front of the MP paper feed pulley shaft.



**Figure 1-5-12**

9. Raise the MP paper feed pulley shaft as shown in the figure, remove the stop ring, and then remove the MP paper feed pulley.

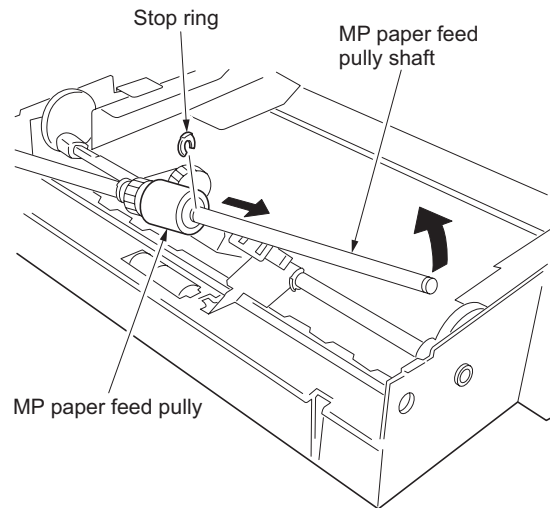


Figure 1-5-13

#### Removing the MP forwarding pulley

10. Remove the sponge.
  11. Remove the stop ring and MP paper feed clutch.
- When refitting, insert the cutout in the MP paper feed clutch over the stopper on the machine.

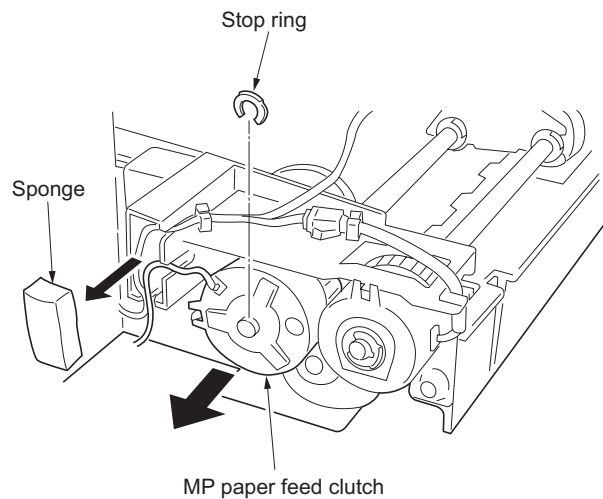


Figure 1-5-14

12. Remove the screw from the cam at the rear of the MP forwarding pulley shaft and move the cam and the bushing toward the inner side.

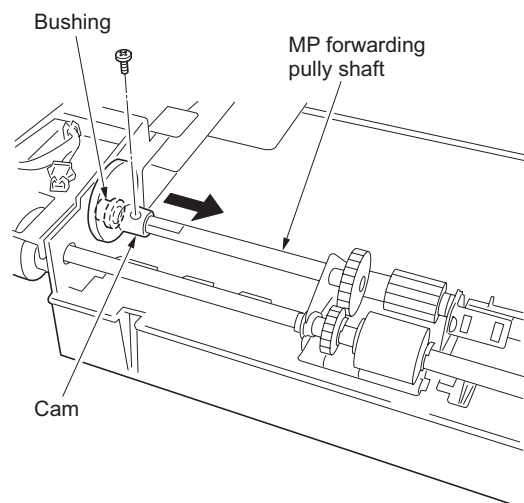
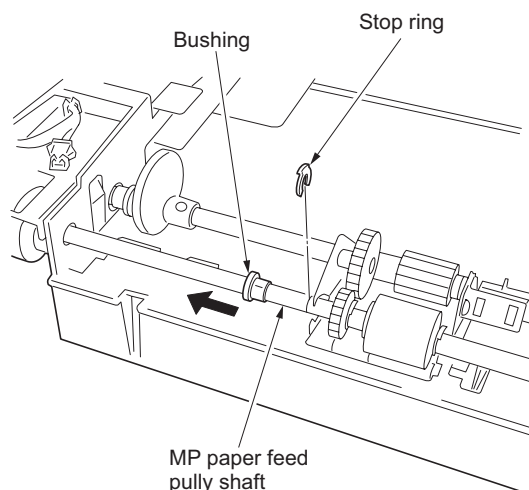


Figure 1-5-15

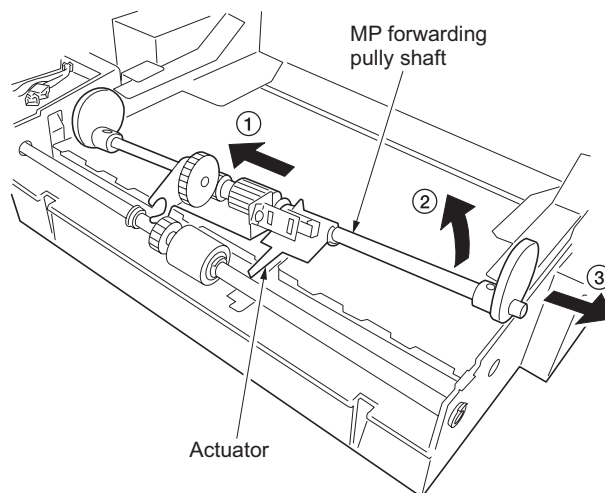


13. Remove the stop ring of the MP paper feed pulley shaft and slide the bushing in the direction of the arrow.



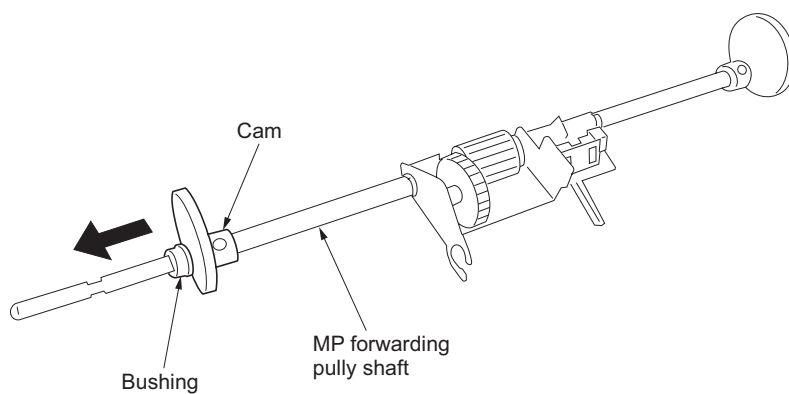
**Figure 1-5-16**

14. Slide the MP forwarding pulley shaft temporarily toward the rear side and then raise it to remove from the MP unit. Remove the shaft while raising the actuator of the MP paper switch.



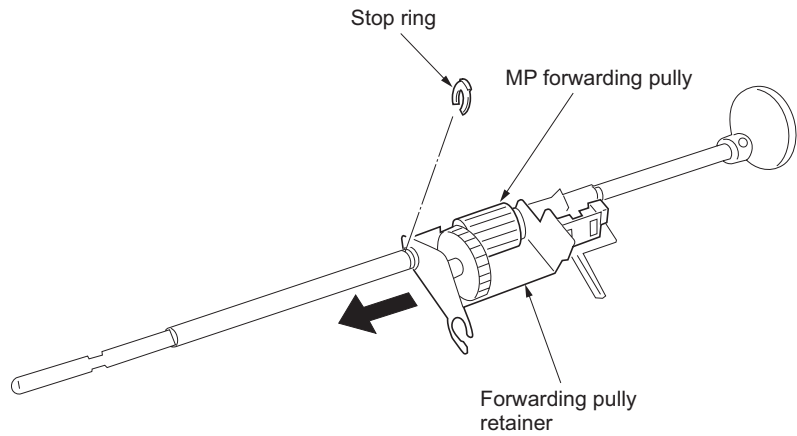
**Figure 1-5-17**

15. Remove the bushing and cam on the rear of the MP forwarding pulley shaft.



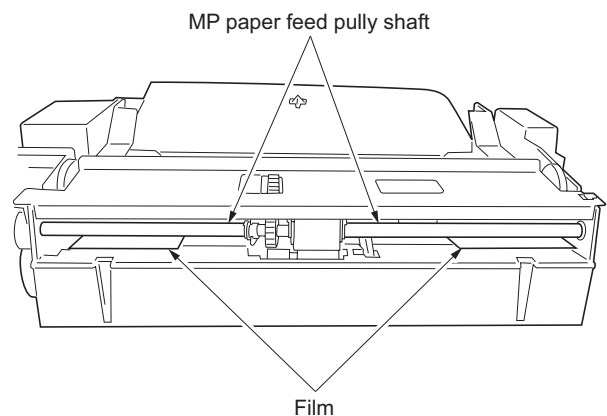
**Figure 1-5-18**

16. Remove the stop ring and slide the MP forwarding pulley with the forwarding pulley retainer from the shaft to remove it.
17. Replace the MP separation, MP paper feed and MP forwarding pulleys.



**Figure 1-5-19**

18. Install the MP forwarding pulley to the MP forwarding pulley shaft.
19. Refit the MP forwarding pulley shaft to the MP unit.
20. Install the MP paper feed pulley to the MP unit.
21. Refit the MP unit cover to the MP unit.  
When refitting the MP unit cover, the film on the cover is positioned under the MP paper feed pulley shaft.
22. Install the MP separation pulley to the MP unit.
23. Refit the MP unit.



**Figure 1-5-20**

### (3) Detaching and refitting the left and right registration cleaner

Take the following procedure when the left or right registration cleaner is to be replaced.

#### Procedure

##### Removing the left registration cleaner

1. Open the left cover 1 and remove the transfer roller unit. (see page 1-5-17).
2. Remove two roller stoppers and remove the left registration roller.
3. Remove two registration guides.

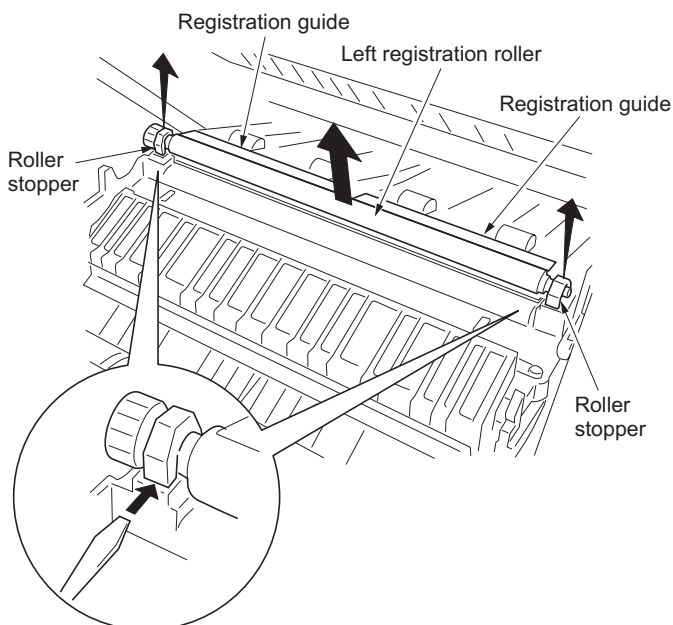


Figure 1-5-21

4. Remove the left registration cleaner
5. Replace the left registration cleaner and registration guides.  
Install the left registration cleaner and registration guides.
6. Refit the left registration roller, roller stoppers and transfer roller unit.

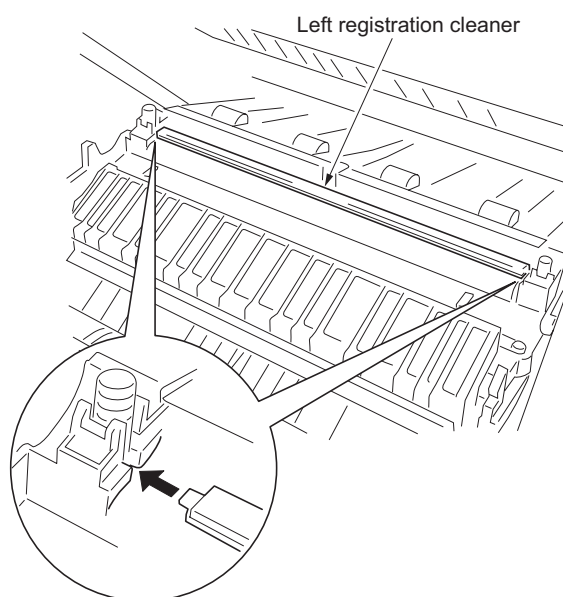
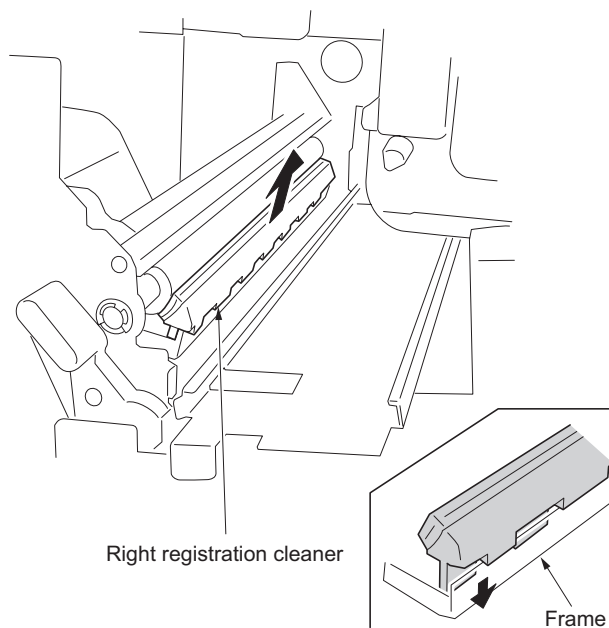


Figure 1-5-22

**Removing the right registration cleaner**

1. Remove the developing unit and drum unit.  
(see pages 1-5-16 and 14).
2. Remove the right registration cleaner.
3. Replace the right registration cleaner and  
Install the cleaner.
4. Refit the drum unit and developing unit.



**Figure 1-5-23**

### 1-5-3 Laser scanner unit

#### (1) Detaching and refitting the laser scanner unit

Take the following procedure when the laser scanner unit is to be replaced.

##### Procedure

1. Remove the developing unit and drum unit (see pages 1-5-14 and 16).
2. Remove the right lower cover (see pages 1-5-4).
3. Remove four screws and remove the front right cover.

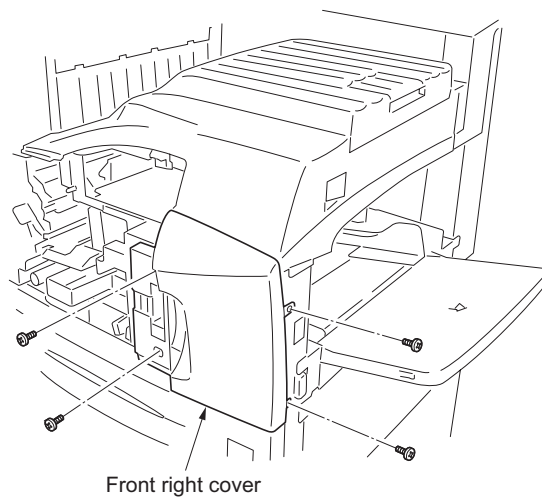


Figure 1-5-24

4. Remove three screws and remove the top tray.

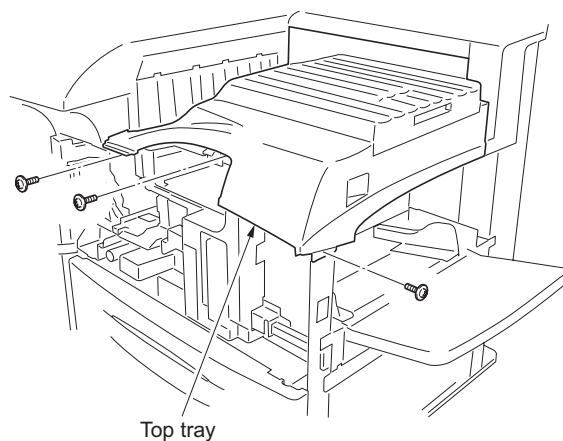


Figure 1-5-25

5. Remove five screws and remove the inner cover.

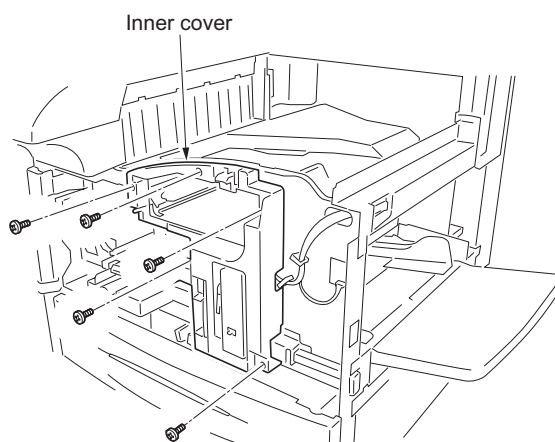
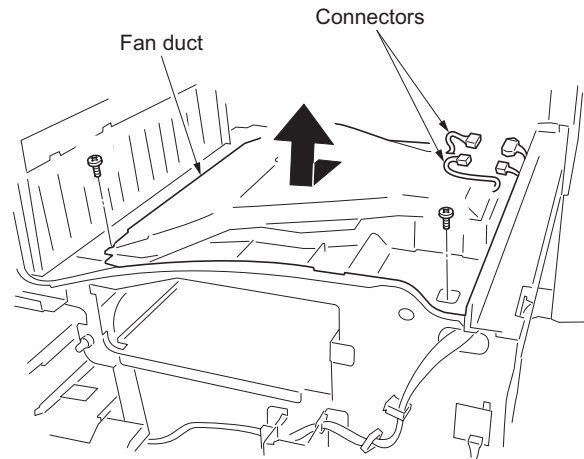


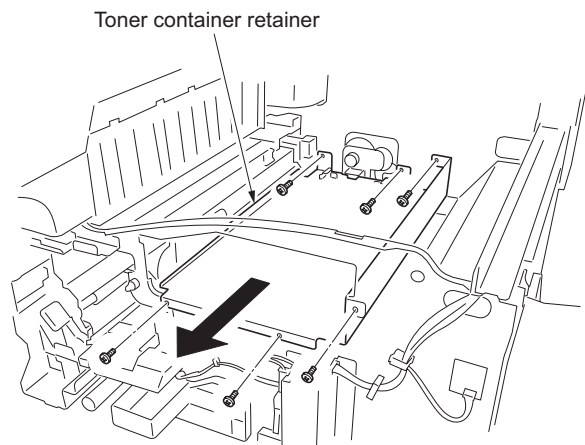
Figure 1-5-26

6. Remove two screws and two connectors, and then remove the fan duct.



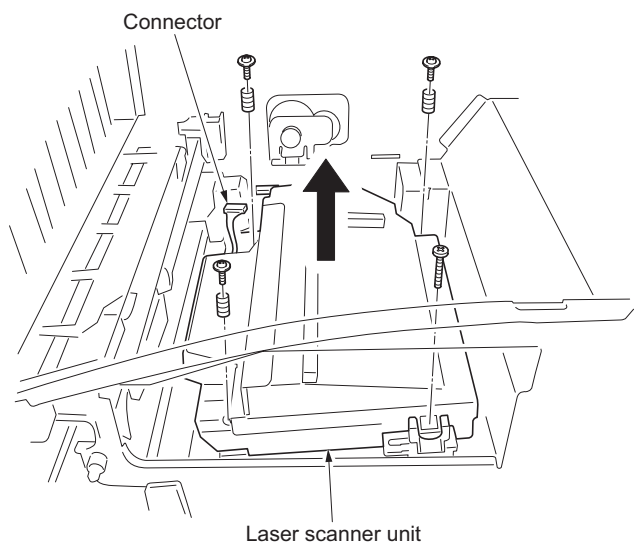
**Figure 1-5-27**

7. Remove six screws and remove the toner container retainer.



**Figure 1-5-28**

8. Remove four screws and the connector, and then remove the laser scanner unit.
9. Replace the laser scanner unit and install the unit.
10. Refit the toner container retainer, fan duct and inner cover.
11. Refit the top tray, front right cover and right lower cover.
12. Refit the drum unit and the developing unit.



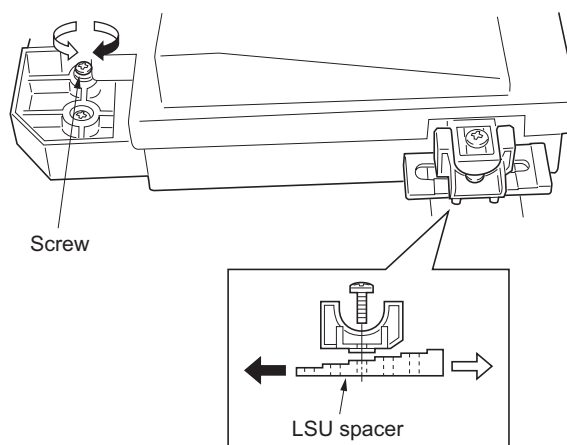
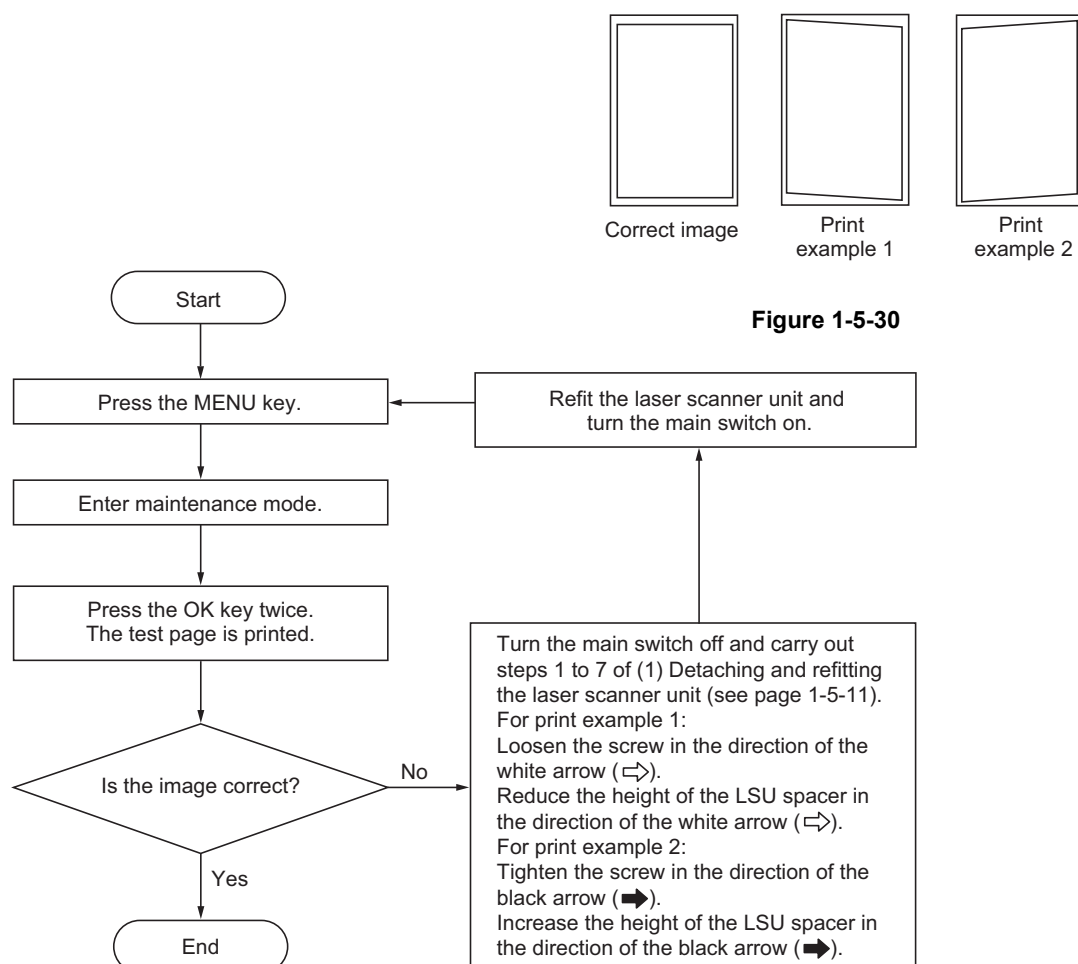
**Figure 1-5-29**

## (2) Adjusting the skew of the laser scanner unit (reference)

Perform the following adjustment if the leading and trailing edges of the print image are laterally skewed (lateral squareness not obtained).

Since this adjustment uses the test page that is output from the maintenance mode, prepare the compact flash card to which the maintenance mode has been written and load the maintenance mode to the printer to carry out this adjustment (See page 1-3-1).

### Procedure



## 1-5-4 Drum section

### (1) Detaching and refitting the drum unit

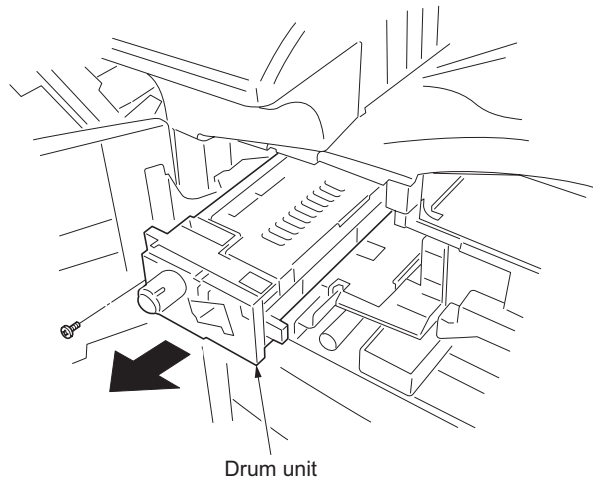
Follow the procedure below to replace the drum unit.

#### Cautions:

Avoid direct sunlight or strong light when detaching and refitting the drum unit.  
Never touch the drum surface when holding the drum unit.

#### Procedure

1. Remove the developing unit (see page 1-5-16).
2. Remove the main charger unit (see page 1-5-15).
3. Remove the screw and the drum unit.
4. Replace the drum unit and install the unit.



**Figure 1-5-32**

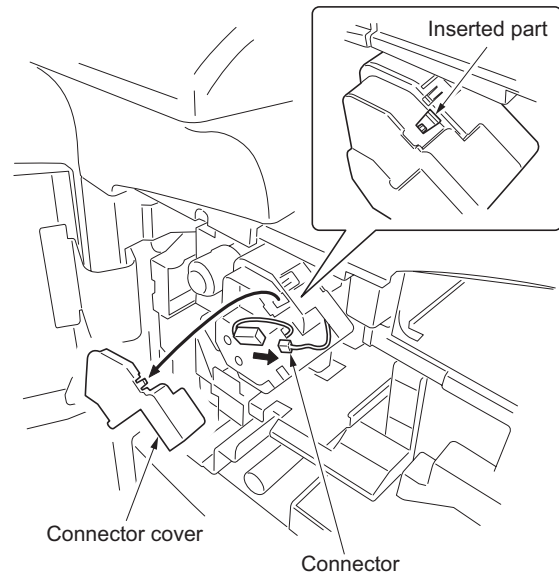


**(2) Detaching and refitting the main charger unit**

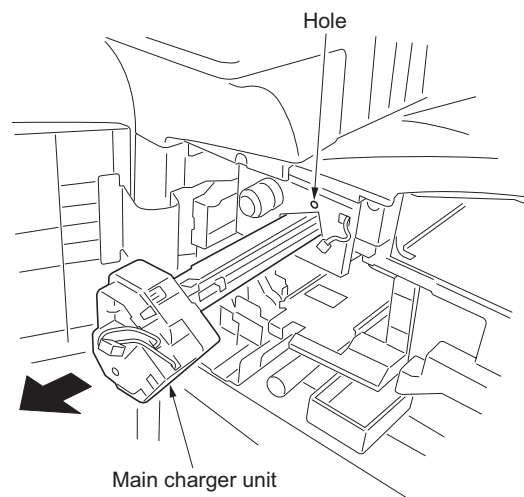
Follow the procedure below to replace the main charger unit.

**Procedure**

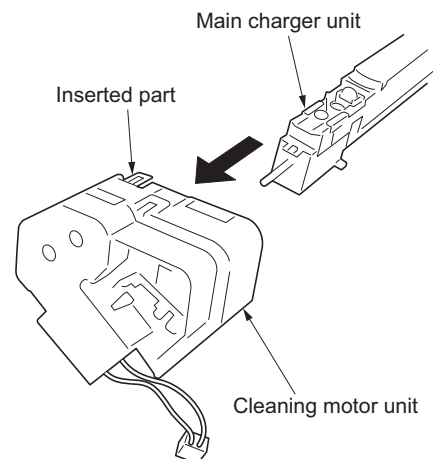
1. Remove the developing unit (see page 1-5-16).
2. Release the inserted part and remove the connector cover.
3. Remove the connector.

**Figure 1-5-33**

4. While pushing the hole with a sharp-pointed object, remove the main charger unit.

**Figure 1-5-34**

5. Release the inserted part and remove the cleaning motor unit from the main charger unit.
6. Replace the main charger unit.
7. Refit the cleaning motor unit to the main charger unit.
8. Install the main charger unit

**Figure 1-5-35**

## 1-5-5 Developing section

### (1) Detaching and refitting the developing unit

Follow the procedure below to replace the developing unit.

#### Procedure

1. Open the front cover.
2. Remove the toner container and waste toner box.
3. Remove the pin and turn the developing release lever in the direction of the arrow.

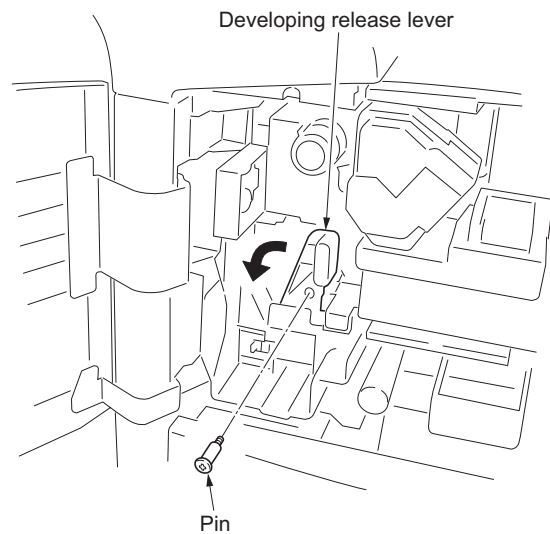


Figure 1-5-36

4. Remove the developing unit.
5. Replace the developing unit and install the unit.

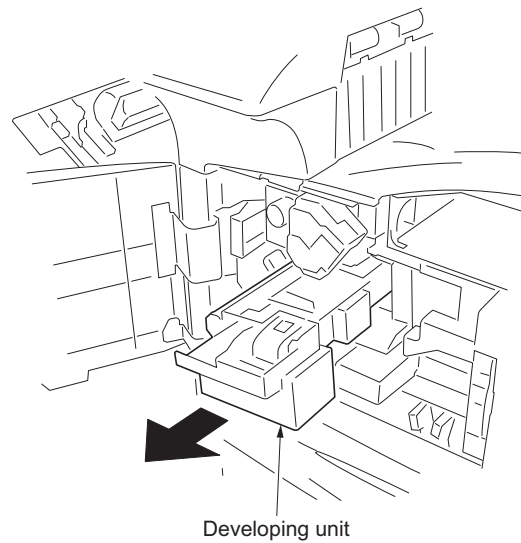


Figure 1-5-37

## 1-5-6 Transfer section

### (1) Detaching and refitting the transfer roller unit

Follow the procedure below to replace the transfer roller unit.

#### Procedure

1. Open the left cover 1.
2. While holding down the projection, slide the transfer roller unit toward the front to remove it.
3. Replace the transfer roller unit and install the unit.

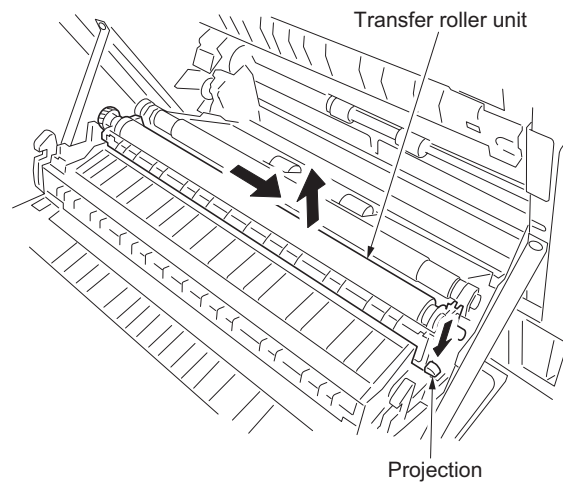


Figure 1-5-38

## 1-5-7 Fuser section

### (1) Detaching and refitting the fuser unit

Follow the procedure below to check or replace the fuser unit.

#### Procedure

1. Open the front cover and left cover 1.
2. Remove two screws and remove front left cover.

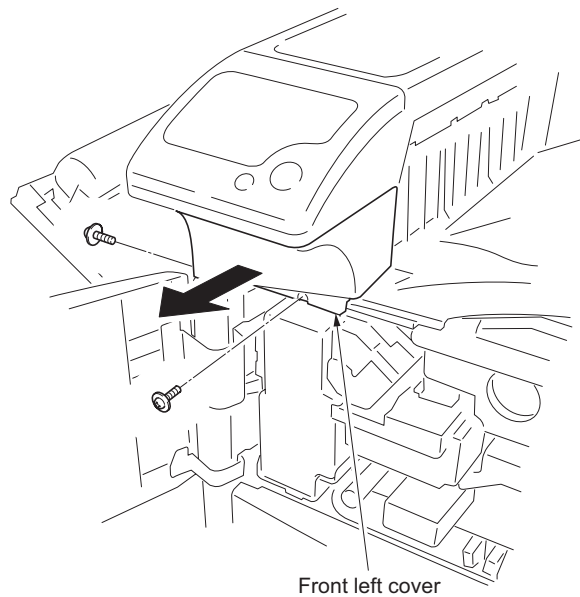


Figure 1-5-39

3. Remove the screw and remove the fuser unit.
4. Check or replace the fuser unit and install the unit.

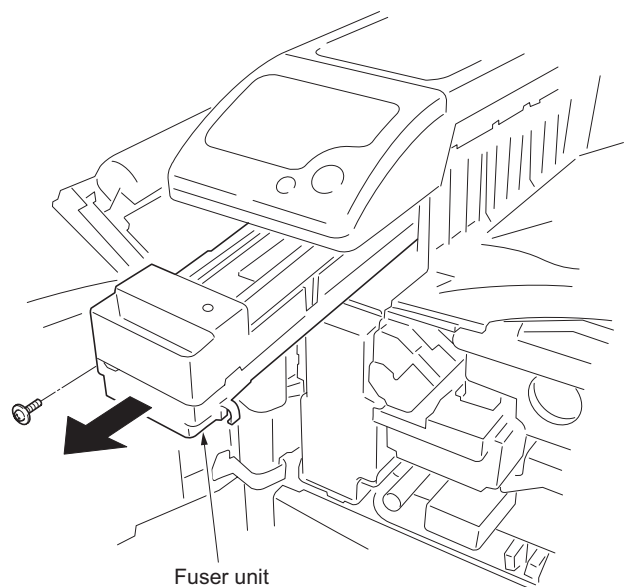


Figure 1-5-40

## (2) Detaching and refitting the heat roller separation claws

Follow the procedure below to replace the heat roller separation claws.

### Procedure

1. Remove the fuser unit. (see page 1-5-18)
2. Remove the two screws and remove the upper fuser cover while holding the four claws.

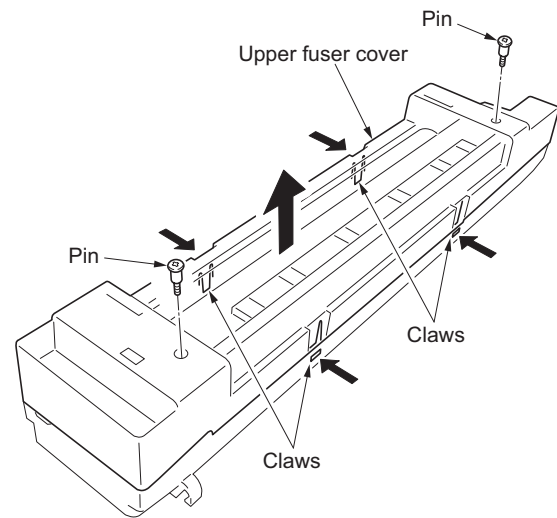


Figure 1-5-41

3. Remove the heat roller separation claws from the upper fuser cover.
4. Replace the heat roller separation claws and install the claws to upper fuser cover.
5. Refit the upper fuser cover.
6. Refit the fuser unit.

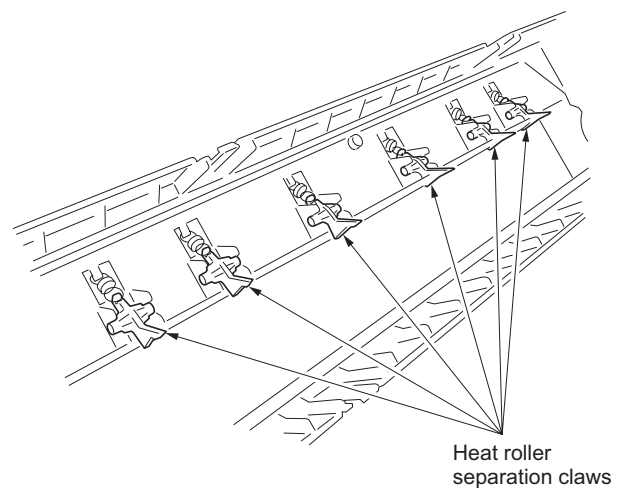


Figure 1-5-42

### (3) Detaching and refitting the press roller

Follow the procedure below to replace the press roller.

#### Procedure

1. Remove the fuser unit (see page 1-5-18).
2. Remove the upper fuser cover (see page 1-5-19).
3. Remove the front and rear press springs.

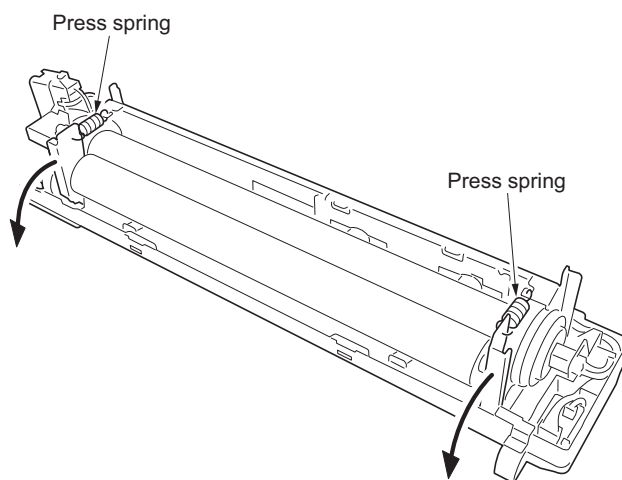


Figure 1-5-43

4. Remove the press roller from the fuser unit.
5. Replace the press roller and install the roller to fuser unit.
6. Refit the upper fuser cover.
7. Refit the fuser unit.

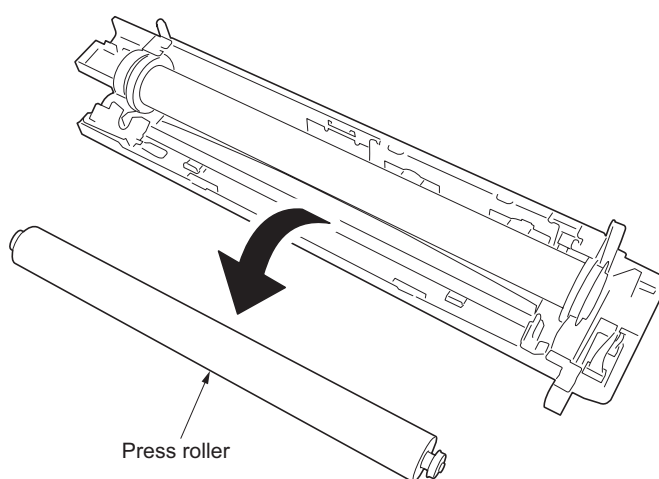


Figure 1-5-44

#### (4) Detaching and refitting the fuser heater

Follow the procedure below to replace the fuser heater.

##### Procedure

1. Remove the fuser unit (see page 1-5-18).
2. Remove the upper fuser cover (see page 1-5-19).
3. Remove two screws and two connectors.

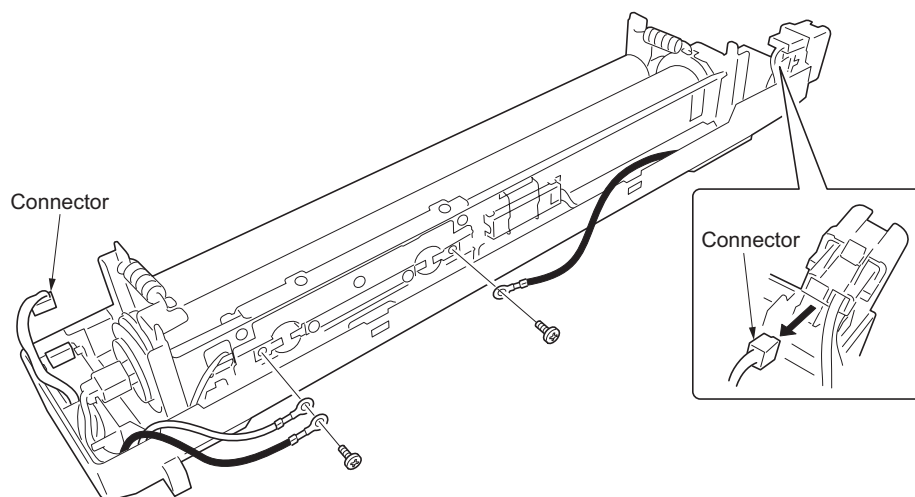


Figure 1-5-45

4. Pull out the fuser heater from the fuser unit.

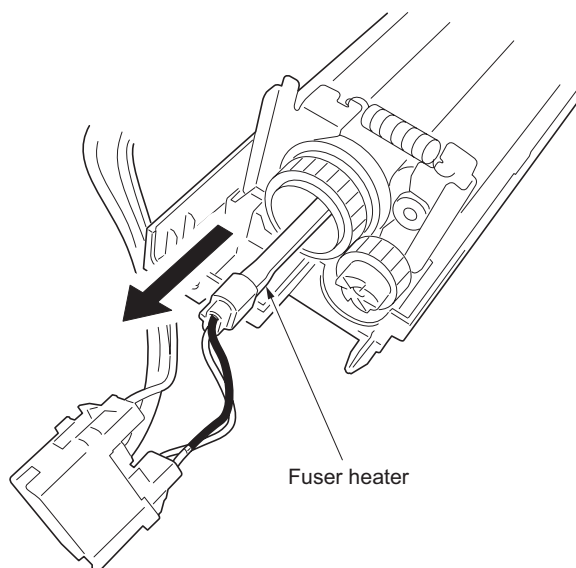


Figure 1-5-46

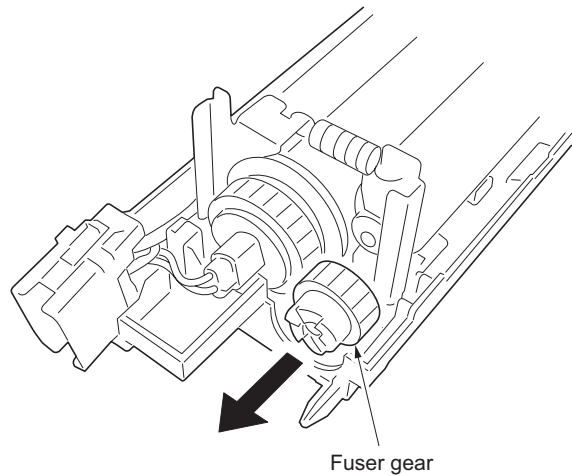
5. Replace the fuser heater and install the heater to fuser unit.
6. Refit the upper fuser cover.
7. Refit the fuser unit.

**(5) Detaching and refitting the heat roller**

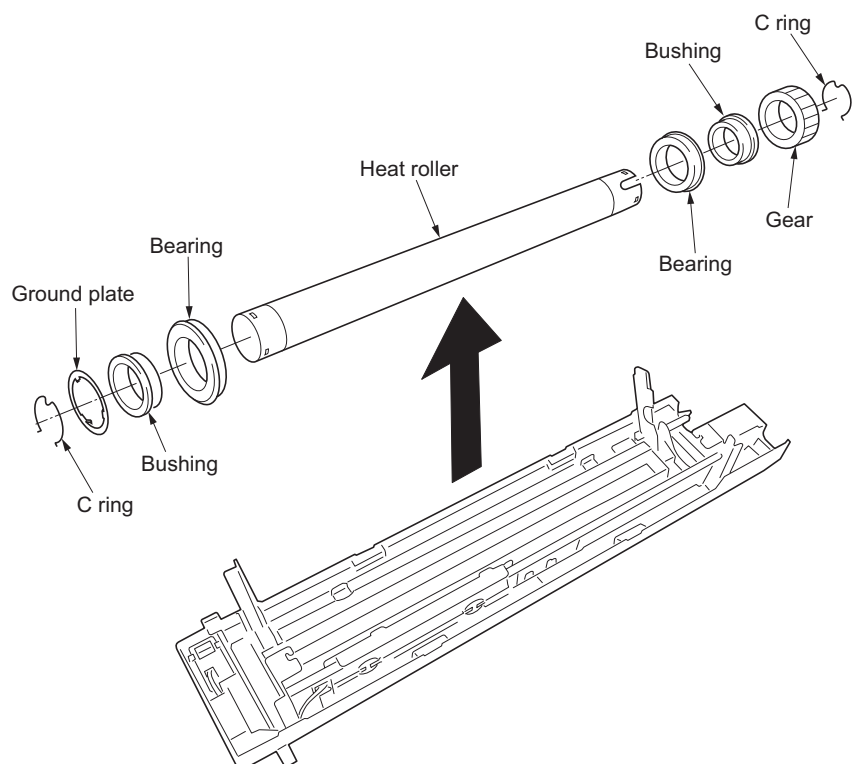
Follow the procedure below to replace the heat roller.

**Procedure**

1. Remove the fuser unit (see page 1-5-18).
2. Remove the upper fuser cover (see page 1-5-19).
3. Remove the press roller and fuser heater (see page 1-5-20 and 21).
4. Remove the fuser gear.

**Figure 1-5-47**

5. Remove the heat roller from the fuser unit. Remove the C ring, gear, bearing and bushing on the rear side of the heat roller and remove the C ring, ground plate, bearing and bushing on the front side.
6. Replace the heat roller and install the roller to fuser unit.

**Figure 1-5-48**

7. Refit the fuser gear.
8. Refit the fuser heater, press roller and upper fuser cover.
9. Refit the fuser unit.

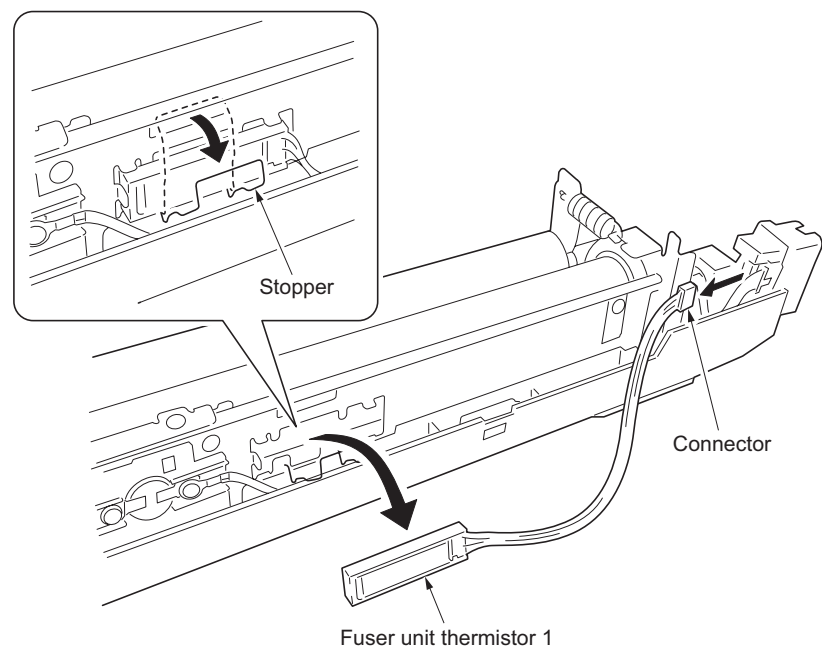


## (6) Detaching and refitting the fuser unit thermistor 1 and 2

Follow the procedure below to replace the fuser unit thermistor 1 and 2.

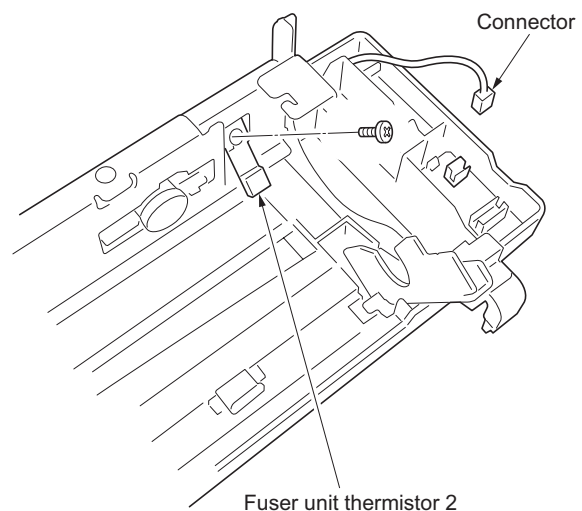
### Procedure

1. Remove the fuser unit (see page 1-5-18).
2. Remove the upper fuser cover (see page 1-5-19).
3. Release the stopper of the fuser unit thermistor 1.
4. Remove the connector and remove the fuser unit thermistor 1.
5. Replace the fuser unit thermistor 1 and install the thermistor to fuser unit.



**Figure 1-5-49**

6. Remove the press roller and fuser heater (see page 1-5-20 and 21).
7. Remove the heat roller (see page 1-5-22).
8. Remove the screw and the connector, and then remove the fuser unit thermistor 2.
9. Replace the fuser unit thermistor 2 and install the thermistor to fuser unit.
10. Refit the heat roller, fuser heater, press roller and upper fuser cover.
11. Refit the fuser unit.



**Figure 1-5-50**

## 1-5-8 Others

### (1) Detaching and refitting the ozone filter A and B

Follow the procedure below to replace the ozone filter A and B

#### Procedure

1. Remove the ozone filter A from the machine left side.

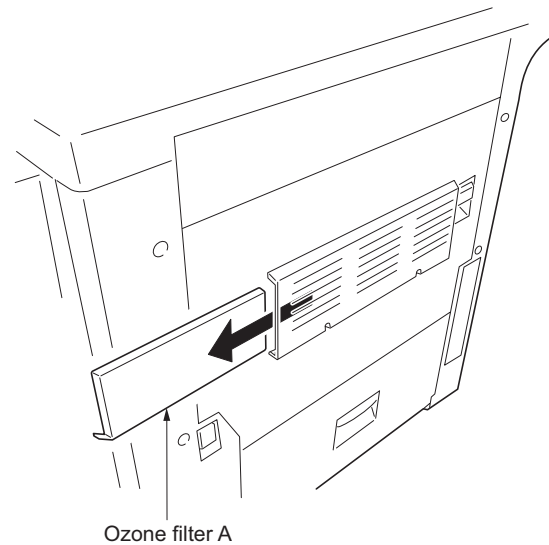


Figure 1-5-51

2. Remove the screw and remove the filter upper cover.
3. Open the filter cover and remove the ozone filter B.
4. Replace the ozone filter A and B and install the filter.

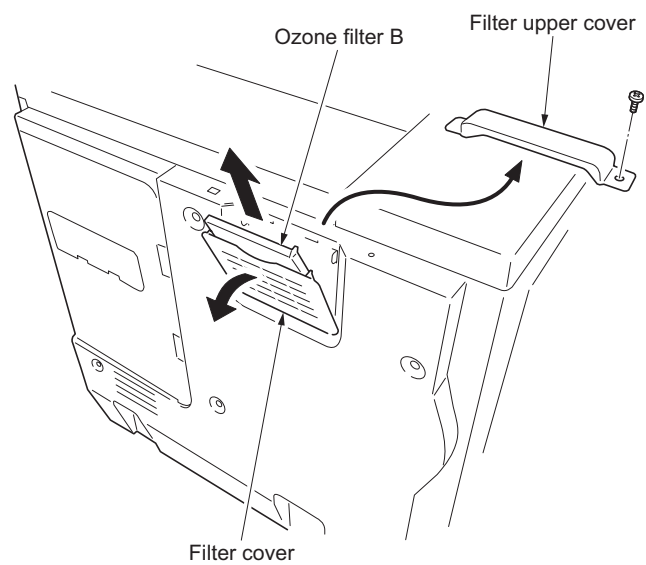


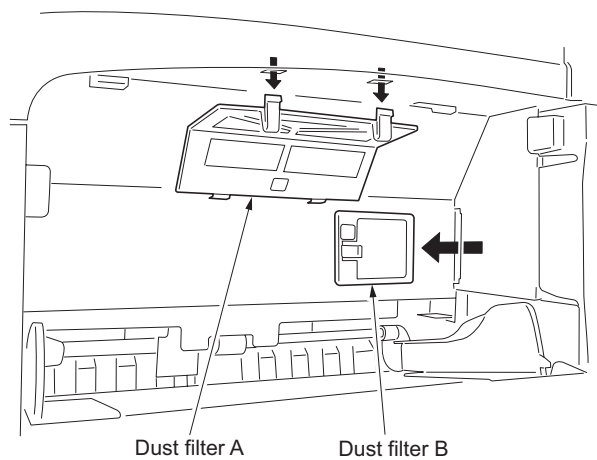
Figure 1-5-52

**(2) Detaching and refitting the dust filter A and B**

Follow the procedure below to replace the dust filter A and B

**Procedure**

1. Open the MP tray.
2. Remove the dust filter A and B from the machine.
3. Replace the dust filter A and B and install the filter.



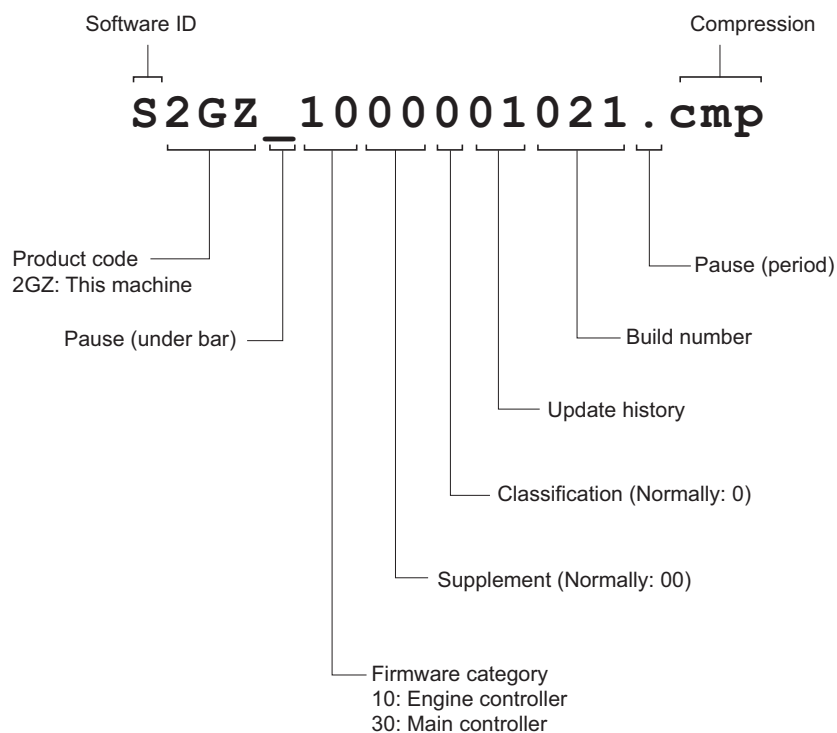
**Figure 1-5-53**

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## 1-6-1 Downloading firmware

The system firmware can be update by downloading new firmware. Downloading can be made either by directly sending the new firmware from PC via the parallel interface or using a memory card that contains the new firmware.

### Firmware file name example



**Figure 1-6-1**

### (1) Downloading the firmware from the parallel interface

To download the system firmware using the parallel interface, use the procedure below.

#### Procedure

1. Turn printer and PC power off.
2. Connect the parallel printer cable between the PC and the printer.

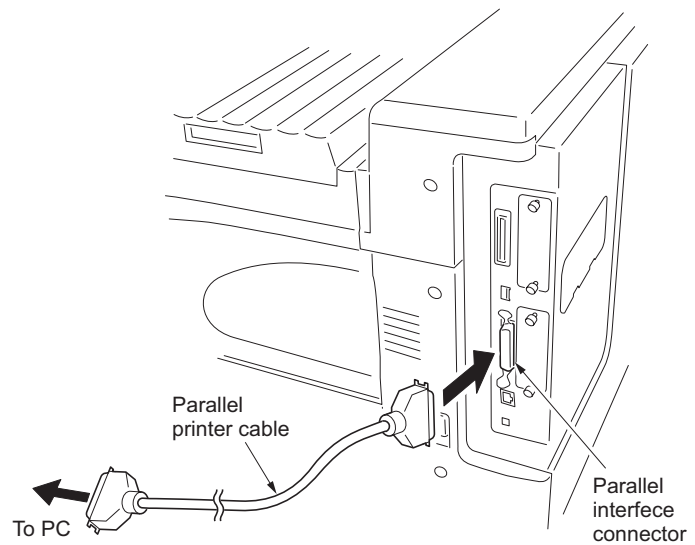


Figure 1-6-2

3. Turn the main switch on.
4. Confirm that display (1) is displayed.
5. At the DOS prompt, enter command (2).  
\* Enter UPGR "SYS" in capitals.
6. Confirm that message display (3) is displayed.
7. At the DOS prompt, enter command (4) so that the system firmware (example: S2GZ\_3000001021.cmp) is copied to the printer.
8. Message display (5) is displayed during downloading. When message display (6) is displayed to indicate downloading is finished, turn the main switch off and then turn on.
9. Confirm that message display (7) is displayed after warm-up.
10. Print a status page. Check that the status page shows the updated firmware version.

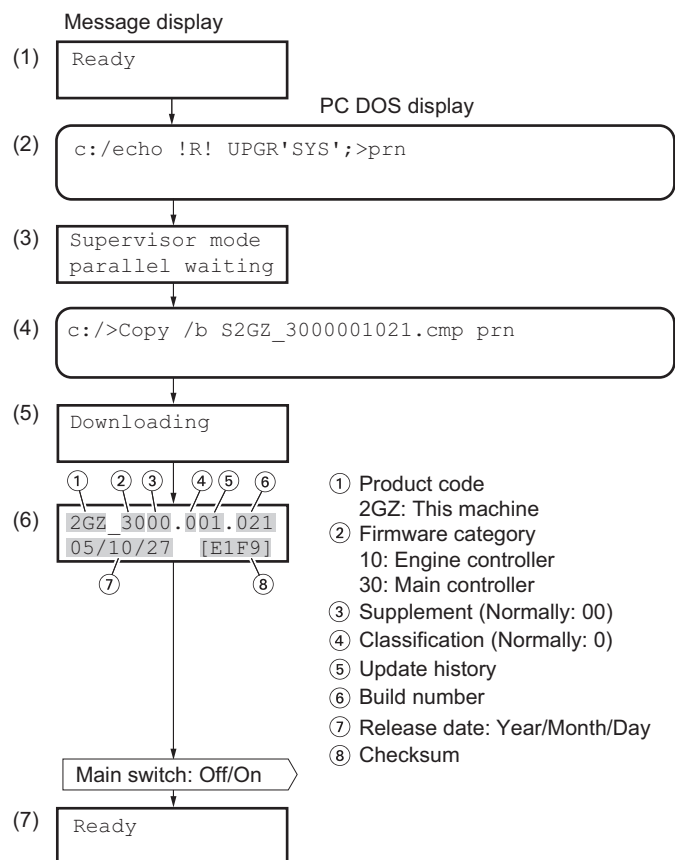


Figure 1-6-3

## (2) Downloading the firmware from the memory card

The procedure below provides how to download firmware from a memory card.

### Procedure

1. Turn the main switch off.
2. Insert the memory card into the printer's memory card slot.

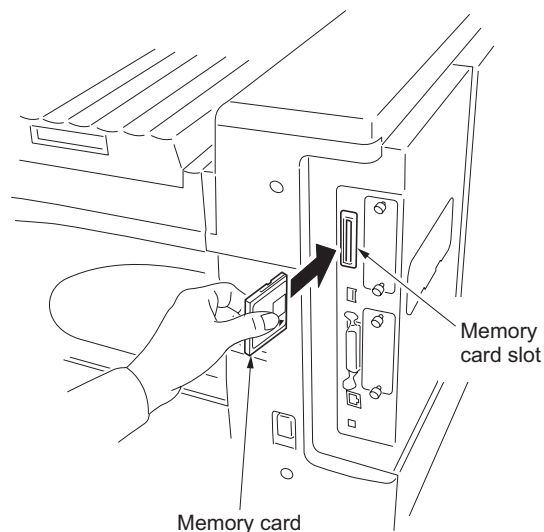


Figure 1-6-4

3. Turn the main switch on.
4. Press Menu key on the printer's operation panel and carry out the memory card formatting procedure (1).
5. When formatting is complete, turn the main switch off.

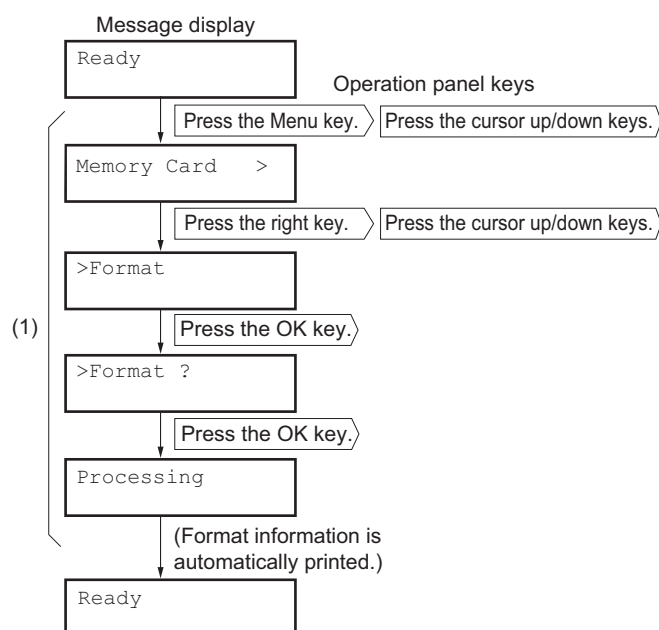


Figure 1-6-5

6. Remove the formatted memory card from the memory card slot.
7. Insert the memory card to the PC's slot or to the adaptor.
8. Copy the firmware file to download to the root directory of the memory card.
9. Remove the memory card from the PC's slot or the adaptor.

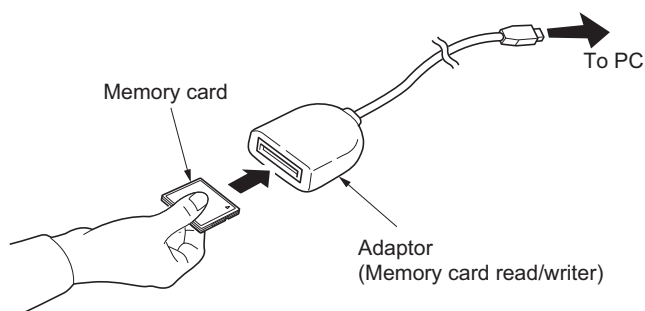


Figure 1-6-6

10. Confirm that the main switch is set to off.
11. Insert the memory card into the printer's memory card slot.

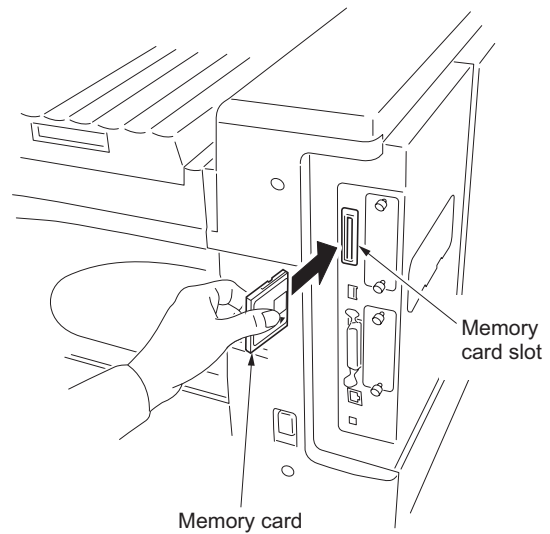


Figure 1-6-7

12. Turn the main switch on.
13. When message display (1) is displayed to detect firmware in the memory card.
14. Message display (2) is displayed during downloading.
15. When message display (3) is displayed to indicate downloading is finished.
16. Turn the main switch off.
17. Remove the memory card from memory card slot.
18. Turn the main switch on.
19. Confirm that message display (4) is displayed after warm-up.
20. Print the status page. Print the status page to check that the firmware version has been updated.

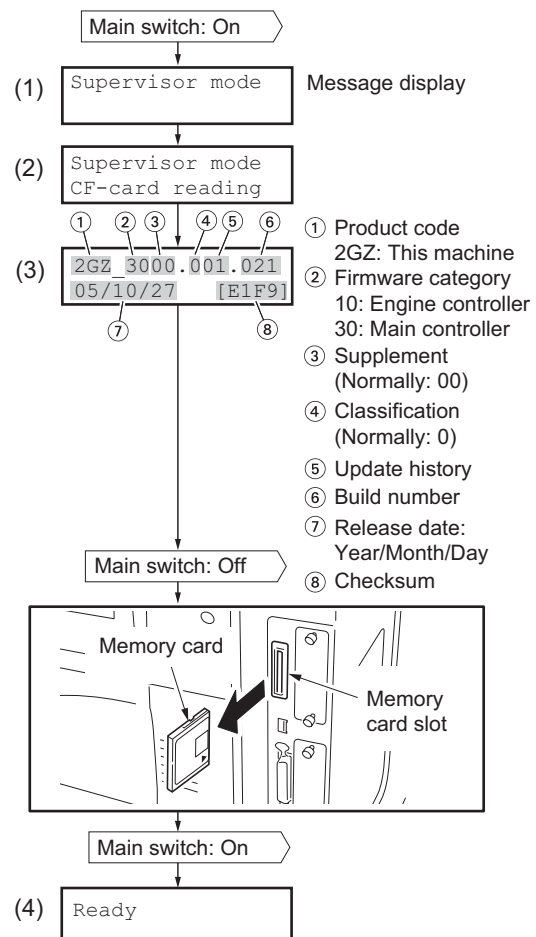


Figure 1-6-8



### (3) Downloading the firmware from the USB memory

The procedure below provides how to download firmware from a USB memory.

#### Procedure

1. Turn the main switch off.
2. Connect the USB memory to the PC.  
Copy the firmware file to the root directory of the USB memory.
3. Remove the USB memory from the PC and then insert the USB memory into the printer's USB memory slot.

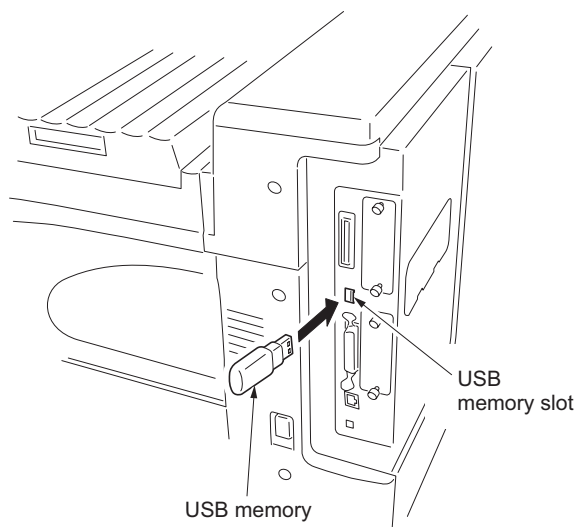


Figure 1-6-9

4. Turn the main switch on.
5. When message display (1) is displayed to detect firmware in the USB memory.
6. Message display (2) is displayed during downloading.
7. When message display (3) is displayed to indicate downloading is finished.
8. Turn the main switch off.
9. Remove the USB memory from USB memory slot.
10. Turn the main switch on.
11. Confirm that message display (4) is displayed after warm-up.
12. Print the status page. Print the status page to check that the firmware version has been updated.

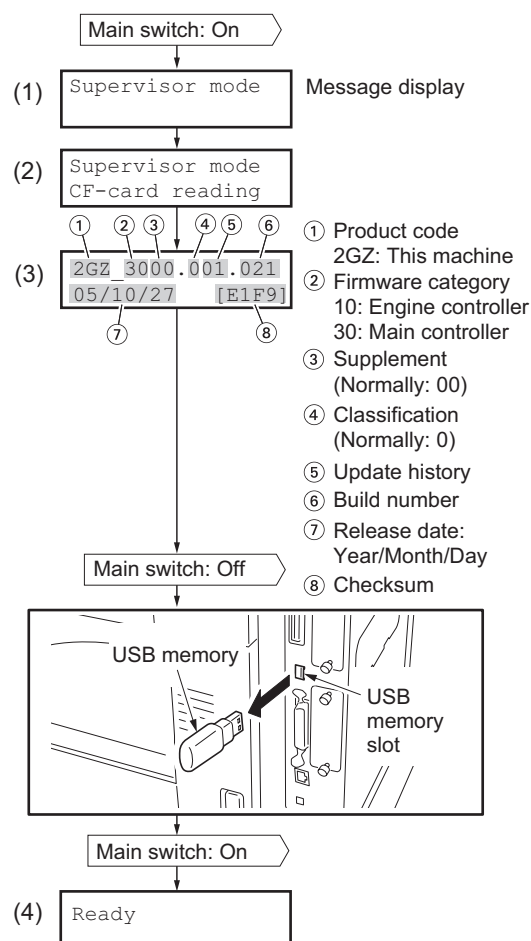


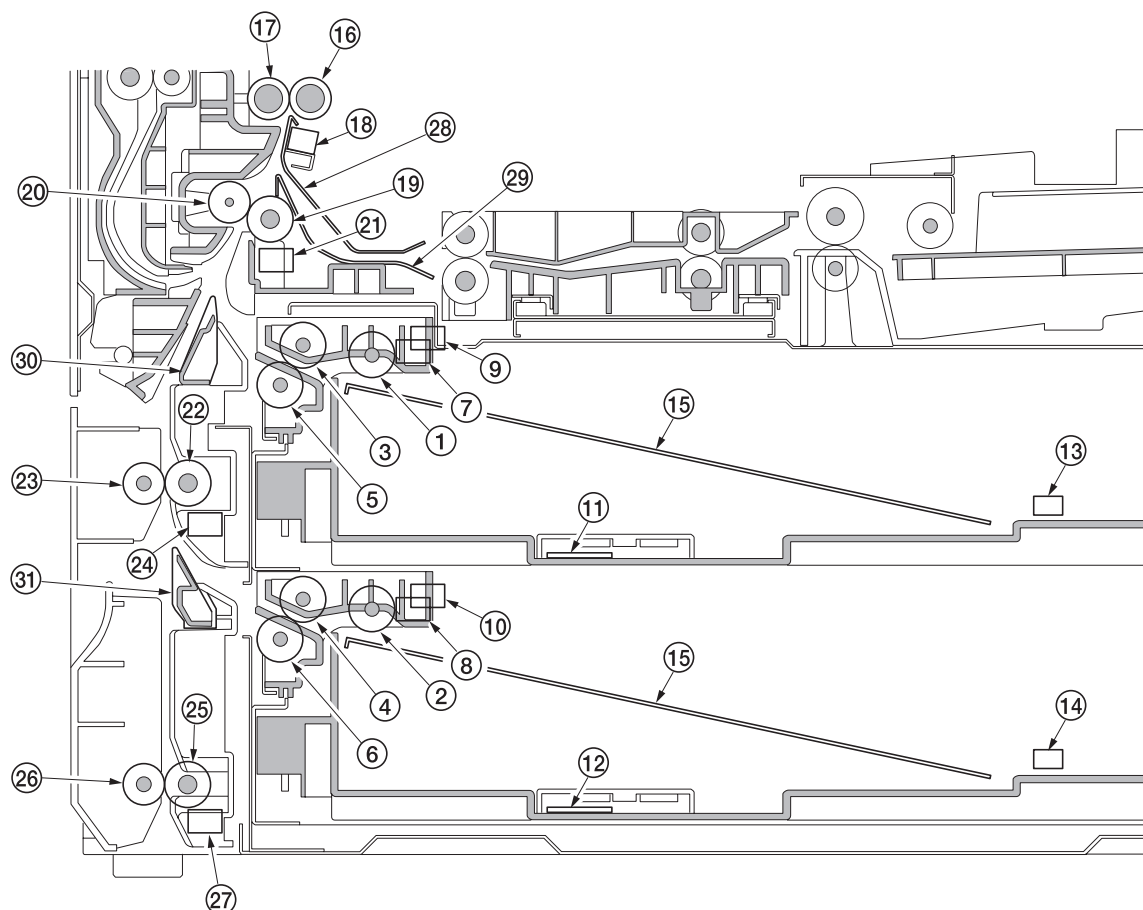
Figure 1-6-10

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## 2-1-1 Paper feed section

The paper feed section consists of the primary feed and secondary feed subsections. Primary feed conveys paper from the cassettes 1, 2 or MP tray to the left and right registration rollers, at which point secondary feed takes place and the paper travels to the transfer section in sync with the printing timing.

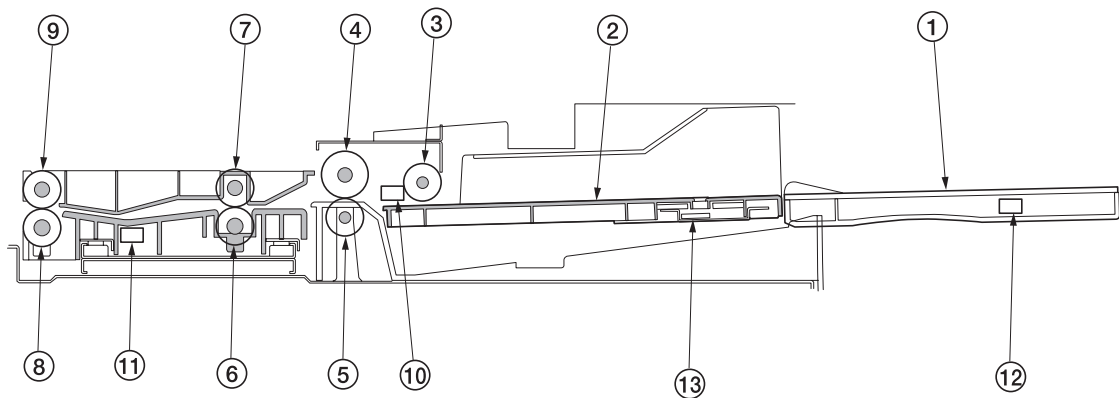
Each cassette consists of a lift driven by the lift motor and other components. Each cassette can hold up to 500 sheets of paper. Paper is fed from the cassette by the rotation of the forwarding pulley and paper feed pulley. The separation pulley prevents multiple sheets from being fed at one time, via the torque limiter.



**Figure 2-1-1 Paper feed from the cassettes 1 and 2**

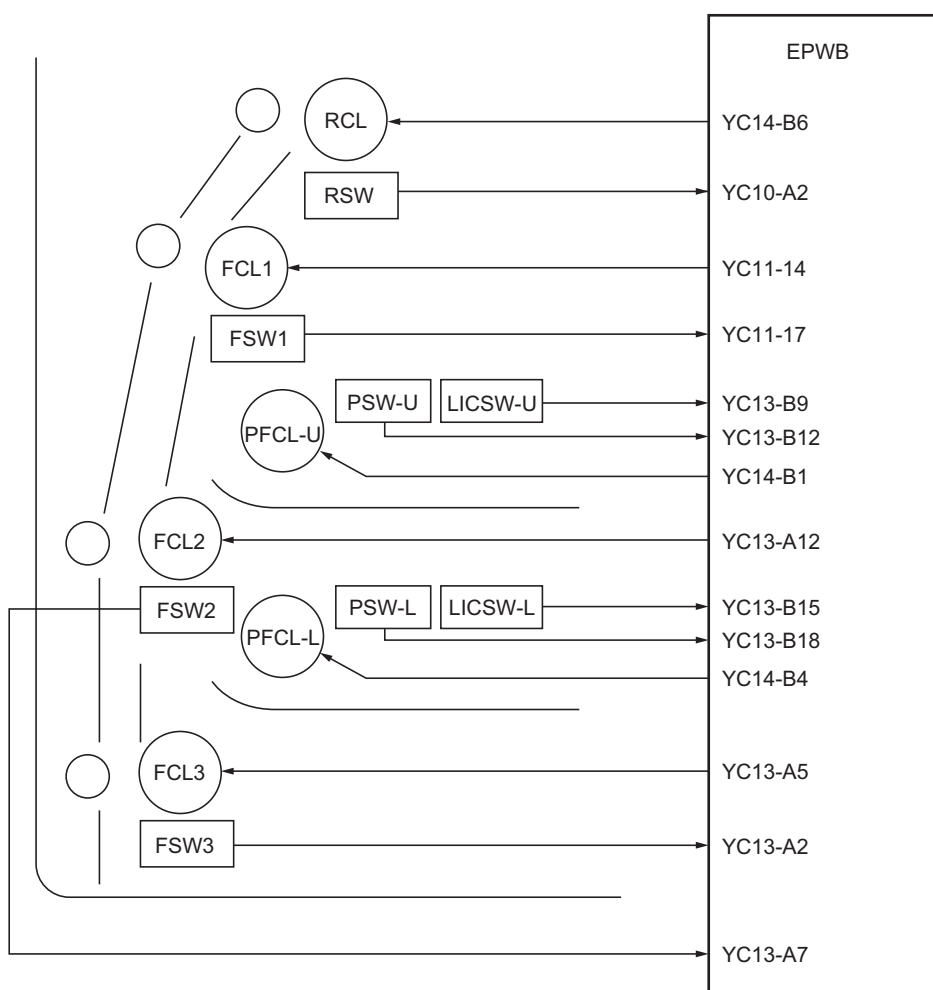
- |   |                                       |
|---|---------------------------------------|
| (1) Upper forwarding pulley             | (17) Left registration roller         |
| (2) Lower forwarding pulley             | (18) Registration switch (RSW)        |
| (3) Upper paper feed pulley             | (19) Feed roller 1                    |
| (4) Lower paper feed pulley             | (20) Feed pulley                      |
| (5) Upper separation pulley             | (21) Feed switch 1 (FSW1)             |
| (6) Lower separation pulley             | (22) Feed roller 2                    |
| (7) Upper paper switch (PSW-U)          | (23) Feed pulley                      |
| (8) Lower paper switch (PSW-L)          | (24) Feed switch 2 (FSW2)             |
| (9) Upper lift limit switch (LICSW-U)   | (25) Feed roller 3                    |
| (10) Lower lift limit switch (LICSW-L)  | (26) Feed pulley                      |
| (11) Upper paper width switch (PWSW-U)  | (27) Feed switch 3 (FSW3)             |
| (12) Lower paper width switch (PWSW-L)  | (28) Front registration guide         |
| (13) Upper paper length switch (PLSW-U) | (29) Paper conveying guide            |
| (14) Lower paper length switch (PLSW-L) | (30) Vertical paper conveying guide 1 |
| (15) Cassette lift                      | (31) Vertical paper conveying guide 2 |
| (16) Right registration roller          |                                       |

The MP tray can hold up to 200 sheets of paper at one time. Paper is fed from the MP tray by the rotation of the MP forwarding pulley and MP paper feed pulley. Also during paper feed, the MP separation pulley prevents multiple sheets from being fed at one time by the torque limiter.

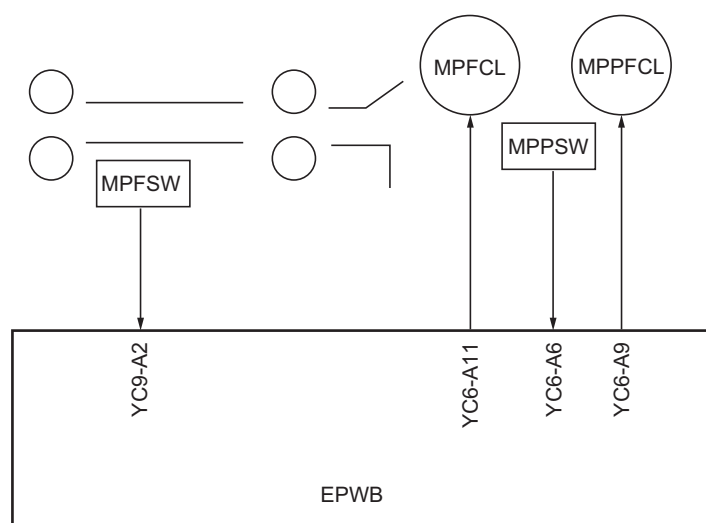


**Figure 2-1-2 Paper feed from the MP tray**

- |                          |                                      |
|--------------------------|--------------------------------------|
| (1) MP tray              | (9) MP feed pulley                   |
| (2) MP lift guide        | (10) MP paper switch (MPPSW)         |
| (3) MP forwarding pulley | (11) MP feed switch (MPFSW)          |
| (4) MP paper feed pulley | (12) MP paper length switch (MPPLSW) |
| (5) MP separation pulley | (13) MP paper width switch (MPPWSW)  |
| (6) MP feed roller 1     |                                      |
| (7) MP feed pulley       |                                      |
| (8) MP feed roller 2     |                                      |



**Figure 2-1-3 Paper feed section block diagram (cassettes 1 and 2)**



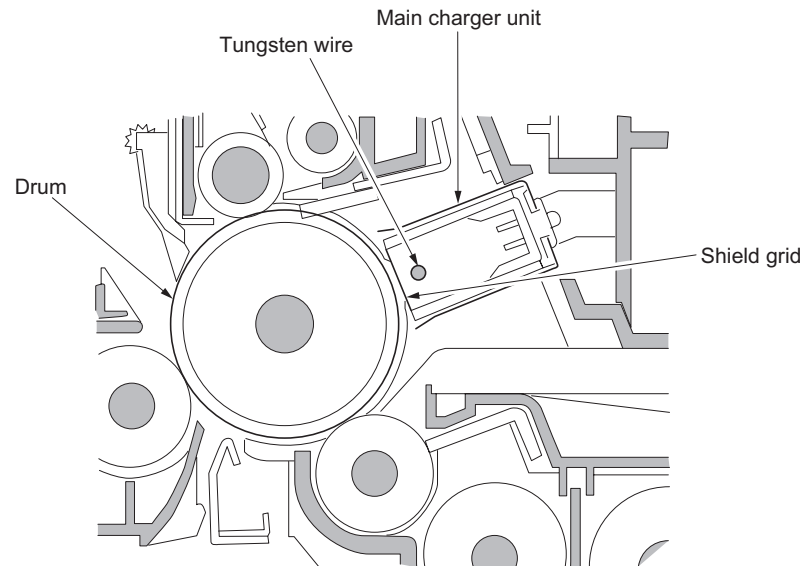
**Figure 2-1-4 Paper feed section block diagram (MP tray)**

**2-1-2 Main charging section**

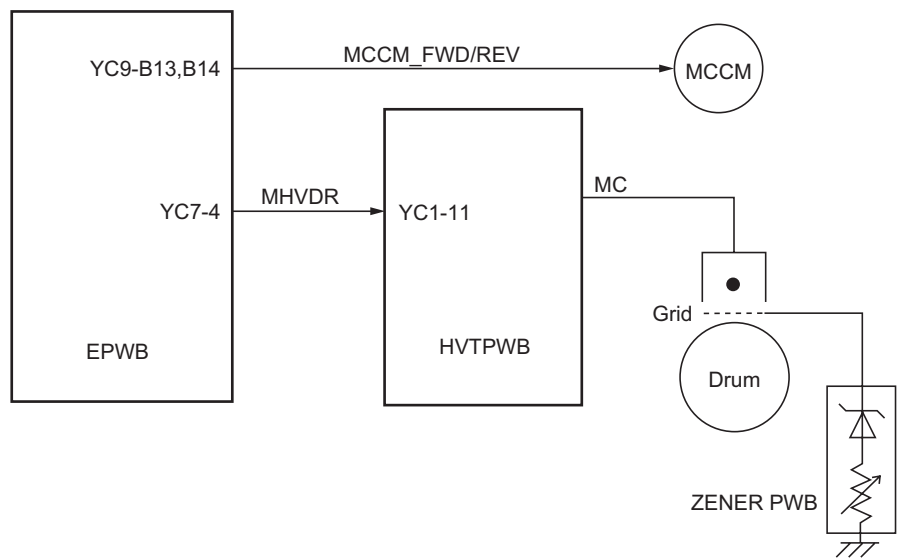
The main charging section consists of the main charger assembly, drum and so on. The drum is electrically charged uniformly by means of a grid to form a latent image on the surface.

The main charger unit charges the drum so that a latent image is formed on the surface, the shield grid ensuring the charge is applied uniformly.

In addition, the main charger unit is equipped with the main charger cleaning motor, and it is cleaning automatically.



**Figure 2-1-5 Main charging section**

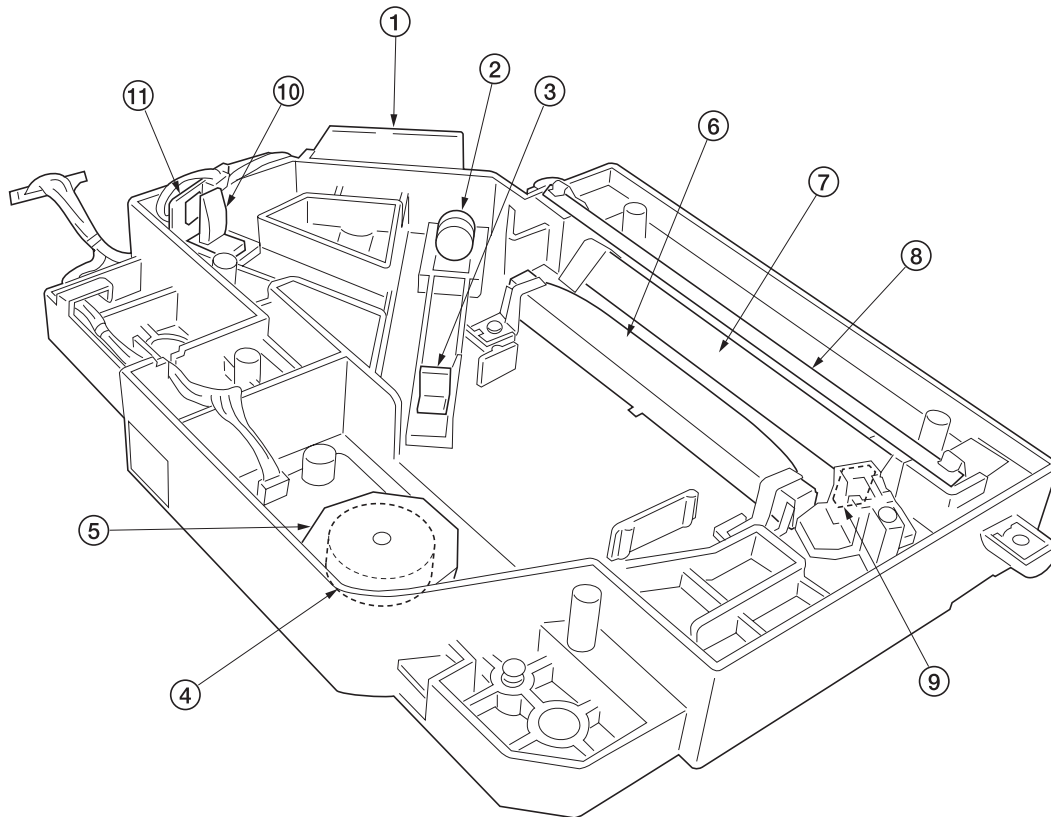


**Figure 2-1-6 Main charging section block diagram**

### 2-1-3 Optical section

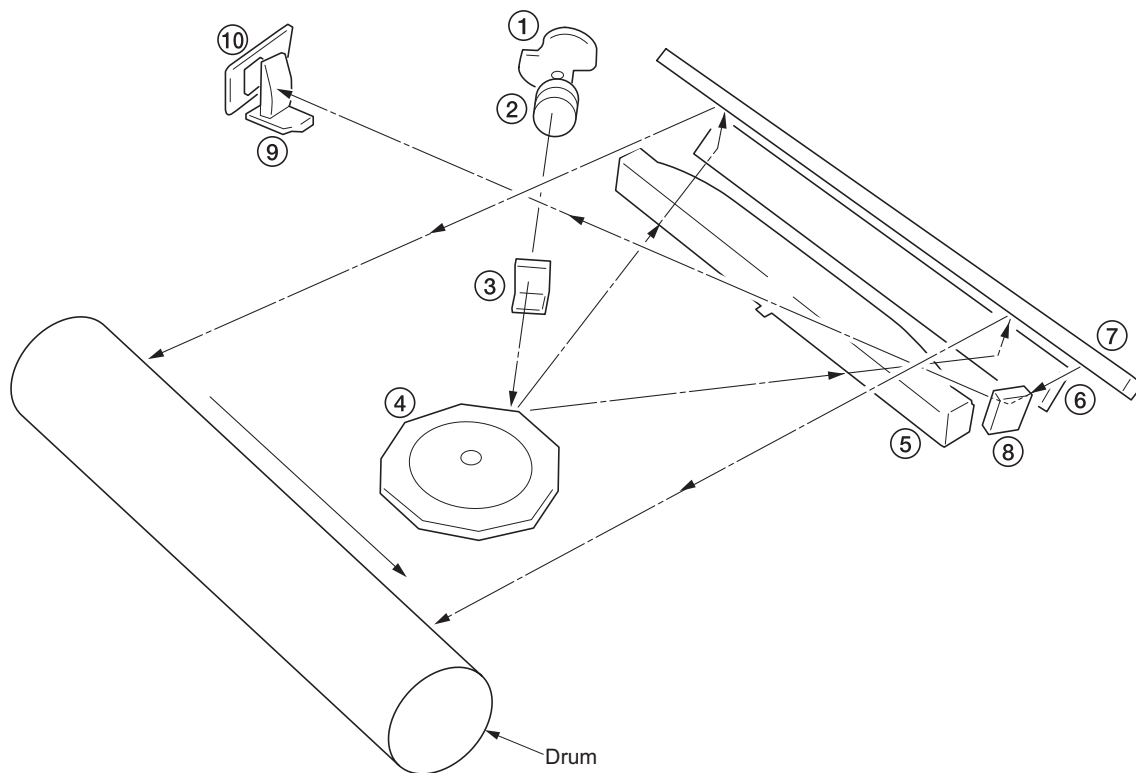
#### (1) Laser scanner unit

The image data is processed on the main PWB (MPWB) and transmitted as image printing data to the laser scanner unit (LSU). By repeatedly turning the laser on and off, the laser scanner unit forms a latent image on the drum surface.



**Figure 2-1-7 Laser scanner unit (1)**

- (1) Laser diode PWB (LDPWB)
- (2) Collimator lens
- (3) Cylindrical lens
- (4) Polygon motor (PM)
- (5) Polygon mirror
- (6) fθ lens
- (7) Mirror
- (8) Mirror
- (9) BD sensor mirror
- (10) Cylindrical correcting lens
- (11) BD sensor

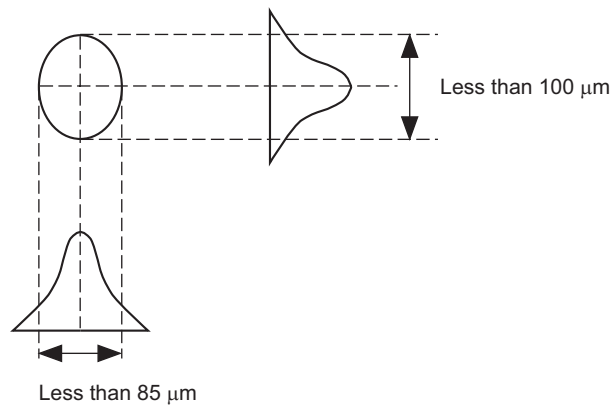


**Figure 2-1-8 Laser scanner unit (2)**

1. Laser diode: Generates the laser beam which forms a latent image on the drum.
2. Collimator lens: Collimates the diffused laser beam emitted from the laser diode to convert it into a cylindrical beam.
3. Cylindrical lens: Shapes the collimated laser beam to suit the printing resolution.
4. Polygon mirror: Nine-facet mirror that rotates with each face reflecting the laser beam toward the drum for one main-direction scan.
5.  $f\theta$  lens: Corrects for non-linearity of the laser beam scanning speed on the drum surface, keeps the beam diameter constant and corrects for the vertical alignment of the polygon mirror to ensure that the focal plane of the laser beam is on the drum surface.
6. Mirror: Reflects the laser beam and changes the irradiation direction.
7. Mirror: Reflects the laser beam and changes the irradiation direction.
8. BD sensor mirror: Reflects the laser beam to the BD sensor to generate the main-direction (horizontal) sync signal.
9. Cylindrical correcting lens: Corrects for the deviation of the laser beam reflected by the BD sensor mirror to the BD sensor.
10. BD sensor: Detects the beam reflected by the BD sensor mirror, outputting a signal to the main PWB (MPWB) to provide timing for the main-direction sync signal.



The dimensions of the laser beam are as shown in Figure 2-1-9.

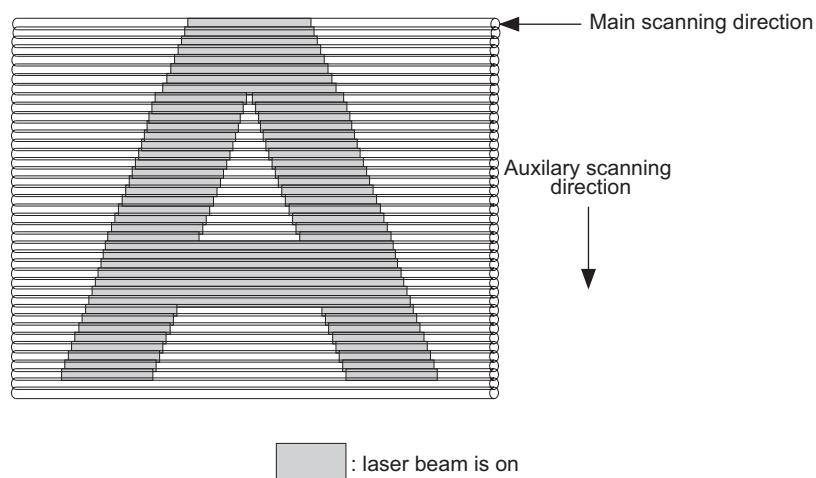


**Figure 2-1-9**

Scanning in the main direction is provided by the rotating polygon mirror, while scanning in the auxiliary direction is provided by the rotating drum, forming a static latent image on the drum.

The static latent image of the letter "A", for example, is formed on the drum surface as shown in Figure 2-1-10. Electrical charge is dissipated on the area of the drum surface irradiated by the laser.

The focal point of the laser beam is moved line by line, and adjacent lines slightly overlap each other.



**Figure 2-1-10**

### 2-1-4 Developing section

The developing section consists of the developing unit and the toner container.

The developing unit consists of the developing roller where a magnetic brush is formed, the doctor blade and the developing spirals that agitate the toner.

When the toner sensor (TNS) detects a low toner level in the developing unit, the toner replenishment signal is output to the engine PWB (EPWB). The engine PWB (EPWB) that has received the signal turns on the toner replenishment solenoid (TNFSOL) and replenishes toner from the toner container to the developing unit.

Also, the toner container sensor (TCS) checks whether or not toner remains in the toner container.

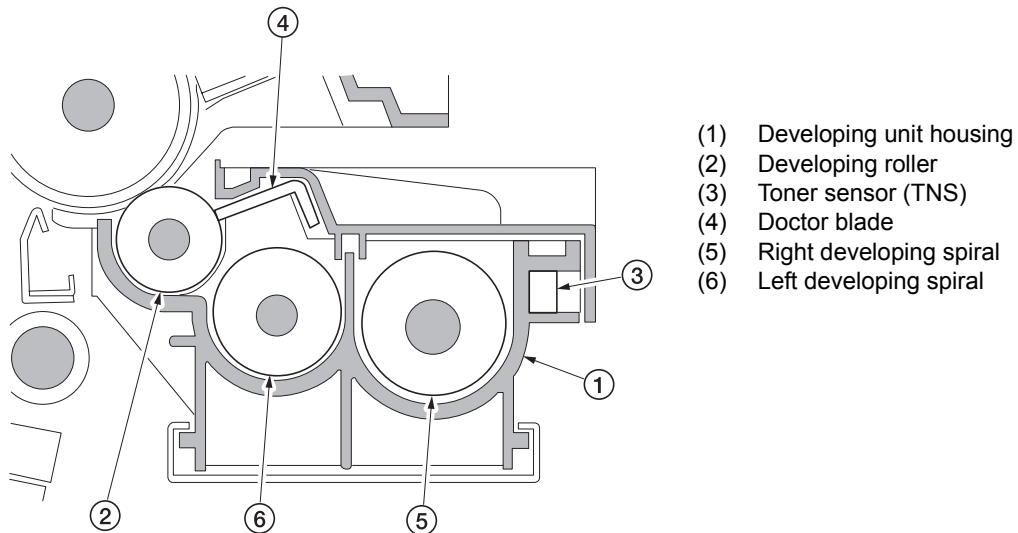


Figure 2-1-11 Developing section

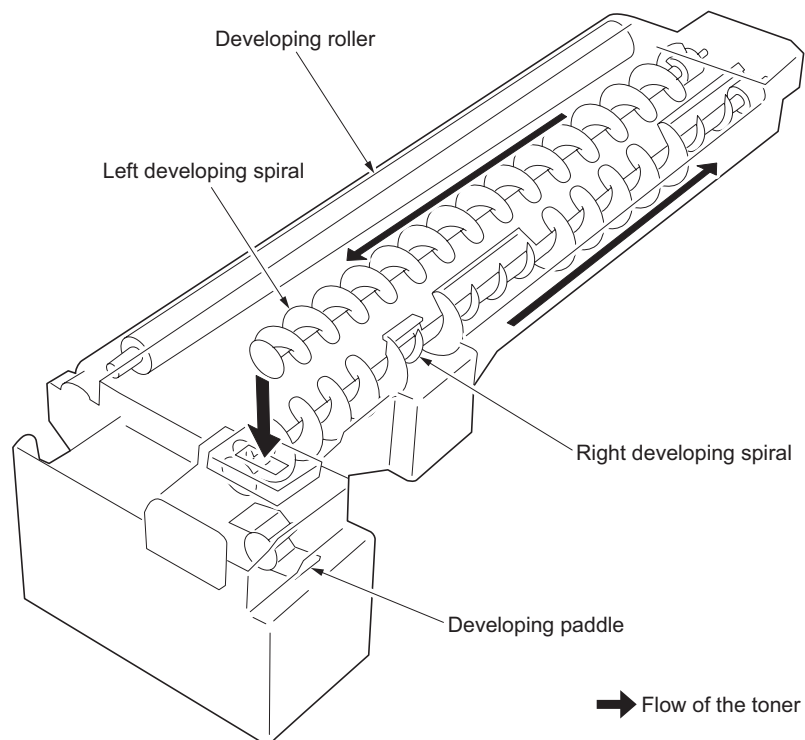
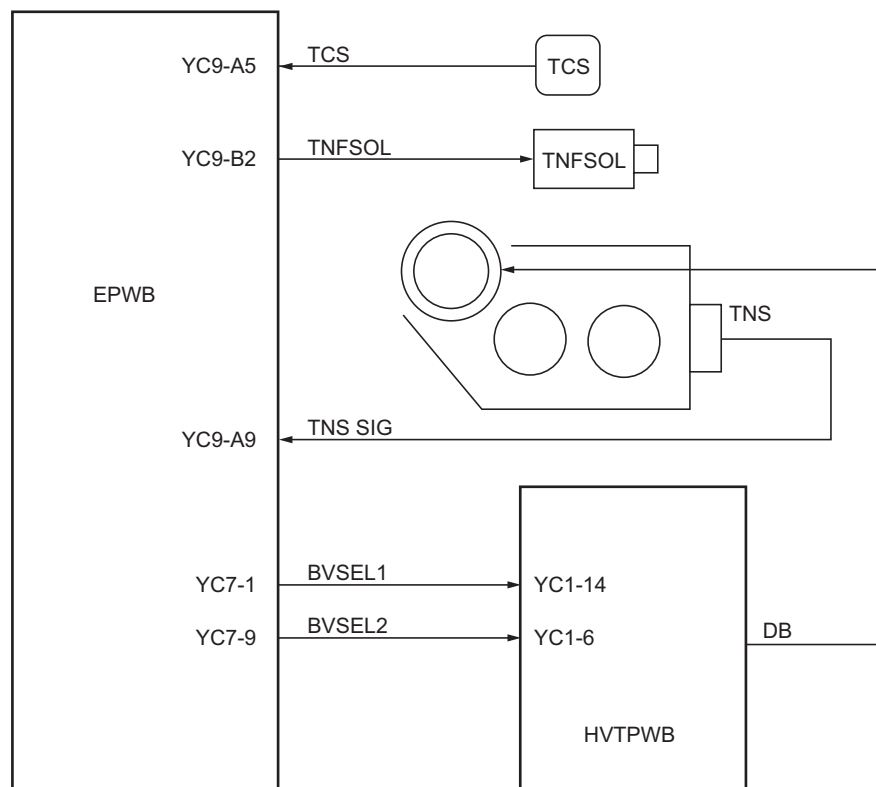


Figure 2-1-12 Flow of the toner



**Figure 2-1-13 Developing section block diagram**



### 2-1-5 Transfer and separation sections

The transfer and separation section consists mainly of the transfer roller, separation electrode and drum separation claws. A high voltage generated by the high-voltage transformer PWB (HVTPWB) is applied to the transfer roller for transfer charging.

Paper after transfer is separated from the drum by applying separation bias that is output from the high-voltage transformer PWB (HVTPWB) to the separation electrode.

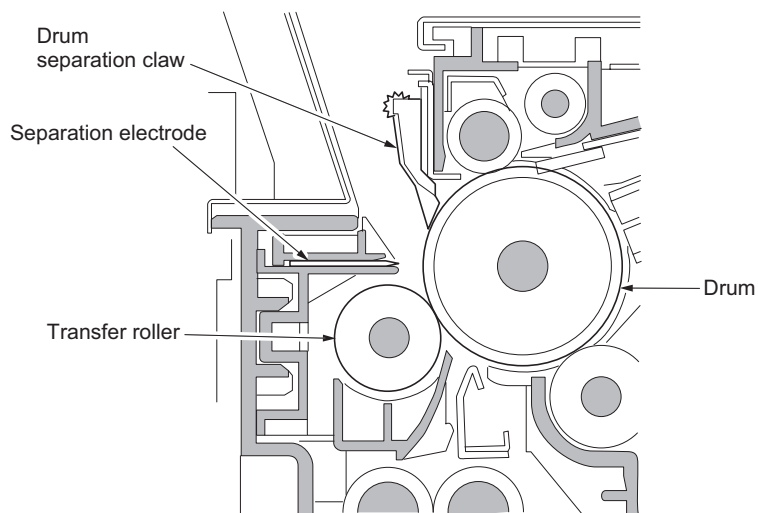


Figure 2-1-15 Transfer and separation sections

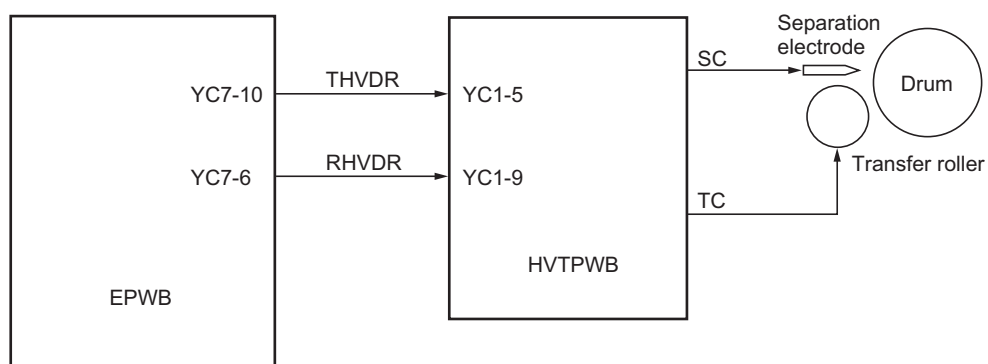
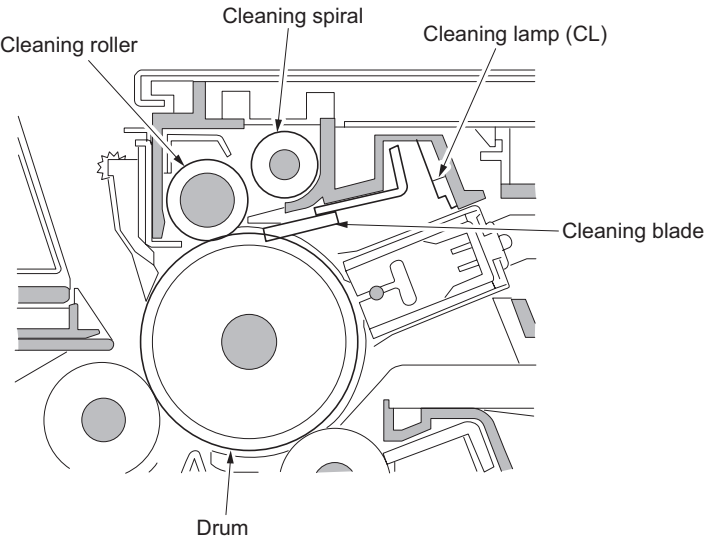


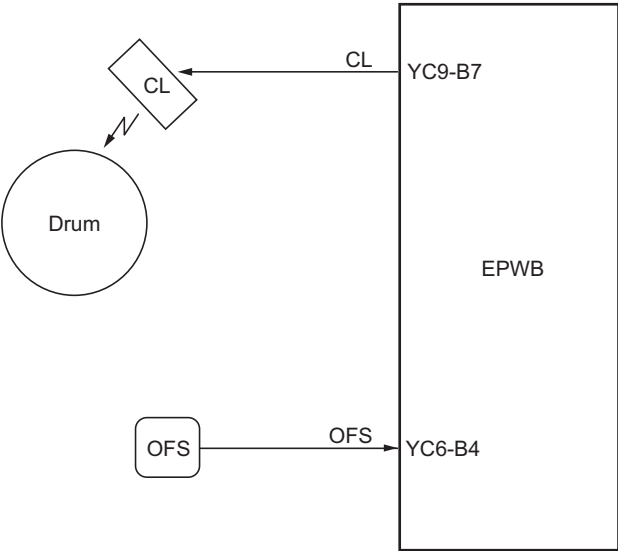
Figure 2-1-16 Transfer and separation sections block diagram

**2-1-6 Cleaning and charge erasing sections**

The cleaning section consists of the cleaning blade that removes residual toner from the drum surface after the transfer process, and the cleaning spiral that carries the residual toner back to the waste toner box. The cleaning lamp (CL) consists of LEDs and removes residual charge on the drum before main charging. Also the toner quantity in the waste toner box is sensed with the overflow sensor (OFS).



**Figure 2-1-17 Cleaning and charge erasing sections**



**Figure 2-1-18 Cleaning and charge erasing sections block diagram**

## 2-1-7 Fuser section

The fuser section consists of the parts shown in figure. When paper reaches the fuser section after the transfer process, it passes between the press roller and heat roller, which is heated by fuser heaters M or S (FH-M or FH-S). Pressure is applied by the fuser unit pressure springs so that the toner on the paper is melted, fused and fixed onto the paper. The heat roller is heated by fuser heaters M or S (FH-M or FH-S) inside it; its surface temperature is detected by the fuser unit thermistor 1 and 2 (FTH1/2), and is regulated by the fuser heaters turning on and off.

If the fuser section becomes abnormally hot, fuser unit thermostat 1 and 2 (FTS1/2) operates shutting the power to the fuser heaters off. When the fusing process is completed, the paper is separated from the heat roller by its separation claws and is conveyed from the machine to eject and switchback section.

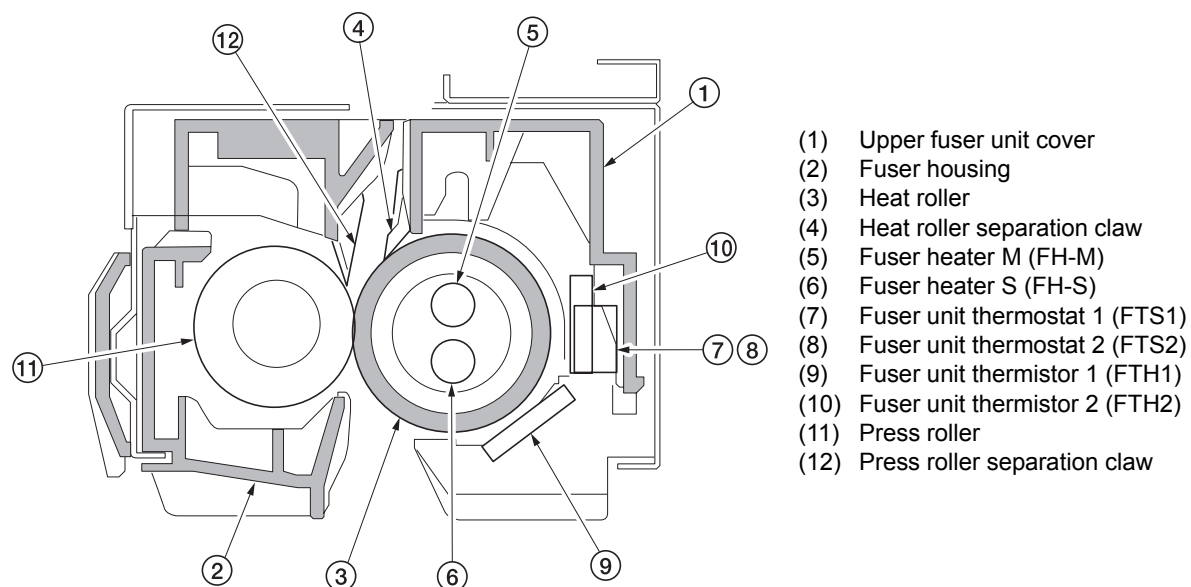


Figure 2-1-19 Fuser section

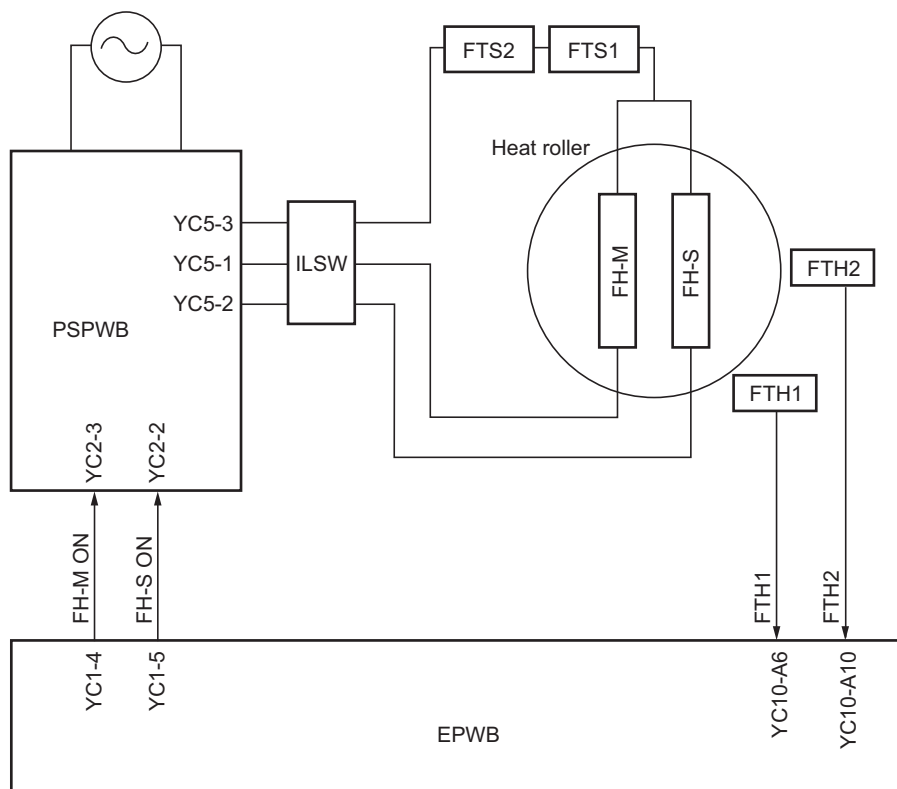


Figure 2-1-20 Fuser section block diagram

### 2-1-8 Eject and switchback sections

The eject and switchback sections eject paper on which fixing has ended with the eject roller that is rotated by forward rotation of the eject motor.

In duplex printing, paper is turned over by reverse rotation of the eject motor.

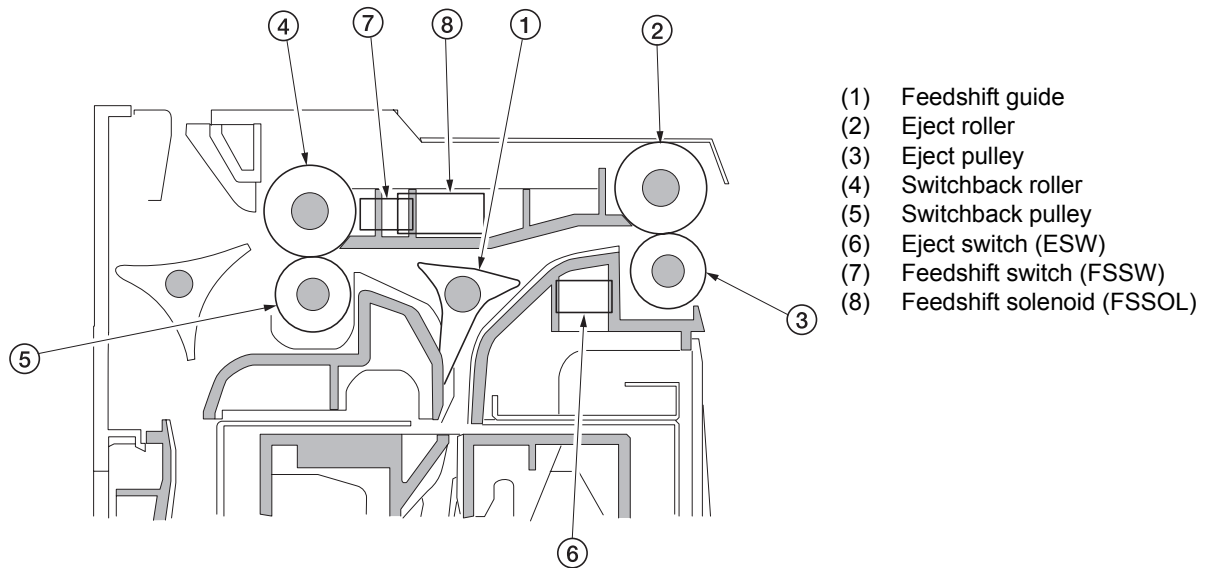


Figure 2-1-21 Eject and switchback sections

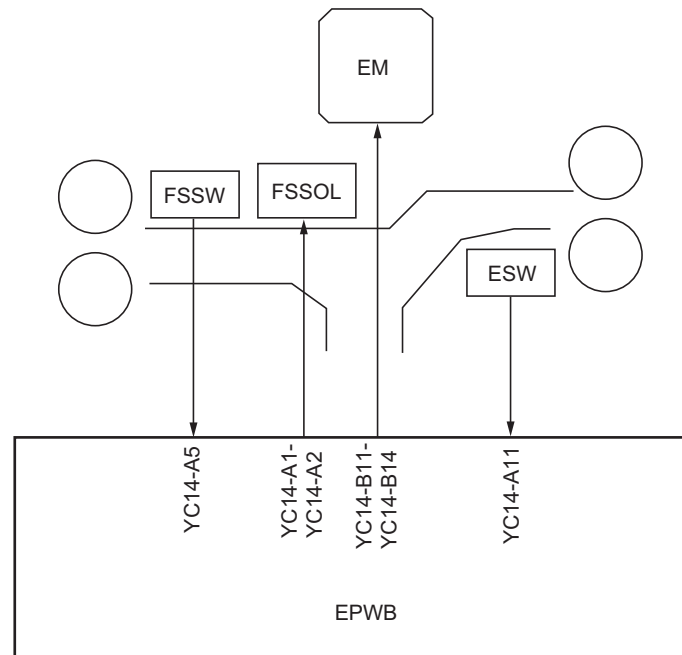
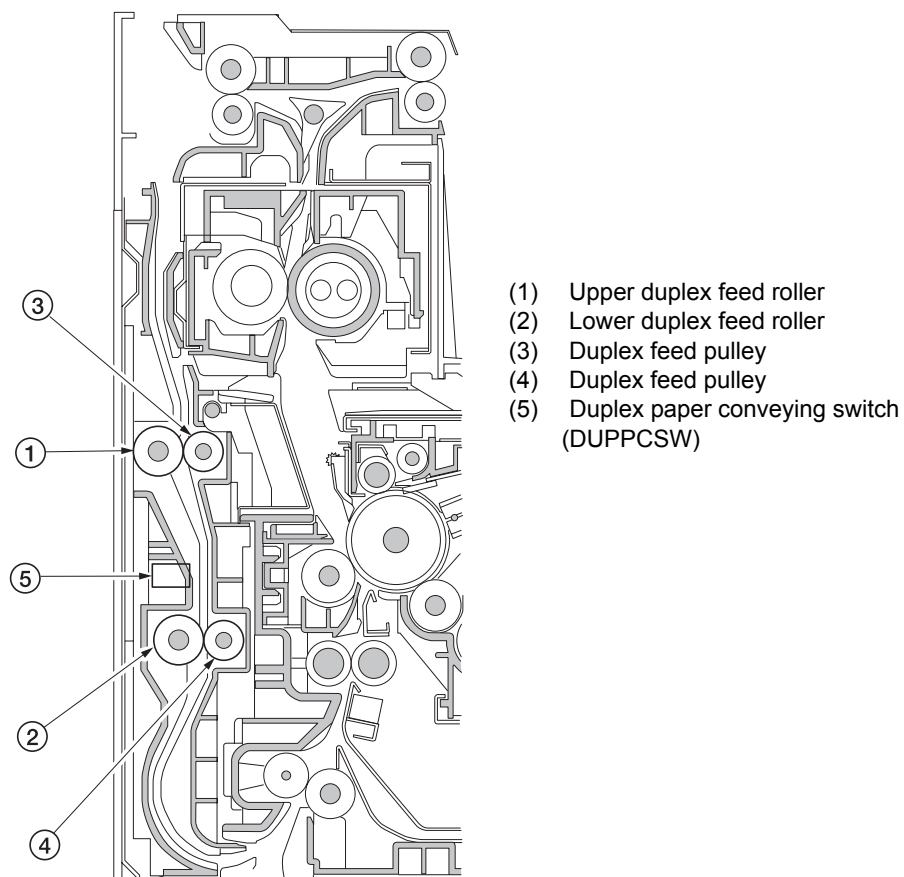


Figure 2-1-22 Eject and switchback sections block diagram

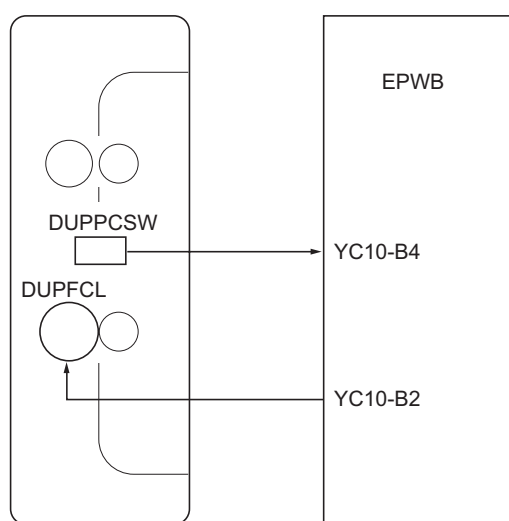


### 2-1-9 Duplex section

The duplex section consists of the components shown in figure. In duplex mode, after printing on to the reverse face of the paper, the paper is reversed in the switchback section and conveyed to the duplex section. The paper is then conveyed to the paper feed section by the upper and lower duplex feed rollers.



**Figure 2-1-23 Duplex section**



**Figure 2-1-24 Duplex section block diagram**

### (1) Paper conveying operation in duplex copying

Paper of which printing onto the reverse side is complete is conveyed to the switchback section, the eject motor switches from normal rotation to reverse rotation to switch the eject roller to reverse rotation, and the paper conveying direction is reversed. Paper that has been switched back is conveyed to the duplex section via the eject roller and the switchback roller.

Paper that has been conveyed to the duplex section is conveyed to the paper feed section again by rotation of the upper duplex feed roller and the lower duplex feed roller and printing onto the front side is performed.

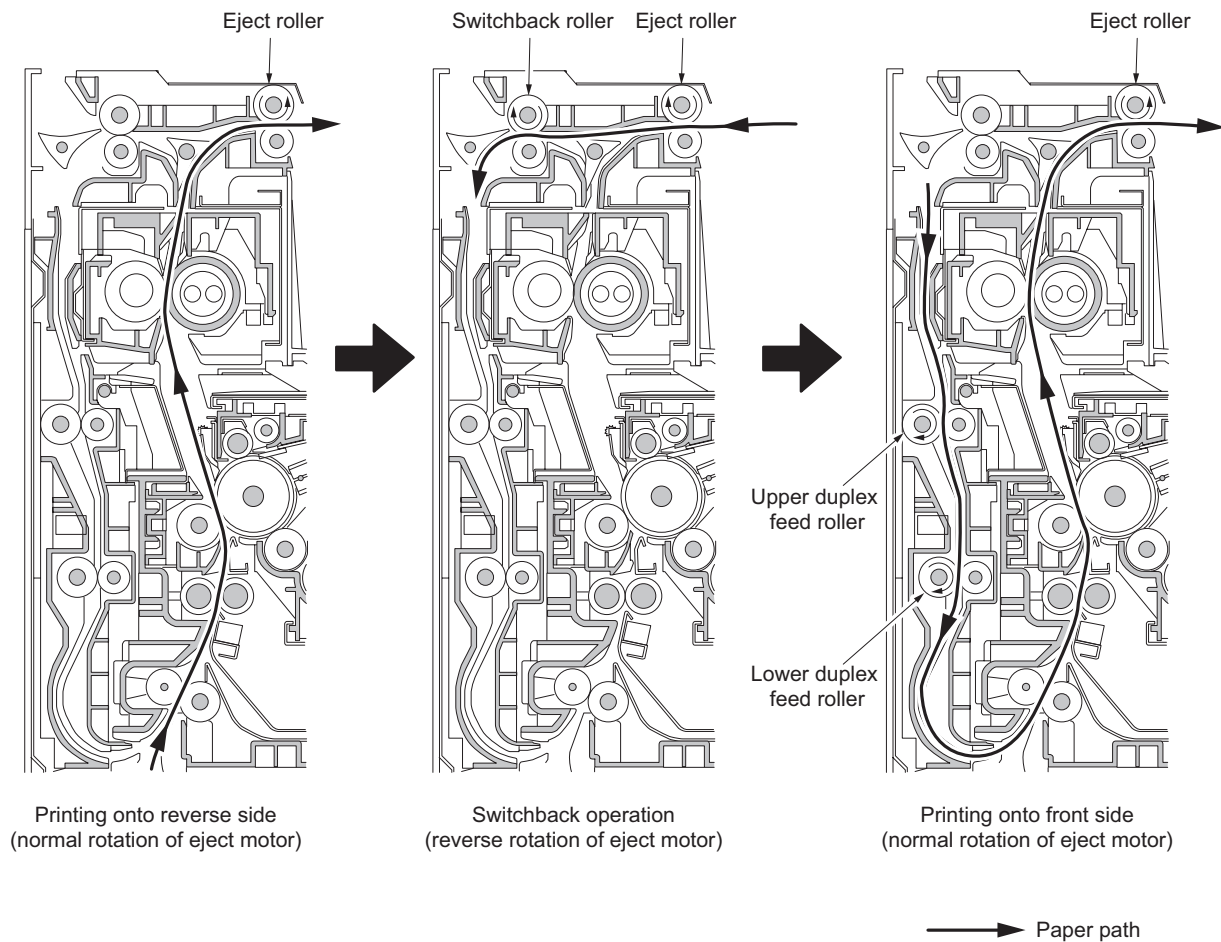
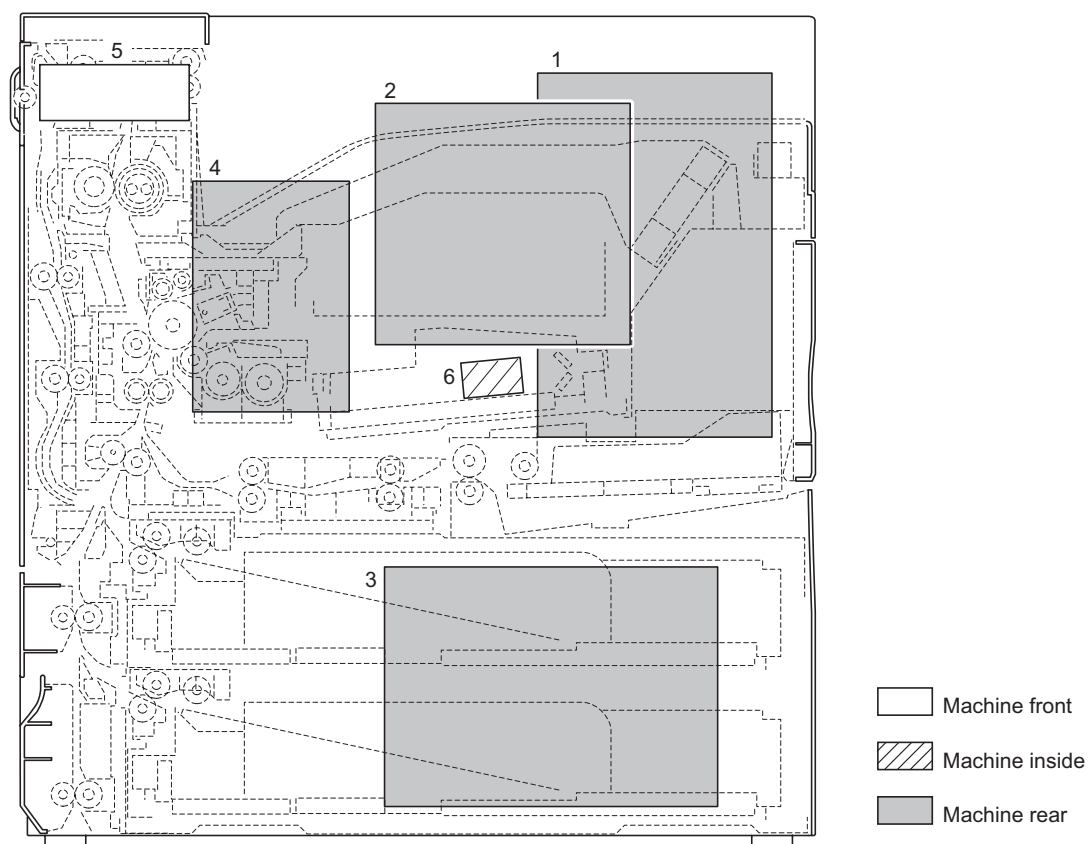


Figure 2-1-25

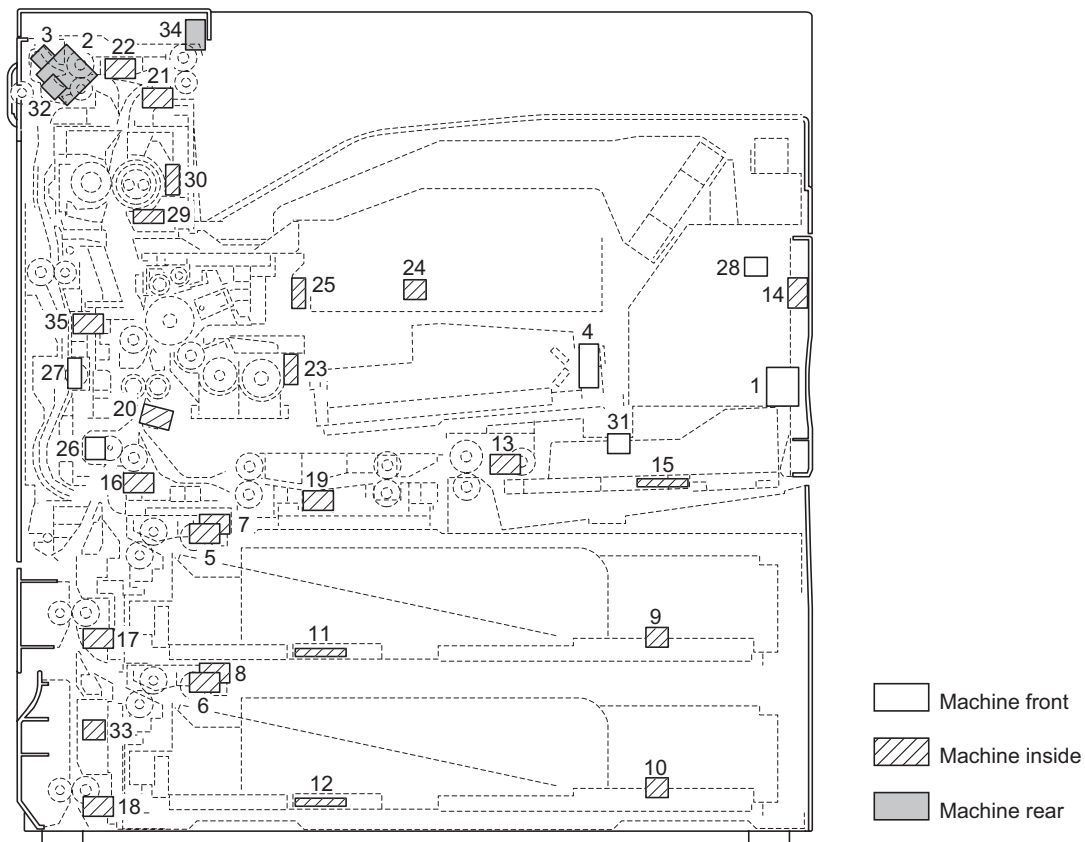
## 2-2-1 Electrical parts layout

### (1) PWBs



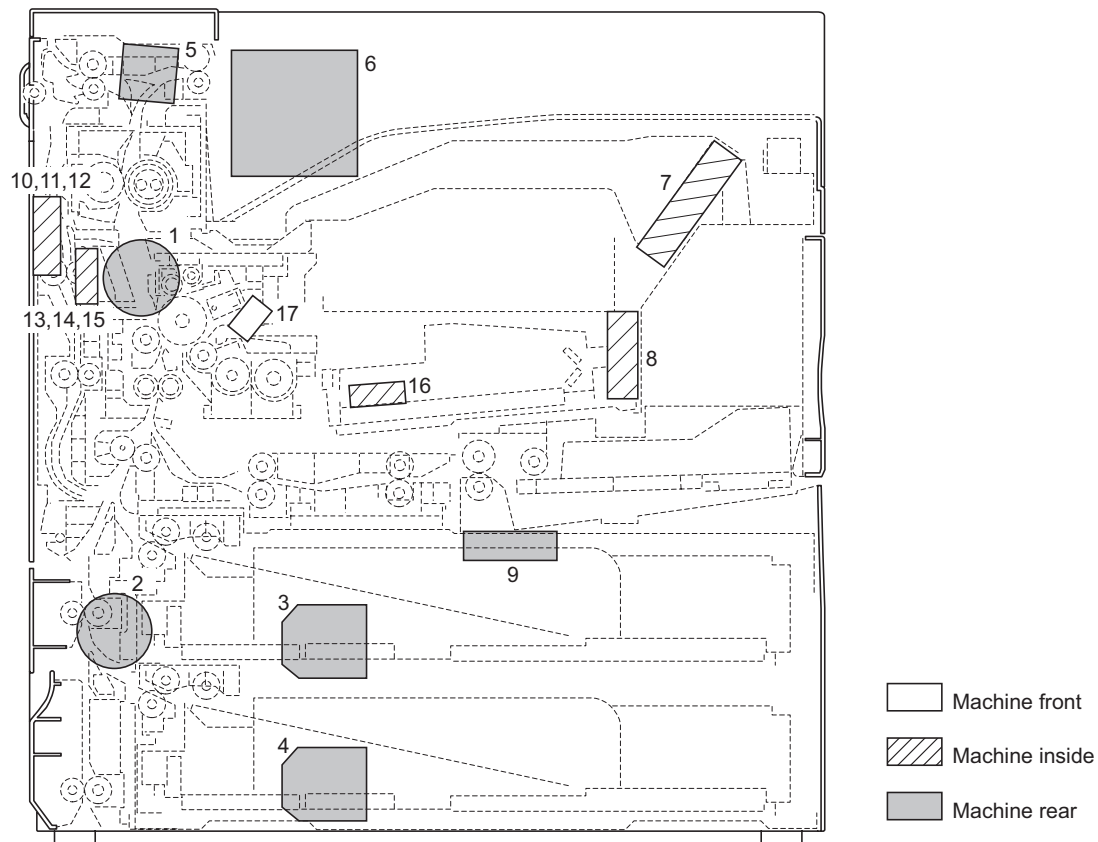
**Figure 2-2-1 PWBs**

- |                                      |  |
|--------------------------------------|--|
| 1. Main PWB (MPWB) .....             | Implements firmware for managing data processing for printing, interface with PC and the network, etc. |
| 2. Engine PWB (EPWB).....            | Controls printer hardware including electrical components.   |
| 3. Power source PWB (PSPWB) .....    | Generates +24 V DC, 12 V DC and 5V DC; controls the fuser heater.                                      |
| 4. High voltage PWB (HVTPWB).....    | Main charging. Generates developing bias and high voltages for transfer.                               |
| 5. Operation panel PWB (OPPWB) ..... | Displays LCD messages and LED indicators. Controls key inputs.   |
| 6. Laser diode PWB (LDPWB).....      | Generates and controls the laser light.  |

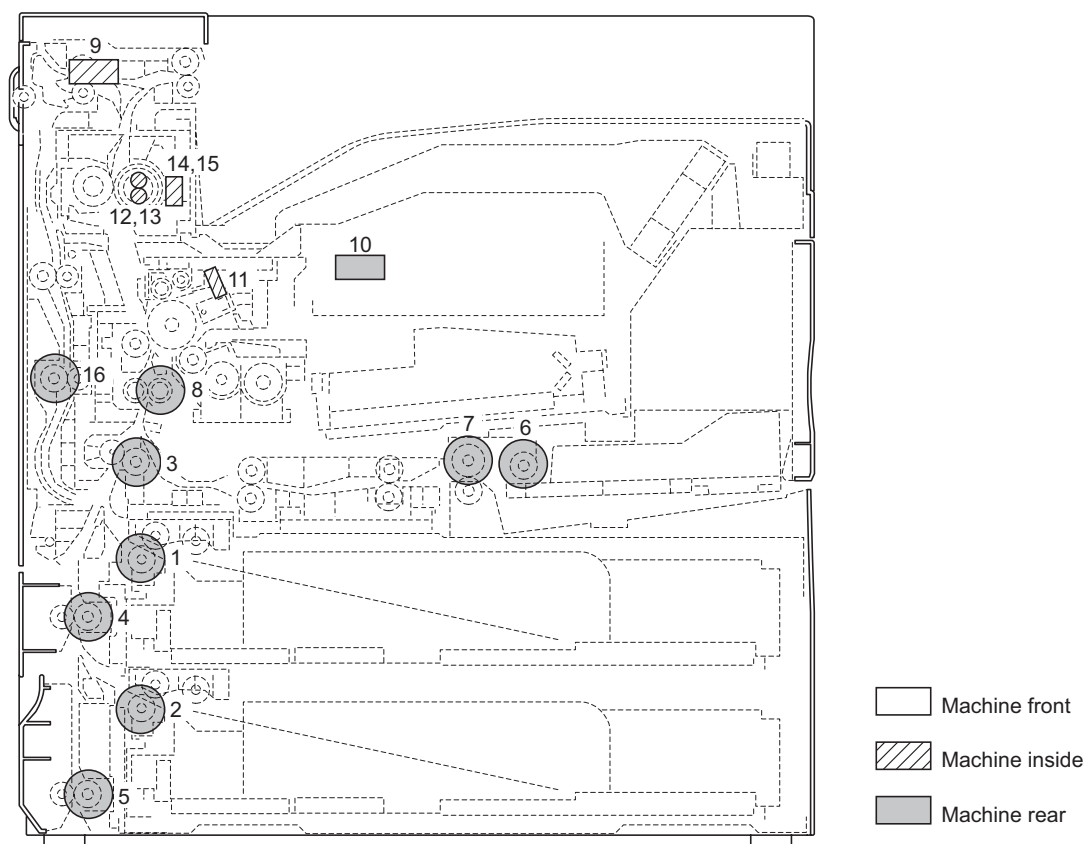
**(2) Switches and sensors****Figure 2-2-2 Switches and sensors**

- |   |  |
|---|--|
| 1. Main switch (MSW)                        | Turns the AC power on and off.                                       |
| 2. Interlock switch (ILSW)                  | Turns the AC power for the fuser heater on and off.                  |
| 3. Safety switch 1 (SSW1)                   | Breaks the safety circuit when the left cover 1 is opened.           |
| 4. Safety switch 2 (SSW2)                   | Breaks the safety circuit when the front cover is opened.            |
| 5. Upper paper switch (PSW-U)               | Detects the presence of paper in the cassette 1.                     |
| 6. Lower paper switch (PSW-L)               | Detects the presence of paper in the cassette 2.                     |
| 7. Upper lift limit switch (LICSW-U)        | Detects the cassette 1 lift reaching the upper limit.                |
| 8. Lower lift limit switch (LICSW-L)        | Detects the cassette 2 lift reaching the upper limit.                |
| 9. Upper paper size length switch (PLSW-U)  | Detects the length of paper in the cassette 1.                       |
| 10. Lower paper size length switch (PLSW-L) | Detects the length of paper in the cassette 2.                       |
| 11. Upper paper size width switch (PWSW-U)  | Detects the width of paper in the cassette 1.                        |
| 12. Lower paper size width switch (PWSW-L)  | Detects the width of paper in the cassette 2.                        |
| 13. MP paper switch (MPPSW)                 | Detects the presence of paper on the MP tray.                        |
| 14. MP paper size length switch (MPPLSW)    | Detects the length of paper on the MP tray.                          |
| 15. MP paper size width switch (MPPWSW)     | Detects the width of paper on the MP tray.                           |
| 16. Feed switch 1 (FSW1)                    | Controls feed clutch 1 drive timing.                                 |
| 17. Feed switch 2 (FSW2)                    | Controls feed clutch 2 drive timing                                  |
| 18. Feed switch 3 (FSW3)                    | Controls feed clutch 3 drive timing                                  |
| 19. MP feed switch (MPFSW)                  | Controls MP feed clutch drive timing                                 |
| 20. Registration switch (RSW)               | Controls the secondary paper feed start timing.                      |
| 21. Eject switch (ESW)                      | Detects a paper misfeed in the fuser section.                        |
| 22. Feedshift switch (FSSW)                 | Detects a paper misfeed in the switchback section in a duplex print. |

- 23. Toner sensor (TNS)..... Detects the toner density in the developing unit.
- 24. Toner container detection switch  
(TCDSW) ..... Detects the presence of the toner container.
- 25. Toner container sensor (TCS)..... Detects the quantity of toner in a toner container.
- 26. Waste toner box detection switch  
(WTDSW)..... Detects the presence of the waste toner box.
- 27. Overflow sensor (OFS) ..... Detects when the waste toner box is full.
- 28. Humidity sensor (HUMS) ..... Detects absolute humidity.
- 29. Fuser unit thermistor 1 (FTH1)..... Detects the heat roller temperature.
- 30. Fuser unit thermistor 2 (FTH2)..... Detects the heat roller temperature.
- 31. Front cover switch (FRCSW) ..... Detects the opening and closing of the front cover.
- 32. Left cover 1 switch (LC1SW) ..... Detects the opening and closing of the left cover 1.
- 33. Left cover 2 switch (LC2SW) ..... Detects the opening and closing of the left cover 2.
- 34. Paper full sensor (PFS)..... Detects whether the top tray is full.
- 35. Duplex paper conveying switch  
(DUPPCSW) ..... Detects a paper jam in the duplex section.

**(3) Motors****Figure 2-2-3 Motors**

- |  |   |
|--|---|
| 1. Drive motor (DM) .....                    | Drives the machine.   |
| 2. Paper feed motor (PFM) .....              | Drives paper feed section.  |
| 3. Upper lift motor (LM-U) .....             | Drives cassette 1 lift.   |
| 4. Lower lift motor (LM-L) .....             | Drives cassette 2 lift.   |
| 5. Eject motor (EM) .....                    | Drives the eject section.   |
| 6. Cooling fan motor 1 (CFM1) .....          | Cools the machine interior.   |
| 7. Cooling fan motor 2 (CFM2) .....          | Cools the machine interior.   |
| 8. Cooling fan motor 3 (CFM3) .....          | Cools the machine interior (around the LSU).                                |
| 9. Cooling fan motor 4 (CFM4) .....          | Cools the machine interior (around the power supply unit).                  |
| 10. Cooling fan motor 5 (CFM5) .....         | Cools the machine interior and supports paper transfer for duplex printing. |
| 11. Cooling fan motor 6 (CFM6) .....         | Cools the machine interior and supports paper transfer for duplex printing. |
| 12. Cooling fan motor 7 (CFM7) .....         | Cools the machine interior and supports paper transfer for duplex printing. |
| 13. Cooling fan motor 8 (CFM8) .....         | Cools the machine interior (around the paper conveying).                    |
| 14. Cooling fan motor 9 (CFM9) .....         | Cools the machine interior (around the paper conveying).                    |
| 15. Cooling fan motor 10 (CFM10) .....       | Cools the machine interior (around the paper conveying).                    |
| 16. Polygon motor (PM) .....                 | Drives the polygon mirror.  |
| 17. Main charger cleaning motor (MCCM) ..... | Drives the main charger auto cleaning.                                      |

**(4) Other electrical components****Figure 2-2-4 Other electrical components**

- |   |  |
|---|--|
| 1. Upper paper feed clutch 1 (PFCL-U) ..... | Primary paper feed from the cassette 1.        |
| 2. Lower paper feed clutch 2 (PFCL-L) ..... | Primary paper feed from the cassette 2.        |
| 3. Feed clutch 1 (FCL1) .....               | Controls the drive of feed roller.             |
| 4. Feed clutch 2 (FCL2) .....               | Controls the drive of feed roller.             |
| 5. Feed clutch 3 (FCL3) .....               | Controls the drive of feed roller.             |
| 6. MP paper feed clutch (MPPFCL) .....      | Primary paper feed from the MP tray.           |
| 7. MP feed clutch (MPFCL) .....             | Controls the drive of MP feed roller.          |
| 8. Registration clutch (RCL) .....          | Secondary paper feed.                          |
| 9. Feedshift solenoid (FSSOL) .....         | Operates the feedshift guide.                  |
| 10. Toner feed solenoid (TNFSOL) .....      | Replenishes toner.                             |
| 11. Cleaning lamp (CL) .....                | Removes residual charge from the drum surface. |
| 12. Fuser heater M (FH-M) .....             | Heats the heat roller.                         |
| 13. Fuser heater S (FH-S) .....             | Heats the heat roller.                         |
| 14. Fuser unit thermostat 1 (FTS1) .....    | Prevents overheating in the fuser section.     |
| 15. Fuser unit thermostat 2 (FTS2) .....    | Prevents overheating in the fuser section.     |
| 16. Duplex feed clutch (DUPFCL) .....       | Controls the drive of the duplex feed roller.  |

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### 2-3-1 Power source PWB

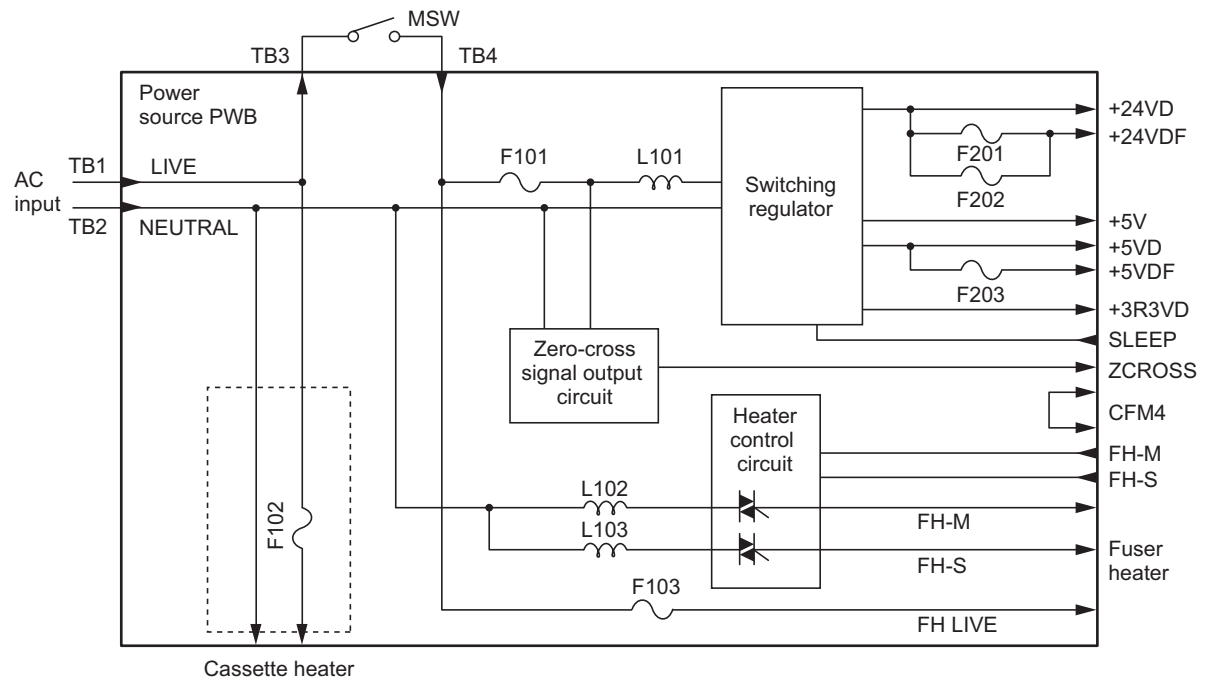


Figure 2-3-1 Power source PWB diagram



Figure 2-3-2 Power source PWB silk-screen diagram

Connector	Pin No.	Signal	I/O	Voltage	Description
<b>TB</b>  Connected to the AC inlet	TB1	LIVE	I	120 V AC 220-240 V AC	AC power input
	TB2	COM	I	120 V AC 220-240 V AC	AC power input
	TB3	LIVE	I	120 V AC 220-240 V AC	AC power output
	TB4	LIVE	O	120 V AC 220-240 V AC	AC power input
<b>YC1</b>  Connected to the engine PWB	1	+24VDR	O	24 V DC	24 V DC power output
	2	GND	-	-	Ground
	3	GND	-	-	Ground
	4	GND	-	-	Ground
	5	+3.3VD	O	3.3 V DC	3.3 V DC power output
	6	+5VD	O	5 V DC	5 V DC power output
	7	+24VD	O	24 V DC	24 V DC power output
<b>YC2</b>  Connected to the engine PWB	1	GND	-	-	Ground
	2	FH-S ON	I	0/5 V DC	FH-S On/Off
	3	FH-M ON	I	5 V DC	FH-M On/Off
	4	+5VD	O	5 V DC	5 V DC power output
	5	ZCROSS	O	0/5 V DC (pulse)	Zero-cross signal
	6	CFM4	I	0/24 V DC	CFM4 On/Off
<b>YC3</b>  Connected to the optional document finisher	1	SGND	-	-	Ground
	2	SGND	-	-	Ground
	3	SGND	-	-	Ground
	4	SGND	-	-	Ground
	5	SGND	-	-	Ground
	6	SGND	-	-	Ground
<b>YC4</b>  Connected to the cooling fan motor 4	1	CFM4	O	DC0V/24V	CFM4 On/Off
	2	+24VD	O	24 V DC	24 V DC power output
<b>YC5</b>  Connected to the fuser heater M/S	1	FH-M ON	O	120/0 V AC 220-240/0 V AC	FH-M On/Off
	2	FH-S ON	O	120/0 V AC 220-240/0 V AC	FH-S On/Off
	3	FH LIVE	O	120 V AC 220-240 V AC	AC power output

Connector	Pin No.	Signal	I/O	Voltage	Description
<b>YC6</b>	1	LIVE	O	120 V AC 220-240 V AC	AC power output
	3	NEUTRAL	O	120 V AC 220-240 V AC	AC power output
Connected to the optional cassette heater					
<b>YC7</b>	1	V24V	O	24 V DC	24 V DC power output
	2	V24V	O	24 V DC	24 V DC power output
	3	5.1V	O	5 V DC	5 V DC power output
	4	PGND	-	-	Ground
	5	FGND	-	-	Ground
	6	PGND	-	-	Ground
Connected to the optional paper feeder and optional document finisher					
<b>YC8</b>	1	SLEEP	I	0/5 V DC	SLEEP signal
	2	-	-	-	Not used
	3	+5V	O	5 V DC	5 V DC power output
	4	+5V	O	5 V DC	5 V DC power output
	5	+5V	O	5 V DC	5 V DC power output
	6	+5V	O	5 V DC	5 V DC power output
	7	+5V	O	5 V DC	5 V DC power output
	8	+5V	O	5 V DC	5 V DC power output
	9	GND	-	-	Ground
	10	GND	-	-	Ground
	11	GND	-	-	Ground
	12	GND	-	-	Ground
	13	GND	-	-	Ground
	14	GND	-	-	Ground
	15	GND	-	-	Ground
	16	GND	-	-	Ground
Connected to the main PWB					

2-3-2 Engine PWB

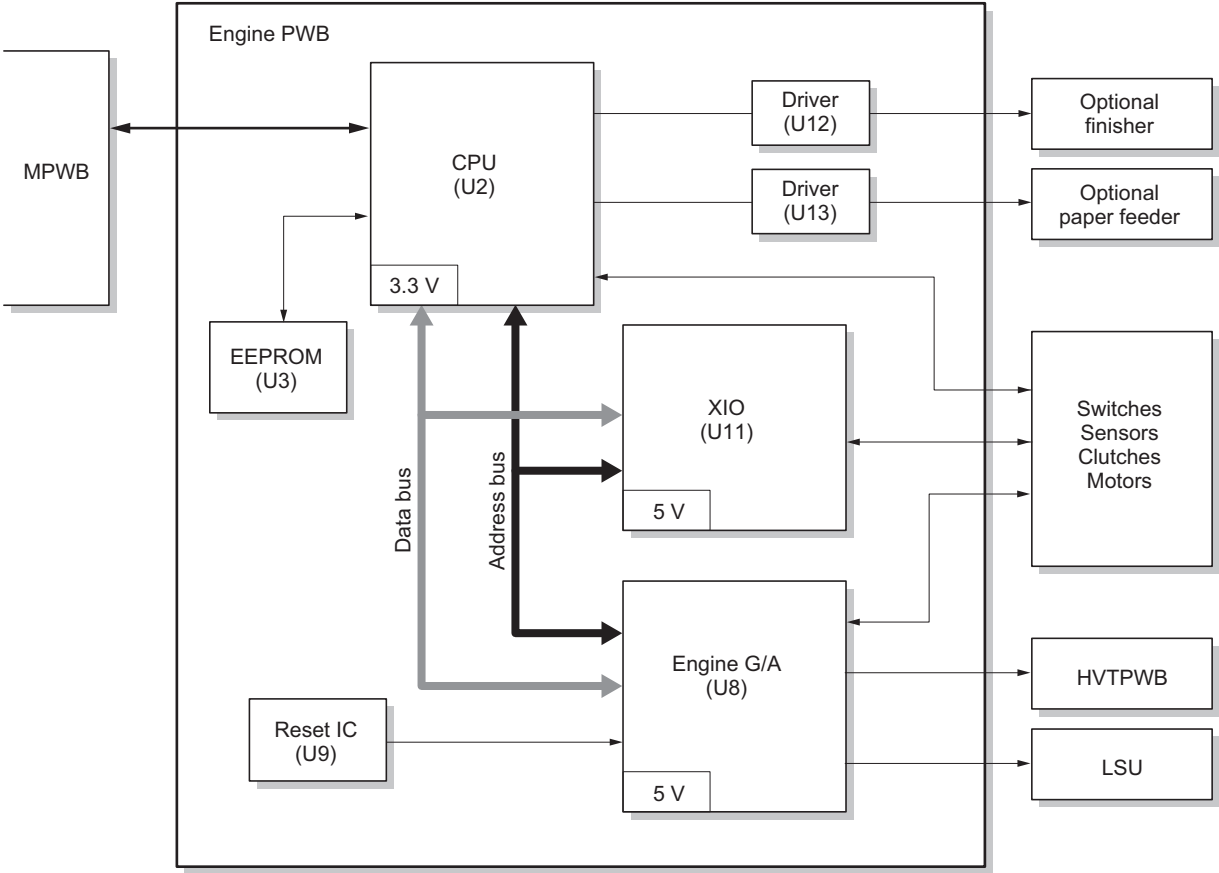


Figure 2-3-3 Engine PWB diagram

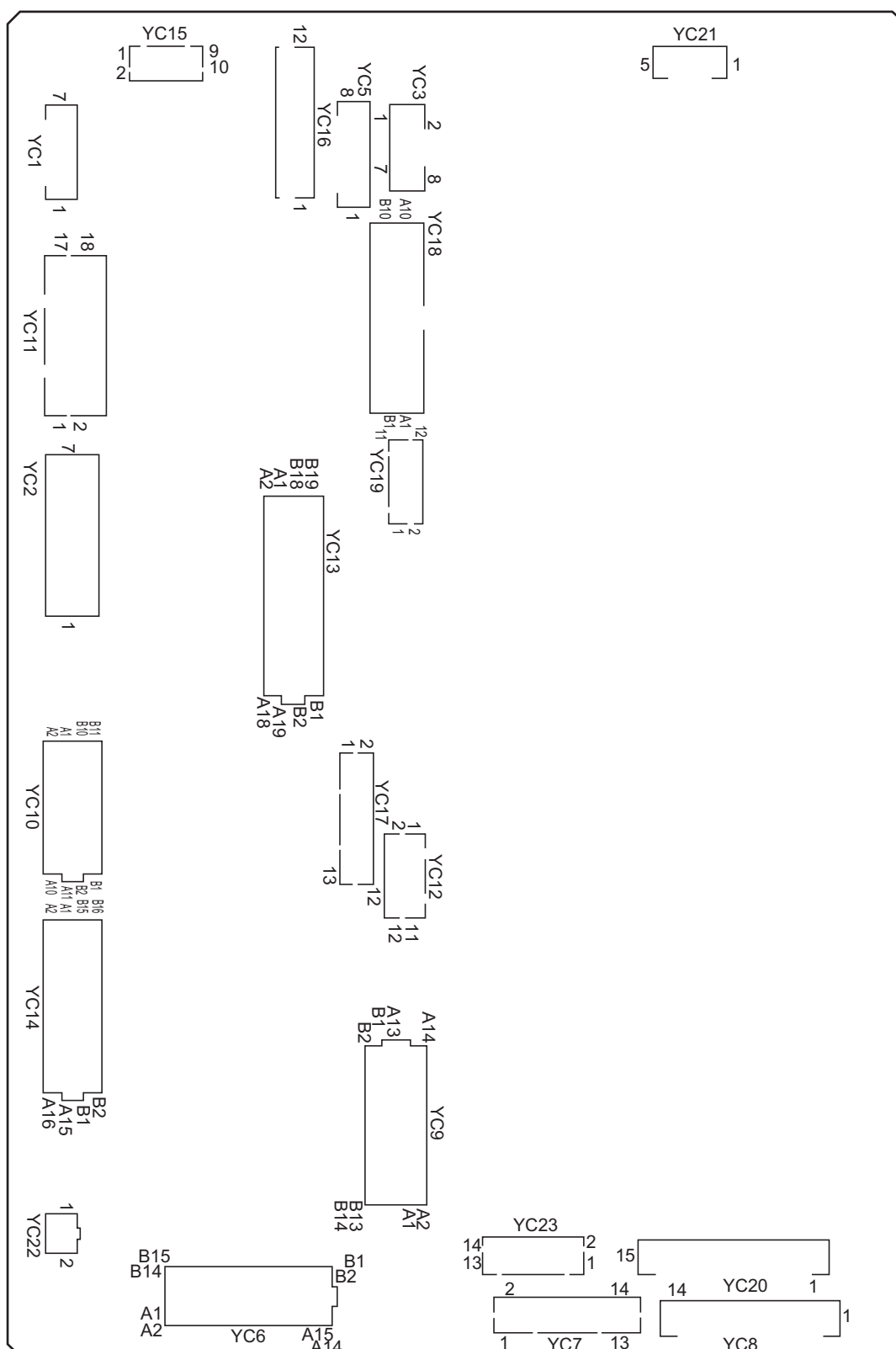


Figure 2-3-4 Engine PWB silk-screen diagram

Connector	Pin No.	Signal	I/O	Voltage	Description
<b>YC1</b> Connected to the power source PWB	1	CFM4	O	0/5 V DC	CFM4: On/Off
	2	ZCROSS	I	0/5 V DC (pulse)	Zero-cross signal
	3	+5VD	I	5 V DC	5 V DC power input
	4	FH-M ON	O	0/5 V DC	FH-M: On/Off
	5	FH-S ON	O	0/5 V DC	FH-S: On/Off
	6	GND	-	-	Ground
<b>YC2</b> Connected to the power source PWB	1	+24VDR	I	24 V DC	24 V DC power input
	2	GND	-	-	Ground
	3	GND	-	-	Ground
	4	GND	-	-	Ground
	5	3.3V	I	3.3 V DC	3.3 V DC power input
	6	+5VD	I	5 V DC	5 V DC power input
	7	+24VDR	I	24 V DC	24 V DC power input
<b>YC3</b> Connected to the optional document finisher	1	SET SIG	I	0/5 V DC	Document finisher connection signal
	2	DFSDO	O	0/5 V DC (pulse)	Document finisher serial communication data signal
	3	DFSDI	I	0/5 V DC (pulse)	Document finisher serial communication data signal
	4	DFSCLK	O	0/5 V DC (pulse)	Document finisher CLOCK signal
	5	DFSEL	O	0/5 V DC	Document finisher SELECT signal
	6	SISEL	-	-	Not used
	7	DFRDY	I	0/5 V DC	Document finisher READY signal
	8	SIRDY	-	-	Not used
<b>YC5</b> Connected to the optional paper feeder	1	GND	-	-	Ground
	2	+5VD	O	5 V DC	5 V DC power output
	3	PFSEL	O	0/5 V DC	Paper feeder SELECT signal
	4	PFSCCLK	O	0/5 V DC (pulse)	Paper feeder CLOCK signal
	5	PFSDI	I	0/5 V DC (pulse)	Paper feeder serial communication data signal
	6	PFSDO	O	0/5 V DC (pulse)	Paper feeder serial communication data signal
	7	PFRDY	I	0/5 V DC	Paper feeder READY signal
	8	PFEEED	O	0/5 V DC	Paper feeder FEED signal
<b>YC6</b> Connected to the MP unit, waste toner box detection switch, overflow sensor, front cover switch and cooling fan motor 1/2	A1	MPPWSW0	I	0/5 V DC	MPPWSW: On/Off
	A2	MPPWSW1	I	0/5 V DC	MPPWSW: On/Off
	A3	MPPWSW2	I	0/5 V DC	MPPWSW: On/Off
	A4	GND	-	-	Ground
	A5	+5VD	O	5 V DC	5 V DC power output
	A6	MPPSW	I	0/5 V DC	MPPSW: On/Off
	A7	GND	-	-	Ground
	A8	+24VDR	O	24 V DC	24 V DC power output
	A9	MPPFCL	O	0/24 V DC	MPPFCL: On/Off
	A10	+24VDR	O	24 V DC	24 V DC power output
	A11	MPFCL	O	0/24 V DC	MPFCL: On/Off
	B1	NC	-	-	Not used
	B2	GND	-	-	Ground
	B3	CFM2	O	0/24 V DC	CFM2: On/Off
	B4	+5VD	O	5 V DC	5 V DC power output

Connector	Pin No.	Signal	I/O	Voltage	Description
<b>YC6</b> Connected to the MP unit, waste toner box detection switch, overflow sensor, front cover switch and cooling fan motor 1/2	B5	WTDSW	I	0/5 V DC	WTDSW: On/Off
	B6	GND	-	-	Ground
	B7	OFS	I	0/5 V DC	OFS: On/Off
	B8	GND	-	-	Ground
	B9	FRCSW	I	0/5 V DC	FRCSW: On/Off
	B10	GND	-	-	Ground
	B11	CFM1	O	0/24 V DC	CFM1: On/Off
	B12	GND	-	-	Ground
	B13	+5VD	O	5 V DC	5 V DC power output
	B14	MPPLSW	I	0/5 V DC	MPPLSW: On/Off
	B15	GND	-	-	Ground
<b>YC7</b> Connected to the high-voltage PWB	1	BVSEL1	O	0 to 5 V DC	Developing bias control voltage
	2	+24VDR	O	24 V DC	24 V DC power output
	3	GND	-	-	Ground
	4	MHVDR	O	0/5 V DC	Main charging: On/Off
	5	HVCLK	O	0/5 V DC (pulse)	Developing bias CLOCK signal
	6	RHVDR	O	0/5 V DC	Separation charging: On/Off
	7	RISEL	O	0 to 5 V DC	Separation charging control voltage
	8	TICTL	O	0 to 5 V DC	Transfer charging control voltage
	9	BVSEL2	O	0 to 5 V DC	Developing bias control voltage
	10	THVDR	O	0/5 V DC	Transfer charging: On/Off
	11	NC	-	-	Not used
	12	NC	-	-	Not used
	13	NC	-	-	Not used
	14	NC	-	-	Not used
<b>YC8</b> Connected to the laser scanner unit	1	NC	-	-	Not used
	2	NC	-	-	Not used
	3	NC	-	-	Not used
	4	NC	-	-	Not used
	5	NC	-	-	Not used
	6	NC	-	-	Not used
	7	NC	-	-	Not used
	8	NC	-	-	Not used
	9	NC	-	-	Not used
	10	+24VDR	O	24 V DC	24 V DC power output
	11	GND	-	-	Ground
	12	SCAN	O	0/24 V DC	PM: On/Off
	13	SCRDYN	I	0/5 V DC	PM READY signal
	14	SCCLK	O	0/5 V DC (pulse)	PM CLOCK signal

Connector	Pin No.	Signal	I/O	Voltage	Description
<b>YC9</b> Connected to the MP feed switch, toner container sensor, developing unit, toner feed solenoid, toner container detection switch and drum unit	A1	GND	-	-	Ground
	A2	MPFSW	I	0/5 V DC	MPFSW: On/Off
	A3	+5VD	O	5 V DC	5 V DC power output
	A4	+5VD	O	5 V DC	5 V DC power output
	A5	TCS	I	0/5 V DC	TCS: On/Off
	A6	GND	-	-	Ground
	A7	DEVP0	I	0/5 V DC	Developing unit distinction signal
	A8	+5VD	O	5 V DC	5 V DC power output
	A9	TNS	I	0/5 V DC	TNS: On/Off
	A10	GND	-	-	Ground
	A11	DVUNITN	I	0/5 V DC	Developing unit detection signal
	A12	FUSE_CUT	O	0/5 V DC	Developing unit FUSE CUT signal
	A13	EEDATA	I	0/5 V DC	Developing unit EEPROM DATA signal
	A14	EESCLK	O	0/5 V DC (pulse)	Developing unit EEPROM CLOCK signal
	B1	+24VDR	O	24 V DC	24 V DC power output
	B2	TNFSOL	O	0/24 V DC	TNFSOL: On/Off
	B3	TCDSW	I	0/5 V DC	TCDSW: On/Off
	B4	GND	-	-	Ground
	B5	DRUMP0	I	0/5 V DC	Drum unit distinction signal
	B6	GND	-	-	Ground
	B7	CL	O	0/5 V DC	CL: On/Off
	B8	EEDATA	I	0/5 V DC	Drum unit EEPROM DATA signal
	B9	EESCLK	O	0/5 V DC (pulse)	Drum unit EEPROM CLOCK signal
	B10	GND	-	-	Ground
	B11	DRUNITN	I	0/5 V DC	Drum unit detection signal
	B12	+5VD	O	5 V DC	5 V DC power output
	B13	MCCM_FWD	O	0/24 V DC	MCCM: On/Off
	B14	MCCM_REV	O	0/24 V DC	MCCM: On/Off
<b>YC10</b> Connected to the registration switch, fuser unit, duplex feed clutch, duplex paper conveying switch and cooling fan motor 5 to 10	A1	GND	-	-	Ground
	A2	RSW	O	0/5 V DC	RSW: On/Off
	A3	+5VD	O	5 V DC	5 V DC power output
	A4	FUSER P0	I	0/5 V DC	Fuser unit distinction signal
	A5	3VD	O	3.3 V DC	3.3 V DC power output
	A6	FTH1	I	0 to 5 V DC	FTH1 detection voltage signal
	A7	FUSE CUT	O	0/5 V DC	FTH1 FUSE CUT signal
	A8	GND	-	-	Ground
	A9	GND	-	-	Ground
	A10	FTH2 STD	I	0 to 5 V DC	FTH2 detection voltage signal
	A11	FTH2	I	0 to 5 V DC	FTH2 detection voltage signal
	B1	+24VDR	O	24 V DC	24 V DC power output
	B2	DUPFCL	O	0/24 V DC	DUPFCL: On/Off
	B3	GND	-	-	Ground
	B4	DUPPCSW	I	0/5 V DC	DUPPCSW: On/Off
	B5	+5VD	O	5 V DC	5 V DC power output
	B6	GND	-	-	Ground



Connector	Pin No.	Signal	I/O	Voltage	Description
<b>YC10</b> Connected to the registration switch, fuser unit, duplex feed clutch, duplex paper conveying switch and cooling fan motor 5 to 10	B7	CFM8,9,10	O	0/24 V DC	CFM8,9,10: On/Off
	B8	DUP P0	I	0/5 V DC	Duplex unit distinction signal
	B9	+24VDR	O	24 V DC	24 V DC power output
	B10	CFM5,6,7	O	0/24 V DC	CFM5,6,7: On/Off
	B11	NC	-	-	Not used
<b>YC11</b> Connected to the drive motor, paper feed motor, feed clutch 1 and feed switch 1	1	R24VDR	O	24 V DC	24 V DC power output
	2	R24VDR	O	24 V DC	24 V DC power output
	3	GND	-	-	Ground
	4	GND	-	-	Ground
	5	+5VD	O	5 V DC	5 V DC power output
	6	+5VD	O	5 V DC	5 V DC power output
	7	GND	-	-	Ground
	8	GND	-	-	Ground
	9	DM_ON	O	0/24 V DC	DM: On/Off
	10	PFM_ON	O	0/24 V DC	PFM: On/Off
	11	DM_LOCK	I	0/5 V DC	DM LOCK signal
	12	PFM_LOCK	I	0/5 V DC	PFM LOCK signal
	13	DM_CLK	O	0/5 V DC (pulse)	DM CLOCK signal
	14	FCL1	O	0/24 V DC	FCL1: On/Off
	15	+24VDR	O	24 V DC	24 V DC power output
	16	GND	-	-	Ground
	17	FSW1	I	0/5 V DC	FSW1: On/Off
	18	+5VD	O	5 V DC	5 V DC power output
<b>YC12</b> Connected to the Upper and lower paper size width switches	1	+24VDR	O	24 V DC	24 V DC power output
	2	+24VUP	I	24 V DC	24 V DC power input
	3	PWSW-U0	I	0/5 V DC	PWSW-U: On/Off
	4	PWSW-U1	I	0/5 V DC	PWSW-U: On/Off
	5	PWSW-U2	I	0/5 V DC	PWSW-U: On/Off
	6	GND	-	-	Ground
	7	+24VDR	O	24 V DC	24 V DC power output
	8	+24VLO	I	24 V DC	24 V DC power input
	9	PWSW-L0	I	0/5 V DC	PWSW-L: On/Off
	10	PWSW-L1	I	0/5 V DC	PWSW-L: On/Off
	11	PWSW-L2	I	0/5 V DC	PWSW-L: On/Off
	12	GND	-	-	Ground

Connector	Pin No.	Signal	I/O	Voltage	Description
Connected to the feed switch 2/3, feed clutch 2/3, left cover 2 switch, upper/lower lift motors, lower lift motor, upper/lower paper size length switches, upper/lower lift limit switches and upper/lower paper switches	A1	GND	-	-	Ground
	A2	FSW3	I	0/5 V DC	FSW3: On/Off
	A3	+5VD	O	5 V DC	5 V DC power output
	A4	R24VDR	O	24 V DC	24 V DC power output
	A5	FCL3	O	0/24 V DC	FCL3: On/Off
	A6	GND	-	-	Ground
	A7	FSW2	I	0/5 V DC	FSW2: On/Off
	A8	+5VD	O	5 V DC	5 V DC power output
	A9	GND	-	-	Ground
	A10	LC2SW	I	0/5 V DC	LC2SW: On/Off
	A11	+24VDR	O	24 V DC	24 V DC power output
	A12	FCL2	O	0/24 V DC	FCL2: On/Off
	A13	LM-U SW2	I	0/5 V DC	LM-U SW2: On/Off
	A14	GND	-	-	Ground
	A15	LM-U SW1	I	0/5 V DC	LM-U SW1: On/Off
	A16	GND	-	-	Ground
	A17	LM-U REM	O	0/24 V DC	LM-U: On/Off
	A18	GND	-	-	Ground
	A19	PLSW-L	I	0/5 V DC	PLSW-L: On/Off
	B1	GND	-	-	Ground
	B2	PLSW-U	I	0/5 V DC	PLSW-U: On/Off
	B3	LM-L SW2	I	0/5 V DC	LM-L SW2: On/Off
	B4	GND	-	-	Ground
	B5	LM-L SW1	I	0/5 V DC	LM-L SW1: On/Off
	B6	GND	-	-	Ground
	B7	LM-L REM	O	0/24 V DC	LM-L: On/Off
	B8	GND	-	-	Ground
	B9	LICSW-U	I	0/5 V DC	LICSW-U: On/Off
	B10	+5VD	O	5 V DC	5 V DC power output
	B11	GND	-	-	Ground
	B12	PSW-U	I	0/5 V DC	PSW-U: On/Off
	B13	+5VD	O	5 V DC	5 V DC power output
	B14	GND	-	-	Ground
	B15	LICSW-L	I	0/5 V DC	LICSW-L: On/Off
	B16	+5VD	O	5 V DC	5 V DC power output
	B17	GND	-	-	Ground
	B18	PSW-L	I	0/5 V DC	PSW-L: On/Off
	B19	+5VD	O	5 V DC	5 V DC power output

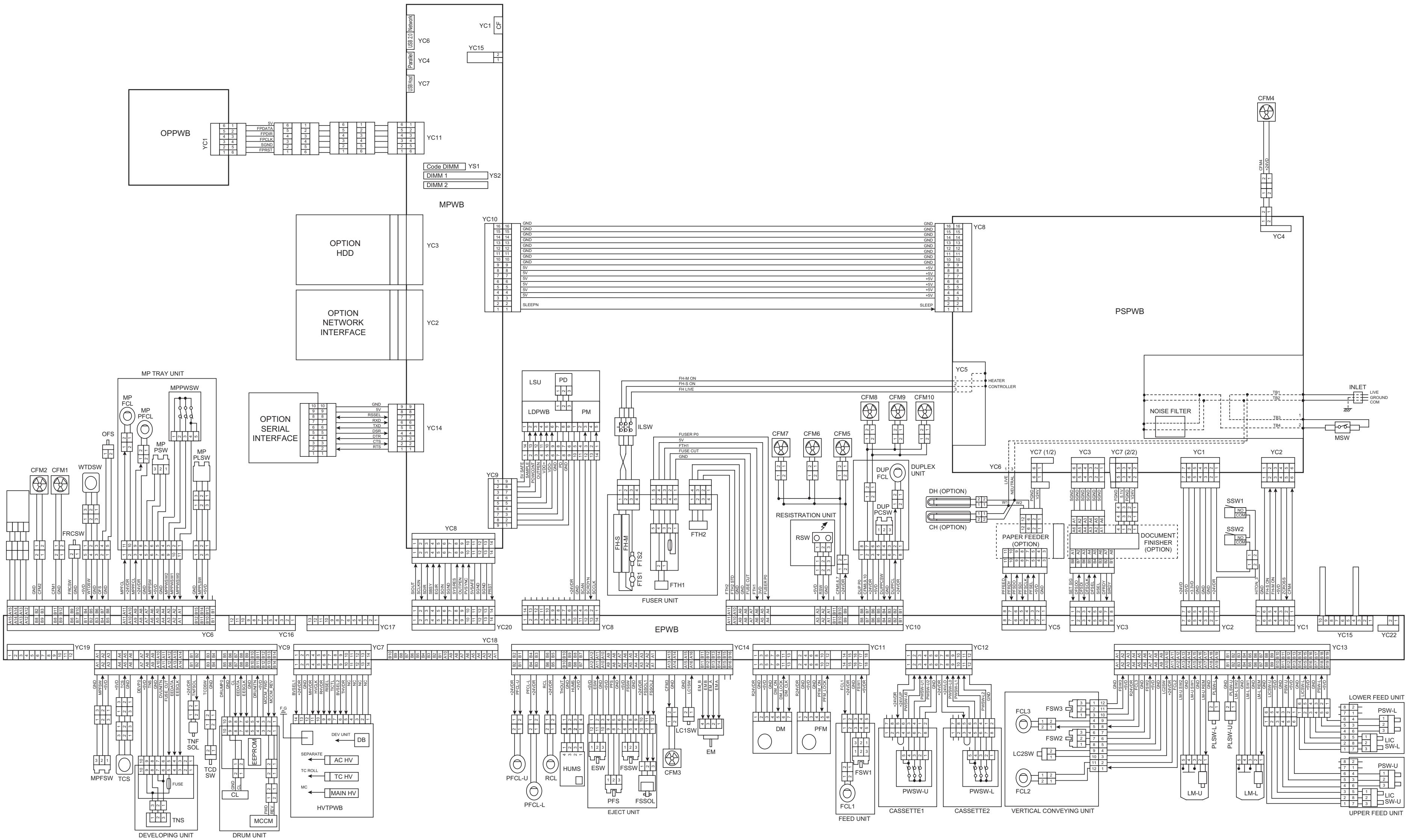
Connector	Pin No.	Signal	I/O	Voltage	Description
YC14 Connected to the feed- shift sole- noid, feedshift switch, eject switch, cool- ing fan motor 3, left cover 1 switch, upper/lower paper feed clutches, humidity sensor eject motor	A1	FSSOL2	O	0/24 V DC	FSSOL: On/Off (return)
	A2	FSSOL1	O	0/24 V DC	FSSOL: On/Off (activate)
	A3	+24VDR	O	24 V DC	24 V DC power output
	A4	GND	-	-	Ground
	A5	FSSW	I	0/5 V DC	FSSW: On/Off
	A6	+5VD	O	5 V DC	5 V DC power output
	A7	GND	-	-	Ground
	A8	PFS	I	0/5 V DC	PFS: On/Off
	A9	+5VD	O	5 V DC	5 V DC power output
	A10	GND	-	-	Ground
	A11	ESW	I	0/5 V DC	ESW: On/Off
	A12	+5VD	O	5 V DC	5 V DC power output
	A13	CFM3	O	0/24 V DC	CFM3: On/Off
	A14	GND	-	-	Ground
	A15	GND	-	-	Ground
	A16	LC1SW	I	0/5 V DC	LC1SW: On/Off
	B1	PFCL-U	O	0/24 V DC	PFCL-U: On/Off
	B2	+24VDR	O	24 V DC	24 V DC power output
	B3	+24VDR	O	24 V DC	24 V DC power output
	B4	PFCL-L	O	0/24 V DC	PFCL-L: On/Off
	B5	+24VDR	O	24 V DC	24 V DC power output
	B6	RCL	O	0/24 V DC	RCL: On/Off
	B7	+3VD	O	3.3 V DC	3.3 V DC power output
	B8	HUMS	I	0 to 5 V DC	HUMS detection voltage signal
	B9	GND	-	-	Ground
	B10	THOUT	I	0 to 5 V DC	Thermistor detection voltage signal
	B11	EM_B	O	0/24 V DC (pulse)	EM drive control signal
	B12	EM B	O	0/24 V DC (pulse)	EM drive control signal
	B13	EM_A	O	0/24 V DC (pulse)	EM drive control signal
	B14	EM A	O	0/24 V DC (pulse)	EM drive control signal
	B15	NC	-	-	Not used
	B16	NC	-	-	Not used

Connector	Pin No.	Signal	I/O	Voltage	Description
YC20 Connected to the main PWB	1	SIOUT	O	0/5 V DC	SIOUT signal
	2	SCLKIN	I	0/5 V DC (pulse)	CLOCK signal
	3	SDIR	O	0/5 V DC	SDIR signal
	4	SBSY	O	0/5 V DC	SBSY signal
	5	EGIR	O	0/5 V DC	EGIR signal
	6	SOIN	O	0/5 V DC	SOIN signal
	7	SGND	-	-	Ground
	8	SYSRES	O	0/5 V DC	SYSRES signal
	9	OUTPEN	O	0/5 V DC	OUTPEN signal
	10	PVSYNC	O	0/5 V DC (pulse)	PVSYNC signal
	11	5VSAFE	O	5 V DC	5 V DC power output
	12	SGND	-	-	Ground
	13	SGND	-	-	Ground
	14	PRST	I	0/5 V DC	PRST signal

## Maintenance parts list

Maintenance part name		Part No.	Alternative part No.	Fig. No.	Ref. No.
Name used in service manual	Name used in parts list				
Upper/lower paper feed pulley	PULLEY,PAPER FEED	2AR07220	-	4	2
Upper/lower separation pulley	PULLEY,SEPARATION	2AR07230	-	4	3
Upper/lower forwarding pulley	PULLEY FEED A	2BJ06010	-	4	5
MP paper feed pulley	UPPER PULLEY,BYPASS	61706770	-	9	49
MP separation pulley	PULLEY,SEPARATION	2AR07230	-	9	3
MP forwarding pulley	PULLEY FEED A	2BJ06010	-	9	6
MP feed roller 1	ROLLER2 BYPASSFEED	302BL06541	2BL06541	10	13
MP feed roller 2	ROLLER4 BYPASSFEED	302BL06561	2BL06561	10	14
Left registration roller	ROLLER REGIST	2FG16021	-	7	35
Right registration roller	RIGHT ROLLER REGIST	302FG06211	2FG06211	5	51
Feed pulley	PULLEY FEED	2BL16080	-	6,7	40,19
Feed roller 1	PULLEY MIDDLE FEED A	302GR06010	2GR06010	5	72
Feed roller 1	PULLEY MIDDLE FEED B	302GR06020	2GR06020	5	73
Feed roller 2	ROLLER B FEED	302BL06081	2BL06081	5	22
Feed roller 3	ROLLER C FEED	302BL06091	2BL06091	5	23
Registration switch	SWITCH REGISTRATION	2FG27110	-	5	46
Left registration cleaner	UNDER CLEANER REGIST	2BL07950	-	7	15
Registration guide	GUIDE REGIST F	2BL16130	-	7	22
Right registration cleaner	PARTS,REGISTRATION CLEAN	2BL93450	-	5	44
Transfer roller unit	TR-710	302GR93280	2GR93280	7	A02
Developing unit	DV-710	302G193040	2G193040	12	1
Drum unit	DK-710	302G193030	2G193030	14	A01
Main charger unit	MC-710	302GR93070	2GR93070	14	13
Fuser unit	PARTS FUSER UNIT 120V	302G193010	2G193010	13	A01
Fuser unit	PARTS FUSER UNIT 230V	302G193020	2G193020	13	A01
Eject roller	ROLLER EXIT	302BL21021	2BL21021	18	26
Switchback roller	ROLLER FEED SHIFT	302BL21031	2BL21031	8	27
Eject pulley	PULLEY EXIT C	2BL21520	-	8	24
Eject pulley	PULLEY EXIT	302GR28060	2GR28060	8	36
Switchback pulley	PULLEY FEED SHIFT	2BL21330	-	6	31

General wiring diagram



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