KYOCERA

PF-750

SERVICE MANUAL

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First Edition

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer’s instructions.

CAUTION

Double-pole/neutral fusing.

Revision history

Revision	Date	Replaced pages	Remarks

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KYOCERA

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. .....

- Advice 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. .....

CONTENTS

1-1-1 Specifications

Paper supply method	Friction retard method (No. sheets: 3000, 80 g/m^2)
Paper size	11" x 8 1/2", A4
Supported paper	Weight: 60 - 105 g/m^2 Types: standard, recycled, color
Power source	Electrically connected to the machine
Dimensions	23 5/16" (W) x 23 5/8" (D) x 12 3/8" (H) 585 (W) x 600 (D) x 314 (H)mm
Weight	Approx. 50.6 lbs. / Approx. 23 kg

NOTE: These specifications are subject to change without notice.

1-1-2 Parts names

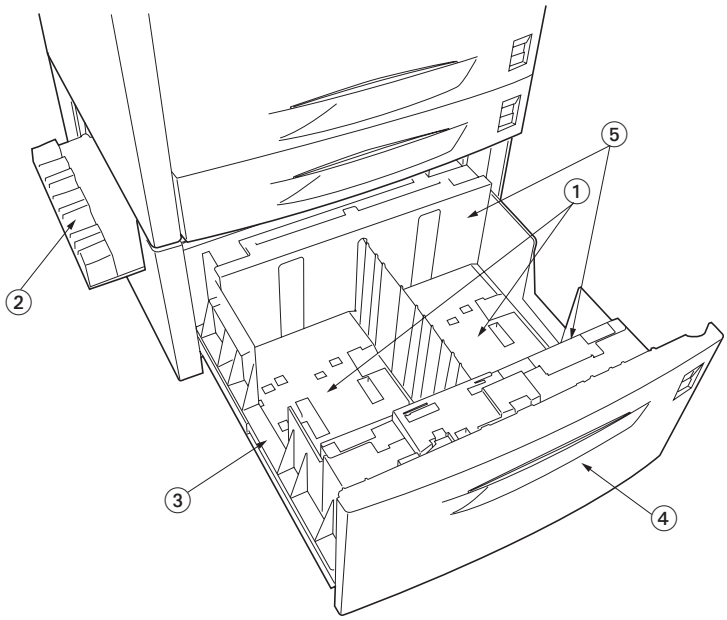

Figure 1-1-1

1. Lifts
2. Left cover 3
3. Cassette 3
4. Cassette front cover
5. Front and rear lateral size adjusters

1-1-3 Machine cross section

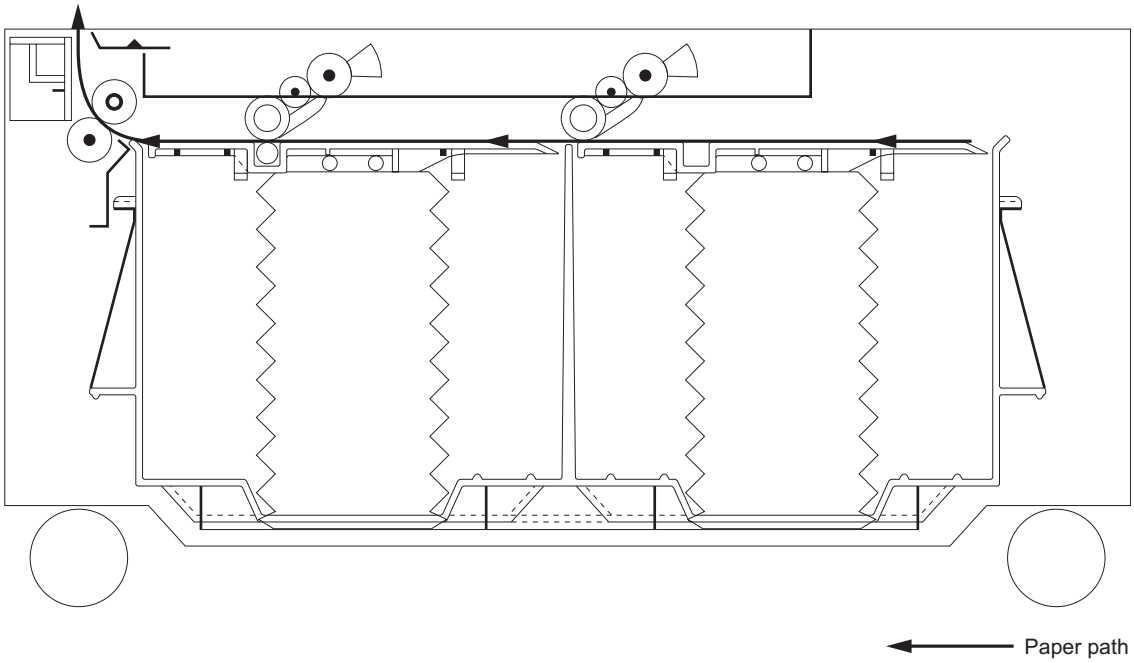

Figure 1-1-2 Machine cross section

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1-2-1 Installation environment

1. 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 of alkaline vapors, inorganic gasses, NOx, SOx gases and chlorine-based organic solvents.
   Select a room with good ventilation.

1-2-2 Unpacking

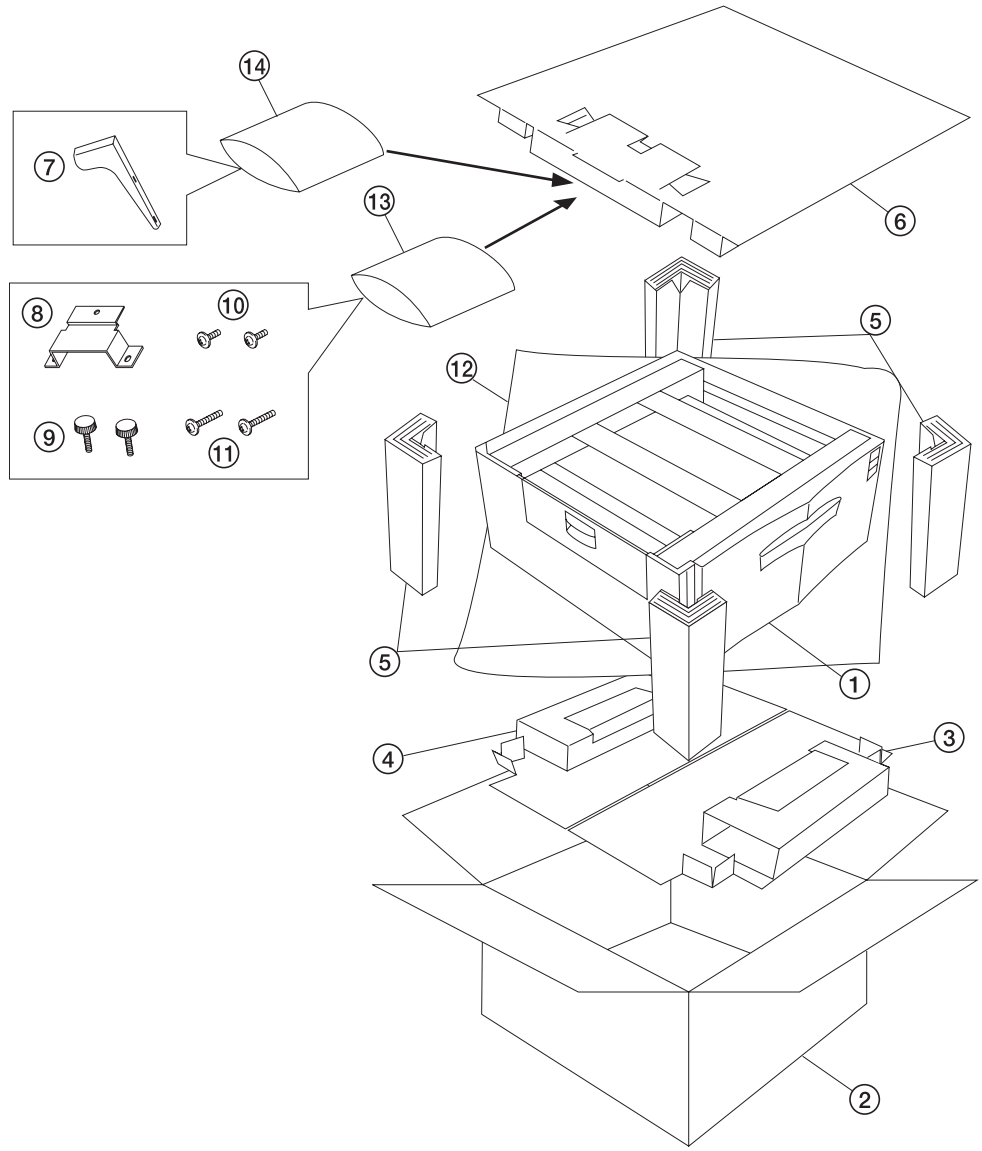


Figure 1-2-1 Unpacking

1. 3000-sheet paper feeder
2. Outer case
3. Lower front pad
4. Lower rear pad
5. Support
6. Upper pad
7. Stay
8. Retainer
9. Pins
10. CVM4 x 06 cross-head binding screws
11. M4 x 16 TP screws
12. Machine cover
13. Plastic bag
14. Plastic bag

Caution: Place the machine on a level surface.

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

Cassette heater installation requires the following parts:
Two (2) cassette heaters (P/N xxxxxxxxxx): for 220 - 240 V specifications only
Two (2) cassette heaters (P/N xxxxxxxxxx): for 120 V specifications only
Two (2) cassette heater retainers (P/N 5A707690)
Six (6) M4 x 6 IT tap-tight (S-tight) screws (P/N 37611570)
Relay wire (P/N 5A707890)
Ten (10) wire saddles (P/N M2109000)

Procedure

1. Remove two screws from each of the right cover and left cover 3 and then the covers.
2. Remove three screws holding the paper feeder rear cover and then the cover.
3. Open the paper feeder.
4. Remove two screws holding the paper conveying unit assembly and then the assembly.

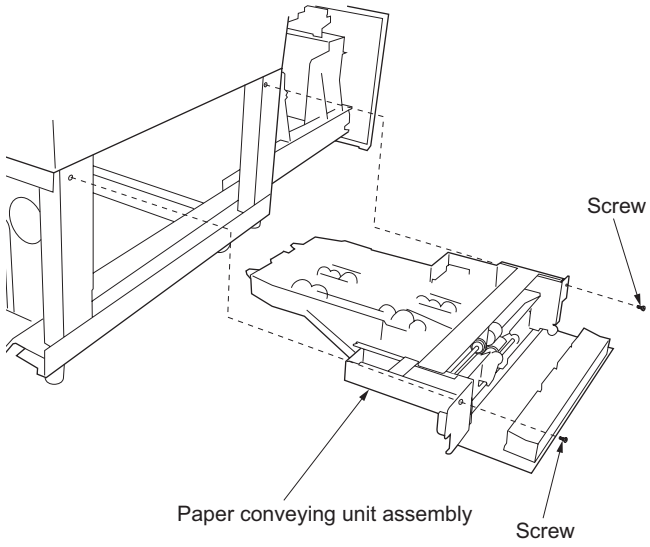


Figure 1-2-2

5. Fit the cassette heaters to the cassette heater retainers using two screws and wire saddle for each.
6. Fit the cassette heater retainers to the left and right of the paper feeder using one screw for each.

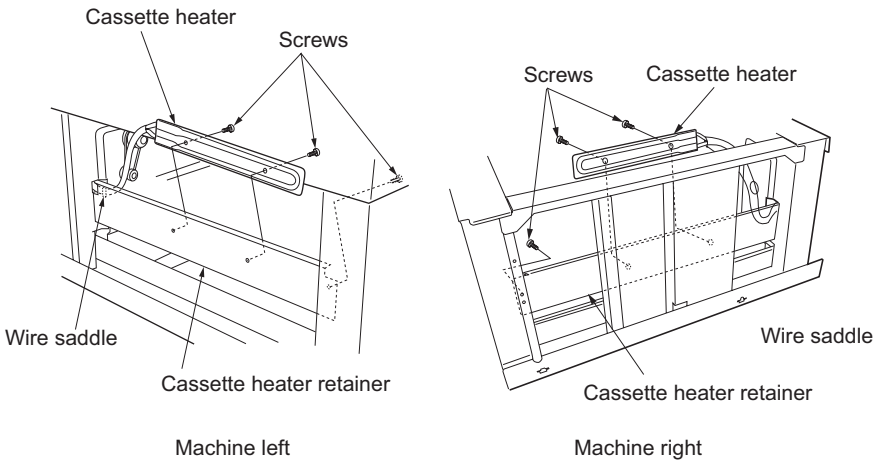


Figure 1-2-3

7. Pull the cassette heater cable out to the machine rear through the cable hole.

8. Detach the open connector from the connector of the main harness on the machine rear.

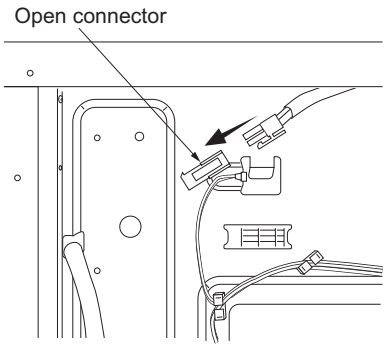


Figure 1-2-4

9. Insert the cassette heater connectors into the relay wire connectors.
10. Insert the main harness connector into the relay wire connector.
11. Tidy up the cassette heater cable and relay wire using eight wire saddles and route the cable and wire while clipping the wire saddles into the holes in the rear frame.
12. Refit the paper feeder rear cover.
13. Refit the right cover and left cover 3.

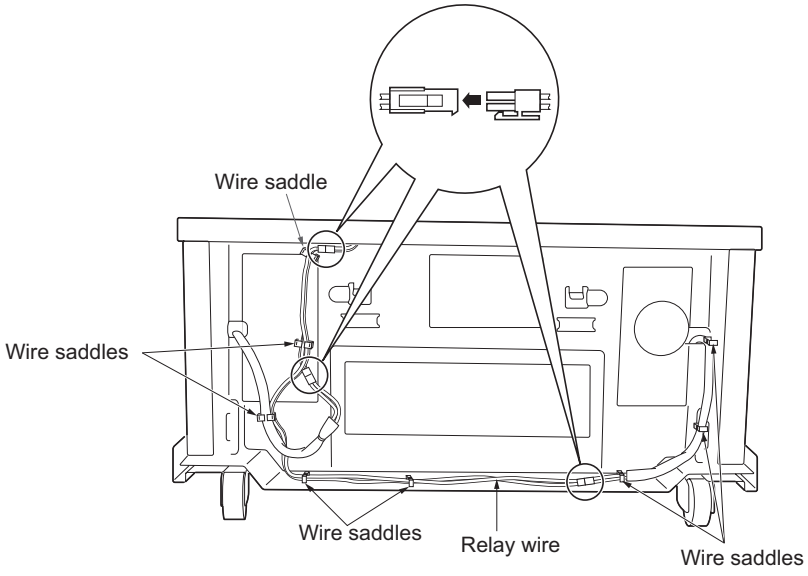
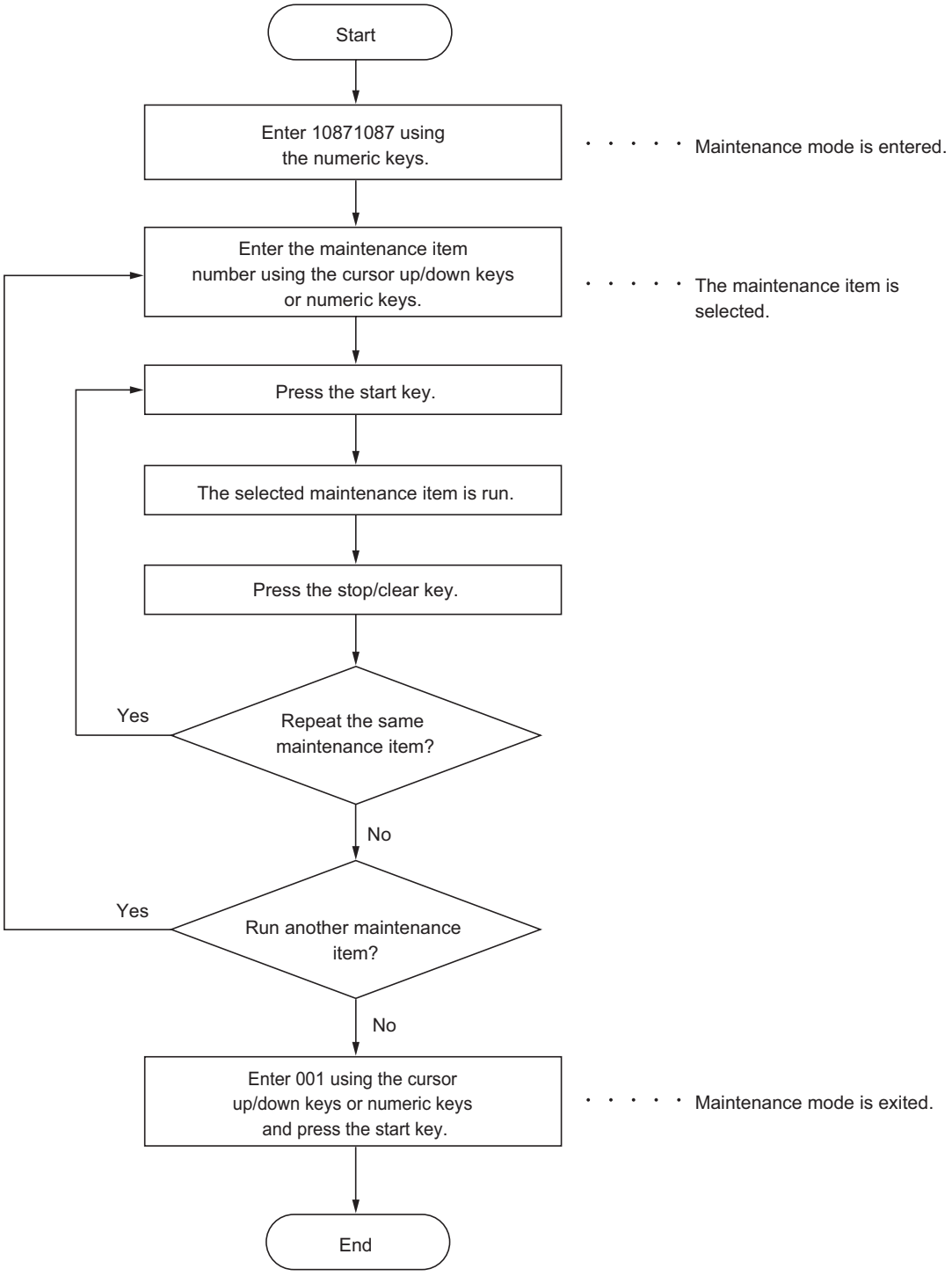


Figure 1-2-5

1-3-1 Maintenance mode

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

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U208</td><td>
Setting the paper size for the paper feeder
Description
Sets the size of paper used in 3000-sheet paper feeder.
Purpose
To change the setting when the size of paper used in the paper feeder is changed.
Setting
1. Press the start key.
2. Select the paper size (A4, B5 or 11 x 8.5).
Initial setting: 11 x 8.5 (Inch specifications)
A4 (Metric specifications)
3. Press the start key. The setting is set.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U247</td><td>
Checking the operation of 3000-sheet paper feeder
Description
Turns on motors and clutches of 3000-sheet paper feeder.
Purpose
To check the operation of motors and clutches of paper feed device.
Method
1. Press the start key..
<table>
<tr><th>Display</th><th>Motor and clutches</th></tr>
<tr><td>LCF FEED</td><td>Paper feeder conveying motor (PFCM)</td></tr>
<tr><td>CLUTCH B</td><td>Paper feeder conveying clutch (PFCCL)</td></tr>
<tr><td>CLUTCH P1</td><td>Paper feeder paper feed clutch 1 (PFPFCL1)</td></tr>
<tr><td>CLUTCH P2</td><td>Paper feeder paper feed clutch 2 (PFPFCL2)</td></tr>
</table>
2. Select the item to be operated.
When selecting the motor, the operation starts. To stop the operation, select the item again.
When selecting the clutch, each clutch is turned on for 1 s.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U901</td><td>
Checking copy counts by paper feed locations
Description
Displays copy counts by paper feed locations.
Purpose
To check the time to replace consumable parts.
Method
1. Press the start key. The counts by paper feed locations are displayed.
<table>
<tr><th>Display</th><th>Description</th></tr>
<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 (3000-sheet paper feeder)</td></tr>
<tr><td>CASSETTE 4</td><td>-</td></tr>
<tr><td>DUPLEX</td><td>Duplex unit</td></tr>
</table>
When an optional paper feed device is not installed, the corresponding count is not displayed.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

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

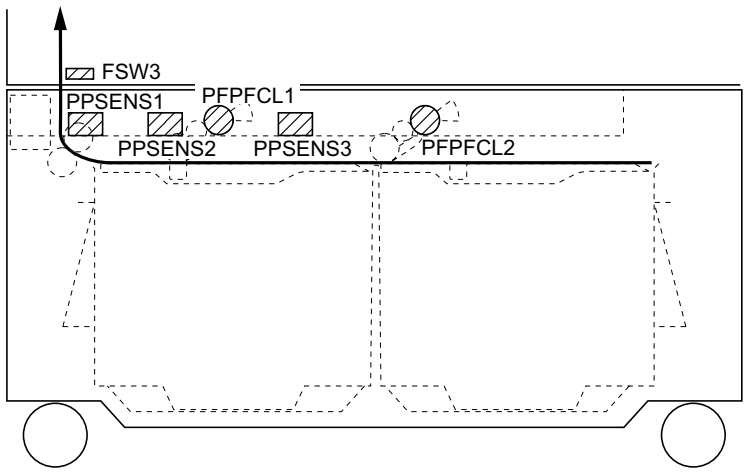


Figure 1-4-1

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.	2393 ms
	15 Jam in paper feeder horizontal paper conveying section 1	Paper path sensor 3 (PPSENS3) does not turn on within specified time of paper feeder paper feed clutch 2 (PFPFCL2) turning on.	963 ms
	16 Jam in paper feeder horizontal paper conveying section 2	Paper path sensor 2 (PPSENS2) does not turn on within specified time of the paper path sensor 3 (PPSENS3) turning on .	1029 ms
	17 Jam in paper feeder horizontal paper conveying section 3	Paper path sensor 1 (PPSENS1) does not turn on within specified time of the paper path sensor 2 (PPSENS2) turning on .	631 ms
	19 Misfeed in paper feeder paper conveying section	Feed switch 3 (FSW3) does not turn on within specified time of paper feeder feed switch (PFFSW) turning on.	1842 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.	1867 ms
	09 Paper feeder sequence error	Sequence error is occurred between the machine and paper feeder.	-

(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.
	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 the clutch malfunctions.	Run maintenance item U247 and select following clutch on the touch panel to be turned on and off. Check the status and remedy if necessary. Paper feeder paper feed clutch 1/2, paper feeder paper conveying clutch
	Electrical problem with clutch.	Check (see page 1-4-6).
(2) A paper jam in the paper feed section is indicated during copying (jam in 3000-sheet paper feeder horizontal paper conveying section). Jam code 15	Paper is extremely curled.	Change the paper.
	Check if the paper side guides are deformed.	Check visually and replace.
	Defective paper path sensor 3.	With 5 V DC present at CN6-12 on the paper feeder main PWB, check if CN6-11 on the paper feeder main PWB remains low when paper path sensor 3 is turned on and off. If it does, replace paper path sensor 3.
	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 1-4-6).
(3) A paper jam in the paper feed section is indicated during copying (jam in 3000-sheet paper feeder horizontal paper conveying section). Jam code 16	Paper is extremely curled.	Change the paper.
	Check if the paper side guides are deformed.	Check visually and replace.
	Defective paper path sensor 2.	With 5 V DC present at CN6-9 on the paper feeder main PWB, check if CN6-8 on the paper feeder main PWB remains low when paper path sensor 2 is turned on and off. If it does, replace paper path sensor 2.
	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 1-4-6).

Problem	Causes/check procedures	Corrective measures
(4) A paper jam in the paper feed section is indicated during copying (jam in 3000-sheet paper feeder horizontal paper conveying section). Jam code 17	Check if the paper side guides are deformed.	Check visually and replace.
	Defective paper path sensor 1.	With 5 V DC present at CN6-6 on the paper feeder main PWB, check if CN6-5 on the paper feeder main PWB remains low when paper path sensor 1 is turned on and off. If it does, replace paper path sensor 1.
	Check if paper feeder paper conveying clutch malfunctions.	Run maintenance item U247 and select paper feeder paper conveying clutch on the touch panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with paper feeder paper conveying clutch.	Check (see page 1-4-6).
(5) A paper jam in the paper feed section is indicated during copying (jam in optional paper feeder vertical paper conveying section). Jam code 19	Broken feed switch 3 actuator.	Check visually and replace switch.
	Defective feed switch 3.	Run maintenance item U031 and turn feed switch 3 on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse.
(6) A paper jam in the paper feed section is indicated during copying (multiple sheets in cassette 3). Jam code 24	Broken switch actuator.	Check visually and replace switch.
	Defective feed switch 3.	Run maintenance item U031 and turn feed switch 1 on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse.
	Defective paper feeder paper feed clutch 1.	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 1-4-6).
	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

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C0420	**Paper feeder communication error** A communication error from paper feeder is detected 10 times in succession.	Poor contact in the connector terminals.	Check the connection of connector YC33 on the engine PWB and the connector YC1 on the paper feeder main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective PWB.	Replace the paper feeder main PWB or engine PWB and check for correct operation.
C1100	**Paper feeder lift motor 1 error** A motor over-current signal is detected continuously for 1 s or longer.	Poor contact in the connector terminals.	Check the connection of connector on the engine PWB and the connector on the paper feeder main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Paper feeder lift motor 1 does not rotate correctly (the motor is overloaded).	Check the gears and remedy if necessary.
C1110	**Paper feeder lift motor 2 error** A motor over-current signal is detected continuously for 1 s or longer.	Poor contact in the connector terminals.	Check the connection of connector on the engine PWB and the connector on the paper feeder main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Paper feeder lift motor 2 does not rotate correctly (the motor is overloaded).	Check the gears and remedy if necessary.
C1120	**Paper feeder left lift position problem** Paper feeder switch 2 does not turn on within 30 s of paper feeder lift motor 1 turning on.	Poor contact in the connector terminals.	Check the connection of connector on the engine PWB and the connector on the paper feeder main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective paper feeder lift switch 2.	Check if YC5-7 on the paper feeder main PWB goes low when paper feeder lift switch 2 is turned off. If not, replace paper feeder lift switch 2.
		Defective paper feeder lift motor 1.	Check for continuity across the coil. If none, replace paper feeder lift motor 1.
		The paper feeder left lift does not rise properly.	Check the gears and belts, and remedy if necessary.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C1130	**Paper feeder right lift position problem** Paper feeder switch 1 does not turn on within 30 s of paper feeder lift motor 2 turning on.	Poor contact in the connector terminals.	Check the connection of connector on the engine PWB and the connector on the paper feeder main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective paper feeder lift switch 1.	Check if YC5-4 on the paper feeder main PWB goes low when paper feeder lift switch 1 is turned off. If not, replace paper feeder lift switch 1.
		Defective paper feeder lift motor 2.	Check for continuity across the coil. If none, replace paper feeder lift motor 2.
		The paper feeder right lift does not rise properly.	Check the gears and belts, and remedy if necessary.
C1900	**Paper feeder EEPROM error** When writing the data, the write data and the read data is not continuously in agreement three times.	Poor contact in the connector terminals.	Check the connection of connector on the engine PWB and the connector on the paper feeder main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective engine PWB.	Replace the engine PWB and check for correct operation (see page 1-5-29).
		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	**Paper feeder paper conveying motor error** The lock signal of the motor is detected avobe 450 ms.	Poor contact in the connector terminals.	Check the connection of connector on the engine PWB and the connector on the paper feeder main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective 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 PWB.	Replace the paper feeder main PWB or engine PWB and check for correct operation.
		Defective paper feeder paper conveying motor.	Replace the paper feeder paper conveying motor.

1-4-3 Electric problems

Problem	Causes	Check procedures/corrective measures
(1) The paper feeder does not operate when the main power switch is turned on.	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) The paper feeder paper conveying motor does not operate.	Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Broken the gear.	Check visually and replace the gear if necessary.
	Defective paper feeder paper conveying motor.	Run maintenance item U247 and check if the paper feeder paper conveying motor operates when CN2-2 on the paper feeder main PWB goes low. If not, replace the paper feeder paper conveying motor.
	Defective paper feeder main PWB.	Run maintenance item U247 and check if CN2-2 on the paper feeder main PWB goes low. If not, replace the paper feeder main PWB.
(3) The lift motor 1/2 does not operate.	Broken motor coil.	Check for continuity across the coil. If none, replace the motor.
	Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective paper feeder main PWB.	Check if CN7-13 or CN7-6 on the paper feeder main PWB goes low right after the cassette is installed. If not, replace the paper feeder main PWB.
(4) The paper feeder paper feed clutch 1/2 or paper feeder paper conveying clutch does not operate.	Broken clutch coil.	Check for continuity across the coil. If none, replace the clutch.
	Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	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: CN4-3 Paper feeder paper feed clutch 2: CN4-1 Paper feeder paper conveying clutch: CN4-5

1-4-4 Mechanical problems

Problem	Causes/check procedures	Corrective measures
(1) No primary paper feed.	Check if the paper feeder separation roller 1 or 2 is soiled with paper powder.	Clean with isopropyl alcohol.
	Check if paper feeder paper feed roller 1 or 2 is soiled with paper powder.	Clean with isopropyl alcohol.
	Check if the paper feeder separation roller 1 or 2 is worn or deformed.	Replace (see page 1-5-2).
	Check if paper feeder paper feed roller 1 or 2 is worn or deformed.	Replace (see page 1-5-3).
	Check if paper feeder paper feed clutch 1, 2 or the paper feeder paper conveying clutch malfunctions.	Remedy or replace.
(2) Skewed paper feed.	Check if the paper feeder separation roller 1 or 2 is worn or deformed.	Replace (see page 1-5-2).
	Check if dpaper feeder paper feed roller 1 or 2 is worn or deformed.	Replace (see page 1-5-3).
	Check if the paper side guides are deformed.	Remedy or replace.
(3) Multiple sheets of paper are fed at one time.	Check if the paper is excessively curled.	Change the paper.
	Paper is not loaded correctly.	Correct.
	Check if the paper feeder separation roller 1 or 2 is worn or deformed.	Replace (see page 1-5-2).
(4) Paper jams.	Check if the paper is excessively curled.	Change the paper.
	Check if the paper side guides are deformed.	Remedy or replace.
(5) Abnormal noise is heard.	Check if rollers and gears operate smoothly.	Grease the bushings and gears.
	Check for any abnormality with motors and clutches.	Replace.
	Check for any drive belt out of place.	Remedy if necessary.

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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.

1-5-2 Paper feed section

(1) Detaching and refitting paper feeder separation roller 1 and 2

Clean or replace paper feeder separation roller 1, 2 as follows.

Procedure

1. Open left cover 3.
2. Remove stop ring 1.
3. Remove the shaft.
4. Remove the paper feeder separation roller assembly.
5. Remove stop ring 2 securing paper feeder separation roller 2 and then the roller.
6. Remove stop ring 3 securing paper feeder separation roller 1 and then the roller.
7. Clean or replace paper feeder separation roller 1 and 2.
8. Refit all removed parts.

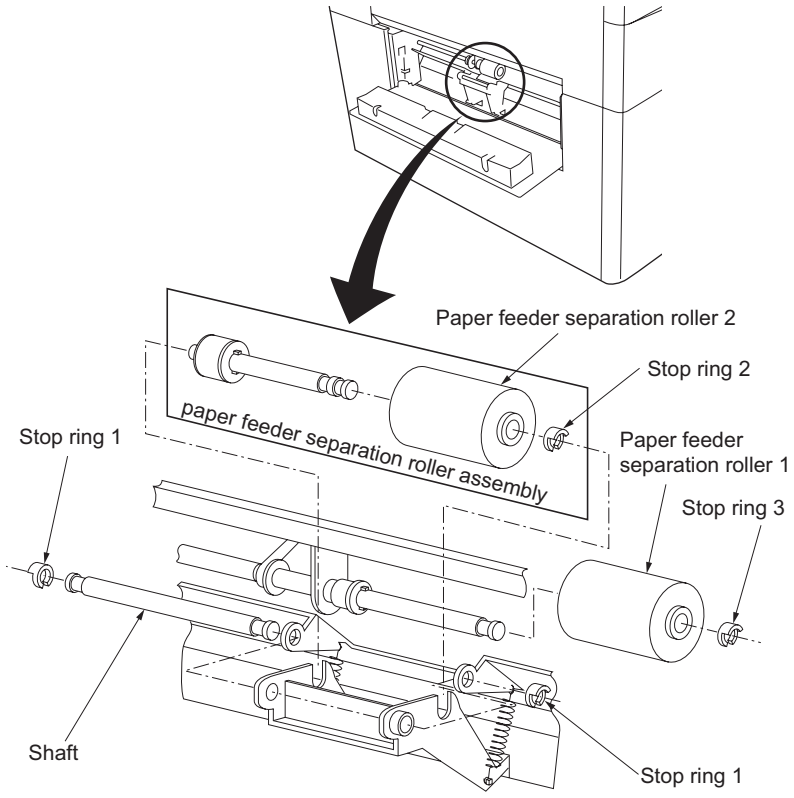

Figure 1-5-1

(2) Detaching and refitting the paper feeder paper conveying unit assembly

Replace the desk upper or lower paper width switches as follows.

Procedure

1. Open the cassette.
2. Remove left cover 3.
3. Remove two screws holding the paper feeder paper conveying unit assembly and then the assembly.

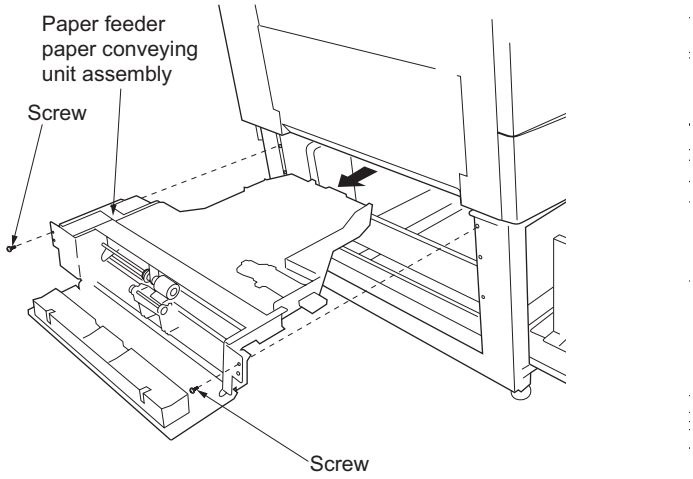

Figure 1-5-2

(3) Detaching and refitting paper feeder paper feed rollers 1 and 2

Clean or replace paper feed roller 1, 2 as follows.

Procedure

1. Turn the paper feeder paper conveying unit over.
2. Remove the stop ring while lifting the paper feed roller section.
3. Pull out the shifting shaft and then paper feeder paper feed rollers 1 and 2.
4. Clean or replace paper feeder paper feed rollers 1 and 2.
5. Refit all removed parts.

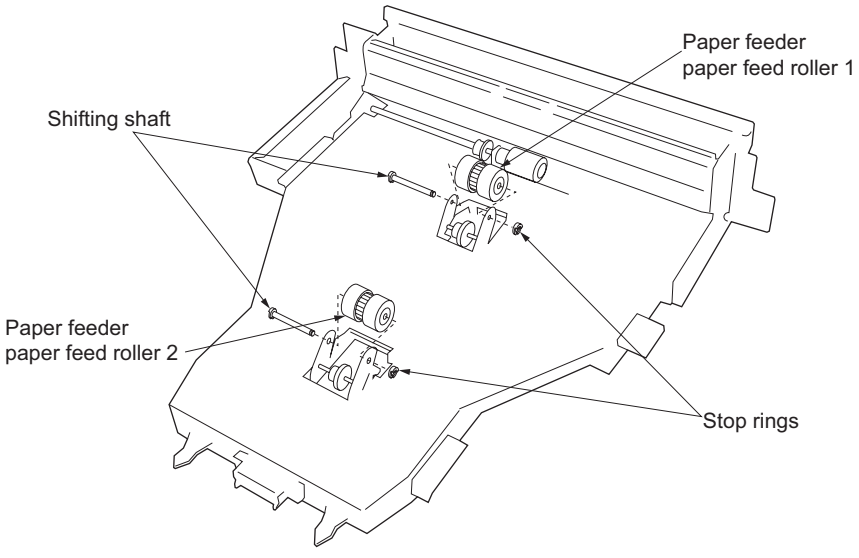

Figure 1-5-3

(4) Adjusting the position of the center adjuster (center line alignment)

Perform the following adjustment if the center lines of the copy image and the copy paper are misaligned.

Procedure

1. Connect the power plug to the wall outlet and turn the main power switch on.
2. Run maintenance item 034 and output the test pattern.
3. If the center of the paper and that of the test pattern output do not meet the reference value, perform the following adjustment.
   <Reference value> Deviation to the left or right: 1.5 mm or less
4. Pull out the cassette of the paper feeder and loosen the three screws securing the adjuster.
   If the test pattern output looks like A, move the adjuster in the direction of the black arrow (⬅) and retighten the three screws.
   If the test pattern output looks like B, move the adjuster in the direction of the white arrow (⇨) and retighten the three screws.

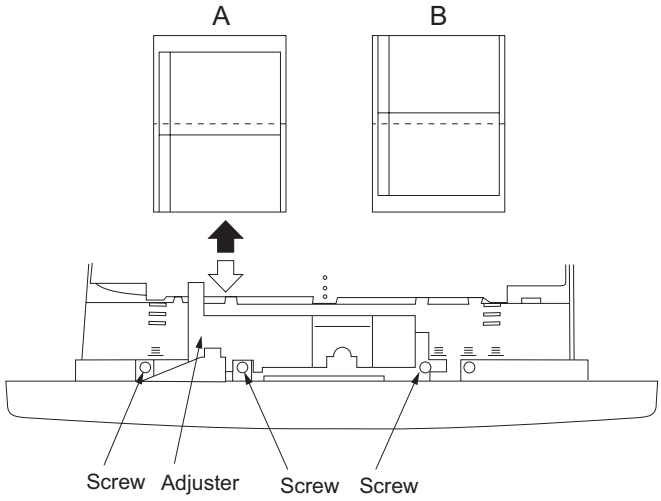

Figure 1-5-4

5. Close the cassette.
6. Output a test pattern again.
7. Repeat steps 4 to 6 until the centers of the paper and the test pattern meet the reference value.
   <Reference value> Deviation to the left or right: 1.5 mm or less
8. If the position of the adjuster is changed, adjust the front cover position.
   If the front cover position is not proper, the cassette may not be fixed with the magnet or the gap between the front cover and the paper feeder may be opened.
9. Loosen the five screws.
10. Move the position of the front cover by the amount of divisions of the level that corresponds to the movement of the adjuster (amount of movement of the level) using the level.
11. Retighten the five screws

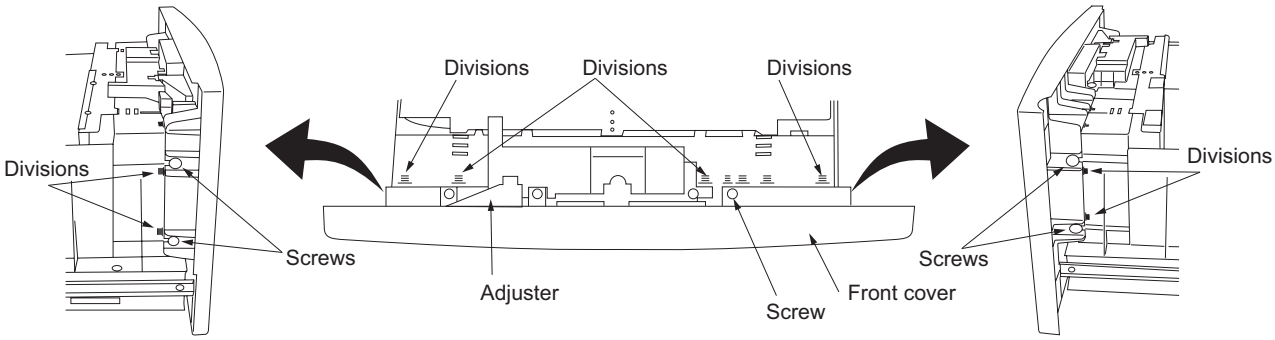

Figure 1-5-5

2-1-1 Mechanical construction

The paper feeder consists mainly of the left and right cassettes and separation section.
The left cassette paper feed section sends paper from the lift to paper feeder separation rollers 1 and 2. When the left cassette becomes empty, the right cassette paper feed section conveys paper onto the lift of the left cassette.
The paper feeder separation rollers 1 and 2 in the separation section convey paper received from the left cassette paper feed section into the machine, preventing multiple sheets from being fed at one time.

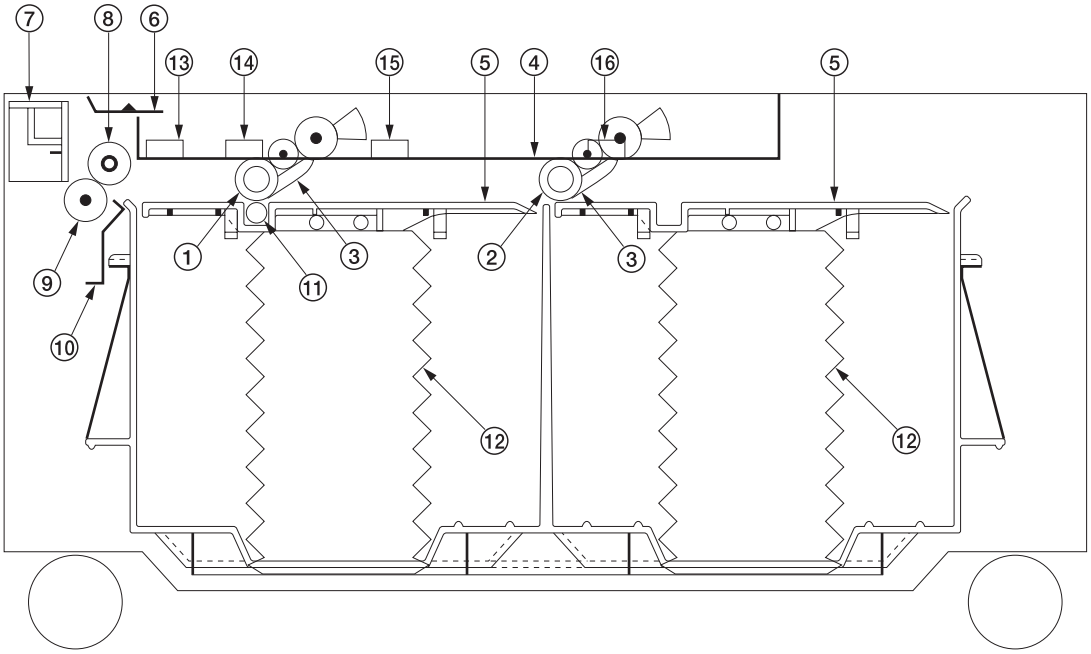

Figure 2-1-1

(1) Paper feeder paper feed roller 1
(2) Paper feeder paper feed roller 2
(3) Pickup arm
(4) Paper conveying base
(5) Lift
(6) Paper guide U
(7) Left cover 3
(8) Paper feeder separation roller 1
(9) Paper feeder separation roller 2
(10) Paper guide D
(11) Guide pulley
(12) Air damper
(13) Paper path sensor 1 (PPSENS1)
(14) Paper path sensor 2 (PPSENS2)
(15) Paper path sensor 3 (PPSENS3)
(16) Paper empty sensor (PESENS)

Left cassette paper feed

As the paper feeder paper conveying clutch (PFCCL) turns on, the drive is transmitted to paper feeder separation rollers 1 and 2, starting paper feed from the left cassette.

The paper feeder separation rollers 1 and 2 ensure that the paper is fed one sheet at a time and that it is fed into the machine correctly. To prevent multiple sheets from being fed, there is a torque limiter on paper feeder separation roller 2.

When the left cassette is empty, its lift serves as a guide for the paper being conveyed from the right cassette lift.

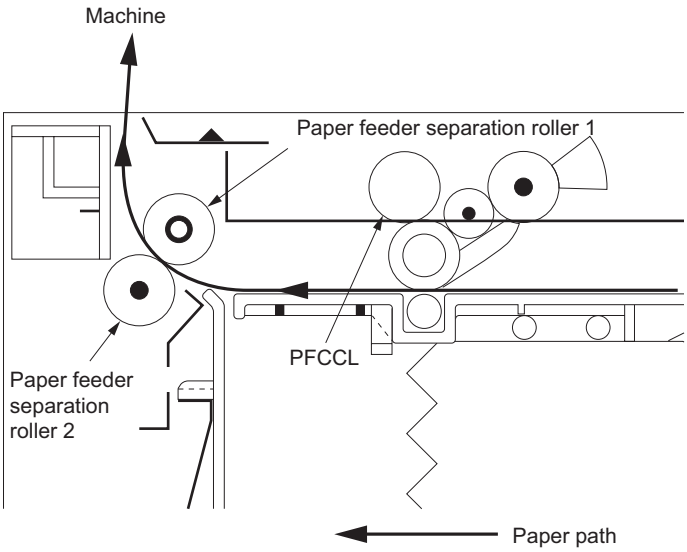

Figure 2-1-2 Left cassette paper feed section

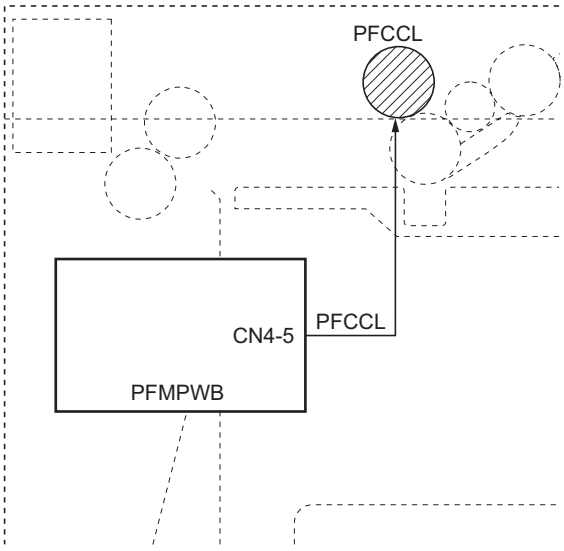

Figure 2-1-3 Left cassette paper feed section block diagram

Right cassette paper feed

As the last sheet in the left cassette is fed, paper feeder paper feed clutch 2 (PFPFCL2) and paper feeder paper feed clutch 1 (PFPFCL1) turn on for paper feed from the right cassette. Paper feeder paper feed rollers 1 and 2 start to rotate to convey paper from the right cassette onto the left cassette lift.

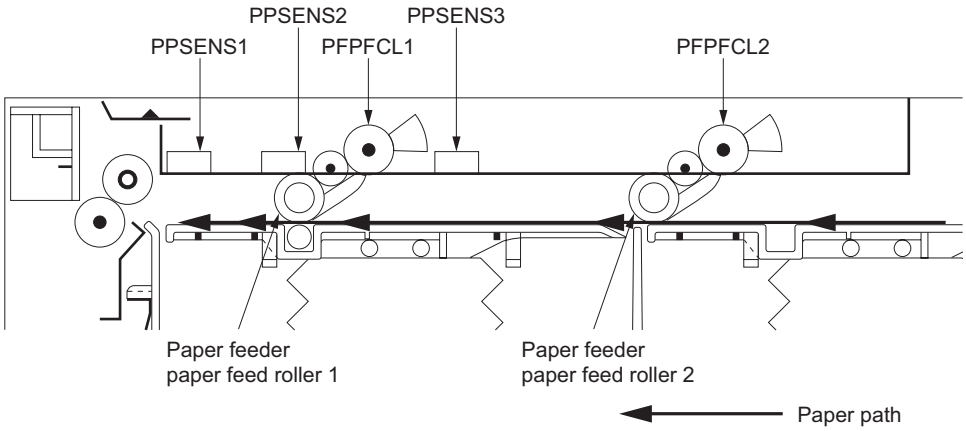

Figure 2-1-4 Right cassette paper feed section

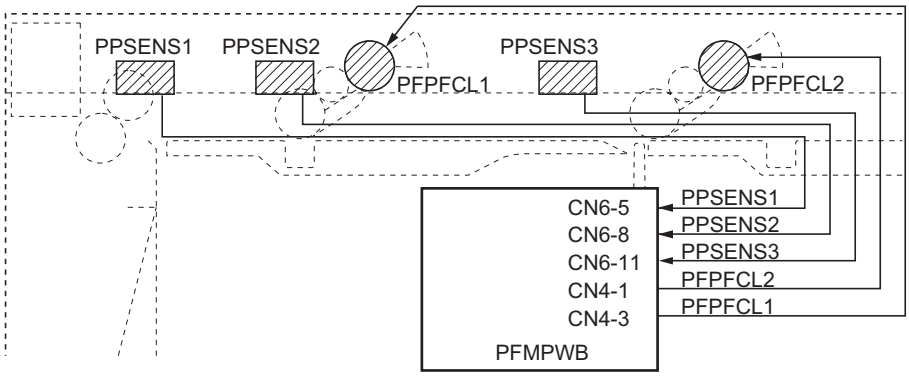

Figure 2-1-5 Right cassette paper feed section block diagram

Raising and lowering the lifts

The following is a description of the right cassette lift operating mechanism. The left cassette lift operates in the same manner.

Lift motor 2 (LM2) drives the right lift belt assembly that winches the belt up and hence raises the lift until it is stopped by level switch 2 (LSW2).

When paper is loaded on the lift and the deck is closed, the lift is raised until level switch 2 (LSW2) turns on.

When level switch 2 (LSW2) is turned off as the paper on the lift is used, lift motor 2 (LM2) starts to raise the lift until the switch turns on.

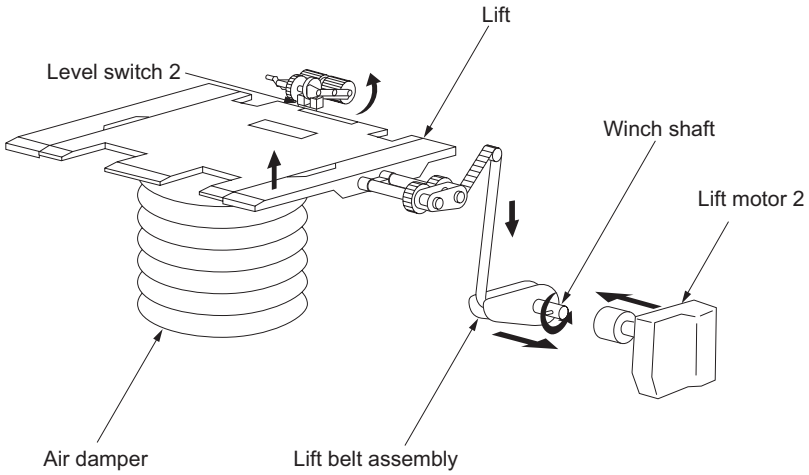

Figure 2-1-6 Raising and lowering the lift

When the cassette is opened for removing a jammed paper or other purposes, the winch shaft is released from its holder on lift motor 2 (LM2), allowing the lift to descend under its own weight. The air damper buffers the impact of the descending lift.

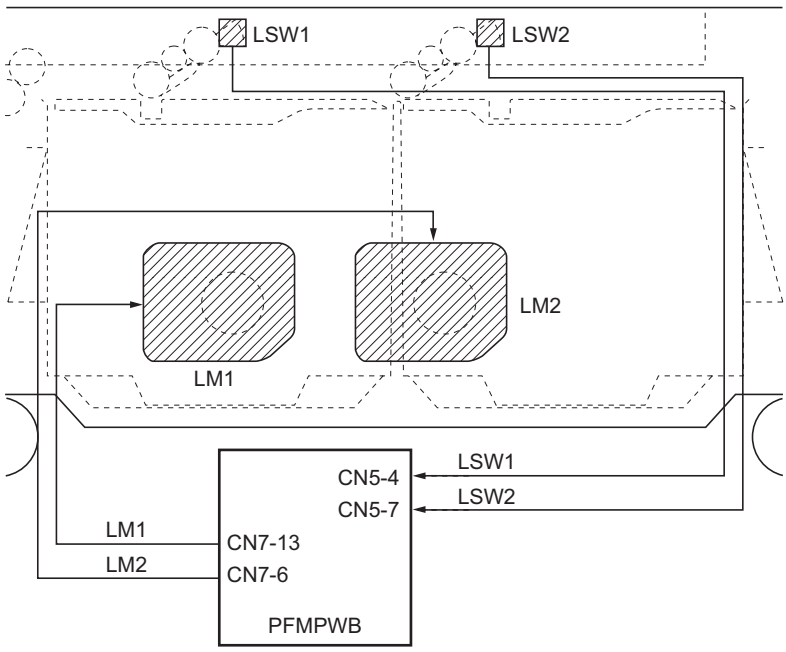

Figure 2-1-7 Lift block diagram

Detecting the paper level

The lift rises as paper in the cassette is used.

When the remaining number of sheets in either right or left cassette reduces to around 100 to 250 sheets, the projection on the lift belt assembly pushes against the sensor lever which turns the relevant paper level detection sensor 1 or 2 (PLDSENS1/2) on.

When both paper level detection sensors 1 and 2 (PLDSENS1/2) have turned on, the message [Low on paper.] is shown on the machine message display. This message is not shown when only one of them is on.

As more copies are made with the message on, paper path sensors 1, 2 and 3 (PPSENS1/2/3) or the paper empty sensor (PESENS) start to detect absence of paper, and the message [Add paper in cassette 3.(Add paper cassette 3.)] is shown.

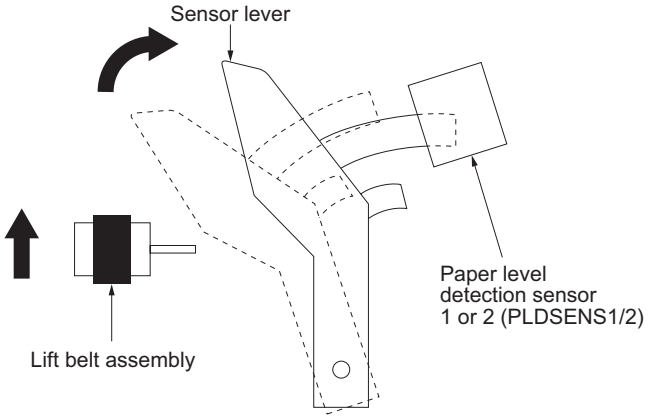

Figure 2-1-8 Detecting the paper level

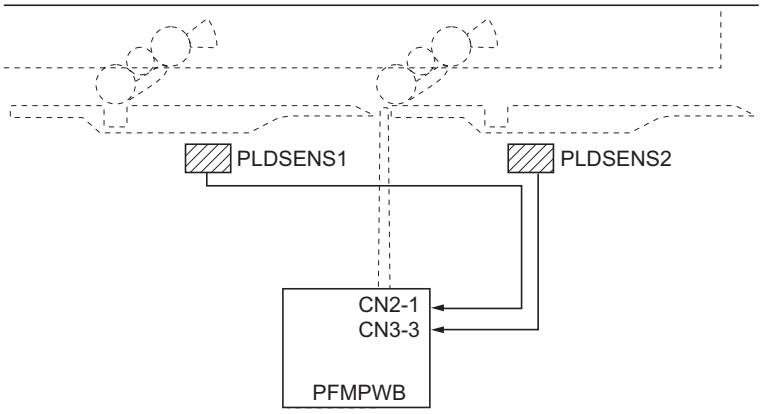

Figure 2-1-9 Paper level detection system block diagram

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2-2-1 Electrical parts layout

(1) PWBs

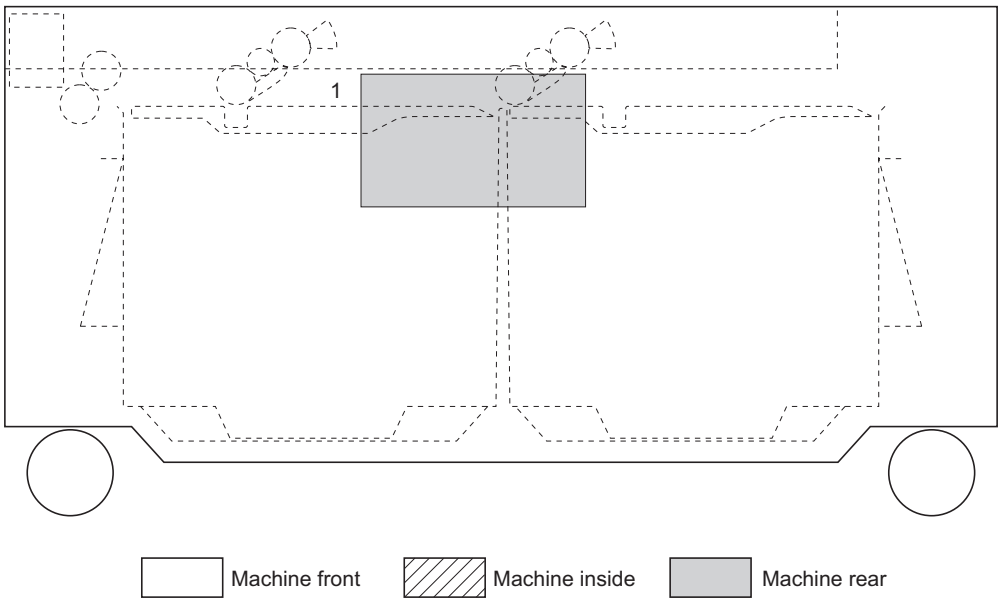

Figure 2-2-1 PWBs

1. Paper feeder main PWB (PFMPWB)..... Controls electrical components and communications with the machine.
2. Sensor relay PWB (SENRYPWB).....

(2) Switches and sensors

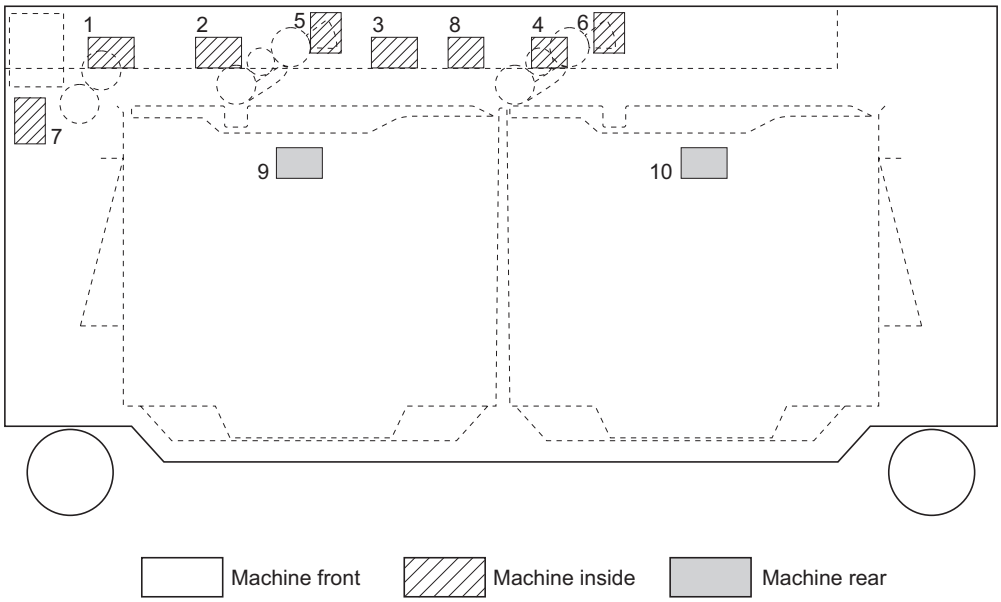

Figure 2-2-2 Switches and sensors

1. Paper path sensor 1 (PPSENS1)..... Detect paper jams and the absence of paper on the lifts.
2. Paper path sensor 2 (PPSENS2)..... Detect paper jams and the absence of paper on the lifts.
3. Paper path sensor 3 (PPSENS3)..... Detect paper jams and the absence of paper on the lifts.
4. Paper empty sensor (PESENS)..... Detects the absence of paper in the right cassette.
5. Level switch 1 (LSW1) ..... Detects the left cassette lift in the home position.
6. Level switch 2 (LSW2) ..... Detects the right cassette lift in the home position.
7. Left cover 3 switch (LC3SW) ..... Detects if left cover 3 is open or closed.
8. Paper feeder open/closed safety switch (PFOSSW) ..... Detects if the paper feeder is open or closed.
9. Paper level detection sensor 1 (PLDSENS1)..... Detects the paper level in the left cassette.
10. Paper level detection sensor 2 (PLDSENS2)..... Detects the paper level in the right cassette.

(3) Other electrical components

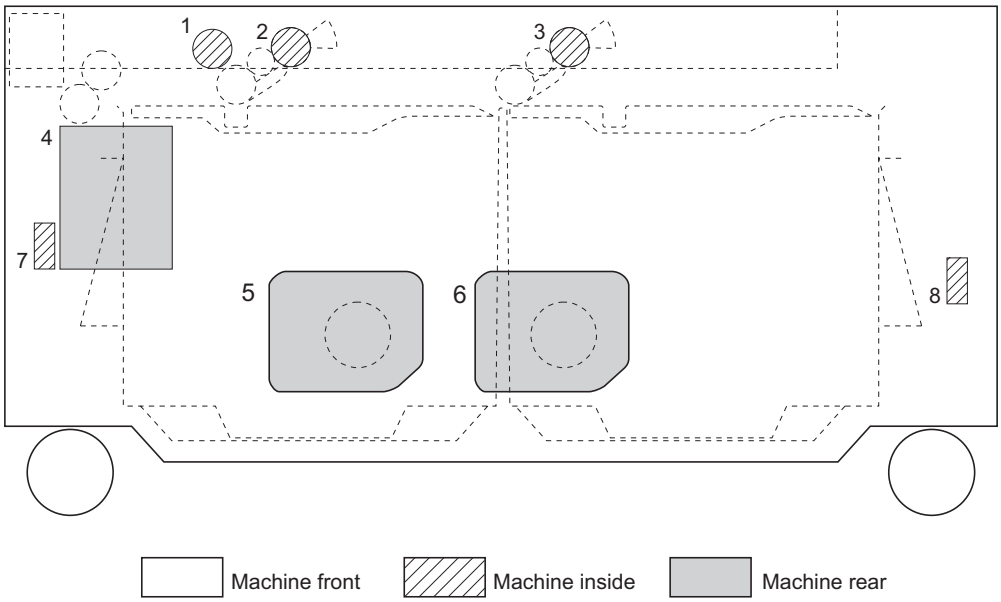

Figure 2-2-3 Other electrical components

1. Paper feeder paper conveying clutch (PFCCL)..... Regulates drive transmission to paper feeder separation rollers 1 and 2.
2. Paper feeder paper feed clutch 1 (PFPFCL1)..... Regulates drive transmission to paper feeder paper feed roller 1.
3. Paper feeder paper feed clutch 2 (PFPFCL2)..... Regulates drive transmission to paper feeder paper feed roller 2.
4. Paper feeder paper conveying motor (PFCM) ..... Drives the paper feeder.
5. Lift motor 1 (LM1)..... Raises the left cassette lift.
6. Lift motor 2 (LM2)..... Raises the right cassette lift.
7. Paper feeder cassette heater 1* (PFCH1)... Dehumidifies paper in the left cassette.
8. Paper feeder cassette heater 2* (PFCH2)... Dehumidifies paper in the right cassette.

*Optional.

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2-3-1 Paper feeder main PWB

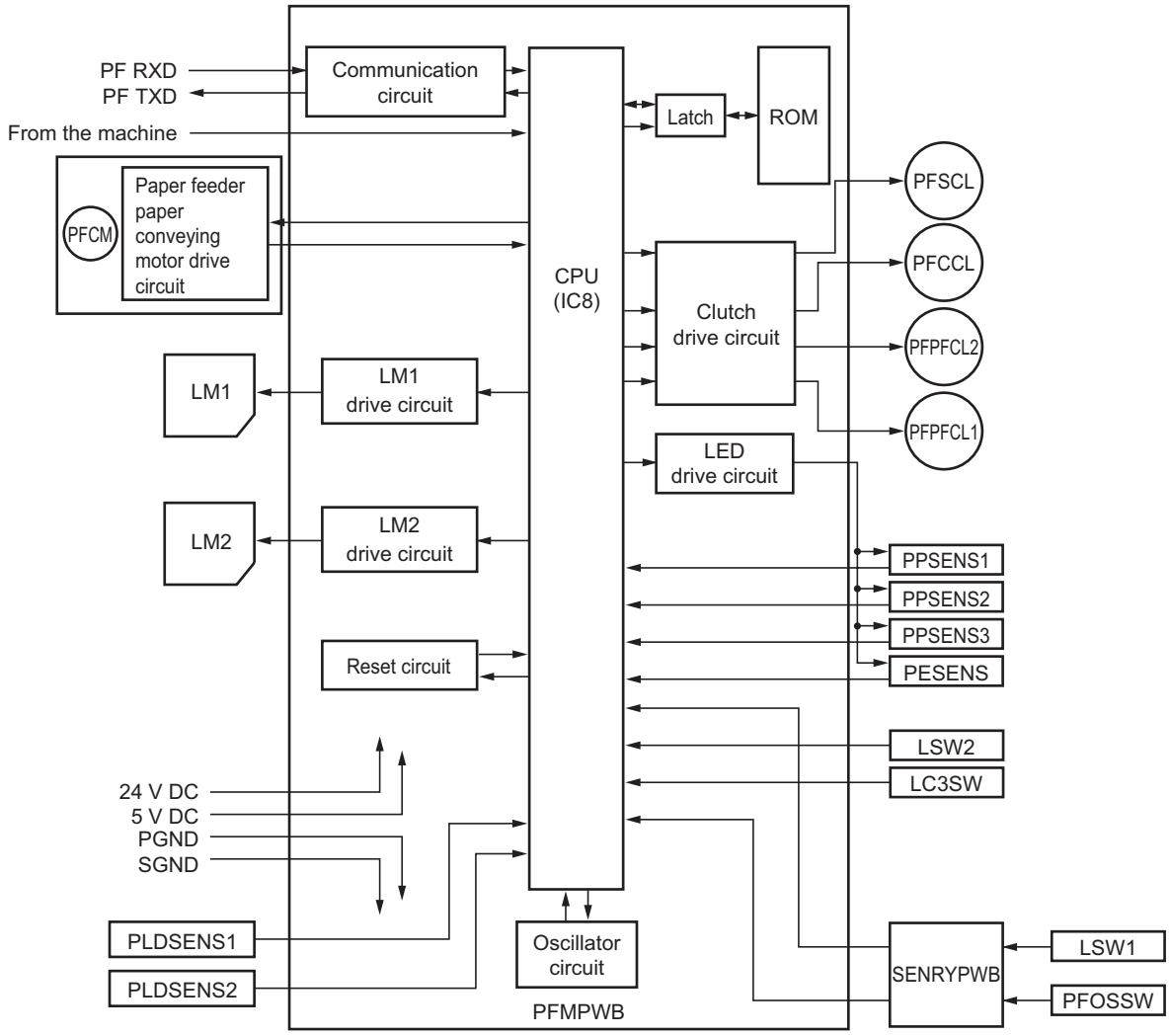


Figure 2-3-1 Paper feeder main PWB diagram

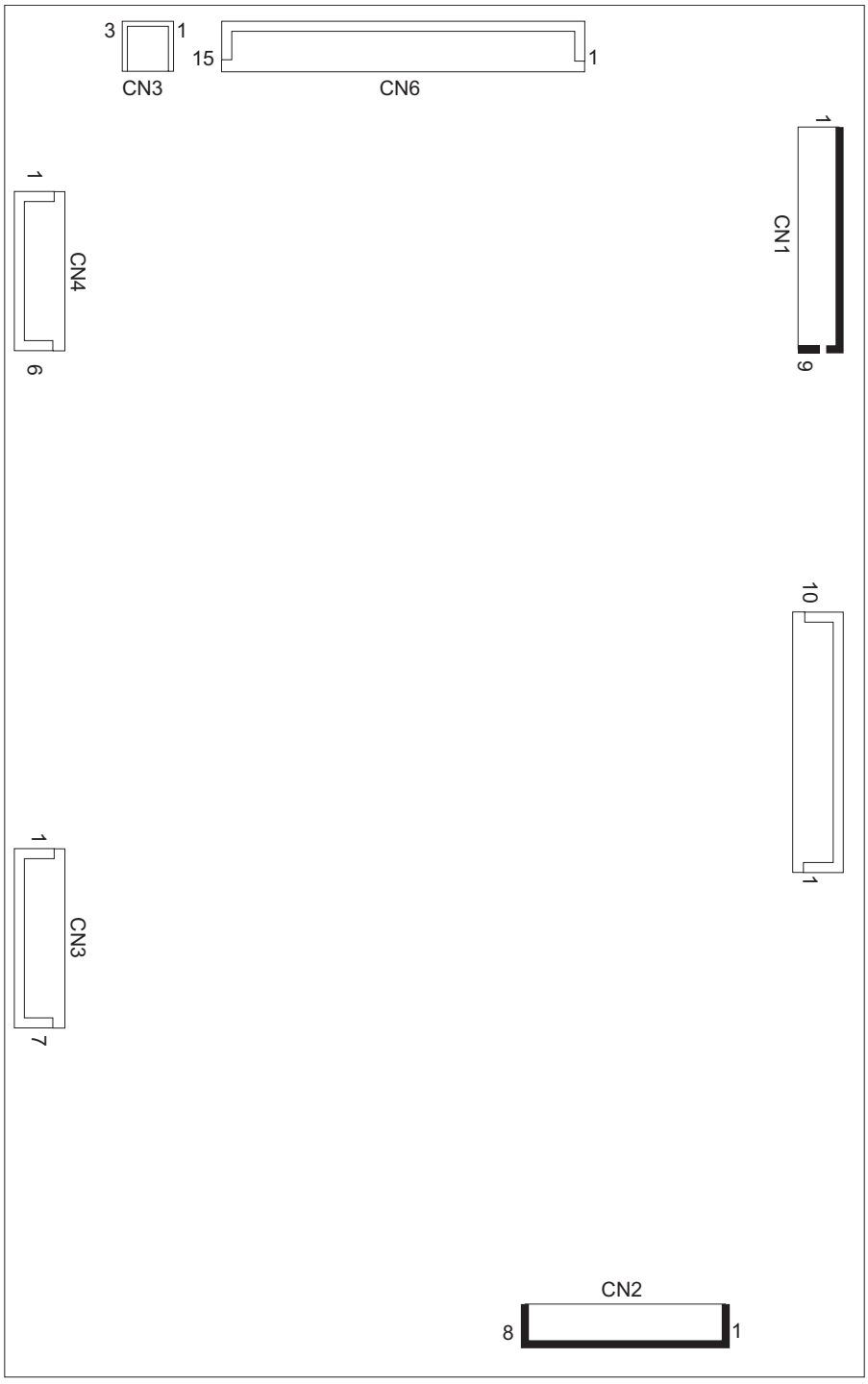


Figure 2-3-2 Paper feeder main PWB silk-screen diagram

Connector	Pin No.	Signal	I/O	Voltage	Description
CN1	1	FEED SW SIG	I	0/5 V DC	FSW3 On/Off signal from the machine
Connected to the machine	2	READY	O	0/5 V DC	Ready signal to the machine
	3	SDO(IN)	I	0/5 V DC (pulse)	Serial communication signal from the machine
	4	SDO(OUT)	O	0/5 V DC (pulse)	Serial communication signal to the machine
	5	CLK	I	0/5 V DC (pulse)	Clock signal from the machine
	6	SELECT	I	0/5 V DC	Select signal from the machine
	7	DC5V	I	5 V DC	5 V DC power supply
	8	SGND	-	-	Signal ground
	9	PGND	-	-	Power ground
	10	DC24V	I	24 V DC	24 V DC power supply
CN2	1	RS1_3	I	0/5 V DC	PLDSENS1: On/Off
Connected to the paper level detection sensor 1 and paper feeder paper conveying motor	2	SGND	-	-	Signal ground
	3	DC5V	O	5 V DC	5 V DC supply for PLDSENS1
	4	PGND	-	-	Power ground
	5	DC24V	O	24 V DC	24 V DC supply for PFCM
	6	MOT_ON	O	0/24 V DC	PFCM: On/Off
	7	LD	I	0/5 V DC (pulse)	PFCM lock signal
CN3	1	DC5V	O	5 V DC	5 V DC supply for PLDSENS2
Connected to the paper level detection sensor 2	2	SGND	-	-	Signal ground
	3	RS2_3	I	0/5 V DC	PLDSENS2: On/Off
YC4	1	P2_CL	O	0/24 V DC	PFPFCL2: On/Off
Connected to the paper feeder paper feed clutch 1/2, paper feeder paper conveying clutch and paper feeder separation clutch	2	DC24V	O	24 V DC	24 V DC supply for PFPFCL2
	3	P1_CL	O	0/24 V DC	PFPFCL1: On/Off
	4	DC24V	O	24 V DC	24 V DC supply for PFPFCL1
	5	B_CL	O	0/24 V DC	PFCCL: On/Off
	6	DC24V	O	24 V DC	24 V DC supply for PFCCL
	7	B_CL	O	0/24 V DC	PFSCL: On/Off
	8	DC24V	O	24 V DC	24 V DC supply for PFSCL
CN5	1	FRONT_COVER	I	5/0 V DC	PFOSSW: On/Off
Connected to the sensor relay PWB and level switch 2	2	SGND	-	-	Signal ground
	3	DC5V	O	5 V DC	5 V DC supply for SENRYPWB
	4	LEVEL_S1	I	0/5 V DC	LSW1: On/Off
	5	N.C.	-	-	Not used
	6	N.C.	-	-	Not used
	7	LEVEL_S2	I	0/5 V DC	LSW2: On/Off
	8	SGND	-	-	Signal ground
	9	5V	O	5 V DC	5 V DC supply for LSW2

Connector	Pin No.	Signal	I/O	Voltage	Description
CN6	1	SIDE_COVER	I	5/0 V DC	LC3SW: On/Off
Connected to the paper path sensor 1/2/3 and paper empty sensor	2	SGND	-	-	Signal ground
	3	DC5V	O	5 V DC	5 V DC supply for LC3SW
	4	PPS0_CLK	O	5/4 V DC (pulse)	PPSENS1 clock signal
	5	PPS0	I	5/0 V DC (pulse)/0 V DC	PPSENS1: On/Off
	6	DC5V	O	5 V DC	5 V DC supply for PPSENS1
	7	PPS1_CLK	O	5/4 V DC (pulse)	PPSENS2 clock signal
	8	PPS1	I	5/0 V DC (pulse)/0 V DC	PPSENS2: On/Off
	9	DC5V	O	5 V DC	5 V DC supply for PPSENS2
	10	PPS2_CLK	O	5/4 V DC (pulse)	PPSENS3 clock signal
	11	PPS2	I	5/0 V DC (pulse)/0 V DC	PPSENS3: On/Off
	12	DC5V	O	5 V DC	5 V DC supply for PPSENS3
	13	EMP_S_CLK	O	5/4 V DC (pulse)	PESENS clock signal
	14	EMP_S	I	5/0 V DC (pulse)/0 V DC	PESENS: On/Off
	15	DC5V	O	5 V DC	5 V DC supply for PESENS
CN7	1	RS2_2	I	0/5 V DC	LM2: On/Off
Connected to the Lift motor 1/2	2	SGND	-	-	Signal ground
	3	RS2_1	I	0/5 V DC	LM2: On/Off
	4	NC	-	-	Not used
	5	DC24V	O	24 V DC	24 V DC supply for LM2
	6	LMOT2	I	0/24 V DC	LM2: On/Off
	7	NC	-	-	Not used
	8	RS1_2	I	0/5 V DC	LM1: On/Off
	9	SGND	-	-	Signal ground
	10	RS1_1	I	0/5 V DC	LM1: On/Off
	11	NC	-	-	Not used
	12	DC24V	O	24 V DC	24 V DC supply for LM1
	13	LMOT1	O	0/24 V DC	LM1: On/Off

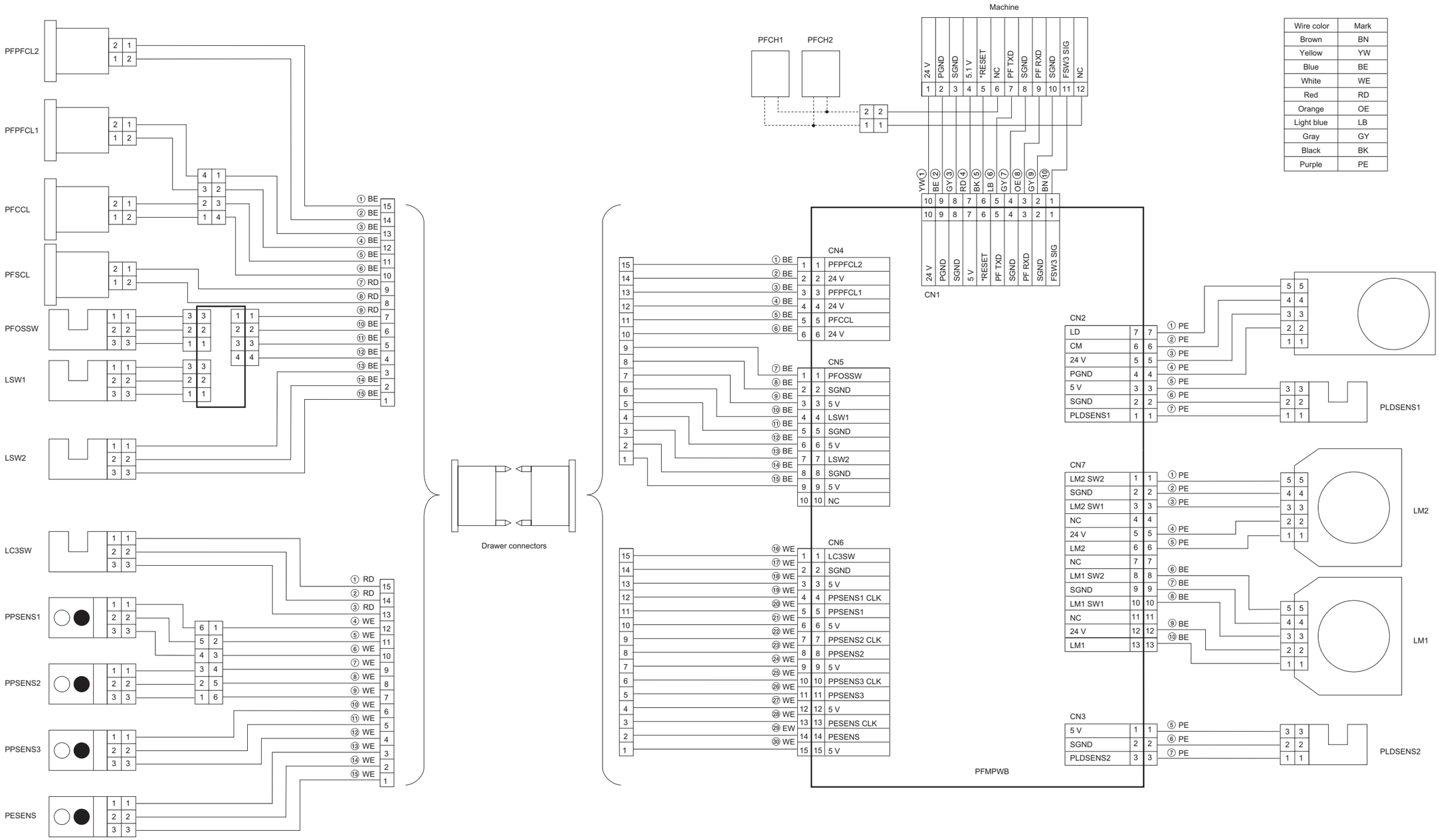
List of maintenance parts

Maintenance part name		Part No.	Alternative part No.	Fig. No.	Ref. No.
Name used in service manual	Name used in parts list				
Push paper sensor	H-PICK ROLLER	5A707600	-	3	22
Surface view sensor	PULLEY,PAPER FEED	5FH06010	-	3	49
Upper cover sensor	PULLEY,SEPARATION	5FH06020	-	3	42
Paper conveying sensor	C-PICK PULLEY	5A707580	-	2	18
Paper path sensor 1/2/3	TLP1241(C5,F)	305H080320	5H080320	3	9
Paper empty sensor	SNS-SPI-338	5A707980	-	3	3
Level switch 1/2	SNS-SPI-338	5A707980	-	3	3
Paper feeder open/closed safety switch	SNS-SPI-338	5A707980	-	3	3

Periodic maintenance procedures

Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Paper conveying section	Push paper sensor	Cleaning	Every time	Air brush	
	Surface view sensor	Cleaning	Every time	Air brush	
	Upper cover sensor	Cleaning	Every time	Air brush	
	Paper conveying sensor	Cleaning	Every time	Air brush	
	Adjusting hone position sensor	Cleaning	Every time	Air brush	
	Exit sensor	Cleaning	Every time	Air brush	
	Tray upper limit sensor	Cleaning	Every time	Air brush	
	Tray lower limit sensor	Cleaning	Every time	Air brush	
	Reverse sensor	Cleaning	Every time	Air brush	
	Exit roller	Cleaning	Every time	Wipe with cloth moistened with alcohol.	
	Paper conveying belt	Cleaning	Every time	Wipe with cloth moistened with alcohol.	
	Paper conveying roller	Cleaning	Every time	Wipe with cloth moistened with alcohol.	
	Paddle	Cleaning	Every time	Wipe with cloth moistened with alcohol.	
	Front static eliminator	Check	Every time	If paper powder or dust adheres to tip of brush, remove it.	
	Rear static eliminator	Check	Every time	If paper powder or dust adheres to tip of brush, remove it.	
	Reverse static eliminator	Check	Every time	If paper powder or dust adheres to tip of brush, remove it.	
	Push paper lever cushion	Cleaning	Every time	Wipe with cloth moistened with alcohol.	

Wiring diagram



Wire color	Mark
Brown	BN
Yellow	YW
Blue	BE
White	WE
Red	RD
Orange	OE
Light blue	LB
Gray	GY
Black	BK
Purple	PE

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