

# **2000 SHEET PAPER DECK**

## **PD-82**

# **SERVICE MANUAL**

**REVISION 0**

**Canon**

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**RY8-1395-000**

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## **PREFACE**

This Service Manual contains basic information required for after-sales service of 2000 sheet paper deck PD-82. This information is vital to the service technician in maintaining the high print quality and performance of the paper deck.

This manual consists of the following chapters:

Chapter 1: Product information

Features, specifications, parts of the deck, and installation

Chapter 2: Operation and Timing

A description of the operating principles and timing sequences of the electrical and mechanical systems.

Chapter 3: The Mechanical System

Explanation of mechanical operation, disassembly, reassembly, and adjustment procedures

Chapter 4: Troubleshooting

Maintenance and servicing, measurement and adjustments, troubleshooting procedures, etc.

Appendix: General circuit diagram and list of signals.

Information in this manual is subject to change as the product is improved or redesigned.

All relevant information in such cases will be supplied in Service Information Bulletins.

A thorough understanding of this deck, based on information in this Manual and Service Information Bulletins is required for maintaining its performance and for locating and repairing malfunctions.

**DTP system**

This manual was produced on an Apple PowerMacintosh 9500/200 personal computer and output by an Apple LaserWriter 16/600 PS laser beam printer; final pages were printed on AGFA Selectset avantra 25.

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# **CHAPTER 1**

## **PRODUCT INFORMATION**

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## **I. FEATURES**

### **1. Large capacity**

The paper deck is capable of accommodating up to 2,000 sheets of paper (64g/m<sup>2</sup> paper), enabling you to make continuous printing in large volume.

### **2. Status LED**

The LED on the front of the paper deck allows the user to check the status of the paper deck easily.

### **3. Stand alone mode switch**

The paper deck can be operated without printer by turning ON the stand alone mode switch, allowing the service technician to perform the service mode easily.

II. SPECIFICATIONS

1. Print paper types	A3, B4, A4, Ledger, Legal, and Letter size plain paper (recommended paper, 64 to 105 g/m <sup>2</sup> )	
2. Capacity	Depth: 200 mm (About 2000 sheets of paper (64g/m <sup>2</sup> ) can be stacked.)	
3. Maximum power consumption	About 36 W or less (Room temperature: 20°C; Rated power supply voltage)	
4. Noise (Published noise level based on ISO 9296)	Sound power level (1B=10dB)	7.1 B or less (during printing) 6.4 B or less (standby)
(Note)	Sound pressure level (Bystander position)	53 dB or less (during printing) 48 dB or less (standby)
5. Dimensions	629 (width) × 520 (depth) × 651 (height) mm	
6. Weight	About 30 kg	
7. Power supply	100 to 127 V (50/60 Hz) 220 to 240 V (50 Hz) (Voltage tolerance ±10%)	

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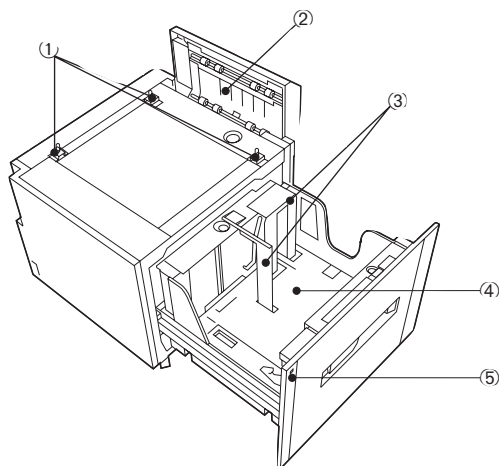
**Note** Value when the printer is equipped with the paper deck

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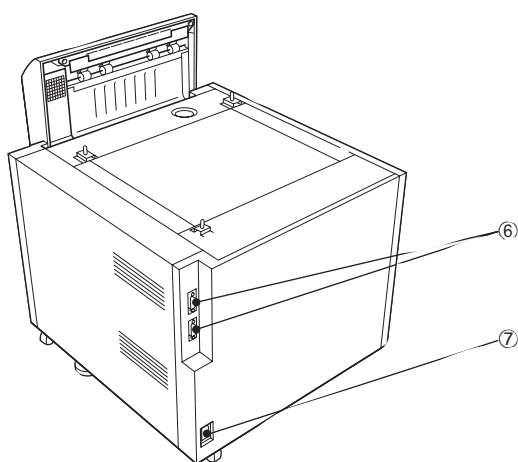
Specifications are subject to change with product modification.

### III. PARTS OF THE PAPER DECK

#### A. Appearance



**Figure 1-3-1**

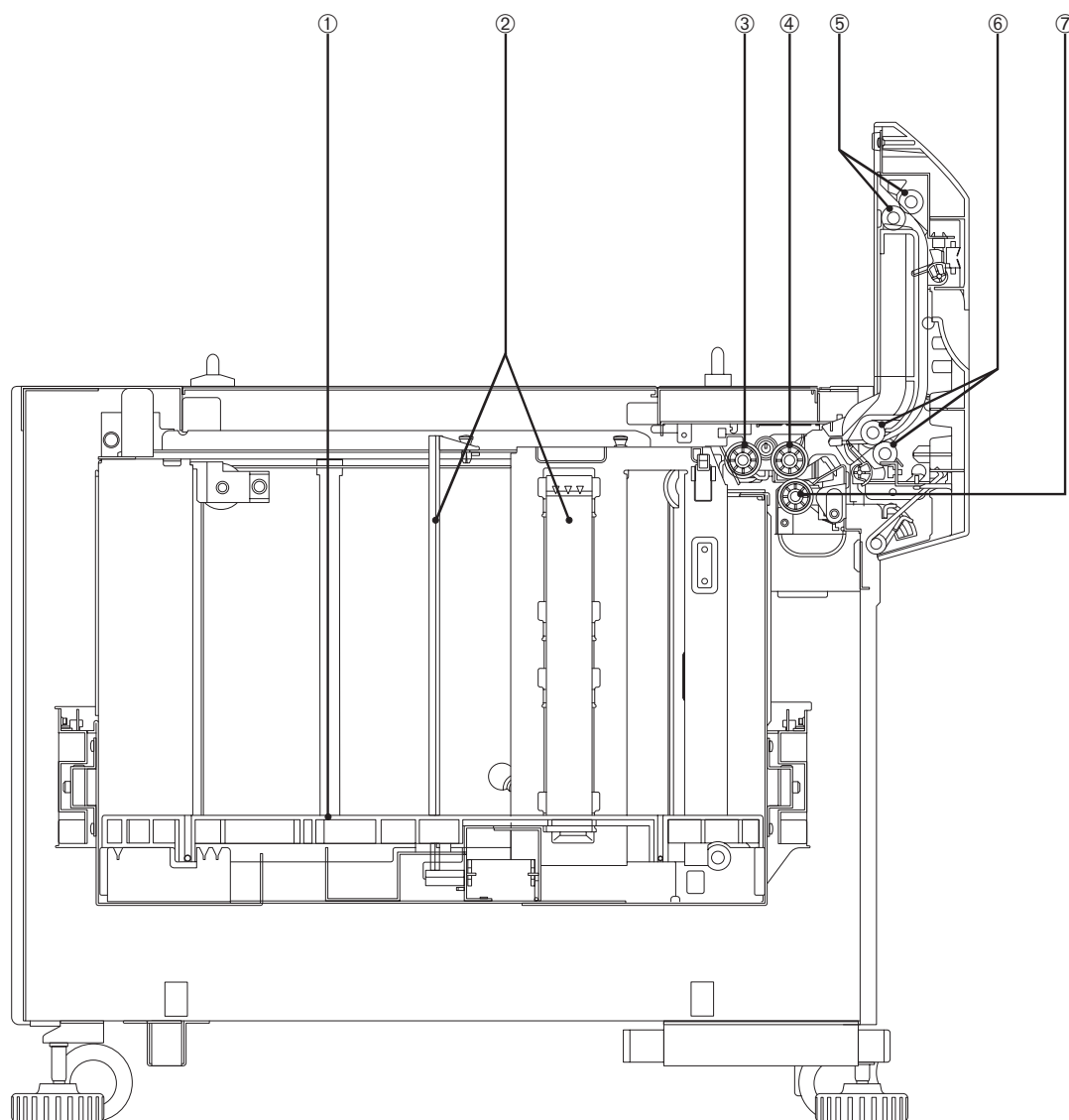


**Figure 1-3-2**

- 1: Positioning pins
- 2: Paper feed unit
- 3: Paper size regulation plates
- 4: Lifter
- 5: Status LED

- 6: Interface connector
- 7: Power receptacle

### B. Cross Sectional Views



**Figure 1-3-3**

- 1: Lifter
- 2: Paper size regulation plates
- 3: Pick-up roller
- 4: Feed roller 1
- 5: Feed roller 2
- 6: Registration rollers
- 7: Separation roller

## IV. INSTALLATION

### A. Notes

Use the following power supplies;

- Line voltage (AC):  $\pm 10\%$  of the rated voltage
- Power frequency: 50/60 Hz  $\pm$  2Hz

### B. Unpacking and Installation

Condensation will form on the metal surfaces when brought into a warm room from the cold. Therefore, when moving the unit into a warm environment, leave it packed in its box for at least an hour to acclimatize to room temperature.

#### 1. Opening the paper deck packaging

- 1) Undo the paper deck packaging, and remove the box.
- 2) Take out the accessories. Confirm that the power cord, outrigger kit, interface cables and manual are included.
- 3) Remove the top pads (left/right) and remove the paper deck from the box.
- 4) Take the plastic bag off from around the deck and peel off the tape holding the various parts. Check that none of the covers were scratched or deformed during shipment.
- 5) Open the tray, remove the 2 spacers, and peel off the tape.
- 6) Peel off the tape holding the latch of the paper guide.

#### 2. Connecting to the printer

- 1) Carry the paper deck to the installation location and lock the casters.
- 2) Rotate the adjusters to install on the floor.
- 3) Open the feed unit.
- 4) Line up the printer and paper deck in the same direction, and have 4 people lift the printer. Lower the printer onto the paper deck while aligning the 3 positioning pins on the paper deck with the printer.
- 5) Close the feed unit.
- 6) Remove the cassette from the printer. Put the snap pins (for earthquake countermeasure) to the positioning pins.
- 7) Install the outriggers to the 2 guides at the bottom of the paper deck.
- 8) Put the covers to the 5 outriggers.
- 9) Connect the printer and paper deck with the interface cable.
- 10) Plug the power cord into the paper deck and the outlet.

#### • Snap pin insertion location

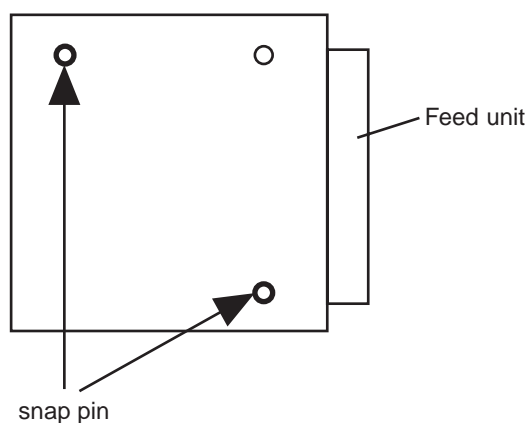





Figure 1-4-1



# CHAPTER 2

## OPERATION AND TIMING

1. This chapter describes the paper deck functions, the relationships between mechanisms and circuits, and the timing of operations. Mechanical linkages are indicated by black and white lines (  ), the flow of control signals by solid arrows (  ), and the flow of groups of signals by outline arrows (  ).
2. An active-high signal is indicated by "H" or by a signal name without a slash in front of it, such as "PSNS." An active-low signal is indicated by "L" or by a signal name with a slash in front of, such as "/SCNON."

A signal that is "H" or has a name without a slash is active at the supply voltage level (indicating that the signal is being output), and inactive at ground level (indicating that the signal is not being output).

A signal that is "L" or has a slash in front of its name is active at ground level, and inactive at the supply voltage level.

There is a microcomputer in this paper deck. But as the internal operation of the microcomputer cannot be checked, an explanation of the operation of the microcomputer has been left out.

As it is assumed that no repair will be made to customer circuit boards, the explanation of board circuits is limited to an outline using block diagrams. So there are two types of circuit explanations; (1) everything from the sensor to the input sections of the major circuit boards, (2) everything from the output sections of the major circuit boards to the loads. These are explained with block diagrams according to the function.

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## I. BASIC OPERATION

### A. Outline

The paper deck feeds print paper to the printer.

The sequence of paper deck operations is controlled by the paper deck driver PCB. This PCB contains an eight-bit microcomputer (IC201) to control the sequence of operations and serial communication with the option controller PCB.

The paper deck driver drives the solenoids and motors according to various commands coming from the option controller through the serial communication line. The paper deck driver sends sensor and switch data to the option controller through the serial communication line.

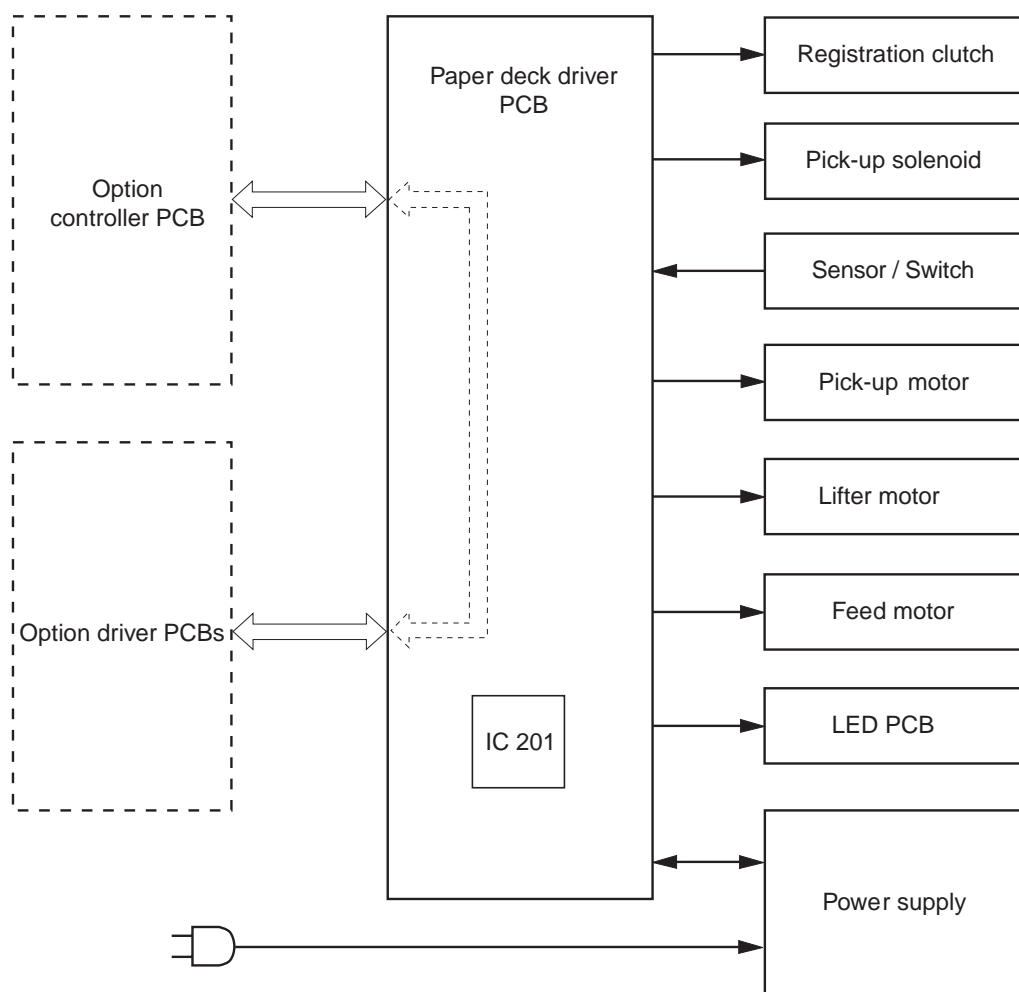


Figure 2-1-1

B. Paper Deck Driver Inputs

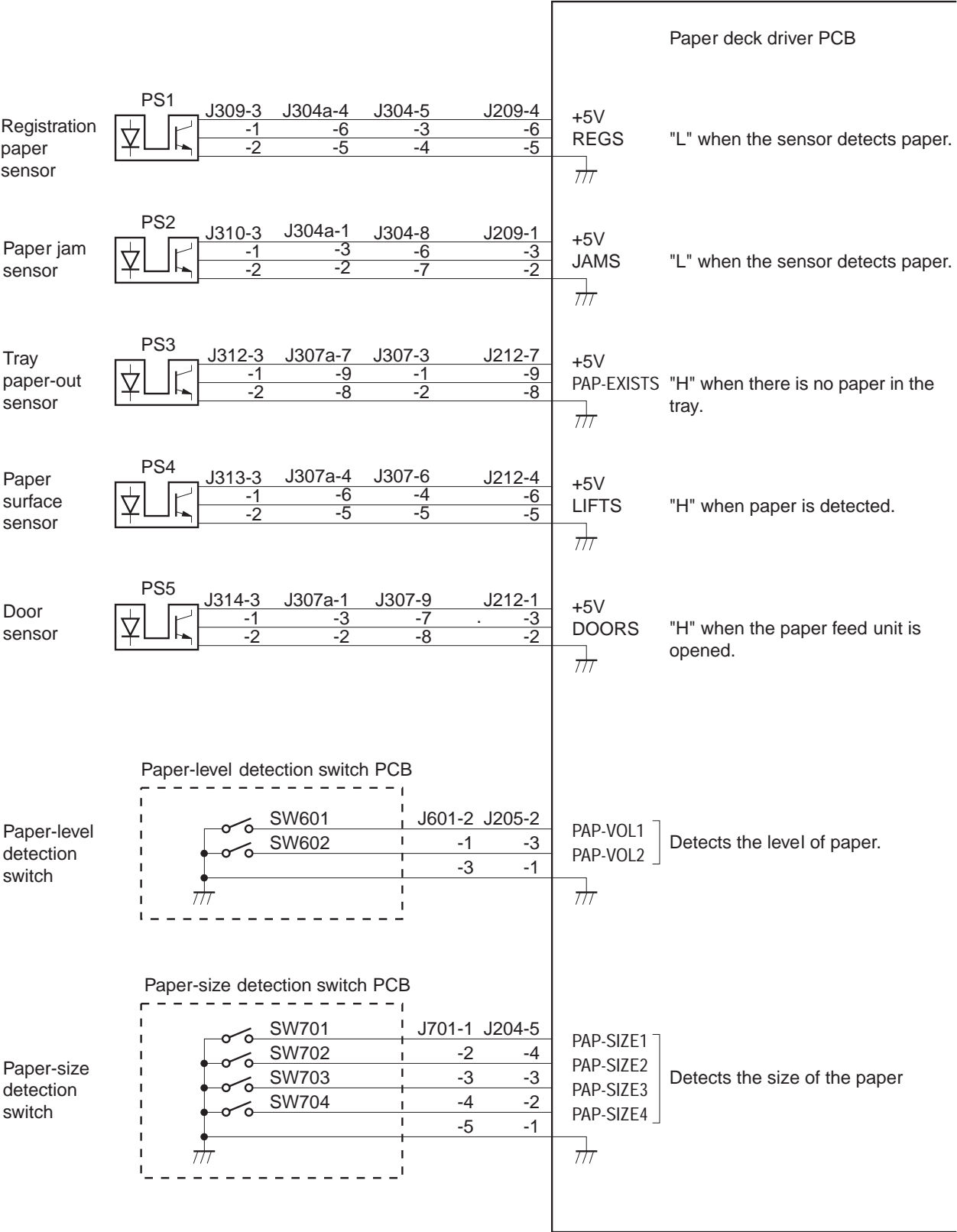


Figure 2-1-2

### C. Paper Deck Driver Outputs

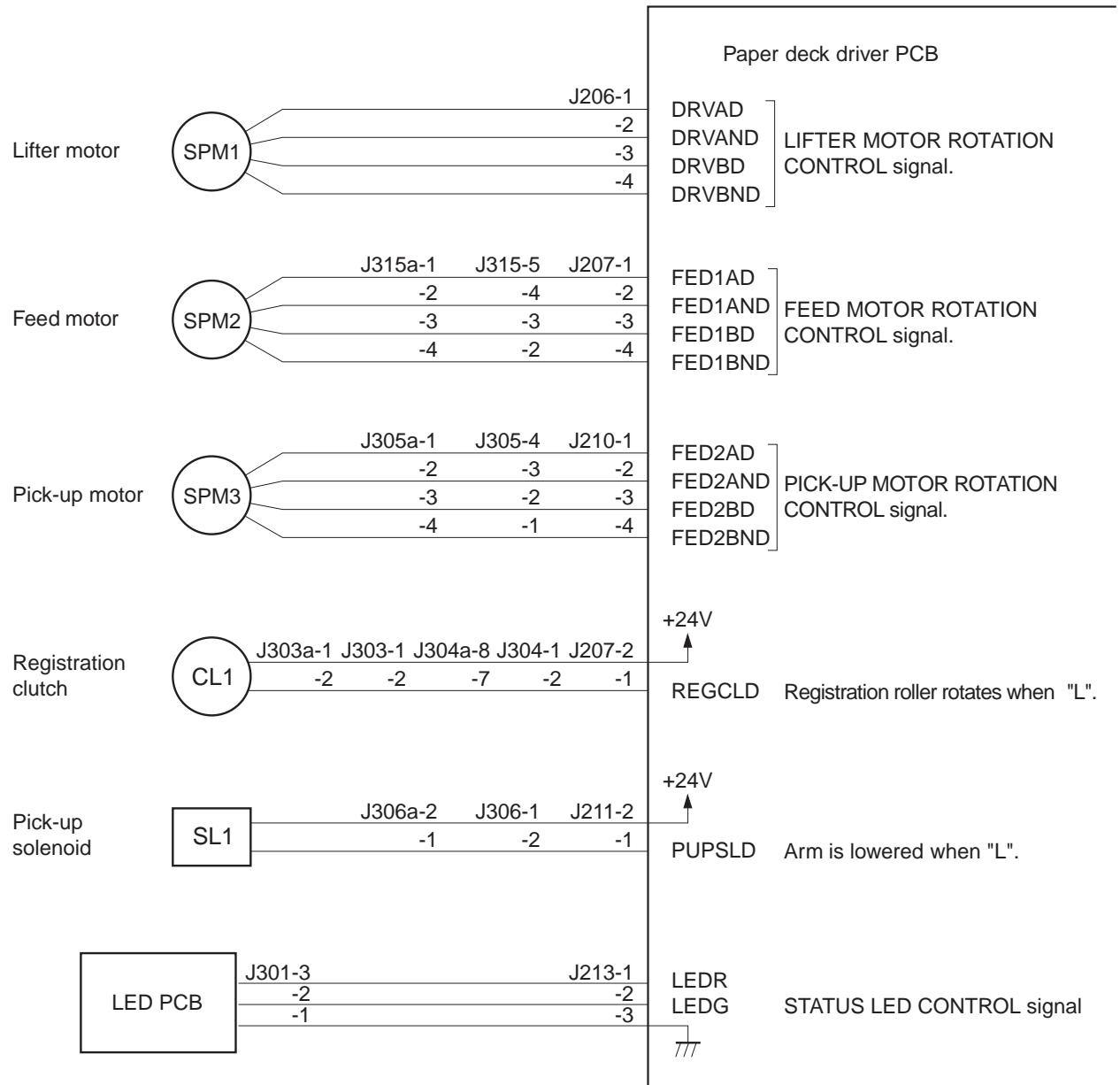


Figure 2-1-3

## II. PICK-UP/FEED SYSTEM

### A. Outline

The paper in the paper deck is detected by the tray paper-out sensor (PS3). The paper level in the tray is detected by a combination of outputs from paper-level detection switch 1 (SW601) and paper-level detection switch 2 (SW602). The paper size is detected by a combination of outputs from paper size detection switches (SW701 to SW704). The combinations of paper-level detection switches and paper size detection switches are listed in Table 2-2-1.

When the option controller sends a pick-up command to the paper deck, the paper deck driver runs the pick-up motor (SPM3) which rotates the pick-up roller, feed roller 1 and separation roller.

At the same time, the paper deck driver turns ON the pick-up solenoid (SL1). This lowers the pick-up roller to the print paper surface. As the pick-up roller turns, the paper is fed to the paper feed unit.

The paper passes through the registration paper sensor (PS1) and stops when it touches the registration roller. When the registration clutch (CL1) turns ON, the paper is fed to the printer.

There are two photointerrupters (PS1 and PS2) in the paper path to detect paper. If the paper does not reach or pass through each sensor within the prescribed period of time, the paper deck driver assumes that a paper jam has occurred, stops the operation, and reports the jam to the option controller.

**Table 2-2-1**

Paper-level detection switch		Remaining paper %	Paper size	Paper-size detection switch			
SW601	SW602			SW701	SW702	SW703	SW704
OFF	OFF	100	Ledger	OFF	ON	OFF	OFF
ON	OFF	75	A3	ON	ON	OFF	OFF
ON	ON	50	B4	OFF	OFF	ON	OFF
OFF	ON	25	Legal	OFF	ON	ON	OFF
			Letter (horizontal)	OFF	ON	OFF	ON
			A4 (horizontal)	ON	ON	OFF	ON
			Tray open	OFF	OFF	OFF	OFF

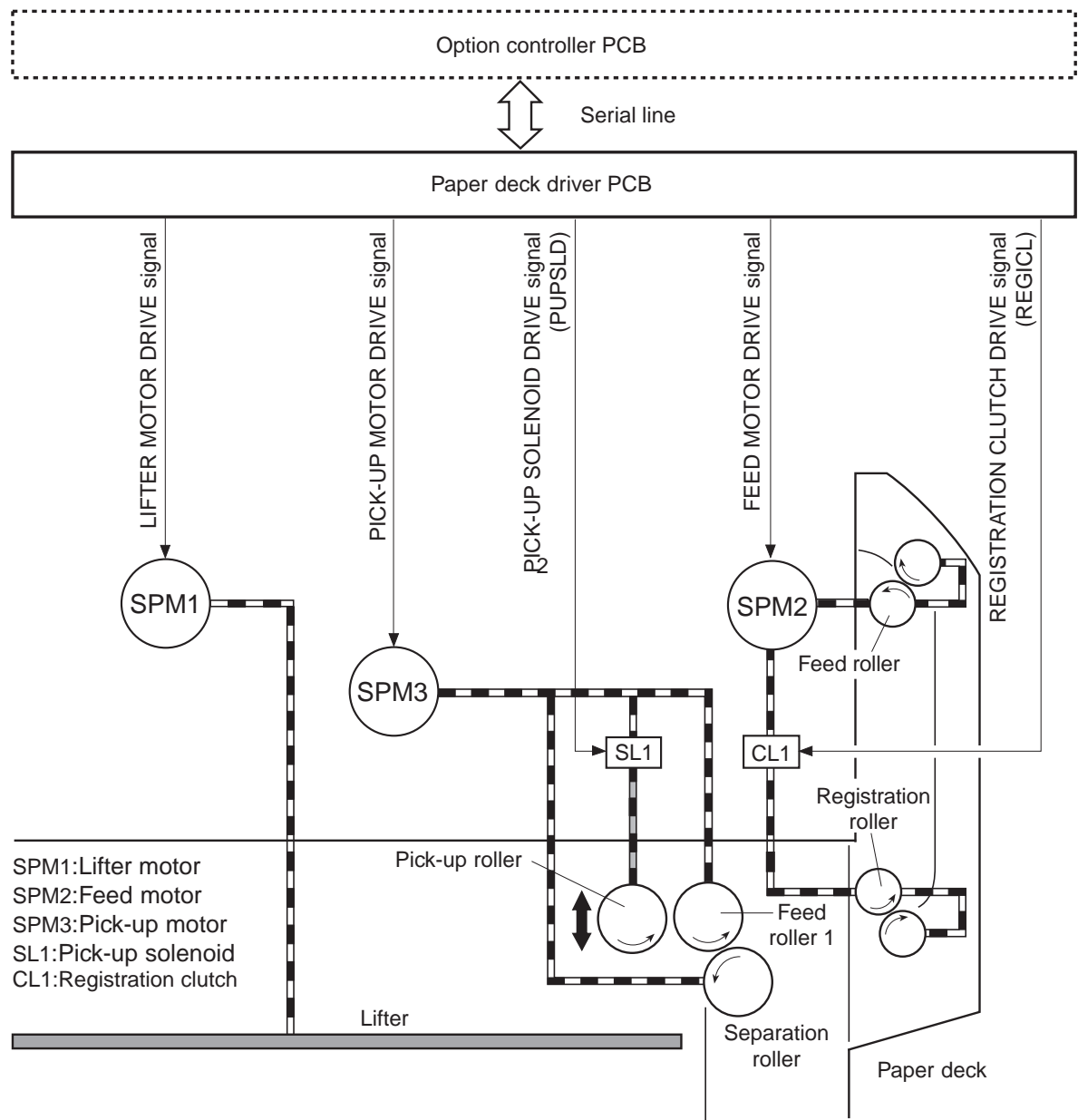


Figure 2-2-1

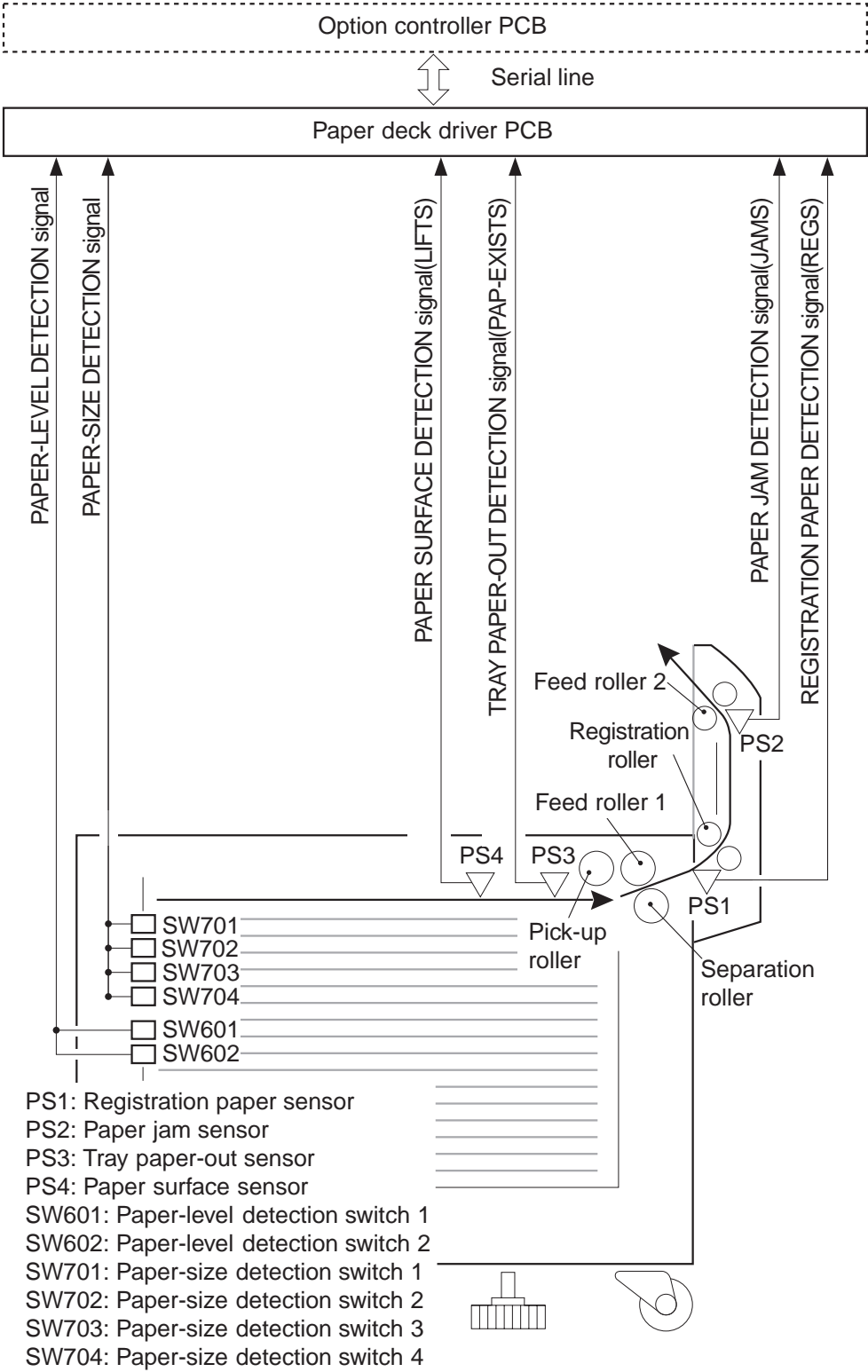
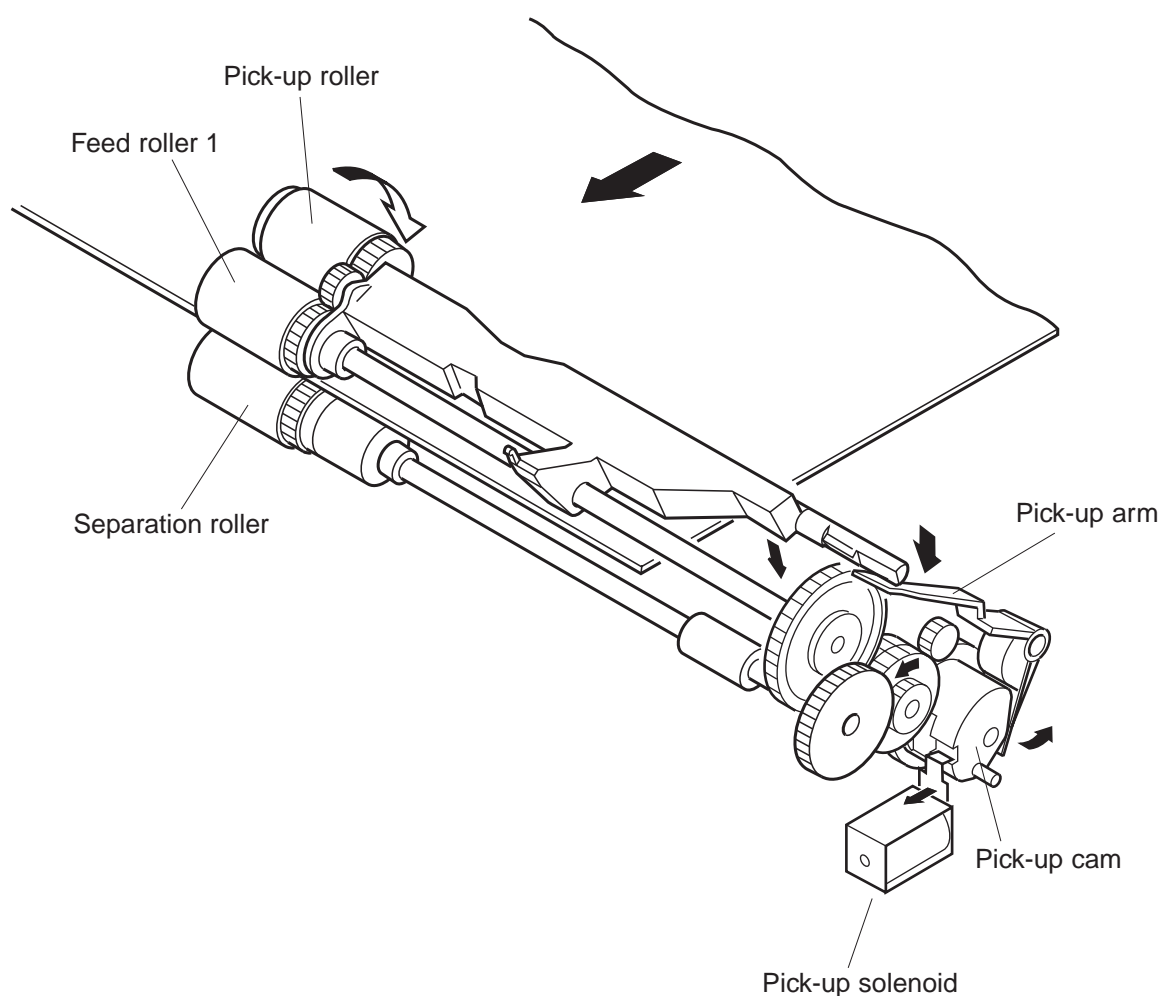


Figure 2-2-2

**B. Paper Pick-up and Feeding**

When the paper deck driver receives a paper pick-up command from the option controller, the driver runs the feed motor (SPM2) and pick-up motor (SPM3). SPM2 rotates feed roller 2 and registration roller, and SPM3 rotates the pick-up roller, feed roller 1 and separation roller. The paper deck driver turns ON the pick-up solenoid (SL1). This rotates the pick-up cam and operates the pick-up arm. The rotating pick-up roller lowers to the print paper surface and picks up the paper. The separation roller removes any excessive sheets of paper and only one sheet of paper is fed to the paper feed unit with feed roller 1.

The print paper passes through the registration paper sensor (PS1) and reaches the registration roller. Since the registration roller is not turning at this time, the print paper stops and its leading edge is looped to correct skews. When the registration clutch (CL1) turns ON, SPM2 power is transmitted to the registration roller and it rotates. The print paper is fed to the printer.

**Figure 2-2-3**

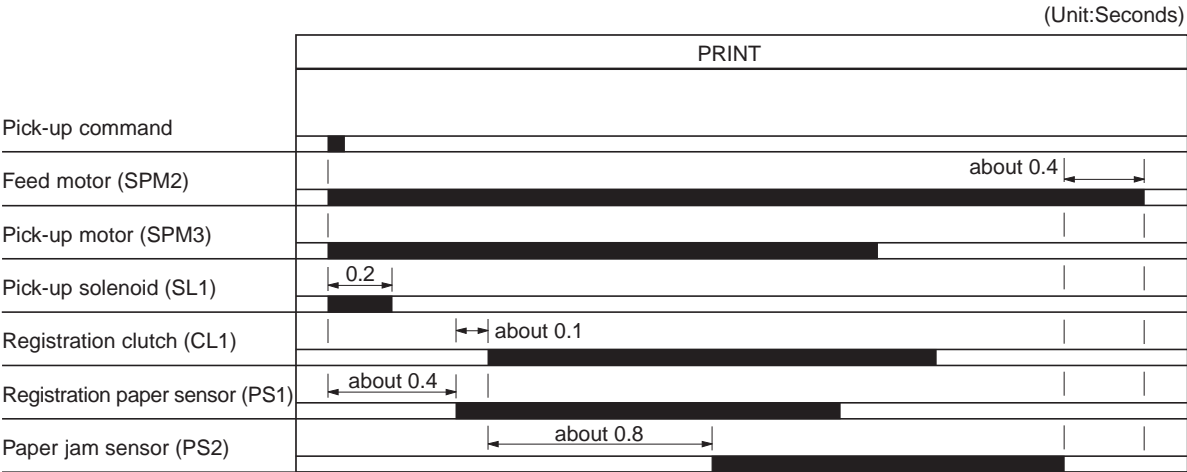


Figure 2-2-4



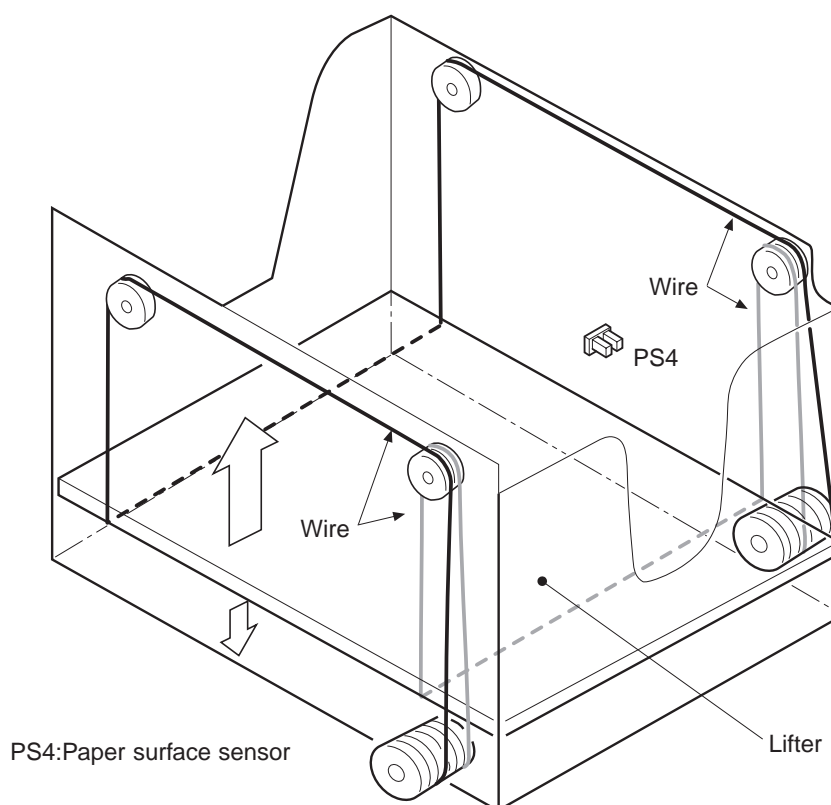
### C. Lifter Operation

The lifter in the tray is suspended by two wires. The wires are wound on four pulleys by the lifter motor (SPM1: stepping motor), and the lifter lifts. When the tray is pulled out, the pulley gears are disengaged from the motor gears, and the lifter lowers by its own weight.

The presence or absence of the tray in the paper deck is detected by paper size detection switches (SW701 to SW704).

The paper deck driver turns SMP1 ON when it detects that the tray is installed correctly with the paper size detection switches. The lifter lifts to the position where the paper surface sensor (PS4) goes “H.” When the print paper is picked up, the number of sheets decreases, and PS4 goes “L”, the paper deck driver turns SPM1 ON again, and lifts the lifter until PS4 goes “H.”

If PS4 does not go “H” within the prescribed period of time after the lifter begins lifting, the paper deck driver assumes that the lifter has failed and reports it to the option controller.



**Figure 2-2-5**

### **D. Paper Jam Detection**

The following paper sensors are installed to detect the presence of paper and ensure that the paper is fed correctly.

- Registration paper sensor (PS1)
- Paper jam sensor (PS2)

The CPU determines whether or not a paper jam has occurred by monitoring the paper at each of the sensors according to the pre-set 'check timing' in the memory. When the CPU assesses that a jam has occurred, the feed operation to the printer is stopped, and notification of the jam is sent to the option controller.

#### **1. Pick-up delay jam**

If the registration sensor (PS1) cannot detect the paper within 1.0 second after receiving the pick-up command, the CPU assesses a pick-up delay jam.

#### **Paper pick-up retry function**

If the CPU cannot detect the paper when executing the first jam check, it performs the paper pick-up operation again. If the CPU cannot detect the paper for the second time, it assesses a pick-up delay jam.

#### **2. Feed unit delay jam**

If the paper jam sensor (PS2) cannot detect the paper within 1.6 seconds after the registration clutch (CL1) is driven, the CPU assesses a feed unit delay jam.

#### **3. Feed unit stationary jam**

If trailing edge of the paper does not pass through the paper jam sensor (PS2) within the prescribed period of time (T) after PS2 detects the leading edge of the paper, the CPU assumes a feed unit stationary jam.

T=about 2.1 seconds (A4 landscape), about 3.6 seconds (Ledger)

### III. POWER SUPPLIES

#### A. Outline

The power supply unit uses a remote switch.

When the printer power switch is turned ON, the printer outputs a command to the option controller through the video controller. The option controller outputs a POWER ON signal (PWRON-IN) to the power supply unit through the paper deck driver according to the command. When the PWRON-IN signal is "H", the power supply unit provides +24 V and +5 V to the paper deck driver.

+24 V is used to drive the lifter motor, feed motor, pick-up motor, clutches and solenoids, and +5 V is used for sensors and ICs on the paper deck driver PCB.

The power supply unit uses the stand alone mode switch (SW1). This allows the paper deck to be ON while the printer is OFF.

A block diagram of the power supply unit is shown below.

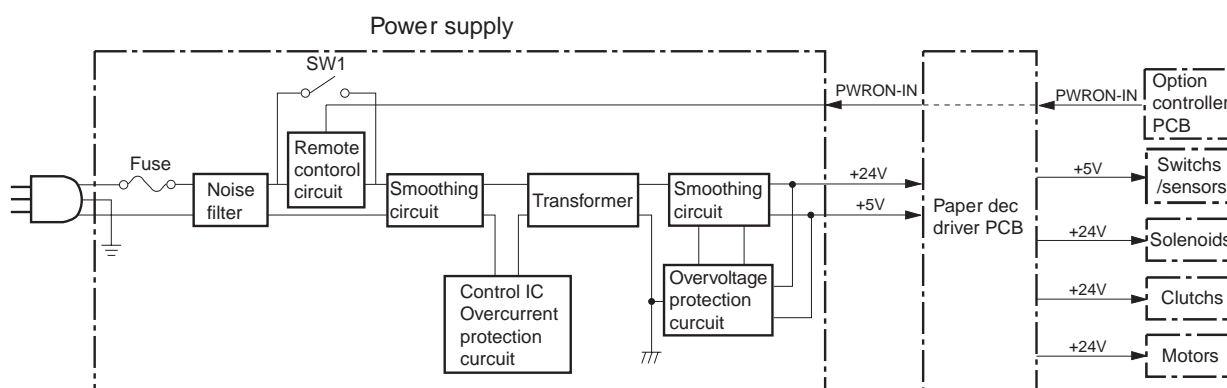


Figure 2-3-1

#### B. Protective Function

The +24V and +5V power supply circuits have the overcurrent protection function and the overvoltage protection function that interrupt the output voltage automatically to prevent failure of the power supply circuits if a trouble, such as a short, occurs in the load and results in overcurrent flow or occurrence of abnormal voltage.

Therefore, if the overcurrent or overvoltage protection function is activated and the DC voltage is not output from the power supply circuit, turn the printer OFF, correct the trouble in the load, and turn the printer ON again.



# **CHAPTER 3**

## **THE MECHANICAL SYSTEM**

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## I. PREFACE

This chapter describes the disassembly and reassembly procedures of the paper deck.

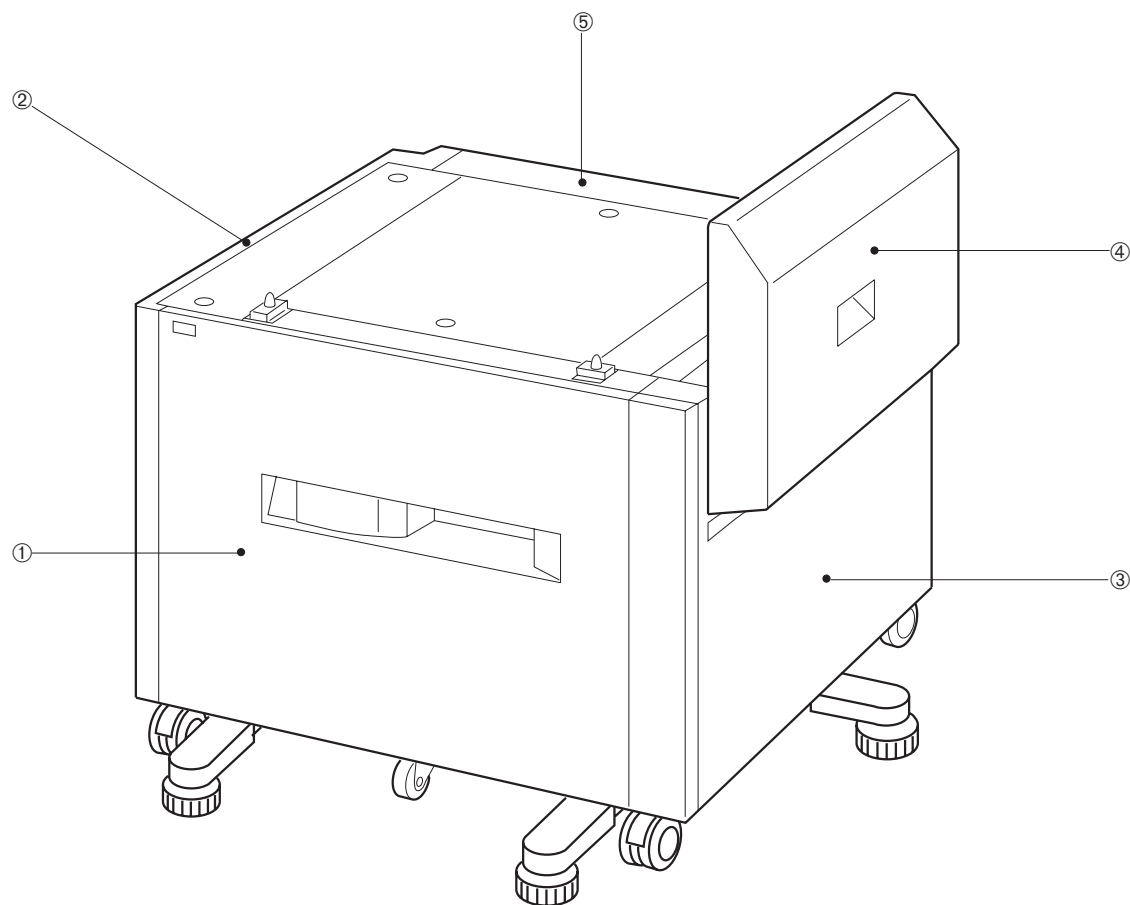
The service technician is to identify the cause of malfunction according to "Chapter 4 Troubleshooting" and to replace the defective part(s) following the disassembly procedure of each part.

Note the following precautions when working on the paper deck.

1. **▲ CAUTION: Before servicing the paper deck, disconnect its power cord from the electrical outlet.**
2. Assembly is the reverse of disassembly unless otherwise specified.
3. Note the lengths, diameters, and locations of screws as you remove them. When reassembling the paper deck, be sure to use them in their original locations.
4. Do not operate the paper deck with any parts removed.
5. Discharge electrical static from your body by touching the metal frame of the paper deck prior to handling the PCB in order to avoid causing damage by the difference in static charge at that time.

## II. EXTERNALS

### A. Locations



- ① Front cover
- ② Left cover
- ③ Right cover
- ④ Feed cover
- ⑤ Rear cover

**Figure 3-2-1**

Following the procedures described in this section, remove the covers when cleaning or checking inside the paper deck.

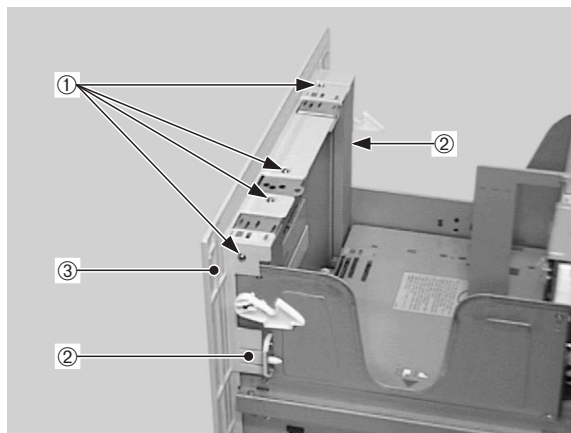
The removal procedures of the covers that can be removed simply by taking out the screws without removing other parts are omitted.



## B. External Covers

### 1. Front cover

- 1) Pull out the tray.
- 2) Remove the paper size regulation plate.
- 3) Remove the 4 screws, release the right and left claws, and remove the front cover.

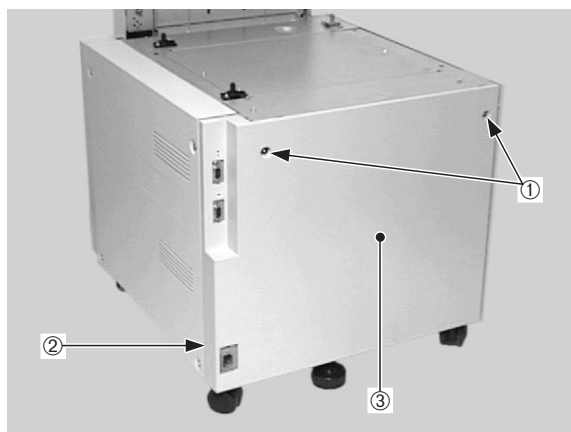


- ① Screws                      ② Claws  
③ Front cover

**Figure 3-2-2**

### 2. Left cover

- 1) Remove the 2 screws.
- 2) Unhook the claw and remove the left cover.

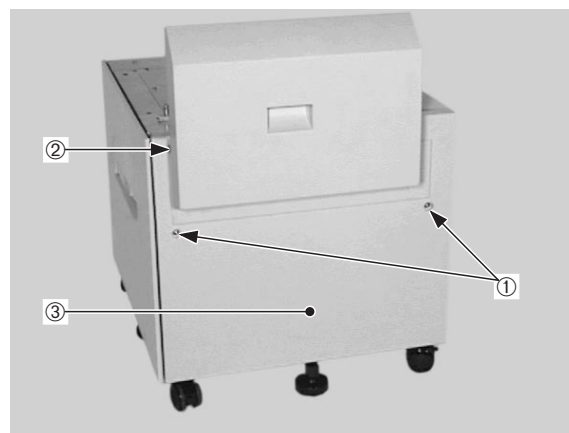


- ① Screws                      ② Claw  
③ Left cover

**Figure 3-2-3**

### 3. Right cover

- 1) Remove the 2 screws.
- 2) Unhook the claw and remove the right cover.

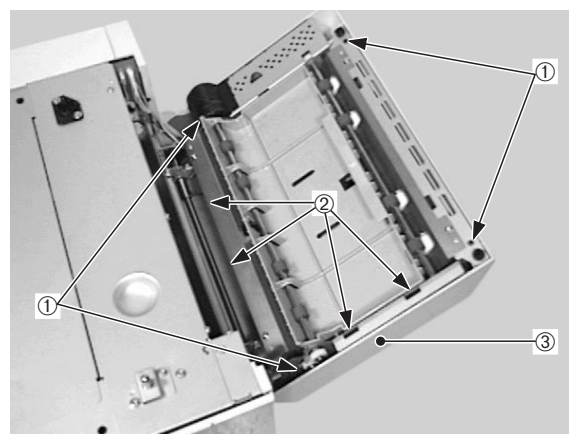


- ① Screws                      ② Claw  
③ Right cover

**Figure 3-2-4**

### 4. Feed cover

- 1) Remove the 4 screws.
- 2) Unhook the 4 claws and remove the feed cover.

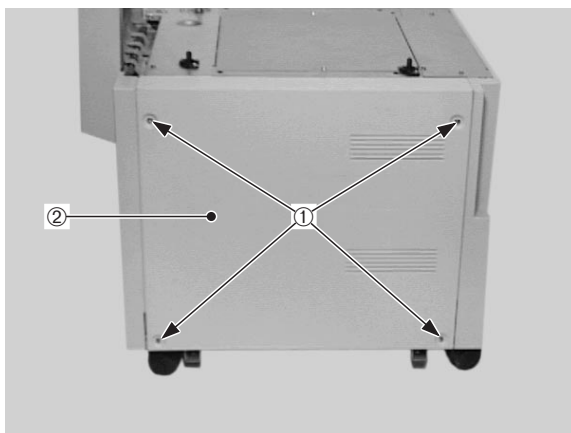


- ① Screws                      ② Claws  
③ Feed cover

**Figure 3-2-5**

### 5. Rear cover

- 1) Remove the 4 screws and then the rear cover.



① Screws

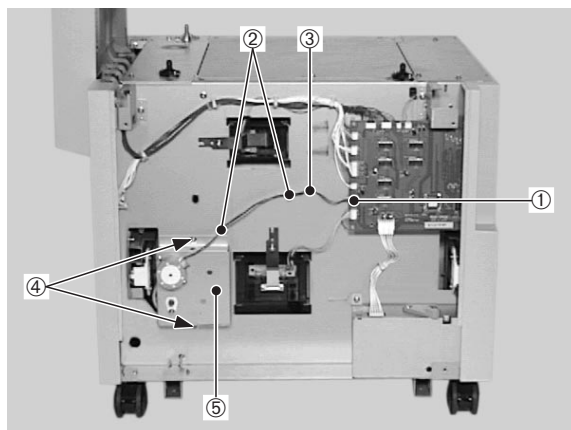
② Rear cover

**Figure 3-2-6**

### III. MAIN UNITS

#### A. Drive Unit

- 1) Remove the rear cover.
- 2) Remove the 2 screws after disconnecting the connector and taking out the cable from the cable band, and then remove the drive unit.

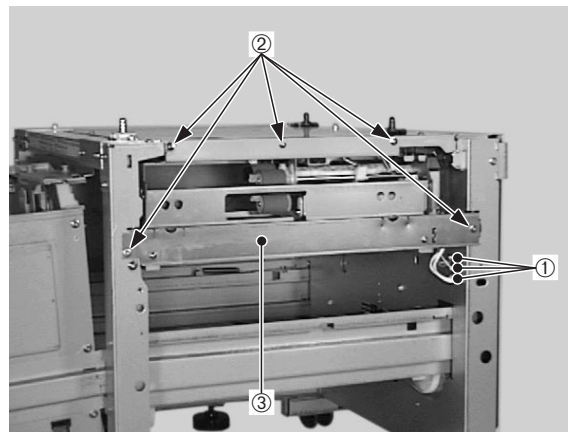


- |              |              |
|--------------|--------------|
| ① Connector  | ② Cable band |
| ③ Cable      | ④ Screws     |
| ⑤ Drive unit |              |

**Figure 3-3-1**

#### B. Pick-up Unit

- 1) Perform steps 1) to 3) on page 3-6 and remove the paper feed unit.
- 2) Pull out the tray.
- 3) Remove the right cover.
- 4) Disconnect the 3 connectors, remove the the 5 screws, and then remove the pick-up unit.



- |                |          |
|----------------|----------|
| ① Connectors   | ② Screws |
| ③ Pick-up unit |          |

**Figure 3-3-2**

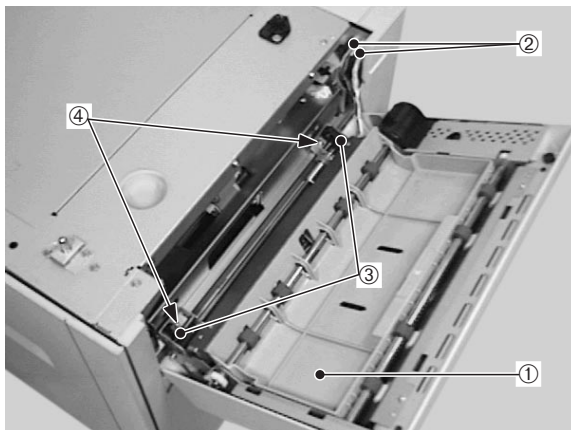
---

**Note:** Before replacing each part of the pick-up unit, remove the pick-up roller, feed roller, and separation roller to prevent them from being smudged with grease. Be carefully not to stain the paper feed guide with grease.

---

### C. Paper Feed Unit

- 1) Tilt the paper feed unit forward.
- 2) Disconnect the 2 connectors.
- 3) Rotate the feed spacer.
- 4) Remove the 2 screws and then the paper feed unit.

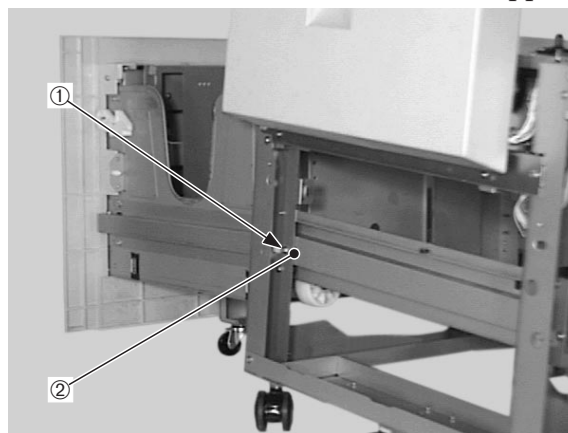


- ① Paper feed unit    ② Connectors  
③ Screws            ④ Feed spacer

**Figure 3-3-3**

### D. Tray

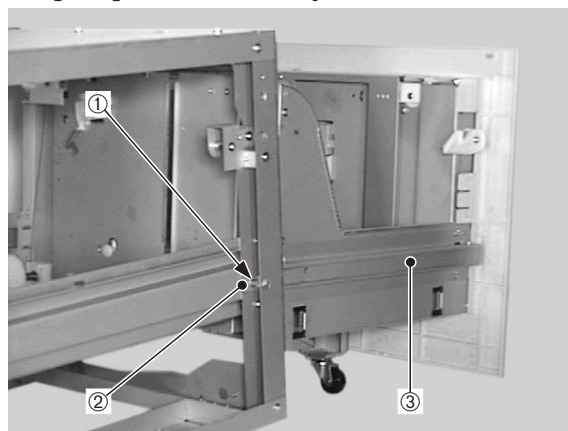
- 1) Remove the front cover.
- 2) Remove the right and left covers.
- 3) Remove the screw and then the stopper.



- ① Screw                      ② Stopper

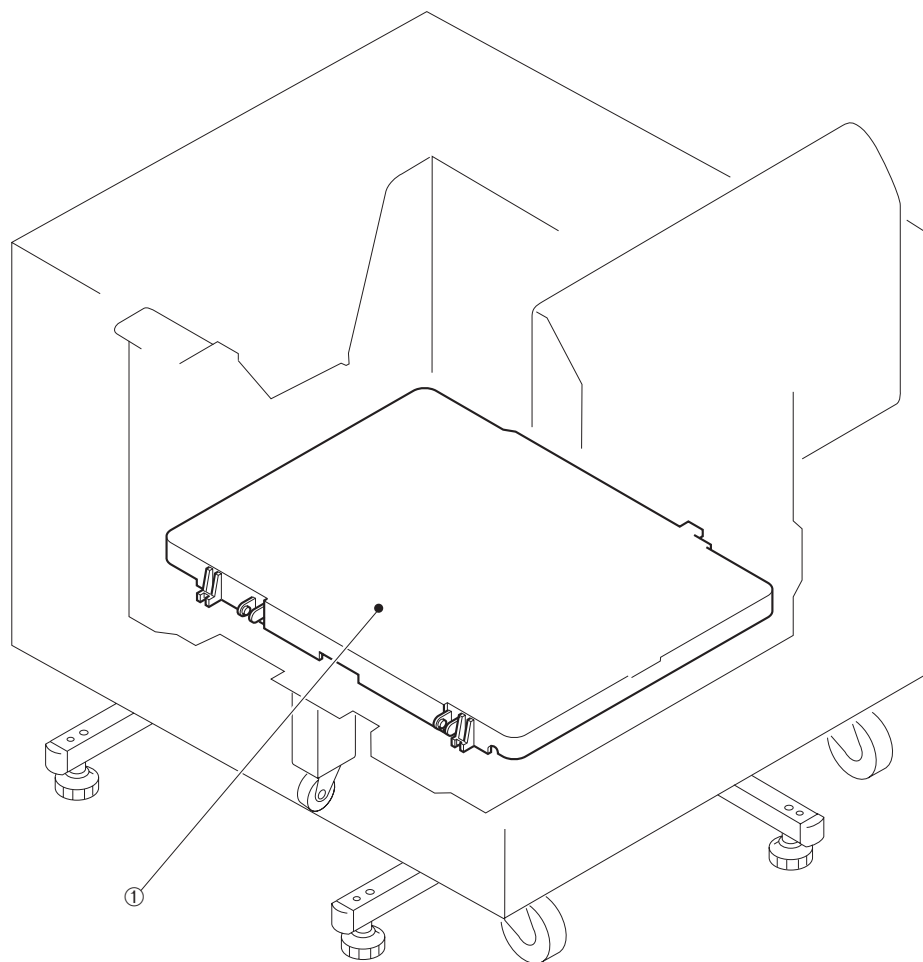
**Figure 3-3-4**

- 4) After removing the screw and the stopper, pull out the tray.



- ① Screw                      ② Stopper  
③ Tray

**Figure 3-3-5**

**IV. MAIN PARTS****A. Locations**

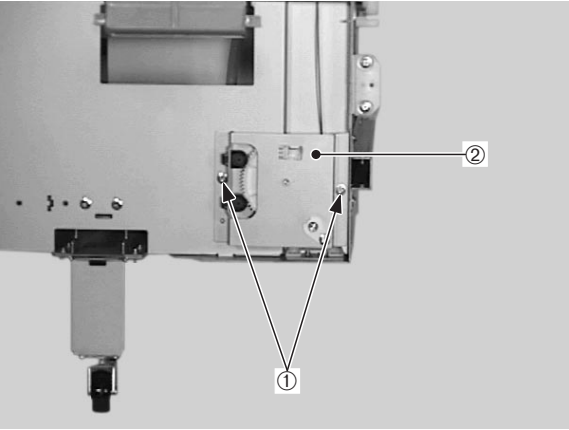
① Lifter

**Figure 3-4-1**

**B. Lifter**

**1. Disassembly**

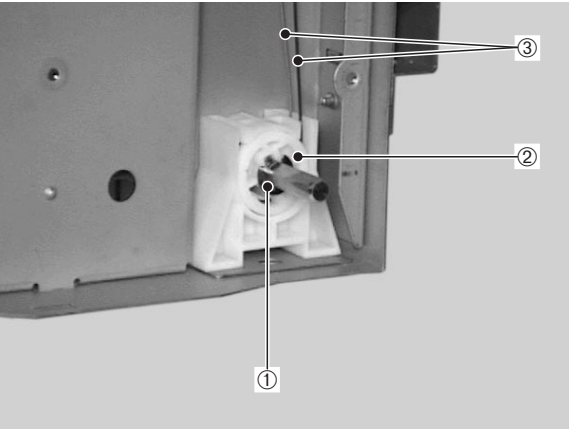
- 1) Perform steps 1) to 3) on page 3-3 and remove the front cover.
- 2) Perform steps 1) to 4) on page 3-6 and remove the tray.
- 3) Remove the 2 screws, the dumper unit, and then the gear.



① Screws                      ② Dumper unit

**Figure 3-4-2**

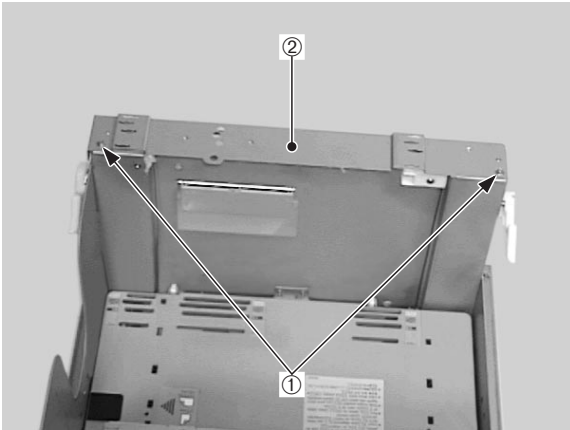
- 4) Remove the E-ring and then the 2 pulleys.
- 5) Remove the wires from the pulley.



① E-ring                      ② Pulley  
③ Wire

**Figure 3-4-3**

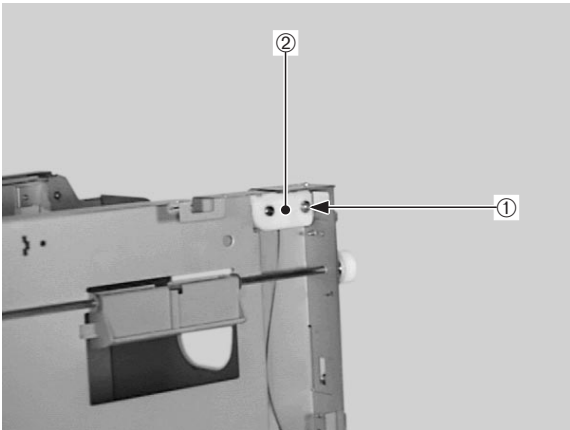
- 6) Remove the 2 screws and then the standard installation plate.



① Screws  
② Standard installation plate

**Figure 3-4-4**

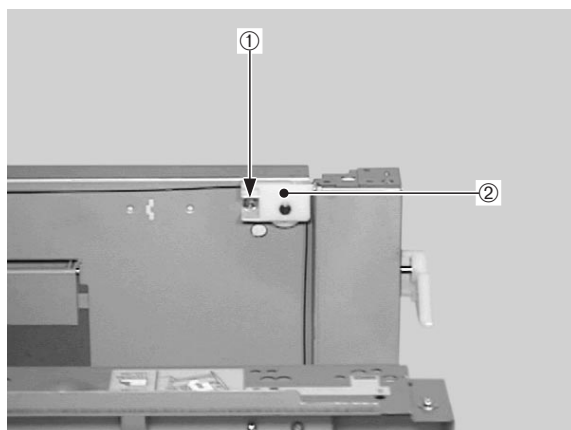
- 7) Remove the screw and then the wire cover.



① Screw                      ② Wire cover

**Figure 3-4-5**

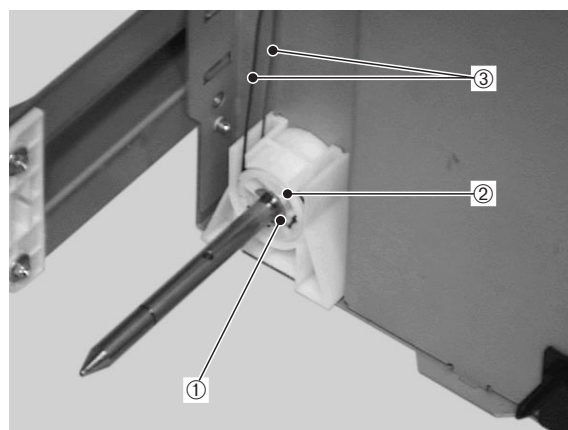
- 8) Remove the screw and then the wire cover.



① Screw                      ② Wire cover

**Figure 3-4-6**

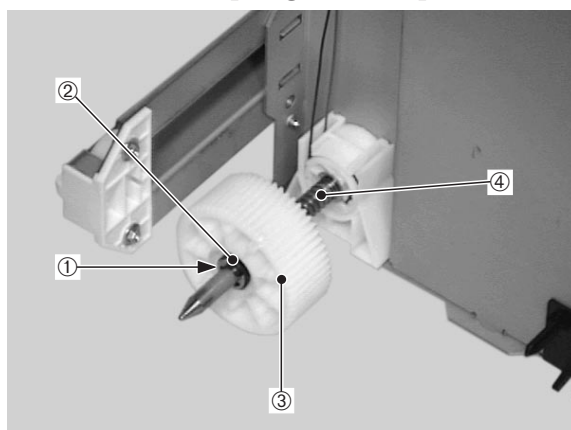
- 11) Remove the E-ring and 2 pulleys.  
12) Remove the wires from the pulley.



① E-ring                      ② Pulley  
③ Wire

**Figure 3-4-8**

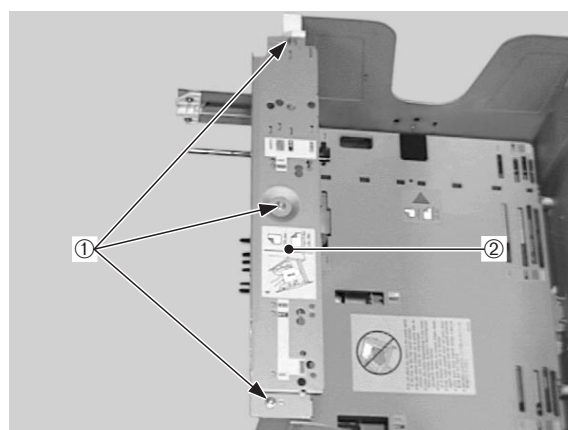
- 9) Remove the E-ring and then take out the rubber ring and gear.  
10) Remove the spring and the pin.



① E-ring                      ② Rubber ring  
③ Gear                      ④ Spring

**Figure 3-4-7**

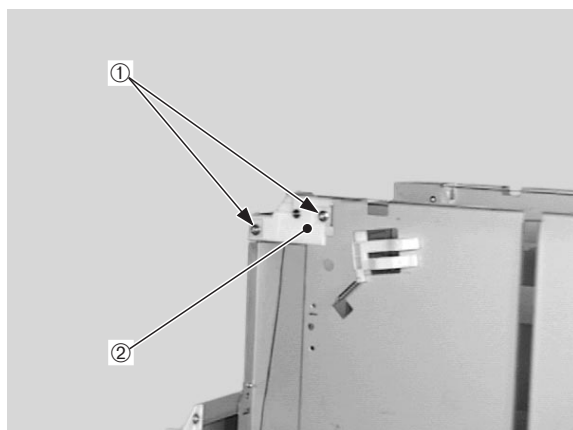
- 13) Remove the 3 screws and then the regulation plate.



① Screw                      ② Regulation plate

**Figure 3-4-9**

14) Remove the 2 screws and then the wire cover.

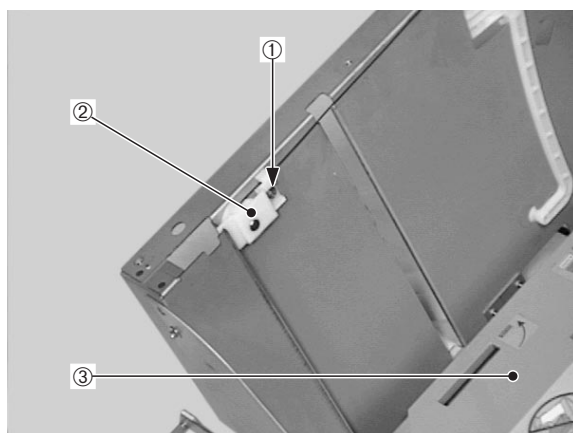


① Screws

② Wire cover

**Figure 3-4-10**

15) Remove the screw, the wire cover, and then the lifter.



① Screw

② Wire cover

③ Lifter

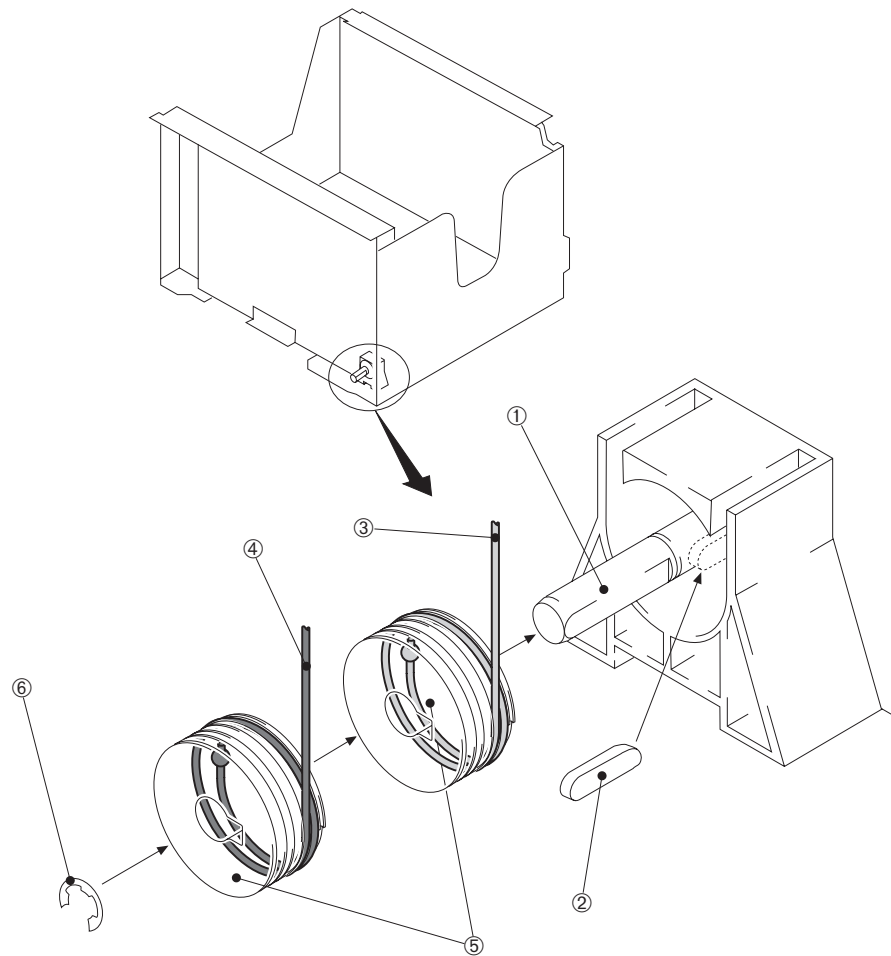
**Figure 3-4-11**

16) Remove the wires from the lifter.



**2. Assembly****a. Front Wire**

- 1) Set the pulley positioning pin on the right side of the shaft as viewed from the front.
- 2) Wind wire 1 on pulley one and half rounds from the second groove from the rear and install the pulley on the shaft.
- 3) Wind wire 2 on pulley one and half rounds from the second groove from the rear and install the pulley on the shaft.
- 4) Secure the pulleys and shaft with the E ring.



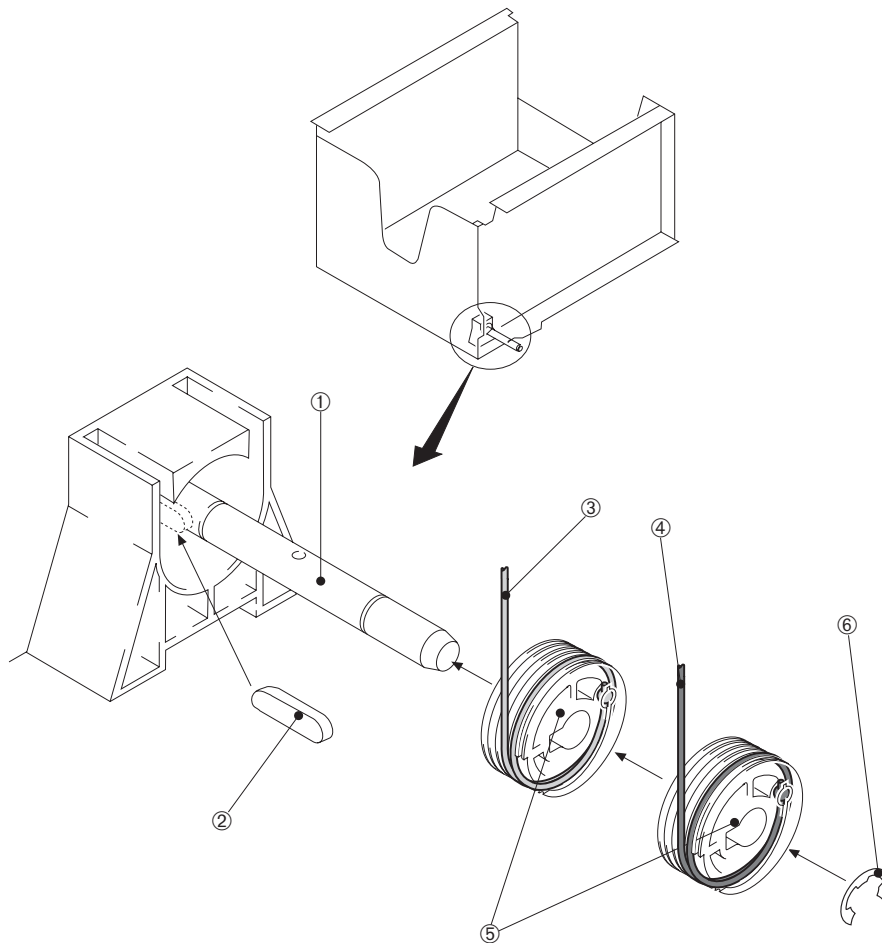
- ① Shaft
- ③ Wire 1
- ⑤ Pulleys

- ② Pulley positioning pin
- ④ Wire 2
- ⑥ E ring

**Figure 3-4-12**

### b. Rear Wire

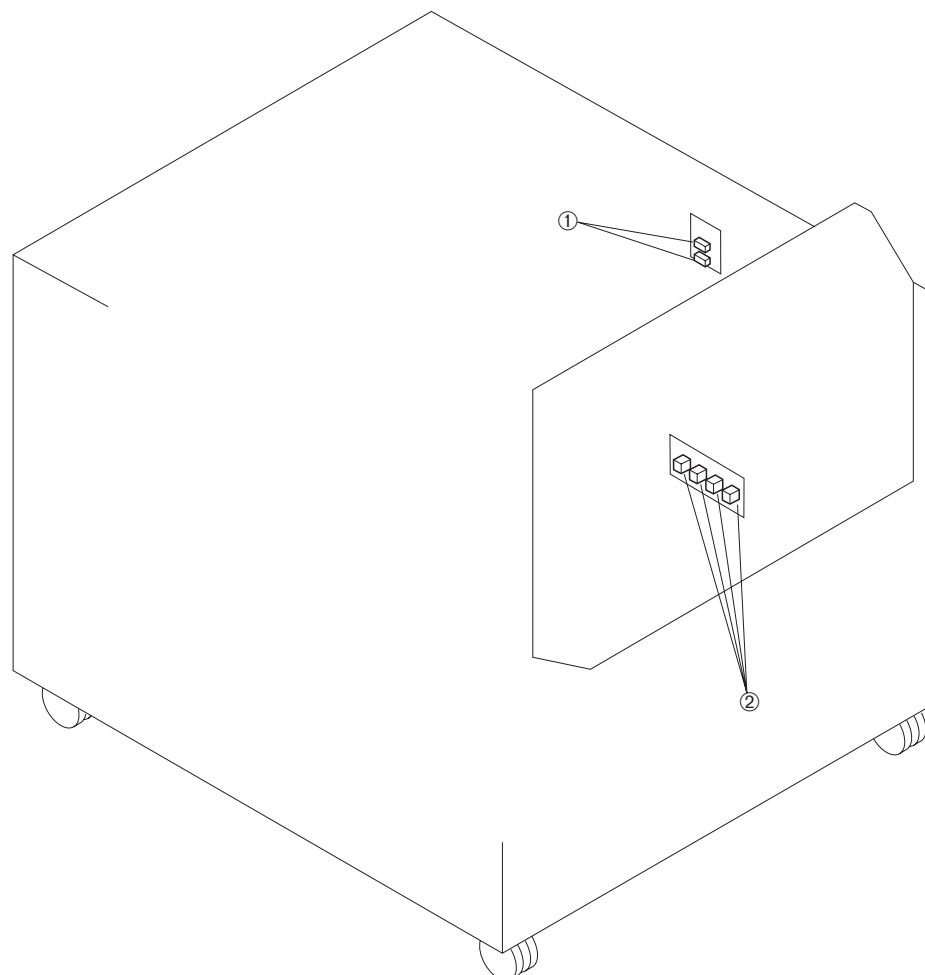
- 1) Set the pulley positioning pin on the left side of the shaft as viewed from the front.
- 2) Wind wire 1 on pulley one and half rounds from the second groove from the front and install the pulley on the shaft.
- 3) Wind wire 2 on pulley one and half rounds from the second groove from the front and install the pulley on the shaft.
- 4) Secure the pulleys and shaft with the E ring.



- ① Shaft
- ③ Wire 1
- ⑤ Pulleys

- ② Pulley positioning pin
- ④ Wire 2
- ⑥ E ring

**Figure 3-4-13**

**V. SWITCHES****A. Locations**

① Paper-level detection switches

② Paper-size detection switches

**Figure 3-5-1**

### **B. Paper Level Detection Switches**

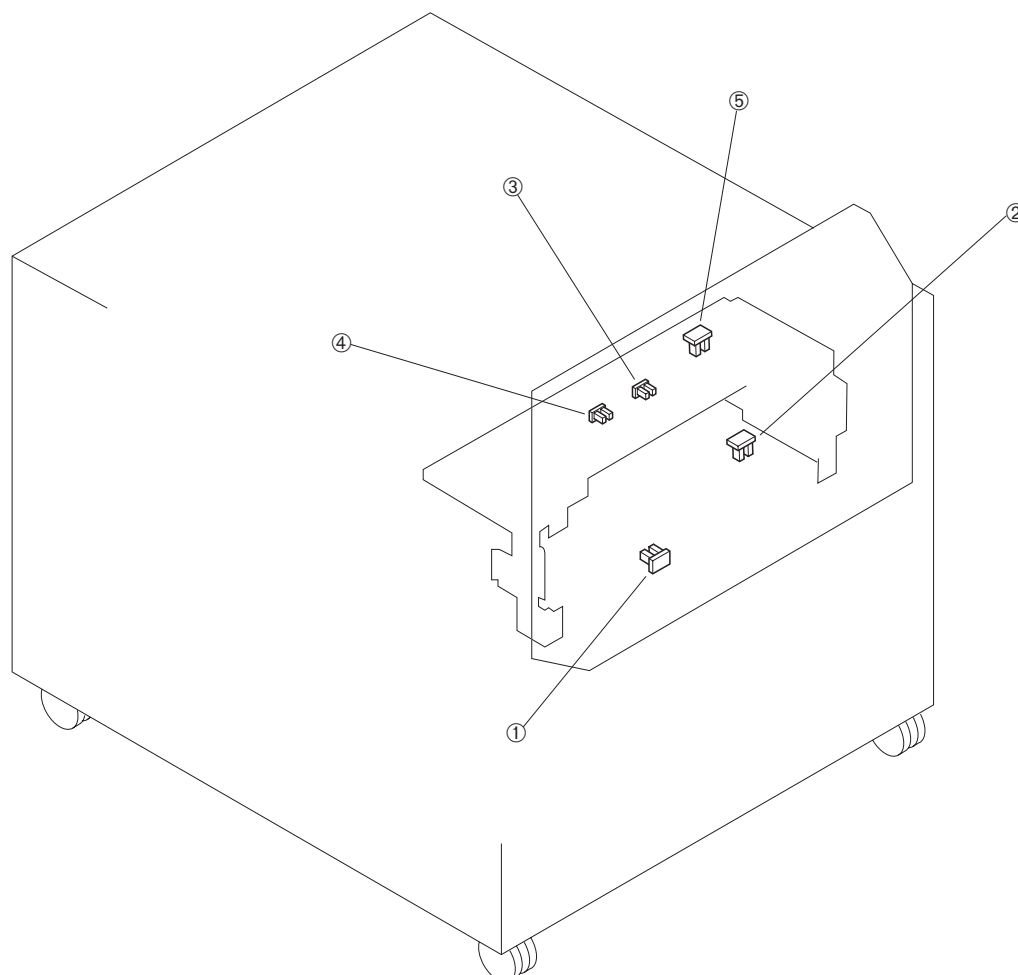
- 1) Performing steps 1) to 4) on Page 3-25, remove the paper level detection switch PCB.

### **C. Paper-size Detection Switches**

- 1) Performing steps 1) to 4) on Page 3-25, remove the paper size detection switch PCB.

## VI. SENSORS

### A. Locations



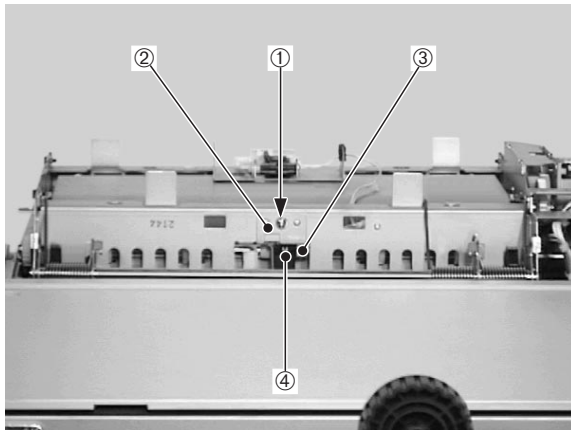
- ① Registration paper sensor
- ③ Tray paper-out sensor
- ⑤ Door sensor

- ② Paper jam sensor
- ④ Paper surface sensor

**Figure 3-6-1**

### B. Registration Paper Sensor

- 1) Performing steps 1) to 2) on Page 3-3, remove the feed cover.
- 2) Disconnect the connector after removing the screw and sensor mounting plate, and then take out the registration paper sensor.

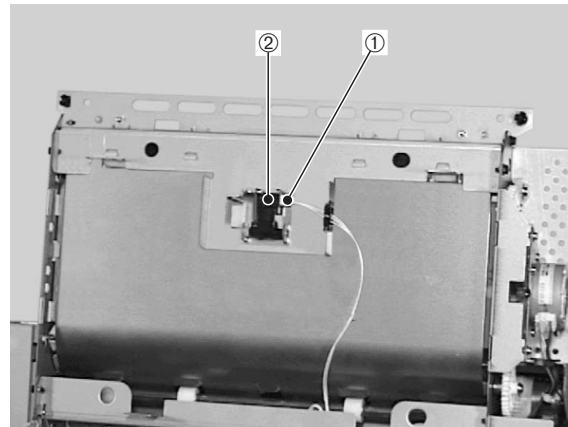


- ① Screw
- ② Sensor mounting plate
- ③ Connector
- ④ Registration paper sensor

**Figure 3-6-2**

### C. Paper Jam Sensor

- 1) Performing steps 1) to 2) on Page 3-3, remove the feed cover.
- 2) Disconnect the connector, and then remove the paper jam sensor.

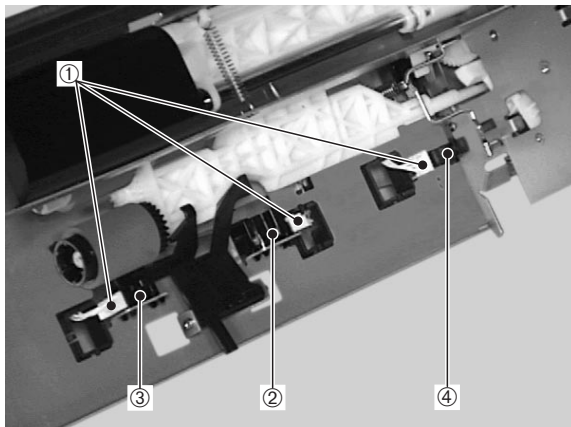


- ① Connector
- ② Paper jam sensor

**Figure 3-6-3**

**D. Tray Paper-out Sensor/Paper Surface Sensor/Door Sensor**

- 1) Performing steps 1) to 4) on Page 3-5, remove the pick-up unit.
- 2) Disconnect the connector, and then remove the tray paper-out sensor.
- 3) Disconnect the connector, and then remove the paper surface sensor.
- 4) Disconnect the connector, and then remove the door sensor.

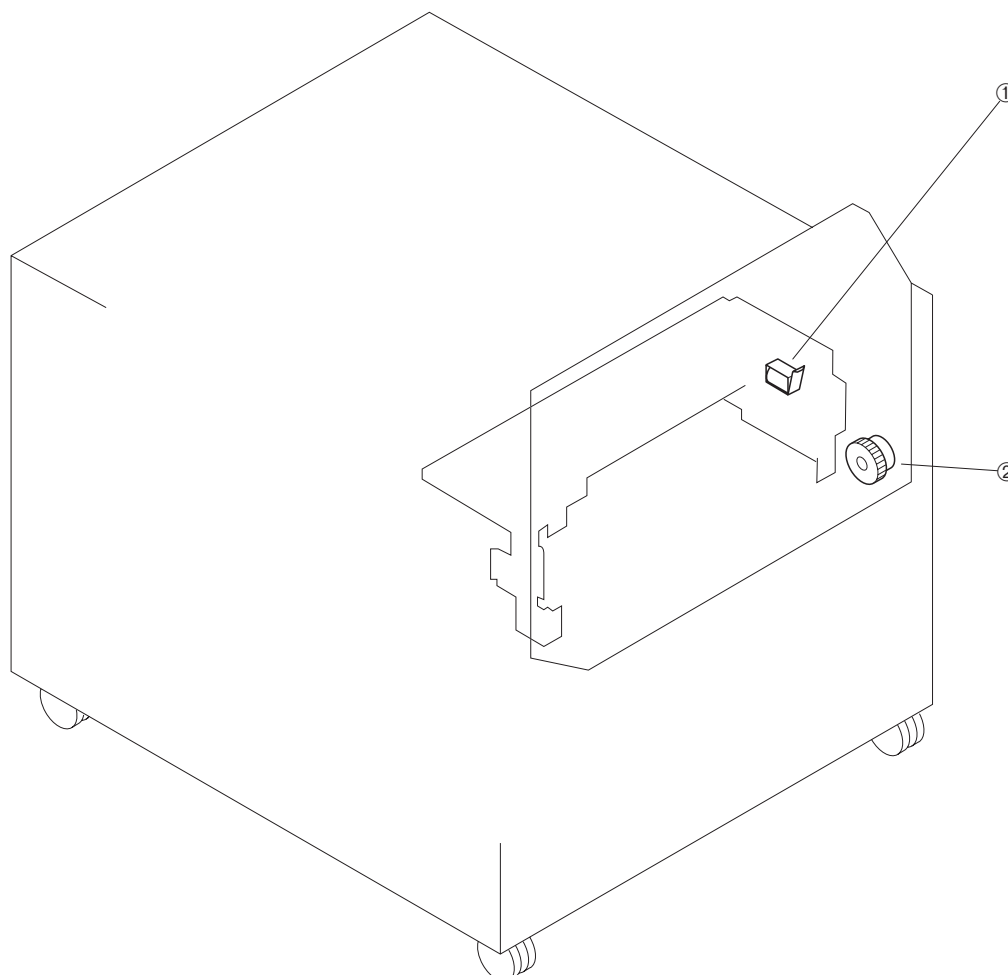


- ① Connector
- ② Tray paper-out sensor
- ③ Paper surface sensor
- ④ Door sensor

**Figure 3-6-4**

## **VII. SOLENOID/CLUTCH**

### **A. Locations**



① Pick-up solenoid

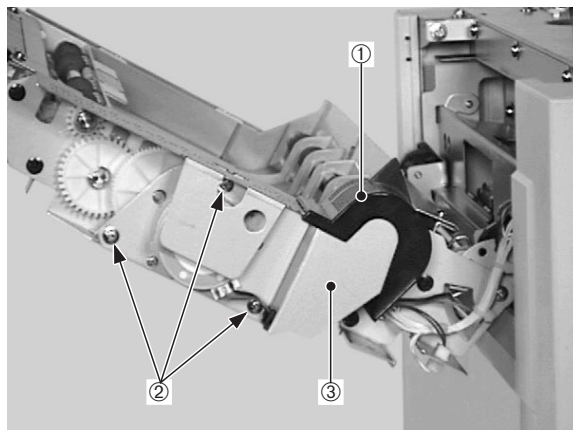
② Registration clutch

**Figure 3-7-1**



### B. Registration Clutch

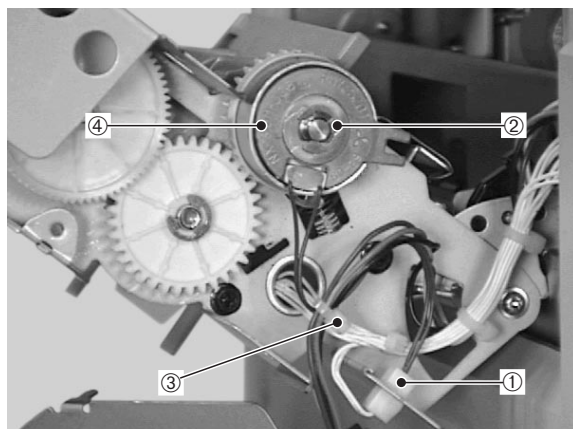
- 1) Remove the feed cover.
- 2) Remove the clutch cover.
- 3) Remove the 3 screws and then the feed motor mounting plate.



- ① Clutch cover
- ② Screws
- ③ Feed motor mounting plate

**Figure 3-7-2**

- 4) Remove the connector, the E-ring, the cable clip and then remove the registration clutch.

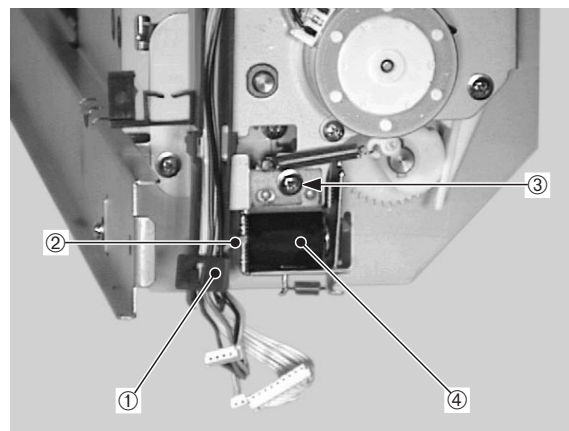


- ① Connector
- ② E-ring
- ③ Cable clip
- ④ Registration clutch

**Figure 3-7-3**

### C. Pick-up Solenoid

- 1) Remove the cable from the cable guide, and then take out the screw and the pick-up solenoid.

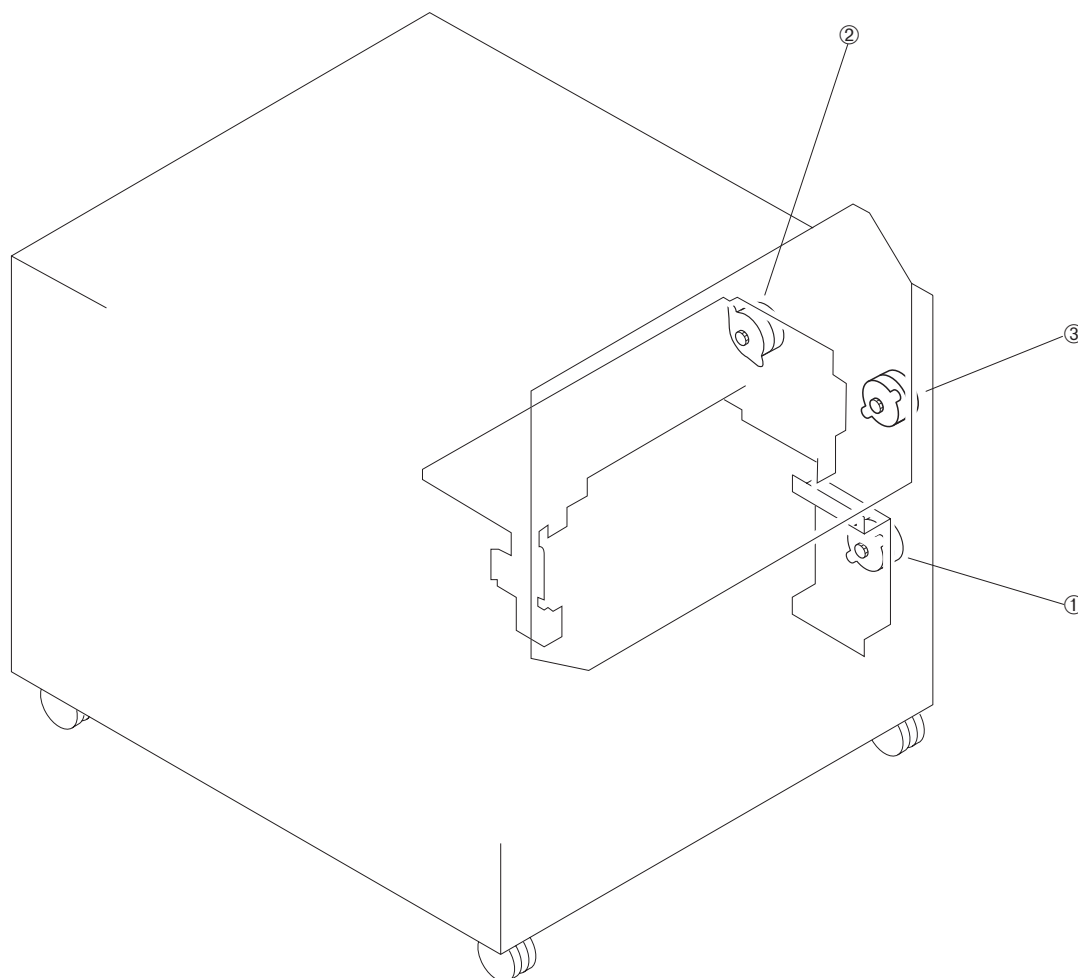


- ① Cable guide
- ② Cable
- ③ Screw
- ④ Pick-up solenoid

**Figure 3-7-4**

## **VIII. MOTORS**

### **A. Locations**



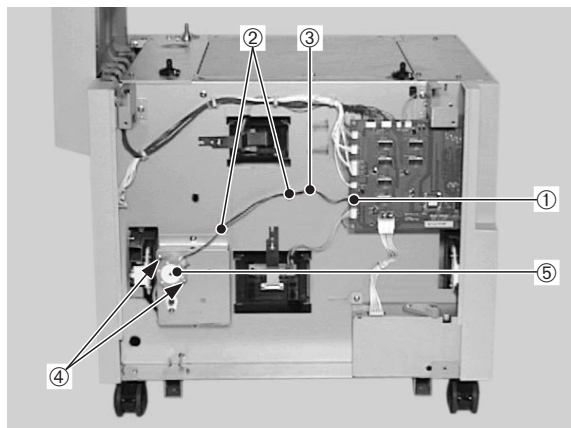
- ① Lifter motor
- ③ Feed motor

- ② Pick-up motor

**Figure 3-8-1**

**B. Lifter Motor**

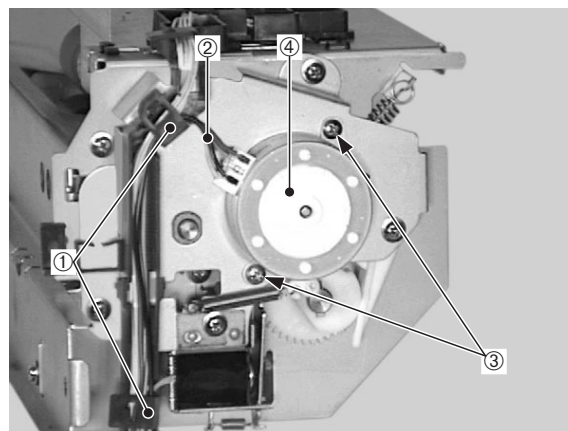
- 1) Remove the 2 screws after disconnecting the connector and taking out the cable from the cable band, and then remove the lifter motor.



- |                |              |
|----------------|--------------|
| ① Connector    | ② Cable band |
| ③ Cable        | ④ Screws     |
| ⑤ Lifter motor |              |

**Figure 3-8-2****C. Pick-up Motor**

- 1) Remove the cable from the cable guide, and then take out the 2 screws and the pick-up motor.

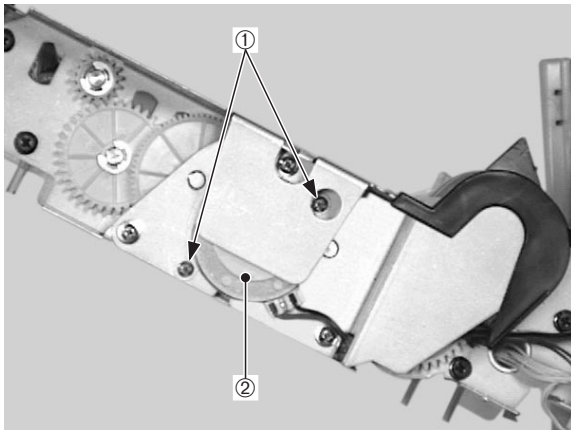


- |               |                 |
|---------------|-----------------|
| ① Cable guide | ② Cable         |
| ③ Screws      | ④ Pick-up motor |

**Figure 3-8-3**

### D. Feed Motor

- 1) Remove the feed cover.
- 2) Remove the 2 screws and then the feed motor.



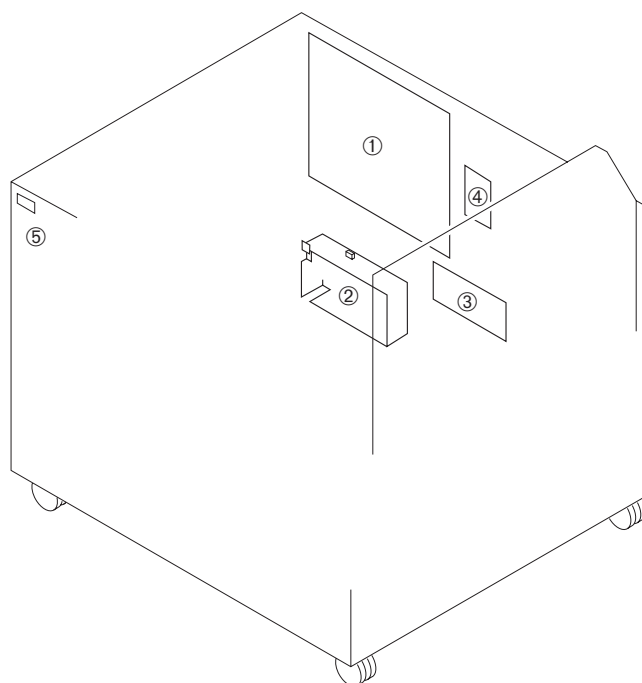
① Screws

② Feed motor

**Figure 3-8-4**

## IX. ELECTRICAL PARTS

### A. Locations

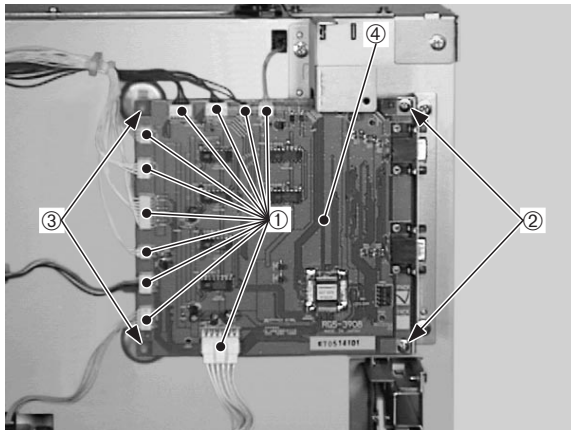


- |                                   |                                    |
|-----------------------------------|------------------------------------|
| ① Paper deck driver PCB           | ② Power supply unit                |
| ③ Paper-size detection switch PCB | ④ Paper-level detection switch PCB |
| ⑤ LED PCB                         |                                    |

**Figure 3-9-1**

### B. Paper Deck Driver PCB

- 1) Remove the left cover.
- 2) Remove the rear cover.
- 3) Disconnect the 11 connectors.
- 4) Remove the 2 screws, the 2 PCB holding pins, and then the paper deck driver PCB.

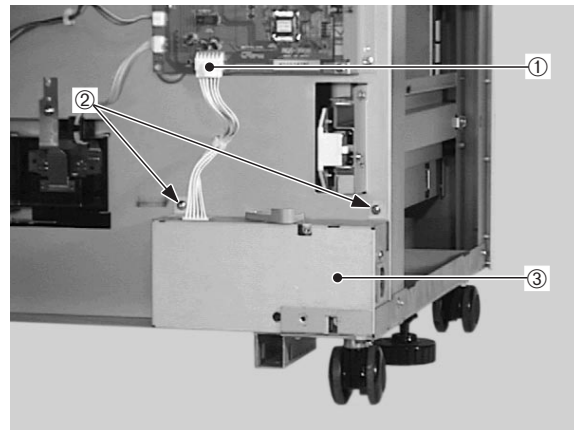


- ① Connectors
- ② Screws
- ③ PCB holding pins
- ④ Paper deck driver PCB

**Figure 3-9-2**

### C. Power Supply

- 1) Remove the left cover.
- 2) Remove the rear cover.
- 3) Remove the connector and 2 screws, and then take out the power supply by lifting its left side slightly.

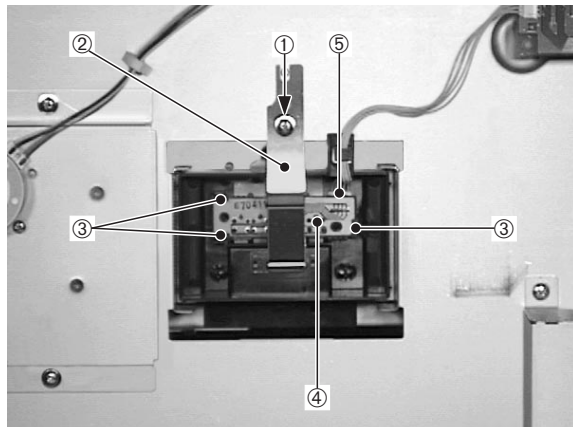


- ① Connector
- ② Screws
- ③ Power supply

**Figure 3-9-3**

**D. Paper-size Detection Switch PCB**

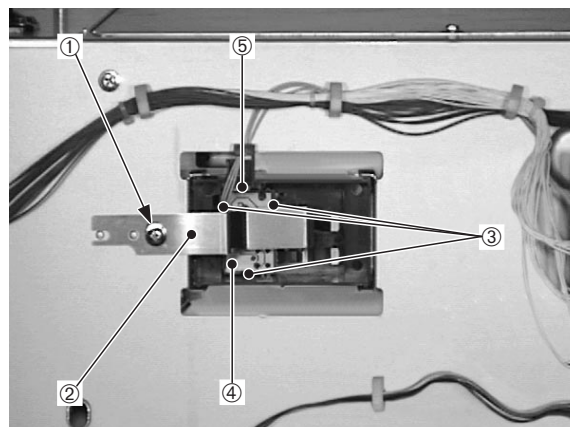
- 1) Remove the rear cover.
- 2) Pull out the tray.
- 3) Remove the screw and then the PCB holding plate.
- 4) Release the 3 claws, remove the paper-size detection switch PCB, and then disconnect the connector.



- ① Screw
- ② PCB holding plate
- ③ Claws
- ④ Paper-size detection switch PCB
- ⑤ Connector

**Figure 3-9-4****E. Paper-level Detection Switch PCB**

- 1) Remove the rear cover.
- 2) Pull out the tray.
- 3) Remove the screw and then the PCB holding plate.
- 4) Release the 3 claws, remove the paper-level detection switch PCB, and then disconnect the connector.

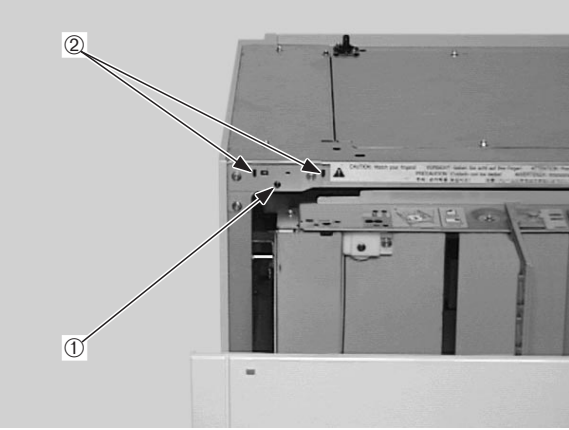


- ① Screw
- ② PCB holding plate
- ③ Claws
- ④ Paper-level detection switch PCB
- ⑤ Connector

**Figure 3-9-5**

**F. LED PCB**

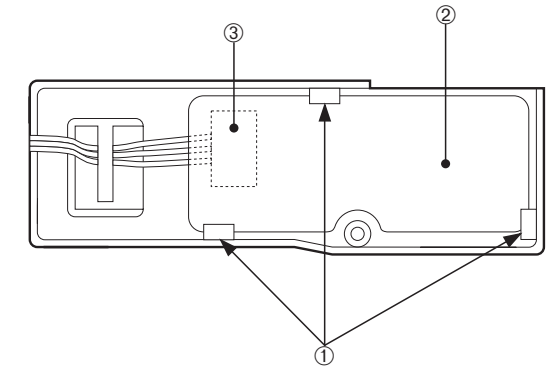
- 1) Remove the rear cover and left cover.
- 2) Pull out the tray.
- 3) Remove the screw and unhook the 2 claws.



① Screw                      ② Claws

**Figure 3-9-6**

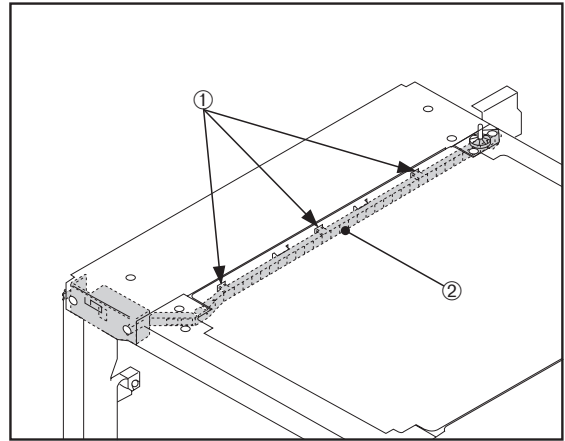
- 5) Release the 3 claws, remove the LED PCB, and then disconnect the connector.



① Claws                      ② LED PCB  
③ Connector

**Figure 3-9-8**

- 4) Release the 3 claws, and then remove the cable guide unit.



① Claws                      ② Cable guide unit

**Figure 3-9-7**



# **CHAPTER 4**

## **TROUBLESHOOTING**

<b>I. PREFACE .....</b>	<b>4-1</b>	<b>V. MALFUNCTION STATUS</b>	
<b>II. PAPER JAMS .....</b>	<b>4-9</b>	<b>    TROUBLESHOOTING .....</b>	<b>4-14</b>
<b>III. PAPER TRANSPORT</b>		<b>VI. MEASUREMENT AND</b>	
<b>    TROUBLESHOOTING .....</b>	<b>4-12</b>	<b>    ADJUSTMENT .....</b>	<b>4-17</b>
<b>IV. MALFUNCTION</b>		<b>VII. MAINTENANCE AND</b>	
<b>    TROUBLESHOOTING .....</b>	<b>4-13</b>	<b>    SERVICING.....</b>	<b>4-20</b>
		<b>VIII. LOCATION OF CONNECTORS .</b>	<b>4-21</b>



## **I. PREFACE**

### **A. Malfunction Diagnosis Flowchart**

The malfunctions that occur in the paper deck are classified into four types; "paper jams", "paper transport malfunction", "operation malfunction", and "malfunction status".

If a malfunction occurred in the paper deck, the service technician is to find which type the malfunction falls into using the malfunction diagnosis flowchart and to clear the problem according to the troubleshooting procedures for each malfunction type.

Make sure the following points at the execution of troubleshooting.

- Be sure that the connector has no poor contact when measuring the voltage at the specified terminal of the connector.
- Before handling PCBs, be sure to touch a metal part of the paper deck to discharge static electricity, as it can cause damage to the PCBs.

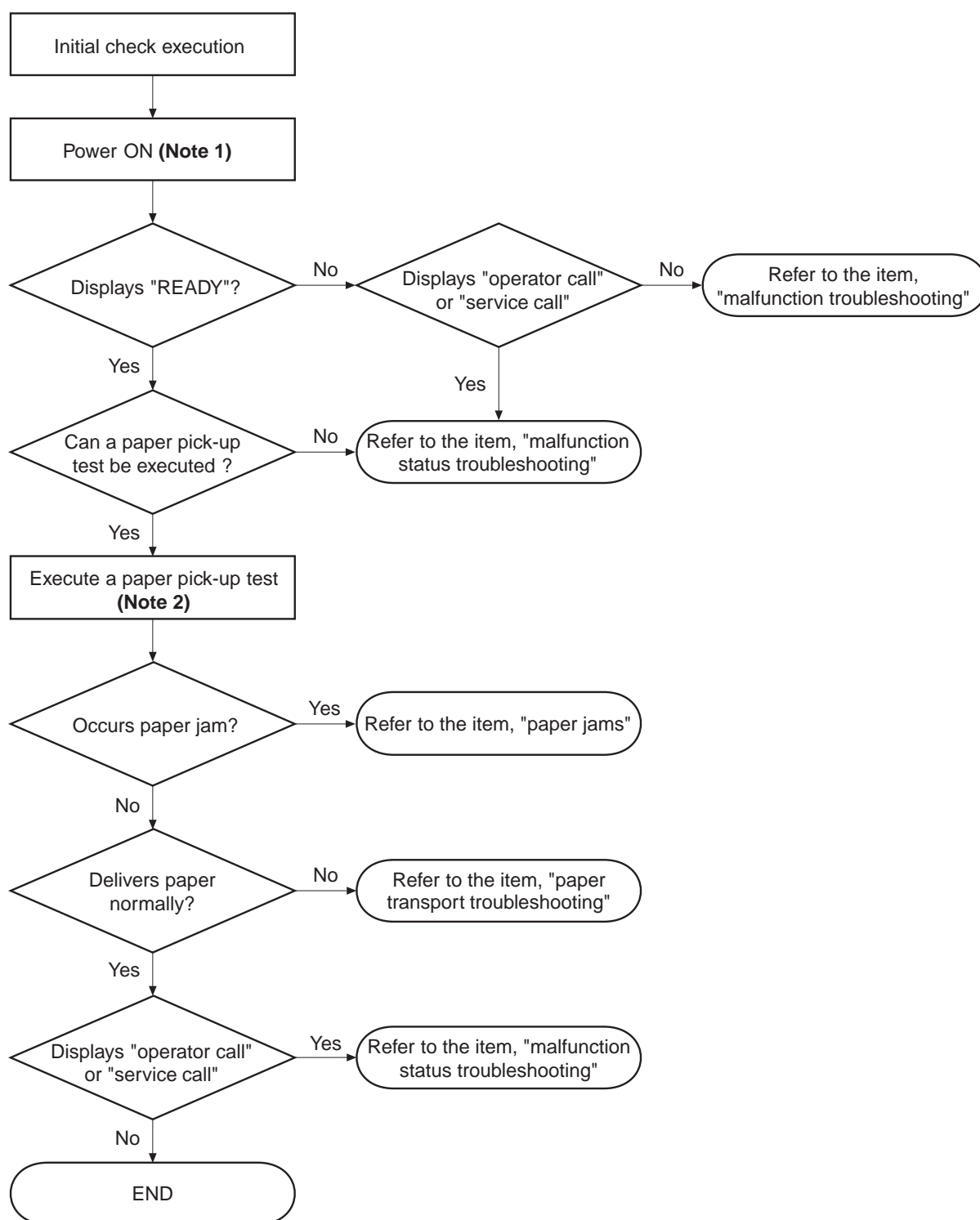


Figure 4-1-1

- Notes:**
1. Turn ON the printer or the stand alone mode switch. (To turn ON the stand alone mode switch, disconnect the power code of the paper deck and remove the rear cover. Connect the power code again after turning ON the switch.)
  2. Select the paper deck pick-up from the external device, or perform the paper pick-up test described on page 4-8.

**B. Initial Checks****1. Installation environment**

The same as that of the printer.

**2. Paper checks**

- a. The paper recommended for the paper deck is used.
- b. The paper is not damp.

**3. Others**

During winter, particularly when moving the paper deck into a warm room from a cold location such as warehouse, condensation can appear in the paper deck. The condensation can cause various problems.

If condensation appeared, wipe each unit with dry-cloth or leave the paper deck with power ON for 10 to 20 minutes.

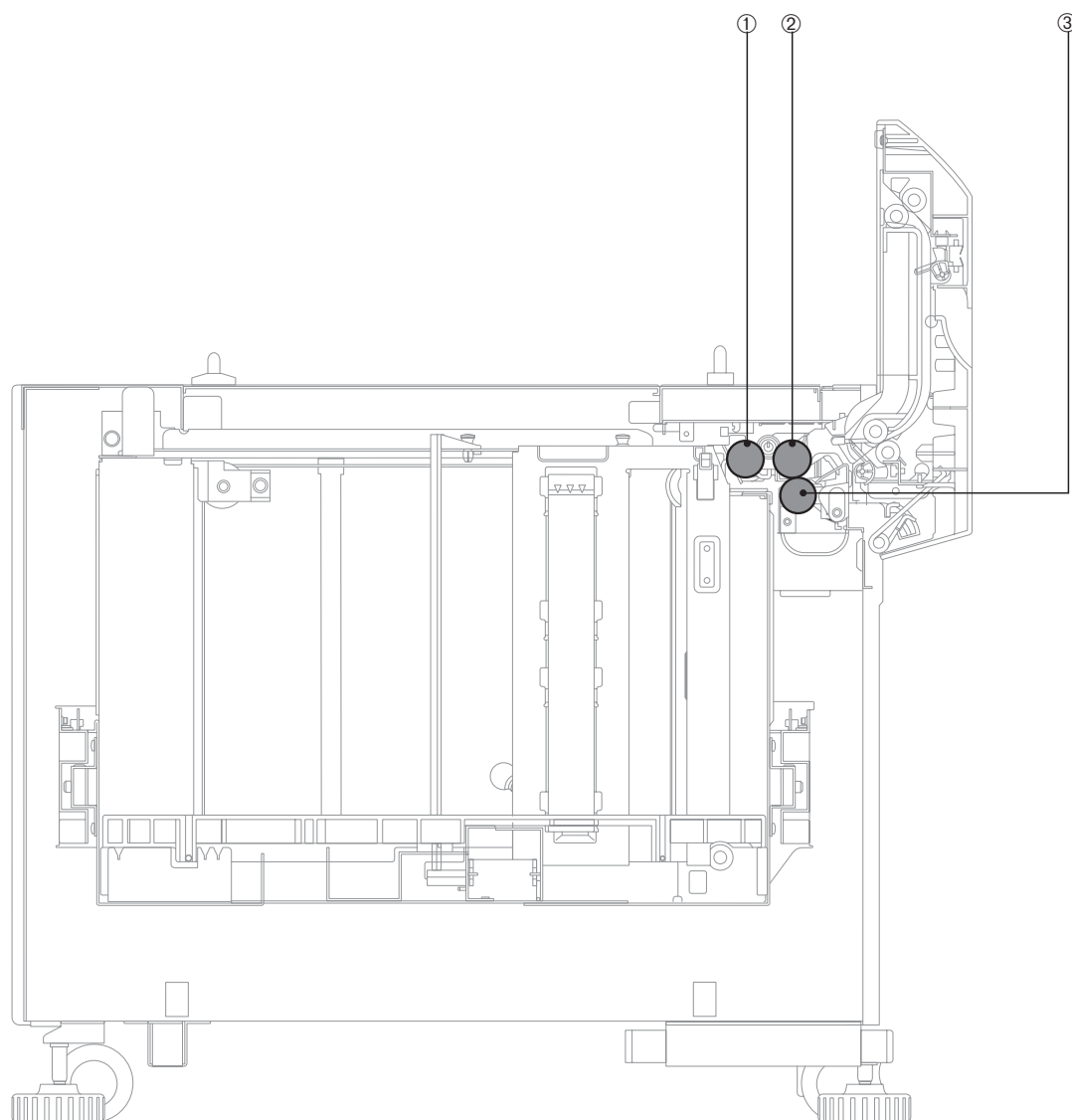
**C. Service Checkpoints****1. Pick-up roller, separation roller, and feed roller**

Clean the rollers with a lint-free paper or a cloth moistened with ethyl or isopropyl alcohol.

---

**Note:** When you use ethyl or isopropyl alcohol to clean the rollers, be sure that the rollers are dry before turning the power ON as they are highly inflammable.

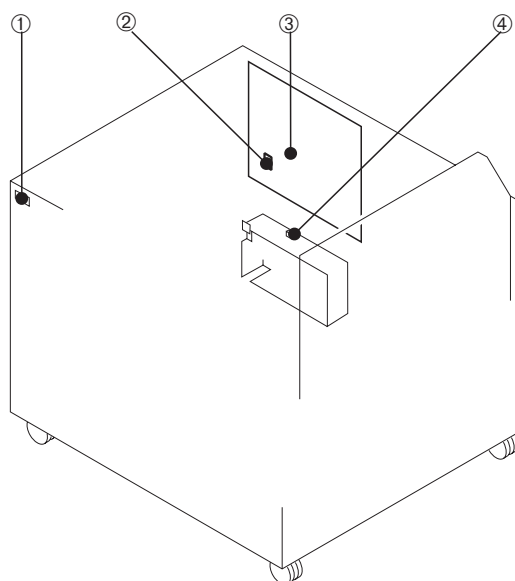
---



**Figure 4-1-2**

- 1: Pick-up roller
- 2: Feed roller
- 3: Separation roller

## D. Service Mode



① : Status LED  
③ : Test switches

② : Service LED  
④ : Stand alone mode switch

**Figure 4-1-3**

### 1. Outline

If malfunction or paper jam occurs in the paper deck, the condition of the paper deck can be checked with the Status LED (LED301: on the LED PCB) and Service LED (LED202: on the paper deck driver PCB). The service mode can be switched by changing the combination of the test switches (SW201:DIP switches) on the paper deck driver PCB. Using the stand alone mode switch in the power supply unit, the paper deck can be operated without the printer.

The Status LED can display the following 3 conditions of the paper deck.

- 1) Green light ON: The paper deck and printer are communicating normally.
- 2) Orange light flashing: Operator's intervention is required due to paper jam, door open, etc.
- 3) Orange light ON: Malfunction has occurred.

---

**Note:** The Status LED is effective only when all the test switches are OFF (the condition set at the time of shipping from the factory).

---

## 2. Service LED Indications

The Service LED flashes by repeating light-ON for 0.5 seconds and light-OFF for 0.3 seconds while the paper deck is operating normally.

If a failure occurs, the Service LED flashes the cycle shown below. This cycle is constituted by ① Header (light-ON for 1.0 second and light-OFF for 0.2 seconds), ② Detection contents (light-ON for 0.3 seconds and light-OFF for 0.2 seconds), and ③ Pause (light-OFF for 2.0 seconds).

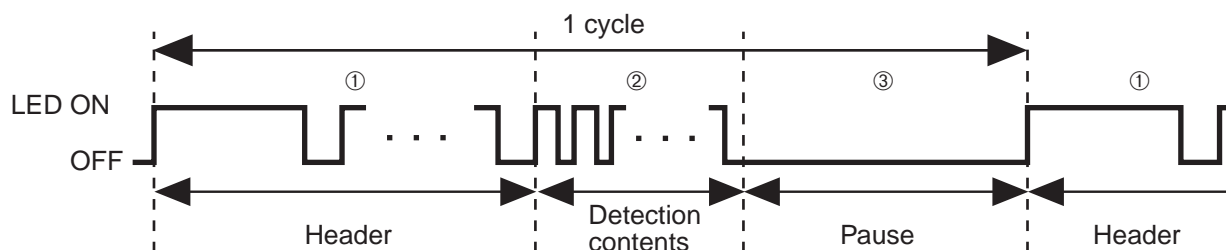


Figure 4-1-4

The factor of the error can be determined according to the flashing condition of the Service LED listed in Table 4-1-1.

**Example:** If the Service LED flashes 3 times in the Header period and then once in the detection contents period, the factor of the error is "lifter failure."

Table 4-1-1

Header	Sense contents	The factor of the error
3	1	Lifter failure
2	1	Registration paper sensor delay jam
2	2	Registration paper sensor initial jam
2	3	Paper jam sensor delay jam
2	4	Paper jam sensor stationary jam or initial jam
1	1	Feed unit open
1	2	Tray open, or paper size not detectable
1	3	No paper

## 3. Operation Check

When sensors, switches, motors, solenoid or clutch are suspected to be defective, or when they are replaced, you can check whether they are operating normally or not using the test switches. By changing the combination of the test switches (refer to Figure 4-1-5), the sensor check mode, motor test mode and paper pick-up test mode can be executed.



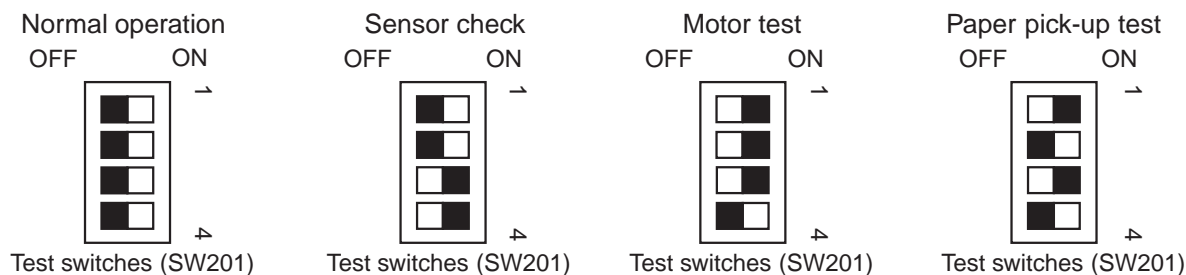


Figure 4-1-5

**a. Sensor check**

Condition of the sensors and switches (total number: 11) listed below can be checked when the paper deck is in the sensor check mode.

Registration paper sensor (PS1)

Paper jam sensor (PS2)

Tray paper-out sensor (PS3)

Paper surface sensor (PS4)

Door sensor (PS5)

Paper-level detection switch 1 and 2

(SW601 and SW602)

Paper-size detection switch 1, 2, 3, and 4

(SW701, SW702, SW703, and SW704)

The checking procedure is as follows.

- 1) Turn OFF the printer.
- 2) Sets the test switches to the sensor check mode.
- 3) Depending on the sensor to be checked, choose the checking method from the following three cases.
  - a. Checking the registration paper sensor (PS1), the paper jam sensor (PS2), and the door sensor (PS5). ••••• Open the feed cover, and then the power ON.
  - b. Checking the tray paper-out sensor (PS3) and the paper surface sensor (PS4). ••••• Remove the right cover, and turn ON the power.
  - c. Checking the paper-level detection switch 1 and 2 (SW601 and SW602) and the paper-size detection switch 1, 2, 3, and 4 (SW701, SW702, SW703, and SW704). ••••• Remove the rear cover, take off the board fixing plate, and then the power ON.
- 4) Check if the LED lights up when you move the switch or the sensor lever of the sensor you wish to check.  
Do not move more than one sensor lever at the same time. Move them one by one to find which sensor is faulty. Also, be sure not to touch the switches with hand directly.
- 5) If the LED does not light, the sensor or the switch is faulty.

---

**Note:** You can turn ON the power by turning ON either the printer or the stand alone mode switch.

---

### **b. Motor test**

Tuning the power ON with the test switches set to the motor test mode starts the motor test.

All the motors, clutch and solenoid are turned ON forcibly in the motor test mode. Turning OFF the power ends the motor test.

Be sure to open the feed unit and pull out the tray before executing the motor test.

Conditions of the motors are determined depending on the sound of the motors and whether or not the rollers rotate. Condition of the clutch is determined depending on whether or not the feed roller 2 rotates. Condition of the solenoid is determined depending on whether or not the pick-up roller goes up and down when the pick-up roller arm located inside the pick-up unit is pressed.

### **c. Paper pick-up test**

Turning ON the power with the test switches set to the paper pick-up test mode starts the paper pick-up test.

Once the paper pick-up is started, the test is continued till the paper runs out.

When the SW201-1 is switched OFF, the paper pick-up mode is canceled and the paper pick-up test is interrupted. The test is re-started by switching SW201-1 ON again.

---

**Notes:** 1. Set only one sheet of paper into the tray.

When the paper deck enters the paper pick-up mode and executes the paper pick-up operation, the printer does not operate. The paper picked up and fed into the printer causes a jam. Since the paper pick-up operation is continued until the paper runs out, placing plural sheets causes the paper jam one after another.

2. Make sure to set all switches OFF at the end of the tests.

3. Be sure to pull out the tray before executing the motor test.

The paper deck is designed to allow the motor test to be executed only when the tray is pulled out. However, if the connector of the paper size detection PCB is disconnected or the PCB is defective, the paper deck determines that the tray is out even if the tray is not pulled out and thus starts the motor test. In such a case, troubles, such as wire cut, may occur.

---

## II. PAPER JAMS

Execute the following procedure if the paper jam occurs in the paper deck.

The feed path is mainly classified into two units: ① Pick-up unit and ② Feed unit. Refer to the unit in which the paper jam occurred and find out the defecting parts.

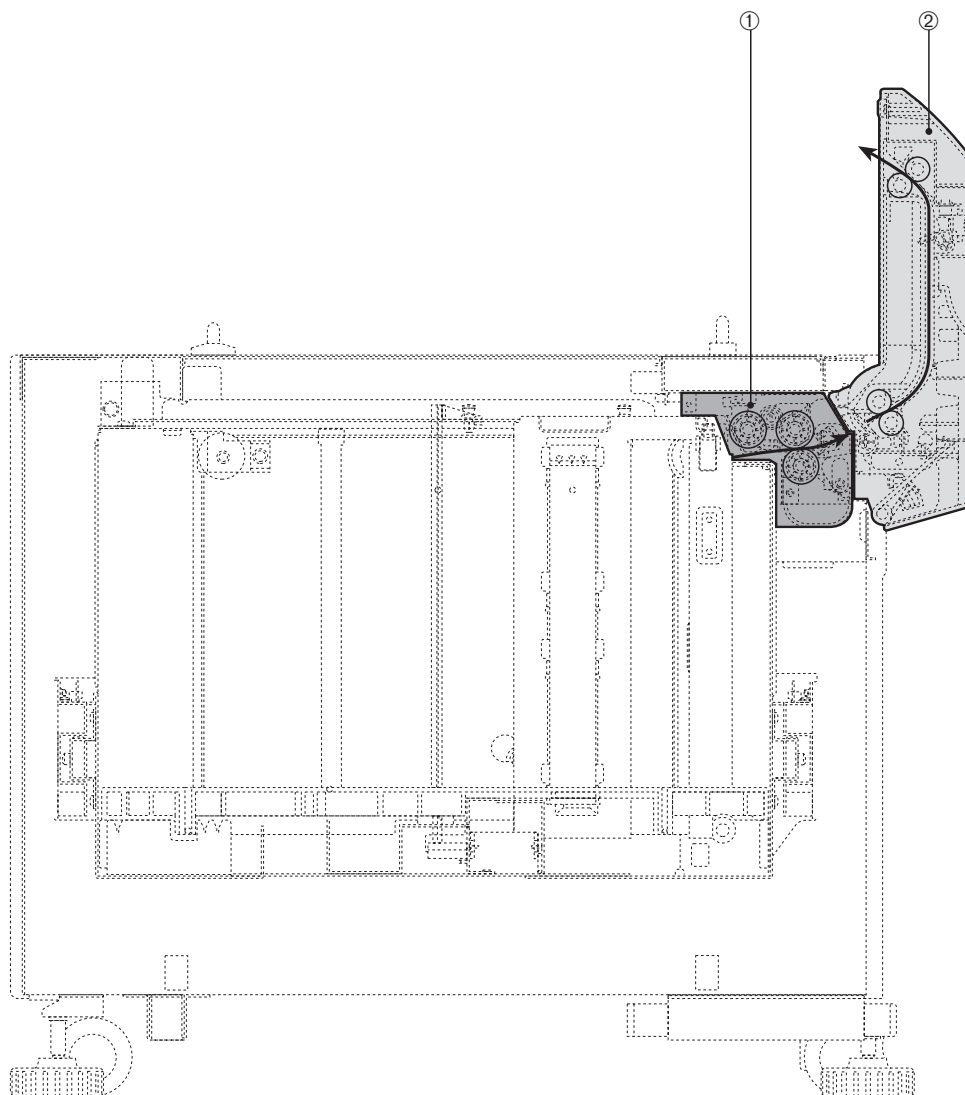


Figure 4-2-1

### J-1 Pick-up unit

#### < possible causes >

1. Separation roller spring failure.  
**Action:** Re-set it correctly, or replace it if deformed or damaged.
2. Pick-up roller, feed roller 1, or separation roller is worn, deformed, or dirty.  
**Action:** Clean any dirty roller, or replace any worn or deformed roller.
3. Poor contact in the PICK-UP MOTOR DRIVE signal line connector.  
**Action:** Reconnect the pick-up motor connector J305 and the connector J210 on the paper deck driver PCB correctly.

4. Poor contact in the PICK-UP SOLENOID DRIVE signal line connector.  
**Action:** Reconnect the pick-up solenoid connector J306 and the connector J211 on the paper deck driver PCB.
5. Pick-up motor failure.  
**Action:** Replace it.
6. Pick-up solenoid failure  
**Action:** Disconnect the pick-up solenoid connector J306. Measure the resistance between the connector J306-1 and J306-2 cable side. If it is not about 190  $\Omega$ , replace the pick-up solenoid.
7. Paper deck driver PCB  
**Action:** Replace it.

### J-2 Feed unit

#### < possible causes >

1. Feed guide is dirty, cracked, or deformed.  
**Action:** Clean it if dirty, or replace it if cracked or deformed.
2. Registration roller or Feed roller 2 is worn, deformed, or dirty.  
**Action:** Clean them if dirty, or replace them if worn or deformed.
3. Registration paper sensor lever is damaged.  
**Action:** Replace it if damaged.
4. Paper jam sensor lever is damaged.  
**Action:** Replace it if damaged.
5. Poor contact in the REGISTRATION CLUTCH DRIVE signal line connector.  
**Action:** Reconnect the registration clutch connector J303 and the connector J208 on the paper deck driver PCB correctly.
6. Poor contact in the REGISTRATION PAPER DETECTION signal line.  
**Action:** Reconnect the registration paper sensor connector J309, intermediate connector J308, J304 and the connector J209 on the paper deck driver PCB correctly.
7. Poor contact in the PAPER JAM DETECTION signal line.  
**Action:** Reconnect the paper jam sensor connector J310, intermediate connector J308, J304 and the connector J209 on the paper deck driver PCB correctly.
8. Registration paper sensor failure.  
**Action:** Perform the sensor checks described on page 4-7 to check whether the sensor is normal. Replace the registration paper sensor if it is not normal.
9. Paper jam sensor failure  
**Action:** Perform the sensor checks described on page 4-7 to check whether the sensor is normal. Replace the paper jam sensor if it is not normal.
10. Registration clutch failure  
**Action:** Disconnect the registration clutch connector J303. Measure the resistance between

the connector J303-1 and J303-2 cable side. If it is not about 210  $\Omega$ , replace the registration clutch.

11. Paper deck driver PCB

**Action:** Replace it.

### III. PAPER TRANSPORT TROUBLESHOOTING

#### T-1 Multiple feed

##### < possible causes >

1. Separation roller is worn or deformed

**Action:** Replace it.

2. Separation roller spring failure

**Action:** Re-set it correctly, or replace it if deformed.

#### T-2 Wrinkles

##### < possible causes >

1. Worn or deformed rollers

**Action:** Replace any worn or deformed roller of the pick-up unit and the feed unit.

#### T-3 Leading edge bent

##### < possible causes >

1. Feed guide is cracked or deformed

**Action:** Check the paper feed path, and replace the feed guide if cracked or deformed.

#### T-4 Skews

##### < possible causes >

1. Paper particles or dust is on the feed path.

**Action:** Clean the dirty place.

2. Worn or deformed roller

**Action:** Replace any worn or damaged roller of the pick-up unit and the feed unit.

## IV. MALFUNCTION TROUBLESHOOTING

### E-1 No power

#### < possible causes >

1. The POWER ON signal is not input because of the poor contact in the interface connector.  
**Action:** Reconnect the interface connector correctly.
2. Blown fuse  
**Action:** Remove the power supply unit and replace the fuse.
3. Over-current/over-voltage detection circuit triggers  
**Action:** Disconnect the power connector and reconnect it. If the problem persists, investigate the factor that activates the over-current/over-voltage detection circuit. Turn the power switch ON at least two minutes after the power switch is turned OFF.
4. Power supply failure  
**Action:** Turn the printer power switch OFF, and disconnect the connector J901 from the power supply unit.  
Turn the power switch ON, and measure the output of the DC power supply of the connector J901.  
Be sure not to short the connector.  
Replace the power supply unit if the specified value is not output.
5. Wiring, DC load, and paper deck driver PCB  
**Action:** Turn the power switch OFF, and check the wires and DC loads connected between the paper deck driver PCB and other units. Replace the paper deck driver PCB if the wires and DC loads have no problem.

### E-2 Feed motor failure

#### < possible causes >

1. Poor contact in the FEED MOTOR DRIVE signal line connector.  
**Action:** Reconnect the feed motor connector J315 and the connector J207 on the paper deck driver PCB correctly.
2. Feed motor failure  
**Action:** Replace it.
3. Paper deck driver PCB failure  
**Action:** Replace it.

### V. MALFUNCTION STATUS TROUBLESHOOTING

#### M-1 Lifter failure

##### < possible causes >

1. Cut wire  
**Action:** Replace the wire.
2. Damaged paper surface sensor lever.  
**Action:** Replace it if damaged.
3. Gears are damaged.  
**Action:** Replace it if any gear is damaged.
4. Poor contact in the PAPER SURFACE DETECTION signal line.  
**Action:** Reconnect the paper surface sensor connector J313, intermediate connector J311, J307 and the connector J212 on the paper deck driver PCB correctly.
5. Poor contact in the LIFTER MOTOR DRIVE signal line.  
**Action:** Reconnect the connector J206 on the paper deck driver PCB correctly.
6. Paper surface sensor failure  
**Action:** Perform the sensor checks described on page 4-7 to check whether the sensor is normal. Replace the paper surface sensor if it is not normal.
7. Lifter motor failure  
**Action:** Replace it.
8. Paper deck driver PCB failure  
**Action:** Replace it.

#### M-2 Printer cannot become READY because "Jam status" is output when paper is not jammed.

##### <Possible causes>

1. Registration paper sensor lever does not move smoothly or is damaged.  
**Action:** Reset the lever correctly so that it moves smoothly, or replace it if damaged.
2. Paper jam sensor lever does not move smoothly or is damaged.  
**Action:** Reset the lever correctly so that it moves smoothly, or replace it if damaged.
3. Sensor failure  
**Action:** Perform the sensor checks described on page 4-7 and replace any defective sensor.

#### M-3 Printer cannot become READY because "Door open status" is output when the cover is closed.

##### <Possible causes>

1. Projection of the feed unit is damaged.  
**Action:** Replace the part (clutch cover) with the projection.



2. Door sensor lever does not move smoothly or is damaged.  
**Action:** Reset the lever correctly so that it moves smoothly, or replace it if damaged.
3. Poor contact in DOOR OPEN DETECTION signal line.  
**Action:** Reconnect the door sensor connector J314, intermediate connector J311, J307, and the connector J212 on the paper deck driver PCB correctly.
4. Poor contact in PAPER SIZE DETECTION signal line.  
**Action:** Reconnect the connector J601 on the paper size detection switch PCB and the connector J225 on the paper deck driver PCB correctly.
5. Door sensor failure  
**Action:** Perform the sensor checks described on page 4-7 to check whether the sensor is normal. Replace the door sensor if it is not normal.
6. Paper size detection switch failure  
**Action:** Perform the sensor checks described on page 4-7 to check whether the sensor is normal. Replace the paper size detection switch PCB if it is not normal.
7. Paper deck driver PCB failure.  
**Action:** Replace it.

**M-4 Printer cannot become READY because "Paper out status" is output when paper is set.**

**<Possible causes>**

1. Tray paper out sensor lever does not move smoothly or is damaged.  
**Action:** Reset the lever correctly so that it moves smoothly, or replace it if damaged.
2. Tray paper out sensor failure  
**Action:** Perform the sensor checks described on page 4-7 to check whether the sensor is normal. Replace the tray paper out sensor if it is not normal.
3. Paper deck driver PCB failure.  
**Action:** Replace it.

**M-5 Printer cannot become READY because "Paper size mismatch status" is output when the right sized paper is set.**

**<Possible causes>**

1. Poor contact connector.  
**Action:** Reconnect the connector J201 on the paper deck driver PCB correctly.
2. Paper deck driver PCB failure.  
**Action:** Replace it.

**M-6 Printer cannot become READY because "Installation failure status" is output when the paper deck is installed.**

**<Possible causes>**

1. Poor contact in connector

**Action:** Reconnect the connector J201 on the paper deck driver PCB.

2. Paper deck driver PCB failure

**Action:** Replace it.

## VI. MEASUREMENT AND ADJUSTMENT

### A. Mechanical Adjustment

This paper deck has no item for mechanical adjustment.

### B. Electrical Adjustment

This paper deck has no item for electrical adjustment.

### C. LEDs, test pins, jumpers, and switches on PCB

The following LEDs, test pins, jumpers, and switches on PCB are only for after-sales service use.

The test pins or the other components excluded from the list are only for plant use. Do not touch these components since the adjustment with those components require special tools, adjuster, and also high precision.

**Note:** Some LEDs receive leakage current during normal operation and emit light slightly even when they are OFF.

#### 1. Paper deck driver PCB

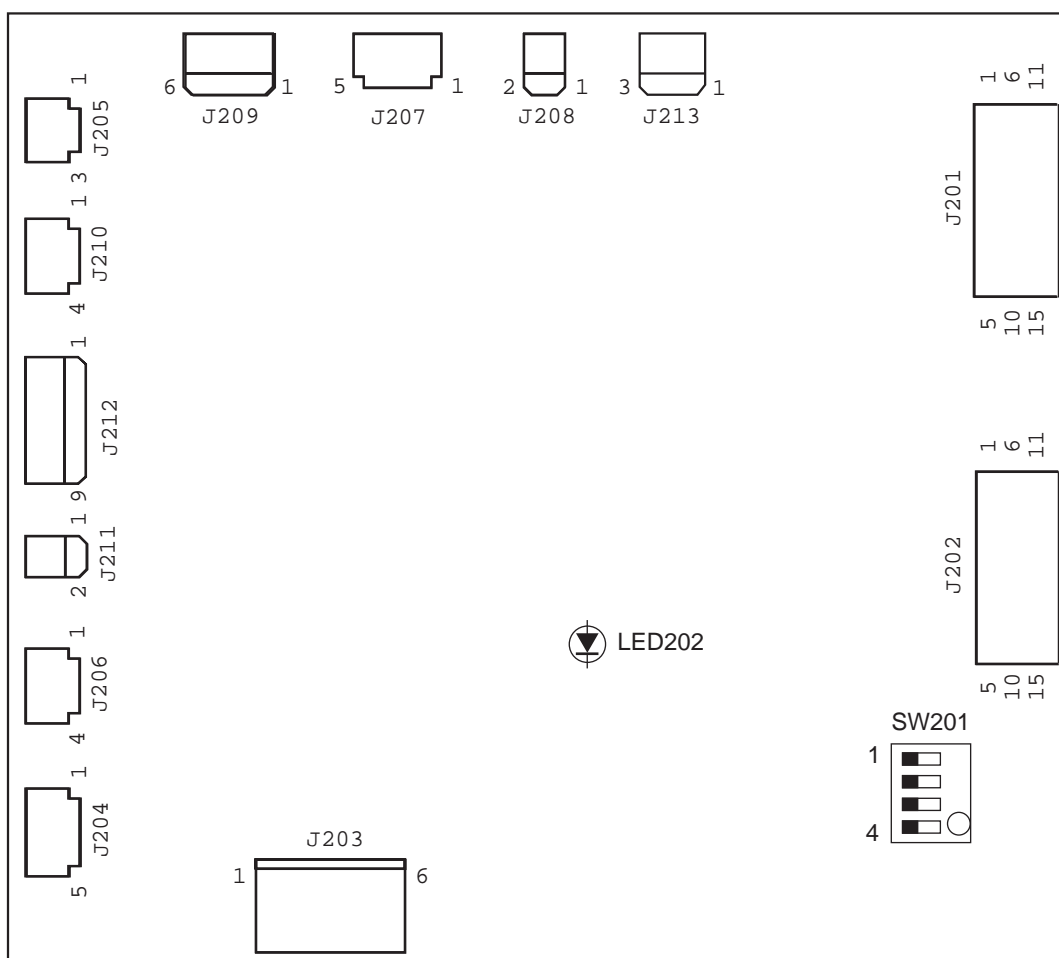


Figure 4-6-1

Table 4-6-1

No.		Function
SW 201	1	Switches for the service mode (Refer to page 4-5)
	2	
	3	
	4	
LED 202		Check LED for service technician

2. Paper-level detection switch PCB

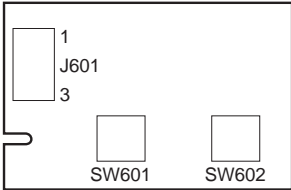


Figure 4-6-2

Table 4-6-2

SW No.	Function
SW601	Paper-level detection switch (See table 2-2-1 on page 2-4.)
SW602	

3. Paper-size detection switch PCB

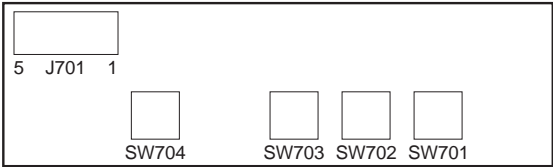


Figure 4-6-3

Table 4-6-3

SW No.	Function
SW701	Paper-size detection switch (See table 2-2-1 on page 2-4.)
SW702	
SW703	
SW704	

4. LED PCB

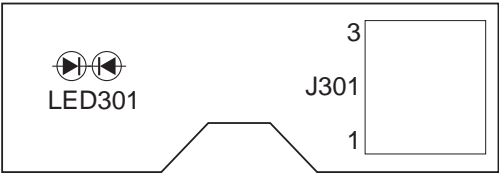


Figure 4-6-4

Table 4-6-4

LED No.	Function
LED301	Indicates status of the paper deck

## VII. MAINTENANCE AND SERVICING

### A. Periodic Replacement Parts

This paper deck has no periodic replacement parts.

**Note:** Periodic replacement parts are the parts that must be replaced at regular intervals, even if they are functioning properly and show no signs of wear. (Failure of these parts can seriously affect printer performance.) These parts should be replaced during a regular service visit closest to the end of the parts expected life.

### B. Expected Lives of Consumable Parts

Consumable parts are the parts that have possibility of requiring replacement due to the deterioration or damages at least once during the warranty period and that can be used until failures occur. The expected life of the consumable parts are shown in Table 4-7-1.

**Table 4-7-1**

As of January, 1999

No.	Part name	Part No.	Qty	Expected life	Remarks
1	Feed roller and separation roller	RF5-1834-000	2	350,000 prints	Replace the feed rollers and separation rollers together.

**Note:** The expected life in the above table is an estimated value and is subject to change according to the experiential data.

### C. Regular Servicing Schedule

No parts need regular service.

### D. Standard Tools

Required standard tools for the paper deck service are the same as for the printer.

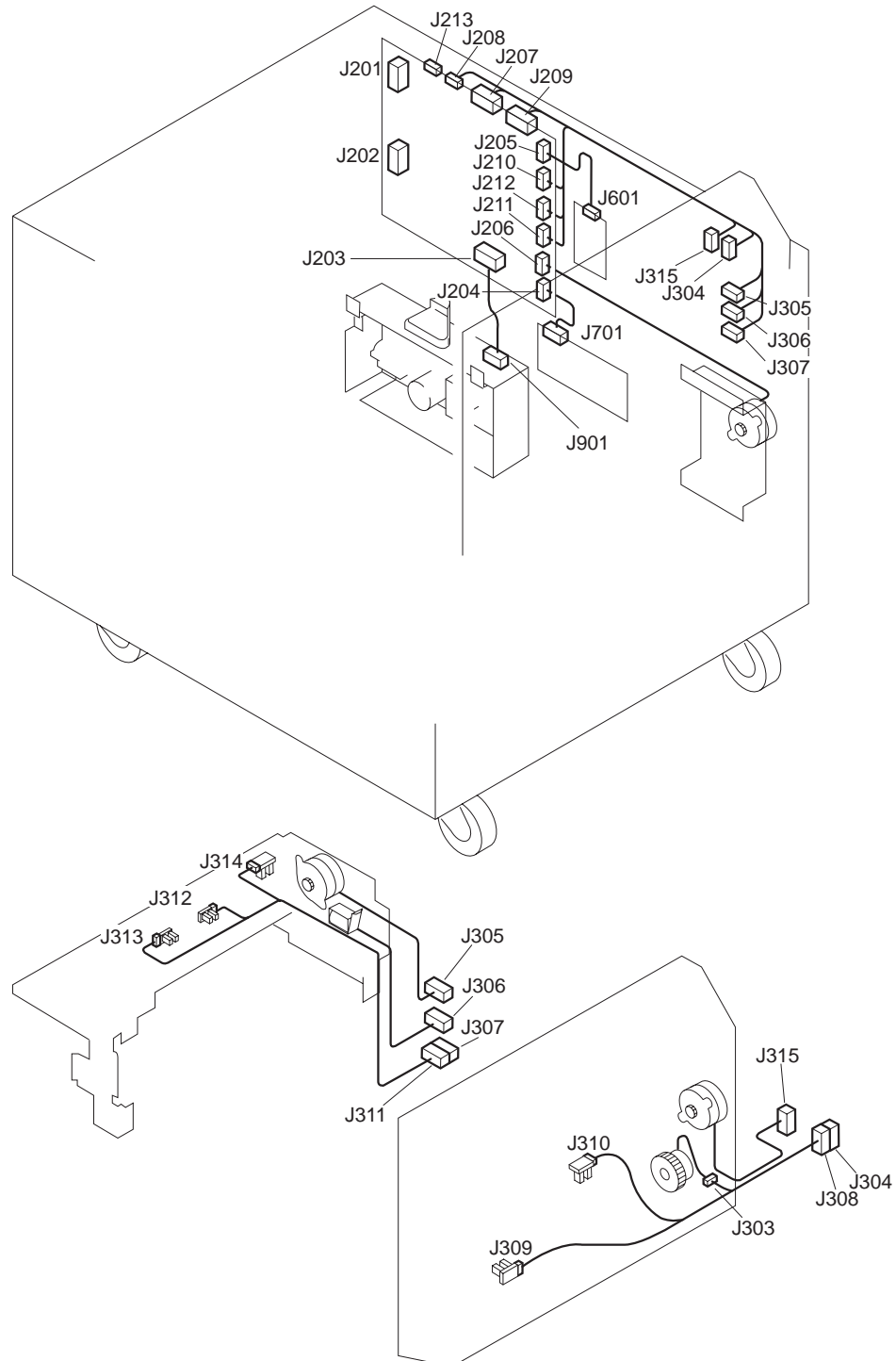
### E. Special Tools

This paper deck has no special tools for service.

### F. List of Lubricants and Cleaners

**Table 4-7-2**

No.	Material name	Use	Components	Remarks
1	Alcohol: ethyl (pure or denatured) or isopropyl (pure or denatured)	Cleaning: plastic, rubber, external parts	$C_2H_5OH$ , $(CH_3)_2CHOH$	<ul style="list-style-type: none"> <li>• Purchase locally</li> <li>• Flammable: keep away from flame</li> </ul>
2	Lubricating oil	Apply between gear and shaft	Petroleum mineral oil	<ul style="list-style-type: none"> <li>• Tool No. CK-8003 (100 ml bottle)</li> </ul>
3	Lubricating agent	Lithium grease	Apply to gears Never apply to the molding	<ul style="list-style-type: none"> <li>• Tool No. CK-8005 (40 g bottle)</li> </ul>

**VIII. LOCATION OF CONNECTORS****Figure 4-8-1**





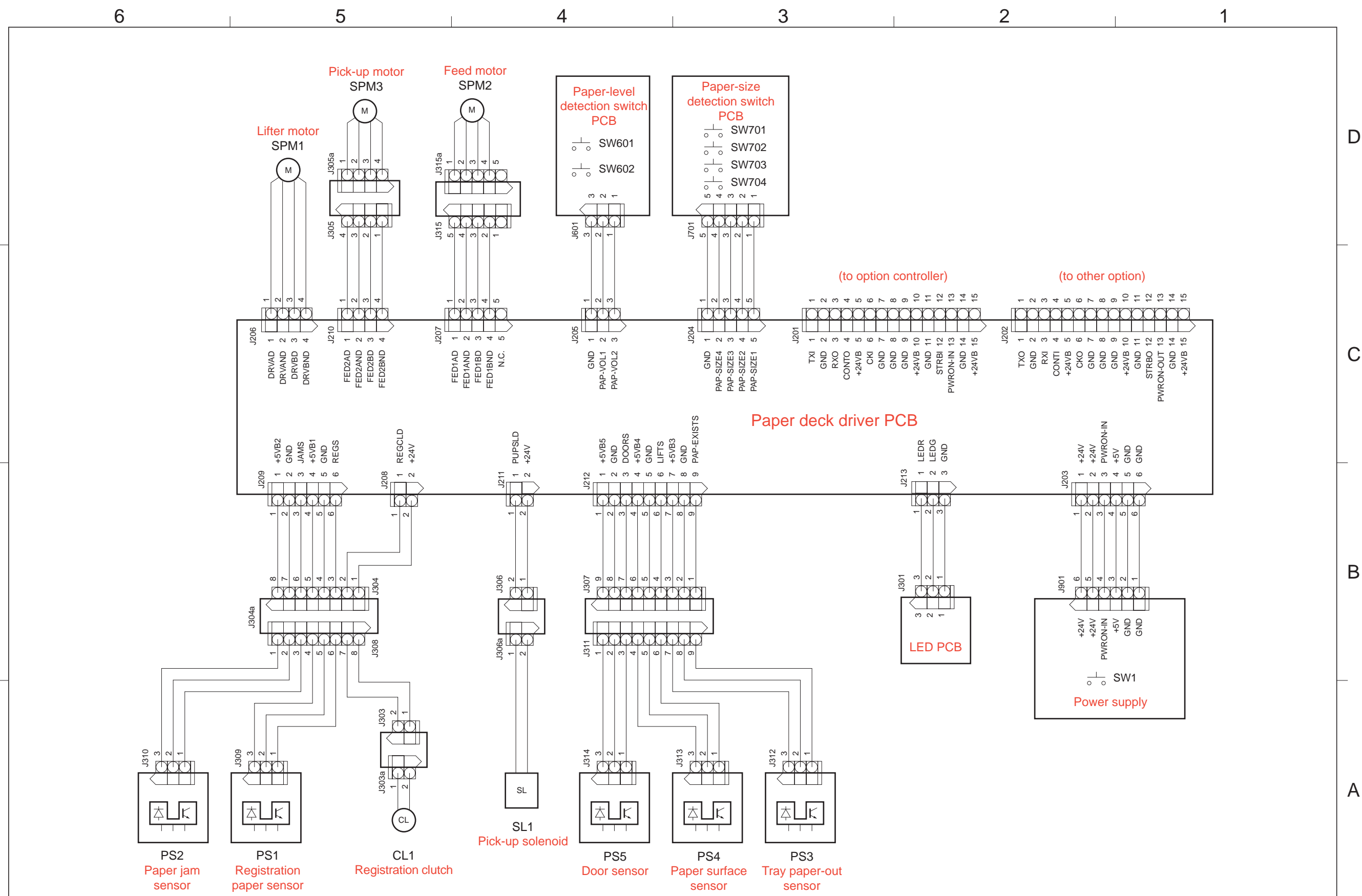
# **APPENDIX**

<b>I.</b>	<b>GENERAL CIRCUIT DIAGRAM</b>	<b>A-1</b>
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<b>II.</b>	<b>LIST OF SIGNALS .....</b>	<b>A-3</b>
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# I. GENERAL CIRCUIT DIAGRAM





## II. LIST OF SIGNALS

### A. Input/output signals to paper deck driver PCB

Connector	Pin	Abbreviation	I/O	Logic	Signal name
J201	1	TXI	I	L	Serial input signal
	2	GND			
	3	R XO	O	L	
	4	CONTO	O	L	Communication ready signal
	5	+24V			Synchronizing clock signal
	6	CKI	I	L	
	7	GND			
	8	GND			
	9	GND			
	10	+24V			Strobe signal
	11	GND			
	12	STRBI	I	L	
	13	PWRON-IN	I	L	
	14	GND			
	15	+24V			
J202	1	TXO	O	L	Serial output signal
	2	GND			
	3	R XI	I	L	
	4	CONTI	I	L	Communication ready signal
	5	+24V			Synchronizing clock signal
	6	CKO	I	L	
	7	GND			
	8	GND			
	9	GND			
	10	+24V			Strobe signal
	11	GND			
	12	STRBO	O	L	
	13	PWRON-OUT	O	H	
	14	GND			
	15	+24V			
J203	1	+24V	I		POWER ON signal
	2	+24V	I		
	3	PWRON-IN	O	H	
	4	+5V	I		
	5	GND			
	6	GND			
J204	1	GND			Paper-size detection signal 4
	2	PAP-SIZE4	I	L	
	3	PAP-SIZE3	I	L	
	4	PAP-SIZE2	I	L	
	5	PAP-SIZE1	I	L	
J205	1	GND			Paper-level detection signal 1
	2	PAP-VOL1	I		
	3	PAP-VOL2	I		

Connector	Pin	Abbreviation	I/O	Logic	Signal name
J206	1	DRVAD	O		Lifter motor control signal
	2	DRVAND	O		Lifter motor control signal
	3	DRVBD	O		Lifter motor control signal
	4	DRVBND	O		Lifter motor control signal
J207	1	FED1AD	O		Feed motor control signal
	2	FED1AND	O		Feed motor control signal
	3	FED1BD	O		Feed motor control signal
	4	FED1BND	O		Feed motor control signal
	5	N.C.			
J208	1	REGCLD	O	L	Registration clutch drive signal
	2	+24V			
J209	1	+5V			
	2	GND			
	3	JAMS	I	L	Paper jam detection signal
	4	+5V			
	5	GND			
	6	REGS	I	L	Registration paper detection signal
J210	1	FED2AD	O		Pick-up motor control signal
	2	FED2AND	O		Pick-up motor control signal
	3	FED2BD	O		Pick-up motor control signal
	4	FED2BND	O		Pick-up motor control signal
J211	1	PUPSLD	O	L	Pick-up solenoid drive signal
	2	+24V			
J212	1	+5V			
	2	GND			
	3	DOORS	I	H	Door open detection signal
	4	+5V			
	5	GND			
	6	LIFTS	I	H	Paper surface detection signal
	7	+5V			
	8	GND			
	9	PAP-EXISTS	I	H	Tray paper-out detection signal
J213	1	LEDR	O		Status LED control signal
	2	LEDG	O		Status LED control signal
	3	GND			

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