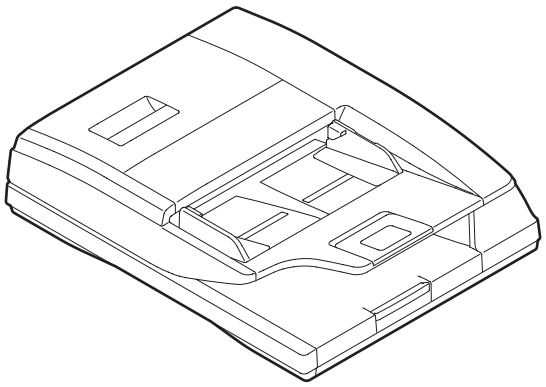
# SHARP SERVICE MANUAL

CODE: 00ZMX3501/S1E



# DIGITAL FULL COLOR MULTIFUNCTIONAL SYSTEM
## DUPLEX SINGLE PASS FEEDER (DSPF)

# MODEL MX-3501N MX-4501N

CONTENTS



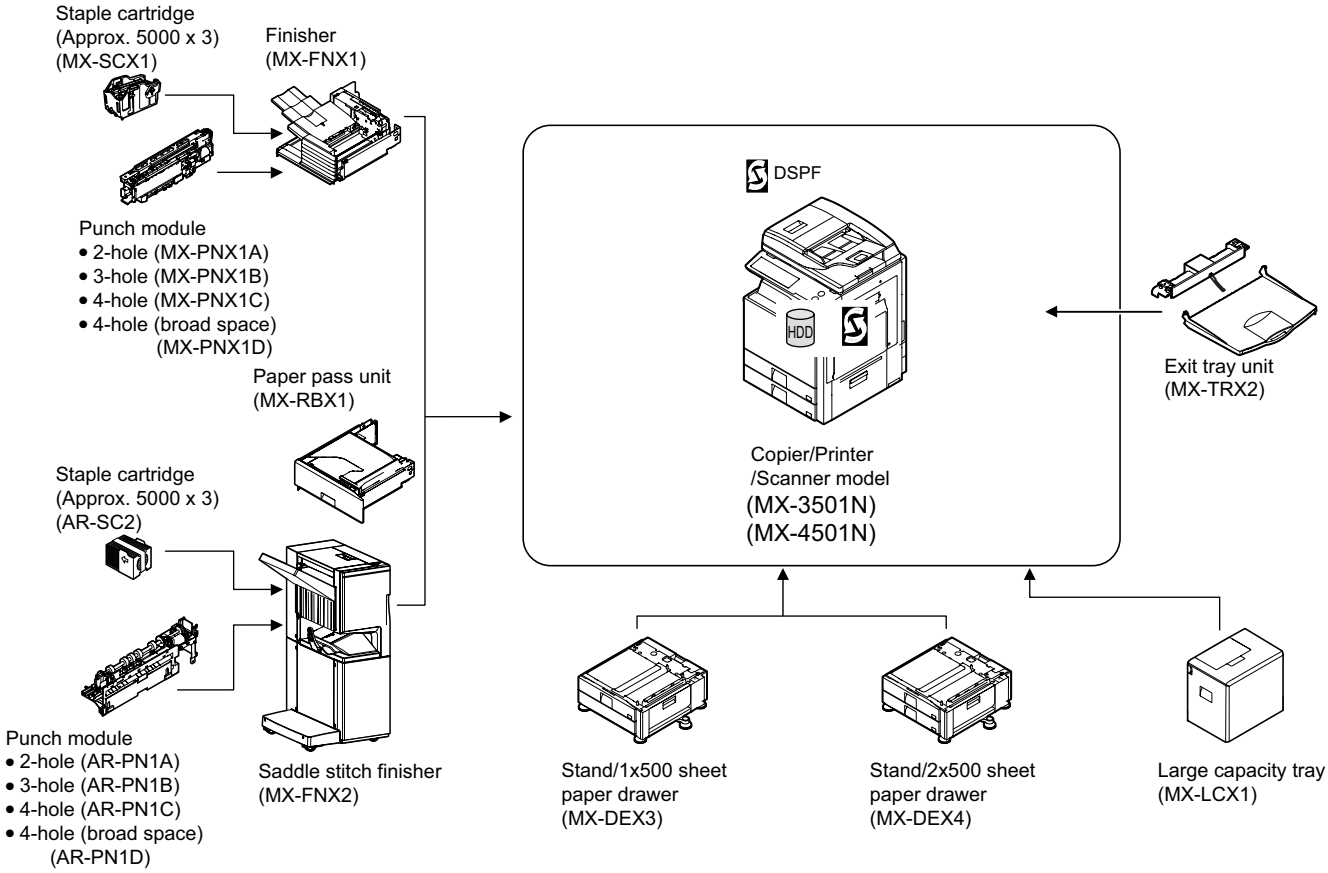
Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.



SHARP CORPORATION

# [1] PRODUCT OUTLINE

This model is the document feed unit which allows scanning duplex document surfaces at the same time. It is installed to the digital copier machine. It scans duplex document surfaces at the same time and transport it automatically to make continuous copying.



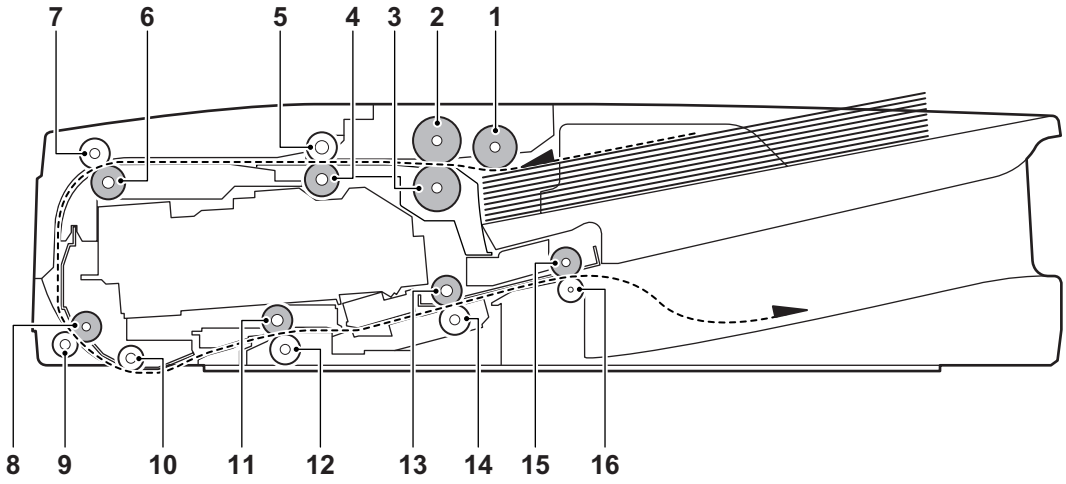
# [2] SPECIFICATIONS

| | | | |
|---|---|---|---|
| Form | | DSPF (Duplex single pass feeder) | |
| Scan speed | | Monochrome (A4/8.5 x 11) | Color (A4/8.5 x 11) |
| | Copy | 1-sided: 45 sheets/minute (600 x 300dpi, 1bit)<br>2-sided: 60 pages/minute (600 x 300dpi, 1bit) | 1-sided: 35 sheets/minute (600 x 600dpi, 4bit)<br>2-sided: 35 pages/minute (600 x 600dpi, 4bit) |
| | Fax | 1-sided: 60 sheets/minute (200 x 200dpi, 1bit)<br>2-sided: 60 pages/minute (200 x 200dpi, 1bit) | N/A |
| | Scanner | 1-sided: 60 sheets/minute (200 x 200dpi, 1bit)<br>2-sided: 60 pages/minute (200 x 200dpi, 1bit) | 1-sided: 35 sheets/minute (200 x 200dpi, 8bit)<br>2-sided: 35 pages/minute (200 x 200dpi, 8bit) |
| | Internet Fax | 1-sided: 60 sheets/minute (200 x 200 dpi, 1bit)<br>2-sided: 60 pages/minute (200 x 200 dpi, 1bit) | N/A |
| Document standard location | | Center standard (Rear one-side standard for random feeding) | |
| Document sizes | | Inch type-1: 11 x 17, 8.5 x 14, 8.5 x 11, 8.5 x 11R, 8.5 x 5.5, A4, A3<br>Inch type-2: 11 x 17, 8.5 x 13, 8.5 x 11, 8.5 x 11R, 8.5 x 5.5, A4, A3<br>AB type-1: A3, B4, A4, A4R, B5, B5R, A5, 8.5 x 11, 8.5 x 14, 11 x 17<br>AB type-2: A3, B4, A4, A4R, B5, B5R, A5, 8.5 x 11, 216 x 330, 11 x 17<br>AB type-3: 8K, A4, A4R, B4, 16K, 16KR, A5, 8.5 x 11, 216 x 330, 11 x 17<br>Long paper: 800mm (Monochrome 2 levels only)<br>Mixed feeding (same type / same width) possible<br>Random feeding (feeding of different types / different widths)<br>Only the following combinations of 2 size types are allowed: A3 and B4; B4 and A4R; A4 and B5; B5 and A5; and 11-inch and 8.5-inch. | |
| Document weights | | 1-side:<br>Thin paper: 35 – 49g/$m^2$ (9 – 13 lbs)<br>Plain paper: 50 – 128g/$m^2$ (13 – 34 lbs)<br><br>2-side: 50 – 105 g/$m^2$ (13 – 28 lbs) | |
| Document carrying capacity | | Maximum: 150 sheets (80g/$m^2$, 21lbs), or Maximum: 19.5 mm, 3/4 inch or less | |
| Types of document that may not be transported | | The following documents are NOT allowed:<br>OHP, second original drawing, tracing paper, carbon paper, thermal paper, wrinkled / broken / torn document, document with cuts and pastes, documents printed by an ink ribbon, and perforated document except 2-punched / 3-punched (Perforated document by punch unit is allowed.) | |
| Paper detection | | Yes | |
| Paper detection size | | Auto detection (Switching one type of detection unit through system setting)<br>Inch-1: 11 x 17, 8.5 x 14, 8.5 x 11, 8.5 x 11R, 5.5 x 8.5, A4, A3<br>Inch-2: 11 x 17, 8.5 x 13, 8.5 x 11, 8.5 x 11R, 5.5 x 8.5, A4, A3<br>AB-1: A3, B4, A4, A4R, B5, B5R, A5, 8.5 x 11, 8.5 x 14, 216 x 330, 11 x 17<br>AB-2: A3, B4, A4, A4R, B5, B5R, A5, 8.5 x 11, 216 x 330, 11 x 17<br>AB-3: 8K, B4, A4, A4R, 16K, 16KR, A5, 8.5 x 11, 216 x 330, A3 | |
| Paper feeding direction | | Right hand feeding | |
| Document inversion | | No | |
| Simultaneous double-sided scanning | | Allowed | |

# [3] EXTERNAL VIEW AND INTERNAL STRUCTURE

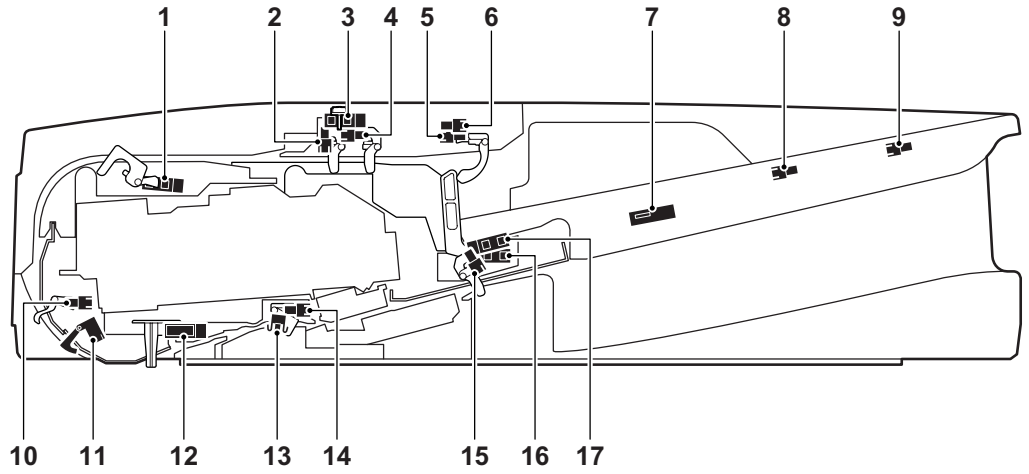
## 1. Identification of each section and functions

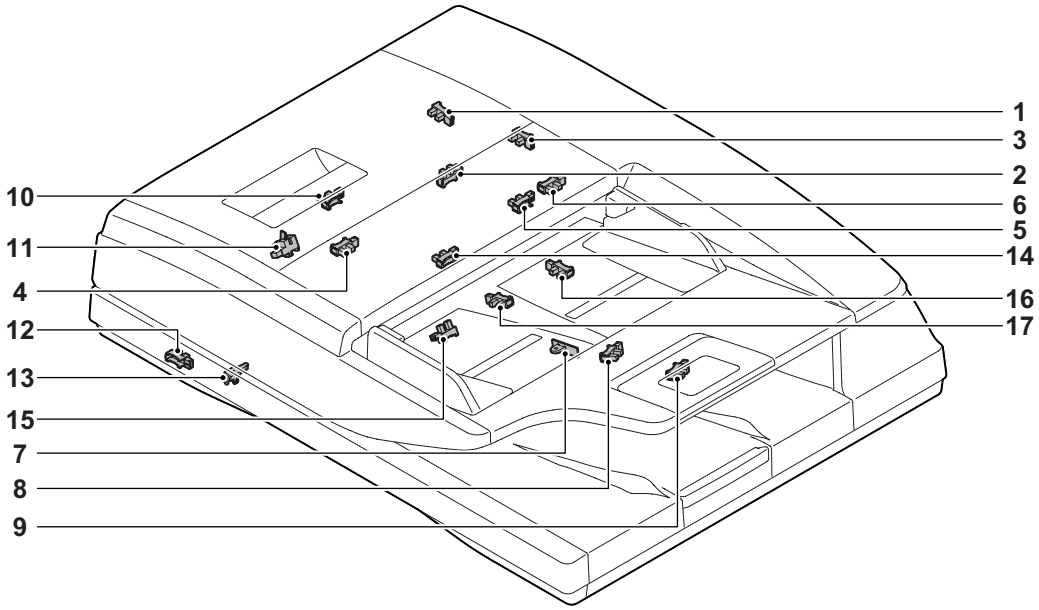
### A. Internal structure




| No. | Name | Function/ Operation |
|---|---|---|
| 1 | Pickup roller | Picks up a document and feeds it to the paper feed roller. |
| 2 | Paper feed roller | Performs the paper feed operation of documents. |
| 3 | Separation roller | Separate a document to prevent against double-feed. |
| 4 | No. 1 resist roller (Drive) | Performs resist of document transport. |
| 5 | No. 1 resist roller (Idle) | Applied a pressure to paper and the resist roller, and provides transport power of the resist roller to paper. |
| 6 | Transport roller 1 (Drive) | Transports paper from No. 1 resist roller to No. 2 resist roller. |
| 7 | Transport roller 1 (Idle) | Applied a pressure to paper and the transport roller, and provides the transport power of the transport roller to paper. |
| 8 | No. 2 resist roller (Drive) | Make synchronization between the lead edge of a document and the scan start position. |
| 9 | No. 2 resist roller (Idle) | Applies a pressure to paper and the resist roller, and provides transport power of the resist roller to paper. |
| 10 | Platen roller | Applies a pressure to paper to prevent against fluctuations on operation of paper. |
| 11 | Transport roller 2 (Drive) | Transports paper from the platen roller to the transport roller 3. |
| 12 | Transport roller 2 (Idle) | Applies a pressure to paper and the transport roller and provides transport power of the transport roller to paper. |
| 13 | Transport roller 3 (Drive) | Transports paper from the transport roller 2 to the paper exit roller. |
| 14 | Transport roller 3 (Idle) | Applies a pressure to paper and the transport roller and provides transport power of the transport roller to paper. |
| 15 | Paper exit roller (Drive) | Discharges paper. |
| 16 | Paper exit roller (Idle) | Applies a pressure to paper and the paper exit roller and provides transport power of the paper exit roller to paper. |

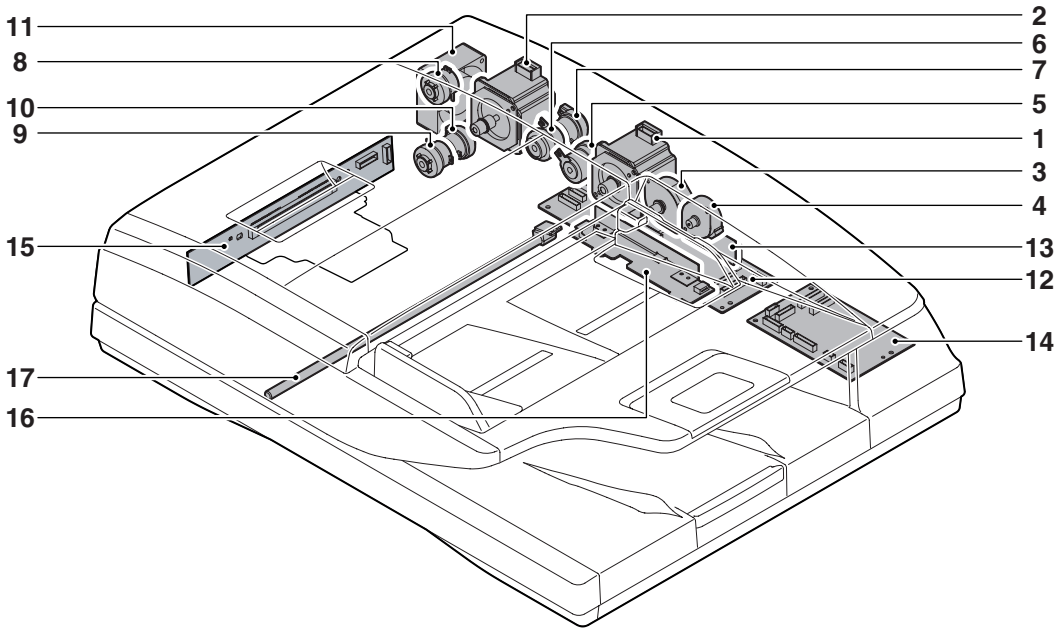
## B. Sensors, switches




| No. | Signal name | Name | Type | Function/Operation | Active condition |
|---|---|---|---|---|---|
| 1 | SPPD2 | DSPF paper pass sensor 2 | Transmission type | Detects pass of the paper. | L when paper is detected. |
| 2 | SPPD1 | DSPF paper pass sensor 1 | Transmission type | Detects pass of the paper. | L when paper is detected. |
| 3 | SCOV | DSPF upper door open/close sensor | Transmission type | Detects open/close of the upper door. | L when the upper door is open. |
| 4 | SPRDMD | DSPF document random sensor | Transmission type | Detects the paper size in random paper feed. | L when paper is detected. |
| 5 | STUD | DSPF paper feed tray upper limit sensor | Transmission type | Detects the upper limit of the paper feed tray. | L when the upper limit of the paper feed tray is detected. |
| 6 | SPED1 | DSPF document upper limit sensor | Transmission type | Detects the upper limit of the DSPF document. | L when paper is detected. |
| 7 | SPWS | DSPF document width sensor | Volume resistor | Detects the document width of the paper feed tray upper. | — |
| 8 | SPLS1 | DSPF document length detection short sensor | Transmission type | Detects the document length of the paper feed tray upper. | H when paper is detected. |
| 9 | SPLS2 | DSPF document length detection long sensor | Transmission type | Detects the document length of the paper feed tray upper. | H when paper is detected. |
| 10 | SPPD3 | DSPF paper pass sensor 3 | Transmission type | Detects pass of the paper. | L when paper is detected. |
| 11 | SPPD4 | DSPF paper pass sensor 4 | Transmission type | Detects pass of the paper. | L when paper is detected. |
| 12 | SOCD | DSPF open/close sensor | Transmission type | Detects open/close of the DSPF unit. | L when the DSPF unit is open. |
| 13 | SLCOV | DSPF lower door open/close sensor | Micro switch | Detects open/close of the lower door. | L when the lower door is open. |
| 14 | SPPD5 | DSPF paper pass sensor 5 | Transmission type | Detects pass of the paper. | L when paper is detected. |
| 15 | SPOD | DSPF paper exit sensor | Transmission type | Detects paper exit of the document. | L when paper is detected. |
| 16 | SPED2 | DSPF document empty sensor | Transmission type | Detects document empty in the paper feed tray. | L when paper is detected. |
| 17 | STLD | DSPF paper feed tray lower limit sensor | Transmission type | Detects the lower limit of the paper feed tray. | H when the lower limit of the paper feed tray is detected. |

## C. Motors, clutches, solenoids, PWB and lamps




| No. | Signal name | Name | Type | Function/Operation |
|---|---|---|---|---|
| 1 | SPUM | DSPF paper feed motor | Hybrid step motor | Drives the rollers, transport rollers and transport rollers in the paper feed section. |
| 2 | SPFM | DSPF transport motor | Hybrid step motor | Drives the transport roller. |
| 3 | SPOM | DSPF paper exit motor | PM step motor | Drives the paper exit roller. |
| 4 | SLUM | DSPF lift-up motor | PM step motor | Lifts up or moves down the paper feed tray. |
| 5 | SPFC | DSPF paper feed clutch | Electromagnetic clutch | Controls ON/OFF of the rollers in the paper feed section. |
| 6 | STRRC | DSPF No.1 resist roller clutch | Electromagnetic clutch | Controls ON/OFF of No. 1 resist roller. |
| 7 | STRRBC | DSPF No.1 resist roller brake clutch | Electromagnetic clutch | Performs braking of No. 1 resist roller. |
| 8 | STRC | DSPF transport roller clutch | Electromagnetic clutch | Controls ON/OFF of the transport roller 1. |
| 9 | SRRC | DSPF No.2 resist roller clutch | Electromagnetic clutch | Controls ON/OFF of No. 2 resist roller. |
| 10 | SRRBC | DSPF No.2 resist roller brake clutch | Electromagnetic clutch | Performs braking of No. 2 resist roller. |
| 11 | SPFFAN | DSPF cooling fan motor | DC brush-less motor | Cools the motors and the clutches. |
| 12 | — | DSPF control PWB | — | Control PWB for DSPF |
| 13 | — | DSPF flash PWB | — | Program ROM PWB for DSPF |
| 14 | — | DSPF driver PWB | — | Driver PWB for DSPF |
| 15 | — | DSPF CCD PWB | — | Scans document images. |
| 16 | — | DSPF CL inverter PWB | — | Drives the copy lamp. |
| 17 | DSPF COPY LUMP | DSPF copy lamp | Xenon lamp | Radiates light onto a document to allow the CCD to scan document images. |

# [4] OPERATIONAL DESCRIPTIONS

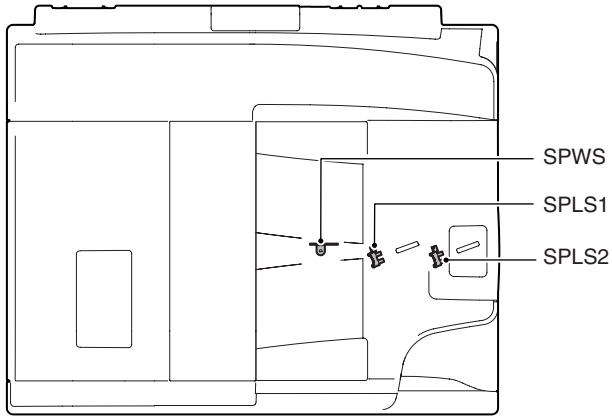
## 1. Document size detection

Size detection on the document tray

The document size is detected by the DSPF document width sensor (SPWS), and the document length is detected by the DSPF document length sensors (SPLS1, SPLS2). The document size is judged from the document width and the document length as shown in the table below.

When, however, documents of different sizes are mixed and set on the document tray, the largest size is detected.

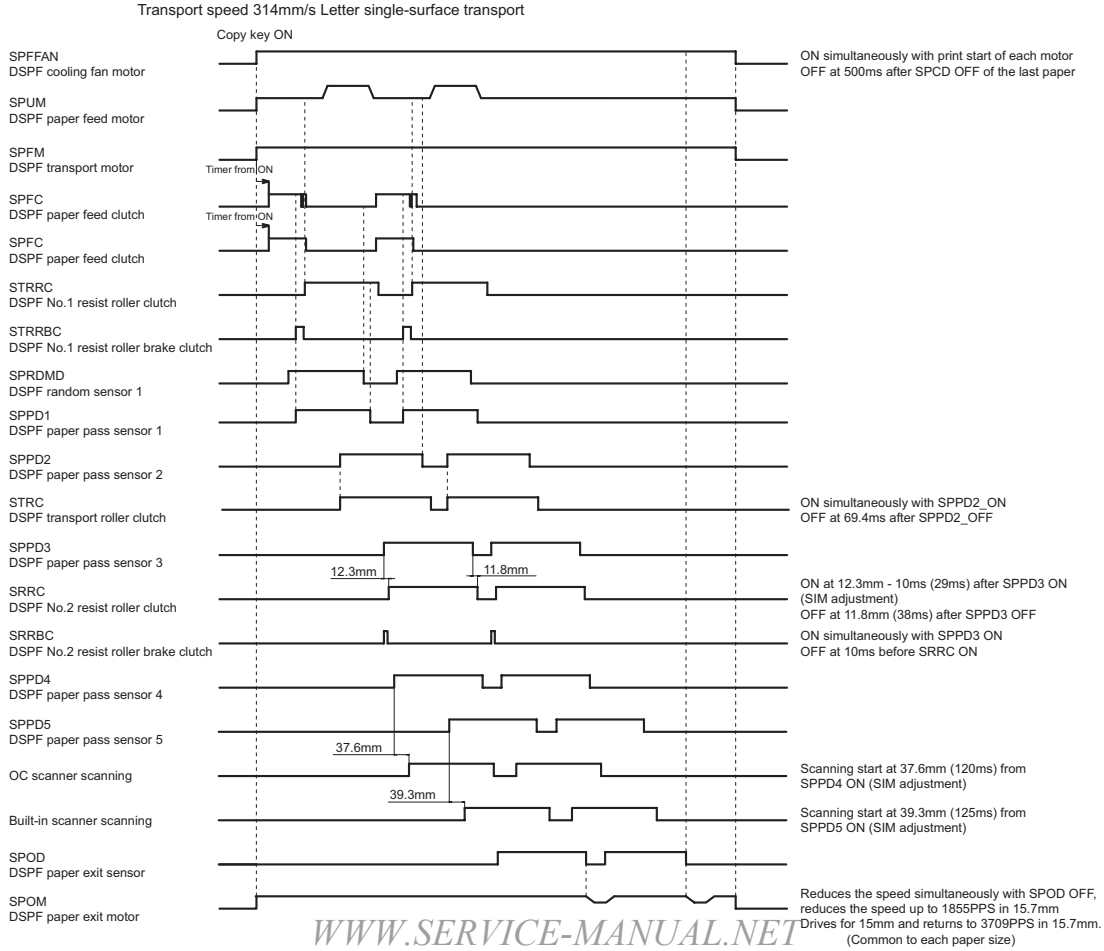
| | Document size | Document length sensor | |
|---|---|---|---|
| | | SPLS1 | SPLS2 |
| AB series | A5 | OFF | OFF |
| | B5 | OFF | OFF |
| | 11" x 8.5" | OFF | OFF |
| | A4 | OFF | OFF |
| | B5R | ON | OFF |
| | A4R | ON | OFF |
| | 8.5" x 13" | ON | ON |
| | B4 | ON | ON |
| | A3 | ON | ON |
| | 11" x 17" | ON | ON |
| Inch series | 8.5" x 5.5" | OFF | OFF |
| | 11" x 8.5" | OFF | OFF |
| | A4 | OFF | OFF |
| | 11" x 8.5"R | ON | OFF |
| | 8.5" x 13" | ON | ON |
| | 8.5" x 14" | ON | ON |
| | A3 | ON | ON |
| | 11" x 17" | ON | ON |




## 2. Timing chart

To increase the document replacement speed, pre-feed of the second and the later documents is performed for documents of A4/Letter or smaller sizes. Therefore, a clutch is provided for each transport roller to perform individual control.

An electromagnetic brake is provided for each transport roller in order to reduce loads to the motor in comparison with a mechanical brake.

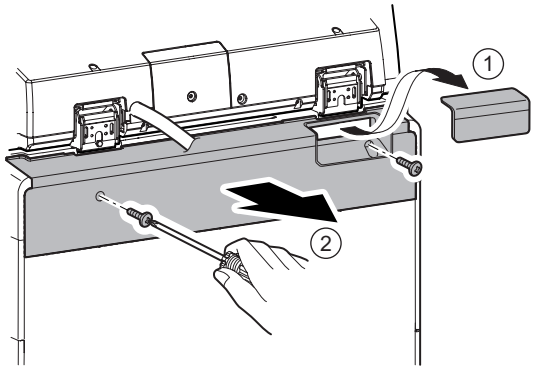


# [5] DISASSEMBLY AND ASSEMBLY

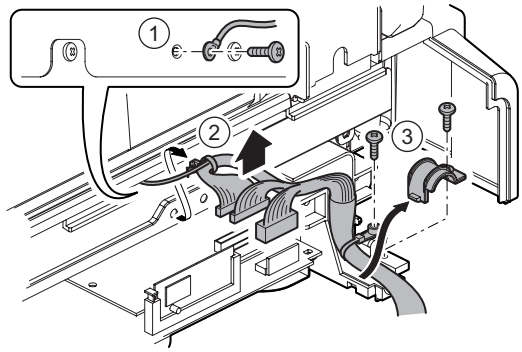
## 1. Exterior section

### A. DSPF unit

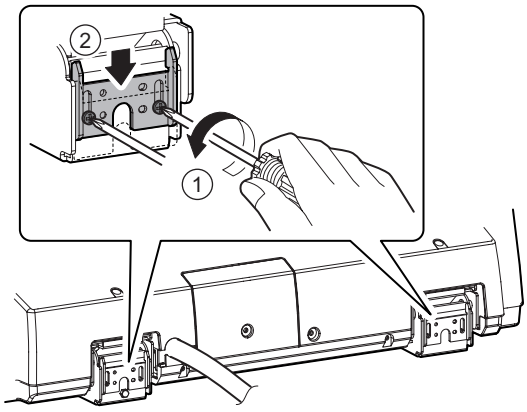
1) Remove the upper cabinet rear cover lid. Remove the screw, and remove the upper cabinet rear cover.



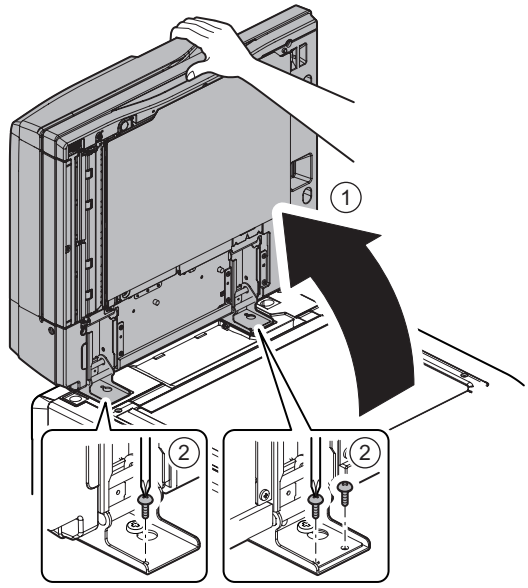

2) Remove the screw, and remove the earth line. Disconnect the connector, and remove the snap band. Remove the screw, and remove the locking band and the interface harness cover.



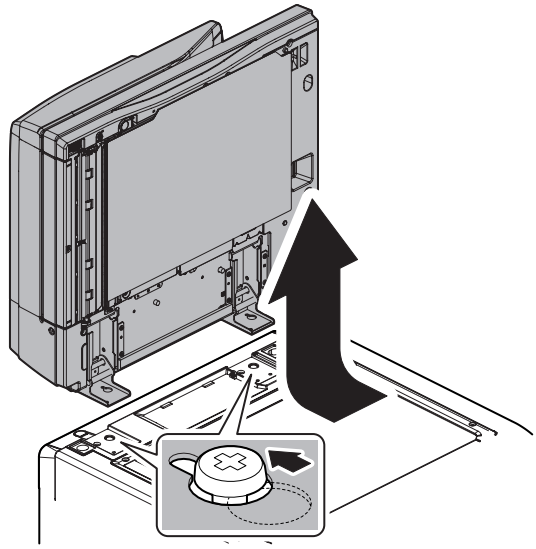

3) Loosen the screw, and lower the angle adjustment plate.




4) Open the DSPF unit to put it straight up, and remove the screw.

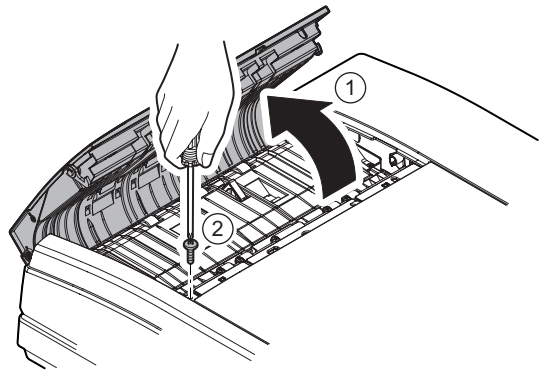



5) Slide the DSPF unit to the rear side, and fit the step screw with the key hole of the hinge, and lift it up to remove.

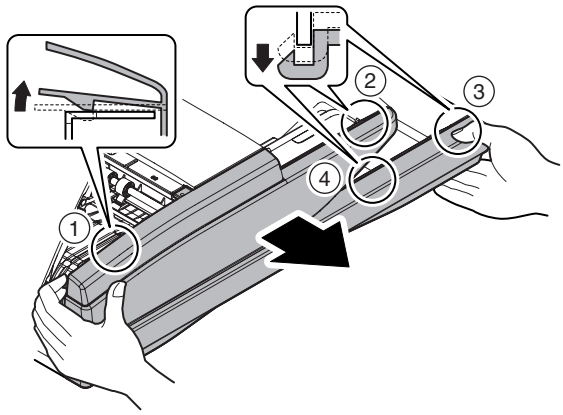


#### (1) Front cabinet

1) Open the upper door, and remove the screw.

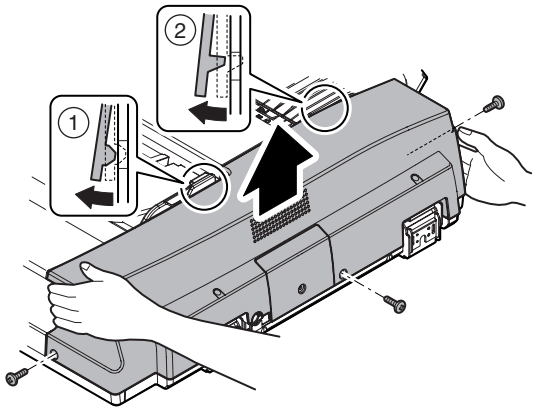


2) Remove the pawl, and remove the front cabinet.



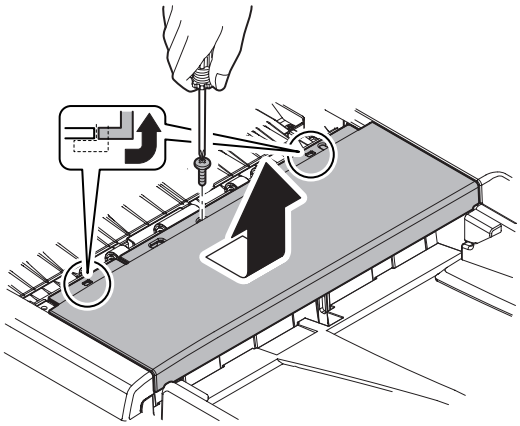

### (2) Rear cabinet

1) Open the upper door. Remove the screw. Remove the pawl. Remove the rear cabinet.



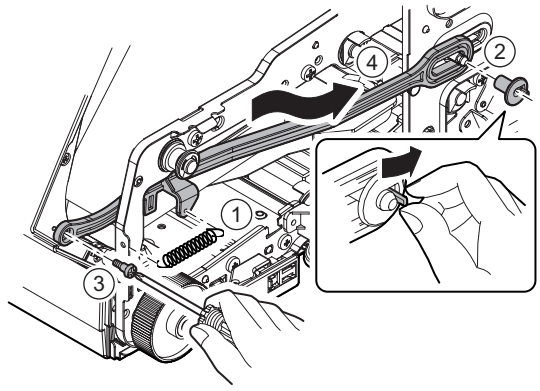

### (3) Paper feed cover

1) Open the upper door. Remove the screw. Remove the paper feed cover.

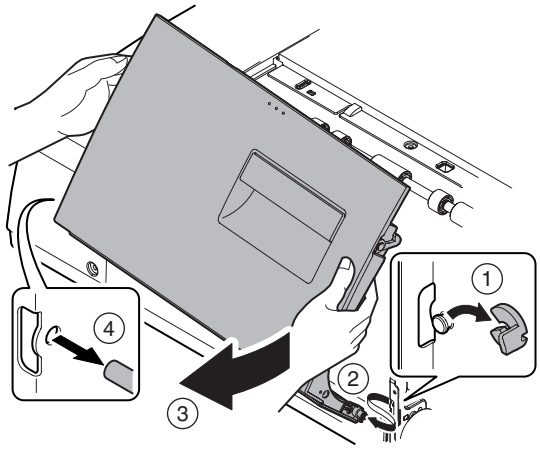


### (4) Upper door

1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Remove the spring. Remove the pawl. Remove the pressure release axis holder. Remove the screw. Remove the pressure release link lever.



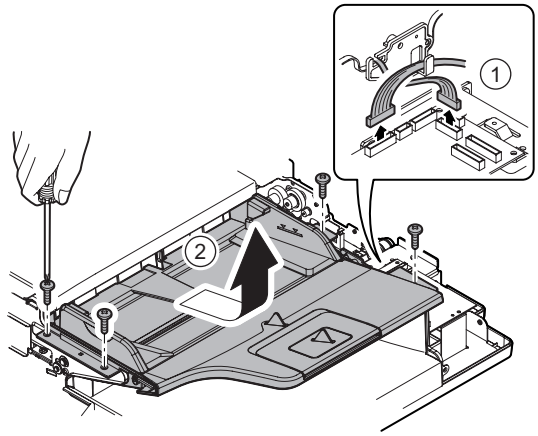

3) Remove the resin E-ring, and remove the upper door.




## 2. Paper feed section

### A. Paper feed tray unit

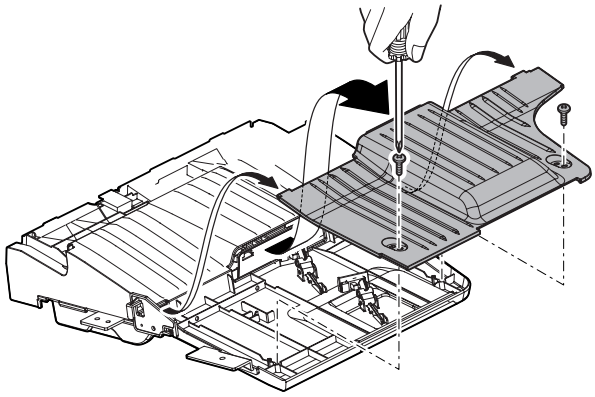
1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
3) Disconnect the connector. Remove the screw, and remove the paper feed tray unit.



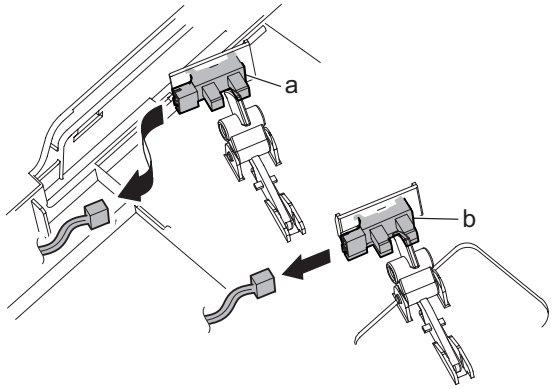
### (1) DSPF document length detection short sensor

### (2) DSPF document length detection long sensor

1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
3) Remove the paper feed tray unit. (Refer to "2. Paper feed section - A. Paper feed tray unit.")
4) Remove the screw, and remove the paper feed tray lower.

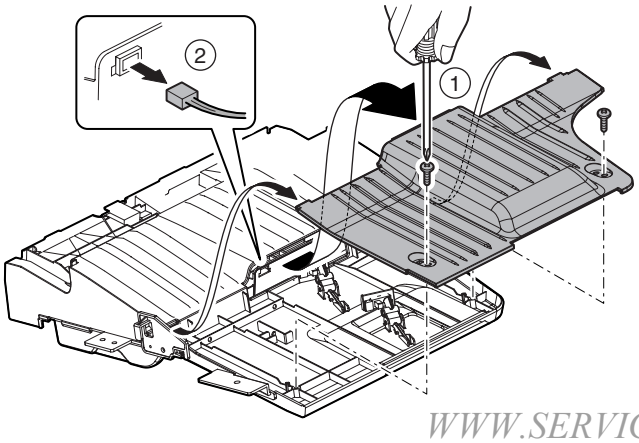


5) Disconnect the connector, and remove the DSPF document length detection short sensor (a) and the DSPF document length detection long sensor (b).

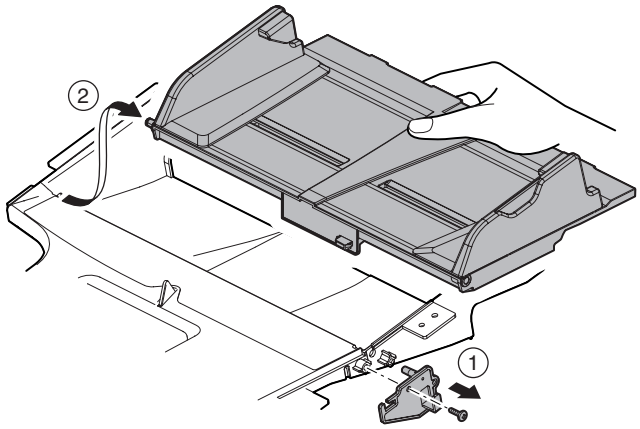



### (3) DSPF document width sensor

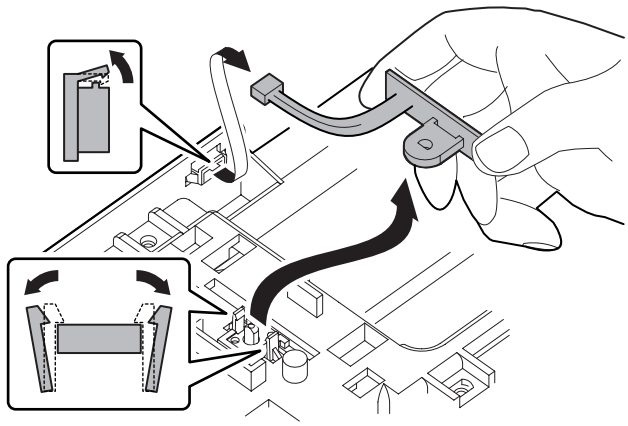
1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
3) Remove the paper feed tray unit. (Refer to "2. Paper feed section - A. Paper feed tray unit.")
4) Remove the screw, and remove the paper feed tray lower. Disconnect the connector.




5) Remove the screw, and remove the rotation tray shaft. Remove the paper feed rotation tray.

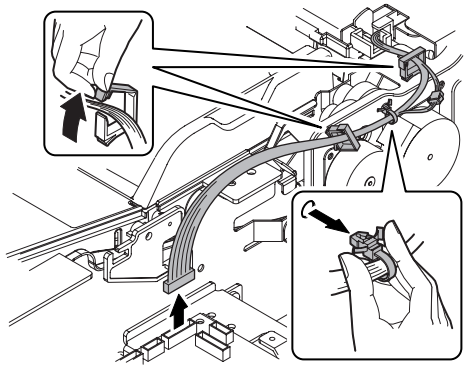



6) Disconnect the connector. Remove the pawl, and remove the DSPF document width sensor.

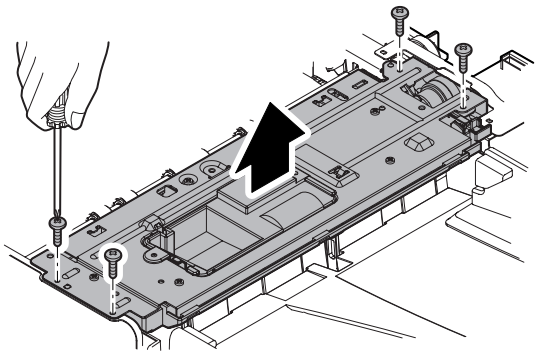


## B. Paper feed unit

1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
3) Remove the paper feed cover. (Refer to "1. Exterior section - A. DSPF unit - (3) Paper feed cover.")
4) Disconnect the connector. Open the wire saddle. Remove the snap band.



5) Remove the screw, and remove the paper feed unit.

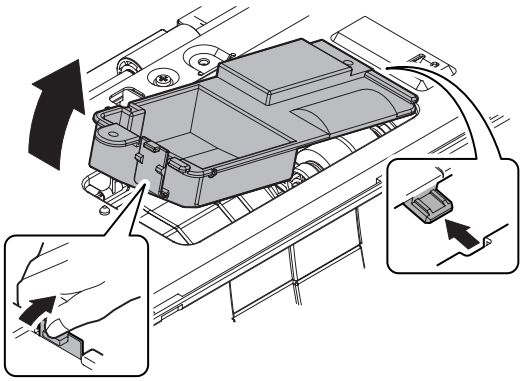


**(1) Pickup roller**

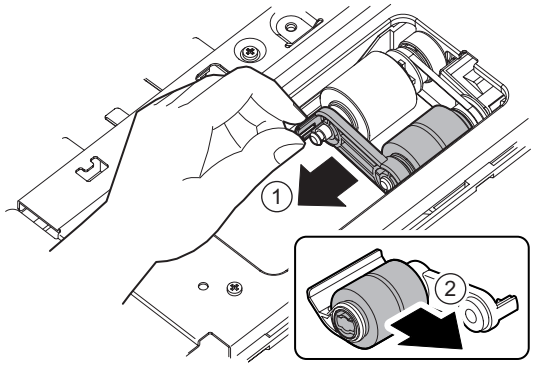
**(2) Paper feed roller**

**(3) Separation roller**

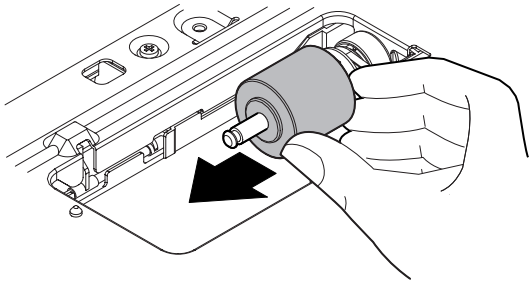
1) Remove the paper feed cover. (Refer to "1. Exterior section - A. DSPF unit - (3) Paper feed cover.")
2) Remove the pawl, and remove the paper feed PG upper cover.



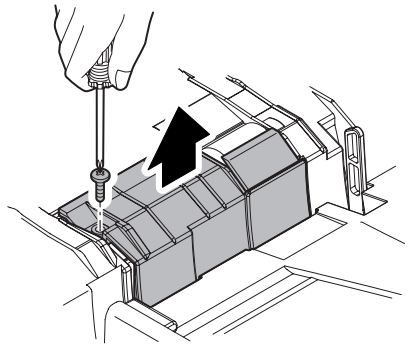
3) Remove the pawl. Remove the pickup roller holder. Remove the pickup roller from the pickup roller holder.



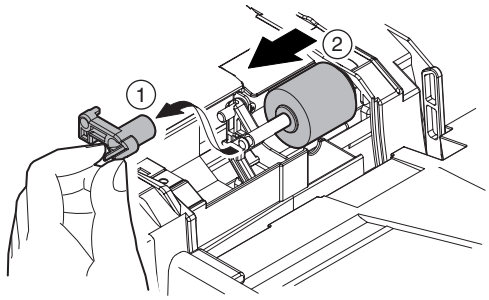

4) Remove the paper feed roller.



5) Remove the screw, and remove the paper feed PG lower cover.



6) Disengage the pawl, and remove the reverse pressure release lever. Remove the separation roller.




**(4) DSPF paper feed tray upper limit sensor**

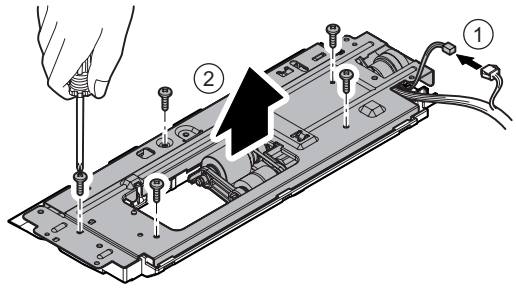
**(5) DSPF document upper limit sensor**

**(6) DSPF upper door open/close sensor**

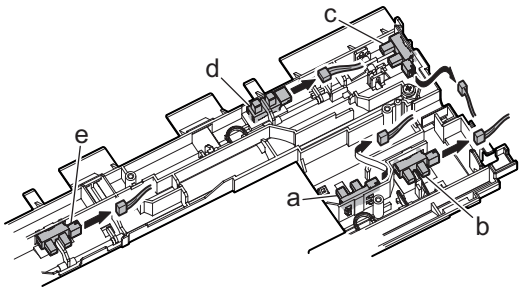
**(7) DSPF paper pass sensor 1**

**(8) DSPF document random sensor**

1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
3) Remove the paper feed cover. (Refer to "1. Exterior section - A. DSPF unit - (3) Paper feed cover.")
4) Remove the paper feed unit. (Refer to "2. Paper feed section - B. Paper feed unit.")
5) Disconnect the connector. Remove the screw, and remove the paper feed PG upper supporting plate.

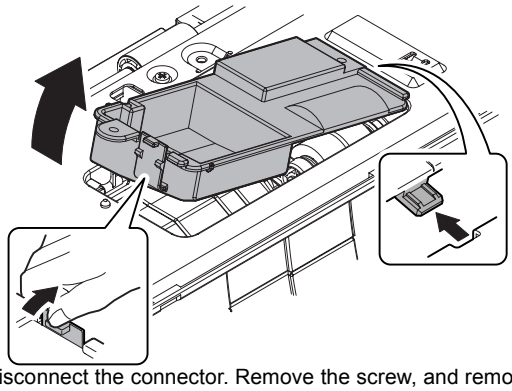


6) Disconnect the connector, and remove the DSPF paper feed tray upper limit sensor (a), the DSPF document upper limit sensor (b), the DSPF upper door open/close sensor (c), the DSPF paper pass sensor 1 (d), and the DSPF document random sensor (e).

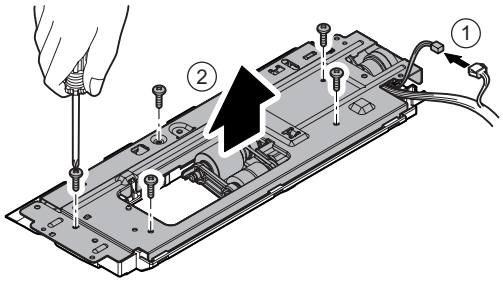



### (9) DSPF paper feed clutch

1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
3) Remove the paper feed cover. (Refer to "1. Exterior section - A. DSPF unit - (3) Paper feed cover.")
4) Remove the paper feed unit. (Refer to "2. Paper feed section - B. Paper feed unit.")
5) Remove the pawl, and remove the paper feed PG upper cover.

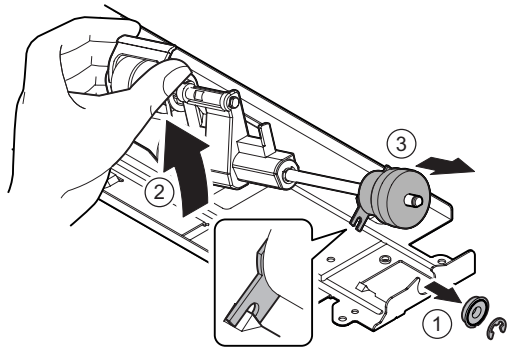


6) Disconnect the connector. Remove the screw, and remove the paper feed PG upper supporting plate.




7) Remove the E-ring and the bearing. Lift the paper feed roller shaft diagonally, and remove the DSPF paper feed clutch.

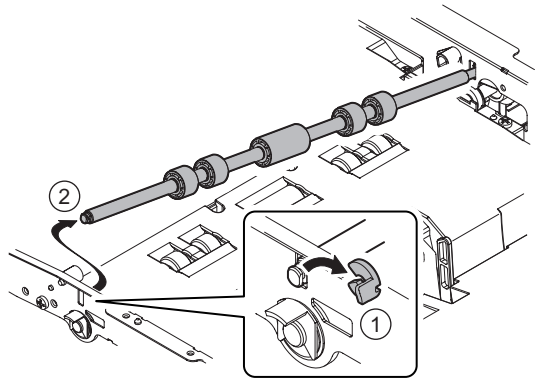
* When assembling, check to insure that the clutch rotation stopper is engaged with the plate.



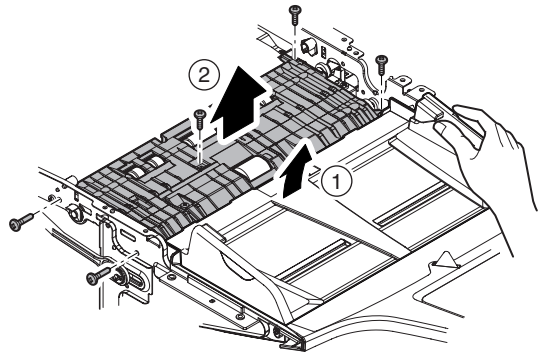

## C. Others

### (1) Torque limiter

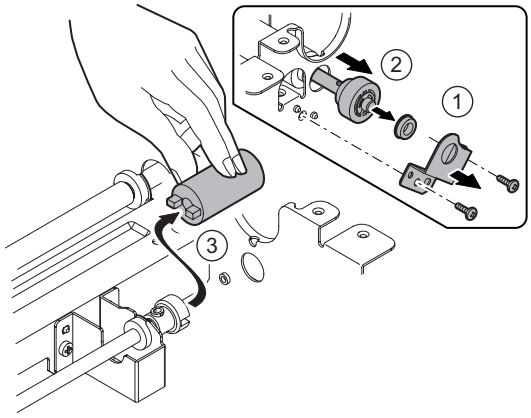
1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
3) Remove the paper feed unit. (Refer to "2. Paper feed section - B. Paper feed unit.")
4) Remove the DSPF No.1 resist roller brake clutch and remove the DSPF No.1 resist roller clutch. (Refer to "3. Upper transport section - A. DSPF No.1 resist roller brake clutch, B. DSPF No.1 resist roller clutch.")
5) Remove the drive unit. (Refer to "7. Drive section - A. Drive unit.")
6) Remove the resin E-ring, and remove the No.1 resist roller (idle).




7) Remove the screw. Lift the paper feed rotation tray, and remove the paper feed PG lower.



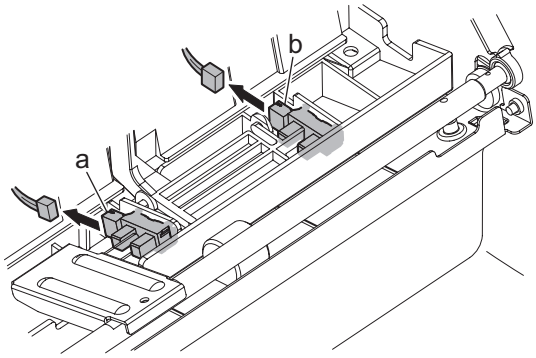
8) Remove the screw, and remove the separation roller supporting plate and the bearing. Remove the roller shaft, and remove the torque limiter.




### (2) DSPF paper feed tray lower limit sensor

### (3) DSPF document empty sensor

1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
3) Remove the paper feed tray unit. (Refer to "2. Paper feed section - A. Paper feed tray unit.")
4) Disconnect the connector, and remove the DSPF paper feed tray lower limit sensor (a) and the DSPF document empty sensor (b).



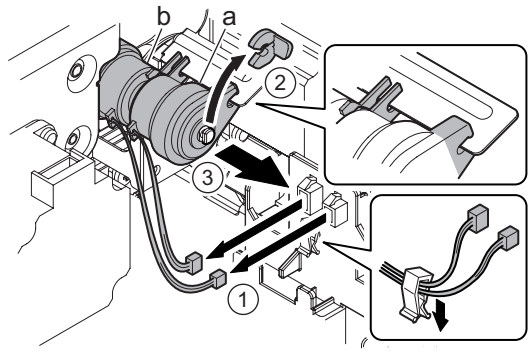

## 3. Upper transport section

### A. DSPF No.1 resist roller brake clutch

### B. DSPF No.1 resist roller clutch

1) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
2) Disconnect the connector. Remove the resin E-ring. Remove the DSPF No.1 resist roller brake clutch (a) and the DSPF No.1 resist roller clutch (b).

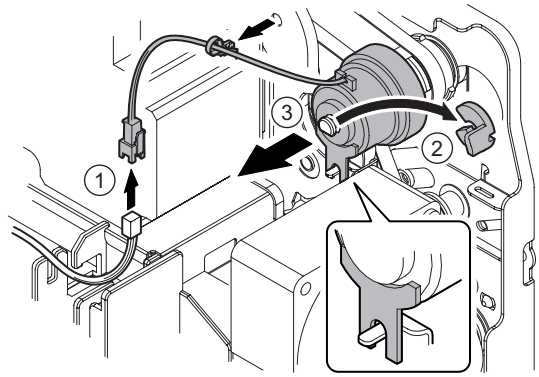
* When assembling, check to insure that the clutch rotation stopper is engaged with the plate.




### C. DSPF transport roller clutch

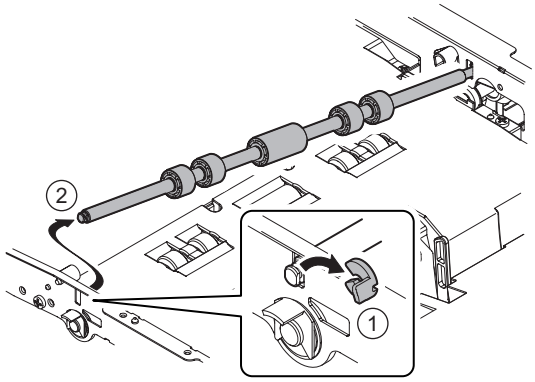
1) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
2) Disconnect the connector, and remove the snap band. Remove the resin E-ring, and remove the DSPF transport roller clutch.

* When assembling, check to insure that the clutch rotation stopper is engaged with the plate.

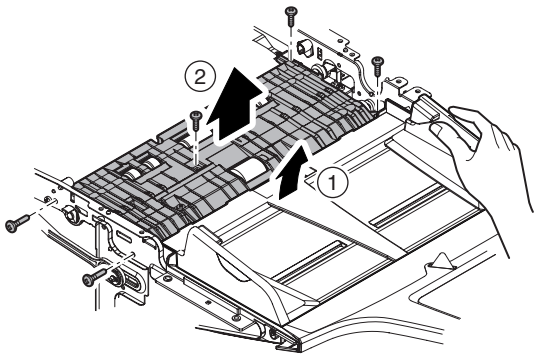


## D. No.1 resist roller (Drive)

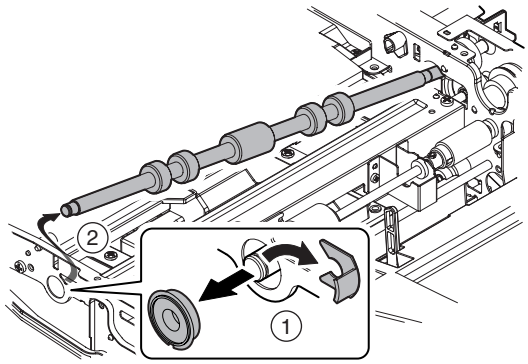
1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
3) Remove the paper feed unit. (Refer to "2. Paper feed section - B. Paper feed unit.")
4) Remove the DSPF No.1 resist roller brake clutch and remove the DSPF No.1 resist roller clutch. (Refer to "3. Upper transport section - A. DSPF No.1 resist roller brake clutch, B. DSPF No.1 resist roller clutch.")
5) Remove the resin E-ring, and remove the No.1 resist roller (idle).



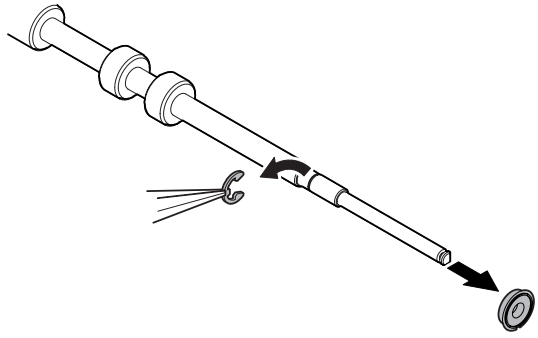

6) Remove the screw, lift the paper feed rotation tray, and remove the paper feed PG lower.




7) Remove the resin E-ring and the bearing, and remove the No.1 resist roller (drive).



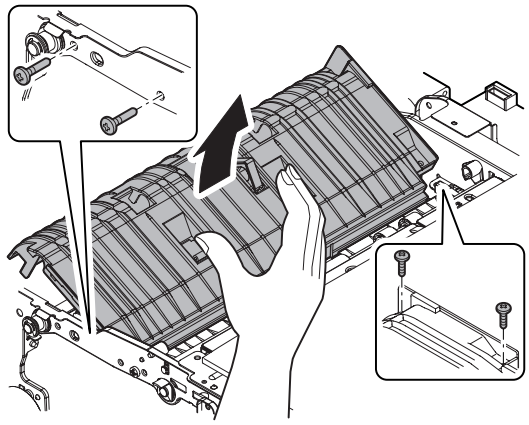

8) Remove the E-ring and the bearing from the No.1 resist roller (drive).



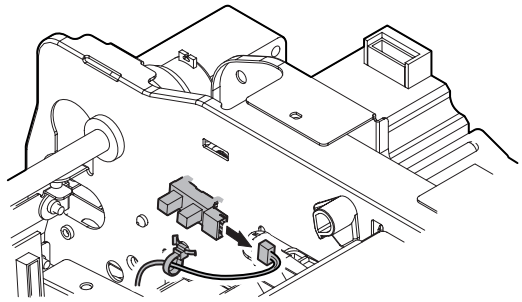
## E. DSPF paper pass sensor 2

## F. Transport roller 1 (drive)

1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
3) Remove the screw, and remove the transport PG upper.

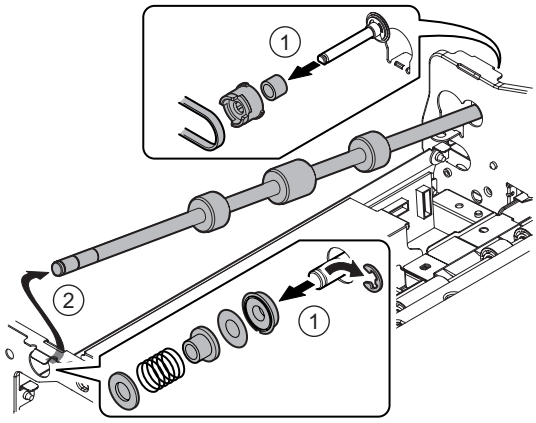


4) Disconnect the connector, and remove the DSPF paper pass sensor 2.

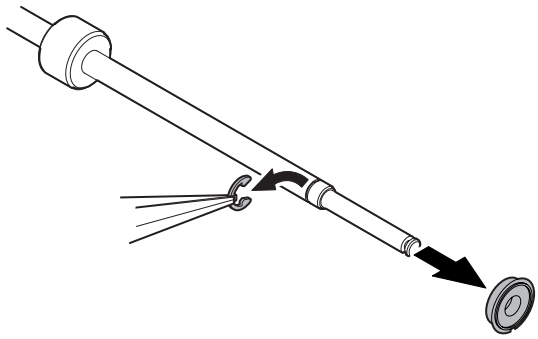


5) Remove the DSPF transport roller clutch. (Refer to "3. Upper transport section - C. DSPF transport roller clutch.")

6) Remove the E-ring, the washer, the spring, the collar, the poly-slider, and the bearing. Remove the belt, the pulley, and the bearing, and remove the transport roller 1 (drive).




7) Remove the E-ring and the bearing from the transport roller 1 (drive).

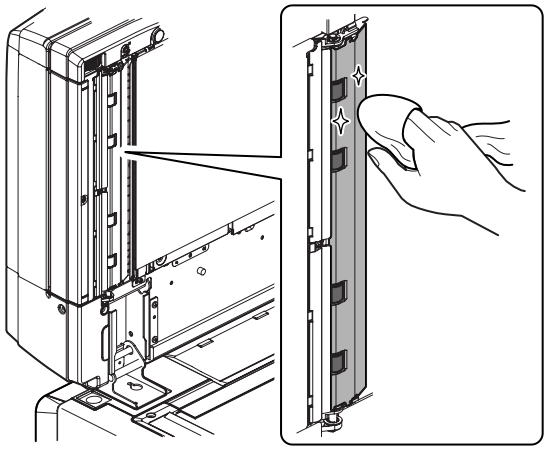


## 4. Lower transport section

### A. Platen roller

### B. No.1 scanning plate

1) Open the DSPF unit, and clean the platen roller and the No.1 scanning plate.



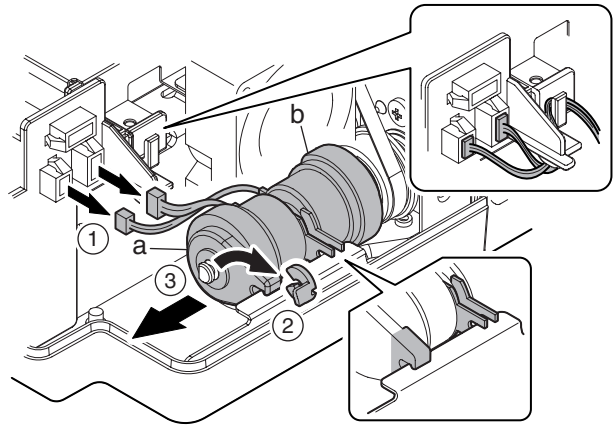
### C. DSPF No.2 resist roller brake clutch

### D. DSPF No.2 resist roller clutch

1) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")

2) Disconnect the connector. Remove the resin E-ring and remove the DSPF No.2 resist roller brake clutch (a) and the DSPF No.2 resist roller clutch (b).

* When assembling, check to insure that the clutch rotation stopper is engaged with the plate.




### E. DSPF paper pass sensor 3

### F. DSPF paper pass sensor 4

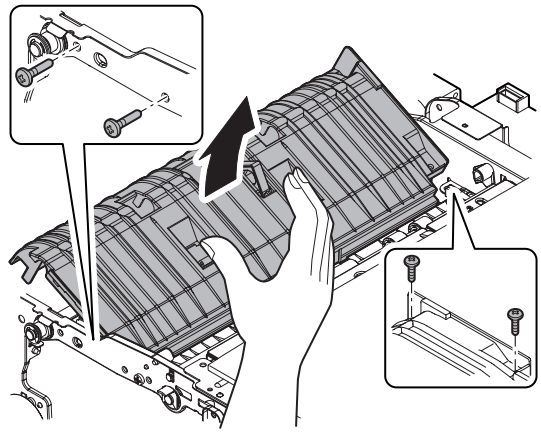
### G. No.2 resist roller (Drive)

1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")

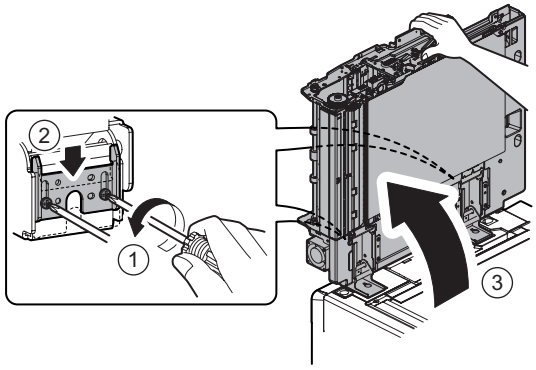
2) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")

3) Remove the upper door. (Refer to "1. Exterior section - A. DSPF unit - (3) Upper door.")

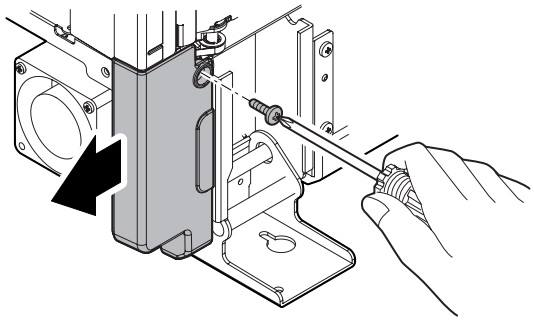
4) Remove the screw, and remove the transport PG upper.



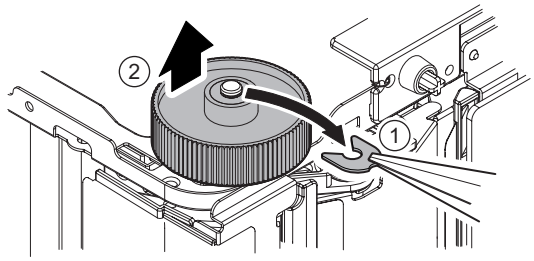
5) Loosen the screw, and lower the angle adjustment plate. Open the DSPF unit.



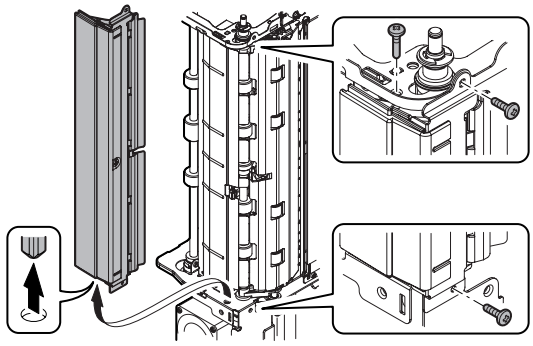

6) Remove the screw, and remove the left rear lower cabinet.



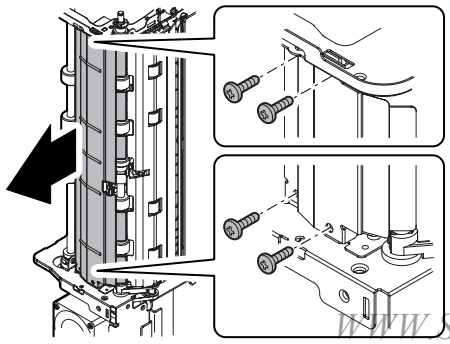
7) Remove the resin E-ring, and remove the PS knob.



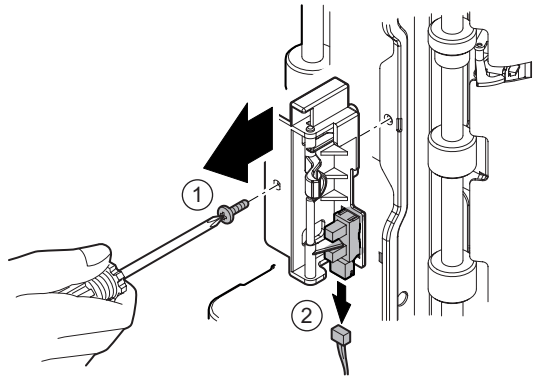

8) Remove the screw, and remove the PS outer PG.



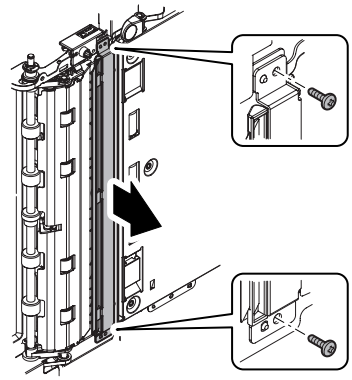
9) Remove the screw, and remove the PS front PG.



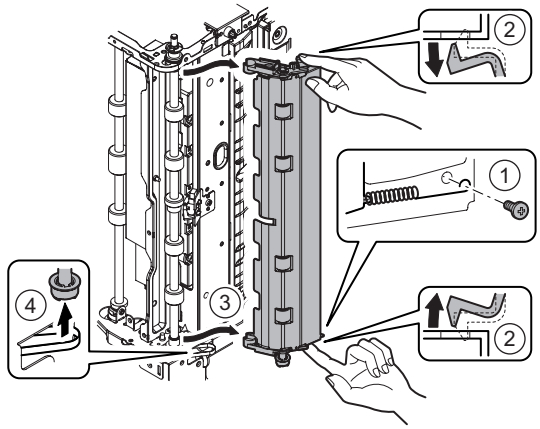
10) Remove the screw and the connector, and remove the DSPF paper pass sensor 3.



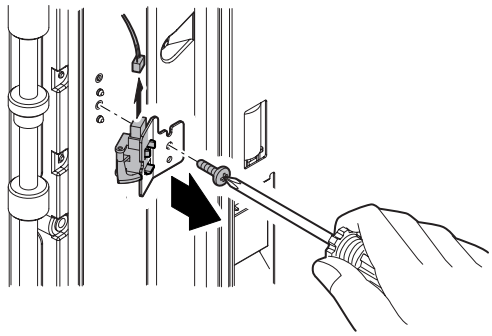

11) Remove the screw, and remove the lift-up PG.



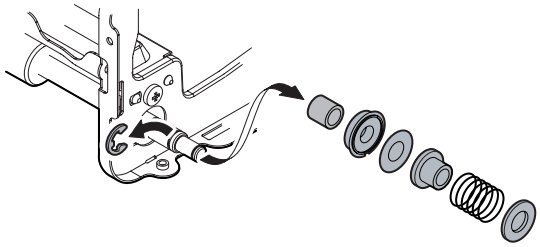
12) Remove the screw, and remove the spring. Remove the belt, the pawl, and the platen roller.



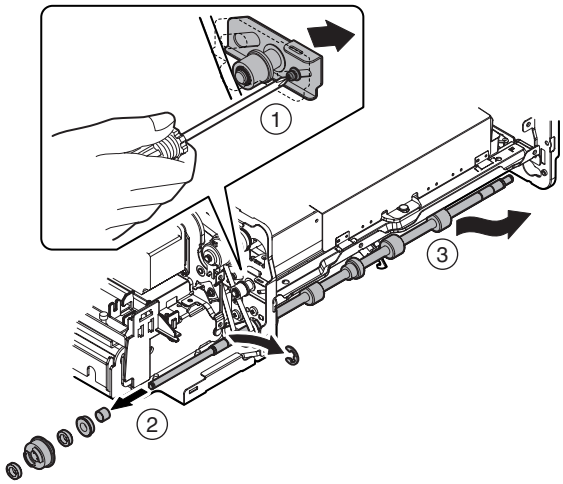

13) Disconnect the connector and remove the screw. Remove the DSPF paper pass sensor 4.



14) Remove the DSPF No.2 resist roller brake clutch and the DSPF No.2 resist roller clutch. (Refer to "4. Lower transport section - C. DSPF No.2 resist roller brake clutch, D. DSPF No.2 resist roller clutch.")
15) Remove the DSPF cooling fan motor. (Refer to "7. Drive section - C. Others - (1) DSPF cooling fan motor.")
16) Remove the E-ring, the washer, the spring, the collar, the poly-slider, and the bearing.



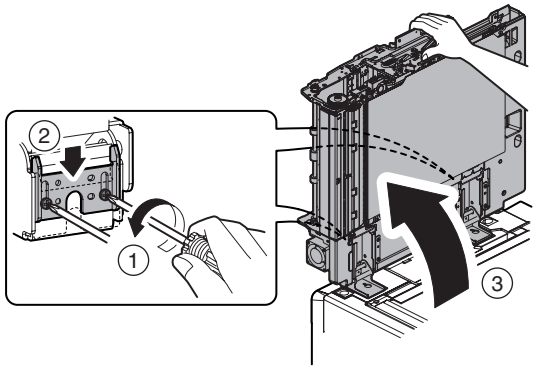
17) Loosen the screw. Loosen the belt tension. Tighten the screw. Slide the roller. Remove the pulley, the E-ring, and the bearing. Remove the No.2 resist roller (drive).



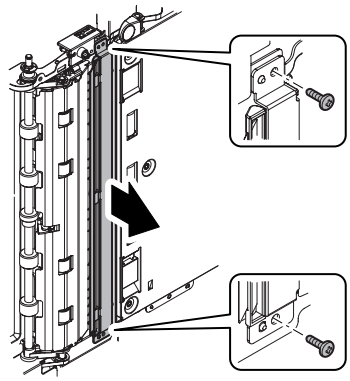

## H. DSPF paper pass sensor 5

## I. Transport roller 2 (Drive)

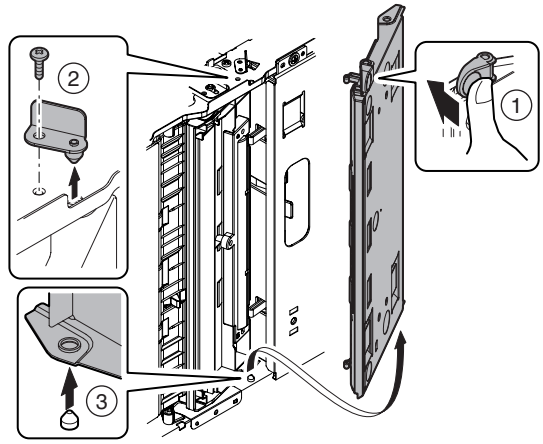
1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
3) Remove the OC mat. (Refer to "8. Others - A. OC mat.")
4) Loosen the screw, and lower the angle adjustment plate. Open the DSPF unit.



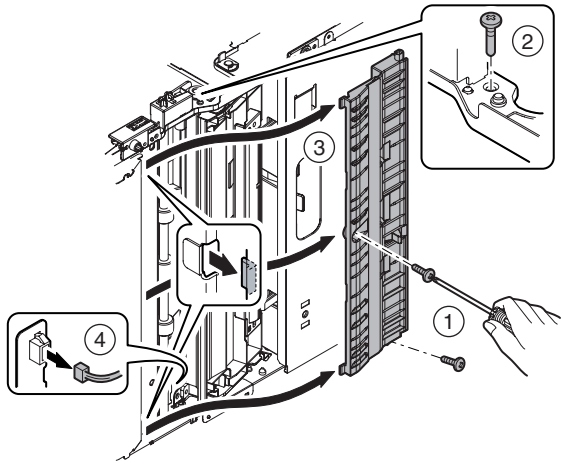

5) Remove the screw, and remove the lift-up PG.



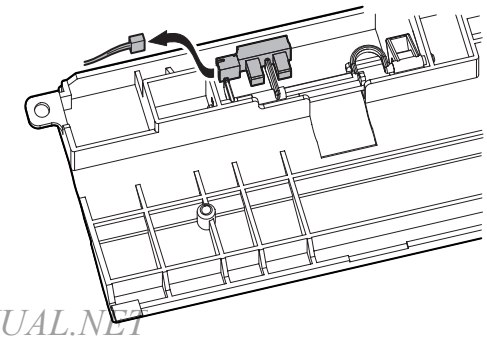
6) Remove the screw, and remove the intersecting point plate. Remove the lower door.



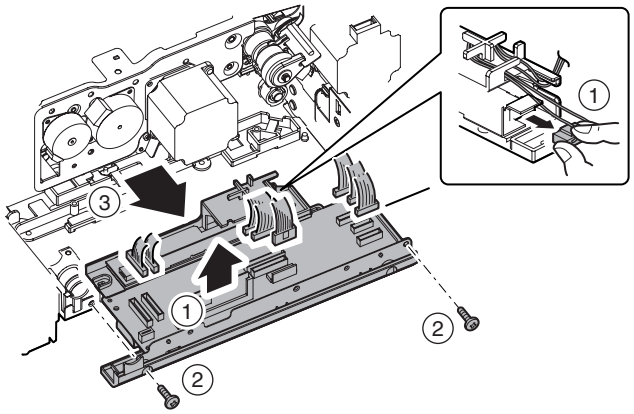

7) Open the lower door. Remove the screw. Remove the transport PG lower. Disconnect the connector.



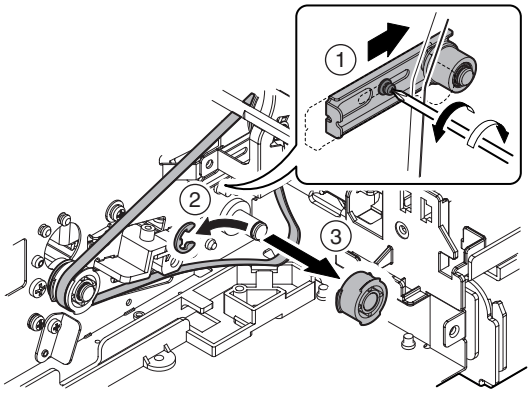

8) Disconnect the connector, and remove the DSPF paper pass sensor 5.



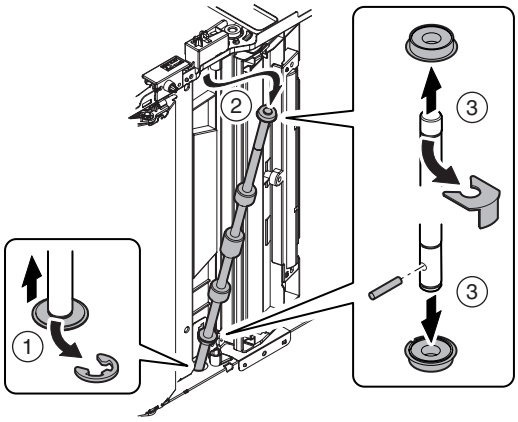
9) Remove the DSPF No.1 resist roller brake clutch and the DSPF No.1 resist roller clutch. (Refer "3. Upper transport section - A. DSPF No.1 resist roller brake clutch - B. DSPF No.1 resist roller clutch.")
10) Remove the drive unit. (Refer to "7. Drive section - A. Drive unit.")
11) Disconnect the connector. Remove the screw, and remove the control PWB unit.



12) Loosen the screw, and loosen the belt tension. Tighten the screw. Remove the belt. Remove the E-ring and the pulley.

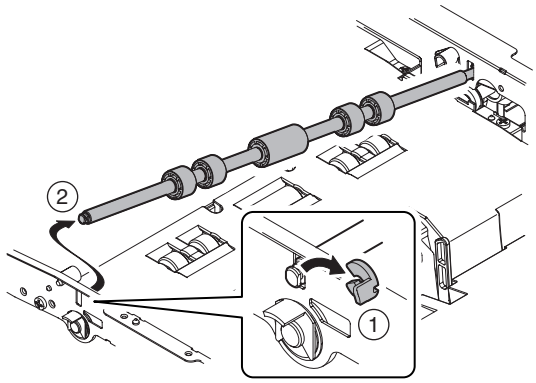


13) Remove the resin E-ring. Slide the bearing. Remove the transport roller 2 (drive). Remove the bearing, the E-ring, and the spring pin from the transport roller 2 (drive).

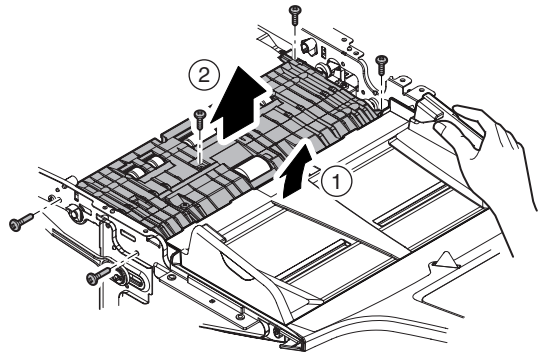


## J. Transport roller 3 (drive)

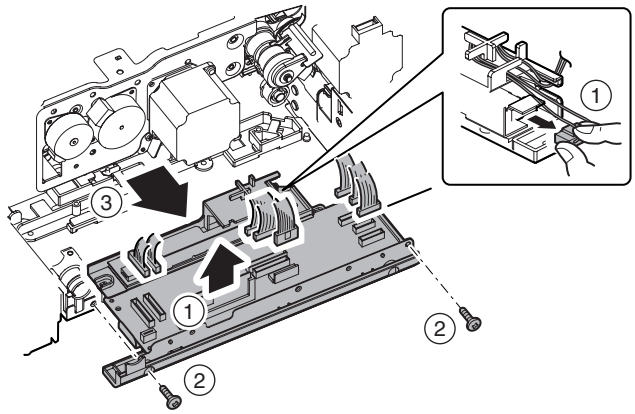
1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
3) Remove the paper feed unit. (Refer to "2. Paper feed section - B. Paper feed unit.")
4) Remove the DSPF No.1 resist roller brake clutch and the DSPF No.1 resist roller clutch. (Refer to "3. Upper transport section - A. DSPF No.1 resist roller brake clutch, B. DSPF No.1 resist roller clutch.")
5) Remove the drive unit. (Refer to "7. Drive section - A. Drive unit.")
6) Remove the resin E-ring, and remove the No.1 resist roller (idle).



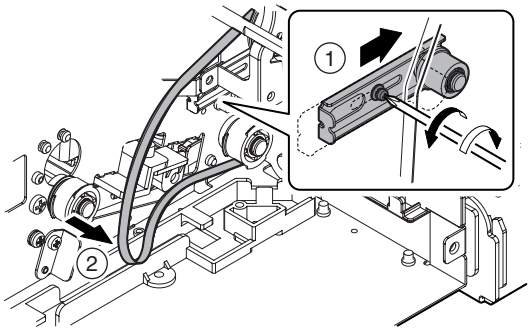
7) Remove the screw. Lift the paper feed rotation tray, and remove the paper feed PG lower.



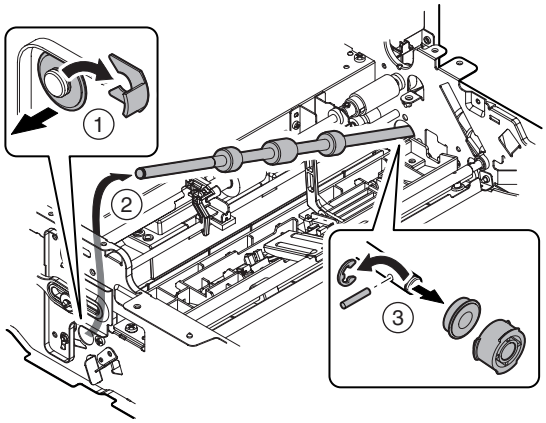
8) Disconnect the connector. Remove the screw, and remove the control PWB unit.



9) Loosen the screw, and loosen the belt tension. Tighten the screw. Remove the belt.



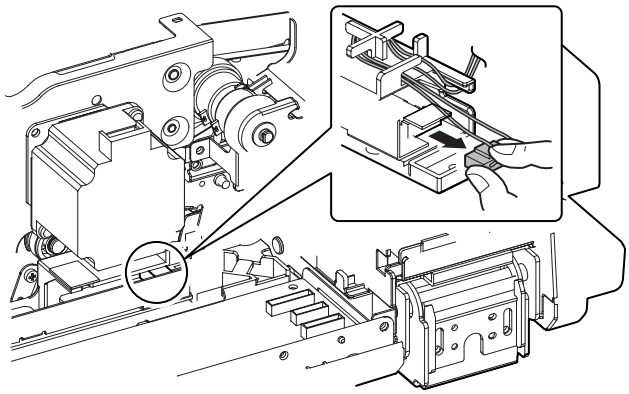
10) Remove the resin E-ring and the bearing. Remove the transport roller 3 (drive). Remove the E-ring, the pulley, the spring pin, and the bearing from the transport roller 3 (drive).



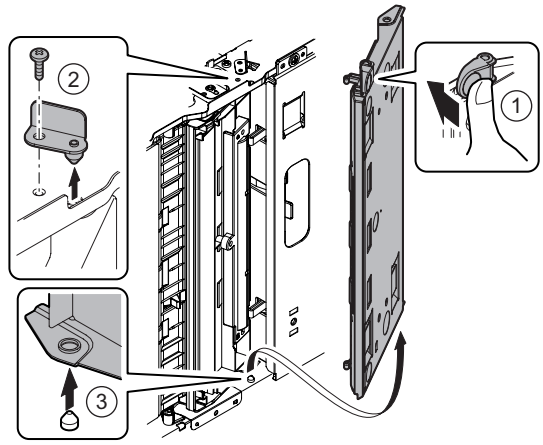
## 5. Optical section

### A. Lamp unit

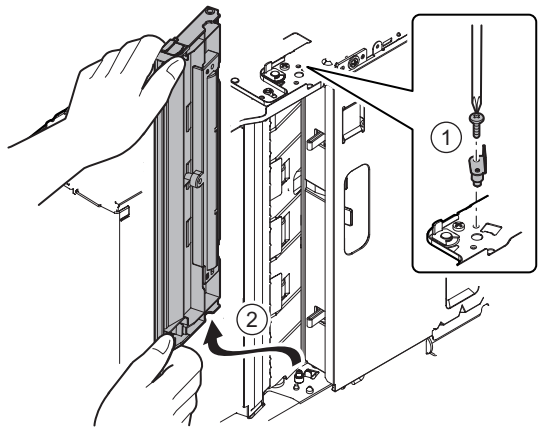
1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
3) Remove the OC mat. (Refer to "8. Others - A. OC mat.")
4) Remove the connector from the DSPF CL inverter PWB.



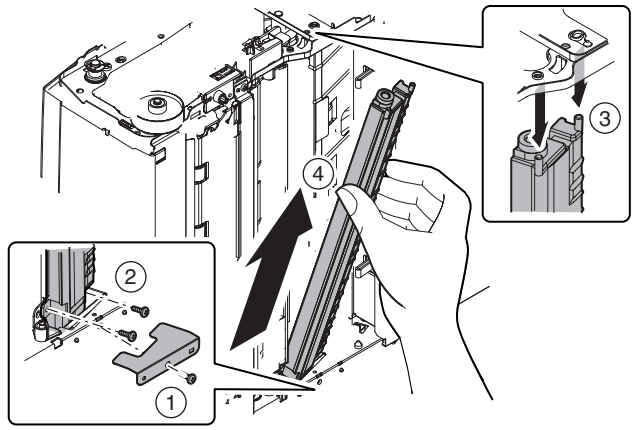
5) Remove the screw, and remove the intersecting point plate. Remove the lower door.



6) Remove the screw, and remove the intersecting point plate. Remove the white reference plate.



7) Remove the screw, and remove the scanning section cover. Remove the screw, and remove the lamp unit.

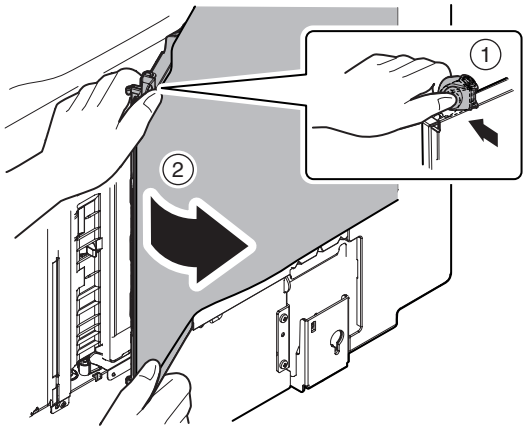


**(1) Scanning glass**

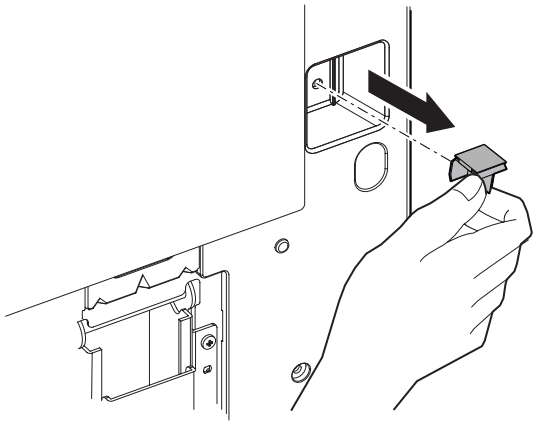
**(2) DSPF copy lamp**

**(3) Reflector**

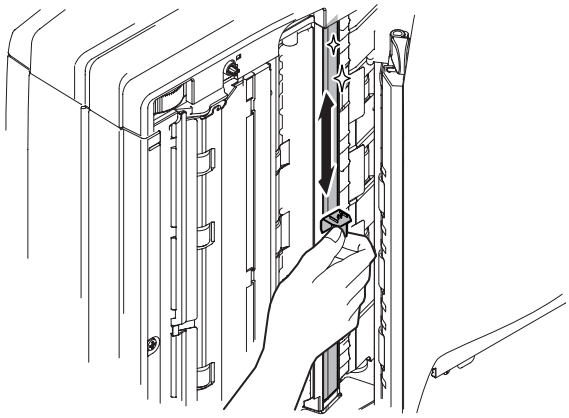
1) Open the DSPF unit, and open the lower door.




2) Remove the cleaner.



3) Use the cleaner to clean the scanning glass (surface).



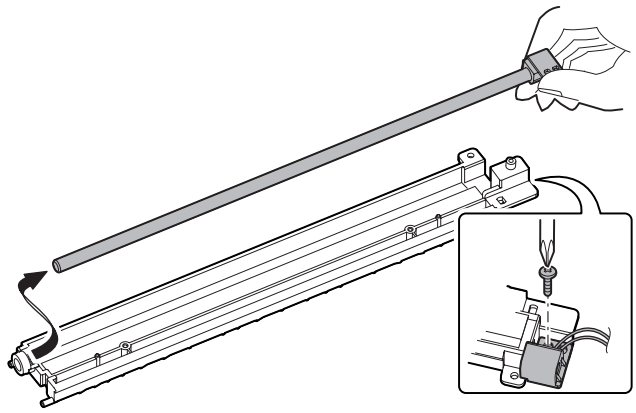
4) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")

5) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")

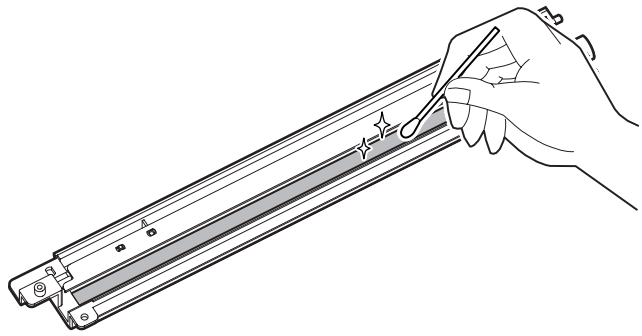
6) Remove the OC mat. (Refer to "8. Others - A. OC mat.")

7) Remove the lamp unit. (Refer to "5. Optical section - A. Lamp unit.")

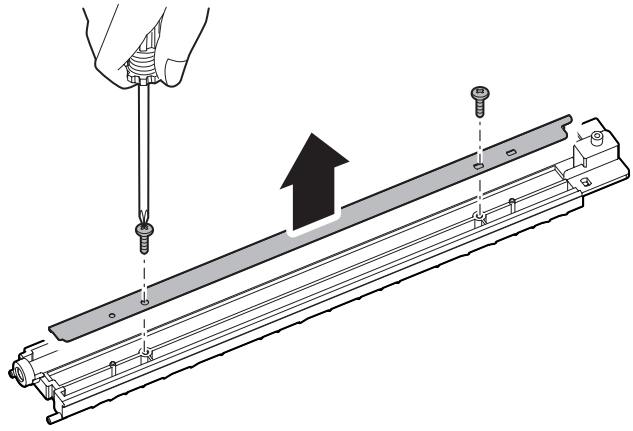
8) Remove the screw, and remove the DSPF copy lamp.



9) Clean the scanning glass (back surface).

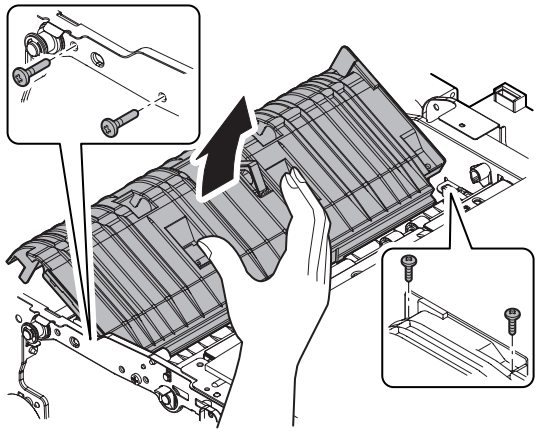


10) Remove the screw, and remove the reflector.

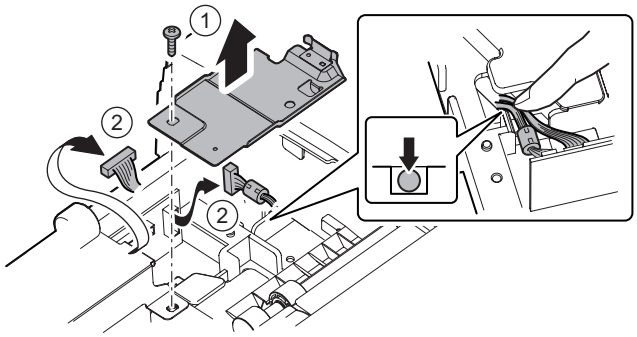


## B. Optical unit

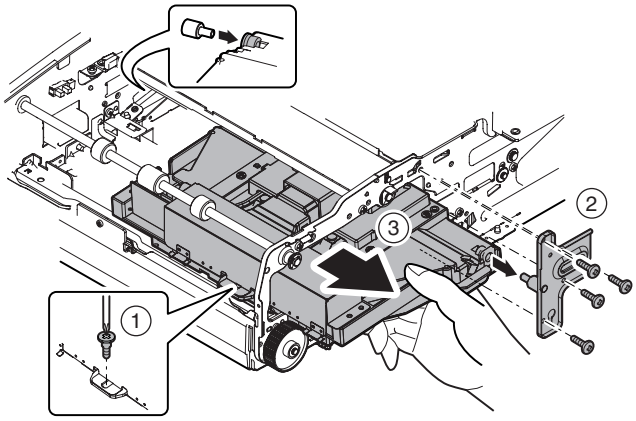
1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
3) Remove the upper door. (Refer to "1. Exterior section - A. DSPF unit - (3) Upper door.")
4) Remove the OC mat. (Refer to "8. Others - A. OC mat.")
5) Remove the lamp unit. (Refer to "5. Optical section - A. Lamp unit.")
6) Remove the screw, and remove the transport PG upper.



7) Remove the screw, and remove the harness cover. Disconnect the connector.
   * When assembling, arrange the harness so that it is placed in the lower position than the rib height.



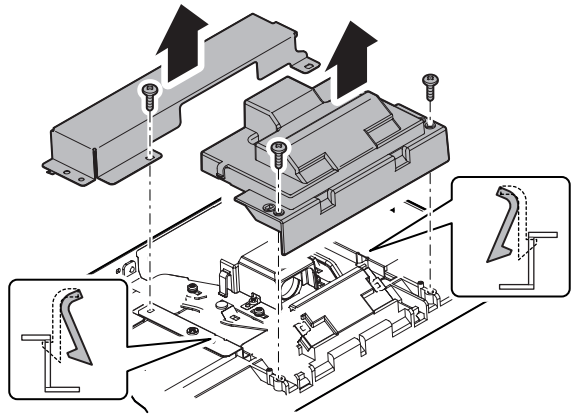

8) Remove the step screw, and remove the screw. Remove the optical fixing plate. Remove the optical unit.



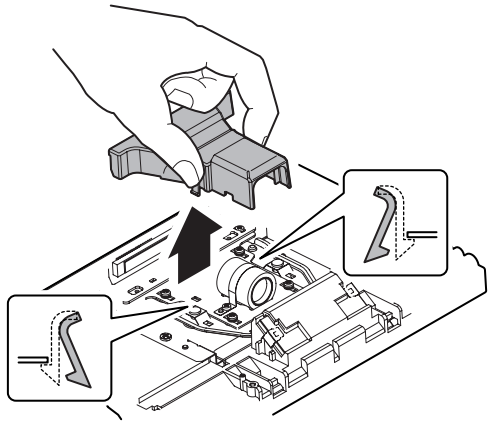

### (1) Lens

### (2) CCD

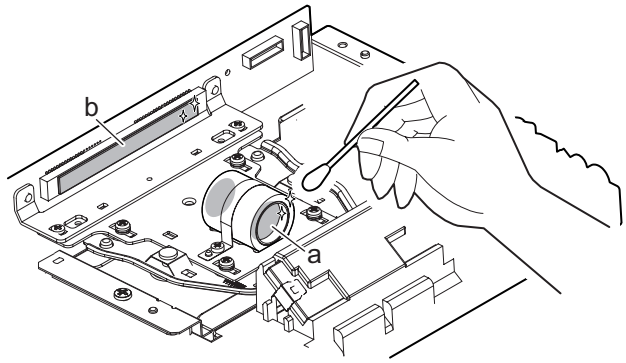
1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
3) Remove the upper door. (Refer to "1. Exterior section - A. DSPF unit - (3) Upper door.")
4) Remove the OC mat. (Refer to "8. Others - A. OC mat.")
5) Remove the lamp unit. (Refer to "5. Optical section - A. Lamp unit.")
6) Remove the optical unit. (Refer to "5. Optical section - B. Optical unit.")
7) Remove the screw. Remove the pawl. Remove the dust-proof cover. Remove the screw, and remove the dark box.



8) Remove the pawl, and remove the lens cover.

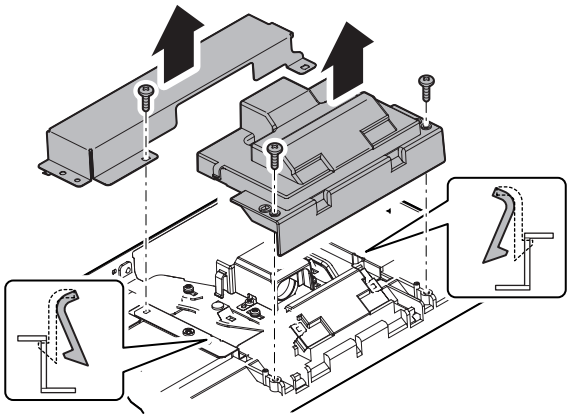


9) Clean the lens (a) and the CCD (b).

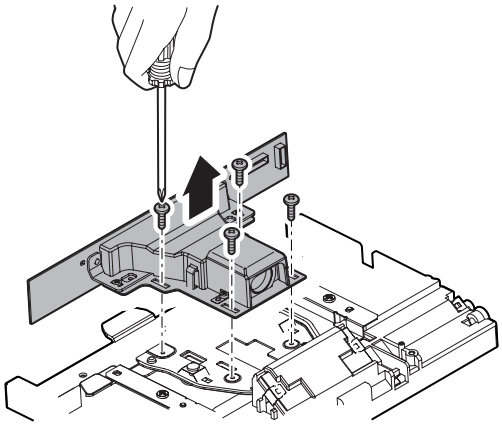


### (3) CCD unit

1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
3) Remove the upper door. (Refer to "1. Exterior section - A. DSPF unit - (3) Upper door.")
4) Remove the OC mat. (Refer to "8. Others - A. OC mat.")
5) Remove the lamp unit. (Refer to "5. Optical section - A. Lamp unit.")
6) Remove the optical unit. (Refer to "5. Optical section - B. Optical unit.")
7) Remove the screw. Remove the pawl. Remove the dust-proof cover. Remove the screw, and remove the dark box.

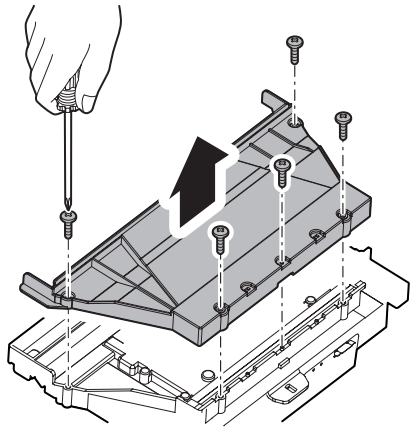


8) Remove the screw, and remove the CCD unit.

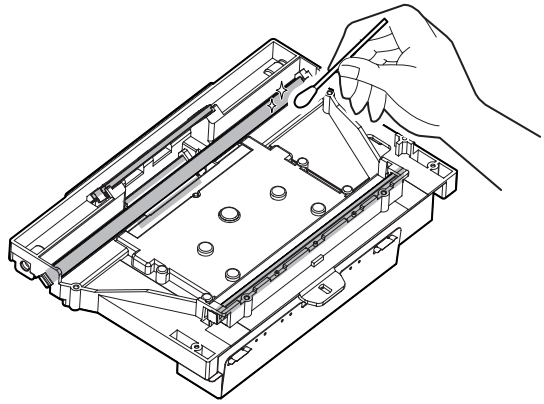


### (4) Mirror

1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
3) Remove the upper door. (Refer to "1. Exterior section - A. DSPF unit - (3) Upper door.")
4) Remove the OC mat. (Refer to "8. Others - A. OC mat.")
5) Remove the lamp unit. (Refer to "5. Optical section - A. Lamp unit.")
6) Remove the optical unit. (Refer to "5. Optical section - B. Optical unit.")
7) Remove the screw, and remove the mirror base cover.



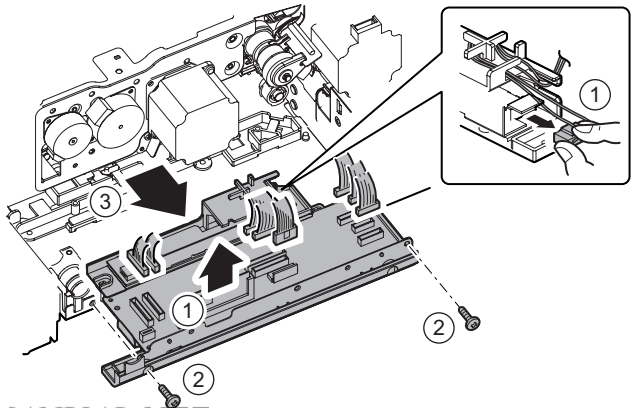
8) Clean the mirror.



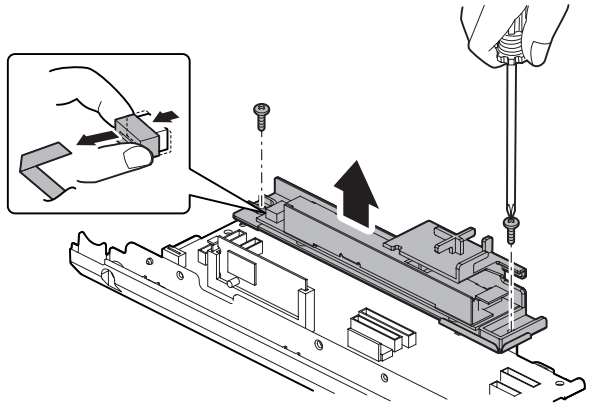
## C. Others

### (1) DSPF CL inverter PWB

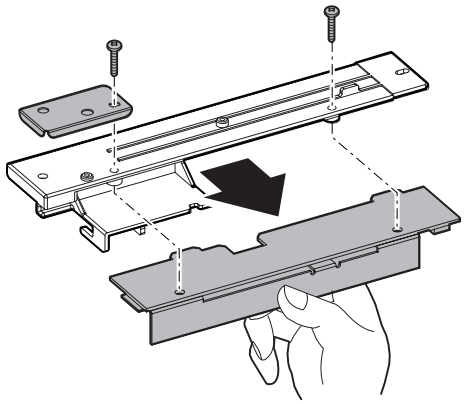
1) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
2) Disconnect the connector, and remove the control PWB unit.



3) Disconnect the connector, and remove the screw. Remove the inverter PWB guide.

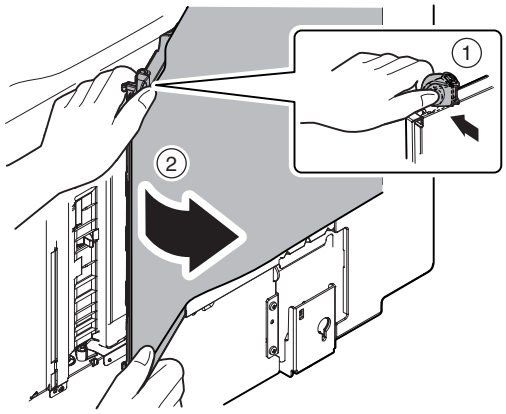


4) Remove the screw, and remove the DSPF CL inverter PWB.

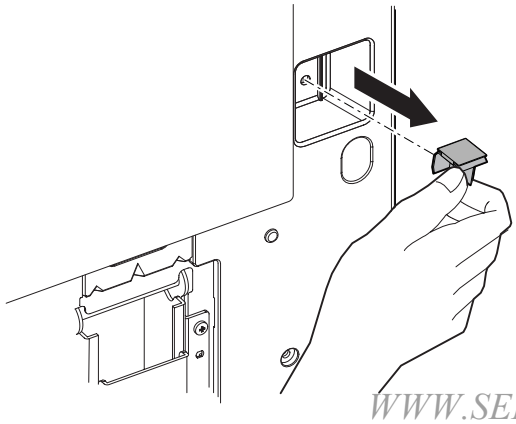


### (2) White reference glass

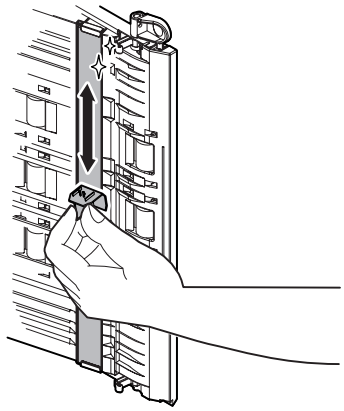
1) Open the DSPF unit, and open the lower door.




2) Remove the cleaner.



3) Use the cleaner to clean the white reference glass.

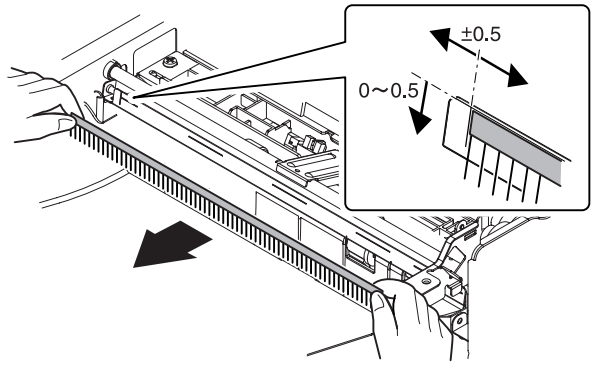


## 6. Paper exit section

### A. Discharge brush

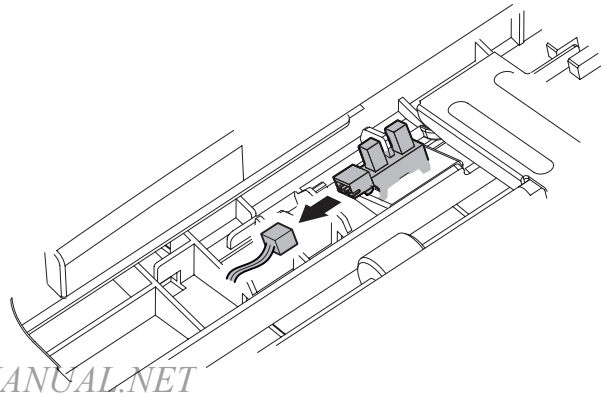
1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
3) Remove the paper feed tray unit. (Refer to "2. Paper feed section - A. Paper feed tray unit.")
4) Remove the discharge brush.

* When attaching the discharge brush, attach it to the attachment reference.



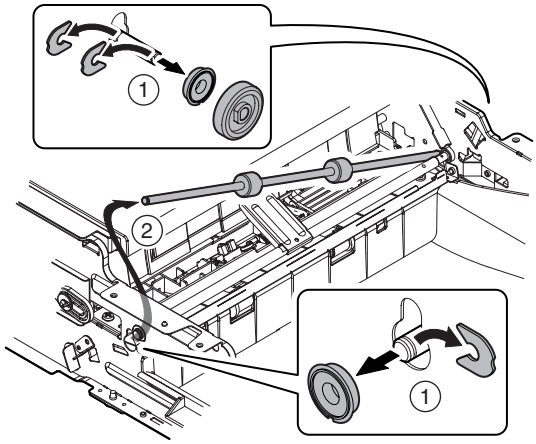

### B. DSPF paper exit sensor

1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
3) Remove the paper feed tray unit. (Refer to "2. Paper feed section - A. Paper feed tray unit.")
4) Disconnect the connector, and remove the DSPF paper exit sensor.



### C. Paper exit roller (drive)

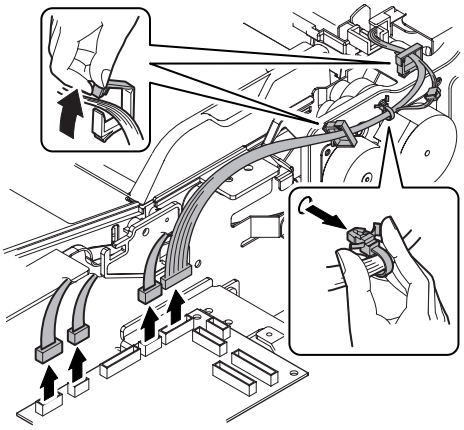
1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
3) Remove the paper feed tray unit. (Refer to "2. Paper feed section - A. Paper feed tray unit.")
4) Remove the DSPF No.1 resist roller brake clutch, and remove the DSPF No.1 resist roller clutch. (Refer to "3. Upper transport section - A. DSPF No.1 resist roller brake clutch, B. DSPF No.1 resist roller clutch.")
5) Remove the drive unit. (Refer to "7. Drive section - A. Drive unit.")
6) Remove the resin E-ring, the gear, the bearing, and the paper exit roller (drive).



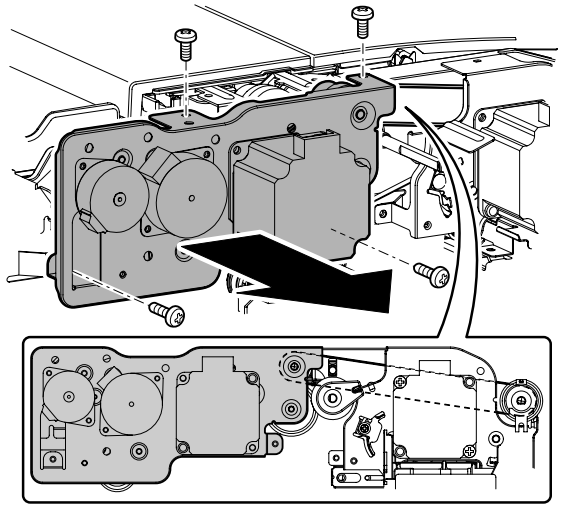

## 7. Drive section

### A. Drive unit

1) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
2) Remove the DSPF No.1 resist roller brake clutch and the DSPF No.1 resist roller clutch. (Refer to "3. Upper transport section - A. DSPF No.1 resist roller brake clutch, B. DSPF No.1 resist roller clutch.")
3) Disconnect the connector, and open the edge saddle. Remove the snap band.

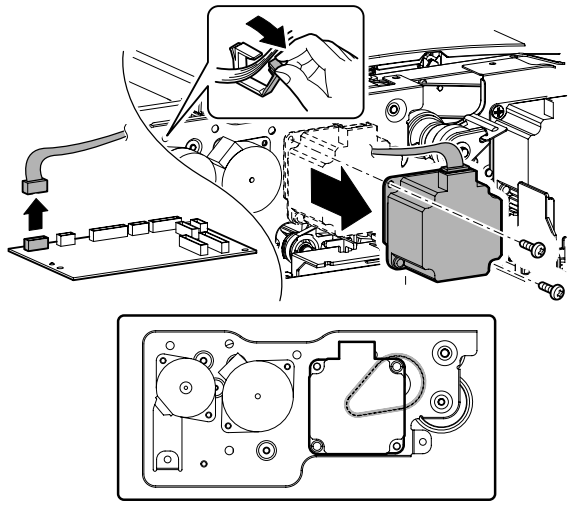


4) Remove the screw, and remove the drive unit.



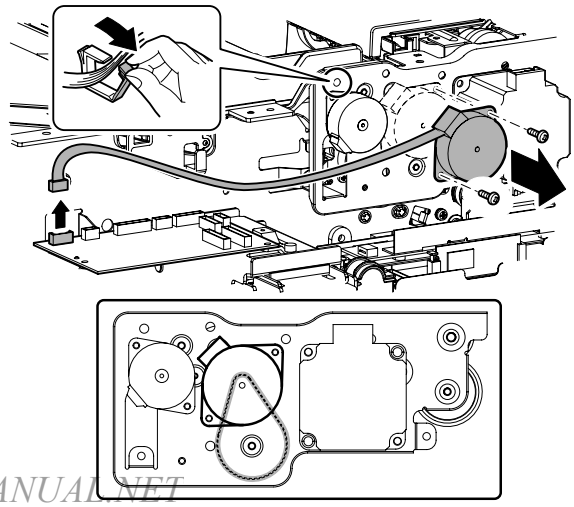
#### (1) DSPF paper feed motor

1) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
2) Disconnect the connector, and open the edge saddle. Remove the screw, and remove the DSPF paper feed motor.



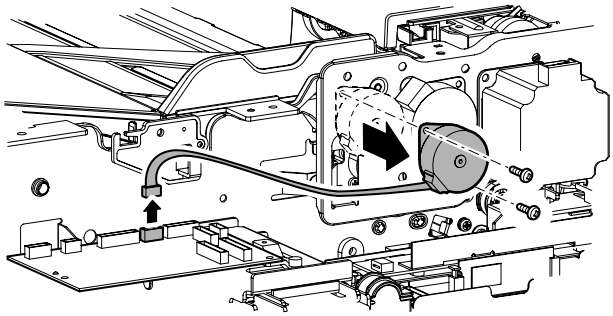
#### (2) DSPF paper exit motor

1) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
2) Disconnect the connector, and open the edge saddle. Remove the screw, and remove the DSPF paper exit motor.



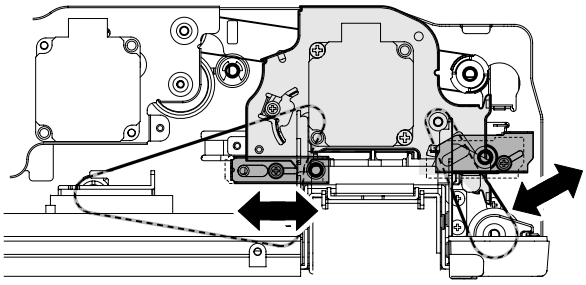
### (3) DSPF lift-up motor

1) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
2) Disconnect the connector, and open the edge saddle. Remove the screw, and remove the DSPF lift-up motor.

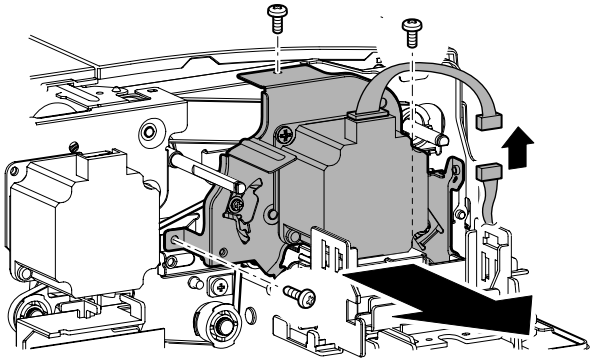


## B. Drive transport unit

1) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
2) Remove the DSPF No.1 resist roller brake clutch and the DSPF No.1 resist roller clutch. (Refer to "3. Upper transport section - A. DSPF No.1 resist roller brake clutch, B. DSPF No.1 resist roller clutch.")
3) Remove the DSPF transport roller clutch. (Refer to "3. Upper transport section - C. DSPF transport roller clutch.")
4) Remove the DSPF cooling fan motor. (Refer to "7. Drive section - C. Others - (1) DSPF cooling fan motor.")
5) Loosen the screw, and loosen the belt tension. Tighten the screw.

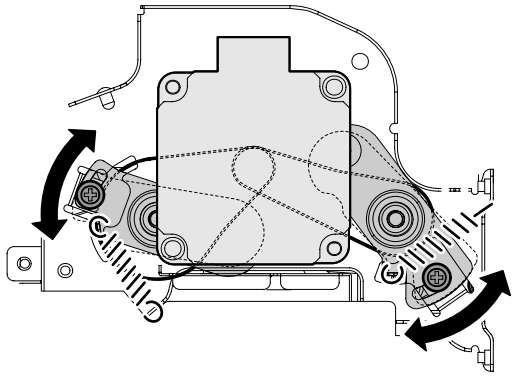


6) Remove the screw, and remove the drive transport unit.

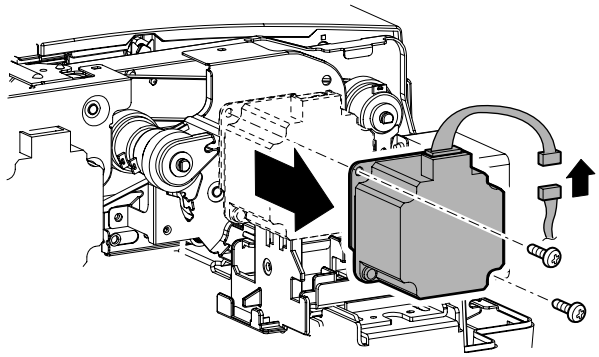


### (1) DSPF transport motor

1) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
2) Loosen the screw, and loosen the belt tension. Tighten the screw.



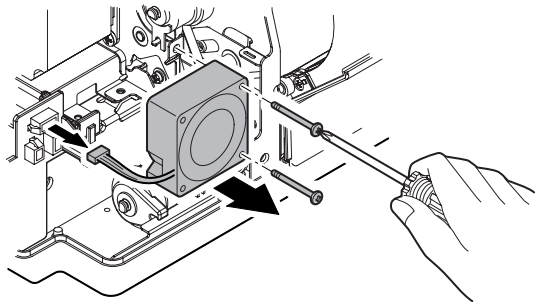
3) Disconnect the connector, and remove the screw. Remove the DSPF transport motor.



## C. Others

### (1) DSPF cooling fan motor

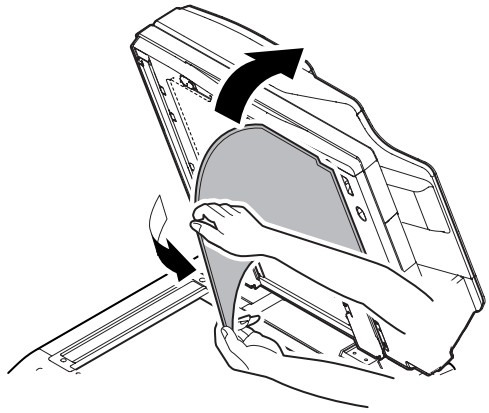
1) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
2) Disconnect the connector, and remove the DSPF cooling fan motor.



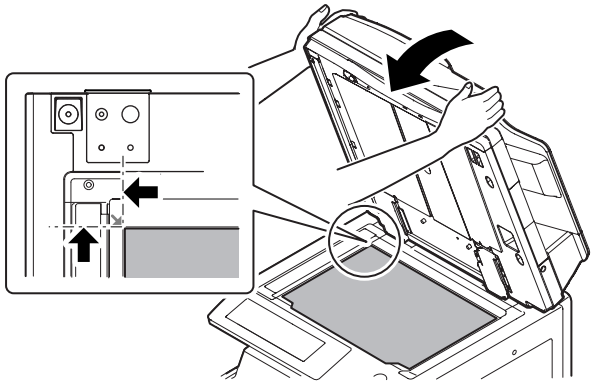
## 8. Others

### A. OC mat

1) Open the DSPF unit, and remove the OC mat from the left edge.

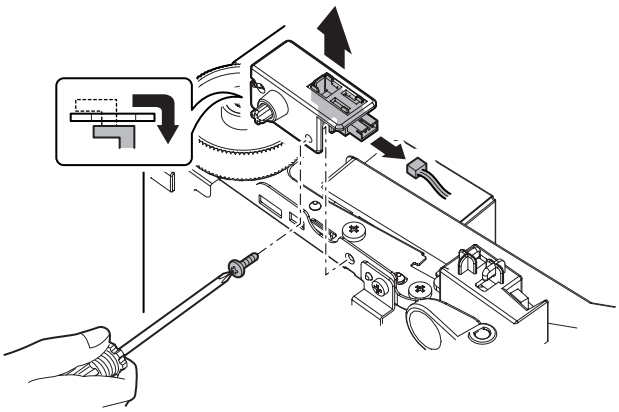


* When assembling, place the OC mat on the document table to fit with the reference and close the DSPF unit.



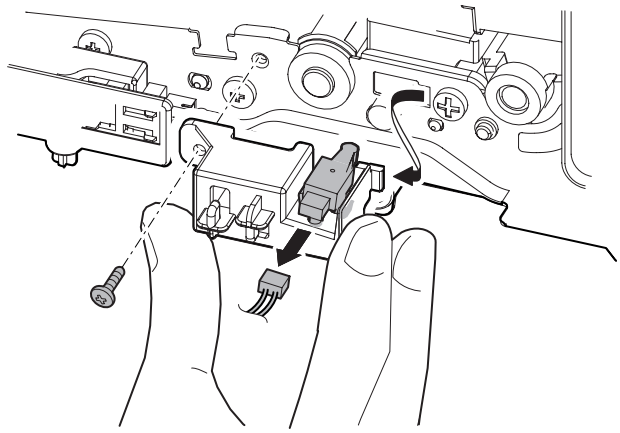
### B. DSPF open/close sensor

1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Disconnect the connector and remove the screw. Remove the open/close sensor holder. Remove the DSPF open/close sensor from the open/close sensor holder.



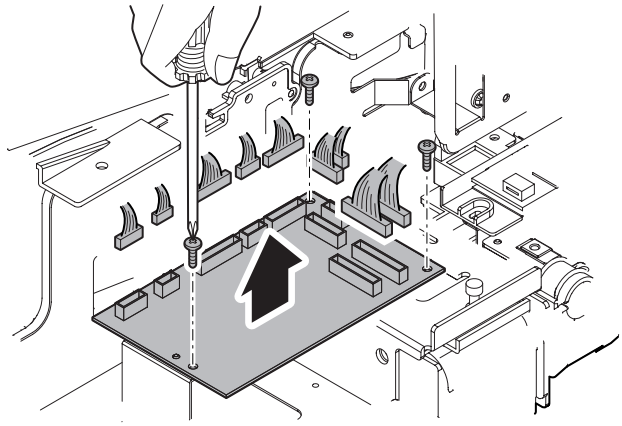
### C. DSPF lower door open/close sensor

1) Remove the front cabinet. (Refer to "1. Exterior section - A. DSPF unit - (1) Front cabinet.")
2) Disconnect the connector, and remove the screw. Remove the lower door open/close sensor holder. Remove the DSPF lower door open/close sensor from the lower door open/close sensor holder.



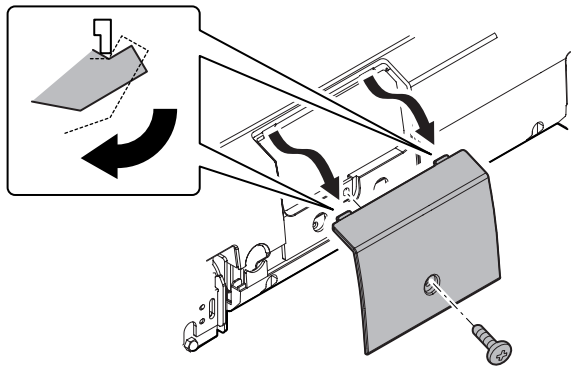
### D. DSPF driver PWB

1) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
2) Disconnect the connector. Remove the screw, and remove the DSPF driver PWB.

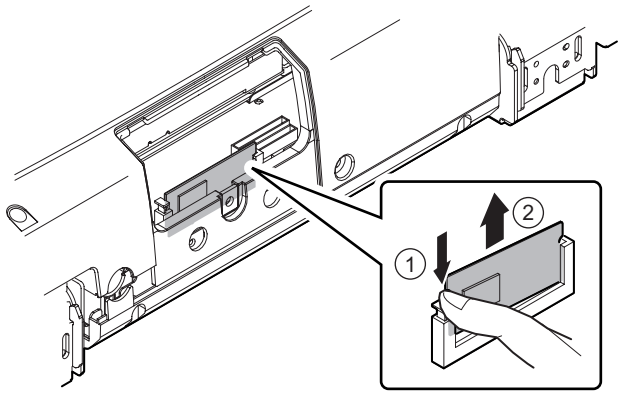


### E. DSPF flash PWB

1) Remove the screw, and remove the ROM cover.

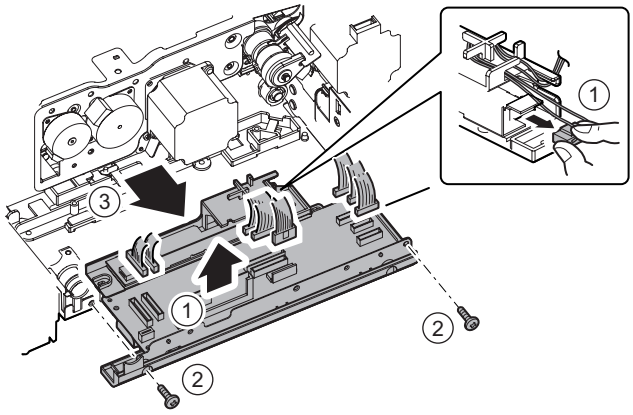


2) Release the lock, and remove the DSPF flash PWB.

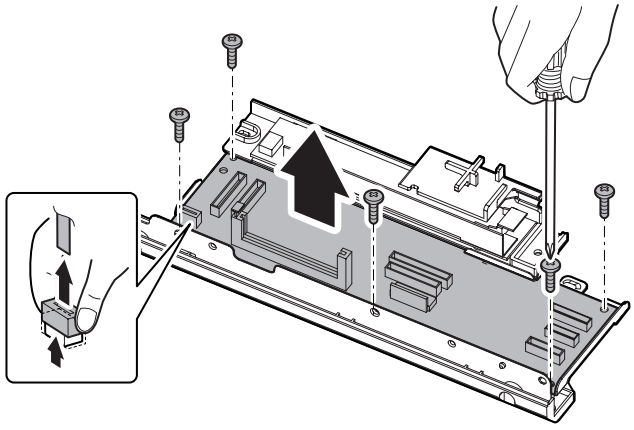



## F. DSPF control PWB

1) Remove the rear cabinet. (Refer to "1. Exterior section - A. DSPF unit - (2) Rear cabinet.")
2) Remove the DSPF flash PWB. (Refer to "8. Others - E. DSPF flash PWB.")
3) Disconnect the connector, and remove the screw. Remove the control PWB unit.




4) Disconnect the connector, and remove the screw. Remove the DSPF control PWB.

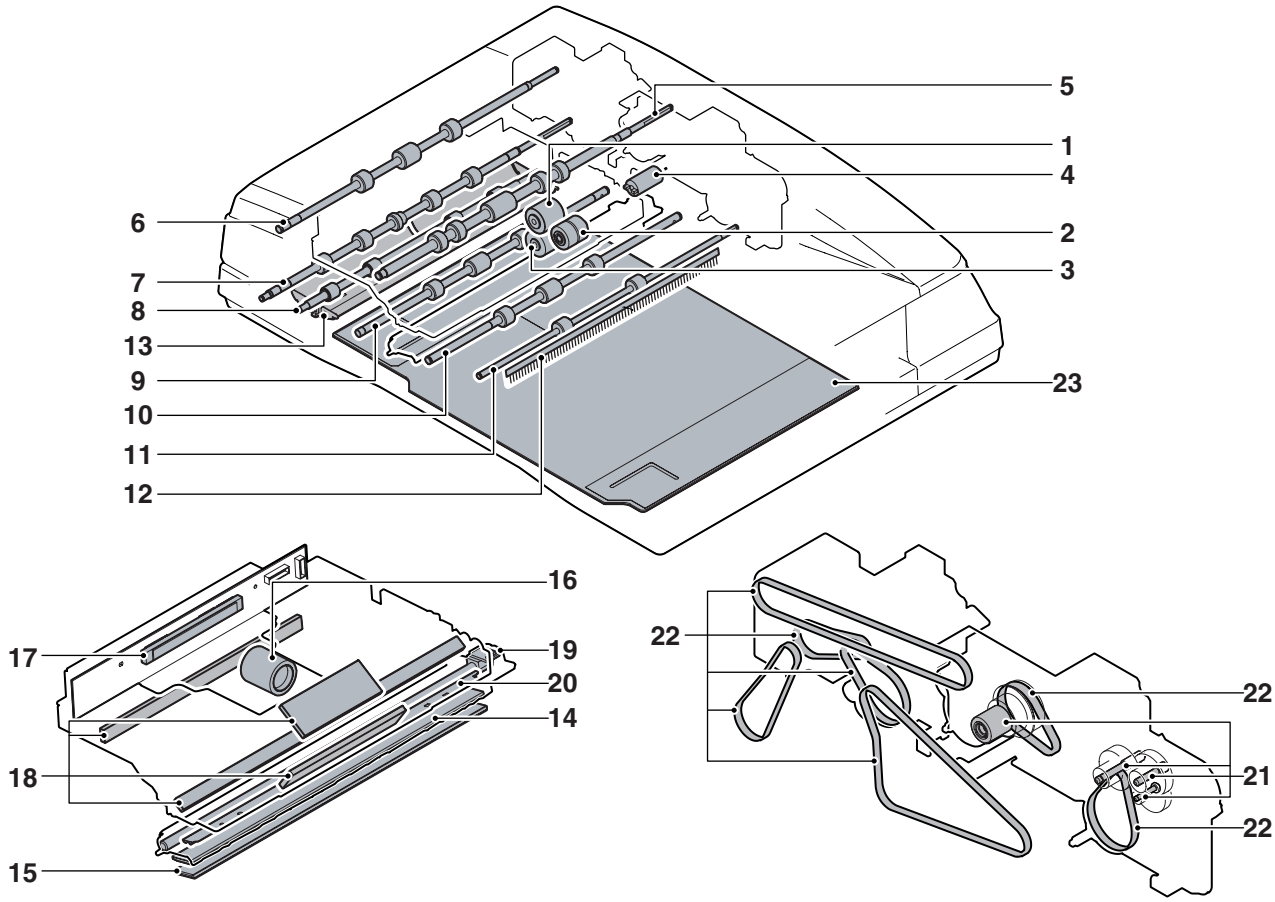


# [6] MAINTENANCE

## 1. Maintenance system table

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate □: Shift the position.

| No. | Part name | | When calling | Main unit maintenance cycle | Remarks |
|---|---|---|---|---|---|
| 1 | Paper feed section/ Transport section | Paper feed roller | ○ | ○ | Replacement reference: 100K or 1 year |
| 2 | | Pickup roller | ○ | ○ | |
| 3 | | Separation roller | ○ | ○ | |
| 4 | | Torque limiter | × | × | Replacement reference: 100K |
| 5 | | No. 1 resist roller (Drive) | ○ | ○ | |
| 6 | | Transport roller 1 (Drive) | ○ | ○ | |
| 7 | | No. 2 resist roller (Drive) | ○ | ○ | |
| 8 | | Platen roller | ○ | ○ | |
| 9 | | Transport roller 2 (Drive) | ○ | ○ | |
| 10 | | Transport roller 3 (Drive) | ○ | ○ | |
| 11 | | Paper exit roller (Drive) | ○ | ○ | |
| 12 | | Discharge brush | × | × | |
| 13 | | No. 1 scanning plate | ○ | ○ | |
| 14 | | No. 2 scanning section, scanning glass | ○ | ○ | |
| 15 | | No. 2 scanning section, white reference glass | ○ | ○ | |
| 16 | Optical section | Lens | ○ | ○ | |
| 17 | | CCD | ○ | ○ | |
| 18 | | Mirror | × | × | |
| 19 | | Copy lamp | ○ | ○ | |
| 20 | | Reflector | ○ | ○ | |
| 21 | Drive section | Gears (Grease) | × | × | UKOG-0299FCZZ (specified positions) |
| 22 | | Belts | | × | |
| 23 | Others | OC mat | ○ | ○ | |



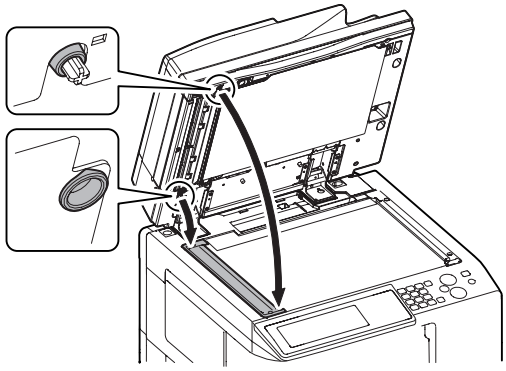
# [7] ADJUSTMENTS

## 1. Levelness adjustment

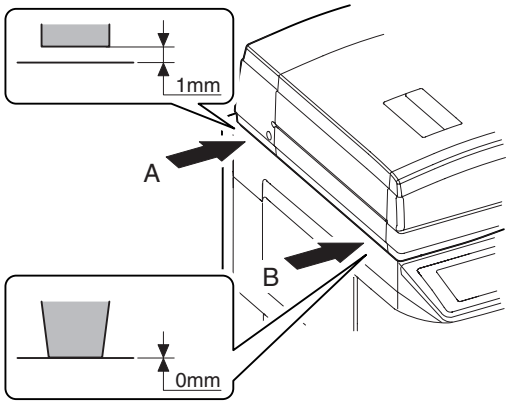
This adjustment is needed in the following situations:

* The DSPF section has been disassembled.
* The DSPF unit has been replaced.

1) Close the DSPF unit and check the clearance between the projections in the front side and the rear side and the SPF glass holding resin surface.

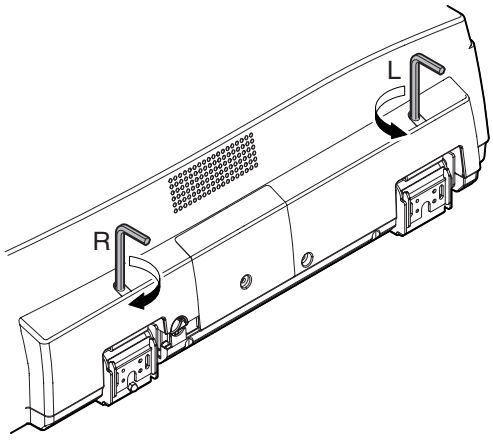


2) Visually check to insure that the clearance A is 1mm or less and the clearance B is 0mm (in contact).




If the above requirement is not met, do step 3.

3) Turn the height adjustment screw to adjust the DSPF front/rear frame horizontal level.

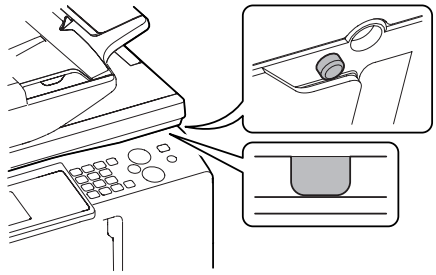



When the front frame side is higher (clearance B is more than 1mm): Turn the height adjustment screw R of the DSPF rear frame clockwise.

When the rear frame side is higher (clearance A is more than 1mm): Turn the height adjustment screw L of the DSPF rear frame counterclockwise.

Repeat steps 2 to 3 until an acceptable result is obtained.

4) After adjustments of A and B, check to insure that the projection on the front right side is in contact with the glass surface of the main unit.



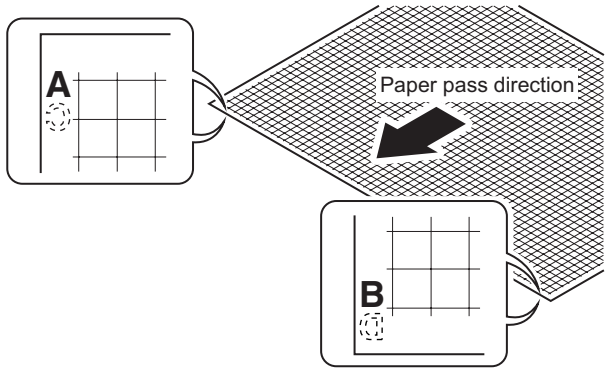
## 2. Skew adjustment (front surface mode)

This adjustment is needed in the following situations:

* The DSPF section has been disassembled.
* When replacing the DSPF unit.
* The DSPF unit generates skewed scanned images.

1) Create an adjustment chart by printing in duplex mode the self-print pattern 71 (grid pattern) specified in Simulation 64-1.

Make sure that the print grid pattern is almost in parallel with the paper edges, and apply position marks 'A', 'B', 'C' and 'D' to the leading and trailing edges of the paper for both front and back sides of the paper.

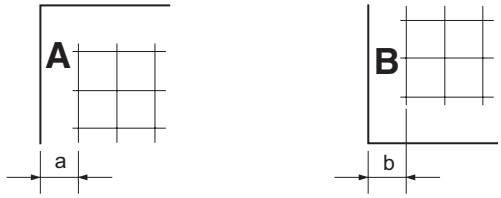



2) Copy the adjustment chart (created in step 1) to A3 (11" x 17") paper in DSPF duplex mode, and then check the image for skews (Set in the DSPF feed tray so that the mark on the adjustment chart is at the edge).

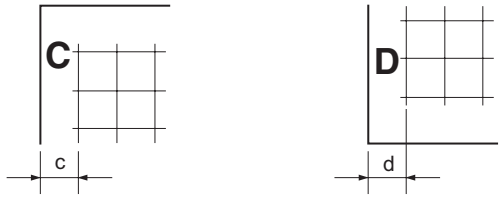
- Check with one of the following methods.

[Check Method 1]

(Front side)
Make sure that the output satisfies the condition: |a-b| ± 1 mm

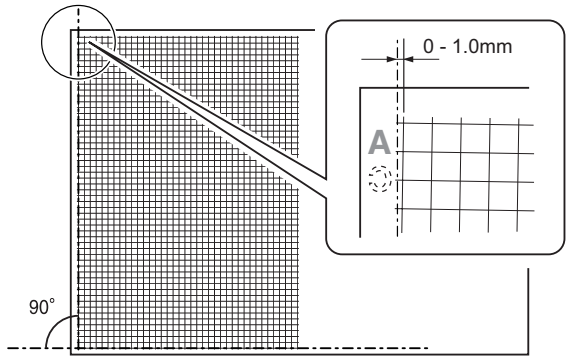



(Back side)
Make sure that the output satisfies the condition: |c-d| ± 1 mm



[Check Method 2]

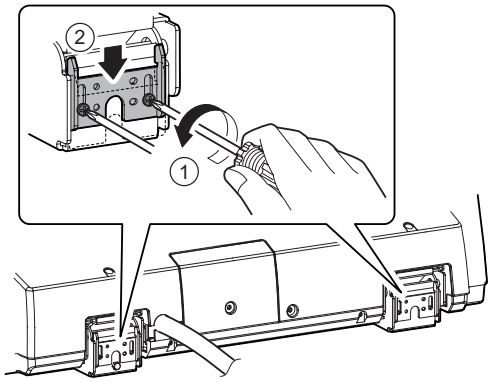
Check that the squareness of the main scanning direction print line for the longitudinal direction of paper is within 1.0mm.



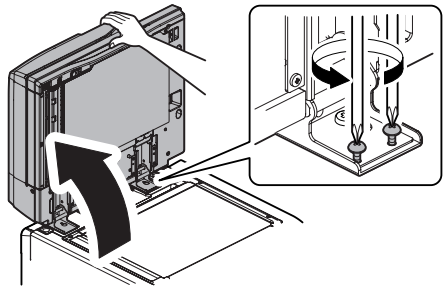

If the front surface copy image is as shown above and the back surface copy is not as shown above, go to the step 3) of "3. Skew adjustment (Back surface mode)."

If the above requirement is not met for the paper's front side, then do step 3.

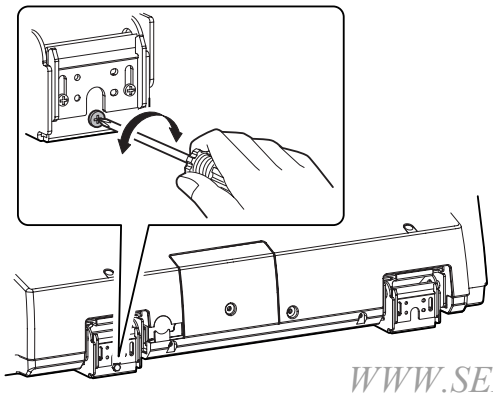
3) Loosen the hinge screws and lower the two attachments.




4) Open the DSPF and loosen the screw.



5) Adjust by turning the DSPF skew adjusting screw on the right side of the DSPF rear frame.



[When the main scanning direction print line is shifted to the left]

If a < b, then turn counterclockwise the DSPF skew adjusting screw.

[When the main scanning direction print line is shifted to the right]

If a > b, then turn clockwise the DSPF skew adjusting screw.

Repeat steps 2 to 5 until an acceptable result is obtained.

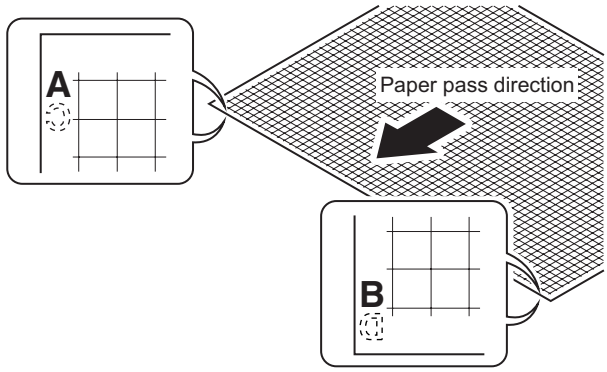
## 3. Skew adjustment (back surface mode)

This adjustment is needed in the following situations:

* The DSPF section has been disassembled.
* When replacing the DSPF unit.
* The DSPF unit generates skewed scanned images.

1) Create an adjustment chart by printing in duplex mode the self-print pattern 71 (grid pattern) specified in Simulation 64-1.

Make sure that the print grid pattern is almost in parallel with the paper edges, and apply position marks 'A', 'B', 'C' and 'D' to the leading and trailing edges of the paper for both front and back sides of the paper.

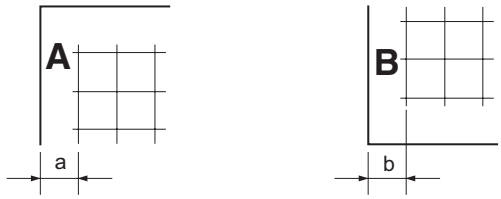



2) Copy the adjustment chart (created in step 1) to A3 (11" x 17") paper in DSPF duplex mode, and then check the image for skews (Set in the DSPF feed tray so that the mark on the adjustment chart is at the edge).

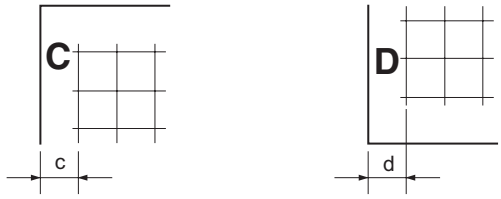
- Check with one of the following methods.

[Check Method 1]

(Front side)
Make sure that the output satisfies the condition: |a-b| ± 1 mm

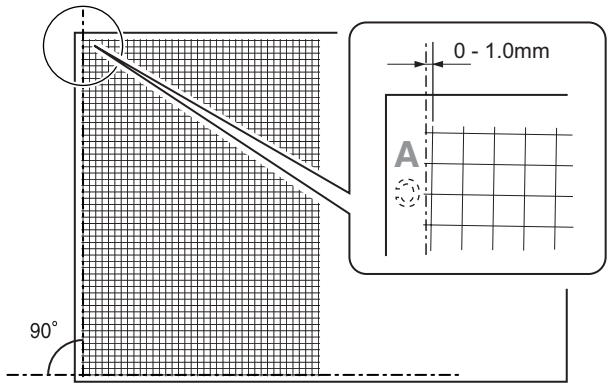



(Back side)
Make sure that the output satisfies the condition: |c-d| ± 1 mm



[Check Method 2]

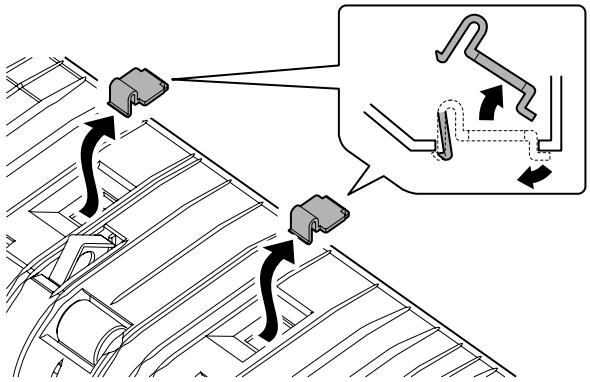
Check that the squareness of the main scanning direction print line for the longitudinal direction of paper is within 1.0mm.



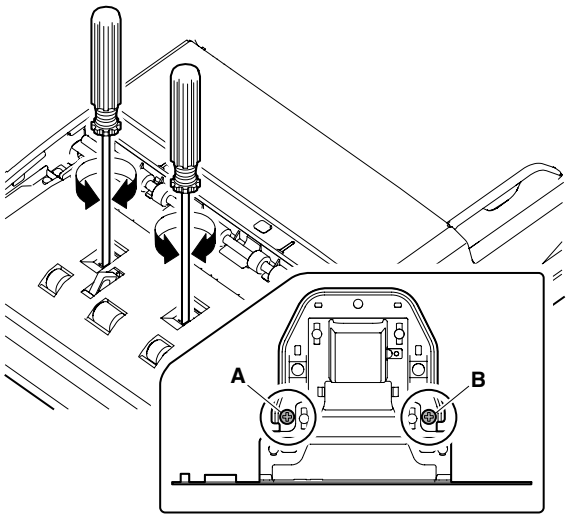

If the back surface copy image is as shown above and the front surface copy is not as shown above, go to the step 3) of "2. Skew adjustment (Front surface mode)."

If the back surface copy is not as shown above, perform the procedures of step 3) or later.

3) Open the upper door, and remove the adjustment cover.



4) Turn the DSPF skew adjustment screw on the CCD unit to adjust.




[When the main scanning direction print line is shifted to the left]

If c < d, turn the DSPF skew adjustment screw A counterclockwise, or turn the adjustment screw B clockwise.

[When the main scanning direction print line is shifted to the right]

If c > d, turn the DSPF skew adjustment screw A clockwise, or turn the adjustment screw B counterclockwise.

* The adjustment screws A and B must be turned in proper balance. For example, if the trouble is not removed by turning the adjustment screw A 180 degrees clockwise, do not turn the adjustment screw A furthermore, but turn the adjustment screw B 180 degrees counterclockwise.

Repeat steps 2 to 5 until an acceptable result is obtained.

## 4. Image focus adjustment (front surface mode)

For details of this adjustment, refer to "[6] ADJUSTMENTS" of the copier Service Manual (00ZMX3500NS1E).

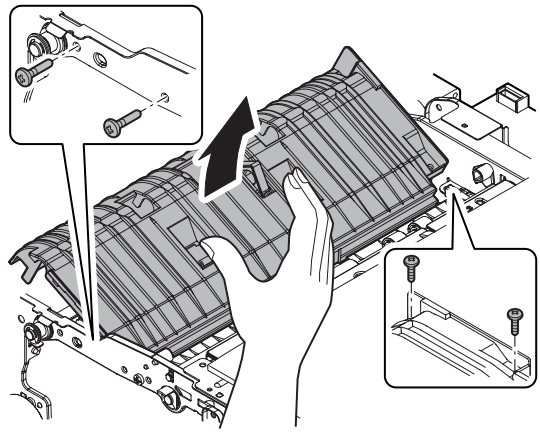
## 5. Image focus adjustment (back surface mode)

This adjustment is required in the following cases:

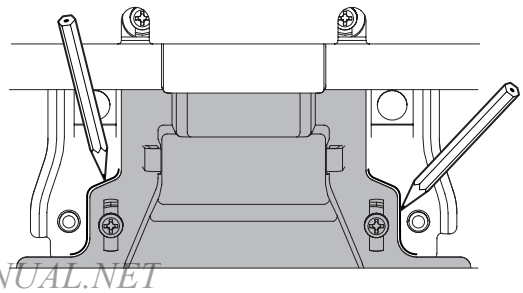
* When the DSPF CCD unit is replaced.
* When the DSPF CCD unit is replaced.
* When the COPY/SCAN/FAX image focus is not properly adjusted.
* When the DSPF unit is removed.
* When the DSPF unit is replaced.

1) Make a duplex copy in DSPF mode.
2) Make sure that the copied image on the back side of the paper is satisfactorily focused.

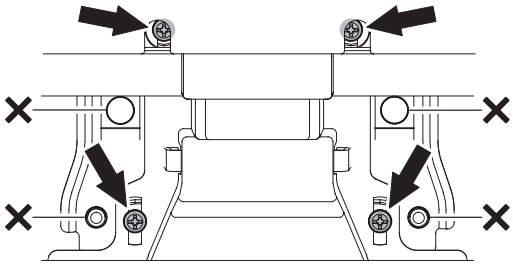
   If the image is not satisfactorily focused, do the following steps.
3) Open the door. Remove the screws, and remove the transport PG upper.



4) To prevent against shift of the CCD unit optical axis, mark the CCD unit base as shown below.



5) Loosen the CCD unit fixing screws (4 pcs.).



* **Never loosen the screws marked with ×.**

Loosening these screws could possibly change the CCD unit base optical axis. Once the optical axis has been changed, it cannot be corrected through on-site adjustments. Solving such a problem requires the replacement of the entire scanner unit.

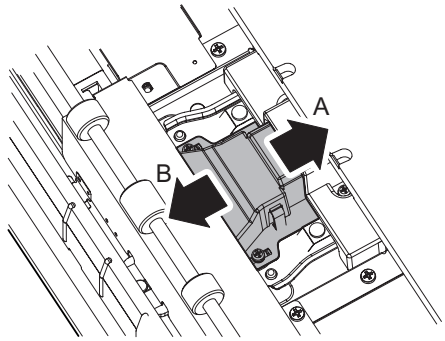
6) Slide the CCD unit in the arrow direction (CCD sub scanning direction) to change the installing position.

When the copy image is longer than the original scale, shift the CCD unit in the direction B. When the copy image is shorter than the original scale, shift the CCD unit in the direction A.

One scale of mark-off line corresponds to 0.2%.

At that time, fix the CCD unit so that it is in parallel with the scale on the front and the rear side of the CCD unit base.

* Fix the CCD unit so that it is in parallel with the line marked in procedure 4).




7) Make a copy and check the copy magnification ratio again.

If the copy magnification ratio is not in the range of 100 ± 1%, repeat the procedures of 4) – 6) until the condition is satisfied.

NOTE: By changing the CCD unit fixing position with the simulation 48-1 adjustment value at 50, the copy magnification ratio is adjusted within the specified range (100 ± 1.0%) and the specified resolution is obtained based on the optical system structure.

## 6. Image magnification in the main scanning direction adjustment (front surface mode)

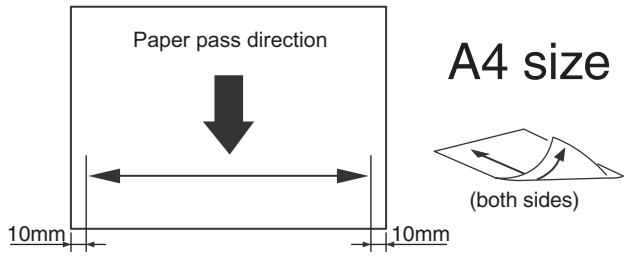
For details of this adjustment, refer to "[6] ADJUSTMENTS" of the copier Service Manual (00ZMX3500NS1E).

## 7. Image magnification in the main scanning direction adjustment (back surface mode)

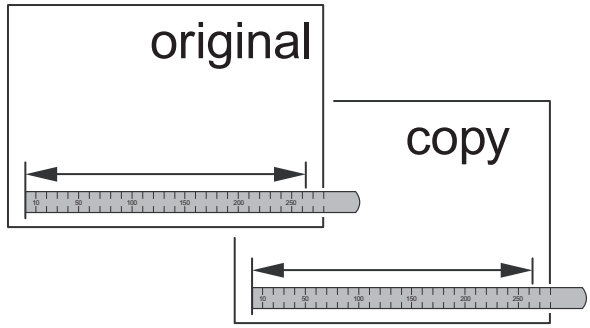
This adjustment is required in the following cases:

* The MFP control PWB has been replaced.
* The EEPROM on the MFP control PWB has been replaced.
* The scan control PWB has been replaced.
* The EEPROM on the scan control PWB has been replaced.
* When a U2 trouble occurs.
* Images are not correctly magnified in the main scanning direction.

1) On the DSPF original tray, place such an original as illustrated below.




2) Make a normal duplex copy on A4 paper.
3) Measure the lengths of the copied image (back surface) and the original image.



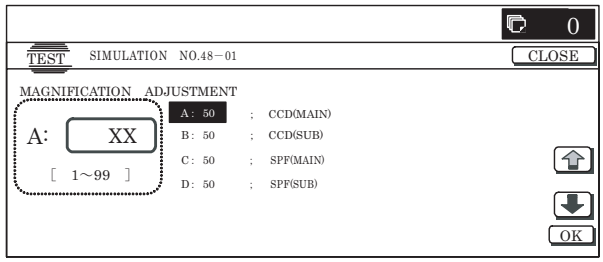

4) Determine the image magnification factor using the following formula:

Image magnification factor (%) = Copy dimension/original dimension x 100

Image magnification factor (%) = 99 / 100 x 100 = 99

If the image magnification factor is within the spec (100±0.8%), no adjustment is required; otherwise, do the following steps.

5) Enter the simulation 48-1 mode.




1) Select the item corresponding to be adjusted with scroll key.
2) Press [START] key.
3) Enter the image magnification adjustment value with the 10-key.
4) Press [START] key.

Pressing the [START] key starts copy operation as well as applying the adjustment value.

Repeat the above adjustments until an acceptable result is obtained.

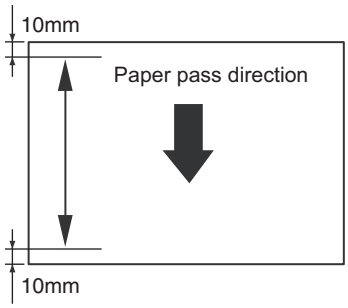
## 8. Image magnification in the sub scanning direction adjustment

This adjustment is required in the following cases:

* Images are not correctly magnified in the sub-scanning direction.
* The MFP control PWB has been replaced.
* The EEPROM on the MFP control PWB has been replaced.
* The scan control PWB has been replaced.

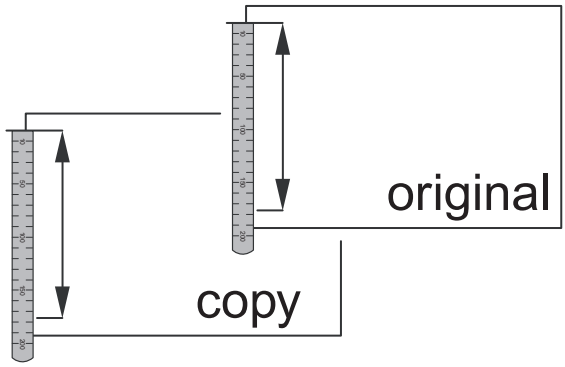
* The EEPROM on the scan control PWB has been replaced.
* When a U2 trouble occurs.

1) On the DSPF original tray, place such an original as illustrated below.




A4 size

2) Make a normal copy on A4 paper.
3) Measure the lengths of the copied image and the original image.

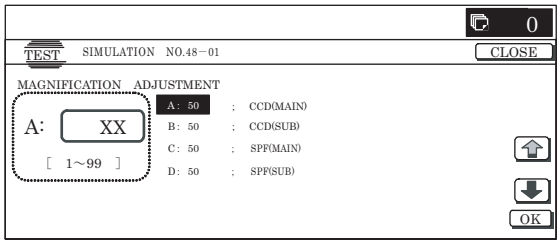



4) Determine the image magnification factor using the following formula:

   Image magnification factor (%) = Copy dimension/original dimension x 100

   Image magnification factor (%) = 99 / 100 x 100 = 99

   If the image magnification factor is within the spec (100±0.8%), no adjustment is required; otherwise, do the following steps.
5) Enter the simulation 48-1 mode.

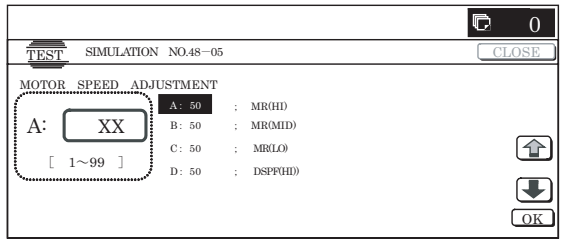



1) Select the adjustment item DSPF (SUB) with scroll key.
   This adjustment items is intended to adjust the image magnification in the sub-scanning direction in DSPF mode. (DSPF (SUB))
2) Press [START] key.
3) Enter the image magnification adjustment value with the 10-key.
4) Select [START] key.

   Pressing the [START] key starts copy operation as well as applying the adjustment value.
   Repeat the above adjustments until an acceptable result is obtained.

NOTE: After adjusting the image magnification in the sub-scanning direction through Simulation 48-1, do the following steps if making a copy at a different magnification factor fails to produce a correctly scaled copy.

1) Enter the simulation 48-1 mode.




1) Select the item corresponding to be adjusted with scroll key.
2) Press [START] key.
3) Enter the image magnification adjustment value with the 10-key.

   Make adjustments by changing the adjustment value for high revolution mode if the copy magnification is not correct for microcopies; or the adjustment value for low revolution mode if the copy magnification is not correct for blowbacks.
4) Press [START] key.

   This applies the adjustment value.

## 9. Scanned image off-center adjustment (front surface mode)

For details of this adjustment, refer to "[6] ADJUSTMENTS" of the copier Service Manual (00ZMX3500NS1E).

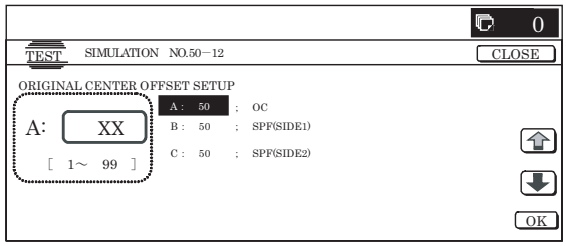
## 10. Scanned image off-center adjustment (back surface mode)

This adjustment is required in the following cases:

* The MFP control PWB has been replaced.
* The EEPROM on the MFP control PWB has been replaced.
* The scan control PWB has been replaced.
* The EEPROM on the scan control PWB has been replaced.
* The scanner (reading) section has been disassembled.
* The scanner (reading) unit has been replaced.
* When a U2 trouble occurs.
* The DSPF section has been disassembled.
* The DSPF unit has been replaced.

**(Adjustment mode selection)**

1) Enter the simulation 50-12 mode.




(UNIT: 0.1mm/STEP When the value is increased, the image is shifted to the front side.)

| Item | | | Set range | Default |
|---|---|---|---|---|
| 0 | TRAY SELECT | Paper feed tray selection | 1 – 6 | – |
| 1 | COPY START | Copy START (Default) | – | – |
| 2 | MAGNIFICATION | Print magnification ratio setting | 25 – 400% | 100 |
| (Off-center adjustment value) | | | | |
| 3 | PLATEN | OC mode adjustment | 0 – 99 | 50 |
| 4 | SPF SIDE1 | DSPF front surface adjustment | | |
| 5 | SPF SIDE2 | DSPF back surface adjustment | | |

2) Using the scroll key, select the adjustment item DSPF SIDE1, which is intended to adjust the off-center in DSPF back surface mode.

3) Press [START] key.

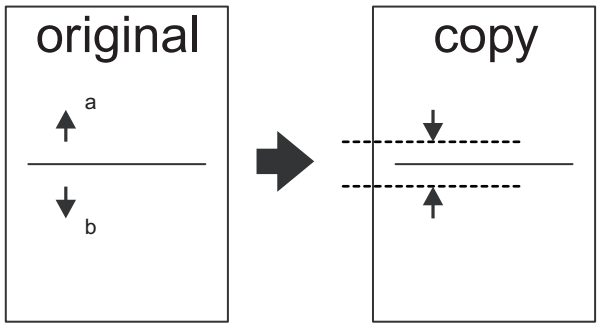
**(Scan off-center adjustment)**

1) On the DSPF original tray, place such an original as illustrated below.

2) Press [START] key.

Since the front side and back side images are copied onto separate sheets, check the off-center of the back side image.

If the off-center is 0±2.7 mm, no adjustment is required.




If the above requirement is not met, do the following steps.

3) Enter the scanned image off-center position adjustment value with the 10-key.
(The adjustment value should be changed in steps of 0.1mm.)
(When the adjustment is increased, the print image is shifted to the front side.)

4) Press [START] key.
Pressing the [OK]t key starts copy operation as well as applying the adjustment value.

5) Check the off-center of the printed image.

Repeat the above adjustments until an acceptable result is obtained.

## 11. Original scan position adjustment

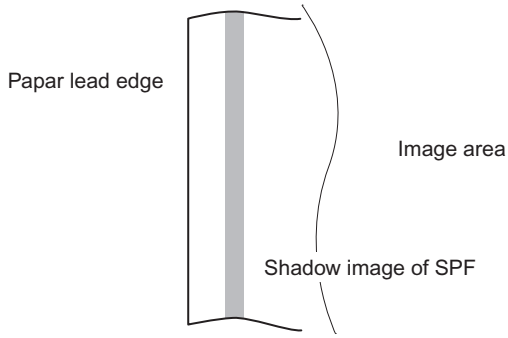
This adjustment is required in the following cases:

* The MFP control PWB has been replaced.
* The EEPROM on the MFP control PWB has been replaced.
* The scan control PWB has been replaced.
* The EEPROM on the scan control PWB has been replaced.
* The scanner (reading) section has been disassembled.
* The scanner (reading) unit has been replaced.
* When a U2 trouble occurs.
* The PF section has been disassembled.
* The DSPF unit has been replaced.

This adjustment is intended to adjust the scanner read position in DSPF mode front face scan.

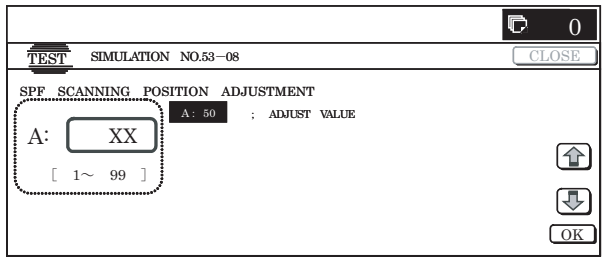
An incorrect adjustment would deviate the scanner stop position from the required position, thus possibly causing a shadow of the original table to appear at the leading edge of an image generated by DSPF (front surface) mode scan.

1) Make a copy in DSPF (front surface) mode, and make sure that the printed image at the leading edge of the copied image is free from shadows.




If the printed image at the leading edge of the copied image contains a shadow of the original table, then do the following steps.

2) Enter the simulation 53-8 mode.



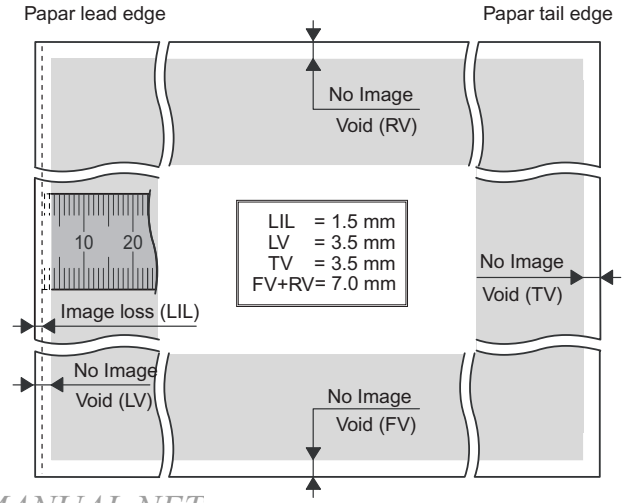

3) Enter the adjustment value and press the [START] key.

Repeat the above adjustments until an acceptable result is obtained.

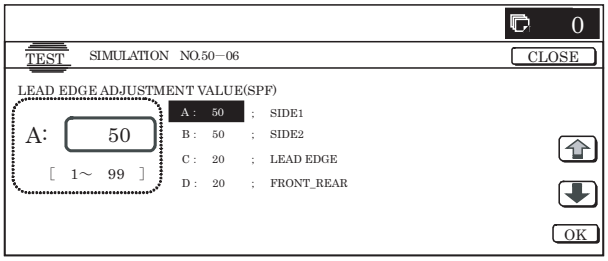
## 12. Copied image loss/void area adjustment

This adjustment is required in the following cases:

* The MFP control PWB has been replaced.
* The EEPROM on the MFP control PWB has been replaced.
* The scan control PWB has been replaced.
* The EEPROM on the scan control PWB has been replaced.
* The scanner (reading) section has been disassembled.
* The scanner (reading) unit has been replaced.
* When a U2 trouble occurs.
* The PF section has been disassembled.
* The DSPF unit has been replaced.



1) Enter the simulation 50-6 mode.




| Item | | | Set range | Default |
|---|---|---|---|---|
| 0 | TRAY SELECT | Paper feed tray selection | 1 – 6 | – |
| 1 | COPY START | Copy START (Default) | – | – |
| 2 | MAGNIFICATION | Print magnification ratio setting | 25 – 200% | – |
| (Lead edge adjustment value) | | | | |
| 3 | SIDE1 | Front surface document scan start position adjustment value | 0 – 99 | 50 |
| 4 | SIDE2 | Back surface document scan start position adjustment value | | |
| (Image loss set value: SIDE 1) | | | | |
| 5 | LEAD_EDGE | Front surface lead edge image loss set value | 0 – 99 | 15 |
| 6 | FRONT_REAR | Front surface side edge image loss set value | | 20 |
| 7 | TRAIL_EDGE | Front surface rear edge image loss set value | 0 – 20 | 0 |
| (Image loss set value: SIDE 2) | | | | |
| 8 | LEAD_EDGE | Back surface lead edge image loss set value | 0 – 99 | 15 |
| 9 | FRONT/REAR | Back surface side edge image loss set value | | 20 |
| 10 | TRAIL_EDGE | Back surface rear edge image loss set value | 0 – 20 | 0 |

**(Leading edge image loss adjustment)**

1) Set the adjustment values for leading edge image loss (LEAD EDGE) for the front and back sides as follows:

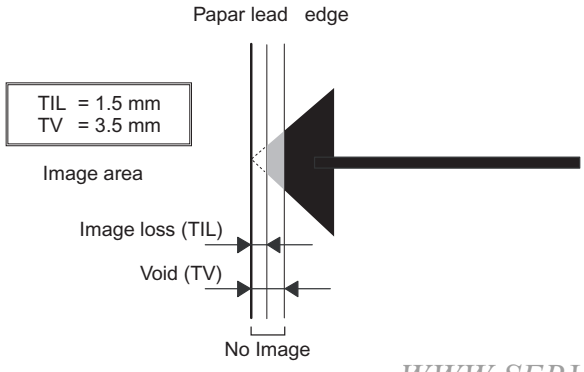
   (Standard setting)

   5 LEAD EDGE: 15

   8 LEAD EDGE: 15

   * Set the adjustment value for "5 LEAD_EDGE" and "8 LEAD_EDGE" to 15 by entering "15" into the (LEAD EDGE) adjustment value field and then pressing the [START] key.

2) In SPF mode, make a duplex copy at 100% magnification, and make sure that the leading edge image loss is 1.5 mm for both the front and back sides. (Select duplex mode from the paper selection mode as described in Simulation 50-6). (Enter "100" into the (MAGNIFICATION) field, and then press the [START] key).




If an acceptable result is not obtained, do the following steps.

3) Repeat the process of changing the (SIDE1 & SIDE2) adjustment values and then pressing the [START] key until attaining an acceptable level.

   SIDE1: Adjustment value for the position at which to read the leading edge of the original in DSPF front side mode.
   SIDE2: Adjustment value for the position at which to read the leading edge of the original in DSPF back side mode.

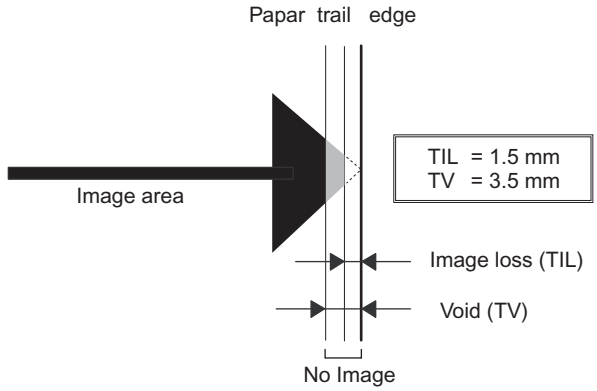
   (The adjustment value should be changed in steps of 0.1 mm.)

   (The timing in which to start reading the image should be determined based on the timing in which detector SPPD4 detects the leading edge of the original.)

Repeat steps 2 to 3 until an acceptable result is obtained.

**(Trailing edge image loss adjustment)**

1) Select duplex mode from paper selection mode as described in Simulation 50-6, enter "100" into the (MAGNIFICATION) field, and then press the [START] key to make a duplex copy at 100% magnification in SPF mode, and make sure that the trailing edge image loss is 1.5 mm for both front and back sides.




If an acceptable result is not obtained, do the following steps.

2) Repeat the process of changing the (TRAIL EDGE) adjustment value and then pressing the [START] key until attaining an acceptable level.

   Repeat the above adjustments until an acceptable result is obtained.

**(Front/rear frame direction image loss adjustment)**

Set the (FRONT/REAR) adjustment value to 20 by entering "20" into the (FRONT/REAR) adjustment value field and then pressing the P key.

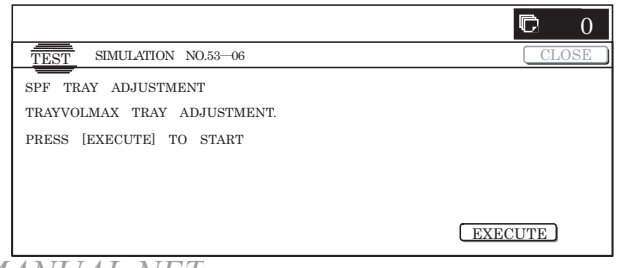
Note that changing this adjustment value shifts the image position in the front/rear frame direction.

## 13. Paper width sensor for the paper feed tray adjustment

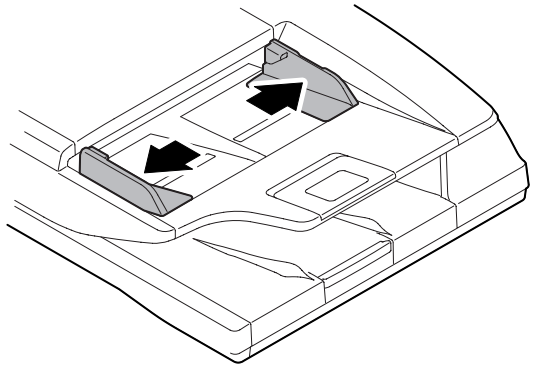
This adjustment is needed in the following situations:

* The paper feed tray section has been disassembled.
* The paper feed tray unit has been replaced.
* When a U2 trouble occurs.
* The scanner PWB has been replaced.
* The EEPROM on the scanner PWB has been replaced.

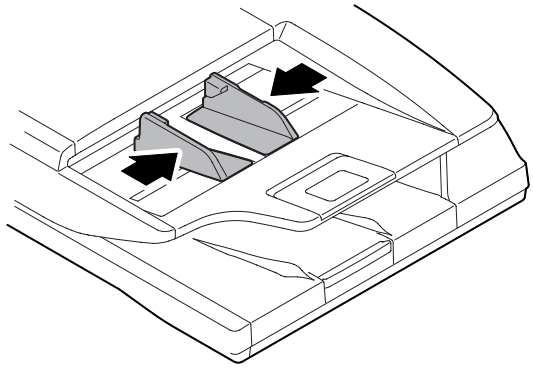
1) Enter the simulation 53-6 mode.



2) Open the DSPF paper feed guide to the maximum width position.



3) Press [EXECUTE] key.
The maximum width detection level is recognized.
4) Open the DSPF paper feed guide to the width for the A4R size.
5) Press [EXECUTE] key.
The A4R width detection level is recognized.
6) Open the DSPF paper feed guide to the width for the A5R size.
7) Press [EXECUTE] key.
The A5R width detection level is recognized.
8) Open the DSPF paper feed guide to the minimum width position.



9) Press [EXECUTE] key.
The minimum width detection level is recognized.

* When each of the above operations has been completed, the "COMPLETE" message appears; when any of the operations has failed, the "ERROR" message appears.

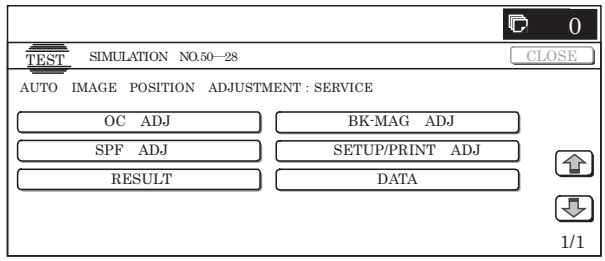
## 14. Auto void adjustment (Service installation adjustment)

This adjustment is required in the following cases:

* The MFP control PWB has been replaced.
* The EEPROM on the MFP control PWB has been replaced.
* The scan control PWB has been replaced.
* The EEPROM on the scan control PWB has been replaced.
* The scanner (reading) section has been disassembled.
* The scanner (reading) unit has been replaced.
* When a U2 trouble occurs.
* The PF section has been disassembled.
* The DSPF unit has been replaced.

This adjustment is used to adjust the DSPF (front/back) document lead edge, off-center, sub operation magnification ratio.

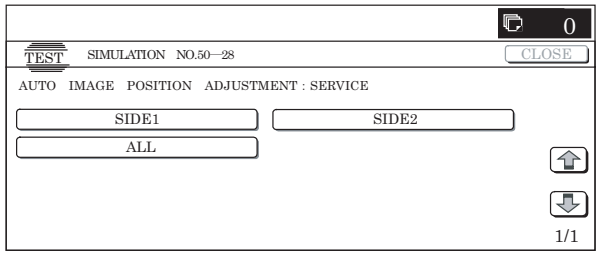
1) Enter the simulation mode 50-28 to select [SPF ADJ].



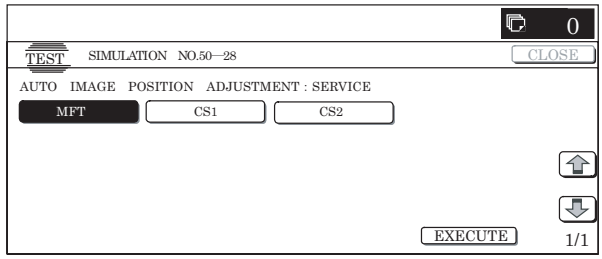

2) Select an adjustment item (front, back, both).

**<List of adjustment items>**

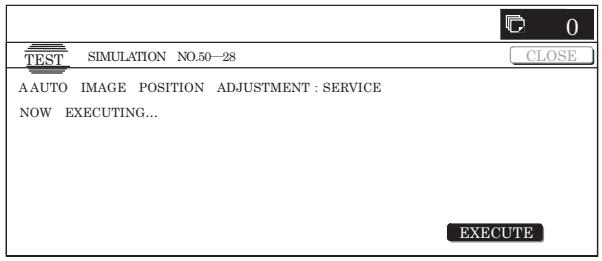
| Menu display item | Content |
|---|---|
| SIDE1 | SPF adjustment front surface |
| SIDE2 | SPF adjustment back surface |
| ALL | SPF adjustment front/back surface |



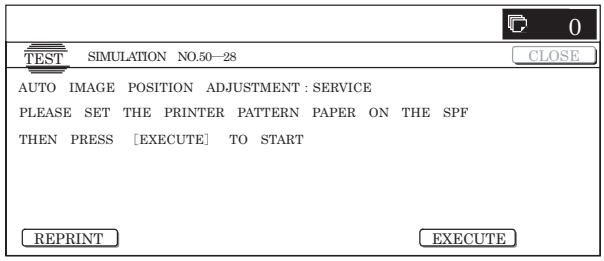

3) The display shows the tray select screen for printing the SPF adjustment pattern. Select a tray for SPF adjustment printing.



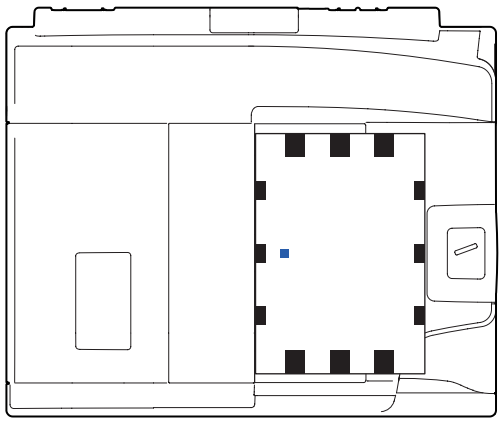

4) Self-print of the SPF adjustment pattern is performed.



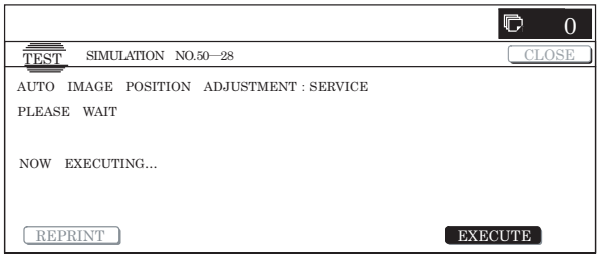

5) After completion of printing, the SPF adjustment start screen is displayed.



6) Load the SPF adjustment pattern on the DSPF.



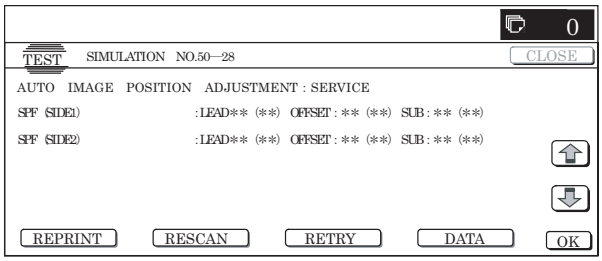
7) Press [EXECUTE] key, and scanning of the SPF adjustment pattern selected in step 2) is started.




8) When [ALL] is selected, load the SPF adjustment pattern on the DSPF again, and perform the adjustment of the back surface in the similar procedures.

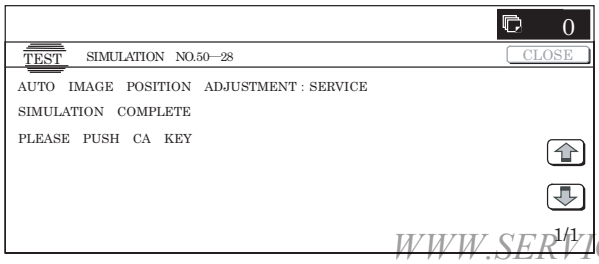
9) The adjustment result screen is displayed.

The value of this time is displayed, and the value of the last time is displayed in the parenthesis ( ).



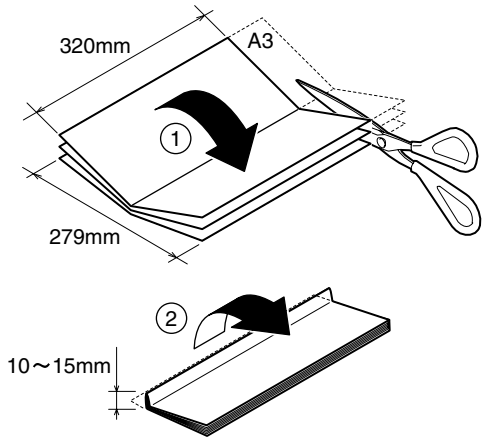

* When [REPRINT] button is pressed, the display returns to the cassette select screen to allow self-print of the SPF adjustment pattern (front, back) again.
* When [RESCAN] button is pressed, the SPF adjustment pattern (front, back) is scanned again.
* When [RETRY] button is pressed, the adjustment value is not saved in EEPROM and RAM and shifted to the top menu screen.
* When [DATA] button is pressed, the data used in execution of the adjustment are displayed.

10) When [OK] button is pressed, the adjustment value is saved in EEPROM and RAM and the display is shifted to the end screen.

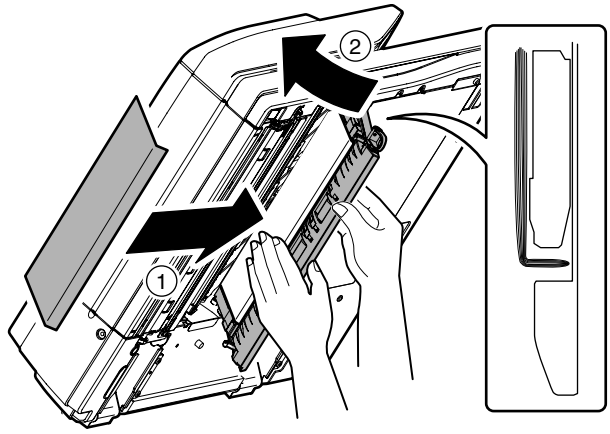



## 15. Shading adjustment

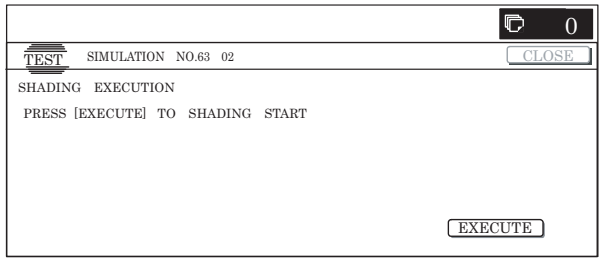
1) Fold 2 or 3 sheets of A3 paper (recommendable paper for color copy) as shown below.



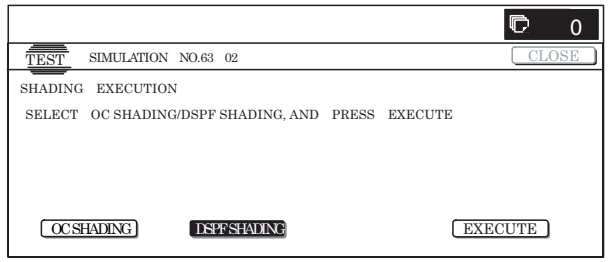

2) Open the lower door, place the folded sheets of paper as shown, and close the lower door.




3) Enter the simulation 63-2 mode.




4) Select, [DSPF SHADING].



5) When [EXECUTE] button is pressed, it is highlighted and shading is started.
   * During execution, "SHADING EXECUTING..." is displayed.
   * When [EXECUTE] button is pressed during execution, the operation is interrupted.
   * When shading is completed normally, [EXECUTE] button returns to the normal display and "COMPLETED" is displayed.
   * When [SYSTEM SETTINGS] key is pressed during other than printing, the display returns to the sub number entry screen.

**<Descriptions of buttons>**

| Display | Content |
|---|---|
| OC SHADING | OC analog correction level correction, and shading correction data making (Document table mode) |
| DSPF SHADING | DSPF analog correction level correction, and shading correction data making (SPF mode) |

**<Result display>**

| Display | Content |
|---|---|
| COMPLETE | Normal completion |
| ERROR | Abnormal completion |
| INCOMPLETE | Incomplete, interruption |

# 16. CCD gamma adjustment (CCD calibration)

This adjustment is required in the following cases:

* When the CCD unit is replaced.
* When a U2 trouble occurs.
* When the scanner control PWB is replaced.
* When the EEPROM on the scanner control PWB is replaced.

## A. Note before adjustment

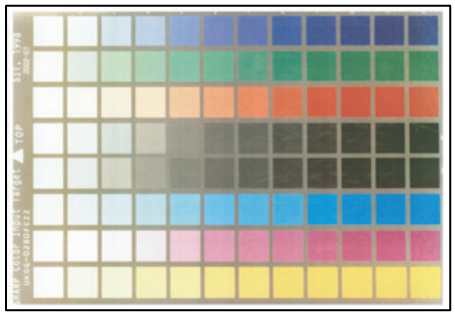
1) Check to insure that there is no dirt or dust on the SPF scanning glass, the mirror, and the lens surface. (If there is, clean it with alcohol.)
2) Check to confirm that the patches in BK1 and BK2 arrays of the SIT chart (UKOG-0280FCZZ or UKOG-0280FCZ1) are free from dirt and scratches.

   If they are dirty, clean them.

   If they are scratched or streaked, replace with new one.

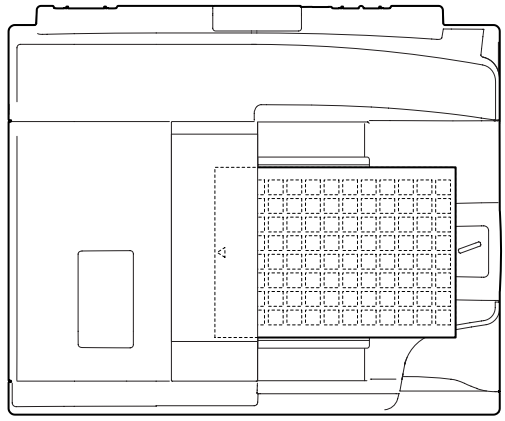
   NOTE:

   Since the SIT chart (UKOG-0280FCZZ) is easily discolored by sunlight (especially ultraviolet rays) and humidity and temperature, put it in a bag such as a clear file) and store in a dark place of low temperature and low humidity.



## B. Adjustment procedures

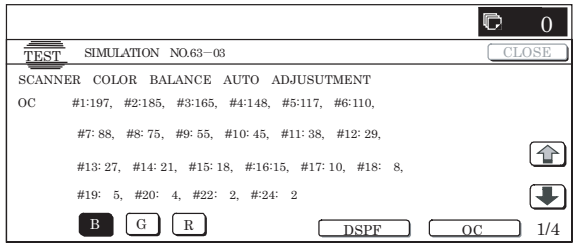
1) Set the SIT chart (UKOG-0280FCZZ or UKOG-0280FCZ1) face-down in the DSPF paper feed tray.



   If the SIT chart is not available, execute SIM 63-5 to set the CCD gamma to the default. In this case, however, the adjustment accuracy is lower when compared with the adjustment method using the SIT chart.

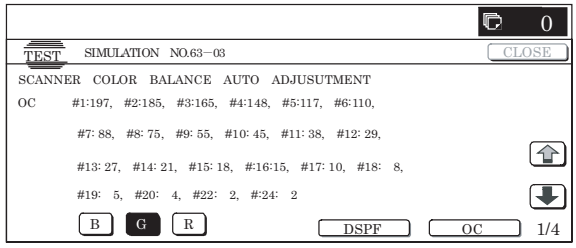
   NOTE: UKOG-0280FCZZ is equivalent to UKOG-0280FCZ1.

2) Enter the SIM 63-03 mode.

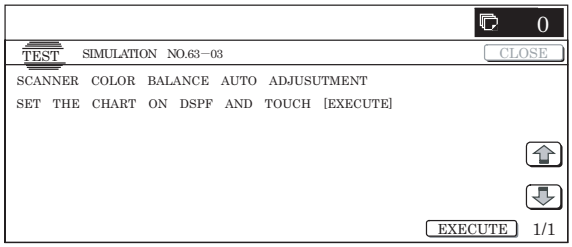



3) When a color button is selected, the adjustment value of the selected color is displayed.
   * When [B] (Blue), [G] (Green), or [R] (Red) button is selected, the selected button is highlighted and the adjustment value of the selected color is displayed.
   * Only one color button can be selected, and the selected button is highlighted. In the initial state, [B] is selected.
   * If there is a page over [↑], an active display is shown and the page moves up. If there is no page upward, the display grays out and the operation is invalid.

     If there is a page under [↓], an active display is shown and the page moves down. If there is no page downward, the display grays out and the operation is invalid.

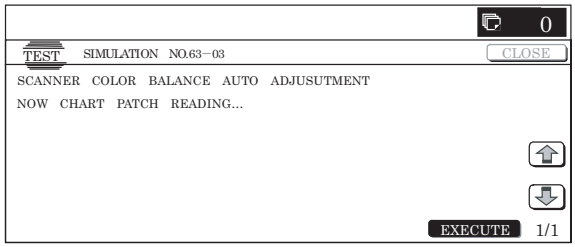


4) When [DSPF] button is pressed, it is highlighted, and the color automatic adjustment execution screen is displayed.




5) Press [EXECUTE] button and it is highlighted and the color auto adjustment is executed.

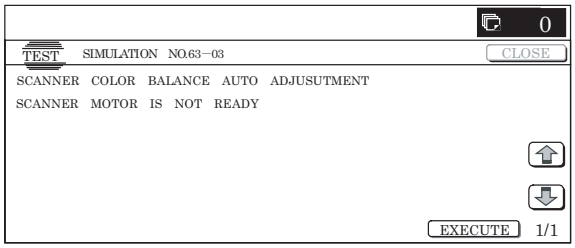
* When [EXECUTE] button is pressed during the automatic adjustment, the automatic adjustment is interrupted.




6) After normal completion, the result of calculation is displayed in the initial screen.

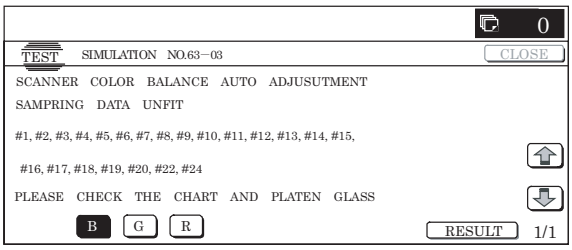
* When an error occurs in execution, the following screen is displayed.

When [CA] key is pressed, the simulation is terminated. When [SYSTEM SETTINGS] key is pressed, the display returns to the sub number entry screen.

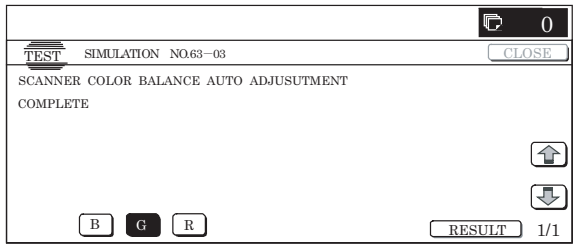



* When an error occurs in the automatic adjustment, all the error patch numbers are displayed.

When [RESULT] button is pressed, the display returns to the initial screen. (The previous value is displayed)




* When the operation is completed normally, "COMPLETE" is displayed. When [RESULT] button is pressed, the display returns to the initial screen. (The calculation result of normal completion is displayed.)



# [8] SELF DIAG AND TROUBLE CODE

## 1. Trouble code and troubleshooting

### E6-10 Back-face shading trouble (black correction)

| | | |
|---|---|---|
| Trouble content | | CCD black scan level abnormality when the copy lamp is turned off. |
| Section | | Scanner |
| Case 1 | Cause | Installation error of the CCD unit harness |
| | Check and remedy | Check the installing state of the harness to the CCD unit. |
| Case 2 | Cause | CCD unit abnormality |
| | Check and remedy | Check the CCD unit. |
| Case 3 | Cause | SCU PWB abnormality |
| | Check and remedy | Check the SCU PWB. |

### E6-11 Shading trouble (white correction)

| | | |
|---|---|---|
| Trouble content | | CCD white scan level abnormality when the copy lamp is on. |
| Section | | Scanner |
| Case 1 | Cause | Installation error of the CCD unit harness |
| | Check and remedy | Check the installing state of the harness to the CCD unit. |
| Case 2 | Cause | Copy lamp lighting trouble |
| | Check and remedy | Check the installing state of the harness to the copy lamp unit. |
| Case 3 | Cause | CCD unit abnormality<br>Optical axis abnormality |
| | Check and remedy | Check the CCD unit.<br>In case of an optical axis abnormality, E6-11 may be canceled by turning the black screw in front of the lens half-turn clockwise or counterclockwise. |
| Case 4 | Cause | DSPF PWB abnormality |
| | Check and remedy | Check the DSPF PWB. |
| Case 5 | Cause | Dirt on the mirror, the lens, or the reference white plate. |
| | Check and remedy | Clean the mirror, the lens, or the reference white plate. |

### E6-14 Back-face SCAN-ASIC trouble

| | | |
|---|---|---|
| Trouble content | | Written register value cannot be read correctly |
| Section | | Scanner |
| Case 1 | Cause | SCU PWB abnormality |
| | Check and remedy | Check the SCU PWB. |

### U5-00 SPF communication trouble

| | | |
|---|---|---|
| Trouble content | | Communication error between the SCU and the DSPF, communication line test error after turning on the power or canceling the exclusive simulation |
| Section | | Scanner |
| Case 1 | Cause | Malfunction due to electrical noises |
| | Check and remedy | Cancel the trouble by turning OFF/ON. |
| Case 2 | Cause | Connector and harness connection trouble or disconnection |
| | Check and remedy | Check the connector and the harness of the communication line. |
| Case 3 | Cause | Control (SCU) PWB trouble. DSPF PWB trouble |
| | Check and remedy | Replace the control (SCU) PWB. Replace the DSPF PWB. |

### U5-16 SPF fan motor trouble

| | | |
|---|---|---|
| Trouble content | | The motor lock signal is detected during rotation of the fan. |
| Section | | Scanner |
| Case 1 | Cause | Fan motor trouble,harness of the fan motor related, circuit trouble |
| | Check and remedy | Use SIM2-3 to check the operation.<br>Check harness, connector and fan motor related circuit. |

### U5-30 SPF lift-up trouble

| | | |
|---|---|---|
| Trouble content | | Lift-up trouble is detected 5 times continuously. |
| Section | | Scanner |
| Case 1 | Cause | STUD/STLD trouble |
| | Check and remedy | Check STUD/STLD and its harness and connector.<br>Check the lift-up unit. |

### U5-31 SPF tray lift-down trouble

| | | |
|---|---|---|
| Trouble content | | Lift-down trouble (STLD does not turn OFF within the specified time.) |
| Section | | Scanner |
| Case 1 | Cause | STUD/STLD trouble |
| | Check and remedy | Check STUD/STLD and its harness and connector.<br>Check the lift-up unit. |

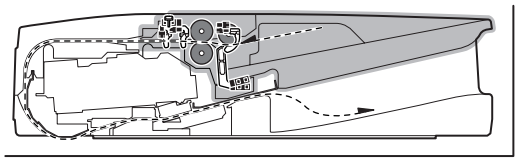
### U5-40 SPF install trouble

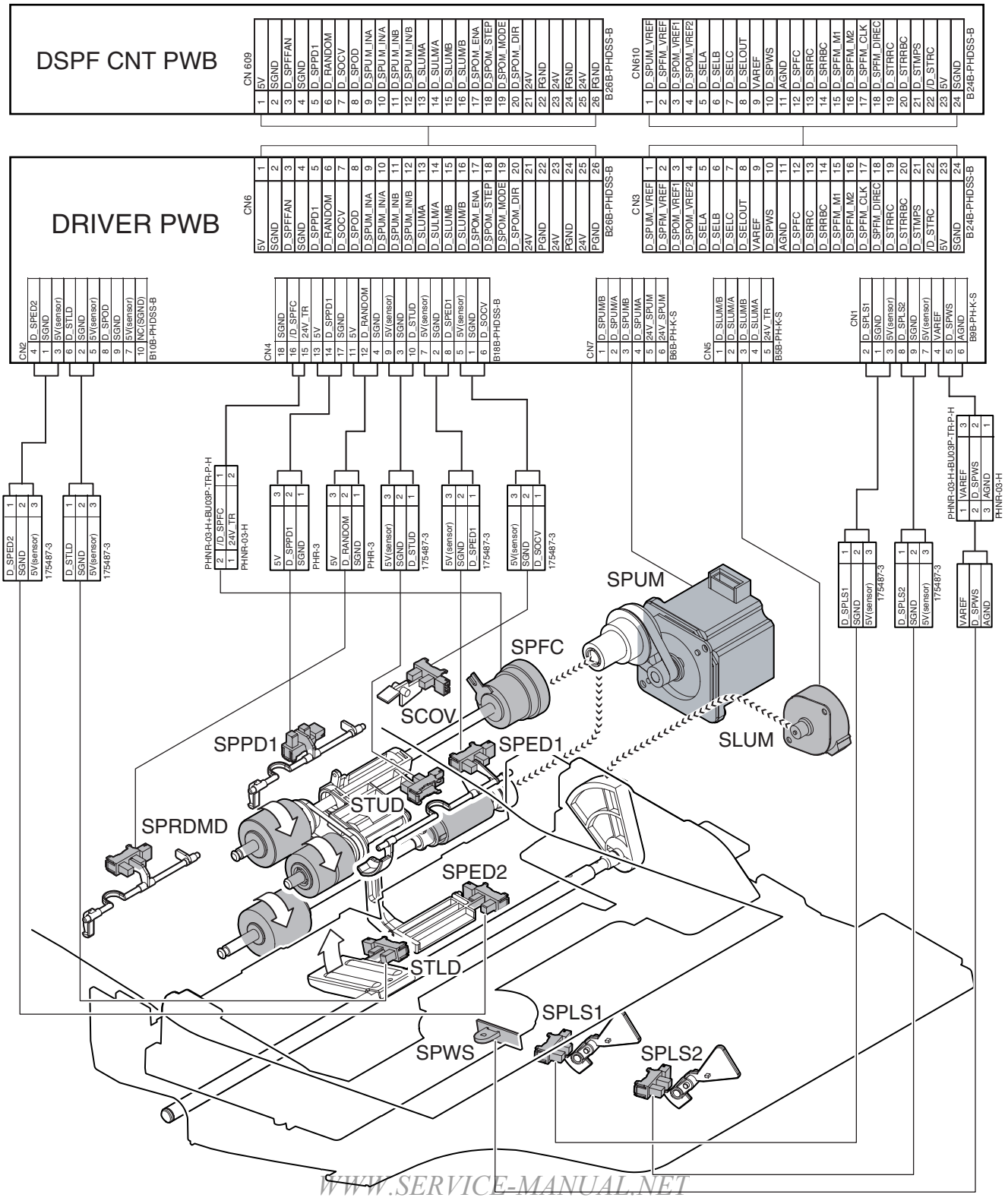
| | | |
|---|---|---|
| Trouble content | | Detected the installed (individual installed signal) of RSPF/DSPF both. |
| Section | | Scanner |
| Case 1 | Cause | Circuit trouble of the installed detection signal |
| | Check and remedy | Check installed detection circuit and harness, connector. |

# [9] ELECTRICAL SECTION

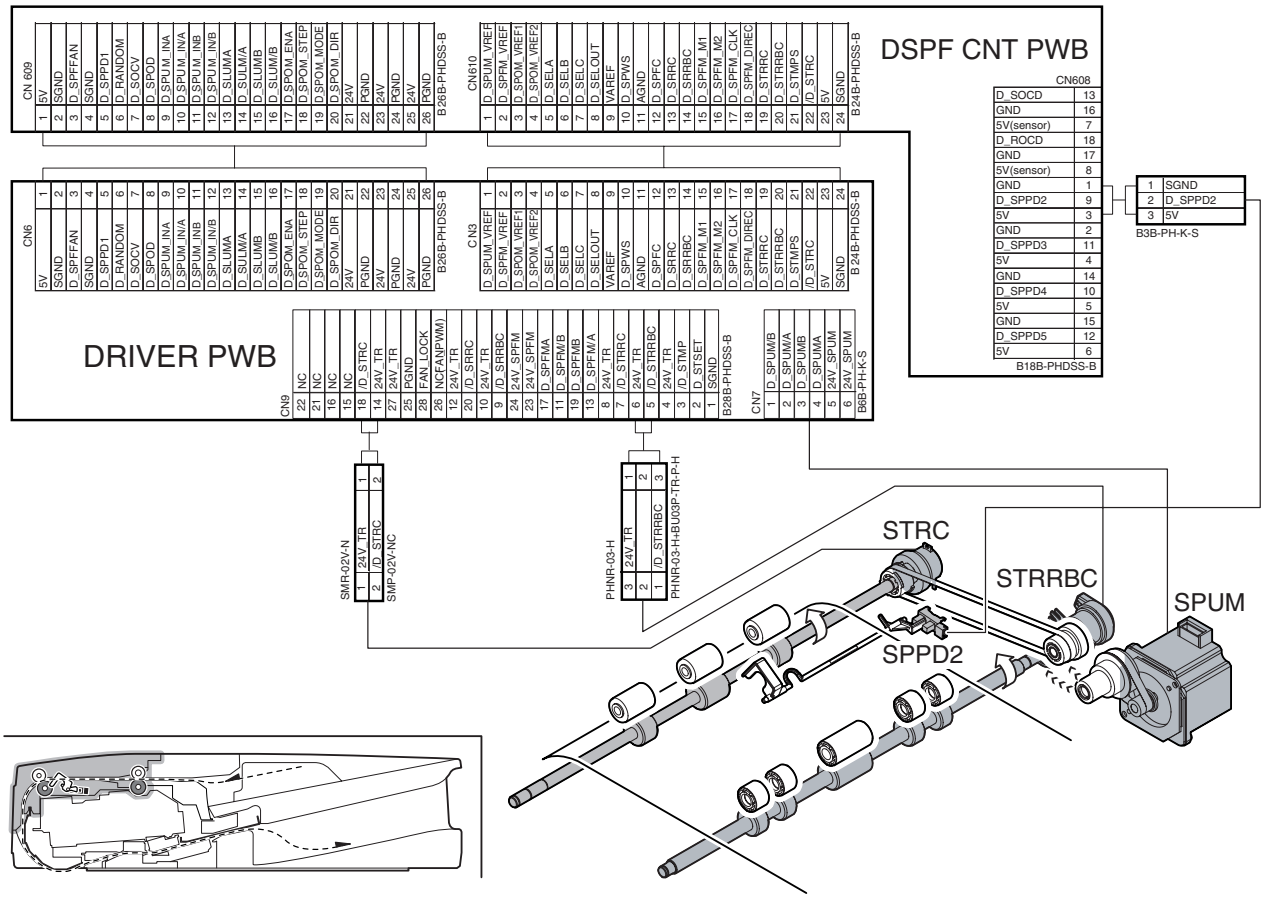
## 1. Electrical and mechanism relation diagram

### A. Paper feed section

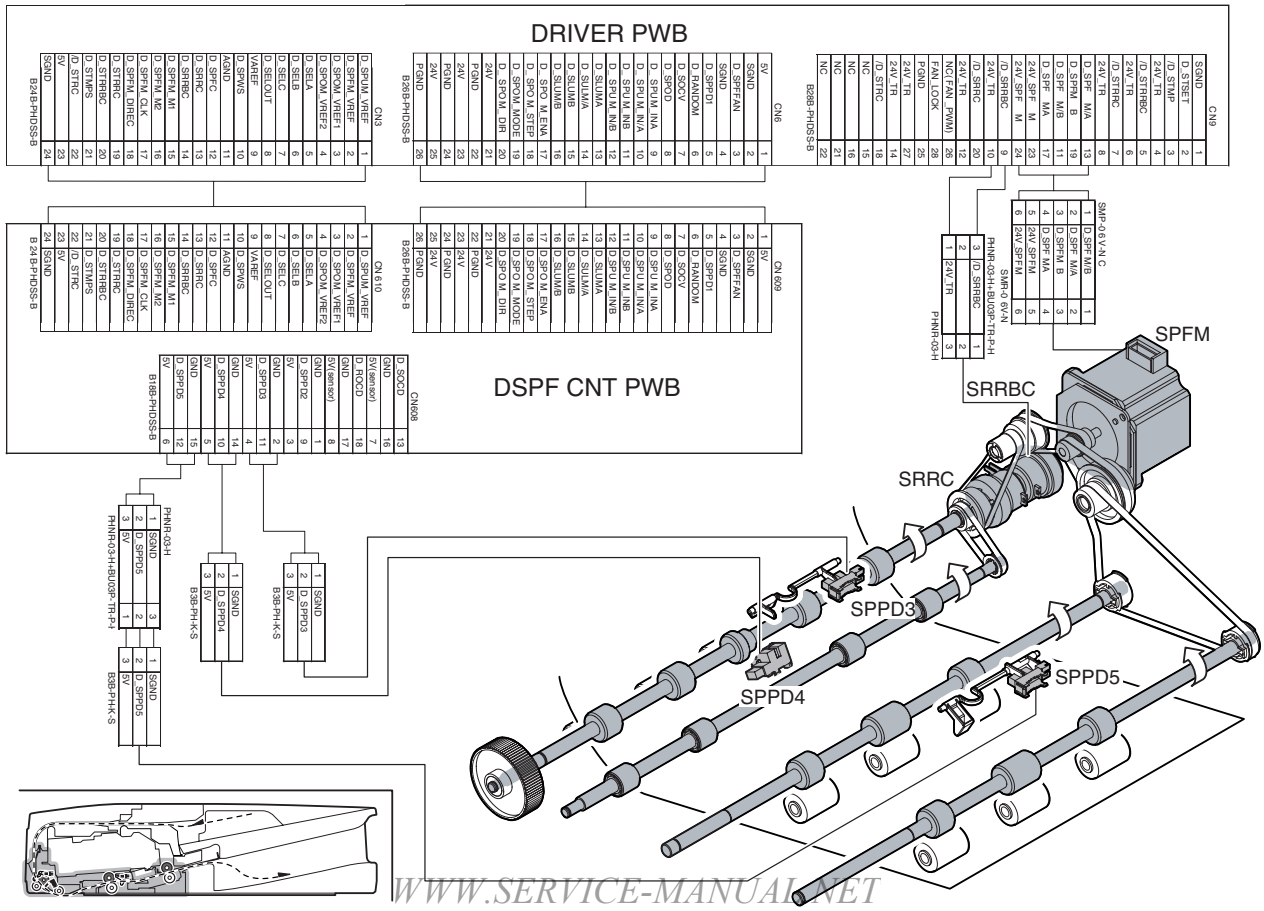




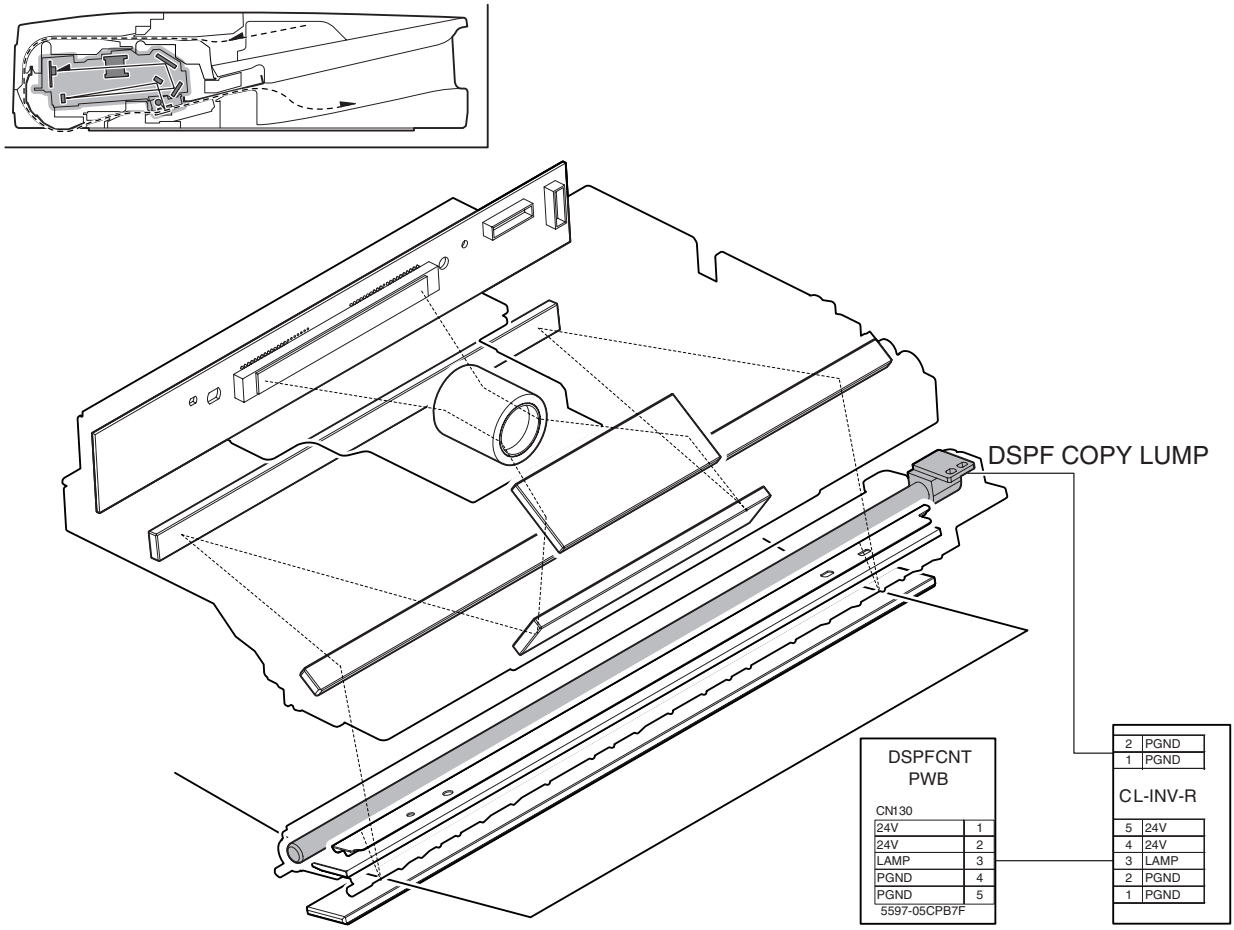
## B. Upper transport section



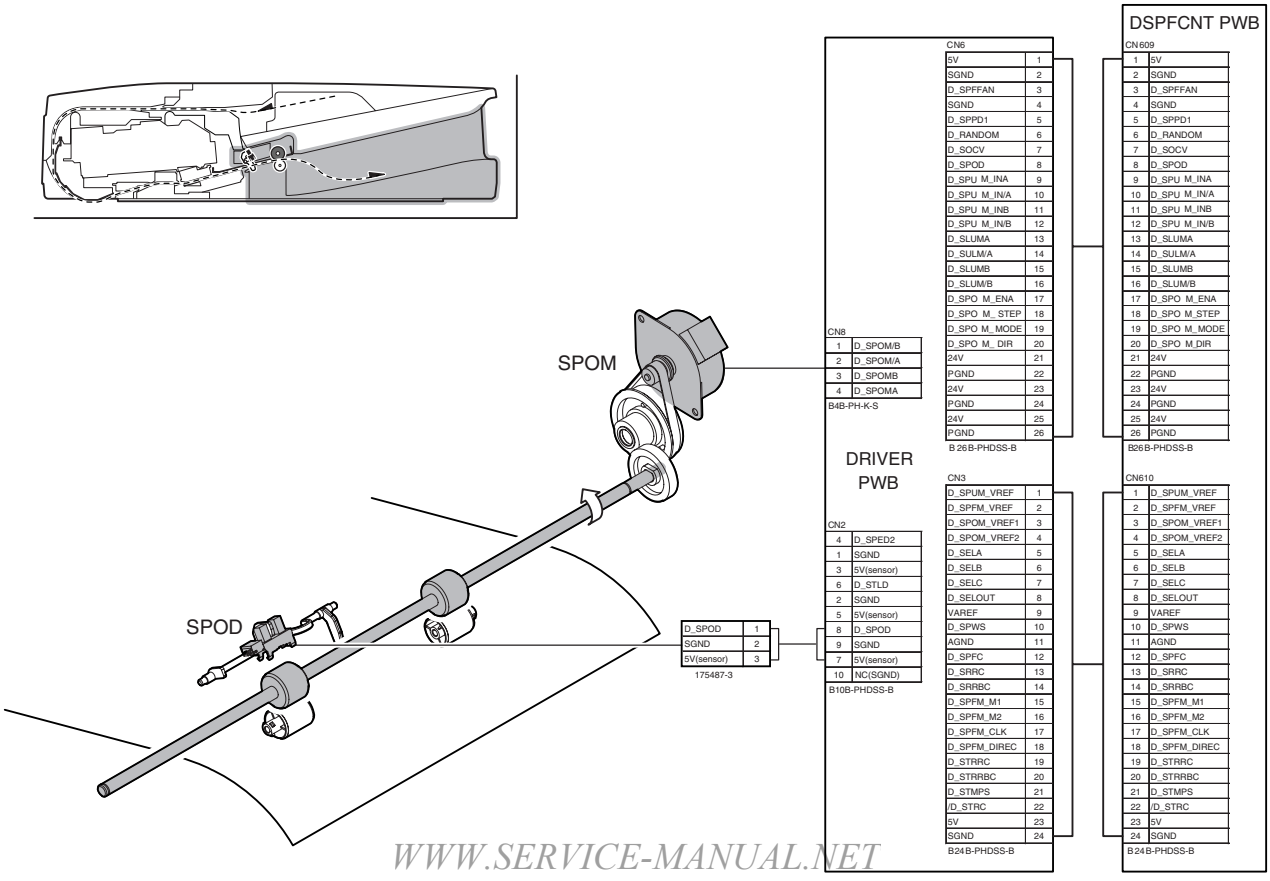

## C. Lower transport section



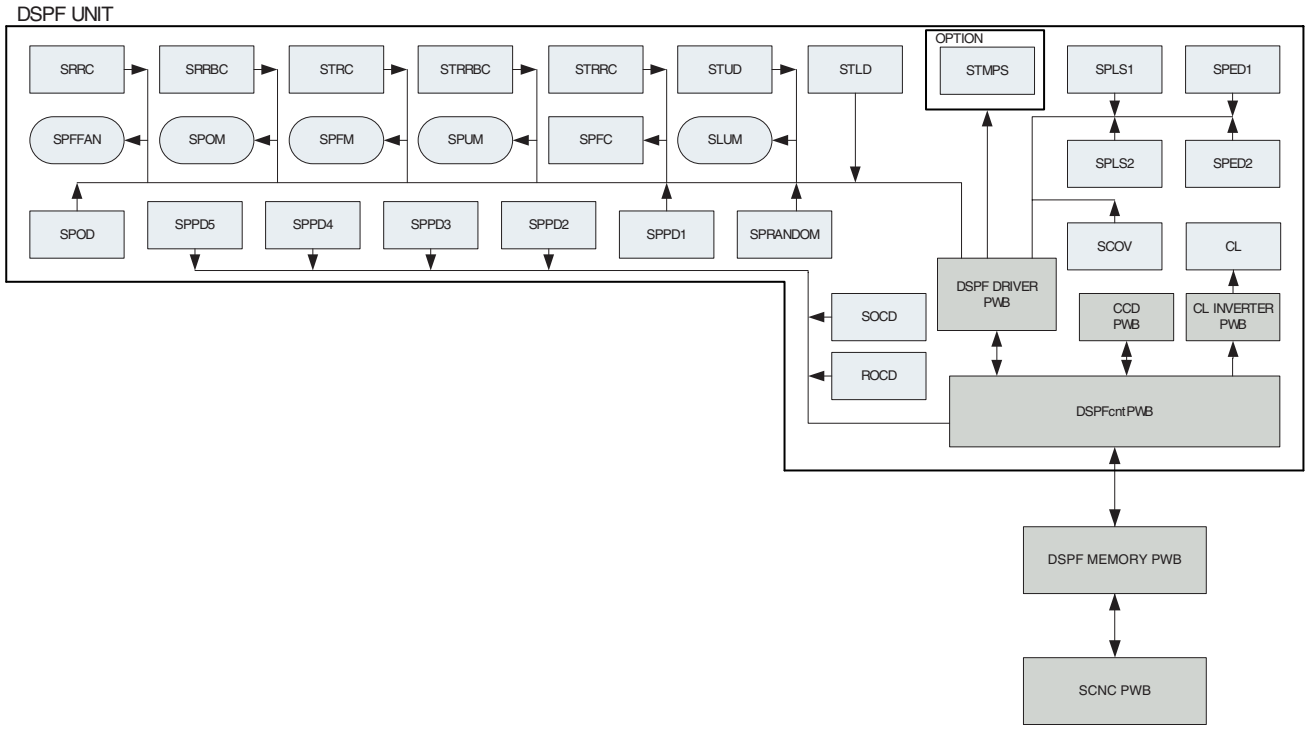
## D. Optical section




## E. Peper exit section

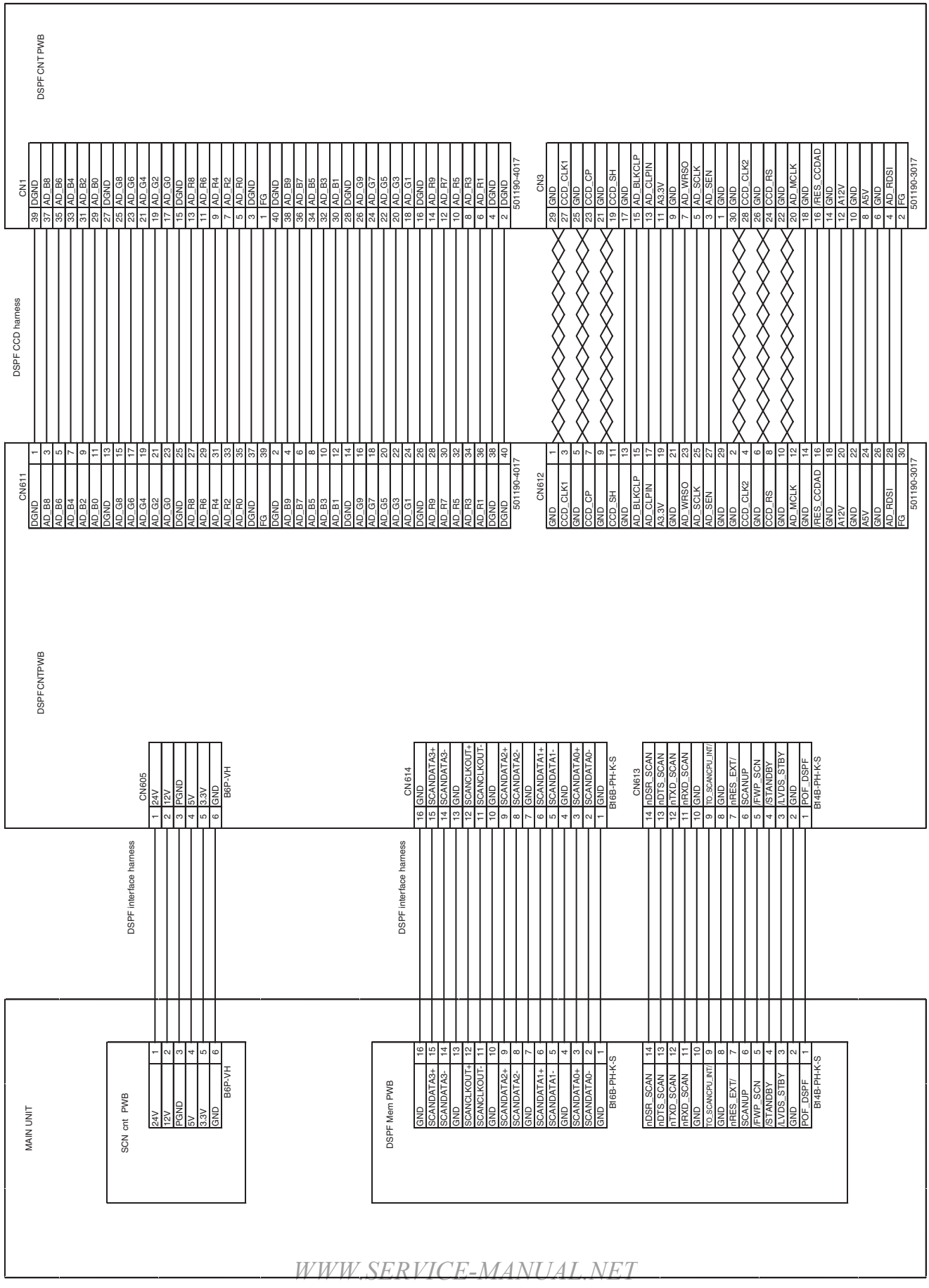


## 2. Block diagram

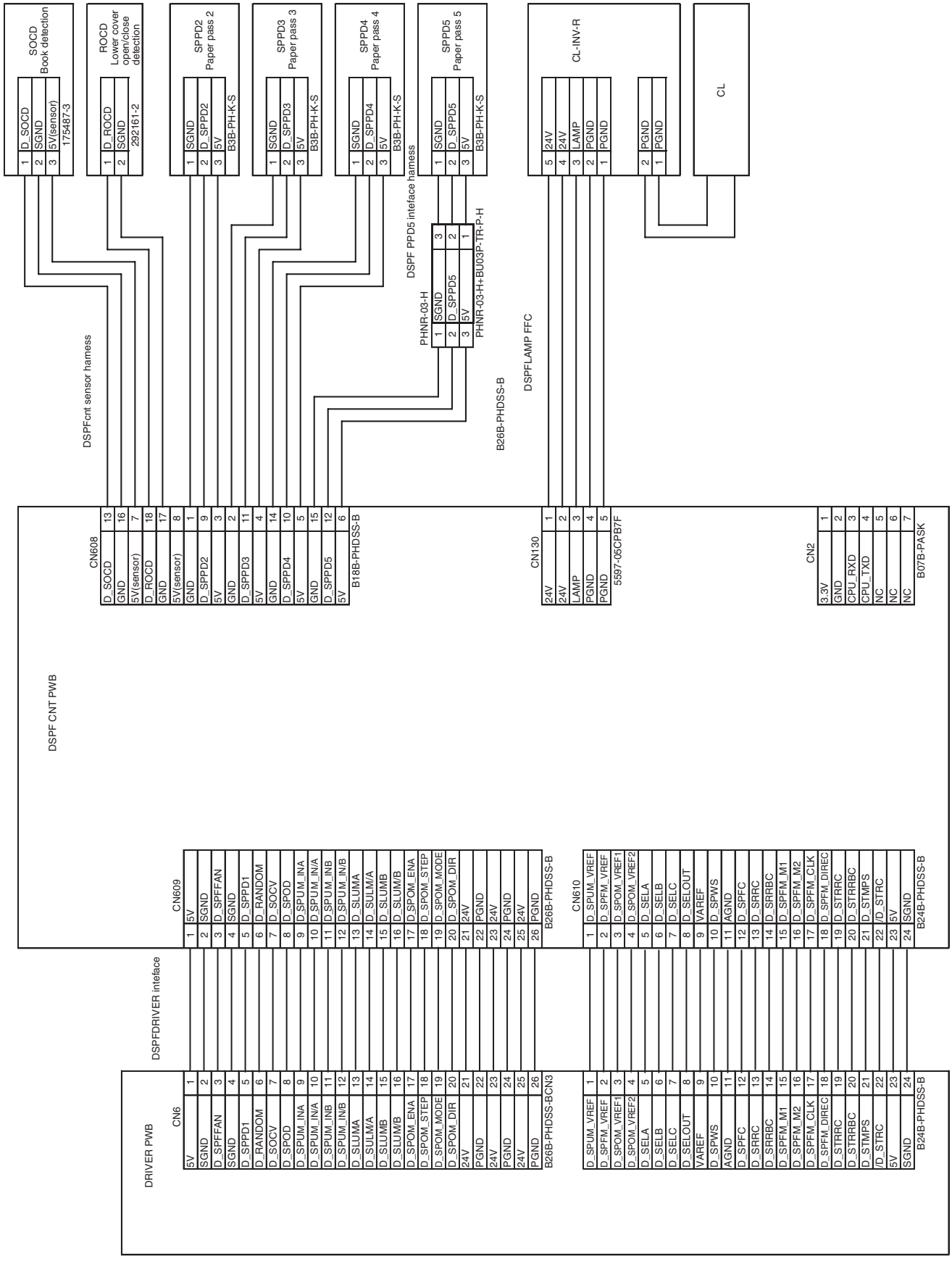


# 3. Actual wiring chart

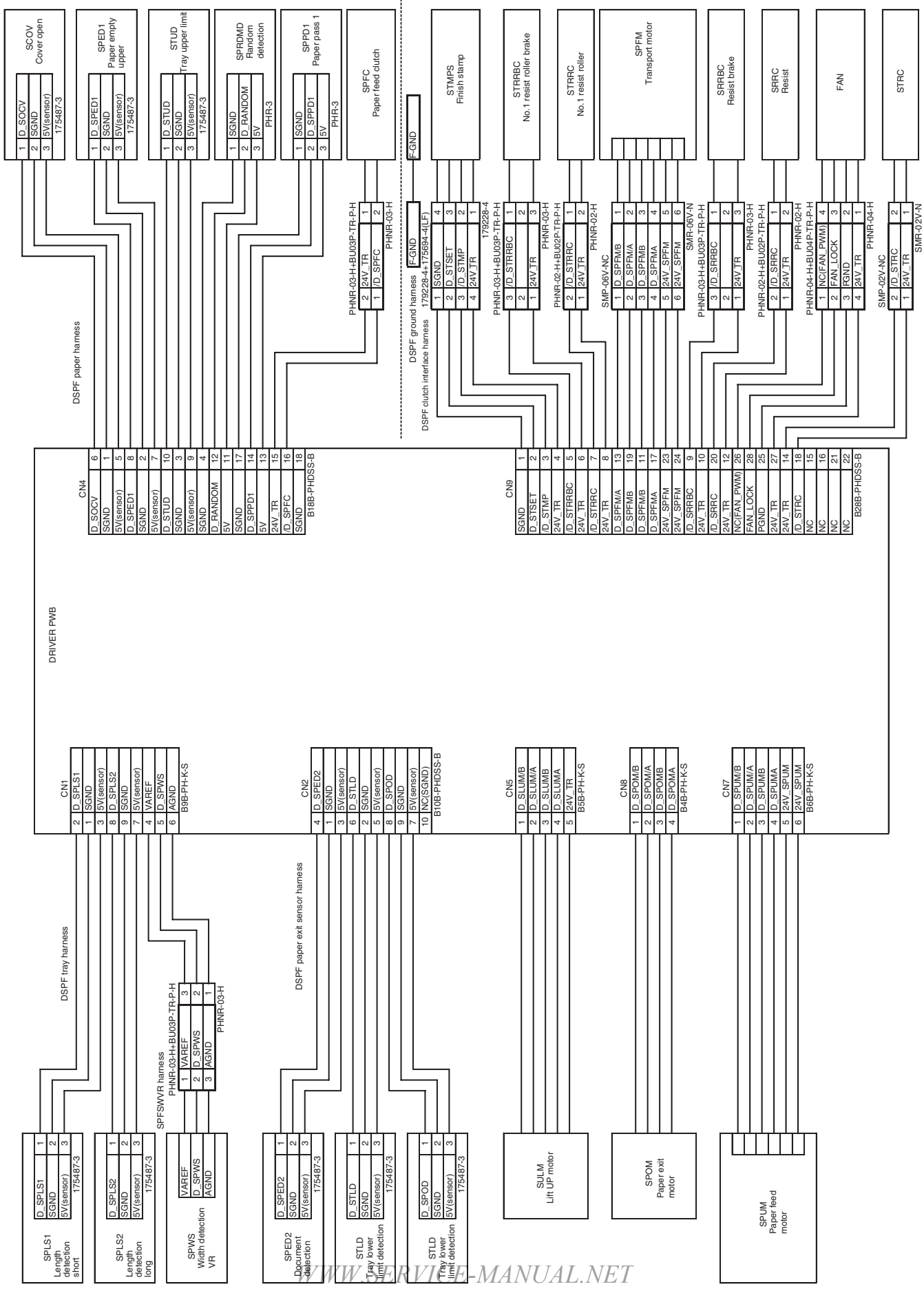
## A. DSPF_CNT_PWB section 1/2



## B. DSPF_CNT_PWB section 2/2



## C. DRIVER_PWB



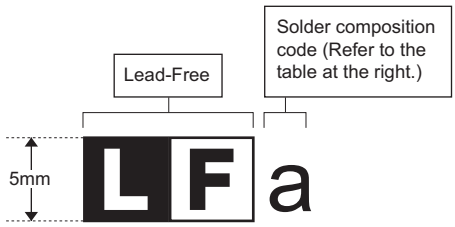
**Memo**

**Memo**

# LEAD-FREE SOLDER

The PWB's of this model employs lead-free solder. The "LF" marks indicated on the PWB's and the Service Manual mean "Lead-Free" solder.
The alphabet following the LF mark shows the kind of lead-free solder.

**Example:**




**<Solder composition code of lead-free solder>**

| Solder composition | Solder composition code |
|---|---|
| Sn-Ag-Cu | a |
| Sn-Ag-Bi<br>Sn-Ag-Bi-Cu | b |
| Sn-Zn-Bi | z |
| Sn-In-Ag-Bi | i |
| Sn-Cu-Ni | n |
| Sn-Ag-Sb | s |
| Bi-Sn-Ag-P<br>Bi-Sn-Ag | p |

### (1) NOTE FOR THE USE OF LEAD-FREE SOLDER THREAD

When repairing a lead-free solder PWB, use lead-free solder thread.

Never use conventional lead solder thread, which may cause a breakdown or an accident.

Since the melting point of lead-free solder thread is about 40°C higher than that of conventional lead solder thread, the use of the exclusive-use soldering iron is recommendable.

### (2) NOTE FOR SOLDERING WORK

Since the melting point of lead-free solder is about 220°C, which is about 40°C higher than that of conventional lead solder, and its soldering capacity is inferior to conventional one, it is apt to keep the soldering iron in contact with the PWB for longer time. This may cause land separation or may exceed the heat-resistive temperature of components. Use enough care to separate the soldering iron from the PWB when completion of soldering is confirmed.

Since lead-free solder includes a greater quantity of tin, the iron tip may corrode easily. Turn ON/OFF the soldering iron power frequently.

If different-kind solder remains on the soldering iron tip, it is melted together with lead-free solder. To avoid this, clean the soldering iron tip after completion of soldering work.

If the soldering iron tip is discolored black during soldering work, clean and file the tip with steel wool or a fine filer.

## CAUTION FOR BATTERY REPLACEMENT

(Danish) ADVARSEL !
Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri
af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandoren.

(English) Caution !
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type
recommended by the manufacturer.
Dispose of used batteries according to manufacturer's instructions.

(Finnish) VAROITUS
Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan
tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden
mukaisesti.

(French) ATTENTION
Il y a danger d'explosion s' il y a remplacement incorrect
de la batterie. Remplacer uniquement avec une batterie du
même type ou d'un type équivalent recommandé par
le constructeur.
Mettre au rebut les batteries usagées conformément aux
instructions du fabricant.

(Swedish) VARNING
Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent
typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens
instruktion.

(German) Achtung
Explosionsgefahr bei Verwendung inkorrekter Batterien.
Als Ersatzbatterien dürfen nur Batterien vom gleichen Typ oder
vom Hersteller empfohlene Batterien verwendet werden.
Entsorgung der gebrauchten Batterien nur nach den vom
Hersteller angegebenen Anweisungen.

## CAUTION FOR BATTERY DISPOSAL

(For USA, CANADA)
"BATTERY DISPOSAL"
THIS PRODUCT CONTAINS A LITHIUM PRIMARY (MANGANESS DIOXIDE) MEMORY BACK-UP BATTERY THAT MUST BE DISPOSED OF PROPERLY. REMOVE THE BATTERY FROM THE PRODUCT AND CONTACT YOUR LOCAL ENVIRONMENTAL AGENCIES FOR INFORMATION ON RECYCLING AND DISPOSAL OPTIONS.

"TRAITEMENT DES PILES USAGÉES"
CE PRODUIT CONTIENT UNE PILE DE SAUVEGARDE DE MÉMOIRE LITHIUM PRIMAIRE (DIOXYDE DE MANGANÈSE) QUI DOIT ÊTRE TRAITÉE CORRECTEMENT. ENLEVEZ LA PILE DU PRODUIT ET PRENEZ CONTACT AVEC VOTRE AGENCE ENVIRONNEMENTALE LOCALE POUR DES INFORMATIONS SUR LES MÉTHODES DE RECYCLAGE ET DE TRAITEMENT.

SHARP



## Trademark acknowledgements

- Microsoft® Windows® operating system is a trademark or copyright of Microsoft Corporation in the U.S.A. and other countries.
- Windows® 95, Windows® 98, Windows® Me, Windows NT® 4.0, Windows® 2000, Windows® XP, Windows® 2000 Server, Windows® Server 2003 and Internet Explorer® are trademarks or copyrights of Microsoft Corporation in the U.S.A. and other countries.
- IBM and PC/AT are trademarks of International Business Machines Corporation.
- Acrobat® Reader Copyright® 1987- 2002 Adobe Systems Incorporated. All rights reserved. Adobe, the Adobe logo, Acrobat, and the Acrobat logo are trademarks of Adobe Systems Incorporated.
- All other trademarks and copyrights are the property of their respective owners.



**SHARP CORPORATION**
**Digital Document System Group**
**CS Promotion Center**
**Yamatokoriyama, Nara 639-1186, Japan**
2006 January Printed in Japan