

---

***ST-14***

# CONTENTS

<b>1-1 Specifications</b>	
1-1-1 Specifications .....	1-1-1
1-1-2 Parts names .....	1-1-2
1-1-3 Machine cross section .....	1-1-3
1-1-4 Drive system .....	1-1-4
<b>1-2 Installation</b>	
1-2-1 Unpacking .....	1-2-1
1-2-2 Installing the dehumidifier heaters (service part) .....	1-2-2
<b>1-3 Troubleshooting</b>	
1-3-1 Paper misfeed detection .....	1-3-1
(1) Paper misfeed indication .....	1-3-1
(2) Paper misfeed detection conditions .....	1-3-1
(3) Paper misfeeds .....	1-3-3
1-3-2 Self-diagnosis .....	1-3-5
(1) Self-diagnostic function .....	1-3-5
(2) Self-diagnostic codes .....	1-3-6
1-3-3 Electrical problems .....	1-3-8
(1) The large paper deck does not operate when the copier main switch is turned on. ....	1-3-8
(2) The deck paper conveying motor does not operate. ....	1-3-8
(3) Paper deck motor 1 does not operate. ....	1-3-8
(4) Paper deck motor 2 does not operate. ....	1-3-8
(5) Paper feed clutch 1 does not operate. ....	1-3-8
(6) Paper feed clutch 2 does not operate. ....	1-3-9
(7) The paper conveying clutch does not operate. ....	1-3-9
1-3-4 Mechanical problems .....	1-3-10
(1) No primary paper feed. ....	1-3-10
(2) Paper is fed askew. ....	1-3-10
(3) Multiple sheets of paper are fed at one time. ....	1-3-10
(4) Paper jams. ....	1-3-10
(5) Abnormal noise is heard. ....	1-3-10
<b>1-4 Assembly and Disassembly</b>	
1-4-1 Precautions for assembly and disassembly .....	1-4-1
(1) Precautions .....	1-4-1
1-4-2 Paper feed section .....	1-4-2
(1) Detaching and refitting the upper and lower deck separation rollers .....	1-4-2
(2) Detaching and refitting the deck paper conveying unit assembly .....	1-4-3
(3) Detaching and refitting deck paper feed rollers 1 and 2 .....	1-4-3
(4) Adjusting the position of the center adjuster (center line alignment) .....	1-4-4
(5) Adjusting the amount of slack. ....	1-4-5
<b>2-1 Mechanical construction</b>	
2-1-1 Mechanical construction .....	2-1-1
<b>2-2 Electrical Parts Layout</b>	
2-2-1 Electrical parts layout .....	2-2-1
<b>2-3 Operation of the PCBs</b>	
2-3-1 Deck main PCB .....	2-3-1
(1) Paper deck motor drive circuits .....	1-4-2
(2) Operating principle of reflective photosensors PPSENS1, PPSENS2, PPSENS3 and PESENS .....	1-4-3

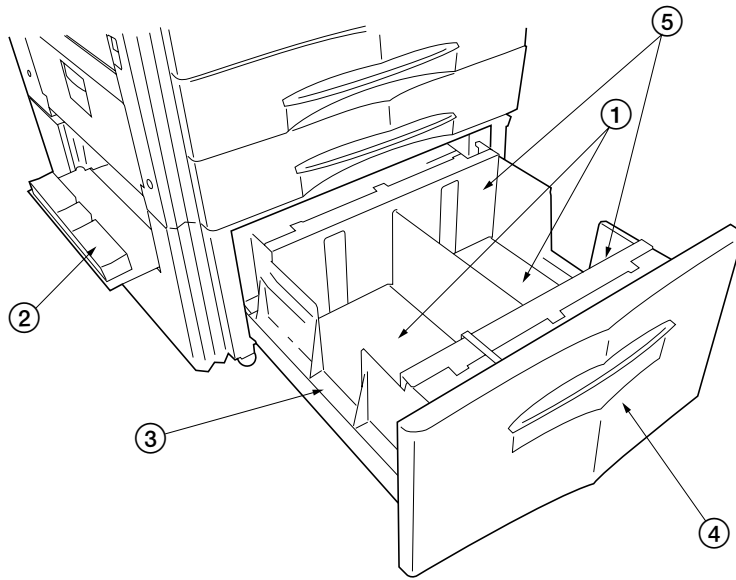
2-4 Appendixes

Timing chart No. 1 .....	2-4-1
Timing chart No. 2 .....	2-4-2
Wiring diagram .....	2-4-3

**1-1-1 Specifications**

Paper .....	Plain paper (75 – 80 g/m <sup>2</sup> )
Paper size .....	A4, B5, 11" × 8 <sup>1</sup> / <sub>2</sub> "
Capacity .....	3000 sheets (1500 sheets × 2)
Power source .....	Electrically connected to the copier
Dimensions .....	585 (W) × 590 (D) × 315 (H) mm 23 <sup>1</sup> / <sub>16</sub> " (W) × 23 <sup>1</sup> / <sub>4</sub> " (D) × 12 <sup>3</sup> / <sub>8</sub> " (H)
Weight .....	35 kg/77.2 lbs

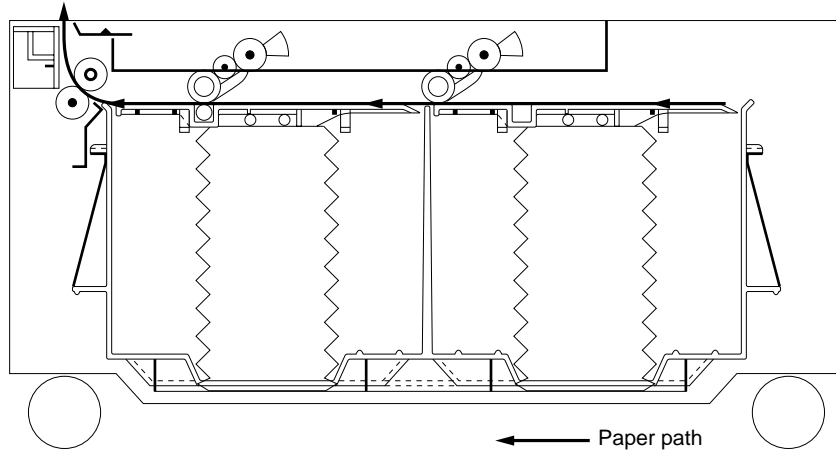
**1-1-2 Parts names**



**Figure 1-1-2 Parts names**

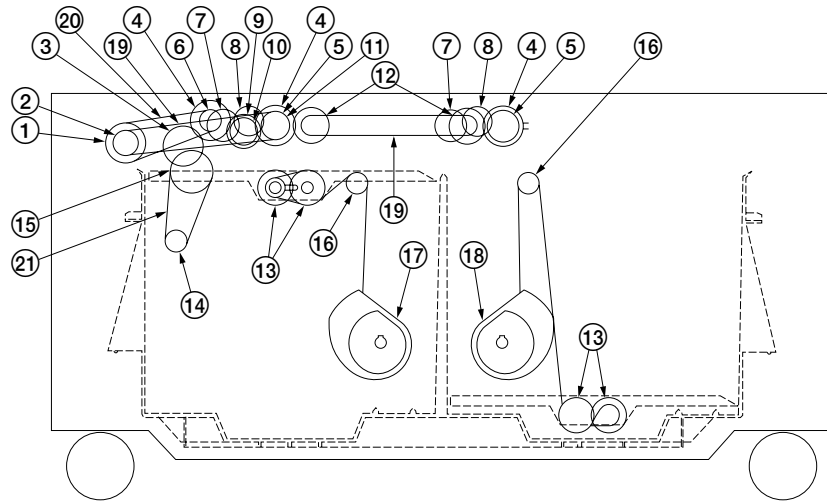
- ① Lifts
- ② Deck side cover
- ③ Drawer
- ④ Deck front cover
- ⑤ Paper side guides

**1-1-3 Machine cross section**



**Figure 1-1-3 Machine cross section**

1-1-4 Drive system



As viewed from machine front

Figure 1-1-4

- |                             |                            |
|-----------------------------|----------------------------|
| ① Pulley 2M-40              | ⑫ Pulley 14, gear 0.8-32   |
| ② Pulley S3M-16             | ⑬ Gear 1.0-24              |
| ③ Gear 0.8-35/1-20          | ⑭ Pulley S2M-18            |
| ④ Gear 2.6                  | ⑮ Pulley 43, gear 20       |
| ⑤ Gear 0.8-23               | ⑯ Lift pulley              |
| ⑥ Pulley 2M-18              | ⑰ Left lift belt assembly  |
| ⑦ Pickup roller gear 0.8-23 | ⑱ Right lift belt assembly |
| ⑧ Gear 0.9-26               | ⑲ Belt S3M276              |
| ⑨ Gear 30                   | ⑳ Belt 2M0950              |
| ⑩ Gear 0.8-24               | ㉑ Belt 2M0840              |
| ⑪ Pulley 3M-18              |                            |

1-2-1 Unpacking

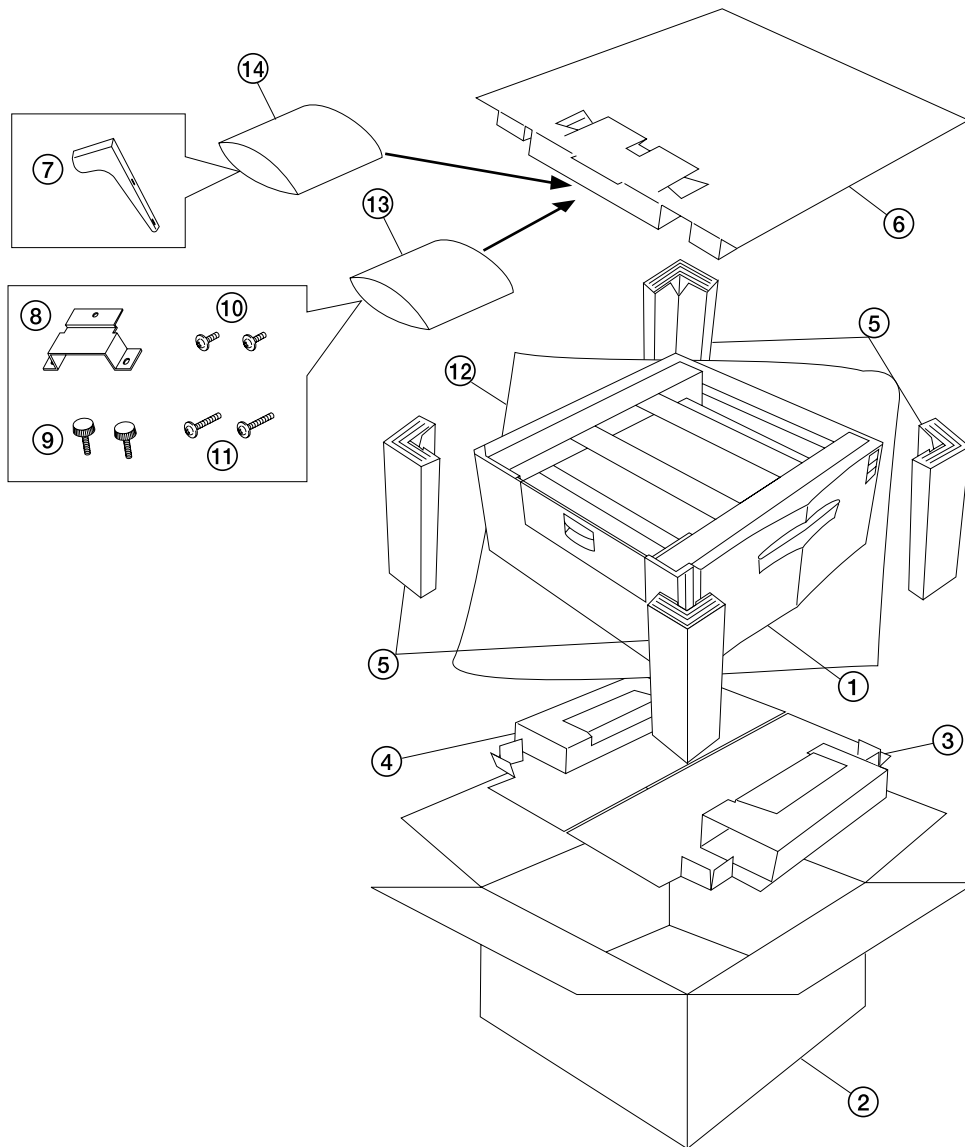


Figure 1-2-1

- |                    |  |
|--------------------|--|
| ① Large paper deck | ⑧ Retainer   |
| ② Outer case       | ⑨ Pins   |
| ③ Lower front pad  | ⑩ Cross-head chromate binding screws,<br>CVM4 × 06 |
| ④ Lower rear pad   | ⑪ Chrome TP screws, M4 × 16                        |
| ⑤ Support          | ⑫ Machine cover                                    |
| ⑥ Upper pad        | ⑬ Plastic bag                                      |
| ⑦ Stay             | ⑭ Plastic bag                                      |



## 1-2-2 Installing the dehumidifier heaters (service part)

Dehumidifier heater installation requires the following parts:

Two (2) dehumidifier heaters (P/N 33960020): for 220 – 240 V specifications only

Two (2) dehumidifier heaters (P/N 34860030): for 120 V specifications only

Two (2) dehumidifier heater retainers (P/N 5A707690)

Six (6) M4 × 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 the two screws from each of the deck right cover and deck left cover and then the covers.
2. Remove the three screws holding the deck rear cover and then the cover.
3. Open the large paper deck.
4. Remove the two screws holding the deck paper conveying unit assembly and then the assembly.

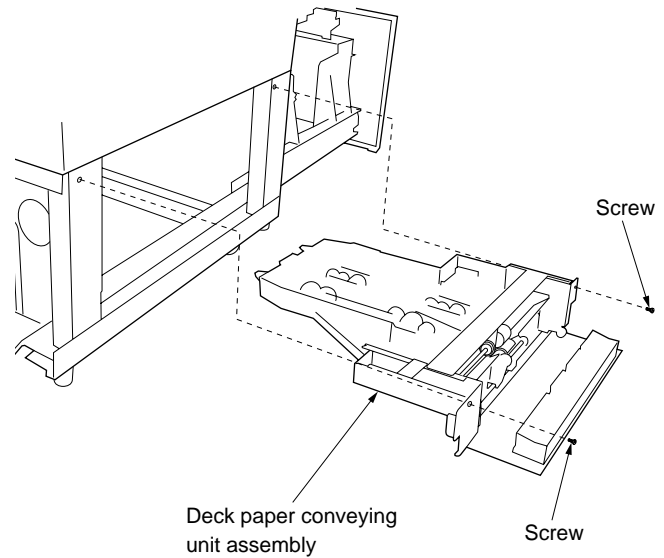


Figure 1-2-2

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

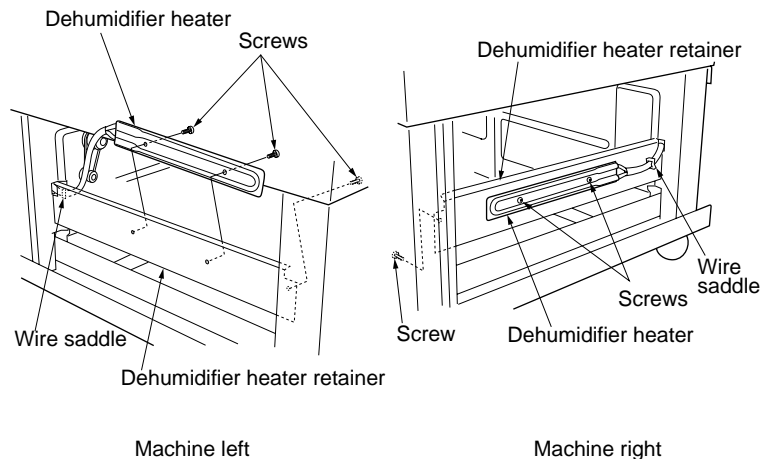


Figure 1-2-3

7. Pull the dehumidifier 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.

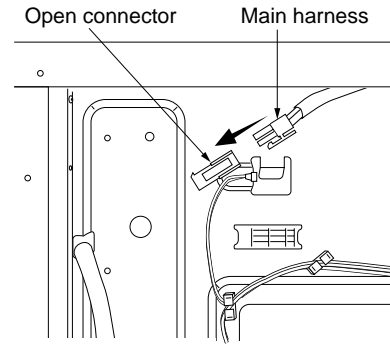


Figure 1-2-4

- 9. Insert the dehumidifier heater connectors into the relay wire connectors.
- 10. Insert the main harness connector into the relay wire connector.
- 11. Tidy up the dehumidifier heater cable and relay wire using the eight wire saddles and route the cable and wire while clipping the wire saddles into the holes in the rear frame.
- 12. Refit all removed parts.

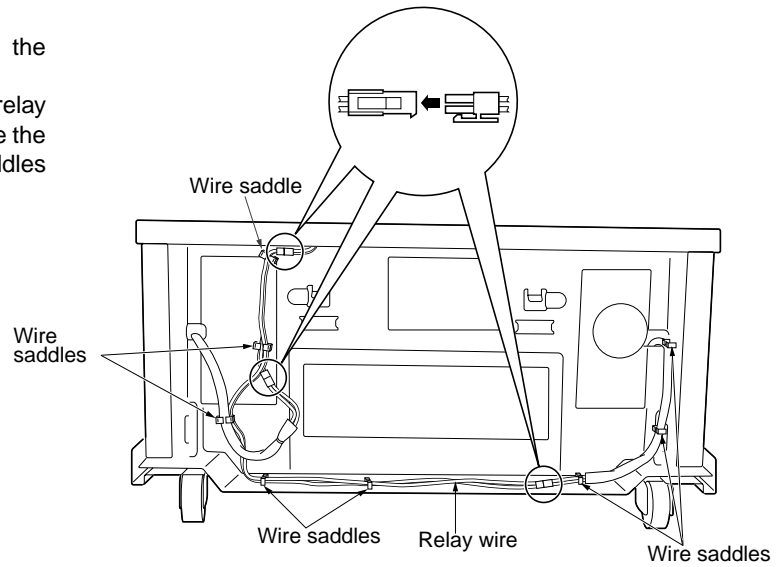


Figure 1-2-5

### 1-3-1 Paper misfeed detection

#### (1) Paper misfeed indication

When a paper jam occurs, the machine immediately stops operation. The operation unit of the copier shows a jam message and the jam location.

To reset the paper misfeed detection, open and close the deck side cover or the large paper deck to turn the side cover switch or the deck open/closed safety switch off and on.

#### (2) Paper misfeed detection conditions

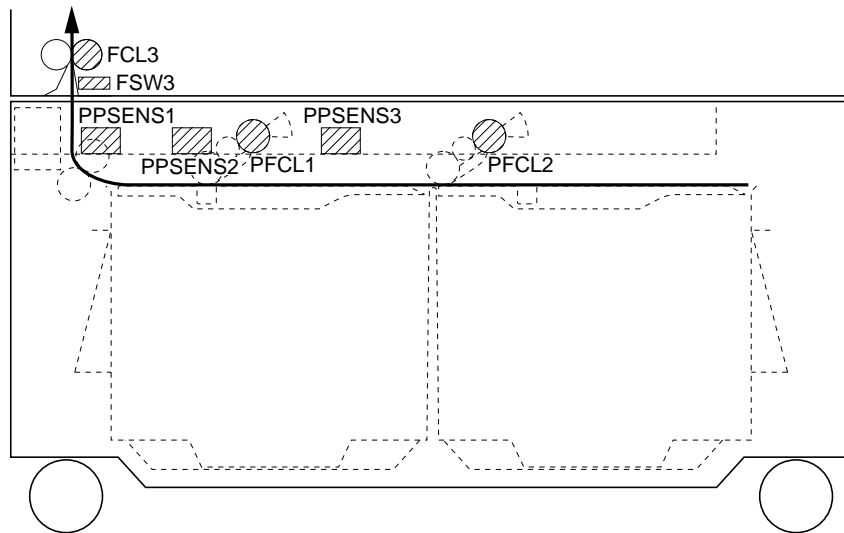
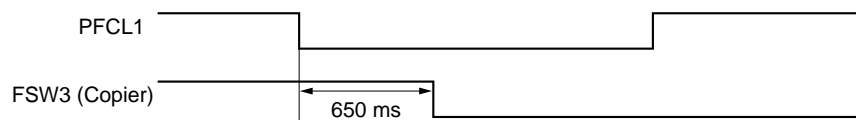


Figure 1-3-1 Large paper deck

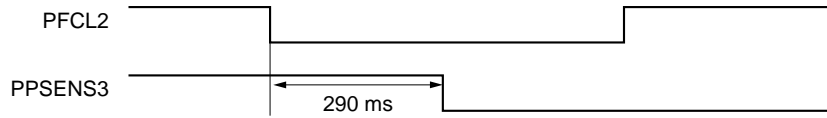
- No paper feed from large paper deck (jam code 12)  
Feed switch 3 (FSW3) of the copier does not turn on within 650 ms of paper feed clutch 1 (PFCL1) turning on.



Timing chart 1-3-1

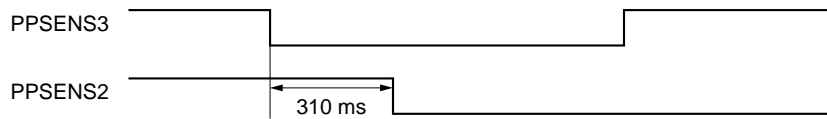
5FF

- Jam in large paper deck horizontal paper conveying section (jam code 15)  
Paper path sensor 3 (PPSENS3) does not turn on within 290 ms of paper feed clutch 2 (PFCL2) turning on.



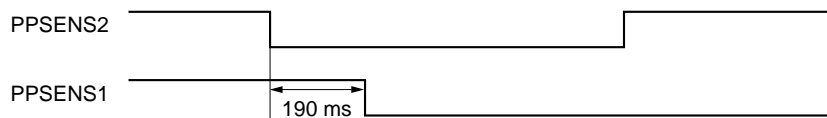
**Timing chart 1-3-2**

- Jam in large paper deck horizontal paper conveying section (jam code 16)  
Paper path sensor 2 (PPSENS2) does not turn on within 310 ms of paper path sensor 3 (PPSENS3) turning on.



**Timing chart 1-3-3**

- Jam in large paper deck horizontal paper conveying section (jam code 17)  
Paper path sensor 1 (PPSENS1) does not turn on within 190 ms of paper path sensor 2 (PPSENS2) turning on.



**Timing chart 1-3-4**

**(3) Paper misfeeds**

Problem	Causes/check procedures	Corrective measures
<p>(1) A paper jam in the paper feed section is indicated during copying (no paper feed from large paper deck). Jam code 12</p>	Paper is extremely curled.	Change the paper.
	Check if the upper or lower deck separation roller, paper feed roller 1 or 2 is deformed.	Check visually and replace any damaged rollers (see pages 1-4-2, 3).
	Broken copier feed switch 3 actuator.	Check visually and replace feed switch 3 if the actuator is broken.
	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 operation panel is not displayed in reverse.
	Check if paper feed clutch 1 and 2 malfunctions.	Run maintenance item U247 and select paper feed clutch 1 or 2 on the operation panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with paper feed clutch 1 and 2.	Check. (see page 1-3-8, 9).
	Check if the deck feed clutch malfunctions.	Run maintenance item U247 and select the deck feed clutch on the operation panel to be turned on and off. Check the status and remedy if necessary.
<p>(2) A paper jam in the paper feed section is indicated during copying (multiple sheets in paper feed section).</p>	Check if the upper or lower deck separation roller is soiled with paper powder.	Check and clean with isopropyl alcohol if soiled.
	<p>(3) A paper jam in the paper feed section is indicated during copying (jam in large paper deck horizontal paper conveying section). Jam code 15</p>	Paper in the large paper deck is extremely curled.
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 deck main PCB, check if CN6-11 on the deck main PCB remains low when paper path sensor 3 is turned on and off. If it does, replace paper path sensor 3.
Check if paper feed clutch 2 malfunctions.		Run maintenance item U247 and select paper feed clutch 2 on the operation panel to be turned on and off. Check the status and remedy if necessary.
Electrical problem with paper feed clutch 2.		Check (see page 1-3-9).

Problem	Causes/check procedures	Corrective measures
(4) A paper jam in the paper feed section is indicated during copying (jam in large paper deck horizontal paper conveying section). Jam code 16	Paper in the large paper deck 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 deck main PCB, check if CN6-8 on the deck main PCB remains low when paper path sensor 2 is turned on and off. If it does, replace paper path sensor 2.
	Check if paper feed clutch 1 malfunctions.	Run maintenance item U247 and select paper feed clutch 1 on the operation panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with paper feed clutch 1.	Check (see page 1-3-8).
(5) A paper jam in the paper feed section is indicated during copying (jam in large paper deck horizontal paper conveying section). Jam code 17	Paper in the large paper deck is extremely curled.	Change the paper.
	Check if the paper side guides are deformed.	Check visually and replace.
	Defective paper path sensor 1.	With 5 V DC present at CN6-6 on the deck main PCB, check if CN6-5 on the deck main PCB remains low when paper path sensor 1 is turned on and off. If it does, replace paper path sensor 1.
	Check if the deck feed clutch malfunctions.	Run maintenance item U247 and select the deck feed clutch on the operation panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the deck feed clutch.	Check (see page 1-3-9).

## 1-3-2 Self-diagnosis

### (1) Self-diagnostic function

When a problem is detected in the large paper deck, copying is disabled and the problem displayed on the operation unit of the copier as a code consisting of "C" followed by a number between 0420 and 2600, indicating the nature of the problem.

After removing the problem, the self-diagnostic function can be reset by turning the deck open/closed safety switch off and back on.

## (2) Self diagnostic codes

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C0420	<b>Communication problem</b> Communication errors from the communication microcomputer on the copier main PCB: No communication: there is no reply after 3 retries. Abnormal communication: a communication error (parity or checksum error) is detected five times in succession.	Poor contact of the connector terminals.	Check the connection of connectors CN3 on the copier main PCB and CN1 on the deck main PCB, and the continuity across the connector terminals. Remedy or replace if necessary.
		Defective copier main PCB.	Replace the copier main PCB and check for correct operation.
		Defective deck main PCB.	Replace the deck main PCB and check for correct operation.
C1100	<b>Paper deck motor 1 problem</b> A motor over-current signal is detected continuously for 1 s or longer.	Paper deck motor 1 does not rotate correctly (the motor is overloaded).	Check the gears and remedy if necessary.
		Paper deck motor 1 connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
C1110	<b>Paper deck motor 2 problem</b> A motor over-current signal is detected continuously for 1 s or longer.	Paper deck motor 2 does not rotate correctly (the motor is overloaded).	Check the gears and remedy if necessary.
		Paper deck motor 2 connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
C1120	<b>Deck right lift position problem</b> Deck level switch 2 does not turn on within 30 s of paper deck motor 2 turning on.	Defective deck level switch 2.	Check if CN5-4 on the desk main PCB goes low when desk level switch 2 is turned off. If not, replace desk level switch 2.
		Poor contact of deck level switch 2 connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
		Defective paper deck motor 2.	Check for continuity across the coil. If none, replace paper desk motor 2.
		Poor contact of paper deck motor 2 connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
		The deck right lift does not rise properly.	Check the gears and belts, and remedy if necessary.
C1130	<b>Deck left lift position problem</b> Deck level switch 2 does not turn on within 30 s of paper deck motor 2 turning on.	Defective deck level switch 1.	Check if CN5-7 on the desk main PCB goes low when desk level switch 1 is turned off. If not, replace desk level switch 1.
		Poor contact of deck level switch 1 connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.



Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C1130	<b>Deck left lift position problem</b> Deck level switch 2 does not turn on within 30 s of paper deck motor 2 turning on.	Defective paper deck motor 1.	Check for continuity across the coil. If none, replace paper desk motor 1.
		Poor contact of paper deck motor 1 connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
		The deck left lift does not rise properly.	Check the gears and belts, and remedy if necessary.
C1160	<b>Sequence problem</b>	Operation start request is sent from the copier to the large paper deck while paper feed is disabled.	Turn the power off and back on (reset request is sent from the copier to the large paper deck to cancel operation start request).
		Paper feed request is sent from the copier to the large paper deck before operation start request.	Turn the power off and back on (reset request is sent from the copier to the large paper deck to cancel operation start request).
C1170	<b>Large paper deck incorrect type problem</b>	Deck for the printer is installed.	Replace the deck for the copier.
C2600	<b>Deck paper conveying motor problem</b> No pulse is input within 500 ms of the start-up. No pulse is input within 100 ms of the previous pulse input.	Defective deck conveying motor PCB.	Replace the deck conveying motor PCB and check for correct operation.
		Deck conveying motor does not rotate correctly (the motor is overloaded).	Check the gears and remedy if necessary.
		Poor contact in the deck conveying motor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.

### 1-3-3 Electrical problems

Problem	Causes	Check procedures/corrective measures
(1) The large paper deck does not operate when the copier main switch is turned on.	Incorrect connection with the copier.	Check the connector.
(2) The deck paper conveying motor does not operate.	Poor contact of the deck paper conveying motor connector terminals.	Check for continuity across the connector terminals. If none, replace them.
	The deck paper conveying motor drive system overloaded.	Check the drive system.
	Defective deck paper conveying motor.	Check if the deck paper conveying motor is operated in maintenance item U247 while the motor drive clock signal is present at CN2-2 on the deck main PCB. If not, replace the deck paper conveying motor.
	Defective deck main PCB.	Check if the motor drive clock signal is present at CN2-2 on the deck main PCB when the deck paper conveying motor is operated in maintenance item U247. If not, replace the deck main PCB.
(3) Paper deck motor 1 does not operate.	Poor contact of the paper deck motor 1 connector terminals.	Check for continuity across the connector terminals. If none, replace them.
	Broken paper deck motor 1 coil.	Check for continuity across the coil. If none, replace paper deck motor 1.
	Defective deck main PCB.	Check if CN7-13 on the deck main PCB goes low right after the drawer is installed. If not, replace the deck main PCB.
(4) Paper deck motor 2 does not operate.	Poor contact of the paper deck motor 2 connector terminals.	Check for continuity across the connector terminals. If none, replace them.
	Broken paper deck motor 2 coil.	Check for continuity across the coil. If none, replace paper deck motor 2.
	Defective deck main PCB.	Check if CN7-6 on the deck main PCB goes low right after the drawer is installed. If not, replace the deck main PCB.
(5) Paper feed clutch 1 does not operate.	Poor contact of the paper feed clutch 1 connector terminals.	Check for continuity across the connector terminals. If none, replace them.
	Broken paper feed clutch 1 coil.	Check for continuity across the coil. If none, replace paper feed clutch 1.
	Defective deck main PCB.	Check if CN4-3 on the deck main PCB goes low when paper feed clutch 1 is operated in maintenance item U247. If not, replace the deck main PCB.

Problem	Causes	Check procedures/corrective measures
(6) Paper feed clutch 2 does not operate.	Poor contact of the paper feed clutch 2 connector terminals.	Check for continuity across the connector terminals. If none, replace them.
	Broken paper feed clutch 2 coil.	Check for continuity across the coil. If none, replace paper feed clutch 2.
	Defective deck main PCB.	Check if CN4-1 on the deck main PCB goes low when paper feed clutch 2 is operated in maintenance item U247. If not, replace the deck main PCB.
(7) The paper conveying clutch does not operate.	Poor contact of the paper conveying clutch connector terminals.	Check for continuity across the connector terminals. If none, replace them.
	Broken paper conveying clutch coil.	Check for continuity across the coil. If none, replace the paper conveying clutch.
	Defective deck main PCB.	Check if CN4-5 on the deck main PCB goes low when the paper conveying clutch is operated in maintenance item U247. If not, replace the deck main PCB.

**1-3-4 Mechanical problems**

<b>Problem</b>	<b>Causes/check procedures</b>	<b>Corrective measures</b>
(1) No primary paper feed.	Check if the upper or lower deck separation roller is soiled with paper powder.	Clean with isopropyl alcohol.
	Check if deck paper feed roller 1 or 2 is soiled with paper powder.	Clean with isopropyl alcohol.
	Check if the upper or lower deck separation roller is worn or deformed.	Replace (see page 1-4-2).
	Check if deck paper feed roller 1 or 2 is worn or deformed.	Replace (see page 1-4-3).
	Check if paper feed clutch 1, 2 or the paper conveying clutch malfunctions.	Remedy or replace.
(2) Paper is fed askew.	Check if the upper or lower deck separation roller is worn or deformed.	Replace (see page 1-4-2).
	Check if deck paper feed roller 1 or 2 is worn or deformed.	Replace (see page 1-4-3).
	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 upper or lower deck separation roller is worn or deformed.	Replace (see page 1-4-2).
(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.

## 1-4-1 Precautions for assembly and disassembly

### (1) Precautions

- Be sure to turn the main switch off and disconnect the power plug before starting disassembly.
- When handling PCBs, do not touch connectors with bare hands or damage the board.
- Do not touch PCBs containing ICs with bare hands or any object prone to static charge.
- Use the following testers when measuring voltages:

Hioki 3200

Sanwa MD-180C

Sanwa YX-360TR

Beckman TECH300

Beckman DM45

Beckman 330 (capable of measuring RMS values)

Beckman 3030 (capable of measuring RMS values)

Beckman DM850 (capable of measuring RMS values)

Fluke 8060A (capable of measuring RMS values)

Arlec DMM1050

Arlec YF1030C

### 1-4-2 Paper feed section

#### (1) Detaching and refitting the upper and lower deck separation rollers

Clean or replace the upper and lower deck separation rollers as follows.

##### Procedure

1. Open the deck side cover.
2. Remove stop ring 1.
3. Remove the shaft.
4. Remove the lower deck separation roller assembly.
5. Remove stop ring 2 securing the lower deck separation roller and then the roller.
6. Remove stop ring 3 securing the upper deck separation roller and then the roller.
7. Clean or replace the upper and lower deck separation rollers.
8. Refit all removed parts.

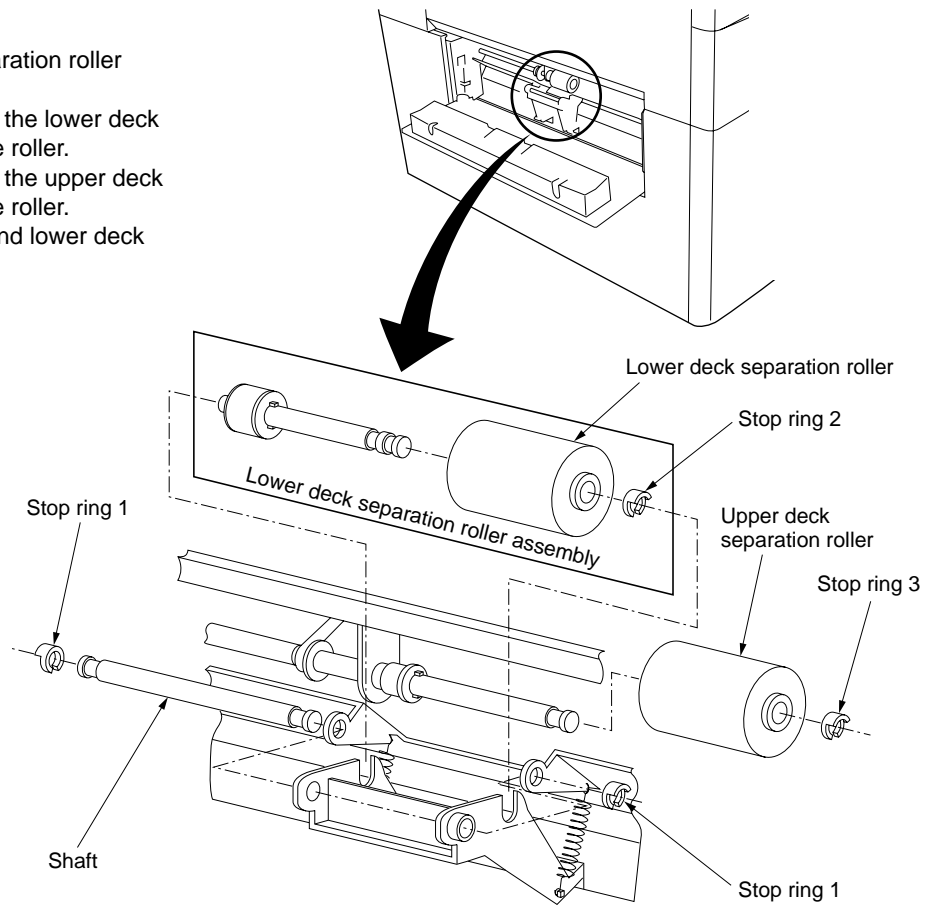


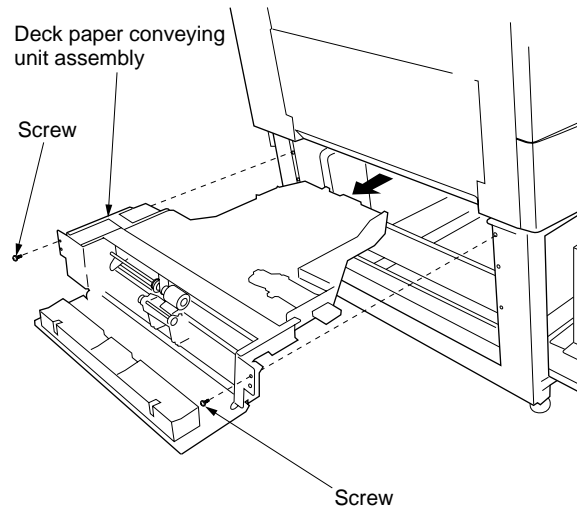
Figure 1-4-1 Detaching and refitting the upper and lower deck separation rollers

**(2) Detaching and refitting the deck paper conveying unit assembly**

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

**Procedure**

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



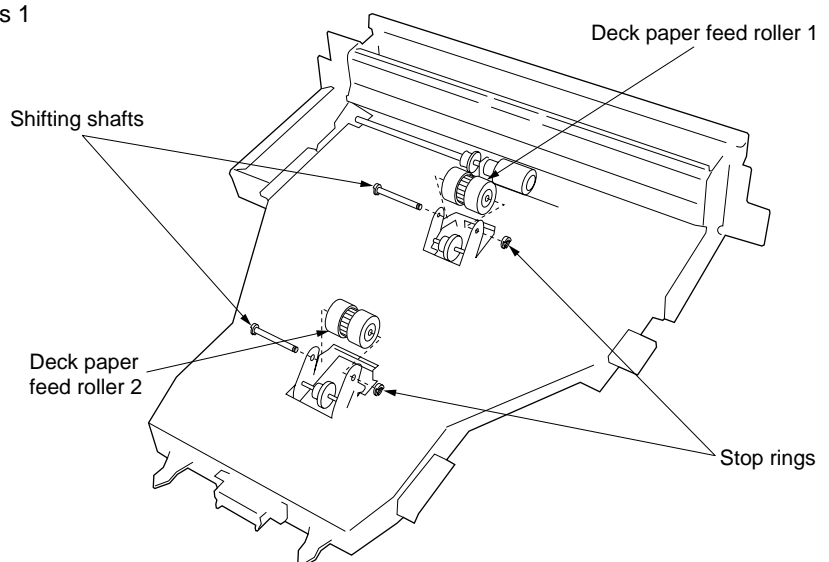
**Figure 1-4-2 Detaching and refitting the deck paper conveying unit assembly**

**(3) Detaching and refitting deck paper feed rollers 1 and 2**

Clean or replace paper feed rollers 1 and 2 as follows.

**Procedure**

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

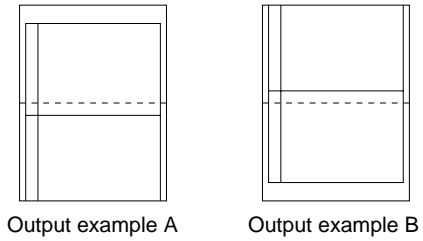
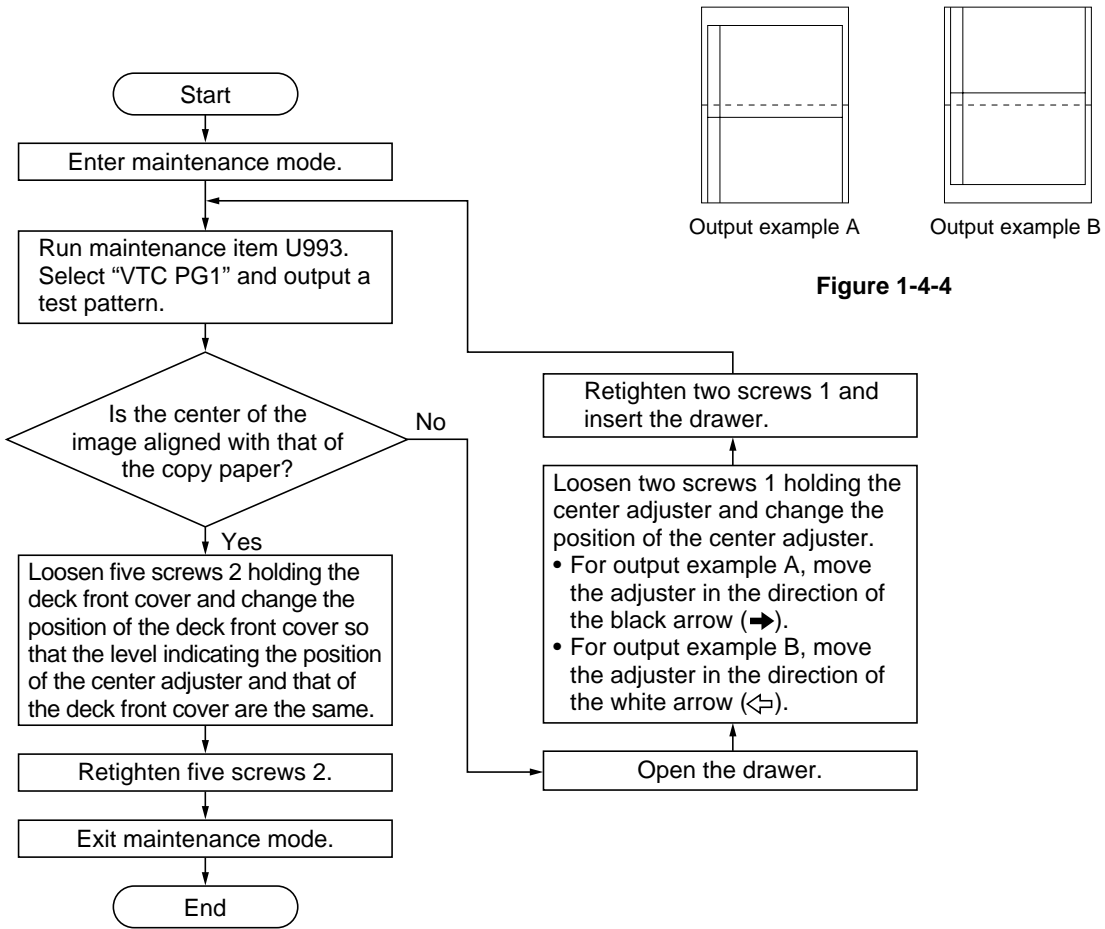


**Figure 1-4-3 Detaching and refitting deck paper feed rollers 1 and 2**

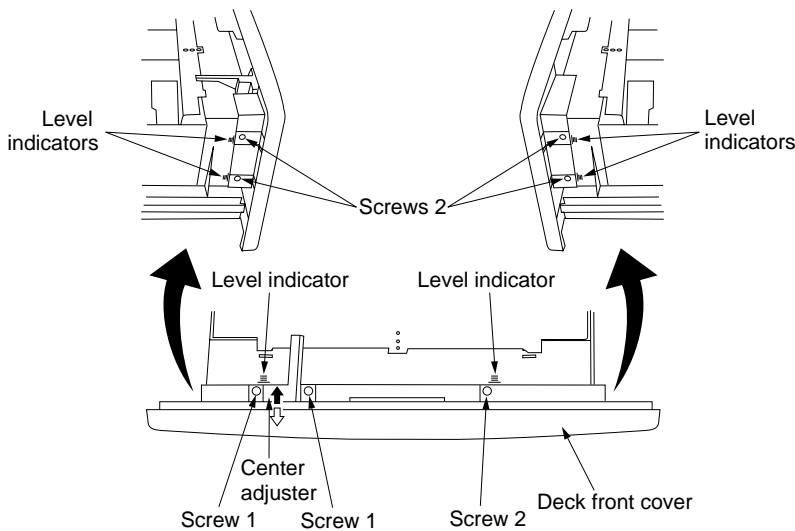
**(4) Adjusting the position of the center adjuster (center line alignment)**

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

**Procedure**



**Figure 1-4-4**



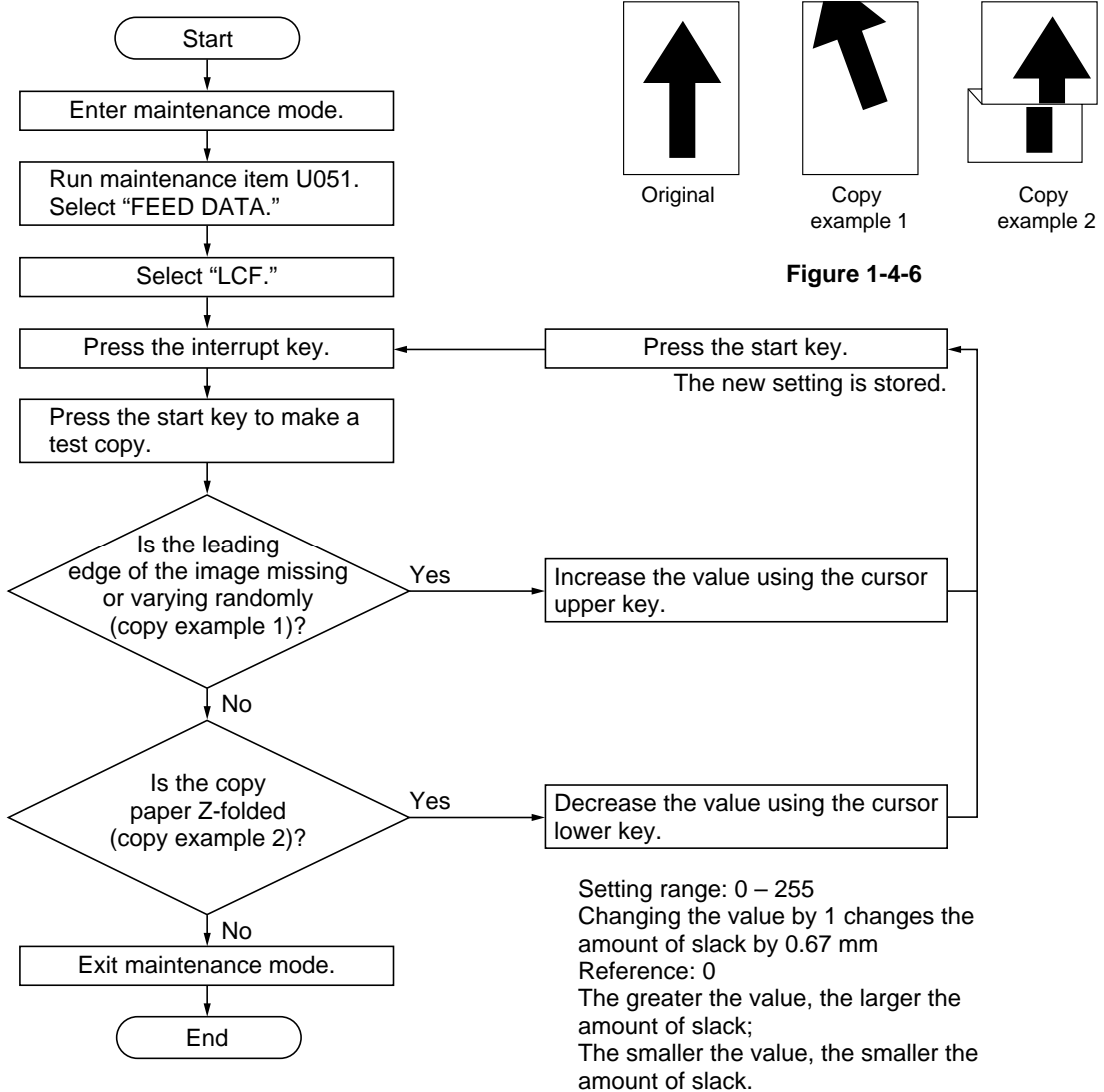
**Figure 1-4-5 Adjusting the position of the center adjuster**



**(5) Adjusting the amount of slack**

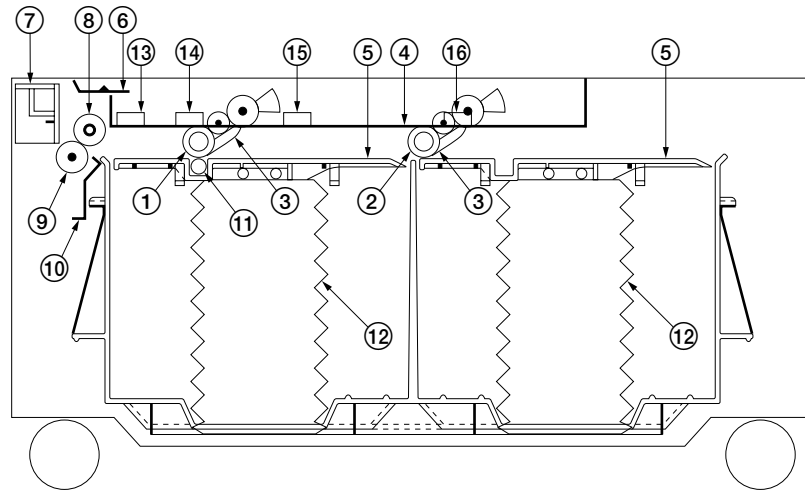
Perform the following adjustment if the leading edge of the copy image is missing or varies randomly, or if the copy paper is Z-folded.

**Procedure**



## 2-1-1 Mechanical construction

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



**Figure 2-1-1 Mechanical construction**

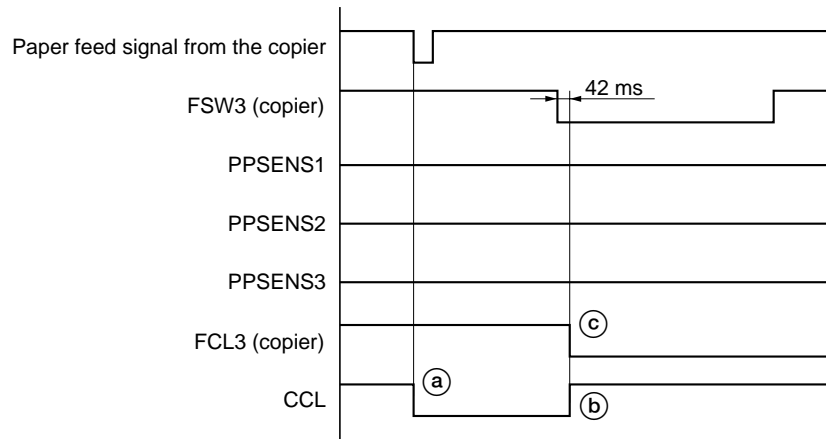
- |                                |                                 |
|--------------------------------|---------------------------------|
| ① Deck paper feed roller 1     | ⑨ Lower deck separation roller  |
| ② Deck paper feed roller 2     | ⑩ Paper guide D                 |
| ③ Pickup arm        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

**• Left cassette paper feed**

As the paper conveying clutch (CCL) turns on, the drive is transmitted to the upper and lower deck separation rollers, starting paper feed from the left cassette. The upper and lower deck separation rollers ensure that the paper is fed one sheet at a time and that it is fed into the copier correctly.

To prevent multiple sheets from being fed, there is a torque limiter on the lower deck separation roller.

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



**Timing chart 2-1-1 Left cassette paper feed**

- Ⓐ At the same time as the paper feed signal from the copier turns on, the paper conveying clutch (CCL) turns on to start paper feed.
- Ⓑ 42 ms after the leading edge of the paper turns copier feed switch 3 (FSW3) on, the paper conveying clutch (CCL) turns off.
- Ⓒ 42 ms after copier feed switch 3 (FSW3) has turned on, copier feed clutch 3 (FCL3) turns on to feed the paper to complete paper feed from the left cassette.

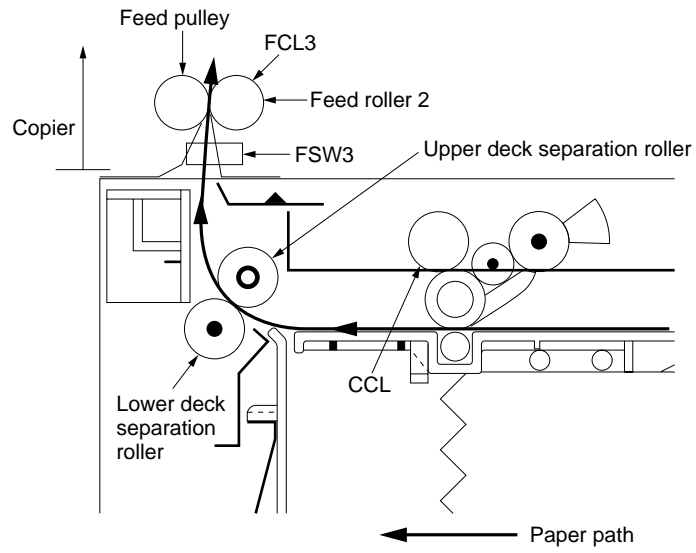


Figure 2-1-2 Left cassette paper feed section

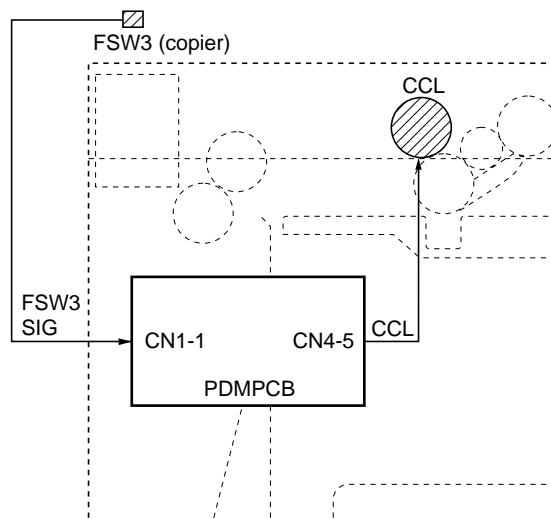
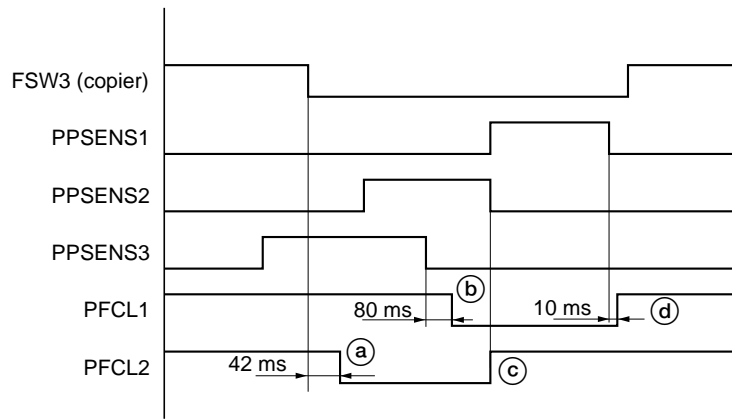


Figure 2-1-3 Left cassette paper feed section block diagram

• **Right cassette paper feed**

As the last sheet in the left cassette is fed, paper feed clutch 2 (PFCL2) and paper feed clutch 1 (PFCL1) turn on for paper feed from the right cassette. Deck paper feed rollers 1 and 2 start to rotate to convey paper from the right cassette onto the left cassette lift.



**Timing chart 2-1-2 Right cassette paper feed**

- Ⓐ 42 ms after the last paper from the left cassette has turned copier feed switch 3 (FSW3) on, paper feed clutch 2 (PFCL2) turns on to start paper feed.
- Ⓑ 80 ms after the leading edge of the paper from the right cassette has turned paper path sensor 3 (PPSENS3) on, paper feed clutch 1 (PFCL1) turns on.
- Ⓒ At the same time as the leading edge of the paper from the right cassette turns paper path sensor 2 (PPSENS2) on, paper feed clutch 2 (PFCL2) turns off.
- Ⓓ 10 ms after the leading edge of the paper from the right cassette turns paper path sensor 1 (PPSENS1) on, paper feed clutch 1 (PFCL1) turns off and paper stops in the left cassette to complete paper feed from the right cassette.

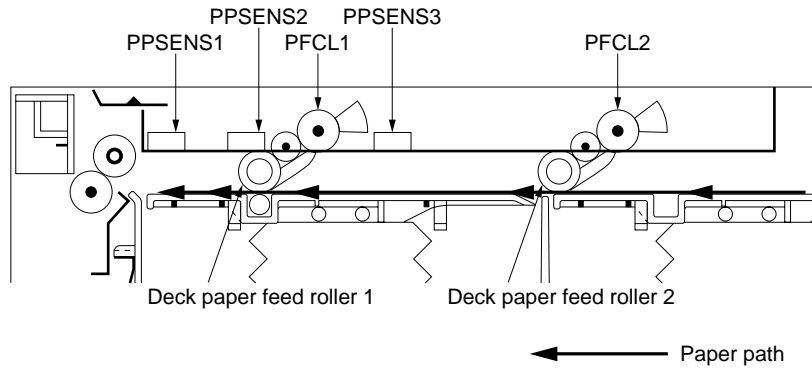


Figure 2-1-4 Right cassette paper feed section

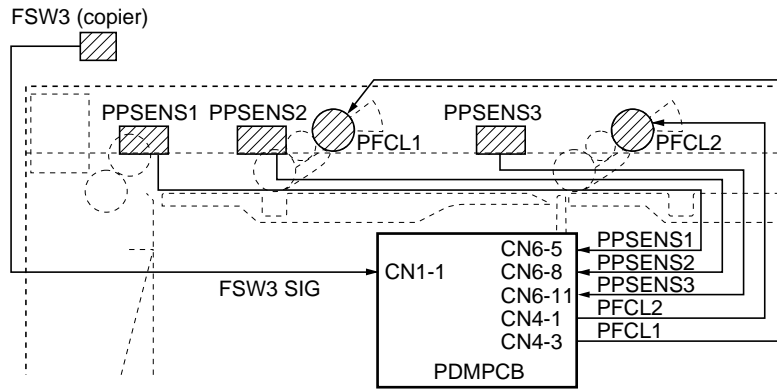


Figure 2-1-5 Right cassette paper feed section block diagram

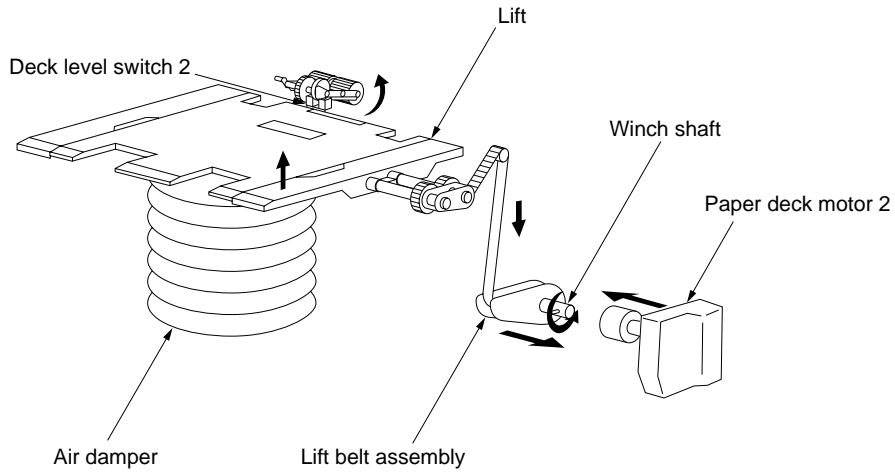
**• Raising and lowering the lifts**

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

Paper deck motor 2 (PDM2) drives the right lift belt assembly that winches the belt up and hence raises the lift until it is stopped by deck level switch 2 (DLSW2).

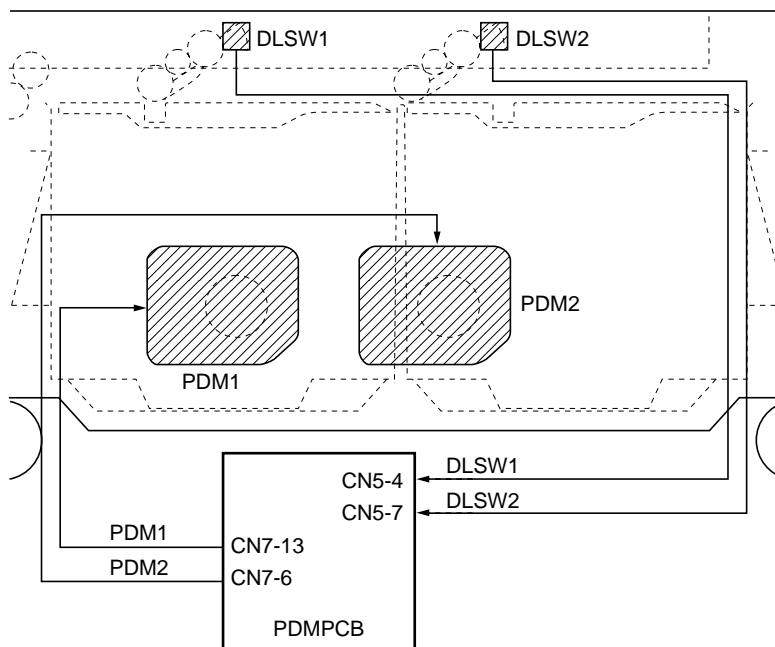
When paper is loaded on the lift and the deck is closed, the lift is raised until deck level switch 2 (DLSW2) turns on.

When desk level switch 2 (DLSW2) is turned off as the paper on the lift is used, paper deck motor 2 (PDM2) starts to raise the lift until the switch turns on.



**Figure 2-1-6 Raising and lowering the lift**

When the deck is opened for removing a jammed paper or other purposes, the winch shaft is released from its holder on paper deck motor 2 (PDM2), allowing the lift to descend under its own weight. The air damper buffers the impact of the descending lift.



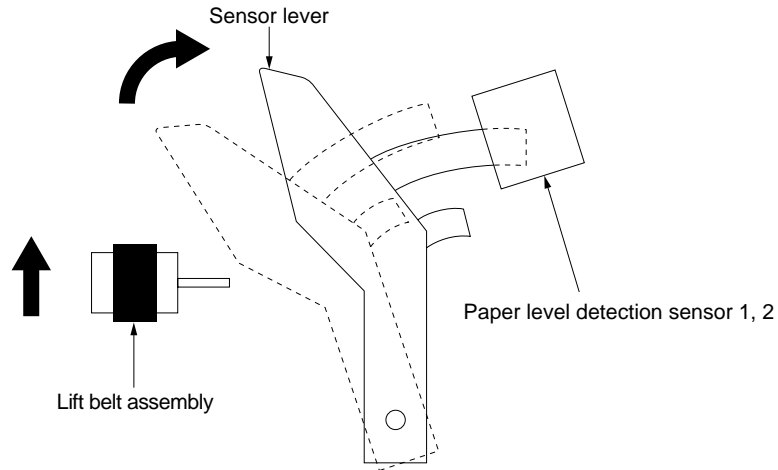
**Figure 2-1-7 Lift block diagram**

• **Detecting the paper level**

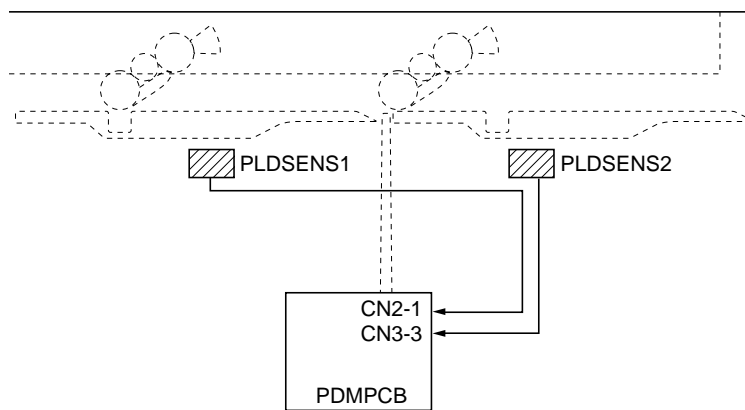
The lift rises as paper in the deck is used. When the remaining number of sheets in either right or left cassette reduces to around 100 to 250 sheets, the projection on the lift belt assembly pushes against the sensor lever which turns the relevant paper level detection sensor 1 or 2 (PLDSENS1/2) on.

When both paper level detection sensors 1 and 2 (PLDSENS1, 2) have turned on, the message “Low on paper.” is shown on the copier 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 “Place paper in deck.” is shown.



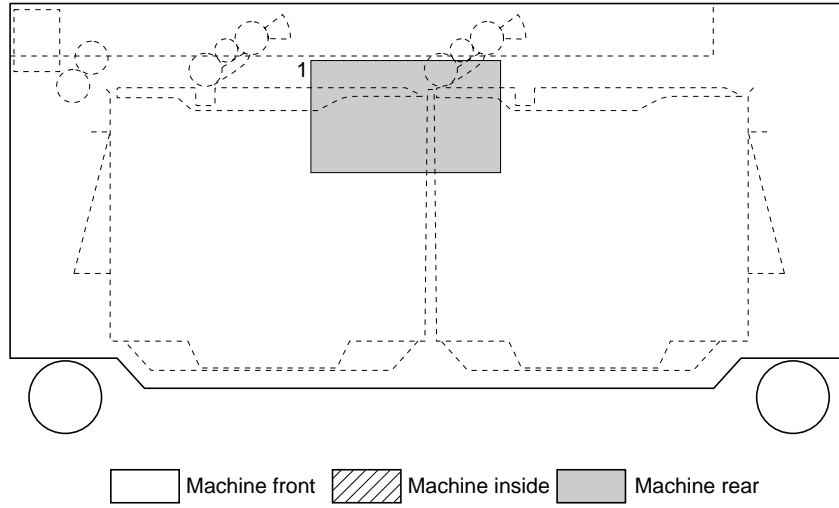
**Figure 2-1-7 Detecting the paper level**



**Figure 2-1-8 Paper level detection system block diagram**

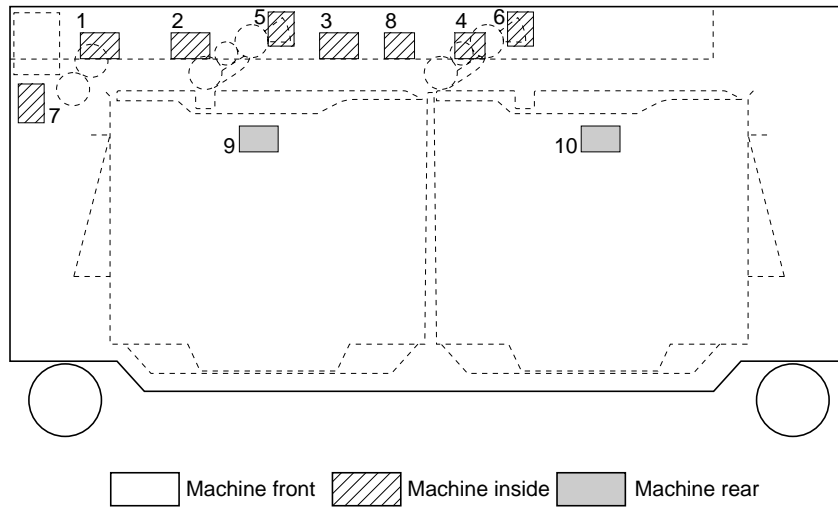


### 2-2-1 Electrical parts layout



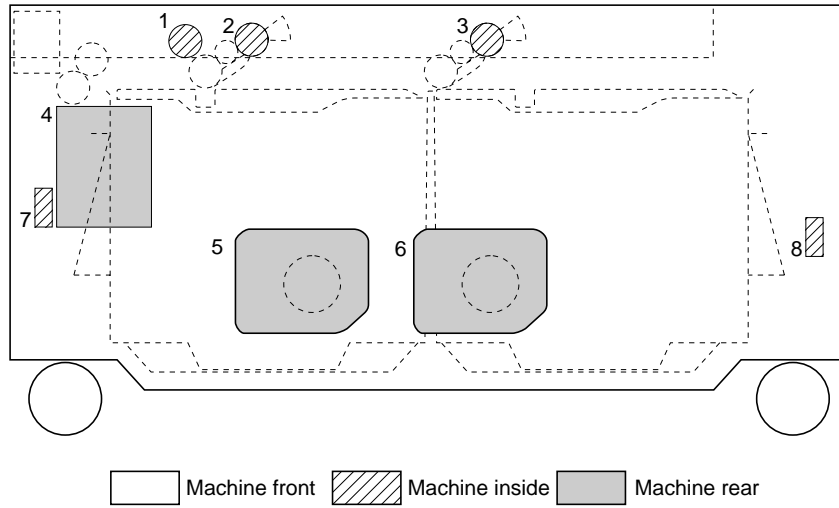
**Figure 2-2-1 PCBs**

- 1. Deck main PCB (PDMPCB) ..... Controls electrical components and communications with the copier.



**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. Deck level switch 1 (DLSW1) ..... Detects the left cassette lift in the home position.
- 6. Deck level switch 2 (DLSW2) ..... Detects the right cassette lift in the home position.
- 7. Side cover switch (SCSW) ..... Detects if the deck side cover is open or closed.
- 8. Deck open/closed safety switch (DOSSW) ..... Detects if the deck 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.

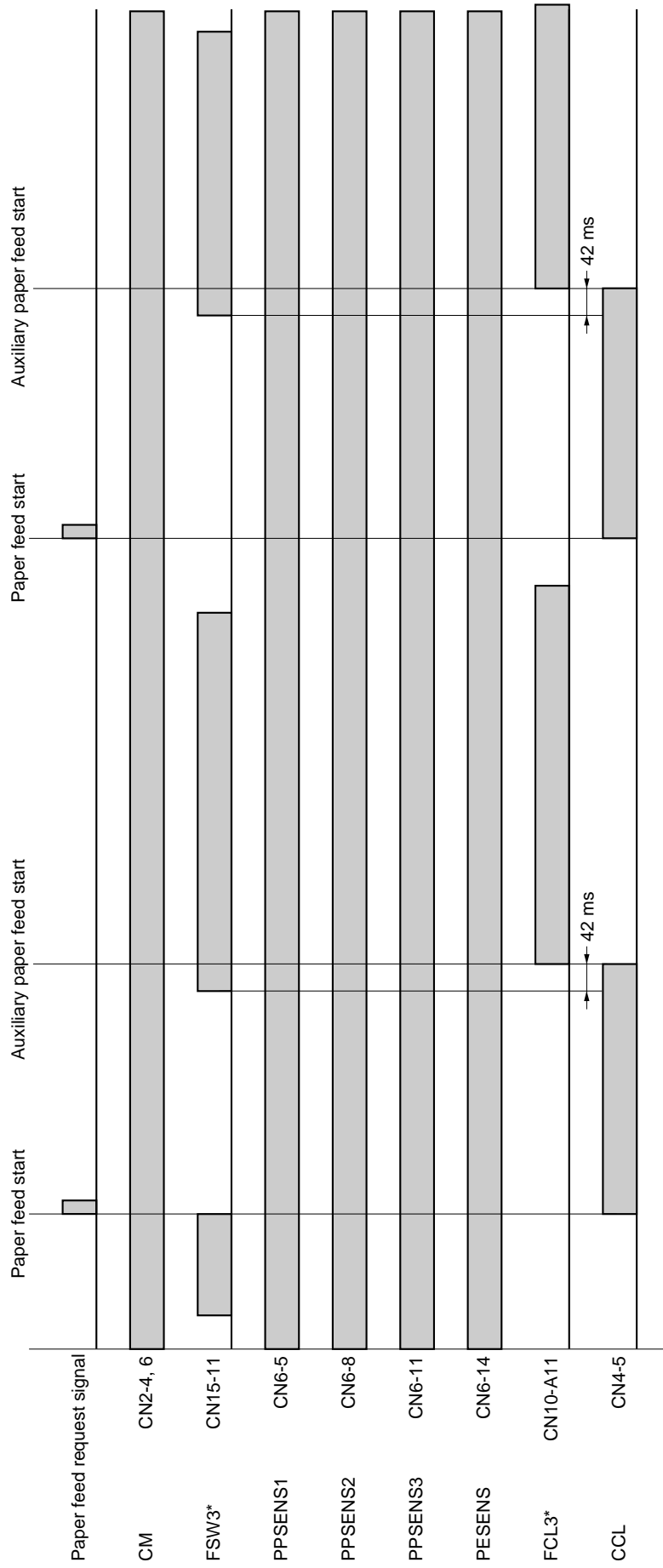


**Figure 2-2-3 Other electrical components**

- 1. Paper conveying clutch (CCL) ..... Regulates drive transmission to the upper and lower deck separation rollers.
- 2. Paper feed clutch 1 (PFCL1) ..... Regulates drive transmission to deck paper feed roller 1.
- 3. Paper feed clutch 2 (PFCL2) ..... Regulates drive transmission to deck paper feed roller 2.
- 4. Deck paper conveying motor (CM) ..... Drives the large paper deck.
- 5. Paper deck motor 1 (PDM1) ..... Raises the left cassette lift.
- 6. Paper deck motor 2 (PDM2) ..... Raises the right cassette lift.
- 7. Dehumidifier heater 1\* (DH1) ..... Dehumidifies paper in the left cassette.
- 8. Dehumidifier heater 2\* (DH2) ..... Dehumidifies paper in the right cassette.

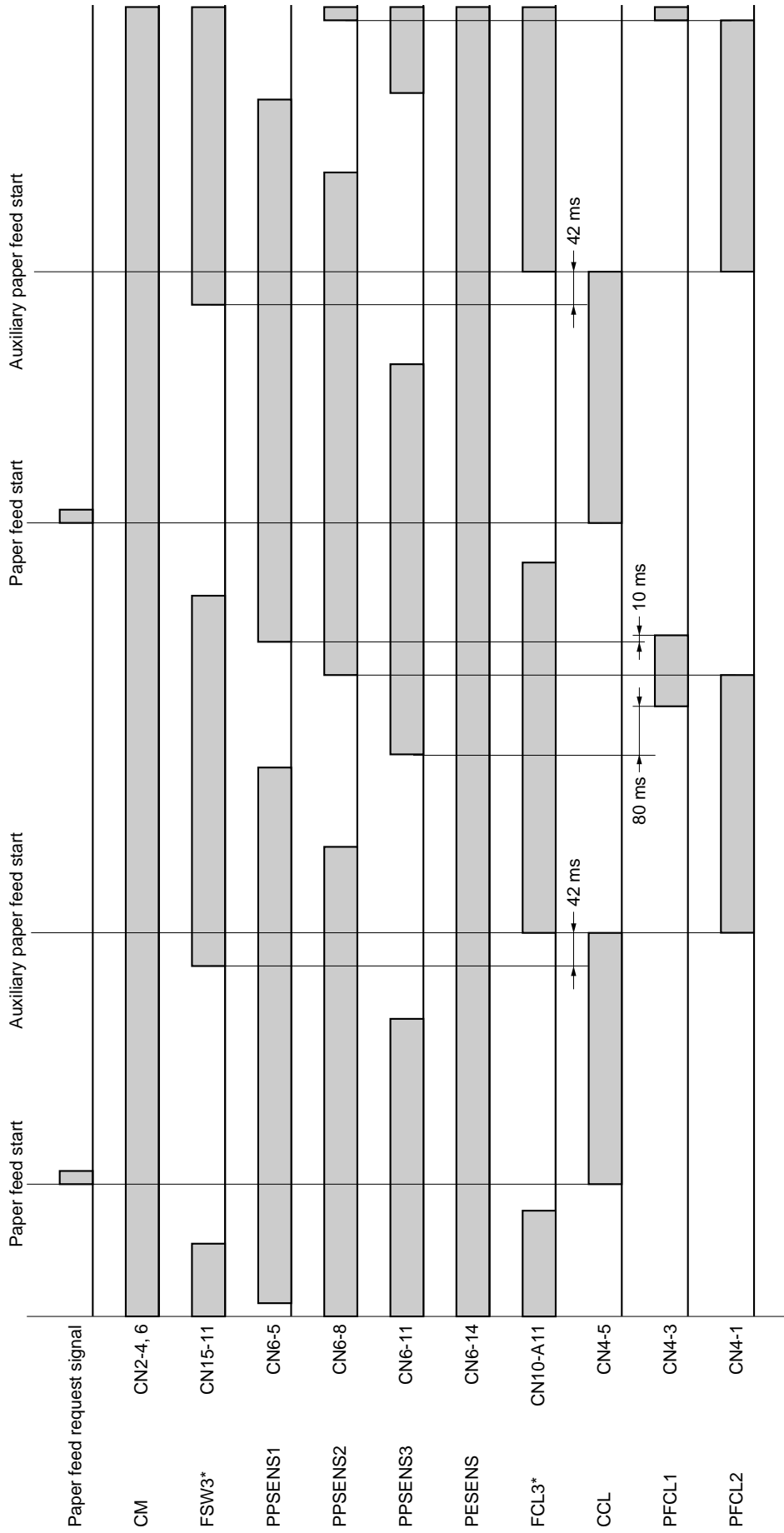
\* Service part.

Timing chart No. 1 Paper feed from large paper deck left cassette



\* Copier

Timing chart No. 2 Paper feed from large paper deck right cassette



\* Copier

