



PF-670

SERVICE MANUAL

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Rev. 1

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	October 31, 2007	1-1-1, 1-2-4	-

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Safety precautions

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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CONTENTS

1-1 Specifications	
1-1-1 Specifications	1-1-1
1-1-2 Parts names	1-1-2
1-1-3 Machine cross section	1-1-3
1-2 Installation	
1-2-1 Installation environment	1-2-1
1-2-2 Unpacking	1-2-2
1-2-3 Installing the cassette heater (option)	1-2-4
1-3 Maintenance Mode	
1-3-1 Maintenance mode (models with color touch panel).....	1-3-1
(1) Executing a maintenance item	1-3-1
(2) Contents of maintenance mode items	1-3-2
1-3-2 Maintenance mode (models with monochrome touch panel)	1-3-6
(1) Executing a maintenance item	1-3-6
(2) Contents of maintenance mode items	1-3-7
1-4 Troubleshooting	
1-4-1 Paper misfeed detection	1-4-1
(1) Paper misfeed indication	1-4-1
(2) Paper misfeed detection conditions	1-4-1
(3) Paper misfeeds	1-4-3
1-4-2 Self-diagnosis	1-4-5
(1) Self-diagnostic function	1-4-5
(2) Self diagnostic codes	1-4-5
1-4-3 Electric problems	1-4-7
1-4-4 Mechanical problems	1-4-9
1-5 Assembly and Disassembly	
1-5-1 Precautions for assembly and disassembly	1-5-1
(1) Precautions	1-5-1
1-5-2 Paper feed section	1-5-2
(1) Detaching and refitting the forwarding, paper feed and separation pulleys	1-5-2
(2) Replacing paper feeder paper width switch 1, 2	1-5-5
(3) Replacing paper feeder paper feed clutch 1, 2	1-5-7
(4) Adjusting the position of the rack adjuster.....	1-5-9
2-1 Mechanical construction	
2-1-1 Mechanical construction	2-1-1
2-2 Electrical Parts Layout	
2-2-1 Electrical parts layout.....	2-2-1
2-3 Operation of the PWBs	
2-3-1 Paper feeder main PWB	2-3-1
2-4 Appendixes	
List of maintenance parts	2-4-1
Periodic maintenance procedures	2-4-1
Wiring diagram.....	2-4-2

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1-1-2 Parts names

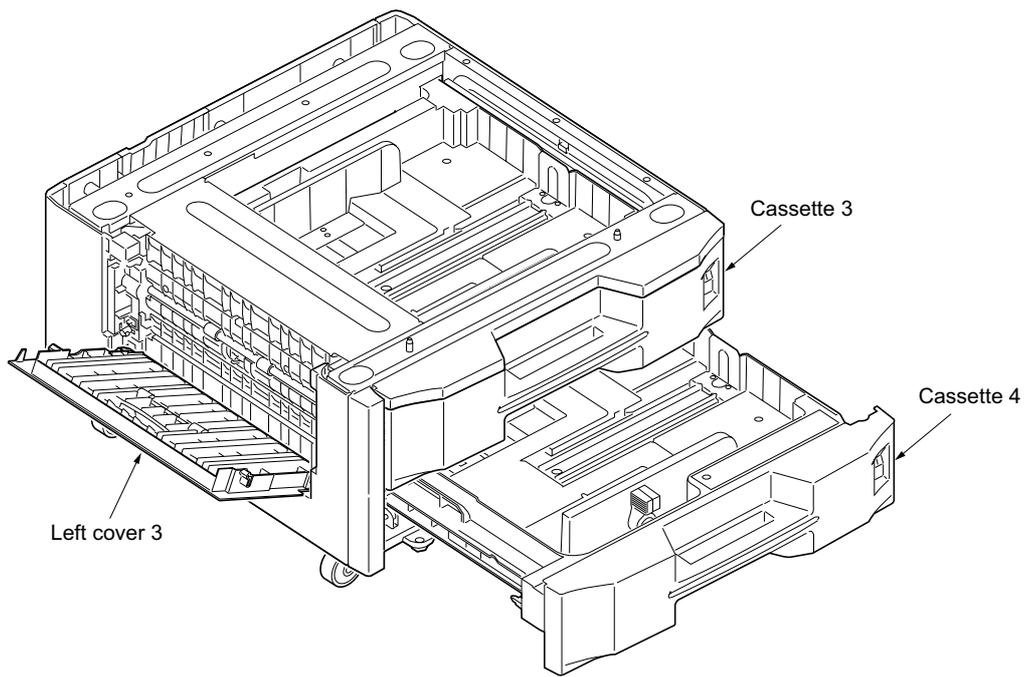


Figure 1-1-2

1-1-3 Machine cross section

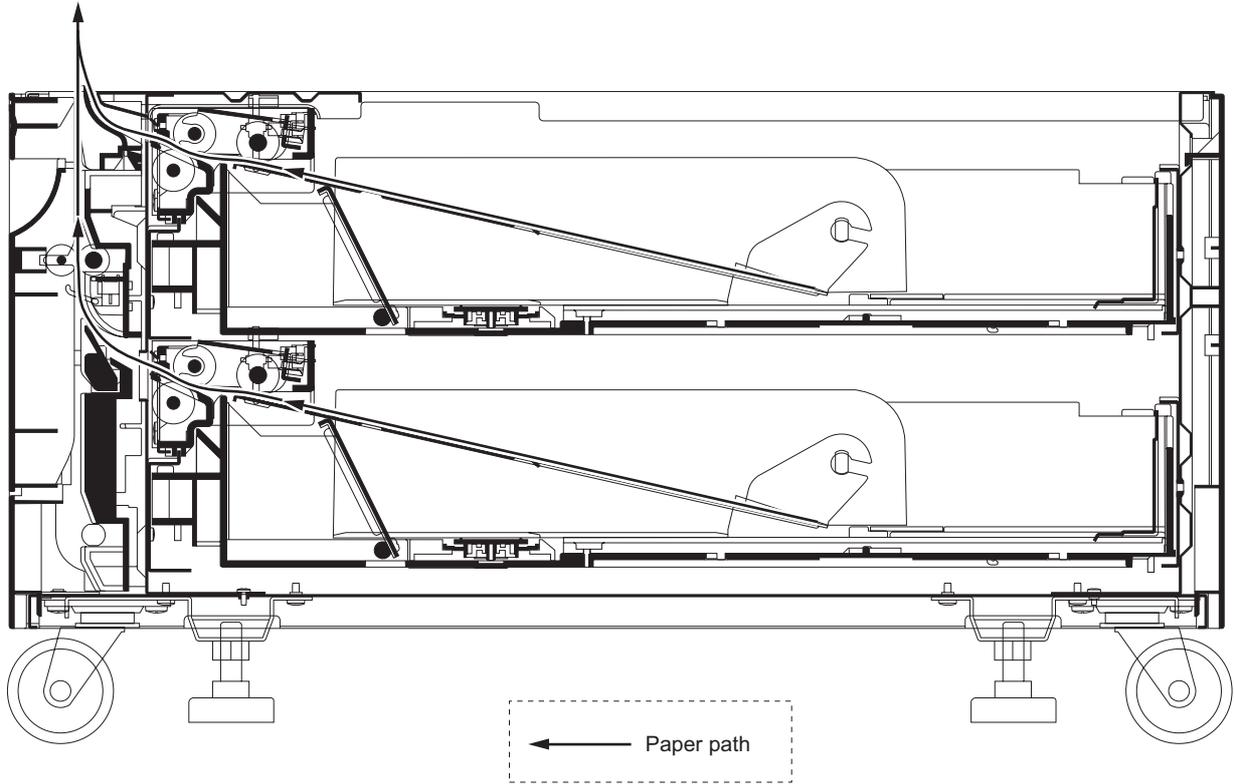


Figure 1-1-3 Machine cross section

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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 photo-conductor will not be exposed to direct sunlight or other strong light when removing paper jams.

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

Avoid dust and vibration.

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

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

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

Select a room with good ventilation.

1-2-2 Unpacking

Unpacking.

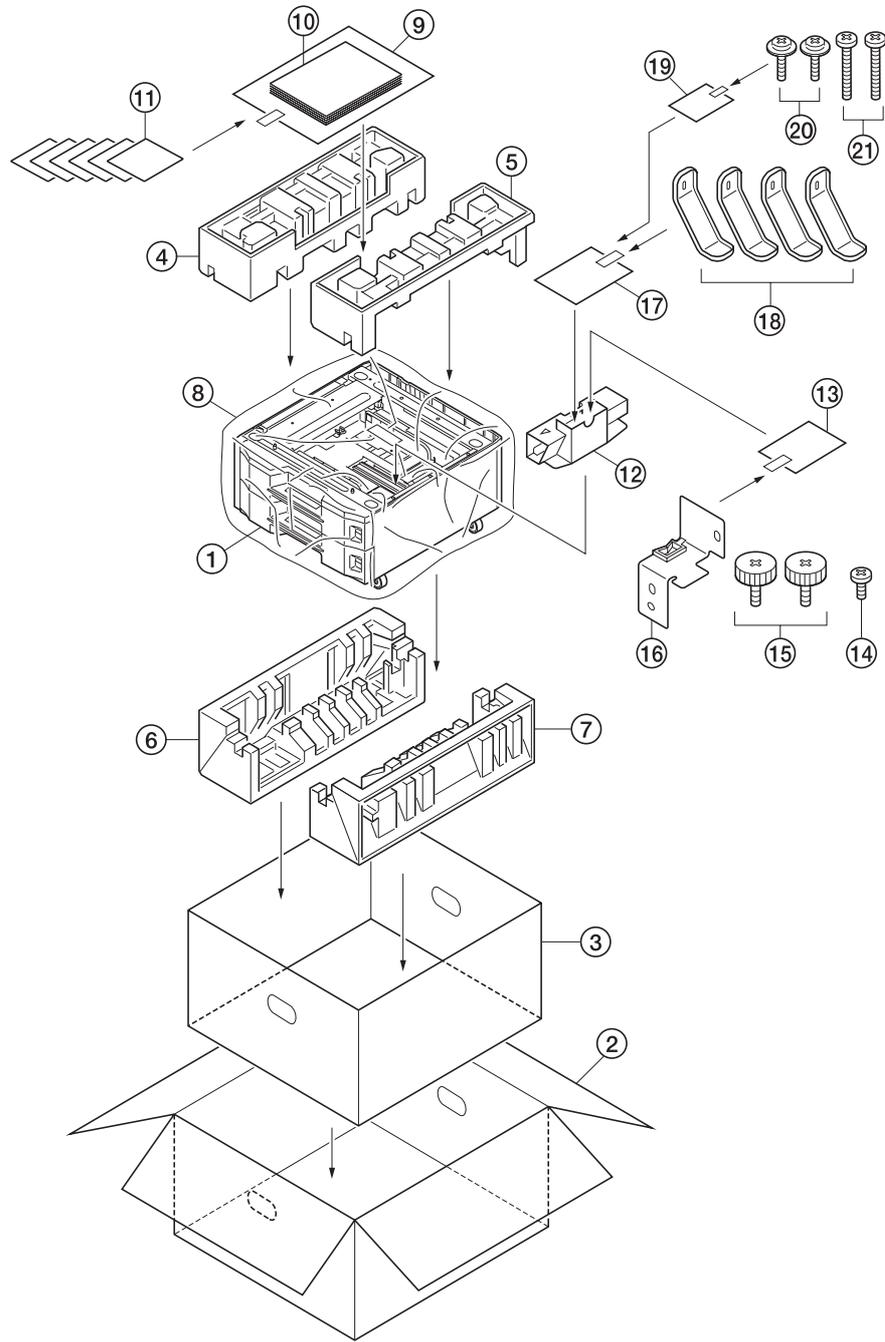


Figure 1-2-1 Unpacking

- | | | |
|---------------------|------------------------|--------------------|
| 1. Paper feeder | 8. Plastic sheet | 15. Pins |
| 2. Outer case | 9. Plastic bag | 16. Stays |
| 3. Inner case | 10. Installation guide | 17. Plastic bag |
| 4. Upper left pad | 11. Paper sheet | 18. Retainer |
| 5. Upper right pad | 12. Accessory case | 19. Plastic bag |
| 6. Bottom left pad | 13. Plastic bag | 20. M4 x 10 screws |
| 7. Bottom right pad | 14. M3 x 6 screw | 21. M4 x 20 screws |

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

Remove the tapes.

1. Remove two tapes.

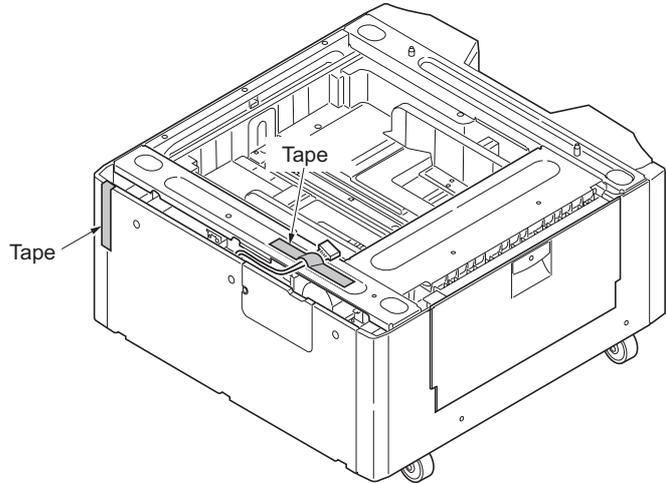


Figure 1-2-2

Release of cassette lift plate.

1. Pull cassette 3 and 4 out. Remove the lift plate stopper from each cassette and attach it to the storage location. When moving the machine, attach the lift plate stopper in original position.

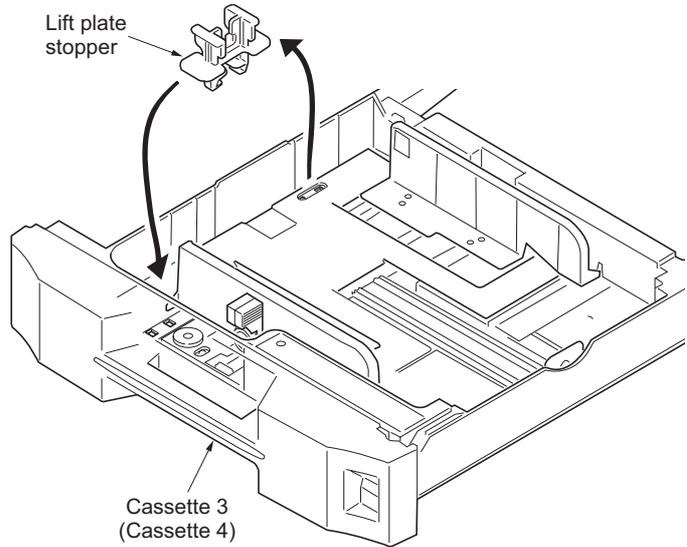


Figure 1-2-3

2. Gently push cassette 3 and 4 back in.

Completion of the unpacking.

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

Installing the cassette heater requires the following component:

Cassette heater (P/N 303J494040): for 220 to 240 V specifications only

Cassette heater (P/N 303J494030): for 120 V specifications only

Two (2) M4 x 8 S tight screws (P/N B1A54080)

Procedure

1. Remove cassette 3 and 4.
2. Remove the three screws holding the paper feeder rear cover and then the cover.
3. Fasten the cassette heater cable to the wire saddle.
4. Pass the cassette heater cable to the machine rear through the cable hole in the machine right.
5. Attach the cassette heater using the two M4 x 8 S tight screws.

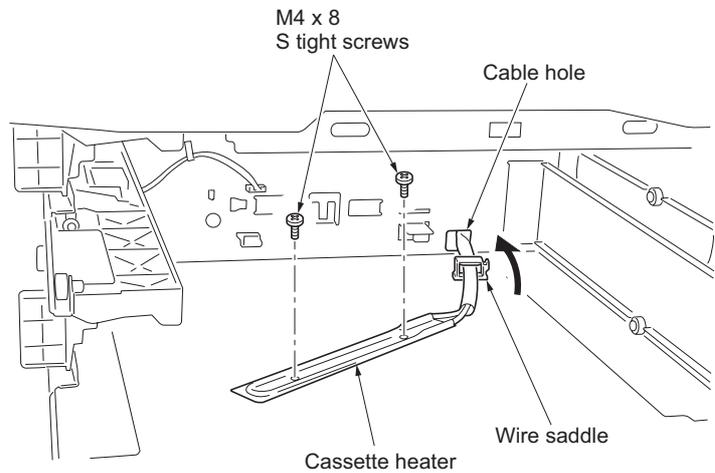


Figure 1-2-4

6. Release the wire of paper feeder from the wire saddle.
7. Remove the connector holder from the wire of the paper feeder.

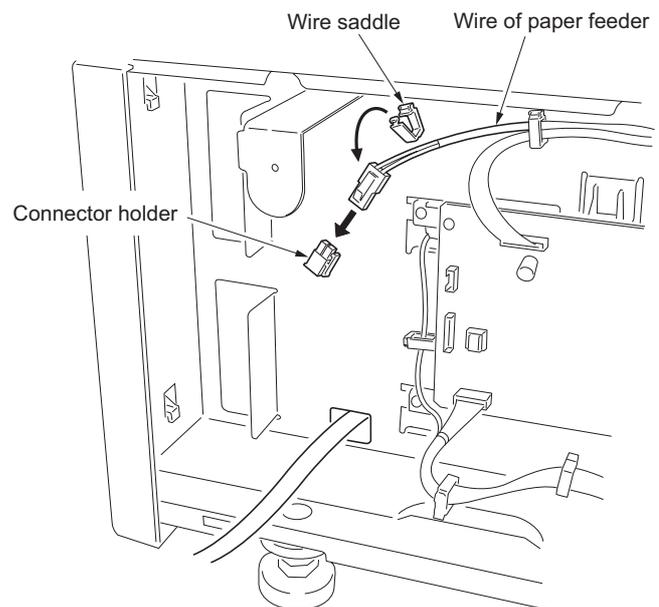


Figure 1-2-5

8. Insert the connector of cassette heater cable into the wire of paper feeder.

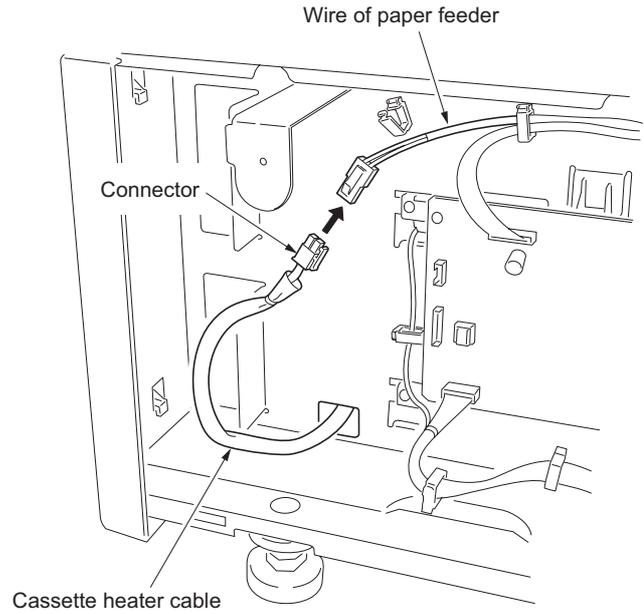


Figure 1-2-6

9. Fix the cassette heater cable on the two wire saddles.
The wire saddle shown above must be affixed at the narrowest part of the connector.
10. Refit the paper feeder rear cover.
11. Refit cassette 3 and 4.

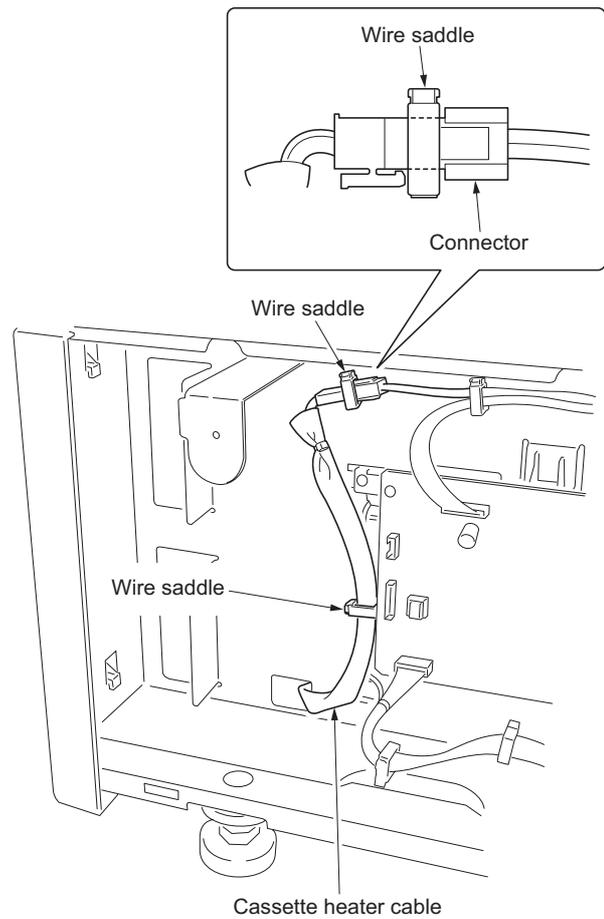


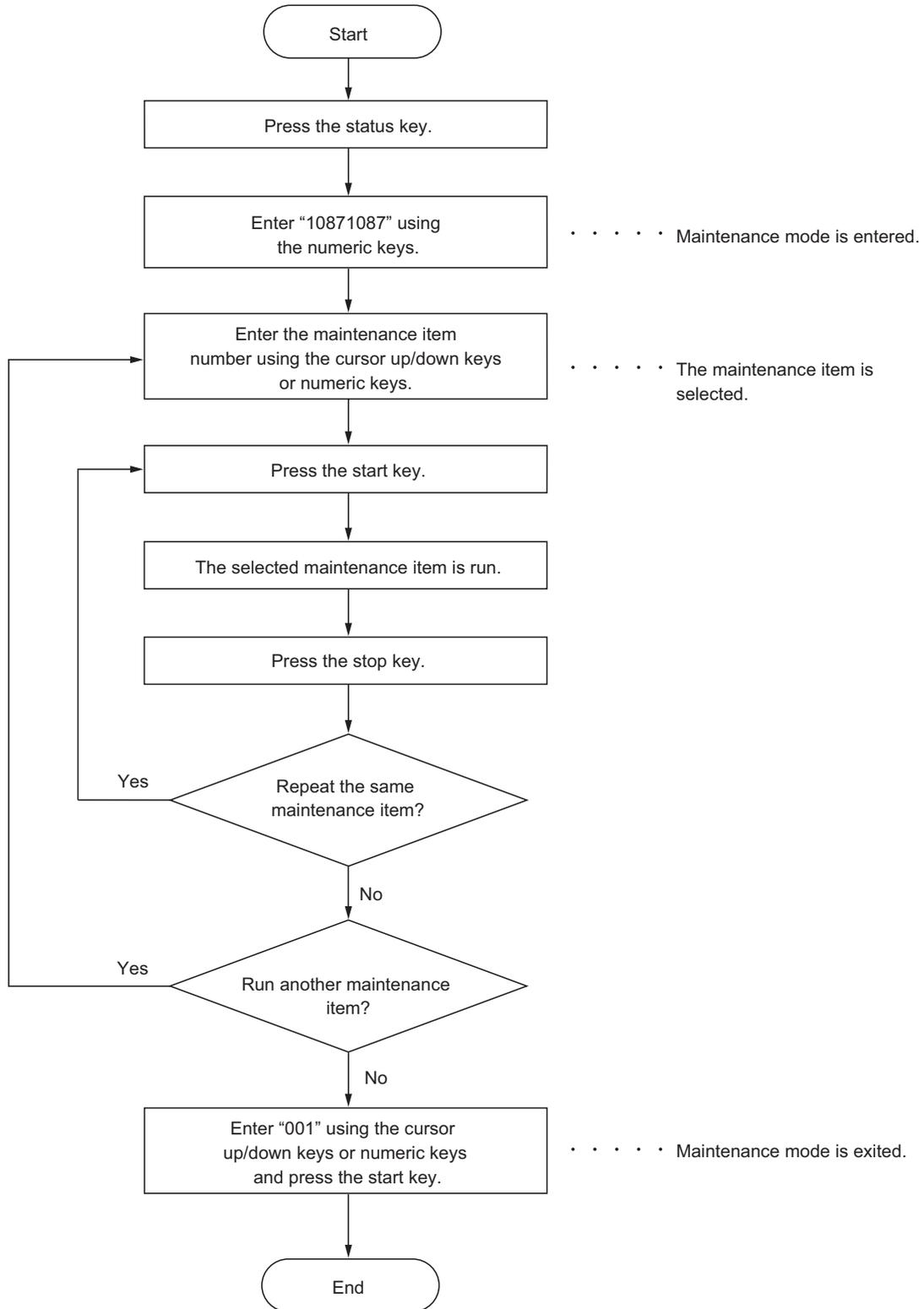
Figure 1-2-7

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1-3-1 Maintenance mode (models with color touch panel)

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

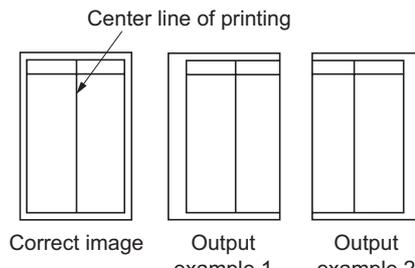
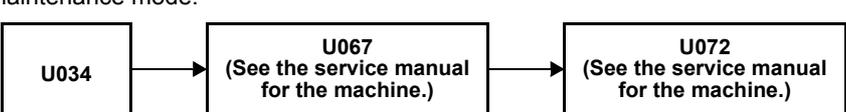
(1) Executing a maintenance item



(2) Contents of maintenance mode items

Maintenance item No.	Description																																				
U019	<p>Displaying the ROM version</p> <p>Description Displays the part number of the ROM fitted to each PWB.</p> <p>Purpose To check the part number or to decide, if the newest version of ROM is installed.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. The ROM version are displayed. 2. Change the screen using the cursor up/down keys. <table border="1" data-bbox="331 555 1398 1301"> <thead> <tr> <th data-bbox="339 564 715 595">Display</th> <th data-bbox="715 564 1398 595">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="339 595 715 627">MAIN</td> <td data-bbox="715 595 1398 627">Main PWB ROM IC</td> </tr> <tr> <td data-bbox="339 627 715 658">MMI</td> <td data-bbox="715 627 1398 658">Operation PWB ROM IC</td> </tr> <tr> <td data-bbox="339 658 715 689">ENGINE</td> <td data-bbox="715 658 1398 689">Engine PWB ROM IC</td> </tr> <tr> <td data-bbox="339 689 715 721">ENGINE BOOT</td> <td data-bbox="715 689 1398 721">Engine PWB booting</td> </tr> <tr> <td data-bbox="339 721 715 752">OPTION LANGUAGE</td> <td data-bbox="715 721 1398 752">Optional language ROM IC</td> </tr> <tr> <td data-bbox="339 752 715 784">DICTIONARY</td> <td data-bbox="715 752 1398 784">-</td> </tr> <tr> <td data-bbox="339 784 715 815">DP</td> <td data-bbox="715 784 1398 815">Optional DP main PWB ROM IC</td> </tr> <tr> <td data-bbox="339 815 715 846">OPTION CASSETTE</td> <td data-bbox="715 815 1398 846">Paper feeder main PWB ROM IC</td> </tr> <tr> <td data-bbox="339 846 715 878">INNER DF</td> <td data-bbox="715 846 1398 878">Optional built-in finisher main PWB ROM IC</td> </tr> <tr> <td data-bbox="339 878 715 909">SIMPLE DF MAIN</td> <td data-bbox="715 878 1398 909">Optional document sheet finisher main PWB ROM IC</td> </tr> <tr> <td data-bbox="339 909 715 940">ENGINE POWER</td> <td data-bbox="715 909 1398 940">Engine power CPU</td> </tr> <tr> <td data-bbox="339 940 715 972">FAX BOOT1</td> <td data-bbox="715 940 1398 972">Optional fax control PWB booting (port 1)</td> </tr> <tr> <td data-bbox="339 972 715 1003">FAX APL1</td> <td data-bbox="715 972 1398 1003">Optional fax control PWB APL (port 1)</td> </tr> <tr> <td data-bbox="339 1003 715 1034">FAX IPL1</td> <td data-bbox="715 1003 1398 1034">Optional fax control PWB IPL (port 1)</td> </tr> <tr> <td data-bbox="339 1034 715 1066">FAX BOOT2</td> <td data-bbox="715 1034 1398 1066">Fax control PWB booting (port 2: optional dual FAX)</td> </tr> <tr> <td data-bbox="339 1066 715 1097">FAX APL2</td> <td data-bbox="715 1066 1398 1097">Fax control PWB APL (port 2: optional dual FAX)</td> </tr> <tr> <td data-bbox="339 1097 715 1128">FAX IPL2</td> <td data-bbox="715 1097 1398 1128">Fax control PWB IPL (port 2: optional dual FAX)</td> </tr> </tbody> </table> <p>Completion Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	MAIN	Main PWB ROM IC	MMI	Operation PWB ROM IC	ENGINE	Engine PWB ROM IC	ENGINE BOOT	Engine PWB booting	OPTION LANGUAGE	Optional language ROM IC	DICTIONARY	-	DP	Optional DP main PWB ROM IC	OPTION CASSETTE	Paper feeder main PWB ROM IC	INNER DF	Optional built-in finisher main PWB ROM IC	SIMPLE DF MAIN	Optional document sheet finisher main PWB ROM IC	ENGINE POWER	Engine power CPU	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																																						
<p>U034</p>	<p>Adjusting the print start timing</p> <p>Description Adjusts the leading edge registration or center line.</p> <p>Purpose 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>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Select the item to be adjusted. The setting screen for the selected item is displayed. <table border="1" data-bbox="331 533 1398 701"> <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 END</td> <td>Trailing edge registration adjustment</td> </tr> </tbody> </table> <p>Adjustment: Leading edge registration adjustment</p> <ol style="list-style-type: none"> 1. Select the item to be adjusted. <table border="1" data-bbox="331 801 1398 1043"> <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>TOP</td> <td>Adjustment of reference value</td> <td>0 to 500</td> <td>120</td> <td>0.042 mm</td> </tr> <tr> <td>MP TRAY</td> <td>Paper feed from MP tray*</td> <td>-250 to 250</td> <td>0</td> <td>0.042 mm</td> </tr> <tr> <td>CASSETTE</td> <td>Paper feed from cassette*</td> <td>-250 to 250</td> <td>0</td> <td>0.042 mm</td> </tr> <tr> <td>DUPLEX</td> <td>Duplex mode (second side)*</td> <td>-250 to 250</td> <td>0</td> <td>0.042 mm</td> </tr> </tbody> </table> <p>*: Setting the difference value from reference value</p> <ol style="list-style-type: none"> 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, decrease the value. For output example 2, increase the value. <div data-bbox="643 1256 1059 1536" style="text-align: center;"> <p>Leading edge registration</p> <p>Correct image Output example 1 Output example 2</p> </div> <p>Figure 1-3-1</p> <ol style="list-style-type: none"> 6. Press the start key. The value is set. <p>Caution Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.</p> <div data-bbox="285 1744 1131 1839" style="text-align: center;"> <table border="1"> <tr> <td style="padding: 5px;">U034</td> <td style="padding: 5px;">→</td> <td style="padding: 5px;"> U066 (See the service manual for the machine.) </td> <td style="padding: 5px;">→</td> <td style="padding: 5px;"> U071 (See the service manual for the machine.) </td> </tr> </table> </div>	Display	Description	LSU OUT TOP	Leading edge registration adjustment	LSU OUT LEFT	Center line adjustment	LSU OUT END	Trailing edge registration adjustment	Display	Description	Setting range	Initial setting	Change in value per step	TOP	Adjustment of reference value	0 to 500	120	0.042 mm	MP TRAY	Paper feed from MP tray*	-250 to 250	0	0.042 mm	CASSETTE	Paper feed from cassette*	-250 to 250	0	0.042 mm	DUPLEX	Duplex mode (second side)*	-250 to 250	0	0.042 mm	U034	→	U066 (See the service manual for the machine.)	→	U071 (See the service manual for the machine.)
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DUPLEX	Duplex mode (second side)*	-250 to 250	0	0.042 mm																																			
U034	→	U066 (See the service manual for the machine.)	→	U071 (See the service manual for the machine.)																																			

Maintenance item No.	Description				
U034	Adjustment: Center line adjustment				
	1. Select the item to be adjusted.				
	Display	Description	Setting range	Initial setting	Change in value per step
	LEFT	Adjustment of reference value	0 to 1000	180	0.042 mm
	MP TRAY	Paper feed from MP tray*	-500 to 500	0	0.042 mm
	CASSETTE 1	Paper feed from cassette 1*	-500 to 500	0	0.042 mm
	CASSETTE 2	Paper feed from cassette 2*	-500 to 500	0	0.042 mm
	CASSETTE 3	Paper feed from cassette 3*	-500 to 500	0	0.042 mm
	CASSETTE 4	Paper feed from cassette 4*	-500 to 500	0	0.042 mm
	DUPLEX	Duplex mode (second side)*	-500 to 500	0	0.042 mm
<p>*: Setting the difference value from reference value</p> <p>2. Press the system menu key.</p> <p>3. Press the start key to output a test pattern.</p> <p>4. Press the system menu key.</p> <p>5. Change the setting value using the +/- or numeric keys. For output example 1, decrease the value. For output example 2, increase the value.</p> <div style="text-align: center;">  <p>Center line of printing</p> <p>Correct image Output example 1 Output example 2</p> </div> <p>Figure 1-3-2</p> <p>6. Press the start key. The value is set.</p> <p>Caution 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] --> U067[U067 (See the service manual for the machine.)] U067 --> U072[U072 (See the service manual for the machine.)] </pre> </div> <p>Completion Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>					

Maintenance item No.	Description														
U247	<p>Setting the paper feed device</p> <p>Description Turns on motor and clutches of paper feeder.</p> <p>Purpose To check the operation of motors and clutches of paper feeder.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Select the item to be operated. <table border="1" data-bbox="331 506 1398 712"> <thead> <tr> <th>Display</th> <th>Motor and clutches</th> </tr> </thead> <tbody> <tr> <td>DESK FEED</td> <td>Paper feeder drive motor (PFDM)</td> </tr> <tr> <td>CLUTCH FEED</td> <td>Paper feeder conveying clutch (PFCCL)</td> </tr> <tr> <td>CLUTCH U</td> <td>Paper feeder paper feed clutch 1 (PFPFCL1)</td> </tr> <tr> <td>CLUTCH L</td> <td>Paper feeder paper feed clutch 2 (PFPFCL2)</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 3. Press the start key. The operation starts. 4. To stop operation, press the stop key. <p>Completion Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Motor and clutches	DESK FEED	Paper feeder drive motor (PFDM)	CLUTCH FEED	Paper feeder conveying clutch (PFCCL)	CLUTCH U	Paper feeder paper feed clutch 1 (PFPFCL1)	CLUTCH L	Paper feeder paper feed clutch 2 (PFPFCL2)				
Display	Motor and clutches														
DESK FEED	Paper feeder drive motor (PFDM)														
CLUTCH FEED	Paper feeder conveying clutch (PFCCL)														
CLUTCH U	Paper feeder paper feed clutch 1 (PFPFCL1)														
CLUTCH L	Paper feeder paper feed clutch 2 (PFPFCL2)														
U901	<p>Checking/clearing copy counts by paper feed locations</p> <p>Description Displays or clears copy counts by paper feed locations.</p> <p>Purpose To check the time to replace consumable parts. Also to clear the counts after replacing the consumable parts.</p> <p>Method Press the start key. The counts by paper feed locations are displayed.</p> <table border="1" data-bbox="331 1066 1398 1352"> <thead> <tr> <th>Display</th> <th>Paper feed locations</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</td> </tr> <tr> <td>CASSETTE 4</td> <td>Cassette 4</td> </tr> <tr> <td>DUPLEX</td> <td>Duplex section</td> </tr> </tbody> </table> <p>Clearing</p> <ol style="list-style-type: none"> 1. Select the count to be cleared. To clear all counts, press the clear key. 2. Press the start key. The count is cleared. <p>Completion Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Paper feed locations	MP TRAY	MP tray	CASSETTE 1	Cassette 1	CASSETTE 2	Cassette 2	CASSETTE 3	Cassette 3	CASSETTE 4	Cassette 4	DUPLEX	Duplex section
Display	Paper feed locations														
MP TRAY	MP tray														
CASSETTE 1	Cassette 1														
CASSETTE 2	Cassette 2														
CASSETTE 3	Cassette 3														
CASSETTE 4	Cassette 4														
DUPLEX	Duplex section														

1-3-2 Maintenance mode (models with monochrome touch panel)

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

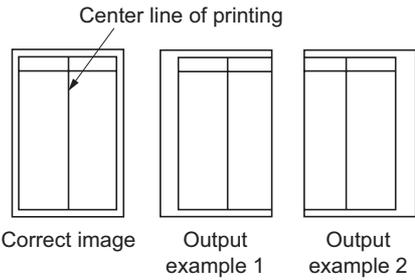
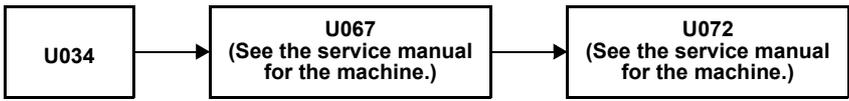
(1) Executing a maintenance item



(2) Contents of maintenance mode items

Maintenance item No.	Description																												
U019	<p>Displaying the ROM version</p> <p>Description Displays the part number of the ROM fitted to each PWB.</p> <p>Purpose To check the part number or to decide, if the newest version of ROM is installed.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. The ROM version are displayed. 2. Change the screen using the * or # keys. <table border="1" data-bbox="331 555 1396 1133"> <thead> <tr> <th data-bbox="338 564 715 595">Display</th> <th data-bbox="715 564 1390 595">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="338 595 715 627">MAIN</td> <td data-bbox="715 595 1390 627">Main PWB ROM IC</td> </tr> <tr> <td data-bbox="338 627 715 658">MAIN BOOT</td> <td data-bbox="715 627 1390 658">Main PWB booting</td> </tr> <tr> <td data-bbox="338 658 715 689">ENGINE</td> <td data-bbox="715 658 1390 689">Engine PWB ROM IC</td> </tr> <tr> <td data-bbox="338 689 715 721">ENGINE BOOT</td> <td data-bbox="715 689 1390 721">Engine PWB booting</td> </tr> <tr> <td data-bbox="338 721 715 752">LANGUAGE</td> <td data-bbox="715 721 1390 752">Standard language ROM IC</td> </tr> <tr> <td data-bbox="338 752 715 784">OPTION LANGUAGE</td> <td data-bbox="715 752 1390 784">Optional language ROM IC</td> </tr> <tr> <td data-bbox="338 784 715 815">DICTIONARY</td> <td data-bbox="715 784 1390 815">-</td> </tr> <tr> <td data-bbox="338 815 715 846">PRINTER</td> <td data-bbox="715 815 1390 846">Optional printer board ROM IC</td> </tr> <tr> <td data-bbox="338 846 715 878">DP</td> <td data-bbox="715 846 1390 878">Optional DP main PWB ROM IC</td> </tr> <tr> <td data-bbox="338 878 715 909">OPTION CASSETTE</td> <td data-bbox="715 878 1390 909">Paper feeder main PWB ROM IC</td> </tr> <tr> <td data-bbox="338 909 715 940">INNER DF</td> <td data-bbox="715 909 1390 940">Optional built-in finisher main PWB ROM IC</td> </tr> <tr> <td data-bbox="338 940 715 972">SIMPLE DF MAIN</td> <td data-bbox="715 940 1390 972">Optional document finisher main PWB ROM IC</td> </tr> <tr> <td data-bbox="338 972 715 1003">ENGINE POWER</td> <td data-bbox="715 972 1390 1003">Engine power CPU</td> </tr> </tbody> </table> <p>Completion Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	MAIN	Main PWB ROM IC	MAIN BOOT	Main PWB booting	ENGINE	Engine PWB ROM IC	ENGINE BOOT	Engine PWB booting	LANGUAGE	Standard language ROM IC	OPTION LANGUAGE	Optional language ROM IC	DICTIONARY	-	PRINTER	Optional printer board ROM IC	DP	Optional DP main PWB ROM IC	OPTION CASSETTE	Paper feeder main PWB ROM IC	INNER DF	Optional built-in finisher main PWB ROM IC	SIMPLE DF MAIN	Optional document finisher main PWB ROM IC	ENGINE POWER	Engine power CPU
Display	Description																												
MAIN	Main PWB ROM IC																												
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SIMPLE DF MAIN	Optional document finisher main PWB ROM IC																												
ENGINE POWER	Engine power CPU																												

Maintenance item No.	Description																																						
<p>U034</p>	<p>Adjusting the print start timing</p> <p>Description Adjusts the leading edge registration or center line.</p> <p>Purpose 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>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Select the item to be adjusted. The setting screen for the selected item is displayed. <table border="1" data-bbox="331 533 1398 701"> <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 END</td> <td>Trailing edge registration adjustment</td> </tr> </tbody> </table> <p>Adjustment: Leading edge registration adjustment</p> <ol style="list-style-type: none"> 1. Select the item to be adjusted. <table border="1" data-bbox="331 801 1398 1041"> <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>TOP</td> <td>Adjustment of reference value</td> <td>-5.0 to 10.0</td> <td>2.0</td> <td>0.1 mm</td> </tr> <tr> <td>MP TRAY</td> <td>Paper feed from MP tray*</td> <td>-5.0 to 10.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>CASSETTE</td> <td>Paper feed from cassette*</td> <td>-5.0 to 10.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>DUPLEX</td> <td>Duplex mode (second side)*</td> <td>-5.0 to 10.0</td> <td>0</td> <td>0.1 mm</td> </tr> </tbody> </table> <p>*: Setting the difference value from reference value</p> <ol style="list-style-type: none"> 2. Press the interrupt key. 3. Press the start key to output a test pattern. 4. Press the interrupt key. 5. Change the setting value using the cursor up/down keys. For output example 1, decrease the value. For output example 2, increase the value. <div data-bbox="646 1249 1061 1534" style="text-align: center;"> <p>Leading edge registration</p> <p>Correct image Output example 1 Output example 2</p> </div> <p>Figure 1-3-3</p> <ol style="list-style-type: none"> 6. Press the start key. The value is set. <p>Caution Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.</p> <div data-bbox="287 1736 1133 1836" style="text-align: center;"> <table border="1"> <tr> <td style="padding: 5px;">U034</td> <td style="padding: 5px;">→</td> <td style="padding: 5px;">U066 (See the service manual for the machine.)</td> <td style="padding: 5px;">→</td> <td style="padding: 5px;">U071 (See the service manual for the machine.)</td> </tr> </table> </div>	Display	Description	LSU OUT TOP	Leading edge registration adjustment	LSU OUT LEFT	Center line adjustment	LSU OUT END	Trailing edge registration adjustment	Display	Description	Setting range	Initial setting	Change in value per step	TOP	Adjustment of reference value	-5.0 to 10.0	2.0	0.1 mm	MP TRAY	Paper feed from MP tray*	-5.0 to 10.0	0	0.1 mm	CASSETTE	Paper feed from cassette*	-5.0 to 10.0	0	0.1 mm	DUPLEX	Duplex mode (second side)*	-5.0 to 10.0	0	0.1 mm	U034	→	U066 (See the service manual for the machine.)	→	U071 (See the service manual for the machine.)
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CASSETTE	Paper feed from cassette*	-5.0 to 10.0	0	0.1 mm																																			
DUPLEX	Duplex mode (second side)*	-5.0 to 10.0	0	0.1 mm																																			
U034	→	U066 (See the service manual for the machine.)	→	U071 (See the service manual for the machine.)																																			

Maintenance item No.	Description																																								
U034	Adjustment: Center line adjustment 1. Select the item to be adjusted.																																								
	<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: left;">Setting range</th> <th style="text-align: left;">Initial setting</th> <th style="text-align: left;">Change in value per step</th> </tr> </thead> <tbody> <tr> <td>LEFT</td> <td>Adjustment of reference value</td> <td>-7.0 to 10.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>MP TRAY</td> <td>Paper feed from MP tray*</td> <td>-7.0 to 10.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>CASSETTE 1</td> <td>Paper feed from cassette 1*</td> <td>-7.0 to 10.0</td> <td>0</td> <td>0.1 mm</td> </tr> <tr> <td>CASSETTE 2</td> <td>Paper feed from cassette 2*</td> <td>-7.0 to 10.0</td> <td>-1.0</td> <td>0.1 mm</td> </tr> <tr> <td>CASSETTE 3</td> <td>Paper feed from cassette 3*</td> <td>-7.0 to 10.0</td> <td>-1.0</td> <td>0.1 mm</td> </tr> <tr> <td>CASSETTE 4</td> <td>Paper feed from cassette 4*</td> <td>-7.0 to 10.0</td> <td>-1.0</td> <td>0.1 mm</td> </tr> <tr> <td>DUPLEX</td> <td>Duplex mode (second side)*</td> <td>-7.0 to 10.0</td> <td>0</td> <td>0.1 mm</td> </tr> </tbody> </table>	Display	Description	Setting range	Initial setting	Change in value per step	LEFT	Adjustment of reference value	-7.0 to 10.0	0	0.1 mm	MP TRAY	Paper feed from MP tray*	-7.0 to 10.0	0	0.1 mm	CASSETTE 1	Paper feed from cassette 1*	-7.0 to 10.0	0	0.1 mm	CASSETTE 2	Paper feed from cassette 2*	-7.0 to 10.0	-1.0	0.1 mm	CASSETTE 3	Paper feed from cassette 3*	-7.0 to 10.0	-1.0	0.1 mm	CASSETTE 4	Paper feed from cassette 4*	-7.0 to 10.0	-1.0	0.1 mm	DUPLEX	Duplex mode (second side)*	-7.0 to 10.0	0	0.1 mm
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Completion Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.																																									

Maintenance item No.	Description														
U247	<p>Setting the paper feed device</p> <p>Description Turns on motor and clutches of paper feeder.</p> <p>Purpose To check the operation of motors and clutches of paper feeder.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Select the item to be operated. <table border="1" data-bbox="331 506 1398 712"> <thead> <tr> <th>Display</th> <th>Motor and clutches</th> </tr> </thead> <tbody> <tr> <td>DESK FEED</td> <td>Paper feeder drive motor (PFDM)</td> </tr> <tr> <td>CLUTCH FEED</td> <td>Paper feeder conveying clutch (PFCCL)</td> </tr> <tr> <td>CLUTCH U</td> <td>Paper feeder paper feed clutch 1 (PFPFCL1)</td> </tr> <tr> <td>CLUTCH L</td> <td>Paper feeder paper feed clutch 2 (PFPFCL2)</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 3. Press the start key. The operation starts. 4. To stop operation, press the stop/clear key. <p>Completion Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Motor and clutches	DESK FEED	Paper feeder drive motor (PFDM)	CLUTCH FEED	Paper feeder conveying clutch (PFCCL)	CLUTCH U	Paper feeder paper feed clutch 1 (PFPFCL1)	CLUTCH L	Paper feeder paper feed clutch 2 (PFPFCL2)				
Display	Motor and clutches														
DESK FEED	Paper feeder drive motor (PFDM)														
CLUTCH FEED	Paper feeder conveying clutch (PFCCL)														
CLUTCH U	Paper feeder paper feed clutch 1 (PFPFCL1)														
CLUTCH L	Paper feeder paper feed clutch 2 (PFPFCL2)														
U901	<p>Checking copy counts by paper feed locations</p> <p>Description Displays copy counts by paper feed locations.</p> <p>Purpose To check the time to replace consumable parts.</p> <p>Method Press the start key. The counts by paper feed locations are displayed.</p> <table border="1" data-bbox="331 1064 1398 1355"> <thead> <tr> <th>Display</th> <th>Paper feed locations</th> </tr> </thead> <tbody> <tr> <td>BYPASS</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</td> </tr> <tr> <td>CASSETTE 4</td> <td>Cassette 4</td> </tr> <tr> <td>DUPLEX</td> <td>Duplex section</td> </tr> </tbody> </table> <p>Completion Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Paper feed locations	BYPASS	MP tray	CASSETTE 1	Cassette 1	CASSETTE 2	Cassette 2	CASSETTE 3	Cassette 3	CASSETTE 4	Cassette 4	DUPLEX	Duplex section
Display	Paper feed locations														
BYPASS	MP tray														
CASSETTE 1	Cassette 1														
CASSETTE 2	Cassette 2														
CASSETTE 3	Cassette 3														
CASSETTE 4	Cassette 4														
DUPLEX	Duplex section														

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

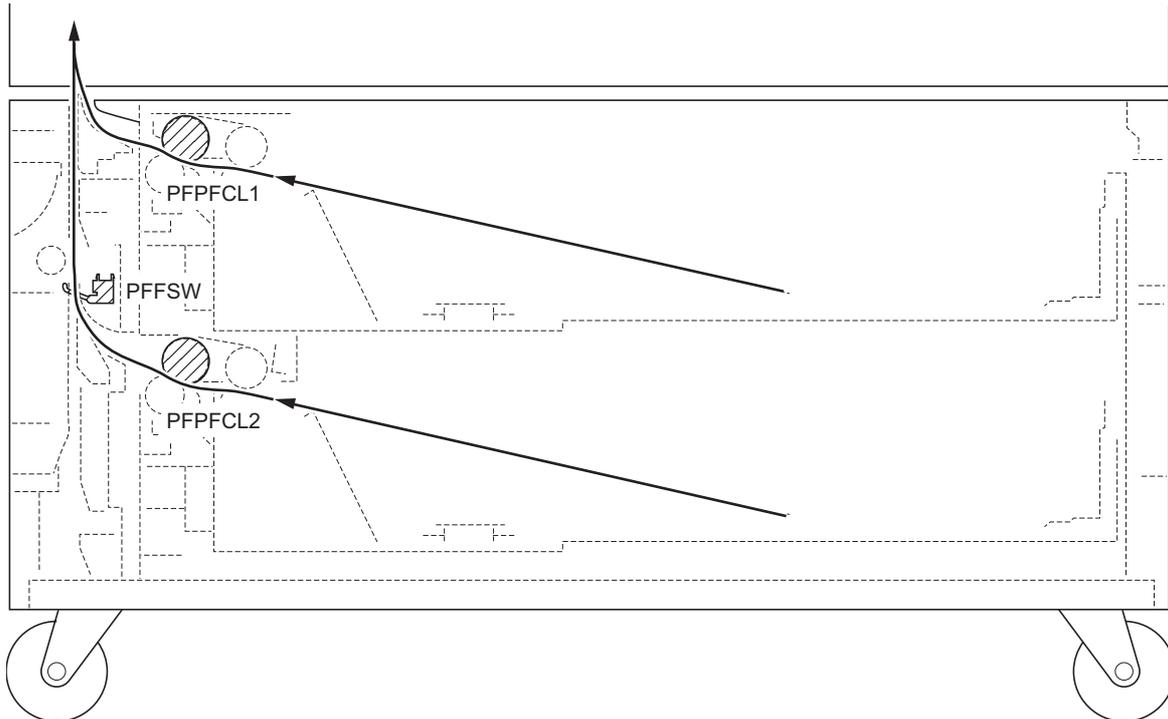


Figure 1-4-1

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 paper feeder paper feed clutch 1 (PFPFCL1) turning on; the clutch is then successively turned off for 1 s and turned back on, but the switch again fails to turn on within the specified time.	-
		Left cover 3 is opened in prior to feed switch 3 (FSW3) is turned on.	-
	13 No paper feed from cassette 4	The paper feeder feed switch (PFFSW) does not turn on within the specified time of paper feeder paper feed clutch 2 (PFPFCL2) turning on; the clutch is then successively turned off for 1 s and turned back on, but the switch again fails to turn on within the specified time.	-
		Left cover 3 is opened in prior to the paper feeder feed switch (PFFSW) is turned on.	-
	19 Misfeed in paper feeder vertical paper conveying section	The feed switch 3 (FSW3) does not turn off within specified time of its turning on (paper feed from cassette 3).	1429 ms + Paper length
		Feed switch 3 (FSW3) does not turn off within specified time of the paper feeder feed switch (PFFSW) turning on (paper feed from cassette 4).	1064 ms
		The feed switch 3 (FSW3) does not turn off within specified time of its turning on (paper feed from cassette 4).	1064 ms
		Feed switch 3 (FSW3) does not turn on within specified time of the paper feeder feed switch (PFFSW) turning on (paper feed from cassette 4).	2000 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 feed from cassette 3, 4/detected by the machine).	1429 ms + Paper length	
	The feed switch 3 (FSW3) does not turn off within specified time of its turning on (paper feed from cassette 3, 4/detected by the paper feeder).	4300 ms	
	The paper feeder feed switch (PFFSW) does not turn off within specified time of its turning on (paper feed from cassette 4).	4300 ms	
	The feed switch 3 (FSW3) does not turn off within specified time of the paper feeder paper feed clutch 1 (PFPFCL1) turning on.	2036 ms	

(3) Paper misfeeds

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.	Change the paper.
	Check if the paper feed pulley, forwarding pulley and separation pulley of optional cassette 3 are deformed.	Check visually and replace any deformed pulleys.
	Broken feed switch 3 actuator.	Check visually and replace switch.
	Defective feed switch 3.	Run maintenance item U031 and turn feed switch 3 on and off manually. Replace feed switch 3 if indication of the corresponding switch on the touch panel is not displayed in reverse.
	Check if paper feeder paper feed clutch 1 malfunctions.	Run maintenance item U247 and select paper feeder paper feed clutch 1 on the touch panel to be turned on and off. Check the status and remedy if necessary.
Electrical problem with paper feeder paper feed clutch 1.	Check (see page 1-4-7).	
(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 optional cassette 4 are deformed.	Check visually and replace any deformed pulleys.
	Broken paper feeder feed switch actuator.	Check visually and replace switch.
	Defective paper feeder feed switch.	With 5 V DC present at YC2-8 on the paper feeder main PWB, check if YC2-7 on the paper feeder main PWB remains low when the paper feeder feed switch is turned on and off. If it does, replace the paper feeder feed switch.
	Check if paper feeder paper feed clutch 2 malfunctions.	Run maintenance item U247 and select paper feeder paper feed clutch 2 on the touch panel to be turned on and off. Check the status and remedy if necessary.
Electrical problem with paper feeder paper feed clutch 2.	Check (see page 1-4-7).	
(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 paper feeder feed switch actuator.	Check visually and replace switch.
	Defective paper feeder feed switch.	With 5 V DC present at YC2-8 on the paper feeder main PWB, check if YC2-7 on the paper feeder main PWB remains low when the paper feeder feed switch is turned on and off. If it does, replace the paper feeder feed switch.

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 paper feeder feed switch actuator.	Check visually and replace switch.
	Defective paper feeder feed switch.	With 5 V DC present at YC2-8 on the paper feeder main PWB, check if YC2-7 on the paper feeder main PWB remains low when the paper feeder feed switch is turned on and off. If it does, replace the paper feeder feed switch.
	Check if paper feeder paper feed clutch 1 malfunctions.	Run maintenance item U247 and select paper feeder paper feed clutch 1 on the touch panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with paper feeder paper feed clutch 1.	Check (see page 1-4-7).

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 the main power switch off and back on.

(2) Self diagnostic codes

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C0420	Paper feeder communication problem No communication: there is no reply after 5 retries. Abnormal communication: a communication error (parity or checksum error) is detected five times in succession.	Poor contact in the connector terminals.	Check the connection of connector YC22 on the engine PWB and the connector on the paper feeder main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective PWB.	Replace the engine PWB or paper feeder main PWB and check for correct operation.
C1030	Paper feeder lift motor 1 error When optional cassette 3 is inserted, paper feeder lift switch 1 does not turn on within 12 s of paper feeder lift motor 1 turning on.	Poor contact in the connector terminals.	Check the connection of connector YC22 on the engine PWB and the connector on the paper feeder main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Broken gears or couplings of paper feeder lift motor 1.	Replace paper feeder lift motor 1.
		Defective paper feeder lift motor 1.	Check for continuity across the coil. If none, replace paper feeder lift motor 1.
		Defective paper feeder lift switch 1.	Check if YC1-5 on the paper feeder main PWB goes low when paper feeder lift switch 1 is turned off. If not, replace paper feeder lift switch 1.
C1040	Paper feeder lift motor 2 error When optional cassette 4 is inserted, paper feeder lift switch 2 does not turn on within 12 s of paper feeder lift motor 2 turning on.	Poor contact in the connector terminals.	Check the connection of connector YC22 on the engine PWB and the connector on the paper feeder main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Broken gears or couplings of paper feeder lift motor 2.	Replace paper feeder lift motor 2.
		Defective paper feeder lift motor 2.	Check for continuity across the coil. If none, replace paper feeder lift motor 2.
		Defective paper feeder lift switch 2.	Check if YC1-7 on the paper feeder main PWB goes low when paper feeder lift switch 2 is turned off. If not, replace paper feeder lift switch 2.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C2600	Paper feeder drive motor error The lock signal of the motor is detected above 500 ms.	Poor contact in the connector terminals.	Check the connection of connector YC22 on the engine PWB and the connector on the paper feeder main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Paper feeder drive motor does not rotate correctly (the motor is overloaded).	Check the gears and remedy if necessary.
		Defective PWB.	Replace the paper feeder main PWB or engine PWB and check for correct operation.
		Defective paper feeder drive motor.	Replace the paper feeder drive motor.

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 3 switch.	Check for continuity across the contacts. If none, replace the left cover 3 switch.
(2) The paper feeder 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 paper feeder drive motor.	Run maintenance item U247 and check if the paper feeder paper conveying motor operates when YC4-3 on the paper feeder main PWB goes low. If not, replace the paper feeder drive motor.
	4. Defective paper feeder main PWB.	Run maintenance item U247 and check if YC4-3 on the paper feeder main PWB goes low. If not, replace the paper feeder main PWB.
(3) The paper feeder paper feed clutch 1/2 or paper feeder 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 paper feeder main PWB.	Run maintenance item U247 and check if following terminals on the paper feeder main PWB goes low. If not, replace the paper feeder main PWB. Paper feeder paper feed clutch 1: YC1-14 Paper feeder paper feed clutch 2: YC1-13 Paper feeder paper conveying clutch: YC2-1
(4) The paper feeder lift motor 1/2 does not operate.	1. Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	2. Broken motor coil.	Check for continuity across the coil. If none, replace the motor.
(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 paper feeder paper length switch 1.	Check if YC3-7 on the paper feeder main PWB goes low when the paper feeder paper length switch 1 is turned on. If not, replace the paper feeder paper length switch 1.
	3. Defective paper feeder paper width switch 1.	Check for continuity between YC3-9 and YC3-1, YC3-2, and YC3-3 on the paper feeder 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 paper feeder paper 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 paper feeder paper length switch 2.	Check if YC3-8 on the paper feeder main PWB goes low when the paper feeder paper length switch 2 is turned on. If not, replace the paper feeder paper length switch 2.
	3. Defective paper feeder paper width switch 2.	Check for continuity between YC3-10 and YC3-4, YC3-5, and YC3-6 on the paper feeder 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 paper feeder paper width switch 2.

Problem	Causes	Check procedures/corrective measures
(7) The message requesting covers to be closed is displayed when the left cover 3 is closed.	1. Poor contact of the left cover 3 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 3 switch.	Check for continuity across the contacts. If there is no continuity when the left cover 3 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: paper feeder paper feed clutches 1/2 and paper feeder paper conveying clutch.	See page 1-4-7.
(2) Skewed paper feed.	Width guide in the cassette installed incorrectly.	Check the width guide visually and remedy or replace if necessary.
	Deformed width guide in the cassette.	Check the 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 paper feeder paper feed clutches 1/2 and the paper feeder 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.

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 one screw and release two hooks, and then remove the front left cover.

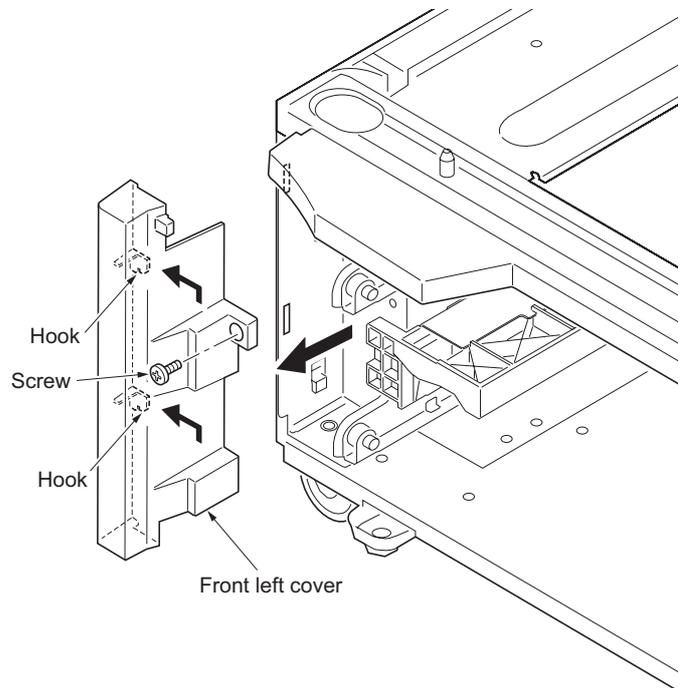


Figure 1-5-1

3. While pressing the latch all the way in, slide the front upper cover toward the left.
4. Remove the latch and two hooks, and then remove the front upper cover.

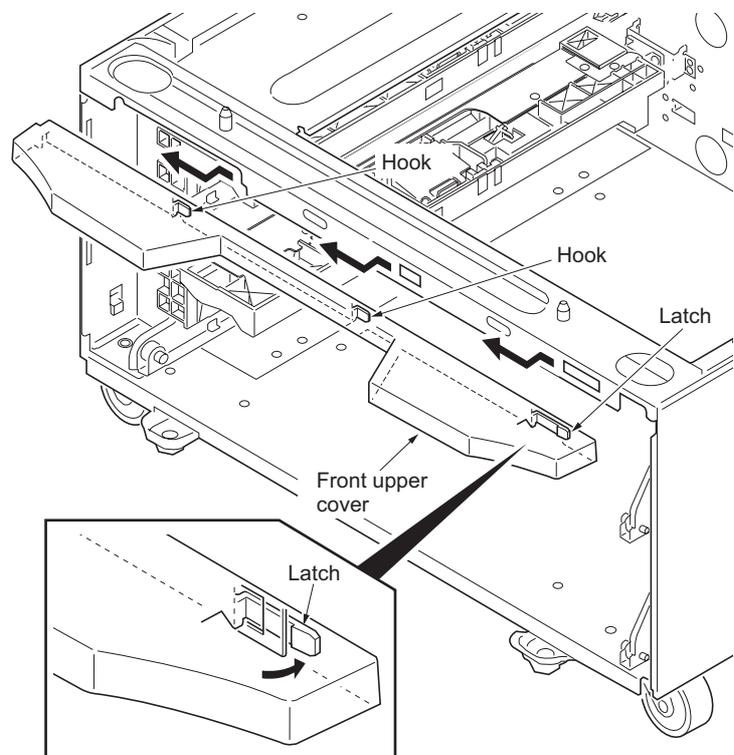


Figure 1-5-2

- Remove the one screw from each of the primary paper feed units and then the units.

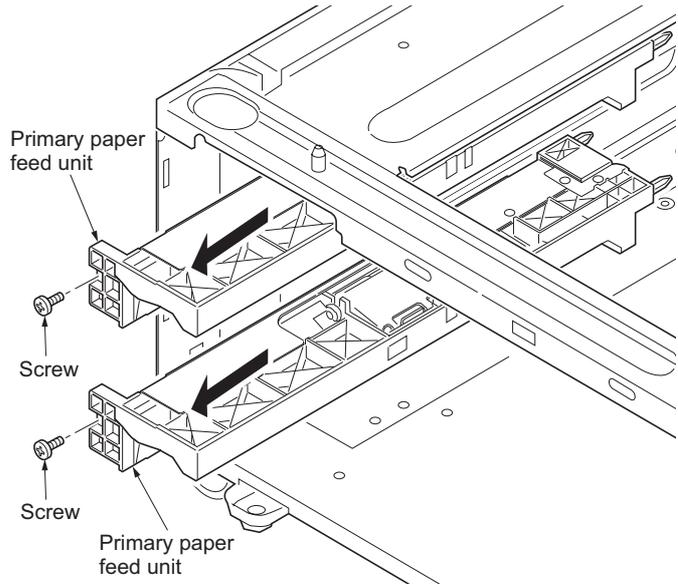


Figure 1-5-3

Removing the forwarding pulley

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

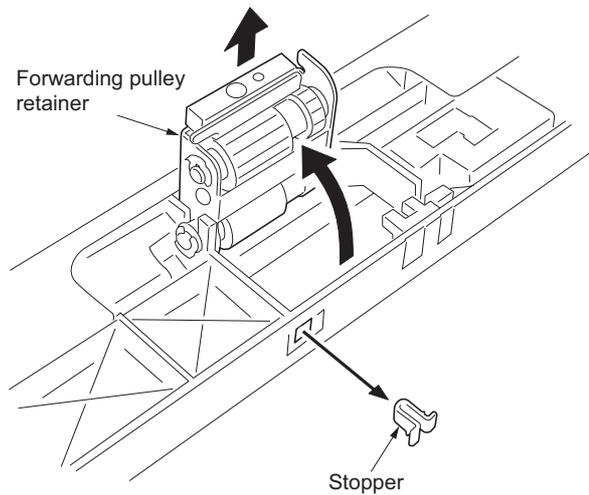


Figure 1-5-4

- Remove the stop ring from the forwarding pulley retainer. Remove the forwarding pulley from the forwarding pulley shaft.

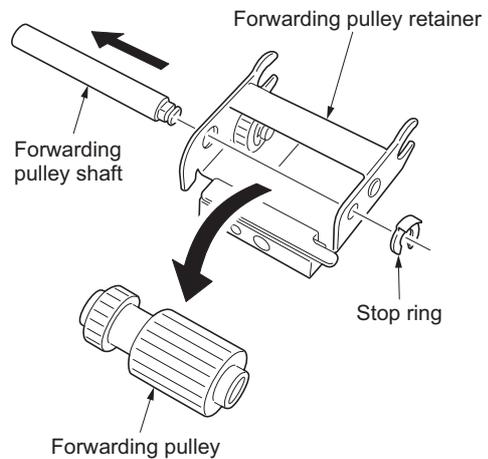


Figure 1-5-5

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.

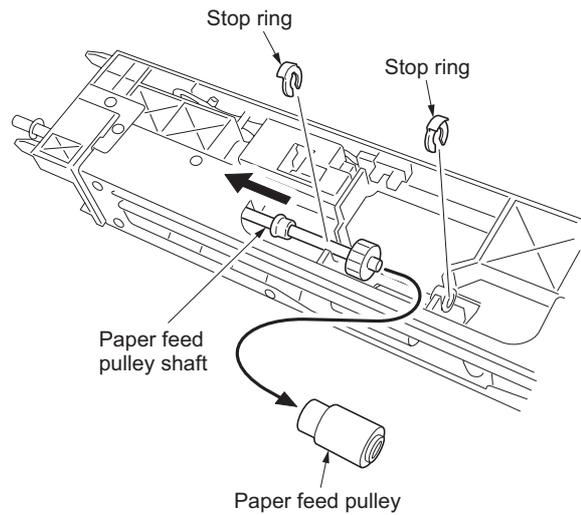


Figure 1-5-6

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.

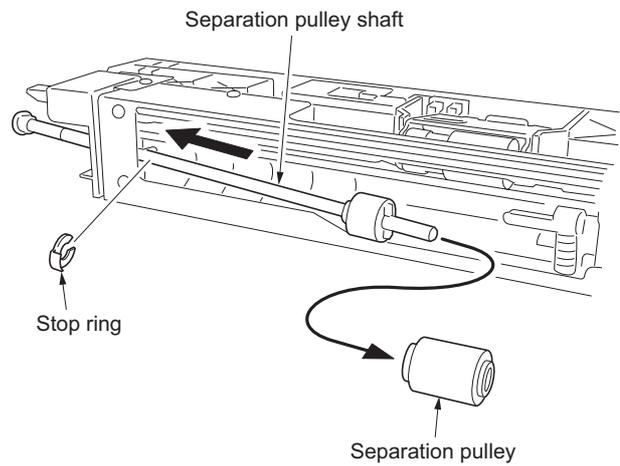


Figure 1-5-7

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 1-5-8.

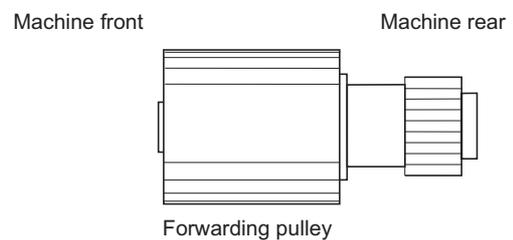


Figure 1-5-8

(2) Replacing paper feeder paper width switch 1, 2

Replace paper feeder paper 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 paper feeder paper width switch from the 8-pin socket.
4. Remove the three screws holding the rack adjuster.
5. While raising the cassette lift plate in the direction of the arrow, remove the rack adjuster.

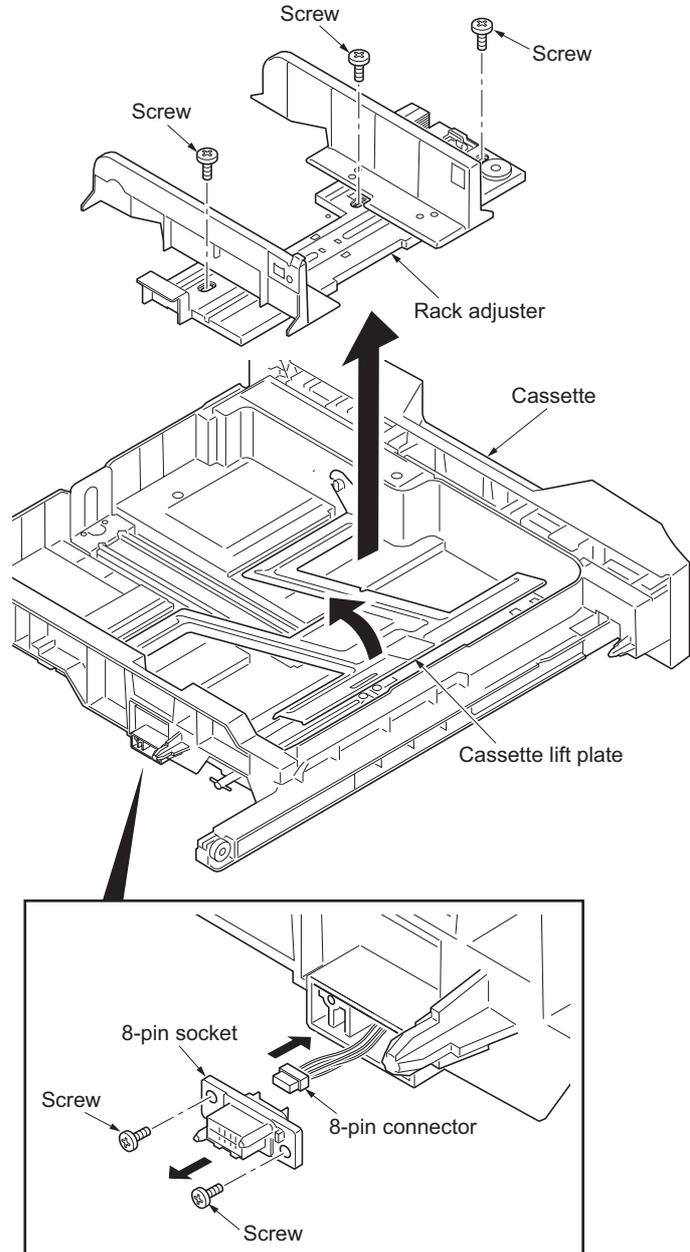


Figure 1-5-9

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

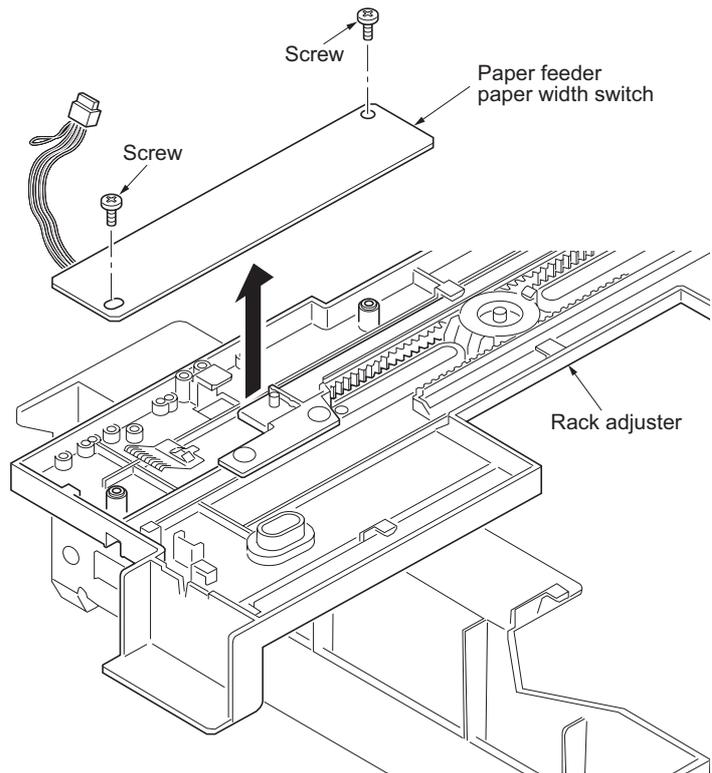


Figure 1-5-10

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

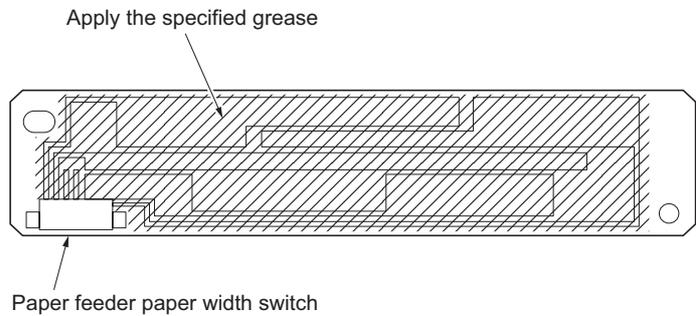


Figure 1-5-11

(3) Replacing paper feeder paper feed clutch 1, 2

Replace paper feeder paper feed clutch 1/2 as follows.

Procedure

1. Remove three screws and remove the rear cover.

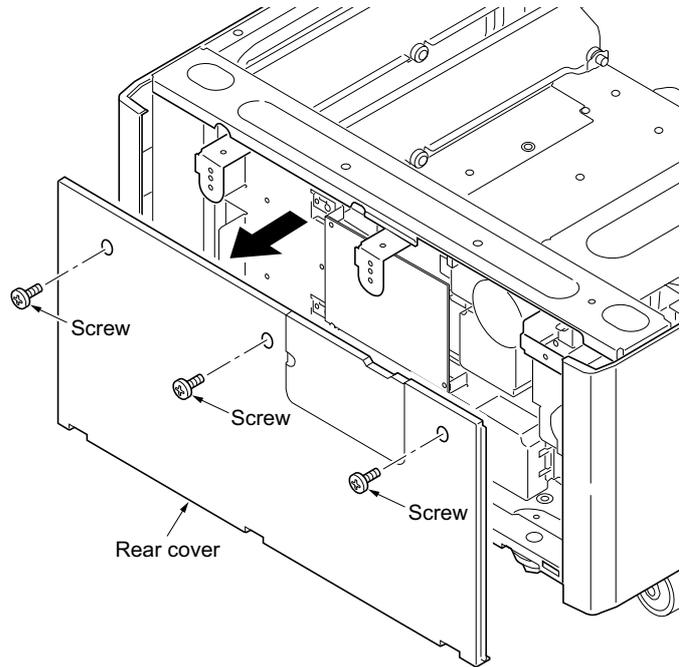


Figure 1-5-12

2. Release two wire saddle.
3. Remove the connector A.
4. Remove two screws and remove the rear cover mount and bush.
5. Remove the paper feeder paper feed clutch 1.
6. Remove the connector B.
7. Remove three claws and remove the clutch holder.
8. Remove the paper feeder paper feed clutch 2.
9. Replace each clutch.
10. Refit all removed parts.
When fitting the clutches, be sure to refit the whirl-stops.

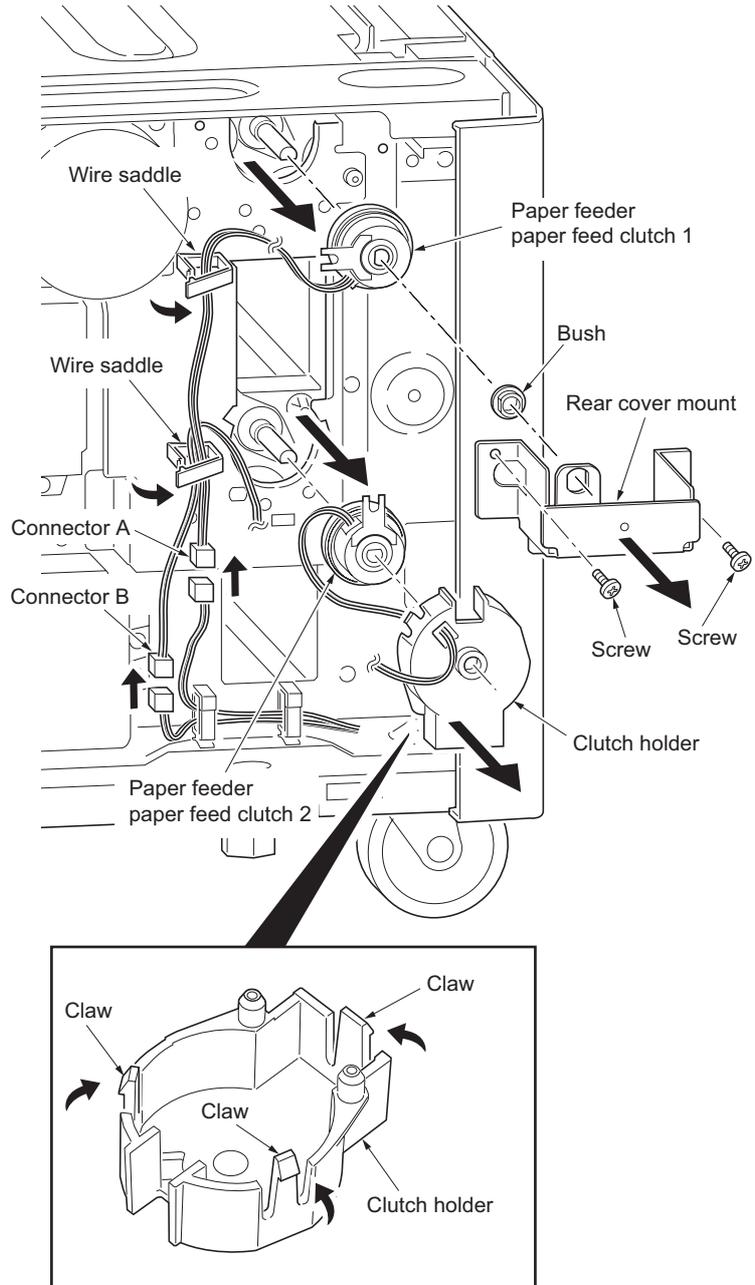


Figure 1-5-13

(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

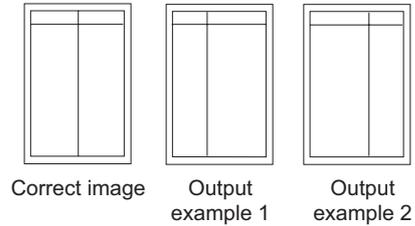
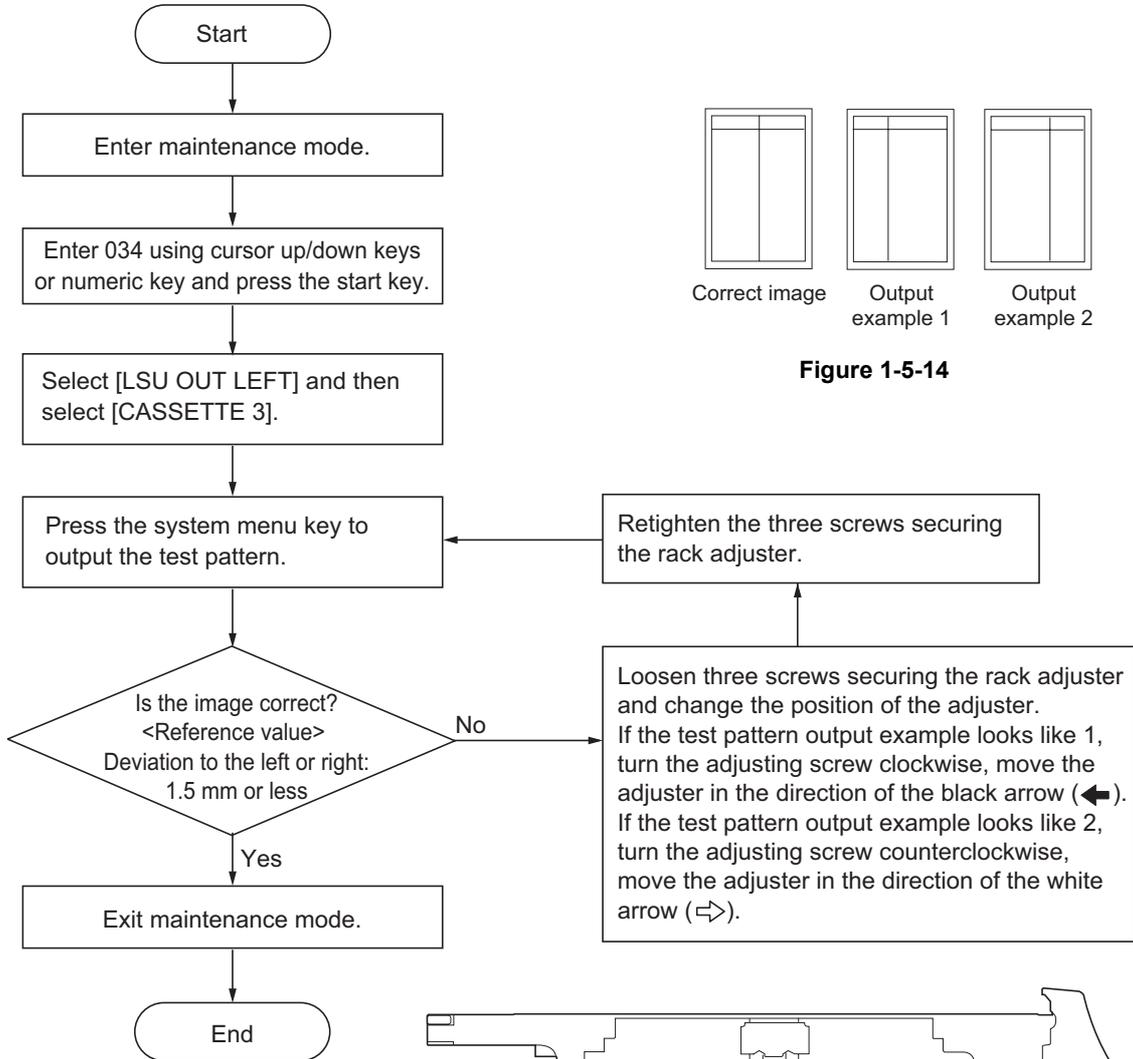


Figure 1-5-14

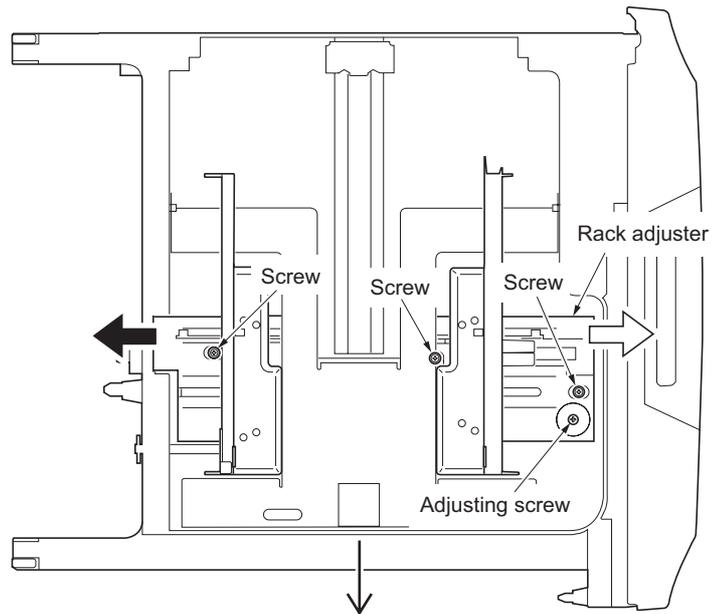


Figure 1-5-15 Adjusting the position of the rack adjuster

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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 3 of the paper feeder, the paper feeder paper conveying clutch (PFCCCL) is operated to rotate the feed roller and pulley to carry the paper into the machine.

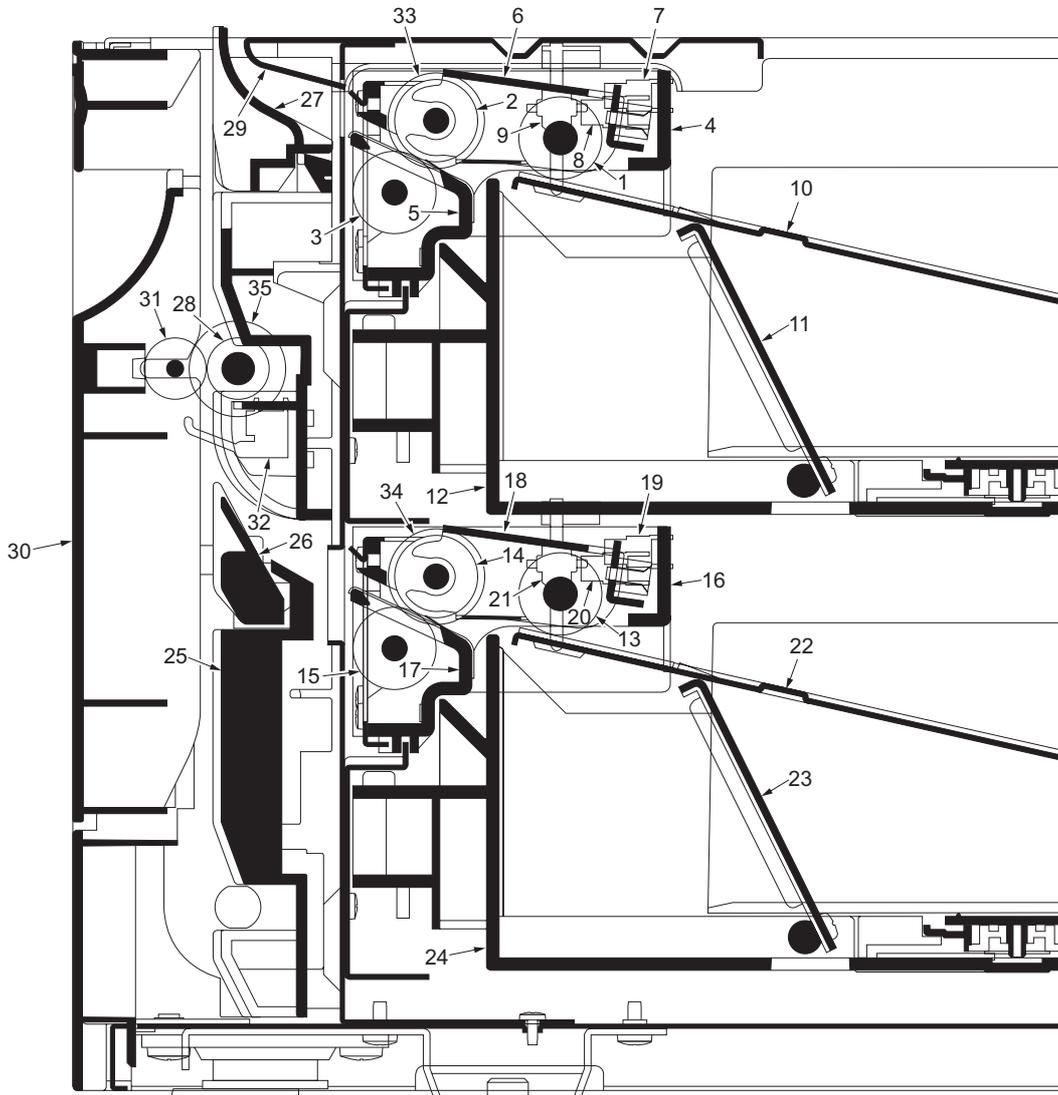


Figure 2-1-1

- | | |
|--|---|
| (1) Forwarding pulley | (19) Paper feeder lift switch 2 (PFLSW2) |
| (2) Paper feed pulley | (20) Paper feeder paper switch 2 (PFPSW2) |
| (3) Separation pulley | (21) Actuator (paper feeder paper switch 2) |
| (4) Paper feed upper housing | (22) Cassette 4 operation plate |
| (5) Paper feed lower housing | (23) Lift operation plate |
| (6) Paper feed retainer | (24) Cassette 4 |
| (7) Paper feeder lift switch 1 (PFLSW1) | (25) Vertical paper conveying flame |
| (8) Paper feeder paper switch 1 (PFPSW1) | (26) Vertical guide |
| (9) Actuator (paper feeder paper switch 1) | (27) Conveying guide B |
| (10) Cassette 3 operation plate | (28) Feed roller |
| (11) Lift operation plate | (29) Left upper flame |
| (12) Cassette 3 | (30) Left cover 3 |
| (13) Forwarding pulley | (31) Feed pulley |
| (14) Paper feed pulley | (32) Paper feeder feed switch (PFFSW) |
| (15) Separation pulley | (33) Paper feeder paper feed clutch 1 (PFPFCL1) |
| (16) Paper feed upper housing | (34) Paper feeder paper feed clutch 2 (PFPFCL2) |
| (17) Paper feed lower housing | (35) Paper feeder paper conveying clutch (PFCCCL) |
| (18) Paper feed retainer | |

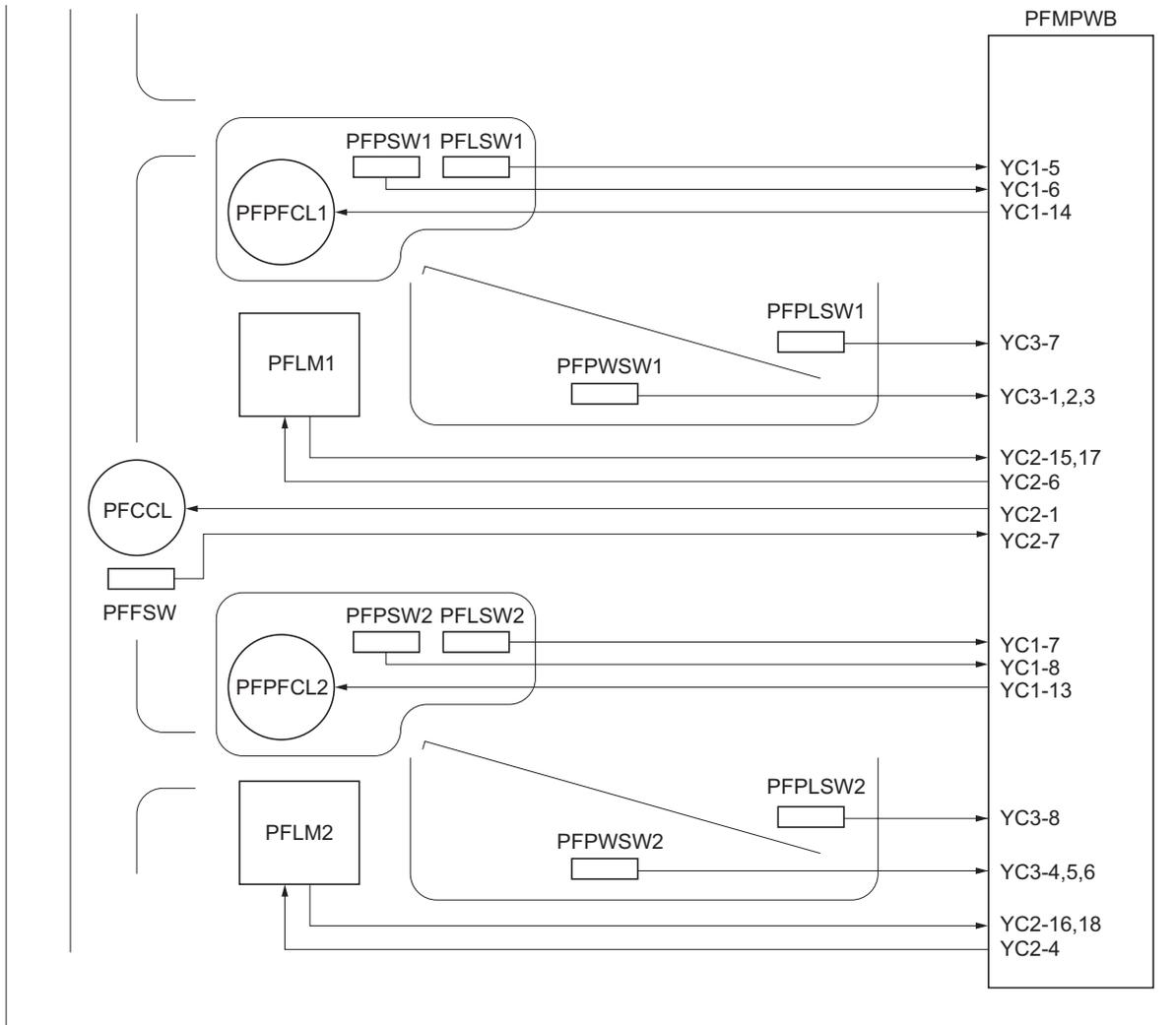


Figure 2-1-2

2-2-1 Electrical parts layout

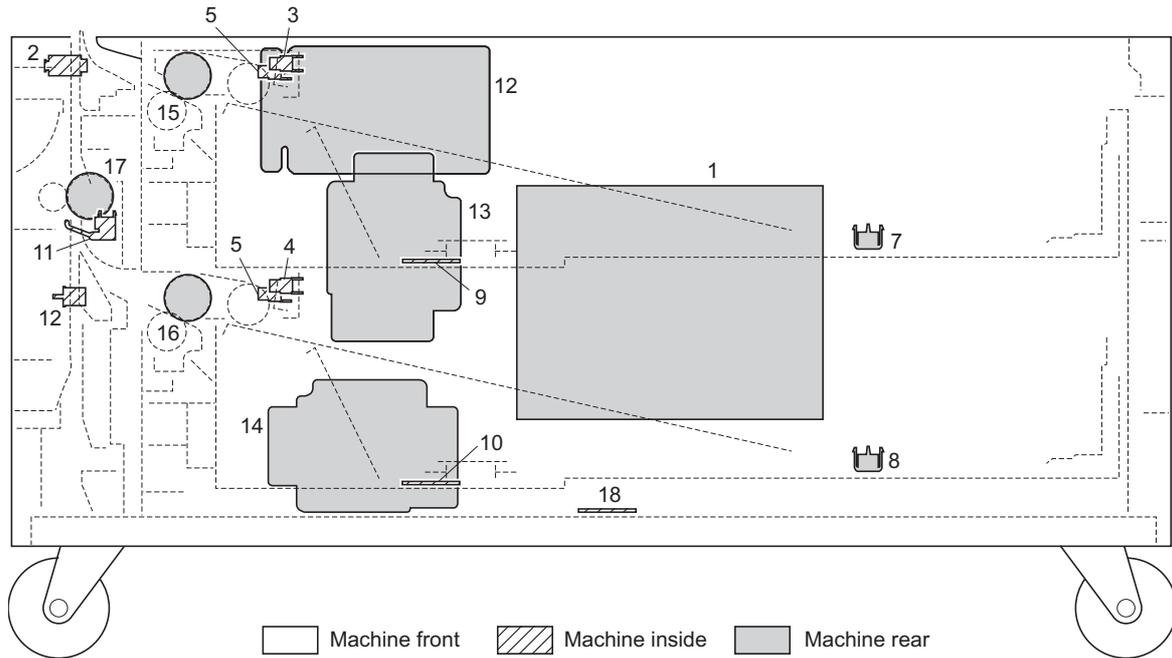


Figure 2-2-1 Layout of electrical parts

- 1. Paper feeder main PWB (PFMPWB) Controls electrical parts.
- 2. Left cover 3 switch (LC3SW) Breaks the safety circuit when left cover 3 is opened, and resets paper jam detection.
- 3. Paper feeder paper switch 1 (PFPSW1)..... Detects the presence of paper in cassette 3.
- 4. Paper feeder paper switch 2 (PFPSW2)..... Detects the presence of paper in cassette 4.
- 5. Paper feeder lift switch 1 (PFLSW1)..... Detects the cassette lift of cassette 3 reaching the upper limit.
- 6. Paper feeder lift switch 2 (PFLSW2)..... Detects the cassette lift of cassette 4 reaching the upper limit.
- 7. Paper feeder paper length switch 1 (PFPLSW1)..... Detects the length of paper in cassette 3.
- 8. Paper feeder paper length switch 2 (PFPLSW2)..... Detects the length of paper in cassette 4.
- 9. Paper feeder paper width switch 1 (PFPSW1) Detects the width of paper in cassette 3.
- 10. Paper feeder paper width switch 2 (PFPSW2) Detects the width of paper in cassette 4.
- 11. Paper feeder feed switch (PFFSW) Controls paper feeder paper feed clutch 2.
- 12. Paper feeder drive motor (PFDM)..... Drives the paper feeder.
- 13. Paper feeder lift motor 1 (PFLM1) Drives the cassette lift of cassette 3.
- 14. Paper feeder lift motor 2 (PFLM2) Drives the cassette lift of cassette 4.
- 15. Paper feeder paper feed clutch 1 (PFPFCL1)..... Primary paper feed from cassette 3.
- 16. Paper feeder paper feed clutch 2 (PFPFCL2)..... Primary paper feed from cassette 4.
- 17. Paper feeder paper conveying clutch (PFCCCL)..... Conveys paper to the machine.
- 18. Paper feeder cassette heater* (PFCH) Dehumidifies paper.

*Optional.

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2-3-1 Paper feeder main PWB

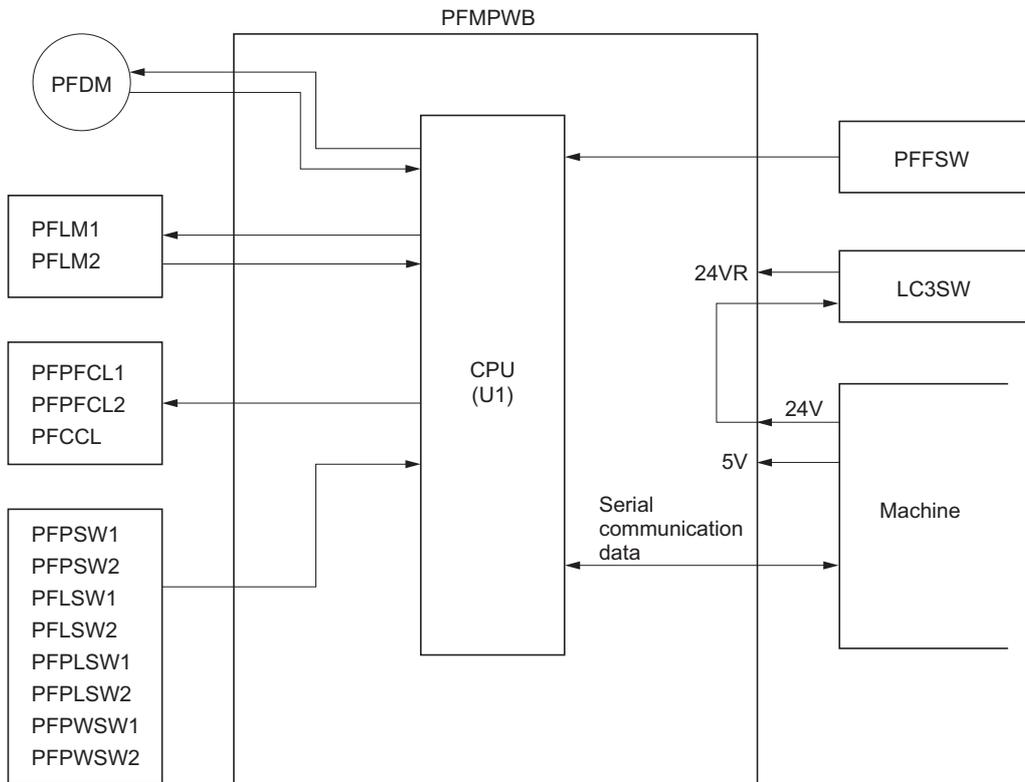


Figure 2-3-1 Paper feeder main PWB diagram

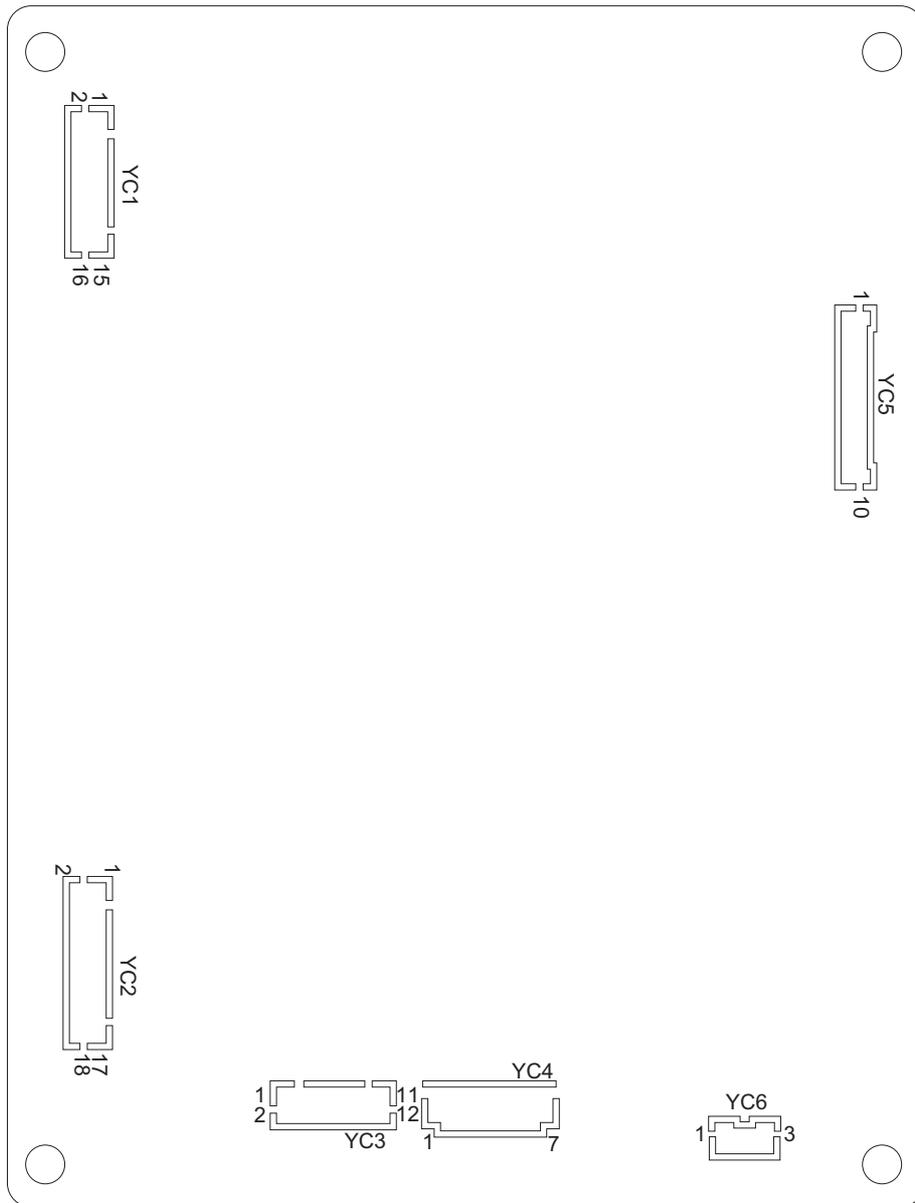


Figure 2-3-2 Paper feeder main PWB silk-screen diagram

Connector	Pin No.	Signal	I/O	Voltage	Description
Y1 Connected to the paper feeder paper switch 1/2, paper feeder lift switch 1/2 and paper feeder paper feed clutch 1/2	1	5V	O	5 V DC	5 V DC supply for PFLSW1
	2	5V	O	5 V DC	5 V DC supply for PFPSW1
	3	5V	O	5 V DC	5 V DC supply for PFLSW2
	4	5V	O	5 V DC	5 V DC supply for PFPSW2
	5	UCLLSW	I	5/0 V DC	PFLSW1: On/Off
	6	UCPESW	I	0/5 V DC	PFPSW1: On/Off
	7	LCLLSW	I	5/0 V DC	PFLSW2: On/Off
	8	LCPESW	I	0/5 V DC	PFPSW2: On/Off
	9	SGND	-	-	Ground
	10	SGND	-	-	Ground
	11	SGND	-	-	Ground
	12	SGND	-	-	Ground
	13	LFCL REM	O	0/24 V DC	PFPFCL2: On/Off
	14	UFCL REM	O	0/24 V DC	PFPFCL1: On/Off
	15	24VR	O	24 V DC	24 V DC supply for PFPFCL1
	16	24VR	O	24 V DC	24 V DC supply for PFPFCL2
Y2 Connected to the paper feeder paper conveying clutch, paper feeder feed switch and paper feeder lift motor 1/2	1	FCL REM	O	0/24 V DC	PFCCL: On/Off
	2	24VR	O	24 V DC	24 V DC supply for PFCCL
	3	PGND	-	-	Ground
	4	LLM REM	O	24 V DC	PFLM2: On/Off
	5	PGND	-	-	Ground
	6	ULM REM	O	24 V DC	PFLM1: On/Off
	7	LFEED SW	I	5 V DC	PFFSW: On/Off
	8	5V	O	5 V DC	5 V DC supply for PFFSW
	9	SGND	-	-	Ground
	10	NC	-	-	Not used
	11	NC	-	-	Not used
	12	NC	-	-	Not used
	13	SGND	-	-	Ground
	14	SGND	-	-	Ground
	15	UP SIG1	I	0/5 V DC	PFLM1 paper gauge signal (1)
	16	LO SIG1	I	0/5 V DC	PFLM2 paper gauge signal (1)
	17	UP SIG2	I	0/5 V DC	PFLM1 paper gauge signal (2)
	18	LO SIG2	I	0/5 V DC	PFLM2 paper gauge signal (2)

Connector	Pin No.	Signal	I/O	Voltage	Description
YC3 Connected to the paper feeder paper length switch 1/2 and paper feeder paper width switch 1/2	1	UP DIG0	I	0/5 V DC	PFPSW1: On/Off
	2	UP DIG1	I	0/5 V DC	PFPSW1: On/Off
	3	UP DIG2	I	0/5 V DC	PFPSW1: On/Off
	4	LO DIG0	I	0/5 V DC	PFPSW2: On/Off
	5	LO DIG1	I	0/5 V DC	PFPSW2: On/Off
	6	LO DIG2	I	0/5 V DC	PFPSW2: On/Off
	7	UPCLE SW	I	0/5 V DC	PFPLSW1: On/Off
	8	LOCLE SW	I	0/5 V DC	PFPLSW2: On/Off
	9	SGND	-	-	Ground
	10	SGND	-	-	Ground
	11	SGND	-	-	Ground
	12	SGND	-	-	Ground
YC4 Connected to the paper feeder drive motor	1	24VR	O	24 V DC	24 V DC supply for PFDM
	2	PGND	-	-	Ground
	3	ON	O	0/5 V DC	PFDM: On/Off
	4	LOCK	I	0/5 V DC	PFDM lock signal
	5	CLOCK	O	0/5 V DC (pulse)	PFDM clock signal
YC5 Connected to the machine	1	UFEED SW	I	0/5 V DC	Paper feeder control signal
	2	READY	O	0/5 V DC	Paper feeder ready signal
	3	SDI	I	0/5 V DC (pulse)	Paper feeder serial communication data signal
	4	SDO	O	0/5 V DC (pulse)	Paper feeder serial communication data signal
	5	SCLK	I	0/5 V DC (pulse)	Paper feeder serial communication clock signal
	6	5V	I	5 V DC	5 V DC supply for paper feeder
	7	SGND	-	-	Ground
	8	PGND	-	-	Ground
	9	SEL	I	0/5 V DC	Paper feeder select signal
	10	24V	I	24 V DC	24 V DC supply for paper feeder
YC6 Connected to the left cover 3 switch	1	24VR	I	24 V DC/0V	LC3SW: On/Off
	2	NC	-	-	Not used
	3	24V	O	24 V DC	24 V DC supply for LC3SW

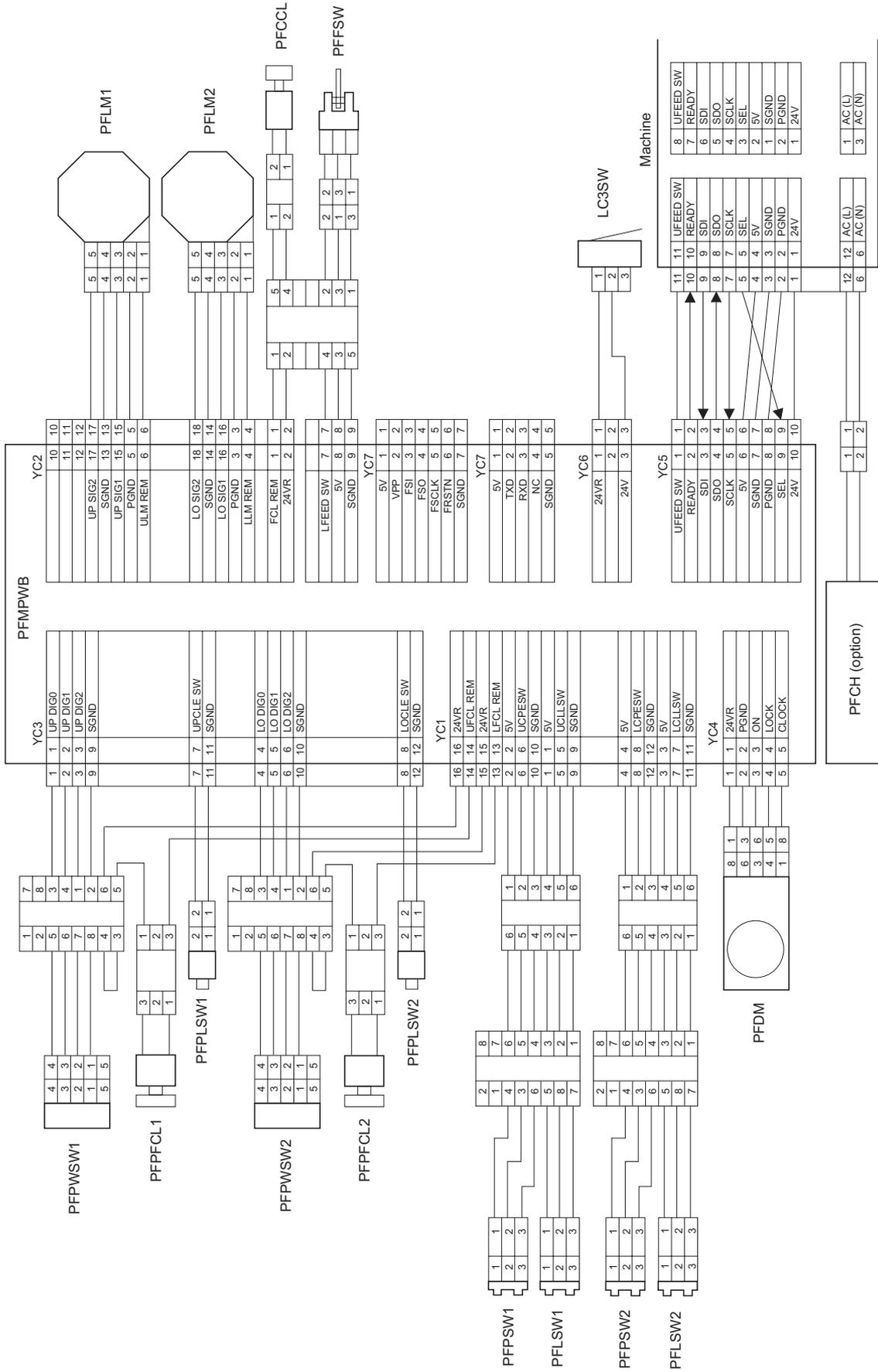
List of maintenance parts

Maintenance part name		Part No.	Alternative part No.	Fig. No.	Ref. No.
Name used in service man-	Name used in parts list				
Paper feed pulley	PULLEY,PAPER FEED	2AR07220	-	6	2
Separation pulley	PULLEY,SEPARATION	2AR07230	-	6	3
Forwarding pulley	PULLEY FEED A	2BJ06010	-	6	7
Feed pulley	PULLEY FEED	3HY07120	-	5	4
Feed roller	PARTS ROLLER VERTICAL FEED A SP	302H094090	2H094090	5	22

Periodic maintenance procedures

Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Paper feed section	Paper feed pulley	Replace	300K	Replace. (Clean with alcohol when user call occurs.)	P.1-5-2
	Separation pulley	Replace	300K	Replace. (Clean with alcohol when user call occurs.)	P.1-5-2
	Forwarding pulley	Replace	300K	Replace. (Clean with alcohol when user call occurs.)	P.1-5-2
	Feed pulley	Clean	300K	Clean with alcohol. (Check and clean with alcohol when user call occurs.)	
	Feed roller	Clean	300K	Clean with alcohol. (Check and clean with alcohol when user call occurs.)	

Wiring diagram



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