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# PF-720/PF-720(B)

## SERVICE MANUAL

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Rev.4

## **CAUTION**

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

It may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for proper disposal.

## **ATTENTION**

IL Y A UN RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACÉE PAR UN MODÈLE DE TYPE INCORRECT. METTRE AU REBUT LES BATTERIES UTILISÉES SELON LES INSTRUCTIONS DONNÉES.

Il peut être illégal de jeter les batteries dans des eaux d'égout municipales. Vérifiez avec les fonctionnaires municipaux de votre région pour les détails concernant des déchets solides et une mise au rebut appropriée.

## Revision history

Revision	Date	Replaced pages	Remarks
1	November 26, 2008	CONTENTS, 1-2-5, 1-3-2, 1-3-3, 1-3-5, 1-3-6, 1-3-8, 1-4-5, 1-4-6	-
2	August 6, 2009	CONTENTS, 1-1-1, 1-2-1, 1-2-3, 1-2-5, 1-3-1, 1-3-2, 1-3-7 to 1-3-16, 1-4-2, 1-4-3, 1-4-5 to 1-4-7, 1-4-9, 1-4-10	-
3	November 26, 2009	CONTENTS, 1-1-1, 1-3-1, 1-3-3, 1-3-4, 1-3-9, 1-3-16 to 1-3-24, 1-4-2, 2-4-1	-
4	February 2, 2010	1-3-12, 1-3-13, 1-3-16	-

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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**

Paper supply method.....	Friction feed (No. sheets: 500, 80 g/m <sup>2</sup> , 2 cassettes)
Paper size.....	A3, B4, A4, A4R, B5R, A5R, Folio, Ledger, Legal, OficioII, 8.5 x 13.5", Letter, LetterR, Executive, ExecutiveR, StatementR, 8K, 16K, 16KR
Paper weight.....	60 to 163 g/m <sup>2</sup>
Paper types.....	Standard, recycled, color
Power source.....	Electrically connected to the machine.
Dimensions.....	585 (W) x 622.5 (D) x 315 (H) mm 23 1/16" (W) x 24 1/2" (D) x 12 3/8" (H)
Weight.....	Approx. 20.5 kg/Approx. 45.2 lbs

NOTE: These specifications are subject to change without notice.

1-1-2 Parts names

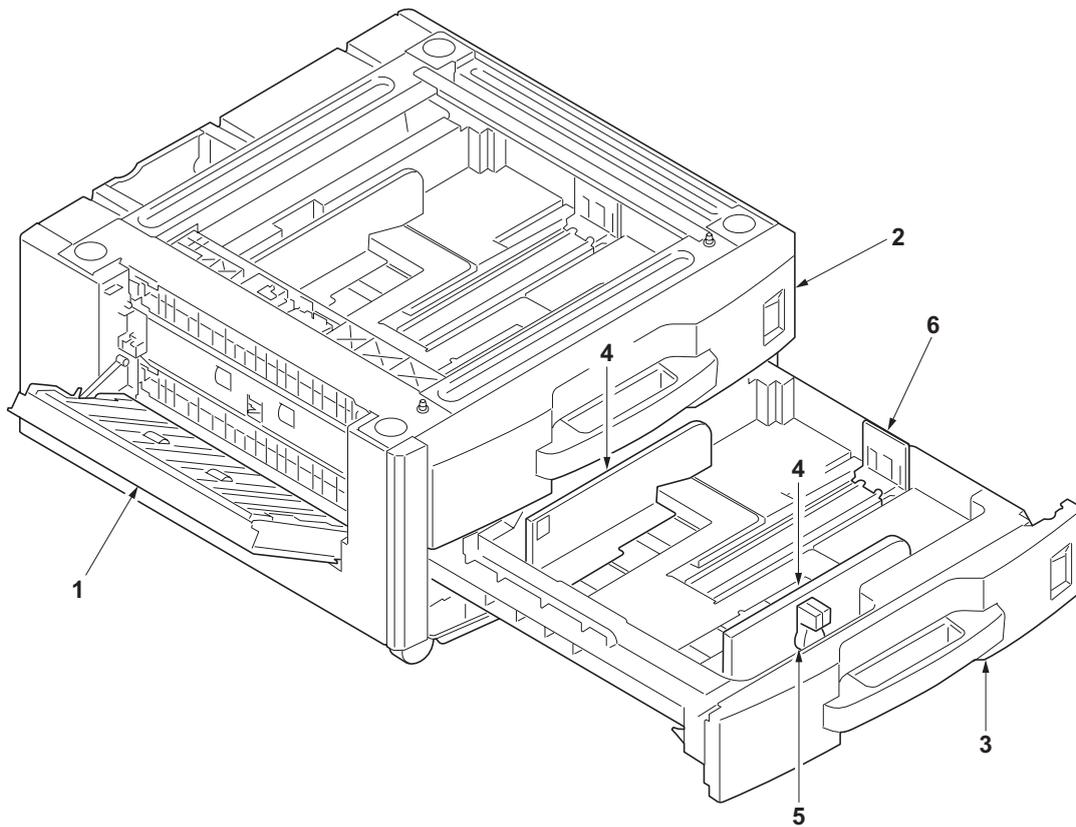


Figure 1-1-1

- 1. Left cover 4
- 2. Cassette 3
- 3. Cassette 4
- 4. Paper width guides
- 5. Paper width adjusting tab
- 6. Paper length guide

1-1-3 Machine cross section

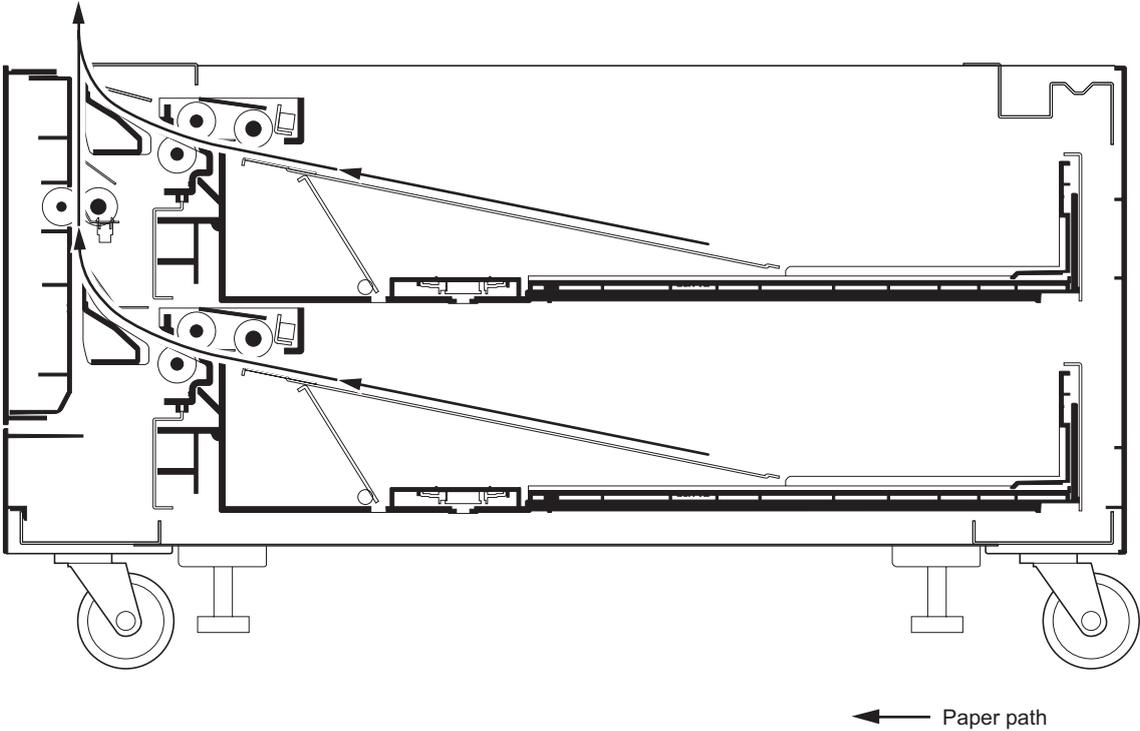


Figure 1-1-2 Machine cross section

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### 1-2-1 Installation environment

#### **Installation location (Be based on the machine establishment place.)**

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 locations subject to high temperature and high humidity or low temperature and low humidity; an abrupt change in the environmental temperature; and cool or hot, direct air.

Avoid places subject to dust and vibrations.

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 well-ventilated location.

## 1-2-2 Unpacking

### (1) Precaution for unpacking

Hold the positions shown in the figure and remove the paper feeder from the outer case.

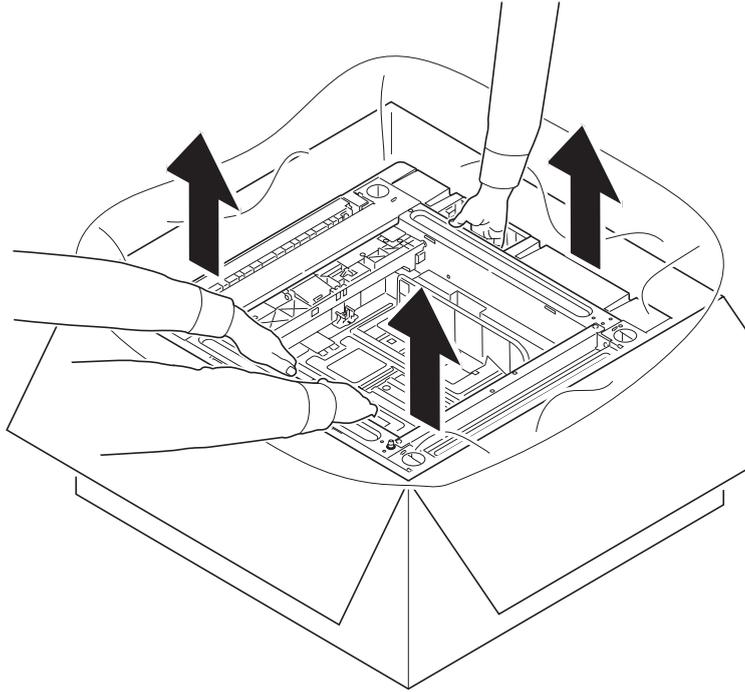
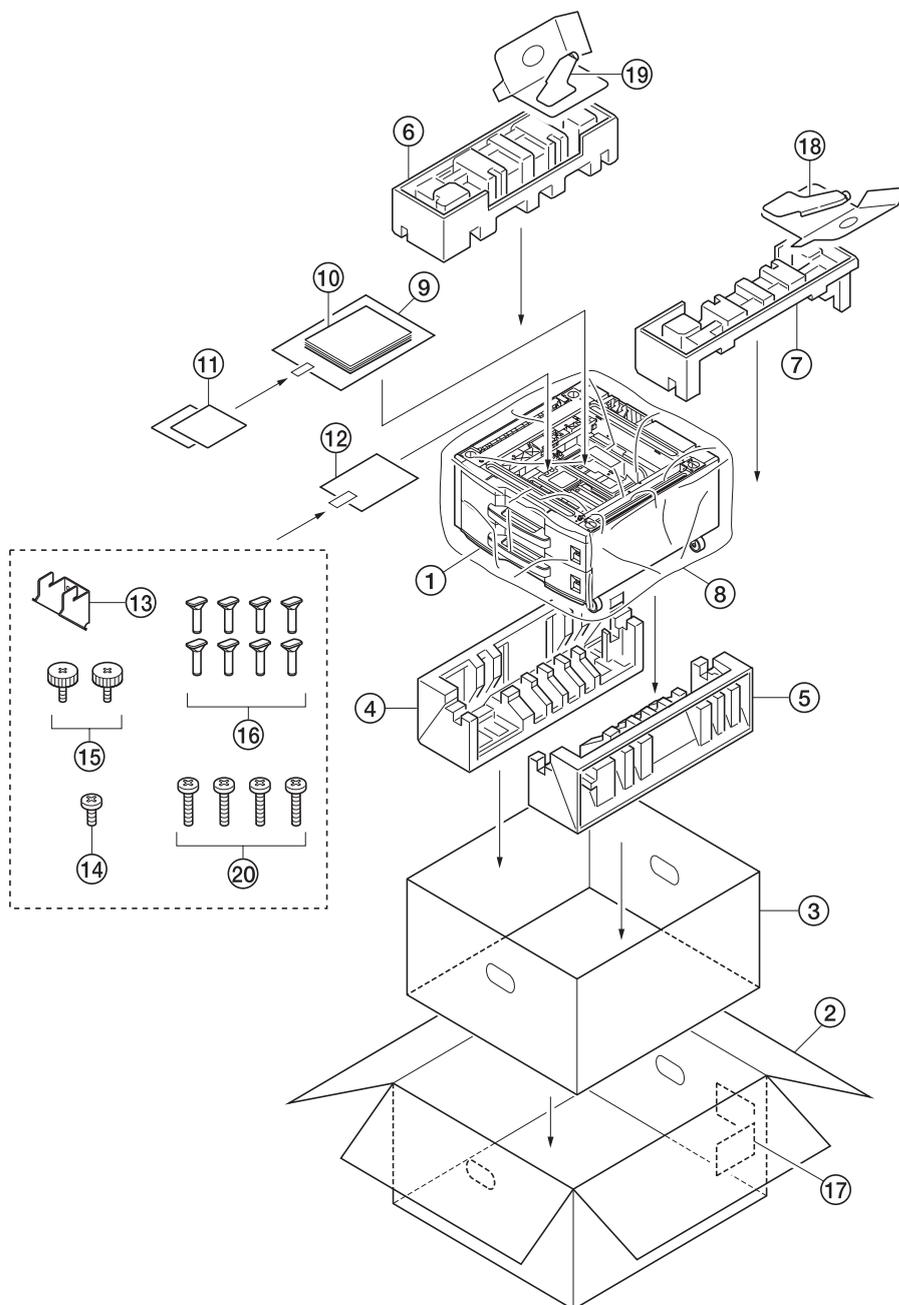


Figure 1-2-1

**(2) Unpacking****Figure 1-2-2 Unpacking**

- |                        |                            |
|------------------------|----------------------------|
| 1. Paper feeder        | 11. Paper size plates      |
| 2. Outer case          | 12. Plastic bag            |
| 3. Inner case          | 13. Retainer               |
| 4. Bottom left pad     | 14. S tight screw M4 x 10  |
| 5. Bottom right pad    | 15. Pins                   |
| 6. Upper left pad      | 16. Cursor pins            |
| 7. Upper right pad     | 17. Bar code labels        |
| 8. Plastic sheet       | 18. Stopper L              |
| 9. Plastic bag         | 19. Stopper R              |
| 10. Installation guide | 20. S tight screws M4 x 20 |

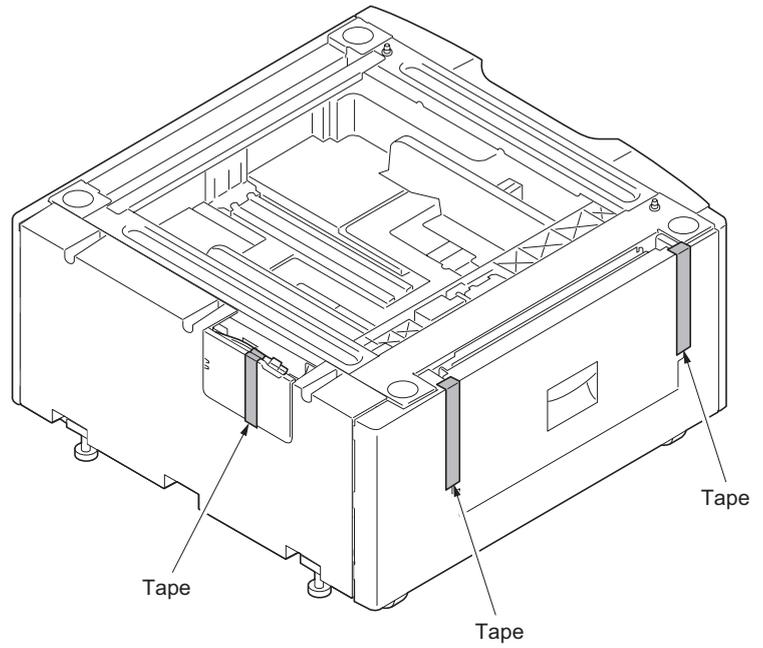
Caution: Place the machine on a level surface. See the Installation Guide for installation.

3LM

**(3) Remove the tapes**

**Procedure**

1. Remove three tapes.



**Figure 1-2-3**

### 1-2-3 Installing the cassette heater (option)

#### Installing the cassette heater requires the following component:

Cassette heater (P/N 303LM93030): for 220 to 240 V specifications only

Cassette heater (P/N 303LM93020): for 120 V specifications only

Two (2) M4 x 10 S tight screws (P/N 7BB700410H)

#### Procedure

1. Press the power key on the operation panel to off. Make sure that the power indicator and the memory indicator are off before turning off the main power switch. And then unplug the power cable from the wall outlet.
2. Remove cassette 3 and 4.
3. Attach the cassette heater using the two M4 x 10 S tight screws.
4. Fasten the cassette heater wire to four wire saddles.
5. Connect the connector of cassette heater wire to the connector of the machine.
6. Refit the cassette 3 and 4.
7. Only for fullcolor machine.  
Run maintenance item U327 and select "Option Heater". The setting is changed to "EXISTS" (see page 1-3-7).

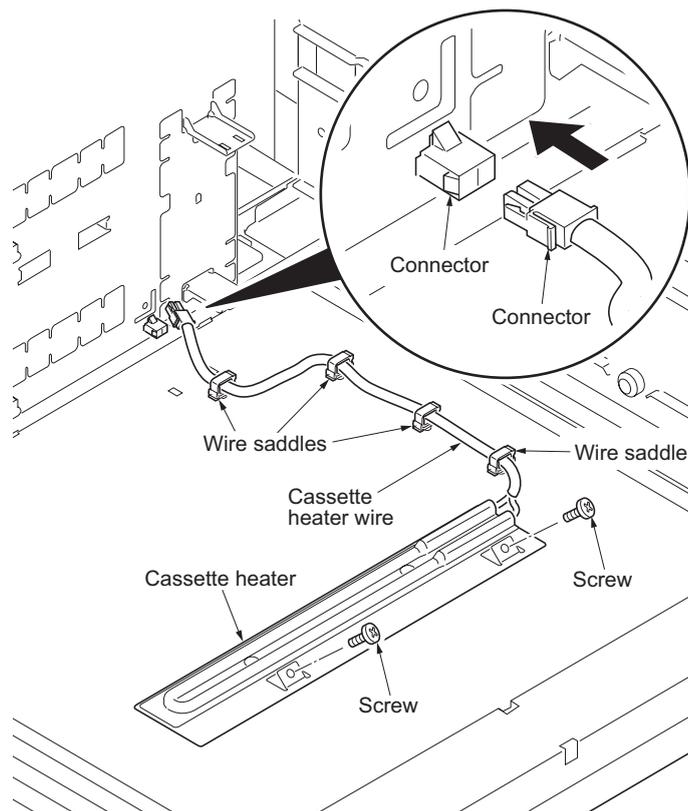


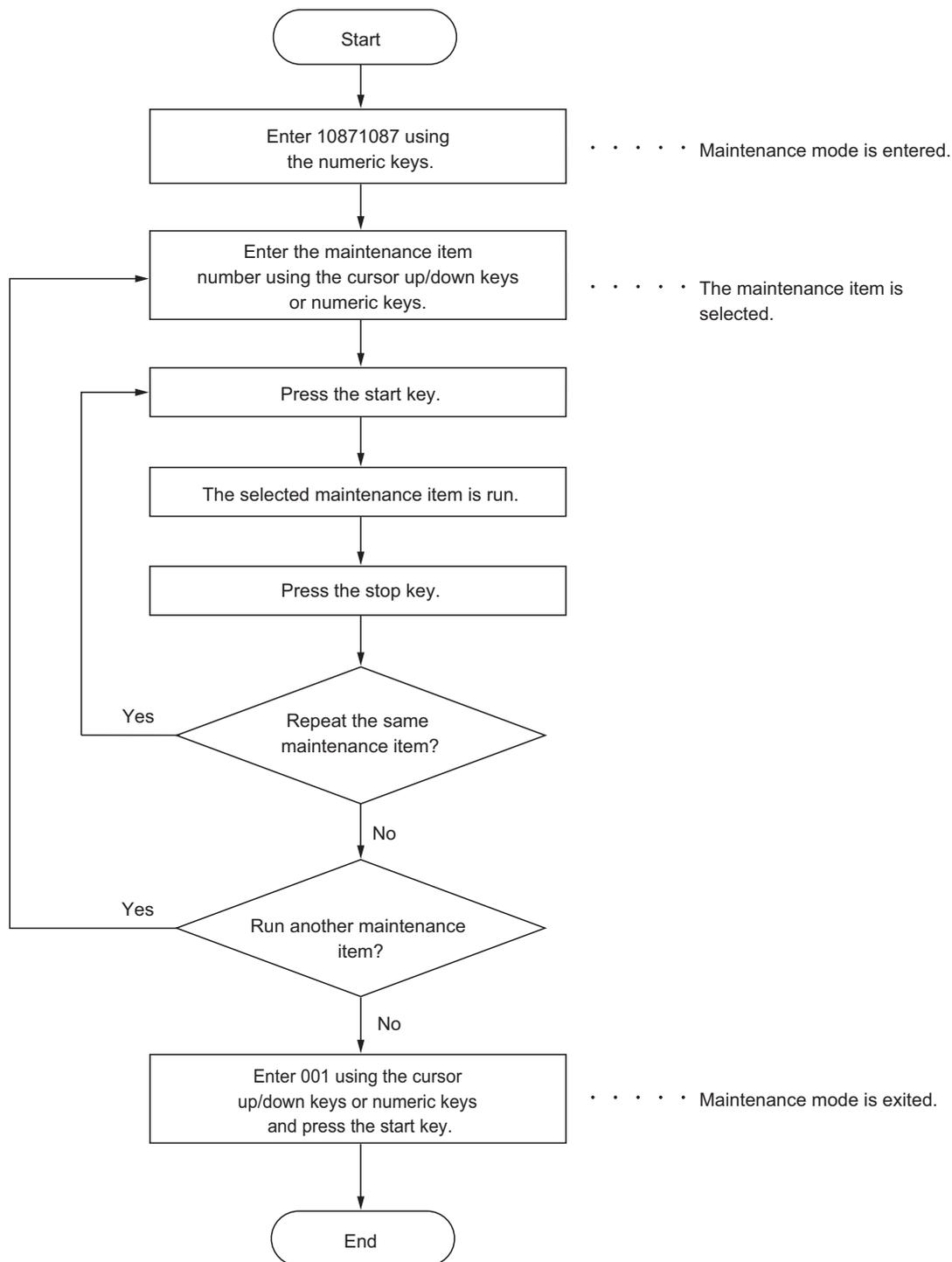
Figure 1-2-4

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### 1-3-1 Maintenance mode (fullcolor MFP)

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

#### (1) Executing a maintenance item



(2) Maintenance mode item list

Section	Item No.	Content of maintenance item	Initial setting*
General	U019	Displaying the ROM version	-
Drive, paper feed and paper conveying system	U034	Adjusting the print start timing LSUOUT TOP LSUOUT LEFT LSUOUT TOP B/W	0/0/0/0/0/0/0/0/0/0/0 0/0/0/0/0/0 0/0/0/0/0/0
Operation panel and support equipment	U247	Setting the paper feed device	-
Mode setting	U327	Setting the cassette heater ON/OFF	MODE2/NONE
	U341	Specific paper feed location setting for printing function	-
Other	U901	Checking copy counts by paper feed locations	-

\*Initial setting for executing U020, \*1: The item initialized for executing U021

## (3) Contents of maintenance mode items

Maintenance item No.	Description																																																																		
U019	<p><b>Displaying the ROM version</b></p> <p><b>Description</b> Displays the part number of the ROM fitted to each PWB.</p> <p><b>Purpose</b> To check the part number or to decide, if the newest version of ROM is installed.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key. The ROM version are displayed.</li> <li>2. Change the screen using the cursor up/down keys.</li> </ol> <table border="1" data-bbox="331 573 1398 1944"> <thead> <tr> <th data-bbox="339 573 715 613">Display</th> <th data-bbox="715 573 1390 613">Description</th> </tr> </thead> <tbody> <tr><td data-bbox="339 613 715 654">MAIN</td><td data-bbox="715 613 1390 654">Main ROM</td></tr> <tr><td data-bbox="339 654 715 694">MMI</td><td data-bbox="715 654 1390 694">Operation ROM</td></tr> <tr><td data-bbox="339 694 715 734">ENGINE</td><td data-bbox="715 694 1390 734">Engine ROM</td></tr> <tr><td data-bbox="339 734 715 775">ENGINE BOOT</td><td data-bbox="715 734 1390 775">Engine booting</td></tr> <tr><td data-bbox="339 775 715 815">SCANNER</td><td data-bbox="715 775 1390 815">Scanner ROM</td></tr> <tr><td data-bbox="339 815 715 855">BROWSER</td><td data-bbox="715 815 1390 855">Browser ROM</td></tr> <tr><td data-bbox="339 855 715 896">OPTION LANGUAGE</td><td data-bbox="715 855 1390 896">Optional language ROM</td></tr> <tr><td data-bbox="339 896 715 936">DICTIONARY</td><td data-bbox="715 896 1390 936">-</td></tr> <tr><td data-bbox="339 936 715 976">DBA</td><td data-bbox="715 936 1390 976">Database connection</td></tr> <tr><td data-bbox="339 976 715 1016">Solution Framework</td><td data-bbox="715 976 1390 1016">Framework</td></tr> <tr><td data-bbox="339 1016 715 1057">COLOR TABLE1</td><td data-bbox="715 1016 1390 1057">Color table1</td></tr> <tr><td data-bbox="339 1057 715 1097">COLOR TABLE2</td><td data-bbox="715 1057 1390 1097">Color table2</td></tr> <tr><td data-bbox="339 1097 715 1137">MOTOR CPU</td><td data-bbox="715 1097 1390 1137">Motor CPU</td></tr> <tr><td data-bbox="339 1137 715 1178">MOTOR CPU BOOT</td><td data-bbox="715 1137 1390 1178">Motor CPU booting</td></tr> <tr><td data-bbox="339 1178 715 1218">H VLT CPU</td><td data-bbox="715 1178 1390 1218">High voltage CPU</td></tr> <tr><td data-bbox="339 1218 715 1258">H VLT CPU BOOT</td><td data-bbox="715 1218 1390 1258">High voltage CPU booting</td></tr> <tr><td data-bbox="339 1258 715 1299">SLEEP CPU</td><td data-bbox="715 1258 1390 1299">Sleep CPU</td></tr> <tr><td data-bbox="339 1299 715 1339">SLEEP CPU BOOT</td><td data-bbox="715 1299 1390 1339">Sleep CPU booting</td></tr> <tr><td data-bbox="339 1339 715 1379">DP</td><td data-bbox="715 1339 1390 1379">Optional DP ROM</td></tr> <tr><td data-bbox="339 1379 715 1420">500x2PF</td><td data-bbox="715 1379 1390 1420">Paper feeder ROM</td></tr> <tr><td data-bbox="339 1420 715 1460">3000PF</td><td data-bbox="715 1420 1390 1460">Optional 3000-sheet paper feeder ROM</td></tr> <tr><td data-bbox="339 1460 715 1500">1000DF</td><td data-bbox="715 1460 1390 1500">Optional document finisher ROM</td></tr> <tr><td data-bbox="339 1500 715 1541">3000DF MAIN</td><td data-bbox="715 1500 1390 1541">Optional 3000-sheet document finisher main ROM</td></tr> <tr><td data-bbox="339 1541 715 1581">3000DF MIDDLE</td><td data-bbox="715 1541 1390 1581">Optional 3000-sheet document finisher Inner tray ROM</td></tr> <tr><td data-bbox="339 1581 715 1621">MAIL BOX</td><td data-bbox="715 1581 1390 1621">Optional mailbox ROM</td></tr> <tr><td data-bbox="339 1621 715 1662">BOOKLET</td><td data-bbox="715 1621 1390 1662">Optional center-folding unit ROM</td></tr> <tr><td data-bbox="339 1662 715 1702">FAX BOOT1</td><td data-bbox="715 1662 1390 1702">Optional fax control PWB booting (port 1)</td></tr> <tr><td data-bbox="339 1702 715 1742">FAX APL1</td><td data-bbox="715 1702 1390 1742">Optional fax control PWB APL (port 1)</td></tr> <tr><td data-bbox="339 1742 715 1783">FAX IPL1</td><td data-bbox="715 1742 1390 1783">Optional fax control PWB IPL (port 1)</td></tr> <tr><td data-bbox="339 1783 715 1823">FAX BOOT2</td><td data-bbox="715 1783 1390 1823">Fax control PWB booting (port 2: optional dual FAX)</td></tr> <tr><td data-bbox="339 1823 715 1863">FAX APL2</td><td data-bbox="715 1823 1390 1863">Fax control PWB APL (port 2: optional dual FAX)</td></tr> <tr><td data-bbox="339 1863 715 1904">FAX IPL2</td><td data-bbox="715 1863 1390 1904">Fax control PWB IPL (port 2: optional dual FAX)</td></tr> </tbody> </table> <p><b>Completion</b> Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	MAIN	Main ROM	MMI	Operation ROM	ENGINE	Engine ROM	ENGINE BOOT	Engine booting	SCANNER	Scanner ROM	BROWSER	Browser ROM	OPTION LANGUAGE	Optional language ROM	DICTIONARY	-	DBA	Database connection	Solution Framework	Framework	COLOR TABLE1	Color table1	COLOR TABLE2	Color table2	MOTOR CPU	Motor CPU	MOTOR CPU BOOT	Motor CPU booting	H VLT CPU	High voltage CPU	H VLT CPU BOOT	High voltage CPU booting	SLEEP CPU	Sleep CPU	SLEEP CPU BOOT	Sleep CPU booting	DP	Optional DP ROM	500x2PF	Paper feeder ROM	3000PF	Optional 3000-sheet paper feeder ROM	1000DF	Optional document finisher ROM	3000DF MAIN	Optional 3000-sheet document finisher main ROM	3000DF MIDDLE	Optional 3000-sheet document finisher Inner tray ROM	MAIL BOX	Optional mailbox ROM	BOOKLET	Optional center-folding unit ROM	FAX BOOT1	Optional fax control PWB booting (port 1)	FAX APL1	Optional fax control PWB APL (port 1)	FAX IPL1	Optional fax control PWB IPL (port 1)	FAX BOOT2	Fax control PWB booting (port 2: optional dual FAX)	FAX APL2	Fax control PWB APL (port 2: optional dual FAX)	FAX IPL2	Fax control PWB IPL (port 2: optional dual FAX)
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FAX IPL2	Fax control PWB IPL (port 2: optional dual FAX)																																																																		

Maintenance item No.	Description																																																																												
<b>U034</b>	<p><b>Adjusting the print start timing</b></p> <p><b>Description</b> Adjusts the leading edge registration or center line.</p> <p><b>Purpose</b> Make the adjustment if there is a regular error between the leading edges of the copy image and original. Make the adjustment if there is a regular error between the center lines of the copy image and original.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key.</li> <li>2. Select the item to be adjusted.</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>LSUOUT TOP</td> <td>Leading edge registration adjustment</td> </tr> <tr> <td>LSUOUT LEFT</td> <td>Center line adjustment</td> </tr> <tr> <td>LSUOUT TOP B/W*</td> <td>Leading edge registration adjustment in black/white mode</td> </tr> </tbody> </table> <p>*: 50/40, 55/50 ppm model only.</p> <p><b>Adjustment: Leading edge registration adjustment</b></p> <ol style="list-style-type: none"> <li>1. Select [LSUOUT TOP] or [LSUOUT TOP B/W].</li> <li>2. Select the item. When [LSUOUT TOP] is selected.</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> <th style="text-align: center;">Setting range</th> <th style="text-align: center;">Default setting</th> <th style="text-align: center;">Change in value per step</th> </tr> </thead> <tbody> <tr> <td>LSUOUT TOP MPT (L)</td> <td>Paper feed from MP tray (when large size paper is used)</td> <td style="text-align: center;">-3.0 to 3.0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0.1 mm</td> </tr> <tr> <td>LSUOUT TOP MPT Half (L)</td> <td>Paper feed from MP tray (when large size thick paper is used)</td> <td style="text-align: center;">-3.0 to 3.0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0.1 mm</td> </tr> <tr> <td>LSUOUT TOP CAS (L)</td> <td>Paper feed from cassette (when large size paper is used)</td> <td style="text-align: center;">-3.0 to 3.0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0.1 mm</td> </tr> <tr> <td>LSUOUT TOP CAS Half (L)</td> <td>Paper feed from cassette (when large size thick paper is used)</td> <td style="text-align: center;">-3.0 to 3.0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0.1 mm</td> </tr> <tr> <td>LSUOUT TOP DUP (L)</td> <td>Duplex mode (second) (when large size paper is used)</td> <td style="text-align: center;">-3.0 to 3.0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0.1 mm</td> </tr> <tr> <td>LSUOUT TOP DUP Half (L)</td> <td>Duplex mode (second) (when large size thick paper is used)</td> <td style="text-align: center;">-3.0 to 3.0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0.1 mm</td> </tr> <tr> <td>LSUOUT TOP MPT (S)</td> <td>Paper feed from MP tray (when small size paper is used)</td> <td style="text-align: center;">-3.0 to 3.0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0.1 mm</td> </tr> <tr> <td>LSUOUT TOP MPT Half (S)</td> <td>Paper feed from MP tray (when small size thick paper is used)</td> <td style="text-align: center;">-3.0 to 3.0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0.1 mm</td> </tr> <tr> <td>LSUOUT TOP CAS (S)</td> <td>Paper feed from cassette (when small size paper is used)</td> <td style="text-align: center;">-3.0 to 3.0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0.1 mm</td> </tr> <tr> <td>LSUOUT TOP CAS Half (S)</td> <td>Paper feed from cassette (when small size thick paper is used)</td> <td style="text-align: center;">-3.0 to 3.0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0.1 mm</td> </tr> <tr> <td>LSUOUT TOP DUP (S)</td> <td>Duplex mode (second) (when small size paper is used)</td> <td style="text-align: center;">-3.0 to 3.0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0.1 mm</td> </tr> <tr> <td>LSUOUT TOP DUP Half (S)</td> <td>Duplex mode (second) (when small size thick paper is used)</td> <td style="text-align: center;">-3.0 to 3.0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0.1 mm</td> </tr> </tbody> </table> <p>Large size: 218 mm or more in width of paper.</p>				Display	Description	LSUOUT TOP	Leading edge registration adjustment	LSUOUT LEFT	Center line adjustment	LSUOUT TOP B/W*	Leading edge registration adjustment in black/white mode	Display	Description	Setting range	Default setting	Change in value per step	LSUOUT TOP MPT (L)	Paper feed from MP tray (when large size paper is used)	-3.0 to 3.0	0	0.1 mm	LSUOUT TOP MPT Half (L)	Paper feed from MP tray (when large size thick paper is used)	-3.0 to 3.0	0	0.1 mm	LSUOUT TOP CAS (L)	Paper feed from cassette (when large size paper is used)	-3.0 to 3.0	0	0.1 mm	LSUOUT TOP CAS Half (L)	Paper feed from cassette (when large size thick paper is used)	-3.0 to 3.0	0	0.1 mm	LSUOUT TOP DUP (L)	Duplex mode (second) (when large size paper is used)	-3.0 to 3.0	0	0.1 mm	LSUOUT TOP DUP Half (L)	Duplex mode (second) (when large size thick paper is used)	-3.0 to 3.0	0	0.1 mm	LSUOUT TOP MPT (S)	Paper feed from MP tray (when small size paper is used)	-3.0 to 3.0	0	0.1 mm	LSUOUT TOP MPT Half (S)	Paper feed from MP tray (when small size thick paper is used)	-3.0 to 3.0	0	0.1 mm	LSUOUT TOP CAS (S)	Paper feed from cassette (when small size paper is used)	-3.0 to 3.0	0	0.1 mm	LSUOUT TOP CAS Half (S)	Paper feed from cassette (when small size thick paper is used)	-3.0 to 3.0	0	0.1 mm	LSUOUT TOP DUP (S)	Duplex mode (second) (when small size paper is used)	-3.0 to 3.0	0	0.1 mm	LSUOUT TOP DUP Half (S)	Duplex mode (second) (when small size thick paper is used)	-3.0 to 3.0	0	0.1 mm
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Maintenance item No.	Description				
<b>U034</b>	When [LSUOUT TOP B/W] is selected.				
	<b>Display</b>	<b>Description</b>	<b>Setting range</b>	<b>Default setting</b>	<b>Change in value per step</b>
	LSUOUT TOP MPT (L) B/W	Paper feed from MP tray (when large size paper is used)	-3.0 to 3.0	0	0.1 mm
	LSUOUT TOP CAS (L) B/W	Paper feed from cassette (when large size paper is used)	-3.0 to 3.0	0	0.1 mm
	LSUOUT TOP DUP (L) B/W	Duplex mode (second) (when large size paper is used)	-3.0 to 3.0	0	0.1 mm
	LSUOUT TOP MPT (S) B/W	Paper feed from MP tray (when small size paper is used)	-3.0 to 3.0	0	0.1 mm
	LSUOUT TOP CAS (S) B/W	Paper feed from cassette (when small size paper is used)	-3.0 to 3.0	0	0.1 mm
	LSUOUT TOP DUP (S) B/W	Duplex mode (second) (when small size paper is used)	-3.0 to 3.0	0	0.1 mm
	Large size: 218 mm or more in width of paper.				
	<ol style="list-style-type: none"> <li>3. Press the system menu key.</li> <li>4. Press the start key to output a test pattern.</li> <li>5. Press the system menu key.</li> <li>6. Change the setting value using the +/- or numeric keys. For output example 1, increase the value. For output example 2, decrease the value.</li> </ol>				
<b>Figure 1-3-1</b>					
<ol style="list-style-type: none"> <li>7. Press the start key. The value is set.</li> </ol>					
<p><b>Remark</b> When changing the setting value of [Large] each item is modified, equal to amount of the value which is changed adds also the value of [Small] each item and is pulled.</p>					
<p><b>Caution</b> Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.</p>					

Maintenance item No.	Description				
<b>U034</b>	<b>Adjustment: Center line adjustment</b>				
	1. Select the item.				
	<b>Display</b>	<b>Description</b>	<b>Setting range</b>	<b>Default setting</b>	<b>Change in value per step</b>
	LSUOUT LEFT (MPT)	Paper feed from MP tray	-3.0 to 3.0	0	0.1 mm
	LSUOUT LEFT (CAS 1)	Paper feed from cassette 1	-3.0 to 3.0	0	0.1 mm
	LSUOUT LEFT (CAS 2)	Paper feed from cassette 2	-3.0 to 3.0	0	0.1 mm
	LSUOUT LEFT (CAS 3)	Paper feed from cassette 3	-3.0 to 3.0	0	0.1 mm
	LSUOUT LEFT (CAS 4)	Paper feed from cassette 4	-3.0 to 3.0	0	0.1 mm
	LSUOUT LEFT (DUP)	Duplex mode (second)	-3.0 to 3.0	0	0.1 mm
	2. Press the system menu key. 3. Press the start key to output a test pattern. 4. Press the system menu key. 5. Change the setting value using the +/- or numeric keys. For output example 1, increase the value. For output example 2, decrease the value.				
<p>Center line of printing (within <math>\pm 0.5</math> mm)</p> <p>Correct image                      Output example 1                      Output example 2</p>					
<p style="text-align: center;"><b>Figure 1-3-2</b></p> 6. Press the start key. The value is set.					
<p><b>Remark</b> If the setting value for feeding from the MP tray is changed, the difference from the former value is added to or subtracted from the values of other items.</p>					
<p><b>Caution</b> Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.</p>					
<pre>                 graph LR                 U034[U034] --&gt; U067[U067 (See the service manual for the machine.)]                 U067 --&gt; U072[U072 (See the service manual for the machine.)]             </pre>					
<p><b>Completion</b> Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>					

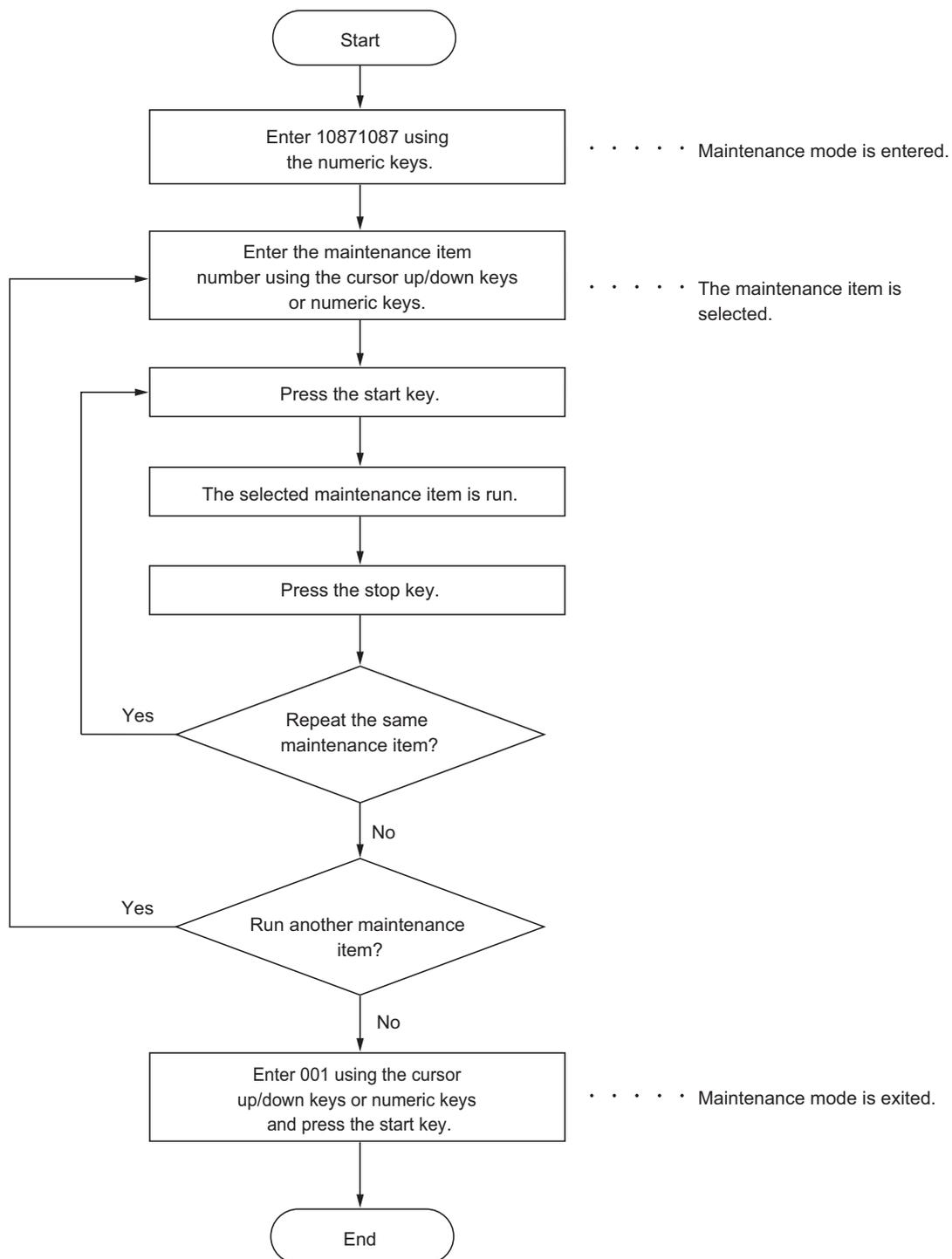
Maintenance item No.	Description																				
<b>U247</b>	<p><b>Setting the paper feed device</b></p> <p><b>Description</b> Turns on motor and clutches of paper feeder.</p> <p><b>Purpose</b> To check the operation of motor and clutches of paper feed device.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key. The value varies depending to the option furnished.</li> <li>2. Select the item to be operated.</li> <li>3. Press the start key. The operation starts.</li> </ol> <table border="1" data-bbox="335 564 1396 772"> <thead> <tr> <th>Display</th> <th>Motor and clutches</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>DESK FEED</td> <td>PF drive motor (PFDM)</td> <td>In operation</td> </tr> <tr> <td>CLUTCH FEED</td> <td>PF feed clutch (PFFCL)</td> <td>On for 1 s</td> </tr> <tr> <td>CLUTCH U</td> <td>PF paper feed clutch 1 (PFPFCL1)</td> <td>On for 1 s</td> </tr> <tr> <td>CLUTCH L</td> <td>PF paper feed clutch 2 (PFPFCL2)</td> <td>On for 1 s</td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>4. To turn each motor off, press the stop key.</li> </ol> <p><b>Completion</b> Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Motor and clutches	Operation	DESK FEED	PF drive motor (PFDM)	In operation	CLUTCH FEED	PF feed clutch (PFFCL)	On for 1 s	CLUTCH U	PF paper feed clutch 1 (PFPFCL1)	On for 1 s	CLUTCH L	PF paper feed clutch 2 (PFPFCL2)	On for 1 s					
Display	Motor and clutches	Operation																			
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CLUTCH U	PF paper feed clutch 1 (PFPFCL1)	On for 1 s																			
CLUTCH L	PF paper feed clutch 2 (PFPFCL2)	On for 1 s																			
<b>U327</b>	<p><b>Setting the cassette heater ON/OFF</b></p> <p><b>Description</b> Sets ON/OFF of the cassette heater.</p> <p><b>Purpose</b> To change the setting according to the machine installation environment.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key.</li> <li>2. Select the item.</li> </ol> <table border="1" data-bbox="335 1180 1396 1303"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>MODE Setting</td> <td>Setting the cassette heater control</td> </tr> <tr> <td>Option Heater</td> <td>Optional cassette heater installed/not Installed setting</td> </tr> </tbody> </table> <p><b>Setting: [MODE Setting]</b></p> <ol style="list-style-type: none"> <li>1. Select the item.</li> </ol> <table border="1" data-bbox="335 1406 1396 1572"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>Cassette heater OFF</td> </tr> <tr> <td>MODE1</td> <td>Cassette heater ON during sleep mode</td> </tr> <tr> <td>MODE2</td> <td>Cassette heater ON during sleep mode and standby</td> </tr> </tbody> </table> <p>Initial setting: OFF</p> <ol style="list-style-type: none"> <li>2. Press the start key. The setting is set.</li> </ol> <p><b>Setting: [Option Heater]</b></p> <ol style="list-style-type: none"> <li>1. Select the item.</li> </ol> <table border="1" data-bbox="335 1733 1396 1856"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>NONE</td> <td>Optional cassette heater not Installed</td> </tr> <tr> <td>EXISTS</td> <td>Optional cassette heater installed</td> </tr> </tbody> </table> <p>Initial setting: NONE</p> <ol style="list-style-type: none"> <li>2. Press the start key. The setting is set.</li> </ol> <p><b>Completion</b> Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	MODE Setting	Setting the cassette heater control	Option Heater	Optional cassette heater installed/not Installed setting	Display	Description	OFF	Cassette heater OFF	MODE1	Cassette heater ON during sleep mode	MODE2	Cassette heater ON during sleep mode and standby	Display	Description	NONE	Optional cassette heater not Installed	EXISTS	Optional cassette heater installed
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Display	Description																				
NONE	Optional cassette heater not Installed																				
EXISTS	Optional cassette heater installed																				

Maintenance item No.	Description																
<p><b>U341</b></p>	<p><b>Specific paper feed location setting for printing function</b></p> <p><b>Description</b> Sets a paper feed location specified for printer output (only if a printer kit is installed).</p> <p><b>Purpose</b> To use a paper feed location only for printer output. A paper feed location specified for printer output cannot be used for copy output.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key.</li> <li>2. Select the paper feed location for the printer. Two or more cassette can be selected.</li> </ol> <table border="1" data-bbox="333 593 1398 844"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>CASSETTE 1</td> <td>Cassette 1</td> </tr> <tr> <td>CASSETTE 2</td> <td>Cassette 2</td> </tr> <tr> <td>CASSETTE 3</td> <td>Cassette 3</td> </tr> <tr> <td>CASSETTE 4</td> <td>Cassette 4</td> </tr> <tr> <td>LCF</td> <td>Optional 3000-sheet paper feeder</td> </tr> </tbody> </table> <p>When an optional paper feed device is not installed, the corresponding count is not displayed.</p> <ol style="list-style-type: none"> <li>3. Press the start key. The setting is set.</li> </ol> <p><b>Completion</b> Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	CASSETTE 1	Cassette 1	CASSETTE 2	Cassette 2	CASSETTE 3	Cassette 3	CASSETTE 4	Cassette 4	LCF	Optional 3000-sheet paper feeder				
Display	Description																
CASSETTE 1	Cassette 1																
CASSETTE 2	Cassette 2																
CASSETTE 3	Cassette 3																
CASSETTE 4	Cassette 4																
LCF	Optional 3000-sheet paper feeder																
<p><b>U901</b></p>	<p><b>Checking copy counts by paper feed locations</b></p> <p><b>Description</b> Displays or clears copy counts by paper feed locations.</p> <p><b>Purpose</b> To check the time to replace consumable parts.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key. The counts by paper feed locations are displayed.</li> </ol> <table border="1" data-bbox="333 1247 1398 1581"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>MP TRAY</td> <td>MP tray</td> </tr> <tr> <td>CASSETTE 1</td> <td>Cassette 1</td> </tr> <tr> <td>CASSETTE 2</td> <td>Cassette 2</td> </tr> <tr> <td>CASSETTE 3</td> <td>Cassette 3 (paper feeder)</td> </tr> <tr> <td>CASSETTE 4</td> <td>Cassette 4 (paper feeder)</td> </tr> <tr> <td>DUPLEX</td> <td>Duplex unit</td> </tr> <tr> <td>LCF</td> <td>Optional 3000-sheet paper feeder</td> </tr> </tbody> </table> <p>When an optional paper feed device is not installed, the corresponding count is not displayed.</p> <p><b>Clearing</b></p> <ol style="list-style-type: none"> <li>1. Select the counts to be cleared. CASSETTE 3, CASSETTE 4 and LCF cannot be cleared.</li> <li>2. Select the counts for all and press [ALL CLEAR].</li> <li>3. Press the start key. The counts is cleared.</li> </ol> <p><b>Completion</b> Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	MP TRAY	MP tray	CASSETTE 1	Cassette 1	CASSETTE 2	Cassette 2	CASSETTE 3	Cassette 3 (paper feeder)	CASSETTE 4	Cassette 4 (paper feeder)	DUPLEX	Duplex unit	LCF	Optional 3000-sheet paper feeder
Display	Description																
MP TRAY	MP tray																
CASSETTE 1	Cassette 1																
CASSETTE 2	Cassette 2																
CASSETTE 3	Cassette 3 (paper feeder)																
CASSETTE 4	Cassette 4 (paper feeder)																
DUPLEX	Duplex unit																
LCF	Optional 3000-sheet paper feeder																

### 1-3-2 Maintenance mode (monochrome MFP)

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

#### (1) Executing a maintenance item



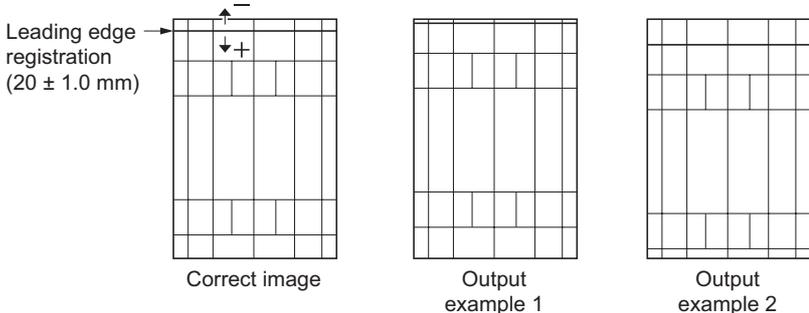
(2) Maintenance mode item list

Section	Item No.	Content of maintenance item	Initial setting*
General	U019	Displaying the ROM version	-
Drive, paper feed and paper conveying system	U034	Adjusting the print start timing LSUOUT TOP LSUOUT LEFT	0/0/0/0/0/0 0/0/0/0/0/0
Operation panel and support equipment	U247	Setting the paper feed device	-
Mode setting	U341	Specific paper feed location setting for printing function	-
Other	U901	Checking copy counts by paper feed locations	-

\*Initial setting for executing U020, \*1: The item initialized for executing U021

## (3) Contents of maintenance mode items

Maintenance item No.	Description																																																				
U019	<p><b>Displaying the ROM version</b></p> <p><b>Description</b> Displays the part number of the ROM fitted to each PWB.</p> <p><b>Purpose</b> To check the part number or to decide, if the newest version of ROM is installed.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key. The ROM version are displayed.</li> <li>2. Change the screen using the cursor up/down keys.</li> </ol> <table border="1" data-bbox="331 577 1398 1659"> <thead> <tr> <th data-bbox="339 586 715 622">Display</th> <th data-bbox="715 586 1390 622">Description</th> </tr> </thead> <tbody> <tr><td data-bbox="339 622 715 658">MAIN</td><td data-bbox="715 622 1390 658">Main ROM</td></tr> <tr><td data-bbox="339 658 715 694">MMI</td><td data-bbox="715 658 1390 694">Operation ROM</td></tr> <tr><td data-bbox="339 694 715 730">ENGINE</td><td data-bbox="715 694 1390 730">Engine ROM</td></tr> <tr><td data-bbox="339 730 715 766">ENGINE BOOT</td><td data-bbox="715 730 1390 766">Engine booting</td></tr> <tr><td data-bbox="339 766 715 801">SCANNER</td><td data-bbox="715 766 1390 801">Scanner ROM</td></tr> <tr><td data-bbox="339 801 715 837">BROWSER</td><td data-bbox="715 801 1390 837">Browser ROM</td></tr> <tr><td data-bbox="339 837 715 873">OPTION LANGUAGE</td><td data-bbox="715 837 1390 873">Optional language ROM</td></tr> <tr><td data-bbox="339 873 715 909">DICTIONARY</td><td data-bbox="715 873 1390 909">-</td></tr> <tr><td data-bbox="339 909 715 945">DBA</td><td data-bbox="715 909 1390 945">Database connection</td></tr> <tr><td data-bbox="339 945 715 981">Solution Framework</td><td data-bbox="715 945 1390 981">Framework</td></tr> <tr><td data-bbox="339 981 715 1016">DP</td><td data-bbox="715 981 1390 1016">Optional DP ROM</td></tr> <tr><td data-bbox="339 1016 715 1052">500x2PF</td><td data-bbox="715 1016 1390 1052">Paper feeder ROM</td></tr> <tr><td data-bbox="339 1052 715 1088">3000PF</td><td data-bbox="715 1052 1390 1088">Optional 3000-sheet paper feeder ROM</td></tr> <tr><td data-bbox="339 1088 715 1124">1000DF</td><td data-bbox="715 1088 1390 1124">Optional document finisher ROM</td></tr> <tr><td data-bbox="339 1124 715 1160">3000DF MAIN</td><td data-bbox="715 1124 1390 1160">Optional 3000-sheet document finisher main ROM</td></tr> <tr><td data-bbox="339 1160 715 1196">3000DF MIDDLE</td><td data-bbox="715 1160 1390 1196">Optional 3000-sheet document finisher Inner tray ROM</td></tr> <tr><td data-bbox="339 1196 715 1232">MAIL BOX</td><td data-bbox="715 1196 1390 1232">Optional mailbox ROM</td></tr> <tr><td data-bbox="339 1232 715 1267">BOOKLET</td><td data-bbox="715 1232 1390 1267">Optional center-folding unit ROM</td></tr> <tr><td data-bbox="339 1267 715 1303">INNER DF</td><td data-bbox="715 1267 1390 1303">Optional built-in finisher ROM</td></tr> <tr><td data-bbox="339 1303 715 1339">FAX BOOT1</td><td data-bbox="715 1303 1390 1339">Optional fax control PWB booting (port 1)</td></tr> <tr><td data-bbox="339 1339 715 1375">FAX APL1</td><td data-bbox="715 1339 1390 1375">Optional fax control PWB APL (port 1)</td></tr> <tr><td data-bbox="339 1375 715 1411">FAX IPL1</td><td data-bbox="715 1375 1390 1411">Optional fax control PWB IPL (port 1)</td></tr> <tr><td data-bbox="339 1411 715 1447">FAX BOOT2</td><td data-bbox="715 1411 1390 1447">Fax control PWB booting (port 2: optional dual FAX)</td></tr> <tr><td data-bbox="339 1447 715 1482">FAX APL2</td><td data-bbox="715 1447 1390 1482">Fax control PWB APL (port 2: optional dual FAX)</td></tr> <tr><td data-bbox="339 1482 715 1518">FAX IPL2</td><td data-bbox="715 1482 1390 1518">Fax control PWB IPL (port 2: optional dual FAX)</td></tr> </tbody> </table> <p><b>Completion</b> Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	MAIN	Main ROM	MMI	Operation ROM	ENGINE	Engine ROM	ENGINE BOOT	Engine booting	SCANNER	Scanner ROM	BROWSER	Browser ROM	OPTION LANGUAGE	Optional language ROM	DICTIONARY	-	DBA	Database connection	Solution Framework	Framework	DP	Optional DP ROM	500x2PF	Paper feeder ROM	3000PF	Optional 3000-sheet paper feeder ROM	1000DF	Optional document finisher ROM	3000DF MAIN	Optional 3000-sheet document finisher main ROM	3000DF MIDDLE	Optional 3000-sheet document finisher Inner tray ROM	MAIL BOX	Optional mailbox ROM	BOOKLET	Optional center-folding unit ROM	INNER DF	Optional built-in finisher ROM	FAX BOOT1	Optional fax control PWB booting (port 1)	FAX APL1	Optional fax control PWB APL (port 1)	FAX IPL1	Optional fax control PWB IPL (port 1)	FAX BOOT2	Fax control PWB booting (port 2: optional dual FAX)	FAX APL2	Fax control PWB APL (port 2: optional dual FAX)	FAX IPL2	Fax control PWB IPL (port 2: optional dual FAX)
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<b>U034</b>	<p><b>Adjusting the print start timing</b></p> <p><b>Description</b> Adjusts the leading edge registration or center line.</p> <p><b>Purpose</b> Make the adjustment if there is a regular error between the leading edges of the copy image and original. Make the adjustment if there is a regular error between the center lines of the copy image and original.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key.</li> <li>2. Select the item to be adjusted. The setting screen for the selected item is displayed.</li> </ol> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>LSU OUT TOP</td> <td>Leading edge registration adjustment</td> </tr> <tr> <td>LSU OUT LEFT</td> <td>Center line adjustment</td> </tr> </tbody> </table> <p><b>Adjustment: Leading edge registration adjustment</b></p> <ol style="list-style-type: none"> <li>1. Select the item to be adjusted.</li> </ol> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Display</th> <th style="width: 40%;">Description</th> <th style="width: 15%;">Setting range</th> <th style="width: 10%;">Initial setting</th> <th style="width: 20%;">Change in value per step</th> </tr> </thead> <tbody> <tr> <td>LSUOUT TOP MPT (L)</td> <td>Paper feed from MP tray (when large size paper is used)</td> <td>-10.0 to 10.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>LSUOUT TOP CAS (L)</td> <td>Paper feed from cassette (when large size paper is used)</td> <td>-10.0 to 10.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>LSUOUT TOP DUP (L)</td> <td>Duplex mode (second) (when large size paper is used)</td> <td>-10.0 to 10.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>LSUOUT TOP MPT (S)</td> <td>Paper feed from MP tray (when small size paper is used)</td> <td>-10.0 to 10.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>LSUOUT TOP CAS (S)</td> <td>Paper feed from cassette (when small size paper is used)</td> <td>-10.0 to 10.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>LSUOUT TOP DUP (S)</td> <td>Duplex mode (second) (when small size paper is used)</td> <td>-10.0 to 10.0</td> <td>0</td> <td>0.1 mm</td> </tr> </tbody> </table> <p>Large size: 218 mm or more in width of paper.</p> <ol style="list-style-type: none"> <li>2. Press the system menu key.</li> <li>3. Press the start key to output a test pattern.</li> <li>4. Press the system menu key.</li> <li>5. Change the setting value using the +/- or numeric keys. For output example 1, increase the value. For output example 2, decrease the value.</li> </ol> <div style="text-align: center;">  </div> <p><b>Figure 1-3-3</b></p> <ol style="list-style-type: none"> <li>6. Press the start key. The value is set.</li> </ol> <p><b>Remark</b> When changing the setting value of [Large] each item is modified, equal to amount of the value which is changed adds also the value of [Small] each item and is pulled.</p>	Display	Description	LSU OUT TOP	Leading edge registration adjustment	LSU OUT LEFT	Center line adjustment	Display	Description	Setting range	Initial setting	Change in value per step	LSUOUT TOP MPT (L)	Paper feed from MP tray (when large size paper is used)	-10.0 to 10.0	0	0.1 mm	LSUOUT TOP CAS (L)	Paper feed from cassette (when large size paper is used)	-10.0 to 10.0	0	0.1 mm	LSUOUT TOP DUP (L)	Duplex mode (second) (when large size paper is used)	-10.0 to 10.0	0	0.1 mm	LSUOUT TOP MPT (S)	Paper feed from MP tray (when small size paper is used)	-10.0 to 10.0	0	0.1 mm	LSUOUT TOP CAS (S)	Paper feed from cassette (when small size paper is used)	-10.0 to 10.0	0	0.1 mm	LSUOUT TOP DUP (S)	Duplex mode (second) (when small size paper is used)	-10.0 to 10.0	0	0.1 mm
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<b>U034</b>	<p><b>Caution</b> Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.</p> <div style="text-align: center; border: 1px solid black; padding: 5px; margin: 10px 0;"> <div style="display: inline-block; border: 1px solid black; padding: 5px; margin-right: 10px;">U034</div> <span style="font-size: 24px;">→</span> <div style="display: inline-block; border: 1px solid black; padding: 5px; margin-right: 10px; text-align: center;"> <b>U066</b> (See the service manual for the machine.)         </div> <span style="font-size: 24px;">→</span> <div style="display: inline-block; border: 1px solid black; padding: 5px; text-align: center;"> <b>U071</b> (See the service manual for the machine.)         </div> </div> <p><b>Adjustment: Center line adjustment</b></p> <ol style="list-style-type: none"> <li>Select the item to be adjusted.</li> </ol> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Display</th> <th>Description</th> <th>Setting range</th> <th>Initial setting</th> <th>Change in value per step</th> </tr> </thead> <tbody> <tr> <td>LSUOUT LEFT (MPT)</td> <td>Paper feed from MP tray</td> <td>-10.0 to 10.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>LSUOUT LEFT (CAS 1)</td> <td>Paper feed from cassette 1</td> <td>-10.0 to 10.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>LSUOUT LEFT (CAS 2)</td> <td>Paper feed from cassette 2</td> <td>-10.0 to 10.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>LSUOUT LEFT (CAS 3)</td> <td>Paper feed from optional cassette 3</td> <td>-10.0 to 10.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>LSUOUT LEFT (CAS 4)</td> <td>Paper feed from optional cassette 4</td> <td>-10.0 to 10.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>LSUOUT LEFT (DUP)</td> <td>Duplex mode (second)</td> <td>-10.0 to 10.0</td> <td>0</td> <td>0.1 mm</td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>Press the system menu key.</li> <li>Press the start key to output a test pattern.</li> <li>Press the system menu key.</li> <li>Change the setting value using the +/- or numeric keys. For output example 1, increase the value. For output example 2, decrease the value.</li> </ol> <div style="text-align: center; margin: 10px 0;"> <p>Center line of printing (within <math>\pm 0.5</math> mm)</p> </div> <ol style="list-style-type: none"> <li>Press the start key. The value is set.</li> </ol> <p><b>Remark</b> If the setting value for feeding from the MP tray is changed, the difference from the former value is added to or subtracted from the values of other items.</p>	Display	Description	Setting range	Initial setting	Change in value per step	LSUOUT LEFT (MPT)	Paper feed from MP tray	-10.0 to 10.0	0	0.1 mm	LSUOUT LEFT (CAS 1)	Paper feed from cassette 1	-10.0 to 10.0	0	0.1 mm	LSUOUT LEFT (CAS 2)	Paper feed from cassette 2	-10.0 to 10.0	0	0.1 mm	LSUOUT LEFT (CAS 3)	Paper feed from optional cassette 3	-10.0 to 10.0	0	0.1 mm	LSUOUT LEFT (CAS 4)	Paper feed from optional cassette 4	-10.0 to 10.0	0	0.1 mm	LSUOUT LEFT (DUP)	Duplex mode (second)	-10.0 to 10.0	0	0.1 mm
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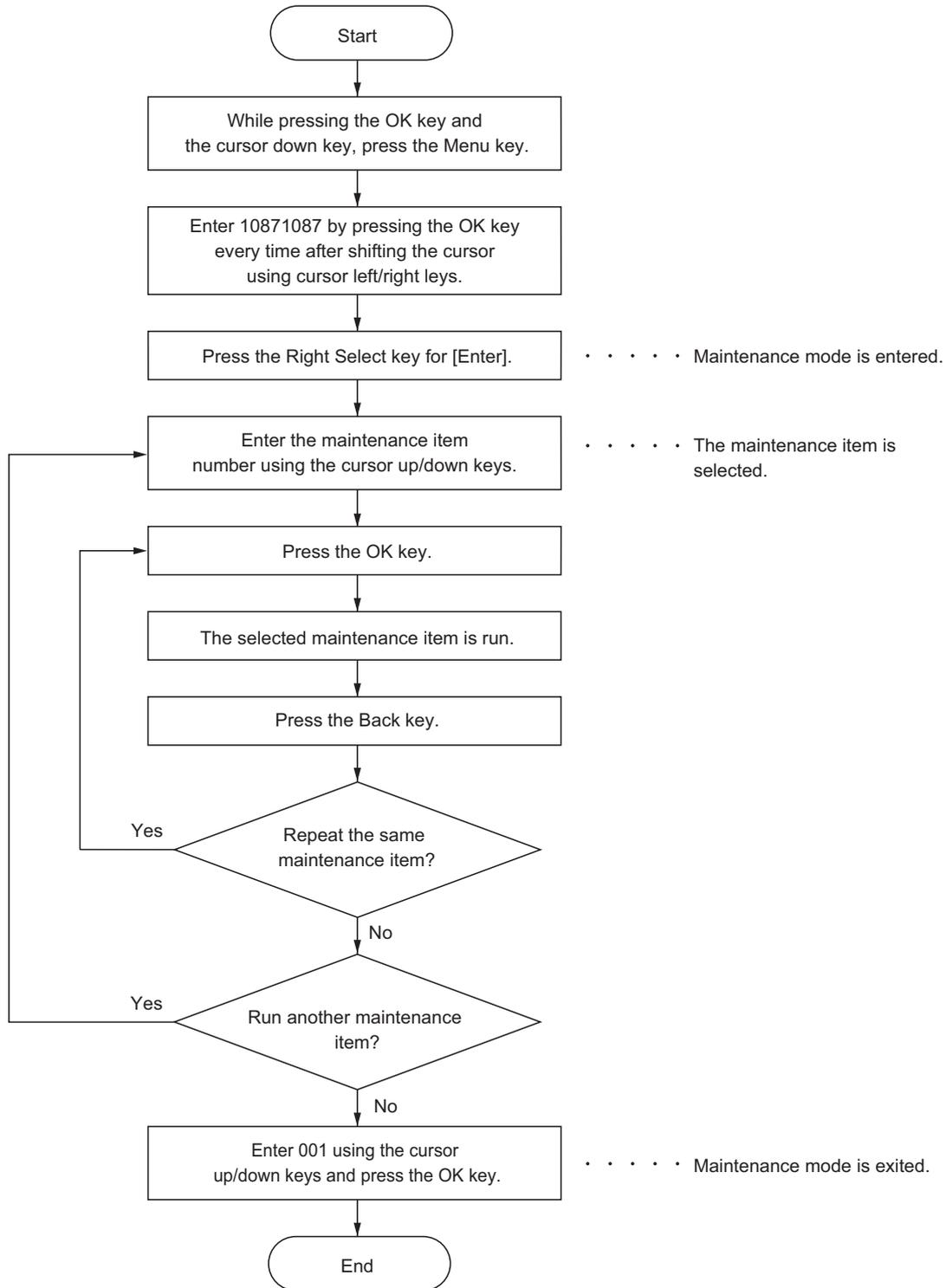
Maintenance item No.	Description															
<p><b>U034</b></p>	<p><b>Caution</b> Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.</p> <div style="text-align: center;">  <pre> graph LR     U034[U034] --&gt; U067[U067 (See the service manual for the machine.)]     U067 --&gt; U072[U072 (See the service manual for the machine.)]                     </pre> </div> <p><b>Completion</b> Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>															
<p><b>U247</b></p>	<p><b>Setting the paper feed device</b> <b>Description</b> Turns on motors and clutches of paper feeder. <b>Purpose</b> To check the operation of motors and clutches of paper feed device. <b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key. The value varies depending to the option furnished.</li> <li>2. Select the item to be operated.</li> <li>3. Press the start key. The operation starts.</li> </ol> <table border="1" data-bbox="333 898 1398 1106"> <thead> <tr> <th>Display</th> <th>Motor and clutches</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>DESK FEED</td> <td>PF drive motor (PFDM)</td> <td>In operation</td> </tr> <tr> <td>CLUTCH FEED</td> <td>PF feed clutch (PFFCL)</td> <td>On for 1 s</td> </tr> <tr> <td>CLUTCH U</td> <td>PF paper feed clutch 1 (PFPFCL1)</td> <td>On for 1 s</td> </tr> <tr> <td>CLUTCH L</td> <td>PF paper feed clutch 2 (PFPFCL2)</td> <td>On for 1 s</td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>4. To turn each motor off, press the stop key.</li> </ol> <p><b>Completion</b> Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Motor and clutches	Operation	DESK FEED	PF drive motor (PFDM)	In operation	CLUTCH FEED	PF feed clutch (PFFCL)	On for 1 s	CLUTCH U	PF paper feed clutch 1 (PFPFCL1)	On for 1 s	CLUTCH L	PF paper feed clutch 2 (PFPFCL2)	On for 1 s
Display	Motor and clutches	Operation														
DESK FEED	PF drive motor (PFDM)	In operation														
CLUTCH FEED	PF feed clutch (PFFCL)	On for 1 s														
CLUTCH U	PF paper feed clutch 1 (PFPFCL1)	On for 1 s														
CLUTCH L	PF paper feed clutch 2 (PFPFCL2)	On for 1 s														
<p><b>U341</b></p>	<p><b>Specific paper feed location setting for printing function</b> <b>Description</b> Sets a paper feed location specified for printer output. <b>Purpose</b> To use a paper feed location only for printer output. A paper feed location specified for printer output cannot be used for copy output. <b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key.</li> <li>2. Select the paper feed location for the printer. Two or more cassette can be selected.</li> </ol> <table border="1" data-bbox="333 1570 1398 1821"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>CASSETTE 1</td> <td>Cassette 1</td> </tr> <tr> <td>CASSETTE 2</td> <td>Cassette 2</td> </tr> <tr> <td>CASSETTE 3</td> <td>Cassette 3 (paper feeder)</td> </tr> <tr> <td>CASSETTE 4</td> <td>Cassette 4 (paper feeder)</td> </tr> <tr> <td>LCF</td> <td>Optional 3000-sheet paper feeder</td> </tr> </tbody> </table> <p>When an optional paper feed device is not installed, the corresponding count is not displayed.</p> <ol style="list-style-type: none"> <li>3. Press the start key. The setting is set.</li> </ol> <p><b>Completion</b> Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	CASSETTE 1	Cassette 1	CASSETTE 2	Cassette 2	CASSETTE 3	Cassette 3 (paper feeder)	CASSETTE 4	Cassette 4 (paper feeder)	LCF	Optional 3000-sheet paper feeder			
Display	Description															
CASSETTE 1	Cassette 1															
CASSETTE 2	Cassette 2															
CASSETTE 3	Cassette 3 (paper feeder)															
CASSETTE 4	Cassette 4 (paper feeder)															
LCF	Optional 3000-sheet paper feeder															

Maintenance item No.	Description																
U901	<p><b>Checking copy counts by paper feed locations</b></p> <p><b>Description</b> Displays or clears copy counts by paper feed locations.</p> <p><b>Purpose</b> To check the time to replace consumable parts. Also to clear the counts after replacing the consumable parts.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key. The counts by paper feed locations are displayed.</li> </ol> <table border="1" data-bbox="335 506 1398 837"> <thead> <tr> <th data-bbox="335 506 636 546">Display</th> <th data-bbox="636 506 1398 546">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="335 546 636 586">MP TRAY</td> <td data-bbox="636 546 1398 586">MP tray</td> </tr> <tr> <td data-bbox="335 586 636 627">CASSETTE 1</td> <td data-bbox="636 586 1398 627">Cassette 1</td> </tr> <tr> <td data-bbox="335 627 636 667">CASSETTE 2</td> <td data-bbox="636 627 1398 667">Cassette 2</td> </tr> <tr> <td data-bbox="335 667 636 707">CASSETTE 3</td> <td data-bbox="636 667 1398 707">Cassette 3 (paper feeder)</td> </tr> <tr> <td data-bbox="335 707 636 748">CASSETTE 4</td> <td data-bbox="636 707 1398 748">Cassette 4 (paper feeder)</td> </tr> <tr> <td data-bbox="335 748 636 788">DUPLEX</td> <td data-bbox="636 748 1398 788">Duplex unit</td> </tr> <tr> <td data-bbox="335 788 636 837">LCF</td> <td data-bbox="636 788 1398 837">Optional 3000-sheet paper feeder</td> </tr> </tbody> </table> <p>When an optional paper feed device is not installed, the corresponding count is not displayed.</p> <p><b>Clearing</b></p> <ol style="list-style-type: none"> <li>1. Select the counts to be cleared. CASSETTE 3, CASSETTE 4 and LCF cannot be cleared.</li> <li>2. Select the counts for all and press [ALL CLEAR].</li> <li>3. Press the start key. The counts is cleared.</li> </ol> <p><b>Completion</b> Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	MP TRAY	MP tray	CASSETTE 1	Cassette 1	CASSETTE 2	Cassette 2	CASSETTE 3	Cassette 3 (paper feeder)	CASSETTE 4	Cassette 4 (paper feeder)	DUPLEX	Duplex unit	LCF	Optional 3000-sheet paper feeder
Display	Description																
MP TRAY	MP tray																
CASSETTE 1	Cassette 1																
CASSETTE 2	Cassette 2																
CASSETTE 3	Cassette 3 (paper feeder)																
CASSETTE 4	Cassette 4 (paper feeder)																
DUPLEX	Duplex unit																
LCF	Optional 3000-sheet paper feeder																

### 1-3-3 Maintenance mode (fullcolor printer)

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

#### (1) Executing a maintenance item



## (2) Maintenance mode item list

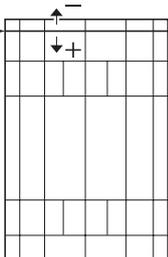
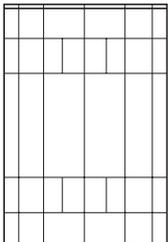
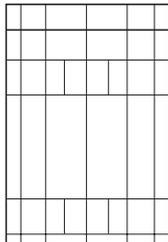
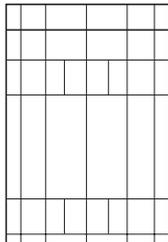
Section	Item No.	Content of maintenance item	Initial setting*
General	U019	Displaying the ROM version	-
Drive, paper feed and paper conveying system	U034	Adjusting the print start timing LSUOUT TOP LSUOUT LEFT LSUOUT TOP B/W	0/0/0/0/0/0/0/0/0/0/0 0/0/0/0/0/0 0/0/0/0/0/0
Operation panel and support equipment	U247	Setting the paper feed device	-
Mode setting	U327	Setting the cassette heater ON/OFF	MODE2/NONE
Other	U901	Checking copy counts by paper feed locations	-

\*Initial setting for executing U020, \*1: The item initialized for executing U021

**(3) Contents of maintenance mode items**

Maintenance item No.	Description																																								
<p><b>U019</b></p>	<p><b>Displaying the ROM version</b>  <b>Description</b>                      Displays the part number of the ROM fitted to each PWB.  <b>Purpose</b>                      To check the part number or to decide, if the newest version of ROM is installed.  <b>Method</b>                      1. Press the OK key. The ROM version are displayed.                      2. Change the screen using the cursor up/down keys.</p> <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>Main</td><td>Main ROM</td></tr> <tr><td>MMI</td><td>Operation ROM</td></tr> <tr><td>Engine</td><td>Engine ROM</td></tr> <tr><td>Engine Boot</td><td>Engine booting</td></tr> <tr><td>Color Table1</td><td>Color table 1</td></tr> <tr><td>Color Table2</td><td>Color table 2</td></tr> <tr><td>Motor CPU</td><td>Motor CPU</td></tr> <tr><td>Motor CPU Boot</td><td>Motor CPU booting</td></tr> <tr><td>H VLT CPU</td><td>High voltage CPU</td></tr> <tr><td>H VLT CPU Boot</td><td>High voltage CPU booting</td></tr> <tr><td>Sleep CPU</td><td>Sleep CPU</td></tr> <tr><td>Sleep CPU Boot</td><td>Sleep CPU booting</td></tr> <tr><td>500x2PF</td><td>Paper feeder ROM</td></tr> <tr><td>3000PF</td><td>Optional 3000-sheet paper feeder ROM</td></tr> <tr><td>1000DF</td><td>Optional document finisher ROM</td></tr> <tr><td>3000DF Main</td><td>Optional 3000-sheet document finisher main ROM</td></tr> <tr><td>3000DF Middle</td><td>Optional 3000-sheet document finisher Inner tray ROM</td></tr> <tr><td>Mail Box</td><td>Optional mailbox ROM</td></tr> <tr><td>Booklet</td><td>Optional center-folding unit ROM</td></tr> </tbody> </table> <p><b>Completion</b>                      Press the Back key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	Main	Main ROM	MMI	Operation ROM	Engine	Engine ROM	Engine Boot	Engine booting	Color Table1	Color table 1	Color Table2	Color table 2	Motor CPU	Motor CPU	Motor CPU Boot	Motor CPU booting	H VLT CPU	High voltage CPU	H VLT CPU Boot	High voltage CPU booting	Sleep CPU	Sleep CPU	Sleep CPU Boot	Sleep CPU booting	500x2PF	Paper feeder ROM	3000PF	Optional 3000-sheet paper feeder ROM	1000DF	Optional document finisher ROM	3000DF Main	Optional 3000-sheet document finisher main ROM	3000DF Middle	Optional 3000-sheet document finisher Inner tray ROM	Mail Box	Optional mailbox ROM	Booklet	Optional center-folding unit ROM
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Motor CPU Boot	Motor CPU booting																																								
H VLT CPU	High voltage CPU																																								
H VLT CPU Boot	High voltage CPU booting																																								
Sleep CPU	Sleep CPU																																								
Sleep CPU Boot	Sleep CPU booting																																								
500x2PF	Paper feeder ROM																																								
3000PF	Optional 3000-sheet paper feeder ROM																																								
1000DF	Optional document finisher ROM																																								
3000DF Main	Optional 3000-sheet document finisher main ROM																																								
3000DF Middle	Optional 3000-sheet document finisher Inner tray ROM																																								
Mail Box	Optional mailbox ROM																																								
Booklet	Optional center-folding unit ROM																																								

Maintenance item No.	Description																																																																									
U034	<p><b>Adjusting the print start timing</b></p> <p><b>Description</b> Adjusts the leading edge registration or center line.</p> <p><b>Purpose</b> Make the adjustment if there is a regular error between the leading edges of the copy image and original. Make the adjustment if there is a regular error between the center lines of the copy image and original.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the OK key.</li> <li>2. Select the item to be adjusted.</li> </ol> <table border="1" data-bbox="335 564 1398 730"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>LSU Out Top</td> <td>Leading edge registration adjustment</td> </tr> <tr> <td>LSU Out Left</td> <td>Center line adjustment</td> </tr> <tr> <td>LSU Out Top B/W</td> <td>Leading edge registration adjustment in black/white mode</td> </tr> </tbody> </table> <p><b>Adjustment: Leading edge registration adjustment</b></p> <ol style="list-style-type: none"> <li>1. Select [LSU Out Top] or [LSU Out Top B/W].</li> <li>2. Press the OK key.</li> <li>3. Select the item.</li> </ol> <p>When [LSU Out Top] is selected.</p> <table border="1" data-bbox="335 949 1398 1883"> <thead> <tr> <th>Display</th> <th>Description</th> <th>Setting range</th> <th>Default setting</th> <th>Change in value per step</th> </tr> </thead> <tbody> <tr> <td>MPT (L)</td> <td>Paper feed from MP tray (when large size paper is used)</td> <td>-3.0 to 3.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>MPT Half (L)</td> <td>Paper feed from MP tray (when large size thick paper is used)</td> <td>-3.0 to 3.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>Cas (L)</td> <td>Paper feed from cassette (when large size paper is used)</td> <td>-3.0 to 3.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>Cas Half (L)</td> <td>Paper feed from cassette (when large size thick paper is used)</td> <td>-3.0 to 3.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>Dup (L)</td> <td>Duplex mode (second) (when large size paper is used)</td> <td>-3.0 to 3.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>Dup Half (L)</td> <td>Duplex mode (second) (when large size thick paper is used)</td> <td>-3.0 to 3.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>MPT (S)</td> <td>Paper feed from MP tray (when small size paper is used)</td> <td>-3.0 to 3.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>MPT Half (S)</td> <td>Paper feed from MP tray (when small size thick paper is used)</td> <td>-3.0 to 3.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>Cas (S)</td> <td>Paper feed from cassette (when small size paper is used)</td> <td>-3.0 to 3.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>Cas Half (S)</td> <td>Paper feed from cassette (when small size thick paper is used)</td> <td>-3.0 to 3.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>Dup (S)</td> <td>Duplex mode (second) (when small size paper is used)</td> <td>-3.0 to 3.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>Dup Half (S)</td> <td>Duplex mode (second) (when small size thick paper is used)</td> <td>-3.0 to 3.0</td> <td>0</td> <td>0.1 mm</td> </tr> </tbody> </table> <p>Large size: 218 mm or more in width of paper.</p>	Display	Description	LSU Out Top	Leading edge registration adjustment	LSU Out Left	Center line adjustment	LSU Out Top B/W	Leading edge registration adjustment in black/white mode	Display	Description	Setting range	Default setting	Change in value per step	MPT (L)	Paper feed from MP tray (when large size paper is used)	-3.0 to 3.0	0	0.1 mm	MPT Half (L)	Paper feed from MP tray (when large size thick paper is used)	-3.0 to 3.0	0	0.1 mm	Cas (L)	Paper feed from cassette (when large size paper is used)	-3.0 to 3.0	0	0.1 mm	Cas Half (L)	Paper feed from cassette (when large size thick paper is used)	-3.0 to 3.0	0	0.1 mm	Dup (L)	Duplex mode (second) (when large size paper is used)	-3.0 to 3.0	0	0.1 mm	Dup Half (L)	Duplex mode (second) (when large size thick paper is used)	-3.0 to 3.0	0	0.1 mm	MPT (S)	Paper feed from MP tray (when small size paper is used)	-3.0 to 3.0	0	0.1 mm	MPT Half (S)	Paper feed from MP tray (when small size thick paper is used)	-3.0 to 3.0	0	0.1 mm	Cas (S)	Paper feed from cassette (when small size paper is used)	-3.0 to 3.0	0	0.1 mm	Cas Half (S)	Paper feed from cassette (when small size thick paper is used)	-3.0 to 3.0	0	0.1 mm	Dup (S)	Duplex mode (second) (when small size paper is used)	-3.0 to 3.0	0	0.1 mm	Dup Half (S)	Duplex mode (second) (when small size thick paper is used)	-3.0 to 3.0	0	0.1 mm
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Maintenance item No.	Description				
<b>U034</b>	When [LSU Out Top B/W] is selected.				
	<b>Display</b>	<b>Description</b>	<b>Setting range</b>	<b>Default setting</b>	<b>Change in value per step</b>
	MPT (L) B/W	Paper feed from MP tray (when large size paper is used)	-3.0 to 3.0	0	0.1 mm
	Cas (L) B/W	Paper feed from cassette (when large size paper is used)	-3.0 to 3.0	0	0.1 mm
	Dup (L) B/W	Duplex mode (second) (when large size paper is used)	-3.0 to 3.0	0	0.1 mm
	MPT (S) B/W	Paper feed from MP tray (when small size paper is used)	-3.0 to 3.0	0	0.1 mm
	Cas (S) B/W	Paper feed from cassette (when small size paper is used)	-3.0 to 3.0	0	0.1 mm
	Dup (S) B/W	Duplex mode (second) (when small size paper is used)	-3.0 to 3.0	0	0.1 mm
<p>Large size: 218 mm or more in width of paper.</p> <p>4. Press the Menu key.</p> <p>5. Press the OK key to output a test pattern.</p> <p>6. Press the Menu key.</p> <p>7. Change the setting value using the Left/Right Select keys.</p> <p>For output example 1, increase the value. For output example 2, decrease the value.</p> <div style="display: flex; align-items: flex-start; margin-top: 10px;"> <div style="margin-right: 20px;"> <p>Leading edge registration (20 ± 1.5 mm)</p>  </div> <div style="margin-right: 20px;">  <p style="text-align: center;">Correct image</p> </div> <div style="margin-right: 20px;">  <p style="text-align: center;">Output example 1</p> </div> <div>  <p style="text-align: center;">Output example 2</p> </div> </div> <p style="text-align: center; margin-top: 10px;"><b>Figure 1-3-5</b></p> <p>8. Press the OK key. The value is set.</p> <p><b>Remark</b> When changing the setting value of [Large] each item is modified, equal to amount of the value which is changed adds also the value of [Small] each item and is pulled.</p>					

Maintenance item No.	Description																																			
U034	<p><b>Adjustment: Center line adjustment</b></p> <ol style="list-style-type: none"> <li>1. Select [LSU Out Left].</li> <li>2. Press the OK key.</li> <li>3. Select the item.</li> </ol> <table border="1" data-bbox="331 387 1398 707"> <thead> <tr> <th>Display</th> <th>Description</th> <th>Setting range</th> <th>Initial setting</th> <th>Change in value per step</th> </tr> </thead> <tbody> <tr> <td>MPT</td> <td>Paper feed from MP tray</td> <td>-3.0 to 3.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>Cas 1</td> <td>Paper feed from cassette 1</td> <td>-3.0 to 3.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>Cas 2</td> <td>Paper feed from cassette 2</td> <td>-3.0 to 3.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>Cas 3</td> <td>Paper feed from optional cassette 3</td> <td>-3.0 to 3.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>Cas 4</td> <td>Paper feed from optional cassette 4</td> <td>-3.0 to 3.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>Dup</td> <td>Duplex mode (second)</td> <td>-3.0 to 3.0</td> <td>0</td> <td>0.1 mm</td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>4. Press the Menu key.</li> <li>5. Press the OK key to output a test pattern.</li> <li>6. Press the Menu key.</li> <li>7. Change the setting value using the Left/Right Select keys. For output example 1, increase the value. For output example 2, decrease the value.</li> </ol> <div data-bbox="507 891 1165 1272" style="text-align: center;"> <p>Center line of printing (within <math>\pm 0.5</math> mm)</p> <p>Correct image                  Output example 1                  Output example 2</p> </div> <ol style="list-style-type: none"> <li>8. Press the OK key. The value is set.</li> </ol> <p><b>Remark</b> If the setting value for feeding from the MP tray is changed, the difference from the former value is added to or subtracted from the values of other items.</p> <p><b>Completion</b> Press the Back key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	Setting range	Initial setting	Change in value per step	MPT	Paper feed from MP tray	-3.0 to 3.0	0	0.1 mm	Cas 1	Paper feed from cassette 1	-3.0 to 3.0	0	0.1 mm	Cas 2	Paper feed from cassette 2	-3.0 to 3.0	0	0.1 mm	Cas 3	Paper feed from optional cassette 3	-3.0 to 3.0	0	0.1 mm	Cas 4	Paper feed from optional cassette 4	-3.0 to 3.0	0	0.1 mm	Dup	Duplex mode (second)	-3.0 to 3.0	0	0.1 mm
Display	Description	Setting range	Initial setting	Change in value per step																																
MPT	Paper feed from MP tray	-3.0 to 3.0	0	0.1 mm																																
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Cas 4	Paper feed from optional cassette 4	-3.0 to 3.0	0	0.1 mm																																
Dup	Duplex mode (second)	-3.0 to 3.0	0	0.1 mm																																

Maintenance item No.	Description																								
<p><b>U247</b></p>	<p><b>Setting the paper feed device</b></p> <p><b>Description</b> Turns on motor and clutches of paper feeder.</p> <p><b>Purpose</b> To check the operation of motor and clutches of paper feed device.</p> <ol style="list-style-type: none"> <li>1. Press the OK key.</li> <li>2. Select [Feed] or [Clutch].</li> <li>3. Select the item to be operated using the Left/Right Select keys.</li> <li>4. Press the OK key. The operation starts.</li> </ol> <p><b>Feed</b></p> <table border="1" data-bbox="335 566 1398 730"> <thead> <tr> <th>Display</th> <th>Motor and clutches</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>N/A</td> <td>Not Available</td> <td>-</td> </tr> <tr> <td>Desk</td> <td>PF drive motor (PFDM)</td> <td>In operation</td> </tr> <tr> <td>Clutch</td> <td>PF conveying clutch (PFCCL)</td> <td>On for 1 s</td> </tr> </tbody> </table> <p><b>Clutch</b></p> <table border="1" data-bbox="335 786 1398 949"> <thead> <tr> <th>Display</th> <th>Motor and clutches</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>N/A</td> <td>Not Available</td> <td>-</td> </tr> <tr> <td>U</td> <td>PF paper feed clutch 1 (PFPFCL1)</td> <td>On for 1 s</td> </tr> <tr> <td>L</td> <td>PF paper feed clutch 2 (PFPFCL2)</td> <td>On for 1 s</td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>5. To turn each motor off, press the Back key.</li> </ol> <p><b>Completion</b> Press the Back key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Motor and clutches	Operation	N/A	Not Available	-	Desk	PF drive motor (PFDM)	In operation	Clutch	PF conveying clutch (PFCCL)	On for 1 s	Display	Motor and clutches	Operation	N/A	Not Available	-	U	PF paper feed clutch 1 (PFPFCL1)	On for 1 s	L	PF paper feed clutch 2 (PFPFCL2)	On for 1 s
Display	Motor and clutches	Operation																							
N/A	Not Available	-																							
Desk	PF drive motor (PFDM)	In operation																							
Clutch	PF conveying clutch (PFCCL)	On for 1 s																							
Display	Motor and clutches	Operation																							
N/A	Not Available	-																							
U	PF paper feed clutch 1 (PFPFCL1)	On for 1 s																							
L	PF paper feed clutch 2 (PFPFCL2)	On for 1 s																							

Maintenance item No.	Description																				
U327	<p><b>Setting the cassette heater ON/OFF</b></p> <p><b>Description</b> Sets ON/OFF of the cassette heater.</p> <p><b>Purpose</b> To change the setting according to the machine installation environment.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the OK key.</li> <li>2. Select the item.</li> </ol> <table border="1" data-bbox="333 535 1398 660"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Mode</td> <td>Setting the cassette heater control</td> </tr> <tr> <td>Option Heater</td> <td>Optional cassette heater installed/not Installed setting</td> </tr> </tbody> </table> <p><b>Setting: [Mode]</b></p> <ol style="list-style-type: none"> <li>1. Change the setting using the Left/Right Select keys.</li> </ol> <table border="1" data-bbox="333 761 1398 927"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Off</td> <td>Cassette heater OFF</td> </tr> <tr> <td>M1</td> <td>Cassette heater ON during sleep mode</td> </tr> <tr> <td>M2</td> <td>Cassette heater ON during sleep mode and standby</td> </tr> </tbody> </table> <p>Initial setting: Off</p> <ol style="list-style-type: none"> <li>2. Press the OK key. The setting is set.</li> </ol> <p><b>Setting: [Option Heater]</b></p> <ol style="list-style-type: none"> <li>1. Change the setting using the Left/Right Select keys.</li> </ol> <table border="1" data-bbox="333 1090 1398 1216"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Off</td> <td>Optional cassette heater not Installed</td> </tr> <tr> <td>On</td> <td>Optional cassette heater installed</td> </tr> </tbody> </table> <p>Initial setting: Off</p> <ol style="list-style-type: none"> <li>2. Press the OK key. The setting is set.</li> </ol> <p><b>Completion</b> Press the Back key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	Mode	Setting the cassette heater control	Option Heater	Optional cassette heater installed/not Installed setting	Display	Description	Off	Cassette heater OFF	M1	Cassette heater ON during sleep mode	M2	Cassette heater ON during sleep mode and standby	Display	Description	Off	Optional cassette heater not Installed	On	Optional cassette heater installed
Display	Description																				
Mode	Setting the cassette heater control																				
Option Heater	Optional cassette heater installed/not Installed setting																				
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M2	Cassette heater ON during sleep mode and standby																				
Display	Description																				
Off	Optional cassette heater not Installed																				
On	Optional cassette heater installed																				

Maintenance item No.	Description																
<p><b>U901</b></p>	<p><b>Checking copy counts by paper feed locations</b></p> <p><b>Description</b> Displays or clears copy counts by paper feed locations.</p> <p><b>Purpose</b> To check the time to replace consumable parts.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the OK key. The counts by paper feed locations are displayed.</li> </ol> <table border="1" data-bbox="336 506 1398 837"> <thead> <tr> <th data-bbox="336 506 636 546">Display</th> <th data-bbox="636 506 1398 546">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="336 546 636 586">MP Tray</td> <td data-bbox="636 546 1398 586">MP tray</td> </tr> <tr> <td data-bbox="336 586 636 627">Cassette 1</td> <td data-bbox="636 586 1398 627">Cassette 1</td> </tr> <tr> <td data-bbox="336 627 636 667">Cassette 2</td> <td data-bbox="636 627 1398 667">Cassette 2</td> </tr> <tr> <td data-bbox="336 667 636 707">Cassette 3</td> <td data-bbox="636 667 1398 707">Cassette 3 (paper feeder)</td> </tr> <tr> <td data-bbox="336 707 636 748">Cassette 4</td> <td data-bbox="636 707 1398 748">Cassette 4 (paper feeder)</td> </tr> <tr> <td data-bbox="336 748 636 788">Duplex</td> <td data-bbox="636 748 1398 788">Duplex unit</td> </tr> <tr> <td data-bbox="336 788 636 837">LCF</td> <td data-bbox="636 788 1398 837">Optional 3000-sheet paper feeder</td> </tr> </tbody> </table> <p>When an optional paper feed device is not installed, the corresponding count is not displayed.</p> <p><b>Clearing</b></p> <ol style="list-style-type: none"> <li>1. Select the counts to be cleared. Cassette 3, Cassette 4 and LCF cannot be cleared.</li> <li>2. Enter 0 using the Right Select key.</li> <li>3. Press the OK key. The counts is cleared.</li> </ol> <p><b>Completion</b> Press the Back key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	MP Tray	MP tray	Cassette 1	Cassette 1	Cassette 2	Cassette 2	Cassette 3	Cassette 3 (paper feeder)	Cassette 4	Cassette 4 (paper feeder)	Duplex	Duplex unit	LCF	Optional 3000-sheet paper feeder
Display	Description																
MP Tray	MP tray																
Cassette 1	Cassette 1																
Cassette 2	Cassette 2																
Cassette 3	Cassette 3 (paper feeder)																
Cassette 4	Cassette 4 (paper feeder)																
Duplex	Duplex unit																
LCF	Optional 3000-sheet paper feeder																

## 1-4-1 Paper misfeed detection

### (1) Paper misfeed indication

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

Paper misfeed detection can be reset by opening and closing the left cover 3 to turn left cover 3 switch off and on.

### (2) Paper misfeed detection conditions

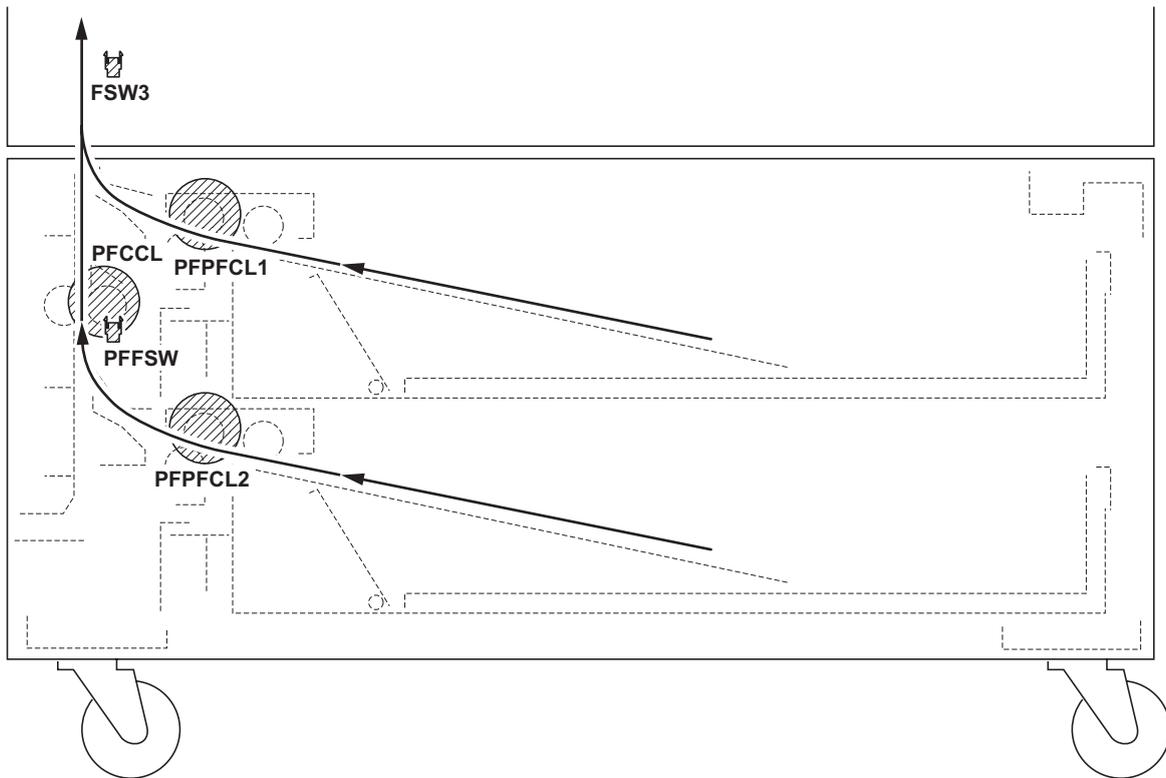


Figure 1-4-1

## Fullcolor machine

Section	Jam code	Conditions	Specified time			
			25/25 ppm 30/30 ppm	40/40 ppm 50/40 ppm Color	50/40 ppm B/W 55/50 ppm Color	55/50 ppm B/W
Paper feed section	12 No paper feed from cassette 3	Feed switch 3 (FSW3) does not turn on within the specified time of PF paper feed clutch 1 (PFPFCL1) turning on and cannot be detected at the same timing even after retry.	2853 ms	2324 ms	2112 ms	1920 ms
	13 No paper feed from cassette 4	The PF feed switch (PFFSW) does not turn on within the specified time of PF paper feed clutch 2 (PFPFCL2) turning on and cannot be detected at the same timing even after retry.	2853 ms	2324 ms	2112 ms	1920 ms
	19 Misfeed in paper feeder paper conveying section	Feed switch 3 (FSW3) does not turn on within specified time of PF feed switch (PFFSW) turning on.	1134 ms	810 ms	680 ms	618 ms
	24 Multiple sheets in cassette 3 paper feed section	Feed switch 3 (FSW3) does not turn off within specified time of its turning on.	1136 ms	812 ms	682 ms	620 ms
	25 Multiple sheets in cassette 4 paper feed section	The PF feed switch 1 (PFFSW) does not turn off within specified time of its turning on.	1136 ms	812 ms	682 ms	620 ms

## Monochrome machine

Section	Jam code	Conditions	Specified time
Paper feed section	12 No paper feed from cassette 3	Feed switch 3 (FSW3) does not turn on within the specified time of PF 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.	1209 ms
	13 No paper feed from cassette 4	The PF feed switch (PFFSW) does not turn on within the specified time of PF 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.	1209 ms
	19 Misfeed in paper feeder vertical paper conveying section	Feed switch 3 (FSW3) does not turn on within specified time of the PF feed switch (PFFSW) turning on.	1217 ms
	21 Multiple sheets in paper feed section	The feed switch 3 (FSW3) does not turn off within specified time of its turning on.	Paper length + 3357 ms
		The feed switch 3 (FSW3) does not turn off within specified time of the PF paper feed clutch 1 (PFPFCL1) turning on.	2643 ms
	The PF feed switch (PFFSW) does not turn off within specified time of the PF paper feed clutch 2 (PFPFCL2) turning on.	3913 ms	

**(3) Paper misfeeds****Fullcolor machine**

<b>Problem</b>	<b>Causes/check procedures</b>	<b>Corrective measures</b>
(1) A paper jam in the paper feed section is indicated during copying (no paper feed from cassette 3). Jam code 12	Paper is extremely curled.	Change the paper.
	Check if the paper feed pulley, forwarding pulley and separation pulley of 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 the switch if indication of the corresponding switch on the touch panel is not displayed in reverse.
	Check if PF paper feed clutch 1 malfunctions.	Run maintenance item U247 and select PF paper feed clutch 1 on the touch panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with PF paper feed clutch 1.	Check (see page 1-4-11).
(2) A paper jam in the paper feed section is indicated during copying (no paper feed from cassette 4). Jam code 13	Paper is extremely curled.	Change the paper.
	Check if the paper feed pulley, forwarding pulley and separation pulley of cassette 4 are deformed.	Check visually and replace any deformed pulleys.
	Broken PF feed switch actuator.	Check visually and replace switch.
	Defective PF feed switch.	With 5 V DC present at YC3-7 on the PF main PWB, check if YC3-5 on the PF main PWB remains low or high when the PF feed switch is turned on and off. If it does, replace the PF feed switch.
	Check if PF paper feed clutch 2 malfunctions.	Run maintenance item U247 and select PF paper feed clutch 2 on the touch panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with PF paper feed clutch 2.	Check (see page 1-4-11).
(3) A paper jam in the paper feed section is indicated during copying (misfeed in 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.

Problem	Causes/check procedures	Corrective measures
(4) A paper jam in the paper feed section is indicated during copying (multiple sheets in cassette 3). Jam code 24	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.
	Defective feed pulleys or feed rollers.	Check visually and replace.
	Defective PF paper feed clutch 1.	Run maintenance item U247 and select PF paper feed clutch 1 on the touch panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with PF paper feed clutch 1.	Check (see page 1-4-11).
(5) A paper jam in the paper feed section is indicated during copying (multiple sheets in cassette 4). Jam code 25	Broken PF feed switch actuator.	Check visually and replace switch.
	Defective paper feeder feed switch.	With 5 V DC present at YC3-7 on the PF main PWB, check if YC3-5 on the PF main PWB remains low or high when the PF feed switch is turned on and off. If it does, replace the PF feed switch.
	Defective feed pulleys or feed rollers.	Check visually and replace.
	Defective PF paper feed clutch 2.	Run maintenance item U247 and select PF paper feed clutch 2 on the touch panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with PF paper feed clutch 2.	Check (see page 1-4-11).

## Monochrome machine

Problem	Causes/check procedures	Corrective measures
(1) A paper jam in the paper feed section is indicated during copying (no paper feed from cassette 3). Jam code 12	Paper is extremely curled.	Replace the paper.
	Check if the paper feed pulley, forwarding pulley and separation pulley of 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.
	Check if PF paper feed clutch 1 malfunctions.	Run maintenance item U247 and select PF paper feed clutch 1 on the touch panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with PF paper feed clutch 1.	Check (see page 1-4-11).
(2) A paper jam in the paper feed section is indicated during copying (no paper feed from cassette 4). Jam code 13	Paper is extremely curled.	Replace the paper.
	Check if the paper feed pulley, forwarding pulley and separation pulley of cassette 4 are deformed.	Check visually and replace any deformed pulleys.
	Broken paper feeder feed switch actuator.	Check visually and replace switch.
	Defective PF feed switch.	With 5 V DC present at YC3-7 on the PF main PWB, check if YC3-5 on the PF main PWB remains low or high when the PF feed switch is turned on and off. If it does, replace the PF feed switch.
	Check if PF paper feed clutch 2 malfunctions.	Run maintenance item U247 and select PF paper feed clutch 2 on the touch panel to be turned on and off. Check the status and remedy if necessary.
Electrical problem with PF paper feed clutch 2.	Check (see page 1-4-11).	
(3) A paper jam in the paper feed section is indicated during copying (jam in 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 PF feed switch actuator.	Check visually and replace switch.
	Defective PF feed switch.	With 5 V DC present at YC3-7 on the PF main PWB, check if YC3-5 on the PF main PWB remains low or high when the PF feed switch is turned on and off. If it does, replace the PF feed switch.

Problem	Causes/check procedures	Corrective measures
(4) A paper jam in the paper feed section is indicated during copying (multiple sheets in paper feed section). Jam code 21	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 PF feed switch actuator.	Check visually and replace switch.
	Defective PF feed switch.	With 5 V DC present at YC3-7 on the PF main PWB, check if YC3-5 on the PF main PWB remains low or high when the PF feed switch is turned on and off. If it does, replace the PF feed switch.
	Check if PF paper feed clutch 1/2 malfunctions.	Run maintenance item U247 and select PF paper feed clutch 1/2 on the touch panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with PF paper feed clutch 1/2.	Check (see page 1-4-11).
	Defective feed pulleys or feed rollers.	Check visually and replace.

## 1-4-2 Self-diagnosis

### (1) Self-diagnostic function

This unit is equipped with a self-diagnostic function. When a problem is detected, copying is disabled and the problem displayed as a code consisting of C followed by 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 cover switch off and back on.

### (2) Self diagnostic codes

#### Fullcolor machine

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
<b>C1030</b>	<b>PF lift motor 1 error</b> After cassette 3 is inserted, PF lift switch 1 does not turn on within 12 s. This error is detected two times successively. During driving the motor, the lift overcurrent protective monitor signal is detected for 500 ms or more two times successively. However, the first 1 s after PF lift motor 1 is turned on is excluded from detection.	Poor contact in the connector terminals.	Check the connection of connector YC27 on the engine PWB and the connector on the PF main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Broken gears or couplings of PF lift motor 1.	Replace PF lift motor 1.
		Defective PF lift motor 1.	Check for continuity across the coil. If none, replace PF lift motor 1.
		Defective PF lift switch 1.	Check if YC1-7 on the PF main PWB goes low when PF lift switch 1 is turned off. If not, replace PF lift switch 1.
<b>C1040</b>	<b>PF lift motor 2 error</b> After cassette 4 is inserted, PF lift switch 2 does not turn on within 12 s. This error is detected two times successively. During driving the motor, the lift overcurrent protective monitor signal is detected for 500 ms or more two times successively. However, the first 1 s after PF lift motor 2 is turned on is excluded from detection.	Poor contact in the connector terminals.	Check the connection of connector YC27 on the engine PWB and the connector on the PF main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Broken gears or couplings of PF lift motor 2.	Replace PF lift motor 2.
		Defective PF lift motor 2.	Check for continuity across the coil. If none, replace PF lift motor 2.
		Defective PF lift switch 2.	Check if YC1-9 on the PF main PWB goes low when PF lift switch 2 is turned off. If not, replace PF lift switch 2.
<b>C1800</b>	<b>Paper feeder communication error</b> A communication error from paper feeder is detected 10 times in succession.	Poor contact in the connector terminals.	Check the connection of connector YC27 on the engine PWB and the connector on the PF main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective PWB.	Replace the PF main PWB or engine PWB and check for correct operation.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C1900	<b>Paper feeder EEPROM error</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 YC27 on the engine PWB and the connector on the PF 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.
C2600	<b>PF drive motor error</b> The lock signal of the motor is detected above 450 ms.	Poor contact in the connector terminals.	Check the connection of connector on the engine PWB and the connector on the PF main PWB, 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 paper PF paper conveying motor.	Replace the PF paper conveying motor.
		Defective PWB.	Replace the PF main PWB or engine PWB and check for correct operation.

## Monochrome machine

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
<b>C1030</b>	<b>PF lift motor 1 error</b> After cassette 3 is inserted, PF lift switch 1 does not turn on within 12 s. This error is detected two times successively. During driving the motor, the lift overcurrent protective monitor signal is detected for 500 ms or more two times successively. However, the first 1 s after PF lift motor 1 is turned on is excluded from detection.	Poor contact in the connector terminals.	Check the connection of connector YC15 on the engine PWB and the connector on the PF main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Broken gears or couplings of PF lift motor 1.	Replace PF lift motor 1.
		Defective PF lift motor 1.	Check for continuity across the coil. If none, replace PF lift motor 1.
		Defective PF lift switch 1.	Check if YC1-7 on the PF main PWB goes low when PF lift switch 1 is turned off. If not, replace PF lift switch 1.
<b>C1040</b>	<b>PF lift motor 2 error</b> After cassette 4 is inserted, PF lift switch 2 does not turn on within 12 s. This error is detected two times successively. During driving the motor, the lift overcurrent protective monitor signal is detected for 500 ms or more two times successively. However, the first 1 s after PF lift motor 2 is turned on is excluded from detection.	Poor contact in the connector terminals.	Check the connection of connector YC15 on the engine PWB and the connector on the PF main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Broken gears or couplings of PF lift motor 2.	Replace PF lift motor 2.
		Defective PF lift motor 2.	Check for continuity across the coil. If none, replace PF lift motor 2.
		Defective PF lift switch 2.	Check if YC1-9 on the PF main PWB goes low when PF lift switch 2 is turned off. If not, replace PF lift switch 2.
<b>C1800</b>	<b>Paper feeder communication error</b> A communication error from paper feeder is detected 10 times in succession.	Poor contact in the connector terminals.	Check the connection of connector YC15 on the engine PWB and the connector on the PF main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective PWB.	Replace the PF main PWB or engine PWB and check for correct operation.
<b>C1900</b>	<b>Paper feeder EEPROM error</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 YC15 on the engine PWB and the connector on the PF 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.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C2600	<b>PF drive motor error</b> The lock signal of the motor is detected above 450 ms.	Poor contact in the connector terminals.	Check the connection of connector YC15 on the engine PWB and the connector on the PF main PWB, 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 PF drive motor.	Replace the PF drive motor.
		Defective PWB.	Replace the PF main PWB or engine PWB and check for correct operation.

### 1-4-3 Electric problems

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

Problem	Causes	Check procedures/corrective measures
(1) The paper feeder does not operate when the main power switch is turned on.	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 left cover 4 switch.	Check for continuity across the contacts. If none, replace the left cover 4 switch.
(2) The PF drive 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. Broken the gear.	Check visually and replace the gear if necessary.
	3. Defective PF drive motor.	Run maintenance item U247 and check if the PF paper conveying motor operates when YC4-3 on the PF main PWB goes low. If not, replace the PF drive motor.
	4. Defective PF main PWB.	Run maintenance item U247 and check if YC4-3 on the PF main PWB goes low. If not, replace the PF main PWB.
(3) The PF paper feed clutch 1/2 or PF paper conveying 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 PF main PWB.	Run maintenance item U247 and check if following terminals on the PF main PWB goes low. If not, replace the PF main PWB. PF paper feed clutch 1: YC2-5 PF paper feed clutch 2: YC2-6 PF paper conveying clutch: YC2-4
(4) The PF lift motor 1/2 does not operate.	1. Broken motor coil.	Check for continuity across the coil. If none, replace the motor.
	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.
(5) The size of paper on the cassette 3 is not displayed correctly.	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 PF paper size length switch 1.	Check if YC8-3 on the PF main PWB goes low when the PF paper size length switch 1 is turned on. If not, replace the PF paper size length switch 1.
	3. Defective PF paper size width switch 1.	Check for continuity between YC3-1, YC3-2, and YC3-3 on the PF main PWB. If the continuity is unaffected by movement of the width guides in the cassette 3 (i.e. either remains present or remains absent), then replace the PF paper size width switch 1.
(6) The size of paper on the cassette 4 is not displayed correctly.	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 PF paper size length switch 2.	Check if YC8-1 on the PF main PWB goes low when the PF paper size length switch 2 is turned on. If not, replace the PF paper size length switch 2.
	3. Defective PF paper size width switch 2.	Check for continuity between YC3-11, YC3-12, and YC3-13 on the PF main PWB. If the continuity is unaffected by movement of the width guides in the cassette 4 (i.e. either remains present or remains absent), then replace the PF paper size width switch 2.

Problem	Causes	Check procedures/corrective measures
(7) The message requesting covers to be closed is displayed when the left cover 4 is closed.	1. Poor contact of the left cover 4 switch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	2. Defective left cover 4 switch.	Check for continuity across the contacts. If there is no continuity when the left cover 4 switch is on, replace it.
(8) Others.	1. Wiring is broken, shorted or makes poor contact.	Check for continuity. If none, repair.

#### 1-4-4 Mechanical problems

Problem	Causes/check procedures	Corrective measures
(1) No primary paper feed.	Check if the surfaces of the following rollers and pulleys are dirty with paper powder: forwarding pulley, paper feed pulley, separation pulley, feed roller and feed pulley.	Clean with isopropyl alcohol.
	Check if the paper feed pulley or separation pulley is deformed.	Replace (see page 1-5-2).
	Check if the forwarding pulley is deformed.	Replace (see page 1-5-2).
	Electrical problem with the following electromagnetic clutches: PF paper feed clutches 1/2 and PF paper conveying clutch.	See page 1-4-11.
(2) Skewed paper feed.	Paper width guide in the cassette installed incorrectly.	Check the paper width guide visually and remedy or replace if necessary.
	Deformed paper width guide in the cassette.	Check the paper width guide visually and remedy or replace if it is deformed.
(3) Multiple sheets of paper are fed at one time.	Check if the separation pulley is deformed.	Replace the separation pulley if it is worn (see page 1-5-2).
	Check if the paper is curled.	Change the paper.
(4) Paper jams.	Check if the paper is excessively curled.	Change the paper.
	Deformed guides along the paper conveying path.	Check visually and remedy or replace any deformed guides.
(5) Abnormal noise is heard.	Check if the pulleys, rollers and gears operate smoothly.	Grease the bushings and gears.
	Check if the PF paper feed clutches 1/2 and the PF paper conveying clutch are installed correctly.	Remedy.

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

### **(1) Precautions**

Before starting disassembly, press the Power key on the operation panel to off. Make sure that the Power lamp is off before turning off the main power switch. And then unplug the power cable from the wall outlet. Turning off the main power switch before pressing the Power key to off may cause damage to the equipped hard disk.

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.

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.

Take care not to get the cables caught.

To reassemble the parts, use the original screws. If the types and the sizes of screws are not known, refer to the PARTS LIST.

### 1-5-2 Paper feed section

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

Replace the forwarding, paper feed and separation pulleys as follows.

##### Procedure

##### Removing the primary paper feed units

1. Remove cassette 3 and 4.
2. Remove the screw and then remove the front upper cover.

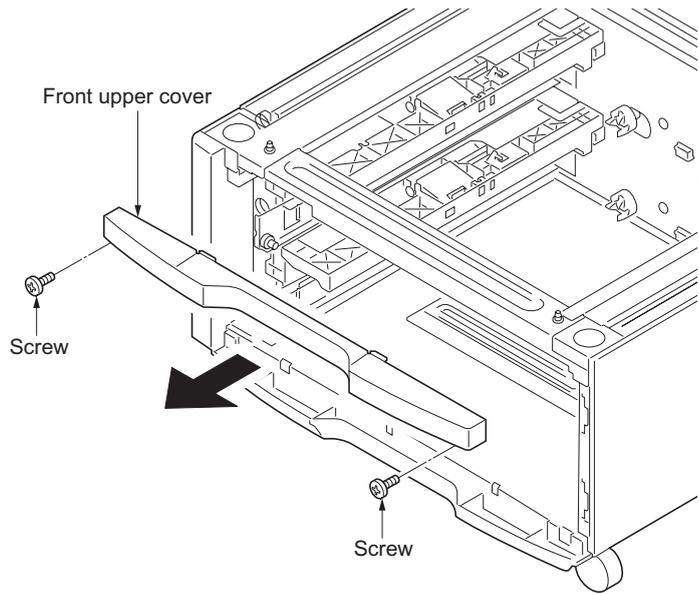


Figure 1-5-1

3. Remove each screw and then remove the primary paper feed units.

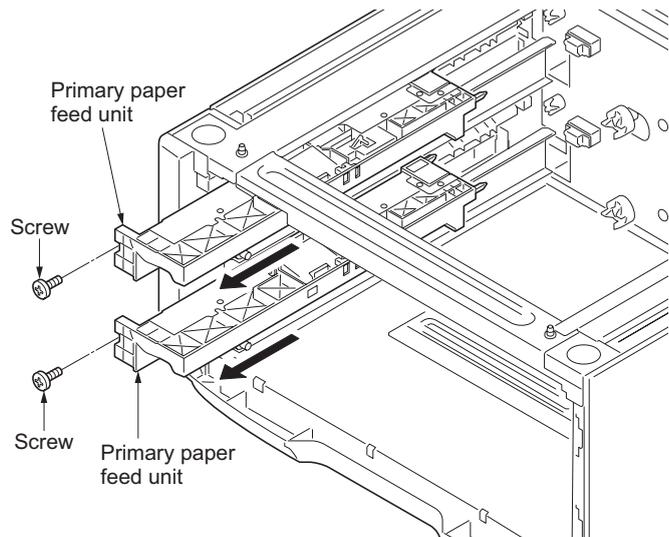
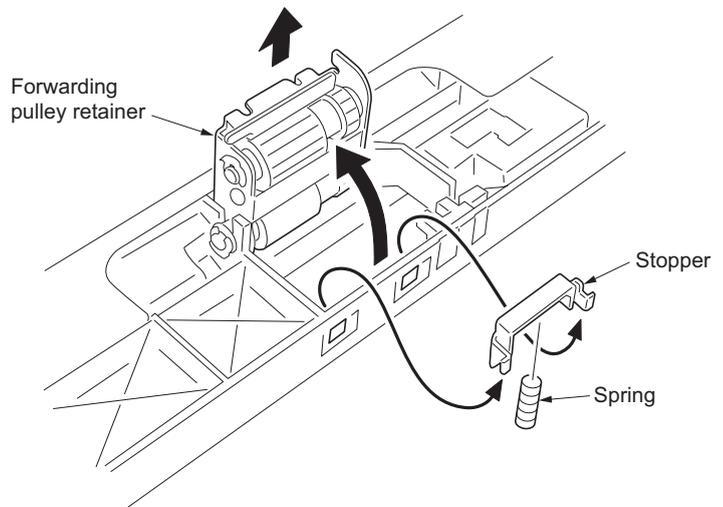


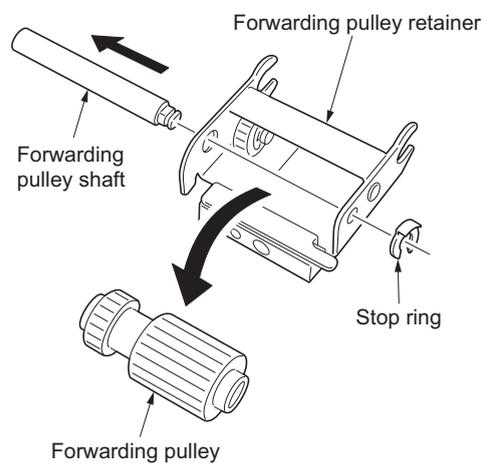
Figure 1-5-2

**Removing the forwarding pulley**

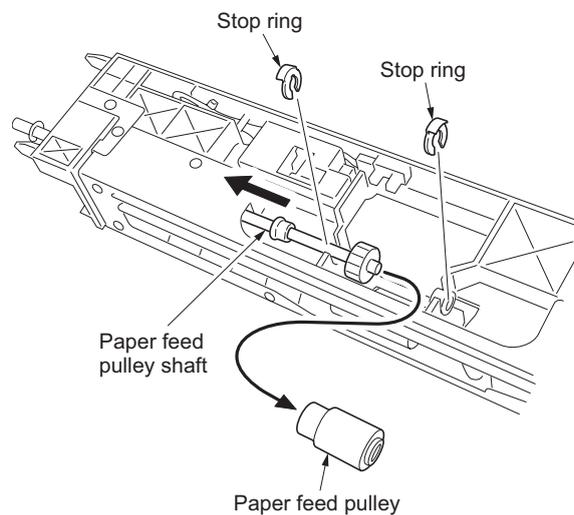
4. Remove the stopper and spring from the primary paper feed unit.
5. Raise the forwarding pulley retainer in the direction the arrow, and remove from the primary paper feed unit.

**Figure 1-5-3**

6. Remove the stop ring from the forwarding pulley retainer. Pull the paper forwarding pulley shaft and remove the forwarding pulley.

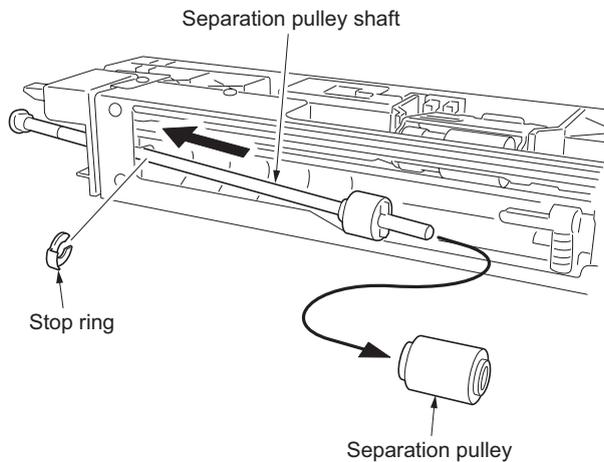
**Figure 1-5-4****Removing the paper feed pulley**

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 1-5-5**

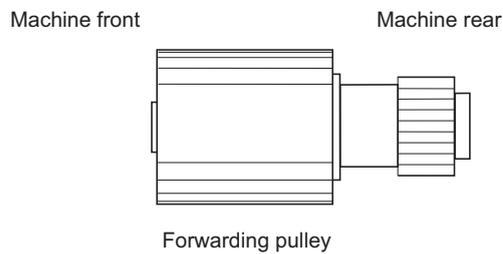
**Removing the separation pulley**

- 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 1-5-6**

- 11. Replace the forwarding, paper feed and separation pulleys.
- 12. Refit all the removed parts.  
When refitting the forwarding pulley, orient it correctly as shown in Figure 1-5-7.



**Figure 1-5-7**

**(2) Detaching and refitting PF paper size width switch 1, 2**

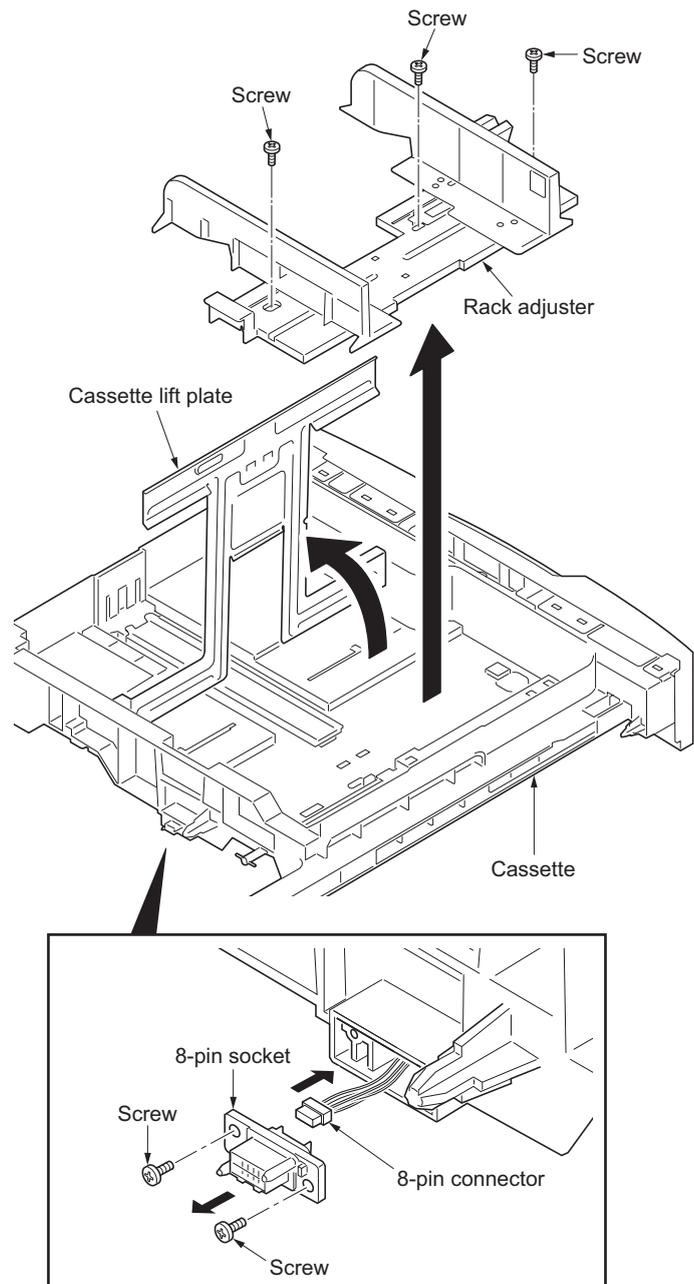
Replace PF paper size width switch 1 and 2 as follows.

**Caution:**

After replacing paper feeder paper width switch, be sure to perform (4) Adjusting the position of the rack adjuster.

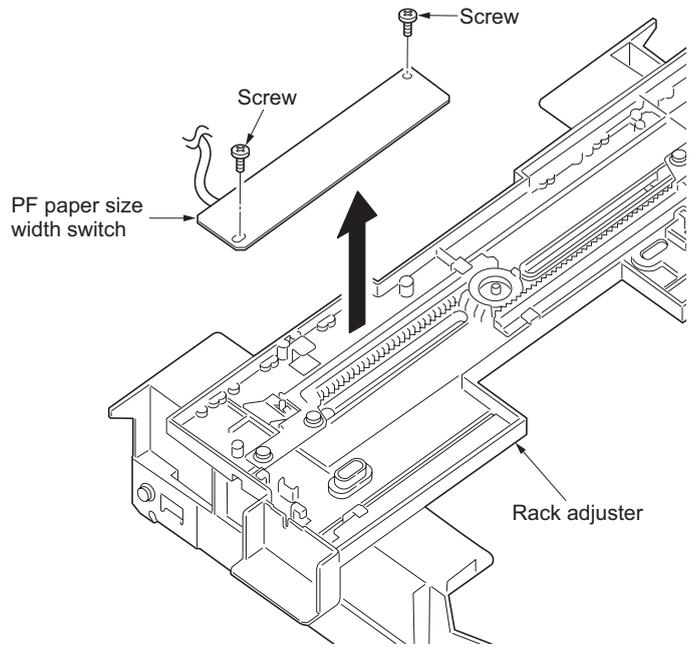
**Procedure**

1. Remove the cassette.
2. Remove two screws and 8-pin socket from the rear of the cassette.
3. Detach the 8-pin connector of the PF paper size width switch from the 8-pin socket.
4. Remove three screws holding the rack adjuster.
5. While raising the cassette lift plate in the direction of the arrow, remove the rack adjuster.



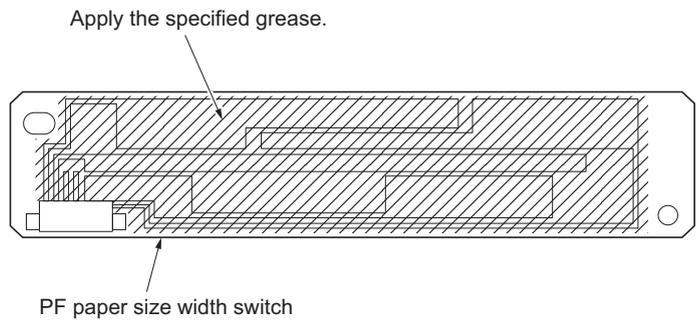
**Figure 1-5-8**

6. Remove two screws from the back of the rack adjuster and then the PF paper size width switch.



**Figure 1-5-9**

7. Apply the specified grease to the printed surface of the new PF paper size width switch (shaded area in the diagram) and fit the switch to the rack adjuster.
8. Refit all removed parts.



**Figure 1-5-10**

### (3) Detaching and refitting the PF paper conveying clutch and PF paper feed clutch 1/2

Replace PF paper conveying clutch and PF paper feed clutch 1/2 as follows.

#### Procedure

##### Removing the PF paper conveying clutch

1. Remove the primary paper feed units (see page1-5-2).
2. Remove three screws and then remove the rear cover.

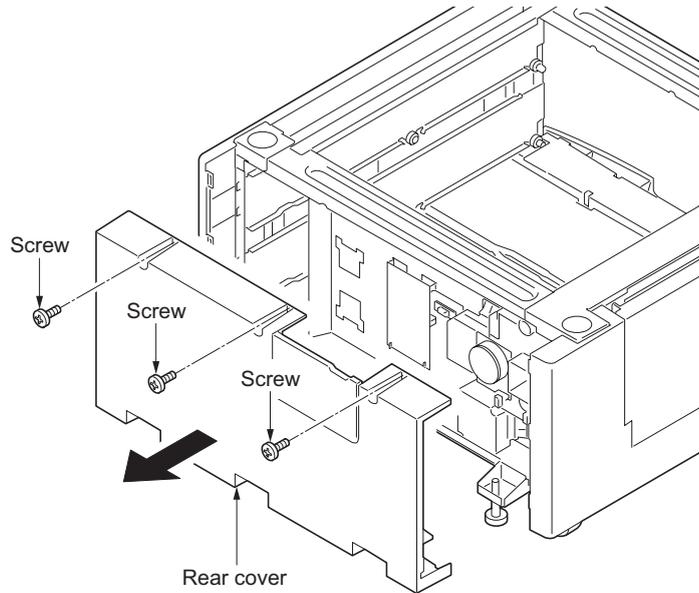


Figure 1-5-11

3. Release three wire saddles.
4. Remove the connector.
5. Remove the stop ring and then remove the PF paper conveying clutch.

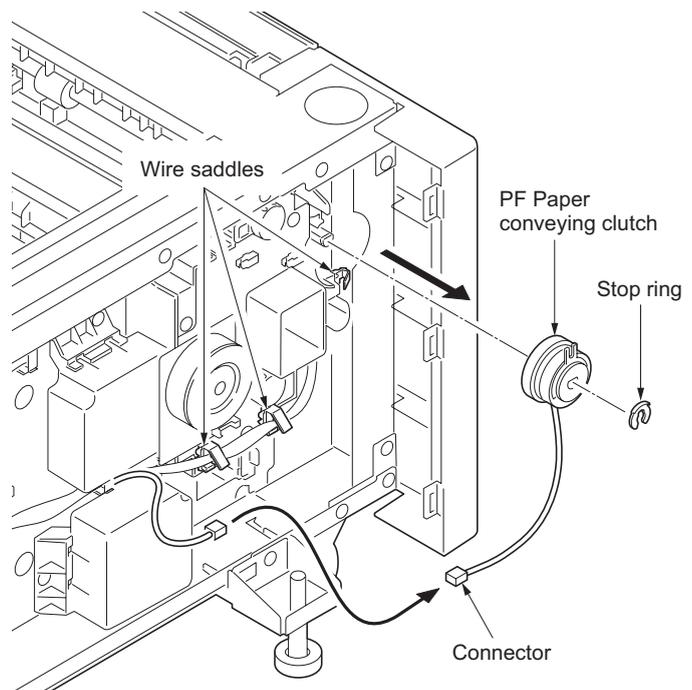
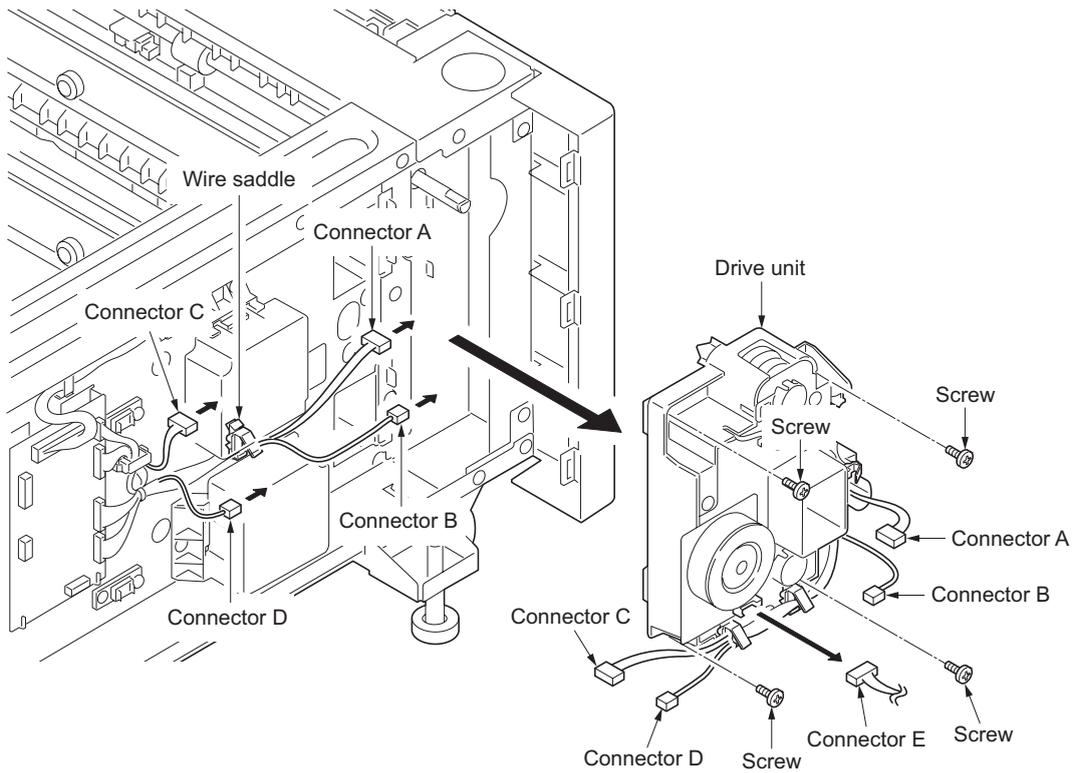


Figure 1-5-12

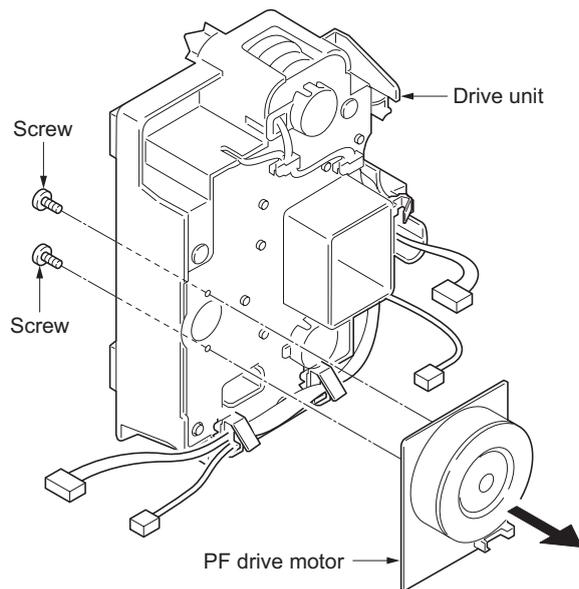
**Removing the PF paper feed clutch 1 and 2**

6. Release the wire saddle.
7. Remove the connector A, B, C, D and E.
8. Remove four screws and then remove the drive unit.



**Figure 1-5-13**

9. Remove two screws and then remove the PF drive motor from the drive unit.



**Figure 1-5-14**

10. Remove each two shaft covers, stop rings and bushes from drive unit.
11. Remove four screws and then remove the drive plate and ground plate.

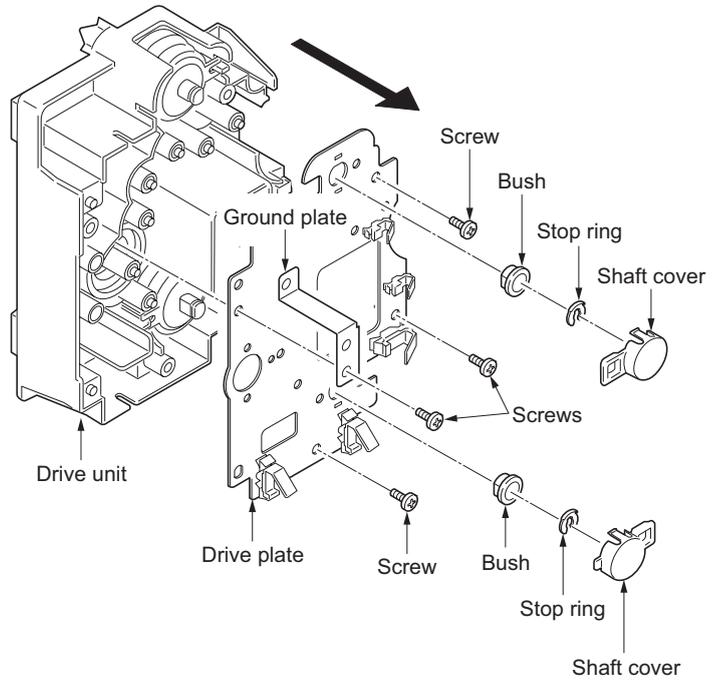


Figure 1-5-15

12. Remove the PF paper feed clutch 1 and 2.
13. Replace the PF paper conveying clutch, PF paper feed clutch 1 and 2.
14. Refit all removed parts.

**Caution:**

When fitting the clutches, be sure to refit the whirl-stops.

After fitting the drive unit, fit the primary paper feed unit.

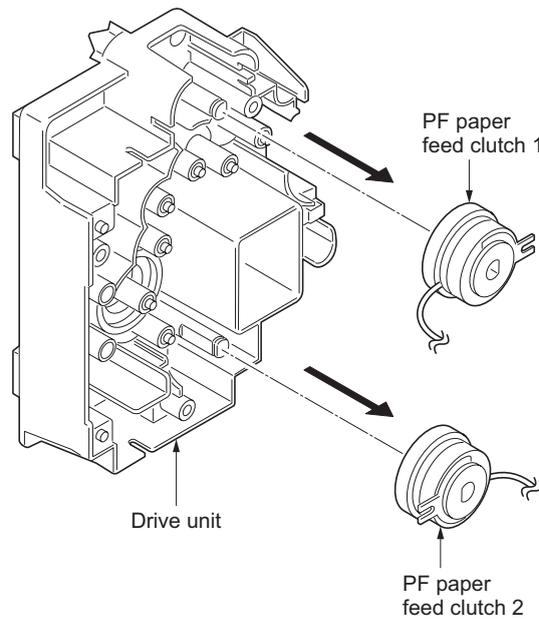
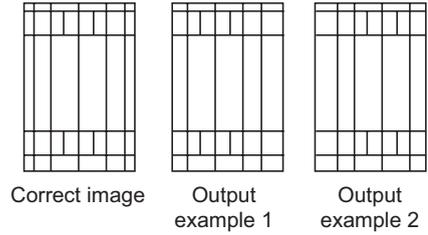
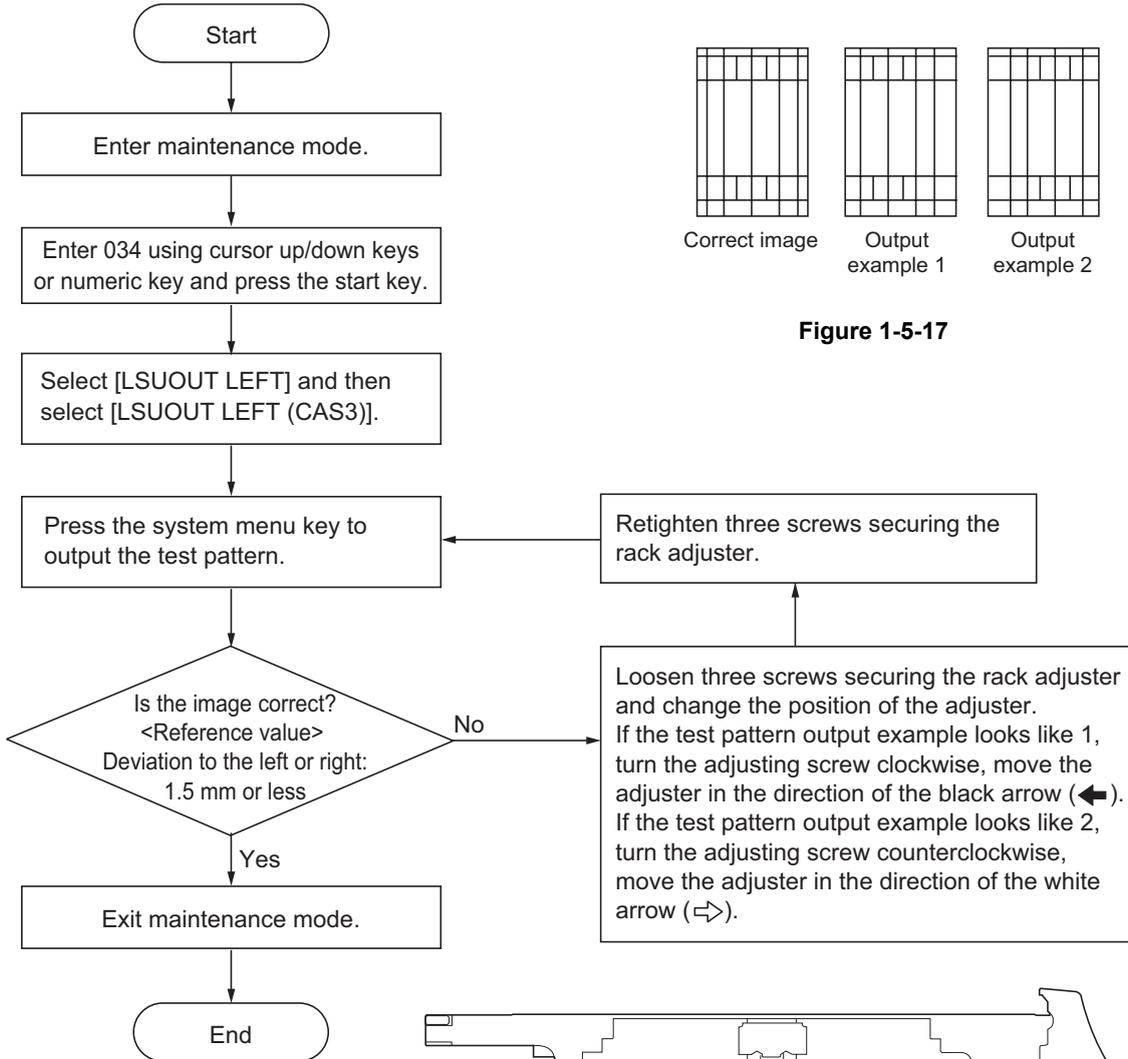


Figure 1-5-16

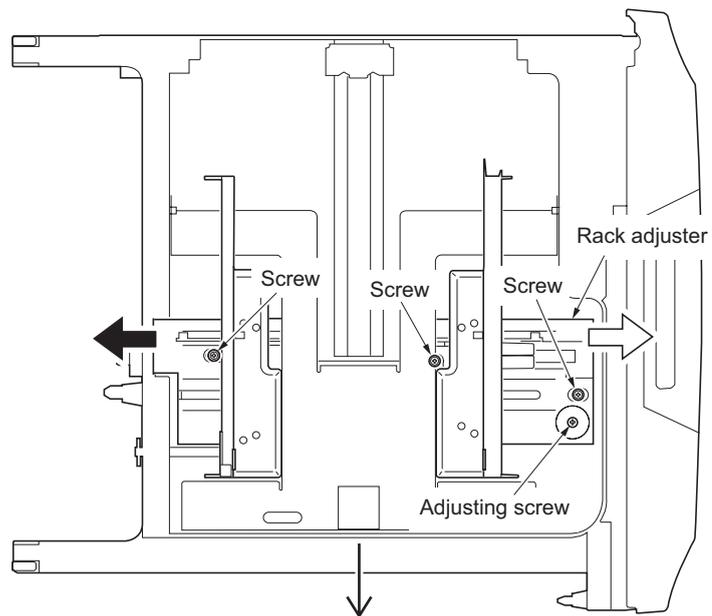
**(4) Adjusting the position of the rack adjuster**

Perform the following adjustment if there is a regular error between the center lines of the copy image and the original on the paper fed from the cassette.

**Procedure**



**Figure 1-5-17**



**Figure 1-5-18 Adjusting the position of the rack adjuster**

## 2-1-1 Mechanical construction

The paper feeder feeds paper from either of its two cassettes to the machine. When paper is fed from cassette 4 of the paper feeder, the PF paper conveying clutch (PFCCL) is operated to rotate the feed roller and pulley to carry the paper into the machine.

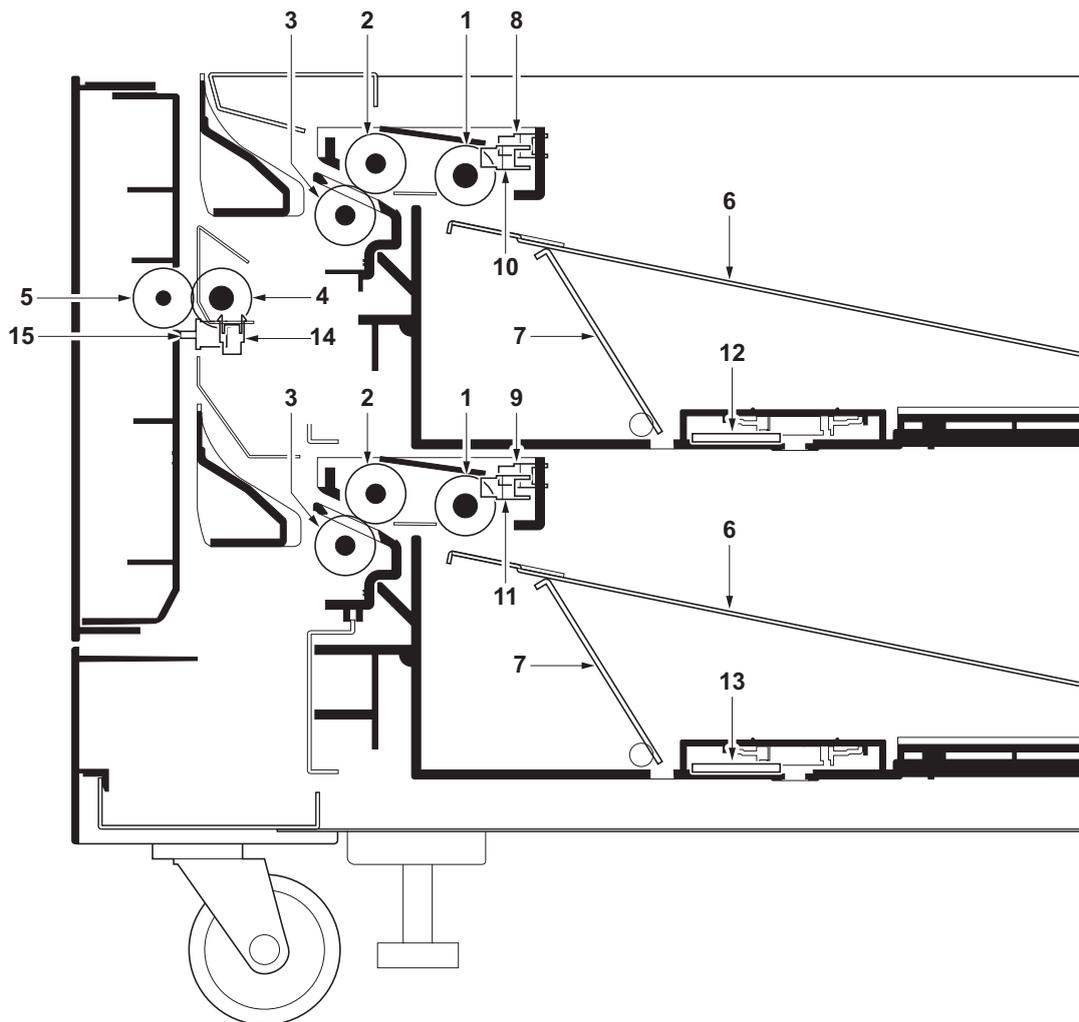


Figure 2-1-1

- |                               |   |
|-------------------------------|---|
| (1) Forwarding pulley         | (10) PF paper switch 1 (PFPSW1)             |
| (2) Paper feed pulley         | (11) PF paper switch 2 (PFPSW2)             |
| (3) Separation pulley         | (12) PF paper size width switch 1 (PFPWSW1) |
| (4) Feed roller               | (13) PF paper size width switch 2 (PFPWSW2) |
| (5) Feed pulley               | (14) PF feed switch (PFFSW)                 |
| (6) Cassette operation plate  | (15) Left cover 4 switch (LC4SW)            |
| (7) Lift operation plate      |   |
| (8) PF lift switch 1 (PFLSW1) |   |
| (9) PF lift switch 2 (PFLSW2) |   |

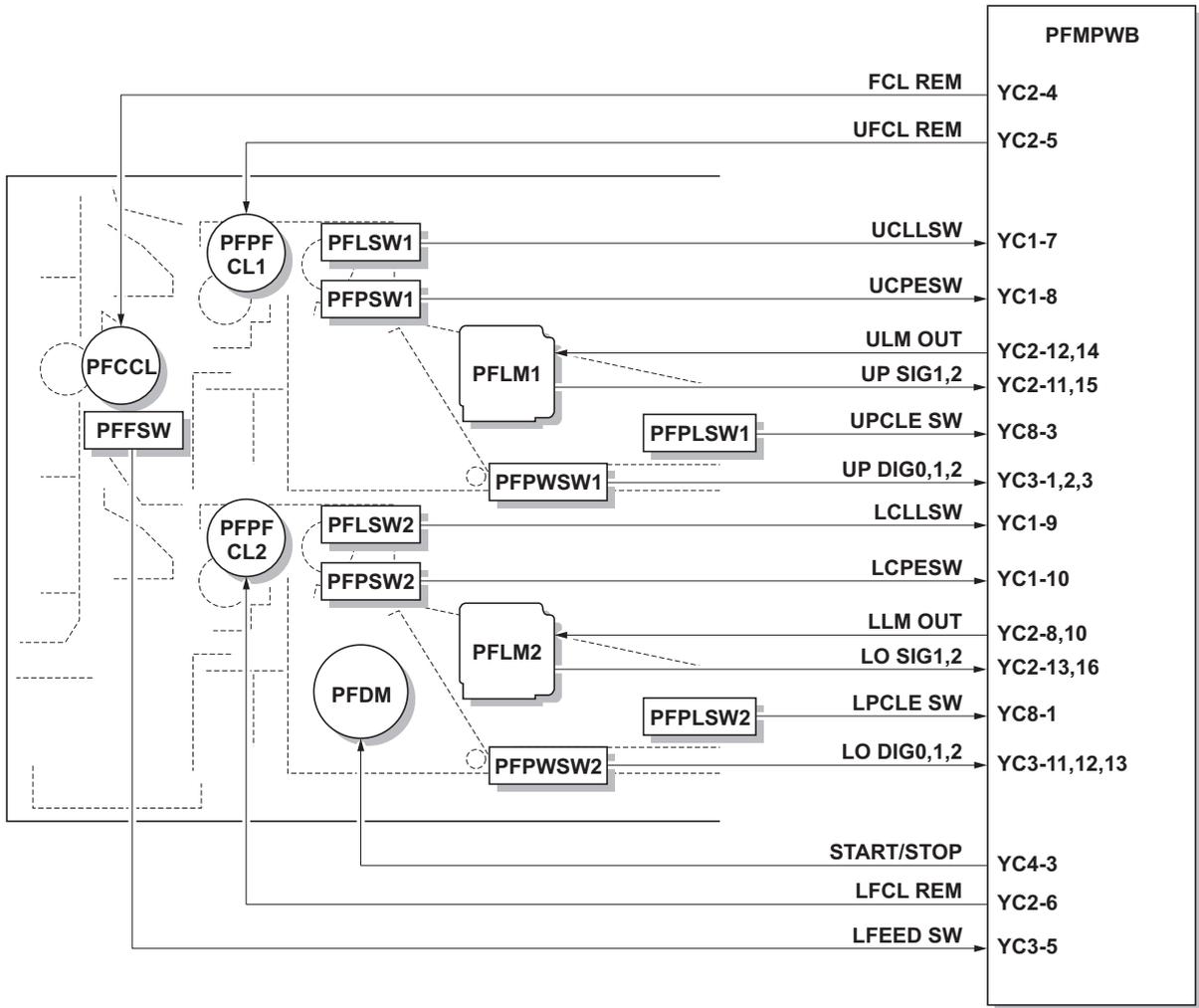
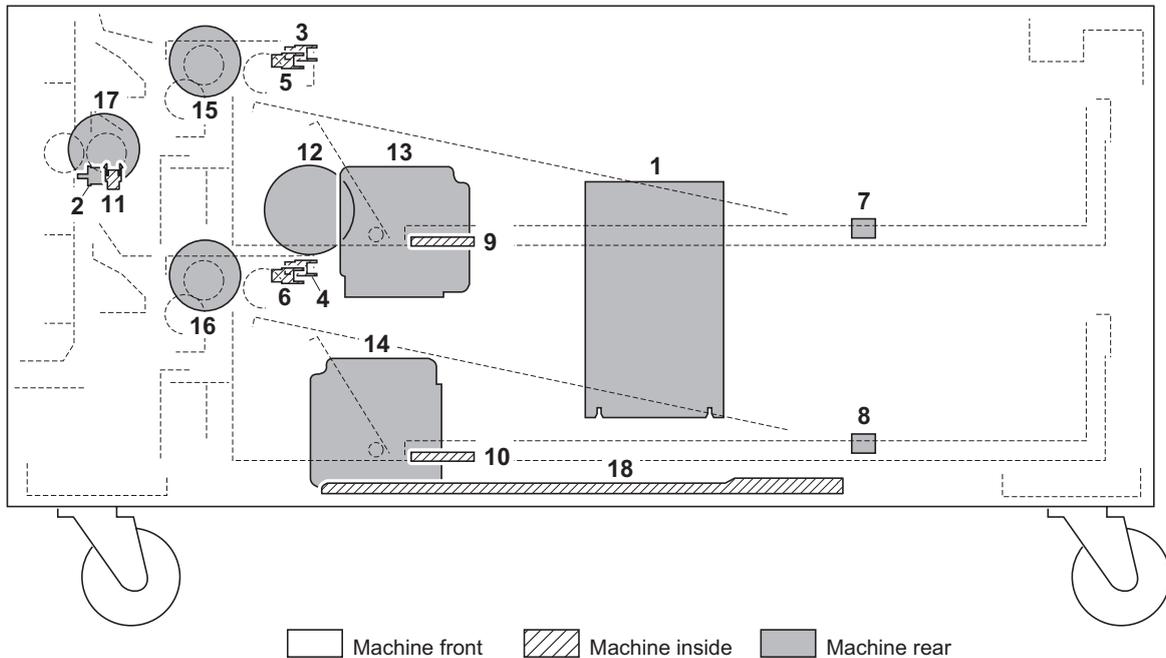


Figure 2-1-2

## 2-2-1 Electrical parts layout



**Figure 2-2-1 Layout of electrical parts**

- |  |  |
|--|--|
| 1. PF main PWB (PFMPWB) .....                    | Controls electrical parts.   |
| 2. Left cover 4 switch (LC4SW) .....             | Breaks the safety circuit when left cover 4 is opened, and resets paper jam detection. |
| 3. PF lift switch 1 (PFLSW1) .....               | Detects the cassette operation plate of cassette 3 reaching the upper limit.           |
| 4. PF lift switch 2 (PFLSW2) .....               | Detects the cassette operation plate of cassette 4 reaching the upper limit.           |
| 5. PF paper switch 1 (PFPSW1) .....              | Detects the presence of paper in cassette 3.   |
| 6. PF paper switch 2 (PFPSW2) .....              | Detects the presence of paper in cassette 4.   |
| 7. PF paper size length switch 1 (PFPLSW1) ..... | Detects the length of paper in cassette 3.   |
| 8. PF paper size length switch 2 (PFPLSW2) ..... | Detects the length of paper in cassette 4.   |
| 9. PF paper size width switch 1 (PFPWSW1) .....  | Detects the width of paper in cassette 3.  |
| 10. PF paper size width switch 2 (PFPWSW2) ..... | Detects the width of paper in cassette 4.  |
| 11. PF feed switch (PFFSW) .....                 | Controls paper feeder paper feed clutch 2.   |
| 12. PF drive motor (PFDM) .....                  | Drives the paper feeder.   |
| 13. PF lift motor 1 (PFLM1) .....                | Drives the cassette operation plate of cassette 3.                                     |
| 14. PF lift motor 2 (PFLM2) .....                | Drives the cassette operation plate of cassette 4.                                     |
| 15. PF paper feed clutch 1 (PFPFCL1) .....       | Primary paper feed from cassette 3.  |
| 16. PF paper feed clutch 2 (PFPFCL2) .....       | Primary paper feed from cassette 4.  |
| 17. PF paper conveying clutch (PFCCL) .....      | Conveys paper to the machine.  |
| 18. PF cassette heater* (PFCH) .....             | Dehumidifies paper.  |

\*Option.

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2-3-1 PF main PWB

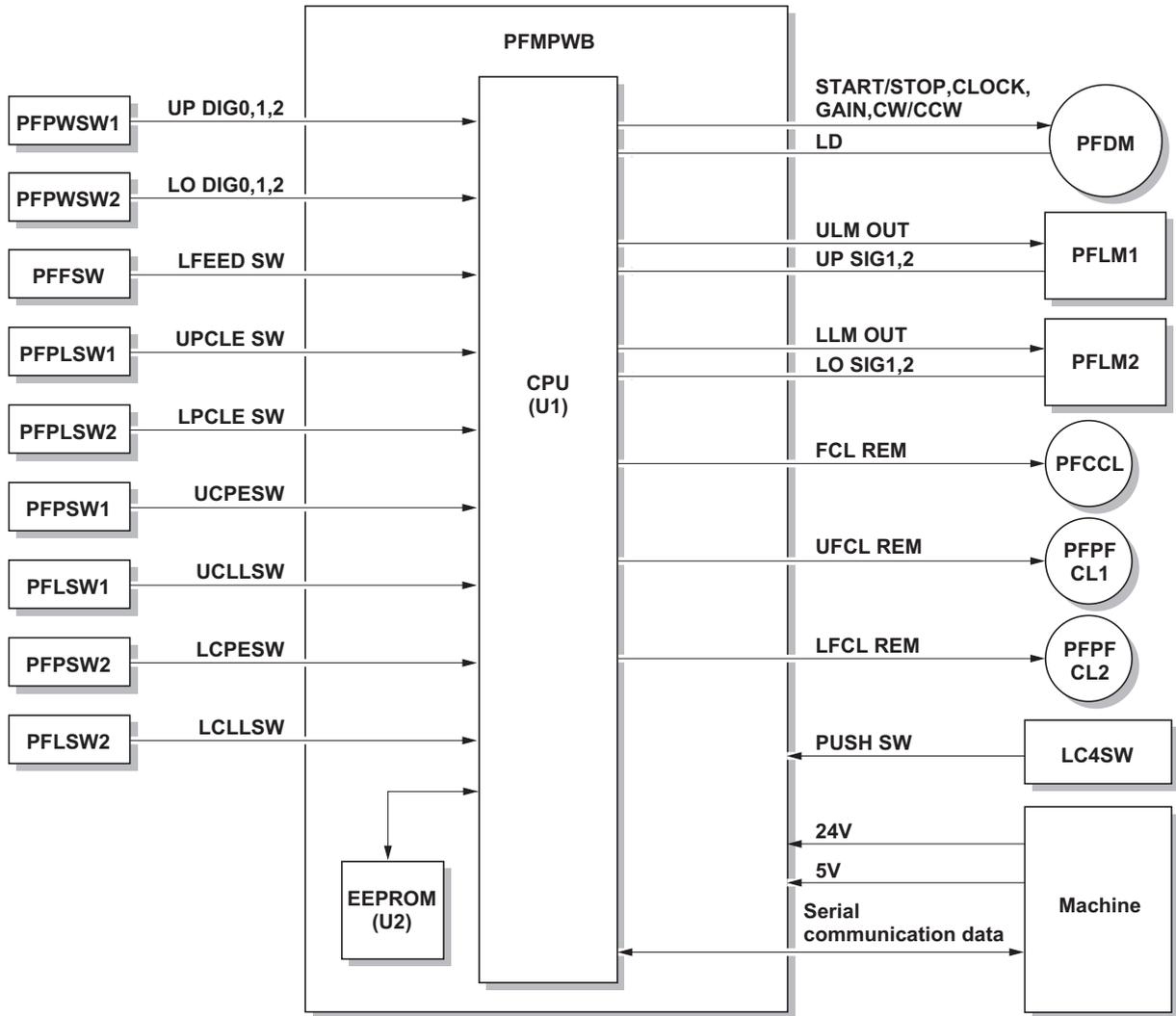


Figure 2-3-1 PF main PWB block diagram

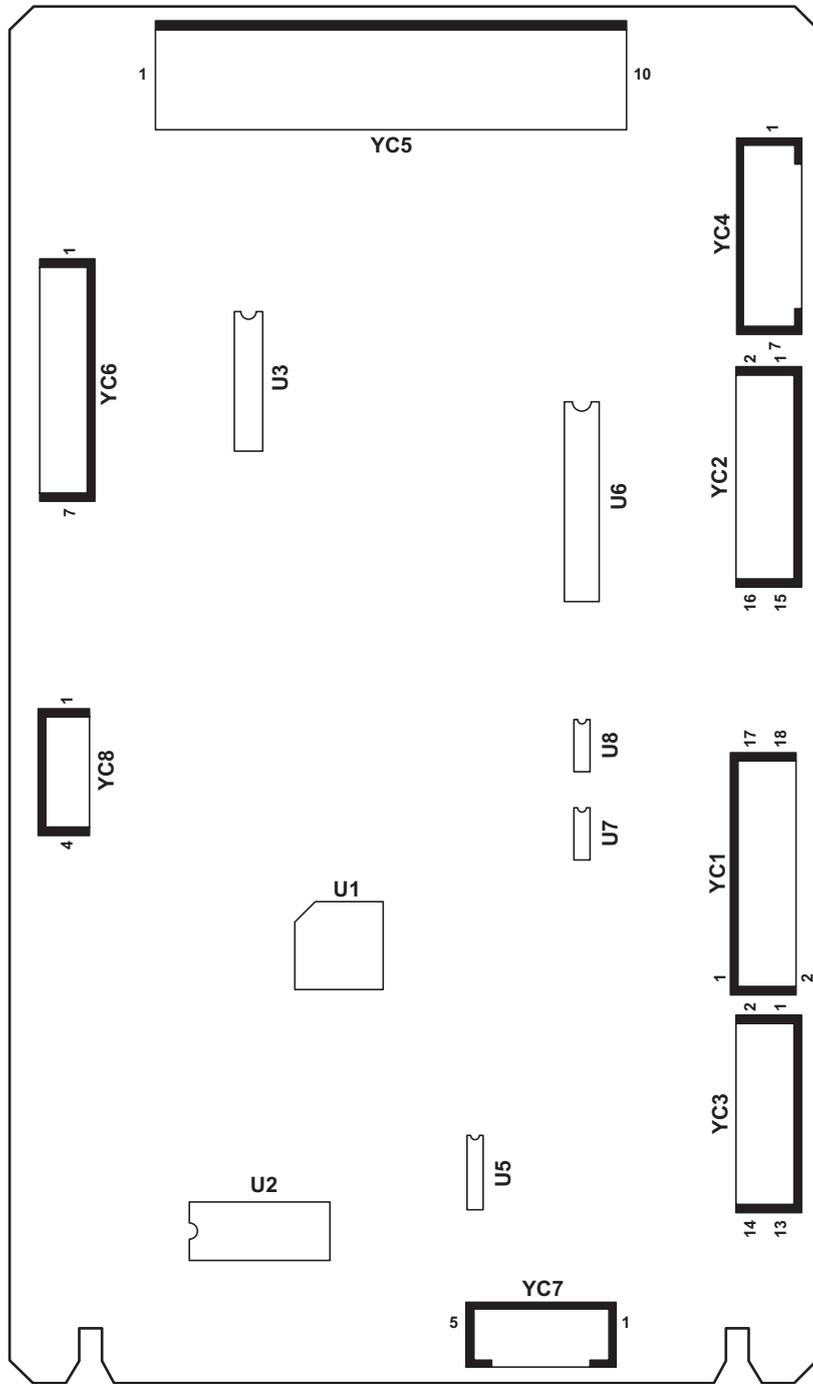


Figure 2-3-2 PF main PWB silk-screen diagram

Connector	Pin No.	Signal	I/O	Voltage	Description
YC1 Connected to the PF paper switch 1/2 and PF lift switch 1/2	1	5V	O	5 V DC	5 V DC supply to PFPSW1
	2	5V	O	5 V DC	5 V DC supply to PFLSW1
	3	5V	O	5 V DC	5 V DC supply to PFPSW2
	4	5V	O	5 V DC	5 V DC supply to PFLSW2
	5	NC	-	-	Not used
	6	NC	-	-	Not used
	7	UCLLSW	I	5/0 V DC	PFLSW1: On/Off
	8	UCPESW	I	0/5 V DC	PFPSW1: On/Off
	9	LCLLSW	I	5/0 V DC	PFLSW2: On/Off
	10	LCPEWS	I	0/5 V DC	PFPSW2: On/Off
	11	NC	-	-	Not used
	12	NC	-	-	Not used
	13	GND	-	-	Ground
	14	GND	-	-	Ground
	15	NC	-	-	Not used
	16	NC	-	-	Not used
	17	GND	-	-	Ground
	18	GND	-	-	Ground
YC2 Connected to the PF paper conveying clutch, PF paper feed clutch 1/2 and PF lift motor 1/2	1	24V	O	24 V DC	24 V DC supply to PFCCL
	2	24V	O	24 V DC	24 V DC supply to PFPFCL1
	3	24V	O	24 V DC	24 V DC supply to PFPFCL2
	4	FCL REM	O	0/24 V DC	PFCCL: On/Off
	5	UFCL REM	O	0/24 V DC	PFPFCL1: On/Off
	6	LFCL REM	O	0/24 V DC	PFPFCL2: On/Off
	7	GND	-	-	Ground
	8	LLM OUT SOR	O	0/24 V DC	PFLM2: On/Off
	9	GND	-	-	Ground
	10	LLM OUT SINK	O	0/24 V DC	PFLM2: On/Off
	11	UP SIG1	I	0/5 V DC	Lift motor 1 paper gauge signal (1)
	12	ULM OUT SOR	O	0/24 V DC	PFLM1: On/Off
	13	LO SIG1	I	0/5 V DC	Lift motor 2 paper gauge signal (1)
	14	ULM OUT SINK	O	0/24 V DC	PFLM1: On/Off
	15	UP SIG2	I	0/5 V DC	Lift motor 1 paper gauge signal (2)
	16	LO SIG2	I	0/5 V DC	Lift motor 2 paper gauge signal (2)

Connector	Pin No.	Signal	I/O	Voltage	Description
YC3 Connected to the PF paper size width switch 1/2, PF feed switch and left cover 4 switch	1	UP DIG0	I	0/5 V DC	PFPWSW1: On/Off
	2	UP DIG1	I	0/5 V DC	PFPWSW1: On/Off
	3	UP DIG2	I	0/5 V DC	PFPWSW1: On/Off
	4	GND	-	-	Ground
	5	LFEED SW	I	0/5 V DC	PFFSW: On/Off
	6	GND	-	-	Ground
	7	5V	O	5 V DC	5 V DC supply to PFFSW
	8	GND	-	-	Ground
	9	PUSH SW	I	0/5 V DC	LC4SW: On/Off
	10	NC	-	-	Not used
	11	LO DIG0	I	0/5 V DC	PFPWSW2: On/Off
	12	LO DIG1	I	0/5 V DC	PFPWSW2: On/Off
	13	LO DIG2	I	0/5 V DC	PFPWSW2: On/Off
	14	GND	-	-	Ground
YC4 Connected to the PF drive motor	1	24V	O	24 V DC	24 V DC supply to PFDM
	2	GND	-	-	Ground
	3	START/STOP	O	0/5 V DC	PFDM start/stop signal
	4	CLOCK	O	0/5 V DC (pulse)	PFDM clock signal
	5	GAIN	O	0/5 V DC	PFDM gain signal
	6	LD	O	0/5 V DC	PFDM lock signal
	7	CW/CCW	O	0/5 V DC	PFDM rotation switch signal
YC5 Connected to the machine	1	GND	-	-	Ground
	2	5V	I	5 V DC	5 V DC supply to paper feeder
	3	UFEED SW	I	0/5 V DC	FSW3: On/Off
	4	READY	O	0/5 V DC	Paper feeder ready signal
	5	SDI	I	0/5 V DC (pulse)	Paper feeder serial communication data signal
	6	SDO	O	0/5 V DC (pulse)	Paper feeder serial communication data signal
	7	SCLK	I	0/5 V DC (pulse)	Paper feeder clock signal
	8	SEL	I	0/5 V DC	Paper feeder select signal
	9	24V	I	24 V DC	24 V DC supply to paper feeder
	10	GND	-	-	Ground
YC8 Connected to the PF paper size length switch 1/2	1	LOCLE SW	I	0/5 V DC	PFPLSW2: On/Off
	2	GND	-	-	Ground
	3	UPCLE SW	I	0/5 V DC	PFPLSW1: On/Off
	4	GND	-	-	Ground

## List of maintenance parts

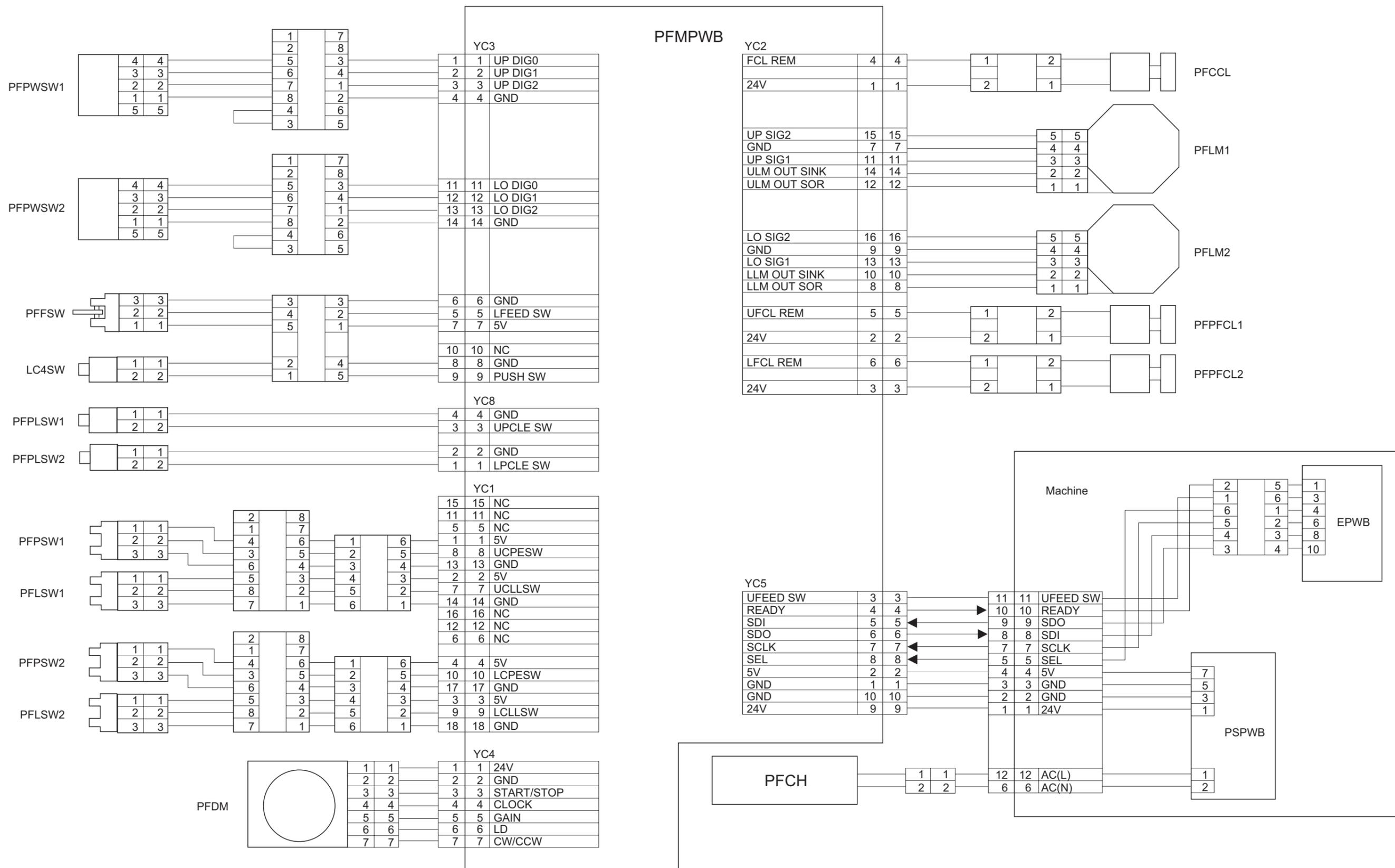
Maintenance part name		Part No.	Alternative part No.
Name used in service manual	Name used in parts list		
Feed roller	PARTS ROLLER FEED	303LM94020	3LM94020
Feed pulley	PULLEY FEED	302BG06162	2BG06162
Paper feed pulley	PULLEY,PAPER FEED	2AR07220	-
Separation pulley	PULLEY,SEPARATION	2AR07230	-
Forwarding pulley	PULLEY FEED A	2BJ06010	-
PF paper conveying clutch	PARTS CLUTCH FEED 50	302H794240	2H794240
PF paper feed clutch 1	PARTS CLUTCH FEED 50	302H794240	2H794240
PF paper feed clutch 2	PARTS CLUTCH FEED 50	302H794240	2H794240

## Periodic maintenance procedures

Section	Maintenance part/location	User call	Periodic maintenance	Points and cautions	Page
Paper feed section	Feed roller	-	Clean	Clean with alcohol or a dry cloth.	
	Feed pulley	-	Clean	Clean with alcohol or a dry cloth.	
	Paper feed pulley	Check Clean	Check Replace	Clean with alcohol or a dry cloth. Replace after feeding 150,000 sheets.	P.1-5-2
	Separation pulley	Check Clean	Check Replace	Clean with alcohol or a dry cloth. Replace after feeding 150,000 sheets.	P.1-5-2
	Forwarding pulley	Check Clean	Check Replace	Clean with alcohol or a dry cloth. Replace after feeding 150,000 sheets.	P.1-5-2
	PF paper conveying clutch	Check Replace	Check	Check state of paper feed.	
	PF paper feed clutch 1	Check Replace	Check	Check state of paper feed.	
	PF paper feed clutch 2	Check Replace	Check	Check state of paper feed.	

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Wiring diagram



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